Background. Candida species are the fourth leading cause of nosocomial bloodstream infections in the United States. Unfortunately, detection, identification and susceptibility testing using standard instrumented blood culture systems and routine microbiological techniques may take 4–10 days. Moreover, sensitivity of routine blood cultures for candidemia is only ~50 to 75%. The T2 Candida Panel (T2CP) is an FDA-approved assay that rapidly detects the presence of five Candida species directly from whole blood in 3–5 hours. We examined mortality and antifungal therapy (AFT) decisions based on positive (pos) results of a T2CP in patients with negative (neg) blood cultures.

Methods. We performed a case series of all patients who had a pos T2CP with concomitant neg blood cultures at our institution from March 1, 2016 to March 1, 2018. If a patient had multiple valid T2CP, only the first pos result was used for analysis. Medical records were reviewed for demographics, comorbidities, risk factors for candida infection, length of stay, use and duration of AFT, and 14-day and in-hospital mortality from the time of the T2CP.

Results. Fifteen patients were identified who met inclusion criteria. Eight patients were immunocompromised; four (26%) had solid cancer malignancy, three (20%) hematologic malignancy, and one kidney transplant recipient. Pos T2CP results by species were as follows: 53.3% C. albicans/C. tropicalis, 40% C. parapsilosis, and 6.7% C. glabrata/C. krusei. Median SOFA, Charlson comorbidity index, and Candida scores were 6, 6, and 9, respectively. Fourteen-day mortality was 40% and in-hospital mortality was 53.3%. Only two patients were on prophylactic AFT due to an echi-nocandin in response to the pos T2CP. Of the remaining 13 patients who were not on prophylactic AFT, all were started on AFT after pos T2CP result.

Conclusion. Emergency or initiated AFT therapy based on pos T2CP in severely ill patients who had negative blood cultures. Unfortunately, the population had high severity index scores and high mortality despite initiation or escalation of AFT. We hypothesized that earlier testing and detection of Candida fungemia may lead to faster initiation of AFT and better outcomes.

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2055. Utility of Aspergillus Galactomannan Assay in Allogeneic Stem Cell Transplant Recipients
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Background. Allogeneic hematopoietic stem cell transplantation (HSCT) is a valuable treatment option for patients with some blood/malignant disorders. However, this procedure may be complicated by life-threatening infections, including invasive aspergillosis (IA). Diagnosis of IA is challenging due to nonspecific symptoms that present similar to other infections; and delays in initiation of treatment are associated with poor outcomes. The galactomannan assay (GM) is a widely used test for the early diagnosis of IA and allows for prompt initiation of antifungal therapy. However, a positive (+) GM result requires further testing to make a definitive diagnosis. Furthermore, false-positives can lead to unnecessary treatment with expensive and potentially toxic antifungal medications. At UC San Diego Health, allogenic HSCT patients not on mold-active agents for antifungal prophylaxis have GM tested weekly until 100 days post-HSCT. This study aims to characterize the role of GM assays in this HSCT population.

Methods. This is a retrospective single-center study of patients >18 years of age post-allogeneic HSCT at UC San Diego Health from January 2015 to December 2016 with GM results reported in the electronic medical record. Data includes patient demographics, GM results up to 100 days post-HSCT, antifungal prophylaxis, further testing performed, diagnosis of possible, probable and proven IA, and outcome of infection.

Results. In total, 108 patients met criteria for enrollment in this study. There were a total of 1,354 GM results, of which only 2.8% (38) were positive (≥1 GM) in 25 patients (23% of all patients). Of these, 20 (80%) were found to be false-positives. In total, 1 of 108 patients was diagnosed as possible/probable IA. Of those positive, one had 0+ GM, and two had 1+ GM. In the two with 1+GM, IA diagnosis was notably made prior to the ≥1GM result. In only three of the seven cases did ≥1GM screening lead to diagnosis of IA; of these, two patients had acute GVHD and one developed infection during neutropenia, in the first 2 weeks post-HSCT.

Conclusion. Routine GM testing adds to cost and is not a useful predictor of IA infection in the studied population. Studies to determine what populations, if any, would most benefit from routine pre-emptive GM or other fungal screening are needed.

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2056. Trypanosoma cruzi DNA Detection by PCR in Dried Blood Spots Preserved in Filter Paper
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Background. Early diagnosis of Congenital Chagas Disease is important to initiate efficient treatment, so it is necessary to develop techniques with lower detection limits and higher specificity like PCR. The lack of validated protocols and the need to send samples to be analyzed in experienced centers makes dried blood spots preserved in filter paper an attractive alternative for the conservation and handling of samples. The aim of this study was to optimize the detection of Trypanosoma cruzi DNA from dried blood spots preserved in filter paper.

