Two months later the patient was re-admitted for *N. cyriacigeorgica* bacteremia and a pulmonary embolism. During his hospital stay, the patient had a STEMI, but due to multiple comorbidities did not undergo cardiac catheterization. The family elected to withdrawal care, and the patient expired.

Conclusion. *N. cyriacigeorgica* is more commonly identified in brain abscesses or skin infections, in the setting of immunosuppression. We report here on an unusual case of *N. cyriacigeorgica* endocarditis in a patient with COPD. Other than COPD the patient had no known risk factors for *N. cyriacigeorgica,* including chronic steroid use.

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1085. Enterococcal Cardiac Implantable Electronic Device (CIED) Infections: Clinical Features and Outcomes

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Background. Unlike enterococcal native and prosthetic valve infective endocarditis (IE), enterococcal CIED infections are not well described.

Methods. Data from the Multicenter Electrophysiologic Device Infection Collaboration (MEDIC), a prospective, observational, multinational cohort study of CIED infections, were used to provide a descriptive analysis of adult patients with CIED infections due to enterococcal species.

Results. Of 433 patients, 21 (4.8%) were diagnosed with enterococcal CIED infection. Specific data on enterococcal species and antimicrobial susceptibilities were not recorded. The mean age was 70.8 years. No patient had previous CIED infection. Twelve patients (57%) had permanent pacemakers, 5 (24%) had implantable cardioverter defibrillators, and 4 (19%) had biventricular devices. Among the 21 infections, 3 (14%) were categorized as CIED-related bloodstream infections and 18 (86%) as IE; no patient had isolated pocket infection. Of the IE cases, four were valvular IE, eight were lead IE, and six were both. Fourteen cases of IE (78%) were definite by the modified Duke criteria. Median time from last device procedure to infection was 510 days (range 37–2,952 days). The most common presenting symptom was fever (48%); five patients (24%) exhibited local signs of pocket infection. All 21 patients underwent TEE with vegetations demonstrated in 17 (81%). Blood cultures grew enterococci from all patients. The most common antimicrobial regimen was a penicillin plus aminoglycoside (38%); two patients (9.5%) received ampicillin + ceftriaxone. Antibiotics were given for a median of 43 days. Only 14 patients (67%) had complete device removal; the seven patients retaining their device were judged to be at high risk for extraction. There was one death during the index hospital stay with four additional patients dying over the 6 months after therapy (overall mortality 24%); two of the seven patients retaining their CIED died.

Conclusion. Enterococci caused 4.8% of all CIED infections in our cohort. Most infections appeared to be hematogenous in origin with late onset. IE was the most common infectious syndrome. A penicillin plus aminoglycoside, given for 6 weeks, was the most frequent therapy. Only 67% of patients underwent device removal. At 6 months follow-up, no relapses had occurred but overall mortality was 24%.

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1086. Impact of Systematic Thoraco-Abdomino-Pelvic CT Scan on the Diagnosis of Infective Endocarditis

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Background. The incidence of embolic events (EE) is high in patients with infective endocarditis (IE). EE influence patient management in different settings because they are minor criteria in the Duke classification and may lead to changes medical therapy or surgical strategy. If current guidelines suggest that systematic thoraco-abdominopelvic CT scan (TAP-CT) may be helpful, reliable data are lacking. The main objective of this study was to describe how systematic TAP-CT affects the diagnosis of patients with IE. Secondary objectives were to assess the impact of the TAP-CT on the management of patients with IE and the incidence of contrast-induced acute kidney injury (CI-AKI).

Methods. In this multicenter cohort study between January 2013 and July 2016, we included consecutive patients who had definite or possible acute IE according to the Duke-modified criteria, and after validation by the endocarditis teams. The main exclusion criterion was the absence of TAP-CT scan. We compared the Duke classification diagnosis data and treatment data (medical and/or surgical) regarding the presence or the absence of EE on the CT and investigated the tolerance of this examination as well.

