Methods. rPCR test positivity rate and turnaround time were determined among 89 specimens tested at CDC from 54 outbreak patients with suspected pittacosis. rPCR testing was performed on nucleic acid extracted from clinical specimens using oligonucleotides targeting the C. psittaci locus tag CPSTF_RS01985. Clinical information was collected by patient interview and medical record review.

Results. Positive rates among the most common specimen types were 4.4% (2/46) for nasopharyngeal (NP) swab, 36.4% (8/22) for sputum, and 80.0% (4/5) for stool. Of 21 (24%) specimens with available data, the average time from patient symptom onset to specimen collection was 6 days (range 1–11 days). C. psittaci was detected in specimens from 13 of 54 outbreak patients (24%), 11 of 54 patients with positive cultures (20.7%), 1 of 10 patients in whom C. psittaci was detected in stool and 1 of 3 patients in whom C. psittaci was detected in sputum. The positive NP swab was from a patient having intermittent care unit admission and intubation. All results were reported within 1 business day of specimen receipt in the lab. Conclusion. These data suggest that lower respiratory specimens are more sensitive than NP swabs for rPCR detection of C. psittaci; stool might be a suitable alternative. Widespread implementation of rPCR testing using appropriate specimen types could improve pittacosis diagnosis and inform timely public health interventions.

TABLE 1. Qualitative and cycle threshold (ct) results for outbreak patients with rPCR detection of C. psittaci

| Patient | Lower Respiratory | Upper Respiratory | Gastrointestinal | NP Swab | Stool |
|---------|-------------------|-------------------|-------------------|---------|-------|
|         | Sputum            | Bronchoalveolar Lavage |         |         |       |
| 1       | Pos (26)          | Neg               |       |       |
| 2       | Pos (30)          | Neg               |       |       |
| 3       | Pos (30)          | Neg               |       |       |
| 4       | Neg (28)          | Neg               |       |       |
| 5       | Pos (28)          | Neg               |       |       |
| 6       | Pos (27)          | Pos (33)          | Pos (32) |       |
| 7       | Pos (28)          | Pos (30)          | Pos (11) |       |
| 8       | Pos (30)          | Neg               |       |       |
| 9       | Neg (20)          | Pos (31)          | Pos (12) |       |

* Average Ct values for triplicate rPCR tests are shown in parentheses.
* Second NP-collected 3 days later was negative.

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2175. Rapid Detection of Carbapenemase Producing Organisms Directly from Blood Cultures Positive for Gram-Negative Bacilli

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Session: 243. Bacterial Diagnostics
Saturday, October 5, 2019: 12:15 PM

Background. The rapid detection of carbapenemase-producing organisms (CPOs) directly from blood Gram (BC) positive for Gram-negative bacilli (GBN) may accelerate the appropriate treatment of at-risk patients. Our objective was to evaluate the performance of two commercial assays in the rapid detection of CPOs directly from BC positive for GBN.

Methods. BC positive for GBN, taken from patients within the Calgary Health Zone over a 3 month period, were tested for the presence of CPOs with βCARBA and NG-Test. CARRY S 5. A subset of sterile BC samples was seeded with multi-drug-resistant (MDR) GNB. BC were incubated using the Bact-Avert® system. Positive BC from clinical and seeded samples was tested directly with βCARBA and CARRY S 5 from BC pellets processed for direct testing using an ammonium chloride lysis and wash method. Sensitivity, specificity, negative predictive value (NPV) and positive predictive value (PPV) were calculated with 95% confidence intervals for binomial proportions.

Results. 65 samples were tested (30 clinical, 35 seeded); Seeded samples included 1 GES, 4 IMP, 6 KPC, 1 co-producing KPC and NDM, 9 OXA, 4 VIM, 5 NDM, and 5 non-CPO carbapenem-resistant organisms. βCARBA had a sensitivity, specificity, NPV and PPV of 100% (88.4% - 100%), 65.7% (47.8-80.9%), 100%, and 71.4% (61.3-79.8%), respectively; CARRY S 5 had a sensitivity, specificity, NPV and PPV of 90.0% (78.7%–97.2%), 92.1% (90.8%–96.9%), 100% (90.0%–100%), and 98.3% (96.0%–100%), respectively. When excluding GES, which is known not to be detected by CARRY S 5, sensitivity and PPV increased to 93.1% (77.2%–99.2%) and 93.1% (78.0%–98.1%), respectively. False negatives for βCARBA occurred with 1 VIM-1 and 1 IMP-1.