Methods. Fixed sections of Whatman filter paper with different concentrations of T. cruzi were prepared (10^3/mL to 10^7/mL) and stored at room temperature, 4 and ~20°C in the presence or absence of a desiccant. Samples (8 mm) were taken at 7, 60, 90 and 240 days of preservation. Endpoint PCR, targeting 185 base, was used for the detection of T. cruzi DNA directly on the filter paper.

Results. T. cruzi DNA was detected at all sampling times up to the 10^7/mL concentration independently of conservation. The effect of humidity was observed at 240 days preservation with the observation of faded bands in agarose gels. For the 10^7/mL concentration, T. cruzi DNA was detected only at 7 days regardless of preservation. When comparing T. cruzi DNA detection using increasing sections of filter paper (8, 16 and 24 mm), T. cruzi DNA was detected in all areas tested in the concentration of 10^3 parasites/mL and only when using 24 mm for the concentration of 1 parasite/mL.

Conclusion. Dried blood spots preserved in filter paper allowed detection of T. cruzi DNA by endpoint PCR in the different conservation conditions up to 8 months. The detection of parasite DNA was improved by increasing the area of filter paper tested. The conservation of blood on filter paper would provide a safe transport of biological samples and to distant specialized laboratories to perform diagnosis using molecular techniques.

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2057. Predictors for Gastrointestinal Protozoa Detection in U.S. Children Presenting with Acute Diarrhea
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Background. Though more often associated with persistent diarrhea, protozoal gastroenteritis may also present as an acute illness. Suspicion for gastrointestinal protozoal infection is historically based on travel or recreational water exposure and duration of illness, which can delay diagnosis and effective treatment. The use of multiplex PCR panels has the potential to improve diagnosis of protozoal illness. To better understand when testing for protozoa is warranted, we examined predictors of protozoal gastroenteritis within a prospective multicenter study of U.S. children presenting to emergency departments with acute gastroenteritis (AGE).

Methods. The analysis utilized data from the IMPACT study, a prospective trial of the clinical impact of a multiplex PCR panel for detecting GI pathogens in AGE in five pediatric hospitals across the United States. From these data, we evaluated 72 potential predictors, including patient demographics, medical histories, exposures, symptoms, and vital signs. Using Random Forest Algorithm, 10 variables were selected based on variable importance measure. These were then entered into a Stepwise logistic regression model.

Results. Out of 962 patients there were 41 (4.3%) patients with protozoal detections, including 18 for Giardia and 24 for Cryptosporidium. Of these, 21 (51%) were male and the median age was 4.3 years old. Detection rates varied by site with 76% (31 of cases at two Midwestern sites. In 23% (56%) of cases protozoa was the sole pathogen detected. Logistic regression modeling of the top 10 Unables identified by Random Forest showed the strongest predictor was living in a household with a child 5 years old or younger, followed by study site and youngest age (table). Notably, travel, recreational water exposure, and duration of diarrhea were not in the top 10 variables identified.

Table 1: Model Variables Selected for Importance by Random Forest, with Confidence Intervals

| Coefficient Estimate | Standard Error | Z value | P value | Confidence Interval |
|----------------------|----------------|---------|---------|-------------------|
| INTERCEPT             | -0.47          | 0.67    | -0.47   | 0.64              |
| CMN                  | 0.91           | 0.36    | 2.57    | 0.011*            |
| SUBJECT AGE           | 0.19           | 0.08    | 2.22    | 0.027*            |
| ABDOMINAL PAIN        | 0.30           | 0.43    | 0.71    | 0.480             |
| NUMBER OF DiARRHEA    | 0.07           | 0.05    | 1.41    | 0.160             |
| LENGTH OF FEVER       | 0.20           | 0.25    | 0.80    | 0.420             |
| SCHOOL ATTENDANCE     | 0.33           | 0.38    | 0.86    | 0.390             |
| DOG IN HOUSE          | 0.16           | 0.38    | 0.43    | 0.670             |
| COHORT/M S #          | 0.92           | 0.20    | 4.57    | 4.676*             |
| PRIVATE INSURANCE     | 0.47           | 0.43    | 1.09    | 0.313             |
| WEIGHT                | -0.02          | 0.02    | -0.91   | 0.362             |

* indicates a significant value at p < 0.05.