Results. Of the 522 patients included in this study, 217 (41.6%) had one or more EE on the TAP-CT. The two major Duke modified criteria were found in 397 patients (76,1%) and 457 patients (87,6%) had a definite endocarditis. On the basis of TAP-CT results in asymptomatic patients, diagnostic classification was upgraded from possible endocarditis to definite endocarditis for only four cases which represent 0.8% of the population. The presence of EE on CT did not modify the duration of antibiotic treatment ($P = 0.55$) and the decision of surgical treatment ($P = 0.39$). Specific treatment of the EE was necessary in 42 patients (8.0%) but only nine of these EE (1.9%) were asymptomatic. CI-AKI was observed in 78 patients (14.9%).

Conclusion. The CT-scan findings slightly affected diagnosis of IE. The impact on the therapeutic management is low and the incidence of CI-AKI should not be underestimated. Additional studies are needed to assess whether CT-scan improves patient outcomes, leads to unnecessary procedures and increased costs.

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1087. Aortic Graft Infections Caused by *Propionibacterium acnes* at the Minneapolis Veterans Affairs Health Care System (MVAHCS) 2007–2017

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Background. *Propionibacterium acnes* is a Gram-positive microaerophilic bacterium and part of the human skin flora. The ability of *P. acnes* to cause infections has been recognized, particularly in the presence of hardware. We aimed to define the frequency of *P. acnes* infections, with a focus on aortic graft infection.

Methods. We used microbiology laboratory records at the Minneapolis Veterans Affairs Health Care System to identify all *P. acnes* cultures from January 2007 to January 2017. We retrospectively reviewed all adult (≥18 years) patient's medical records to identify associated infectious syndromes. Case definitions by the management of Aortic Graft Infection Collaboration were used to classify aortic graft infection cases.

Results. We identified 328 positive *P. acnes* cultures during the study period. *P. acnes* was classified as a pathogen in 48 (15%), a pathogen of undetermined significance in 70 (21%), and a contaminant in 210 (64%) cases. We identified three cases aortic graft infection which accounted for (2.5%) of infections caused by *P. acnes*. Median age (range) at presentation was 74 years (67–83). Symptoms included pain ($n = 3$), fever ($n = 2$), and altered mental status ($n = 1$). None were hypotensive. All patients had at least one revision for endoleak prior to presentation. Median time from symptom onset to diagnosis was 120 days (78–140). Microbiological diagnosis was obtained by blood cultures, percutaneous peri-graft tissue aspiration, and operative culture in each patient, respectively. Infection was complicated by metastatic abscess in one patient. All cultures grew on Day 7. All patients were treated with IV ceftriaxone, and two were transitioned to life-long oral suppressive antibiotic therapy. Two patients had complete removal of infected material. No relapse was documented and survival was 100% at 1 year follow-up.

Conclusion. Aortic graft infection is an uncommon subset of infections caused *P. acnes*. Clinical course is indolent and diagnosis is delayed due to nonspecific clinical presentation. In contrast to endovascular graft infection caused by other organisms, mortality is low when treated with appropriate antibiotic therapy and removal of infected material. The current laboratory practice of holding blood cultures for 5 days may need to be altered when *P. acnes* is a potential cause of infection.

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1088. Ultrasensitive Detection of *C. difficile* Toxins in Stool Using Single Molecule Counting Technology: A Multicenter Study for Evaluation of Clinical Performance

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Background. Commercially available tests for *Clostridium difficile* infection (CDI) make test selection by the laboratory difficult due to the following unsatisfactory characteristics: long turnaround time, poor sensitivity, and/or poor specificity. The Singulex Clarity® C. diff toxins A/B assay (in development) is a rapid and automated immunoassay for the detection of *C. difficile* toxins A and B in stool, with analytical limits of detection for toxins A and B at 2.0 and 0.7 pg/mL, respectively. In this multicenter study, the clinical performance of the Singulex Clarity C. diff toxins A/B assay was compared with standalone PCR, a multistep algorithm with enzyme immunoassay (EIA) and PCR, and cell cytotoxicity neutralization assay (CCNA).