Conclusion. This study demonstrates that detection of CPOs directly from positive BC can be accurately achieved. βCARBA had excellent sensitivity but suffered from poor specificity. CARRY S 5 had good specificity and sensitivity but is unable to detect certain CPOs. Testing positive BC directly using βCARBA and/or CARRY S 5 may be useful in rapidly detecting CPOs. Results of direct testing from the CARRY S 5 assay would quickly identify patients amenable to treatment with avibactam combination compounds.

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2176. A New Rapid Test for Detection of The Cefazolin Inoculum Effect (CIE) in Methicillin Susceptible Staphylococcus Aureus (MSSA)

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Session: 243. Bacterial Diagnostics
Saturday, October 5, 2019: 9:12:35 PM

Background. Most MSSA harbor one of the four different variants of β-lactamase (Blaln & D). The CIE is defined as an MIC > 16 μg/mL when a high inoculum (106 CFU/mL) is used and depends on the presence of BlaZ. The presence of the CIE has been associated with therapeutic failure in invasive MSSA infections. In some countries of South America, the prevalence of CIE is high, ranging from 36% to 51% (Colombia and Argentina, respectively). Type A BlaZ is most often associated with the CIE due to its high affinity for cefazolin. Here, we developed a rapid test based on the premise that the extracellular form of BlaZ is responsible for the CIE. We aimed to identify invasive MSSA that harbor the CIE and validate the test in two cohorts of isolates from patients in Colombia and Argentina.

Methods. 152 MSSA clinical isolates were collected from Colombia (n = 71) and Argentina (n = 81). We determined MIC at standard and high inoculum. We developed a test using induction of BlaZ with ampicillin (150 μg/mL) for 20 minutes and, using the supramaximal incubation with nitrocefin for 30 min. A change in color from yellow to red was considered positive. MSSA TXX117 (BlaZ+, with the CIE), ATCC 29213 (BlaZ-negative) and ATCC 25923 (BlaZ+ lacking the CIE) were used as controls. BlaZ typing of all Argentinian isolates was available by sequencing using the supernatant for incubation with nitrocefin for 30 min. A change in color from yellow to red was considered positive. MSSA TXX117 (BlaZ+, with the CIE), ATCC 29213 (BlaZ-negative) and ATCC 25923 (BlaZ+ lacking the CIE) were used as controls. BlaZ typing of all Argentinian isolates was available by sequencing. The CIE was detected in all isolates except the CIE that harbored Type A BlaZ from Argentina. Conversely, the test failed to detect the CIE in isolates from patients in Colombia and Argentina.

Results. 90.0% (73.5%–97.2%), 100% (90.0%–100%), 92.1% (90.8%–96.9%), and 100%. When excluding GES, which is known not to be detected by CARRY S 5, sensitivity and PPV increased to 93.1% (77.2%–99.2%) and 93.1% (78.0%–98.1%), respectively. False negatives for βCARBA occurred with 1 VIM-1 and 1 IMP-1.

Conclusion. This study demonstrates that detection of CPOs directly from positive BC can be accurately achieved. βCARBA had excellent sensitivity but suffered from poor specificity. CARRY S 5 had good specificity and sensitivity but is unable to detect certain CPOs. Testing positive BC directly using βCARBA and/or CARRY S 5 may be useful in rapidly detecting CPOs. Results of direct testing from the CARRY S 5 assay would quickly identify patients amenable to treatment with avibactam combination compounds.

Disclosures. All authors: No reported disclosures.
Conclusion. A rapid test of less than 2 h can readily identify MSSA isolates exhibiting the CIE. For isolates carrying type A BlaZ, which is highly associated with the CIE, the test had a sensitivity and specificity of 100%. Rapid identification of MSSA with the CIE may have important therapeutic consequences in deep-seated infections.

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2177. The Impact of the BioFire® FilmArray Gastrointestinal Syndromic Panel on the Management of Infectious Gastroenteritis due to Diarrheagenic E. coli Strains in a Large Community Hospital

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Session: 243. Bacterial Diagnostics
Saturday, October 5, 2019: 12:15 PM

Background. PCR-based rapid diagnostic tests (RDTs) provide rapid and accurate infectious gastroenteritis (IGE) etiologies within hours. However, there are limited data evaluating the impact of these panels on the appropriate management for diarrheagenic E. coli strains (DECS). This study evaluated the impact of the BioFire® FilmArray GI panel on the appropriate antimicrobial management of DECS.