Methods. Fresh samples from 267 subjects with suspected CDI were tested at two sites (Minneapolis Medical Research Foundation and TriCore Reference Laboratories) with the Singulex Clarity assay, PCR (Xpert® *C. difficile*), and EIA (C. Diff Quik Chek Complete®) for GDH and toxin testing. The performance of the assays and multistep algorithms were evaluated against CCNA (Microbiology Specialists, Inc.).

Results. The overall CDI prevalence was 15.7%. The Singulex Clarity C. diff toxins A/B assay had 90.5% sensitivity and 96.0% specificity, with a 98.2% negative predictive value when compared with CCNA, and the Clarity assay's AuROC was 0.9534. PCR had 90.5% sensitivity and 91.1% specificity. Compared with CCNA, the toxin EIA had 47.6% sensitivity and 100% specificity. Testing with a multistep algorithm using EIA with discordant results reflexed to PCR resulted in 85.7% sensitivity and 94.7% specificity.

Conclusion. The ultrasensitive Singulex Clarity C. diff toxins A/B assay is equivalent to the sensitivity of PCR while providing higher specificity. Compared with a multistep algorithm, the Clarity assay provides higher sensitivity and specificity while providing faster time-to-result in a simpler-to-understand, one-step reporting structure, allowing for a standalone, single-step solution for detection of *C. difficile* toxins in patients with suspected CDI.

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1089. Analytical Performance of an Ultrasensitive Immunoassay for Detection of *Clostridium difficile* Toxins in Stool

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Background. *Clostridium difficile* infection (CDI) is the main cause for nosocomial diarrhea. Currently available assays for the diagnosis of CDI show deficits in sensitivity, specificity, and/or turnaround time. The Singulex Clarity® C. diff toxins A/B assay, in development for the Singulex Clarity® system, was designed to provide an accurate and automated detection of *C. difficile* toxins A (TcdA) and B (TcdB) in stool. Here, the analytical performance of the assay is reported.

Methods. Limits of detection (LoD) for TcdA and TcdB in stool and buffer was determined, and a preliminary cutoff, as compared with cell cytotoxicity neutralization assay (CCNA), was established. Analytical reactivity against 38 toxigenic and nontoxigenic *C. difficile* strains of eight different toxinotypes was determined. Cross-reactivity against 53 other gastrointestinal pathogens and potential interference by 11 endogenous and exogenous substances were determined. Reproducibility was tested with triplicate samples ($n = 85$), and stability was evaluated in samples stored at room temperature, refrigerated, and frozen conditions, and subjected to three freeze-thaw cycles.

Results. The LoDs for TcdA and TcdB were 0.8 and 0.3 pg/mL in buffer, and 2.0 and 0.7 pg/mL in stool, respectively. Using a preliminary cutoff, the assay demonstrated 96.3% sensitivity and 96.1% specificity compared with CCNA. The Singulex Clarity® C. diff toxins A/B assay detected toxins from all tested strains and toxinotypes. No cross-reactivity or interference were detected. The repeatability was 99%, and samples for *C. difficile* toxin testing were stable up to 8 hours in room temperature, 1 week in 2–8°C, 6 months in −70°C, and up to three freeze–thaw cycles.

Conclusion. The Singulex Clarity C. diff toxins A/B assay (in development) can detect TcdA and TcdB at very low concentrations and it has high sensitivity and specificity compared with CCNA. The assay demonstrates reactivity to common *C. difficile* strains, does not show cross-reactivity to common gastrointestinal pathogens, is robust against common interferents, allows for toxin detection in both fresh and frozen stool samples and up to three freeze–thaw cycles, and provides results with high reproducibility.

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1090. Patient Outcomes With Prevented vs. Negative *Clostridium difficile* Tests Using Computerized Clinical Decision Support (CCDS)

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Background. Overtesting and overdiagnosis of *Clostridium difficile* infection (CDI) are increasingly recognized as potentially avoidable causes for unnecessary treatment and cost. Reducing inappropriate testing through diagnostic stewardship may improve *C. difficile* test utilization. However, the safety of these interventions is not well understood, despite the potential risk for missed or delayed diagnosis. A computerized clinical decision support (CCDS) tool was implemented at a 619-bed tertiary care hospital as part of a multifaceted effort to reduce inappropriate *C. difficile* testing. The intervention was associated with reductions in tests (41%) and hospital-onset CDI events (31%). We sought to examine patient outcomes associated with the intervention.

Methods. The CCDS was designed to identify patients with a prevented test if a provider initiated the CCDS and aborted the order. Outcomes of patients with either a prevented or negative nucleic acid amplification test (NAAT) were compared retrospectively. A logistic regression model was created to evaluate the association between a prevented test attempt and serious adverse events. Patients with a subsequent positive result within 7 days of the initial trigger and those treated with CDI-effective antibiotics underwent chart review.

Results. Multivariate analysis of 637 cases (490 negative, 147 prevented) showed that a prevented test was not associated with the primary composite outcome (inpatient mortality or ICU-transfer) compared with a negative test (adjusted odds ratio, 0.912; 95% CI 0.513–1.571). Prevented tests were associated with shorter length of stay and similar rates of CDI-related complications. Eleven (7.5%) had a subsequent positive CDI, four within 30 minutes of the prevented test, suggesting nonsignificant delay in testing. Of the remaining seven patients, case review confirmed that five did not meet testing criteria while two met testing criteria at the time of the prevented test. No serious adverse events attributable to delayed CDI diagnoses or unjustified CDI treatment were identified by individual case review.

Conclusion. CCDS-based diagnostic stewardship for CDI may be both a safe and effective means to reduce inappropriate testing.

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1091. Algorithmic Release of *Clostridium difficile* PCR Results From a Multiplex Gastrointestinal (GI) Panel in Children <3 Years Old

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Background. Infants have a high rate of asymptomatic *Clostridium difficile* (CD) colonization, up to 37%. Given this, our laboratory does not release CD+ results from the BioFire FilmArray Gastrointestinal Panel (FGP) in patients <3 years, unless requested by a physician. We sought to validate this model by comparing results from FGP to semi-quantitative CD PCRs for toxin B and glutamate dehydrogenase (GDH), enzyme immunoassay (EIA) for toxin A/B/GDH, and physician requests for CD results.

Methods. Retrospective analysis of children <3 years with GI illness and FGP CD+ results between September 2016 and April 2018. CD PCRs for toxin B and GDH, CD EIA for toxin A/B/GDH were performed on convenience samples of frozen aliquots in Cary Blair. Physician request for release of CD results was used as a surrogate of possible role of CD on GI illness.

Results. Of 5,990 FGP, 2,267 (38%) were in children <3 years: 619 (27%) were CD+. Of these 619, 602 (97%) were not reported per algorithm. 62% (386/619) of CD+ samples had copathogens detected; enteropathogenic *Escherichia coli* and norovirus most frequently. For CD PCRs and EIA performed in subset of 49 CD+, mean cycle threshold values (Cts) for toxin B were evaluated (Table 1). Of 48 samples with detectable CD by toxin B PCR, 14 (29%) had both GDH and toxin B detected, 24 (51%) had only GDH detected, and 9 (19%) had neither GDH nor toxin B detected.

Conclusion. Only 3% of FGP CD results in children <3 years were released per physician request, suggesting limited clinical significance. A copathogen was detected in 62% of CD+ samples that may explain illness. Among evaluable samples, only 28.6% of CD+ had both GDH and toxin detected by EIA, possibly indicating low specificity of CD PCR. Ongoing testing and prospective studies are warranted to determine the validity of our algorithm and if semi-quantitative PCR or EIA can be useful to identify when CD detection by FGP in children <3 years is clinically significant.