Methods. A retrospective analysis was conducted at a large community hospital in San Antonio, TX. Patients with a positive infectious diarrhea diagnostic panel (IDDP) for DECS from October 1, 2016 through September 30, 2018 and admitted for 248 hours were included. Patients were excluded if they had a positive IDDP for multiple DECS. An algorithm based on all available literature was used to classify appropriate management of DECS, which included patients having prolonged diarrhea (>27 days), immunocompromised hosts (ICHS), or the presence of systemic symptoms. Antimicrobial therapy changes based on IDDP results, presence of an ID consult, and incidence of hemolytic uremic syndrome (HUS) were evaluated.

Results. A total of 374 patients were included for analysis. Overall, the IDDP did not lead to a change in therapy in 29% cases. However, the IDDP resulted in 84 antimicrobial changes including initiation of appropriate antibiotics (n = 48) and de-escalation/discontinuation (n = 22), primarily in special populations, such as ICHs. The IDDP results led to appropriate therapy optimization in 63%, 17%, 16%, and 9% of enteroinvasive E. coli (EIEC), enterohemorrhagic E. coli (EHEC), enteroaggregative E. coli (EAEC), and enterotoxigenic E. coli (ETEC) cases, respectively. In contrast, 81% of Shiga toxin-producing E. coli (STEC) cases were inappropriately managed with antibiotics, and 33% developed HUS. Only 14% of all DECS cases generated an ID consult.

Conclusion. Of note, this study found that the IDDP did not lead to a change in the management of most pathotypes. However, it was associated with positive changes in the management of DECS in specific patients, particularly ICHs. RDTs assist providers in the timely identification and treatment of IGE pathogens, but both antimicrobial and diagnostic stewardship remain critical for the optimal management of DECS.

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2178. Sensitivity of Blood Cultures in Detection of Bacteremia in Febrile Neutropenia

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Session: 243. Bacterial Diagnostics
Saturday, October 5, 2019: 12:15 PM

Background. Febrile neutropenia (FN) secondary to bacteremia is a treatable complication of chemotherapy that increases mortality if not promptly recognized and managed.

Methods. The sensitivity of blood cultures collected in pediatric oncology patients with FN was assessed and stratified based on the day of FN episode, culture media type, and the source of blood culture draw at a single US center between 2013 and 2018. Paired aerobic and lytic media bottles were inoculated with each culture and diagnostic stewardship remain critical for the optimal management of DECS.

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2179. Detection of Group A Streptococcus in the Saliva of Children Presenting With Pharyngitis Using the cobas®LIAT® PCR System

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Saturday, October 5, 2019: 12:15 PM

Background. CLIA waived polymerase chain reaction (PCR) has recently become available as a point of care test for Group A Streptococci (GAS) in individuals presenting with pharyngitis, enabling rapid and accurate diagnosis. However, swabbing the pharynx results in discomfort and is often dreaded by young children which may result in poor quality sampling.

Objective. In order to assess the viability of saliva as a sample specimen for GAS, this study compared saliva samples with pharynx swabs of children with sore throat, using swabs inoculated by children sucking on them as they would a lollipop in the context of newly available very sensitive techniques.

Methods. We enrolled children ages 5–15 years presenting with sore throat and known to have a positive rapid streptococcal antigen detection test (RADT) performed on a posterior pharyngeal swab, at the discretion of the primary care provider. The RADT used was the SureVue® (Fisher Scientific) system. A second swab was obtained by having the child suck on the swab in the anterior mouth for 30 seconds and a third swab was obtained from the posterior pharynx. PCR was performed on these two additional swabs using the cobas®LIAT® (Roche) system according to the manufacturer’s instructions.

Results. Seventeen children were enrolled in the study between January and April 2019. The mean age of enrollment was 9.6 years (range 6–15). By design all children were known to have a positive RADT for GAS. The LIAT posterior pharynx swab was positive in all 17 subjects. In addition, the LIAT saliva swab was positive in all 17 subjects.

Conclusion. In this small pilot study, there was 100% concordance between the RADT for GAS and both the posterior pharyngeal and saliva swab using the