Background. β-D-Glucan assay (BDG) has been recently introduced in India and is recommended for the early diagnosis of invasive candidiasis (IC), but there are a number of factors (eg β-lactam antibiotics, immunoglobulin and albumin infusions, bacteremia and surgical mesh) which may falsely elevate BDG levels.

Methods. This was a retrospective, observational study done in the 23 bedded multi-disciplinary ICU of a tertiary care hospital in South India. Case records of adult (> 18 years) non-neutropenic patients with severe sepsis or shock with ≥ 1 risk factor for IC were analyzed. As a standard practice, BDG assay was sent and effective antifungals were started on the day of suspicion of IC. All neutropenic, immunocompromised patients, those already on antifungal and those who were diagnosed with other invasive fungal infections were excluded from the study. FDA approved Fungitell assay was used to measure serum BDG levels (pg/mL).

Results. Patients were divided into 3 groups, Group A (n = 16) comprised of patients in whom diagnosis of IC was confirmed (blood culture or another sterile site grew candida), Group B (n = 30) comprised of patients in whom alternative diagnosis of severe sepsis or septic shock was found or they did not improve after administration of antifungals. Group C (n = 31) comprised of those patients in whom neither diagnosis of IC was confirmed nor an alternative explanation was found but they improved clinically on giving antifungal therapy. Mean BDG levels was significantly higher in Group A as compared with Group B and Group C (448.75 ± 88.30 vs 144.46 ± 82.49 vs 292.90 ± 137.0 pg/mL; P < 0.001). The mean value of the BDG was higher than the accepted cutoff of 80 pg/mL in all three groups (Figure 1). The use of agents which cause false elevation of BDG was significantly higher in Group B as compared with Group A (P = 0.02).

Conclusion. A BDG assay cutoff of 80 pg/mL leads to a higher number of false positive results in ICU patients, where false positive factors are unavoidable. The results of this study suggest that a higher cutoff of at least 144 pg/mL will be more specific for IC, although this may need further validation with larger trials.

Figure 1: Mean BDG values in various groups

Disclosures. All authors: No reported disclosures.

2078. Clinical Utility of Broad-Range Fungal PCR
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Session: 236. Diagnostics - Mycology
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Background. Broad-range PCR is increasingly being used as a diagnostic tool in clinical microbiology. In this study we sought to determine the clinical utility of this test for detecting fungal pathogens.

Methods. A retrospective chart review was performed on all patients who had broad-range fungal PCR testing, performed at a reference laboratory, over a 25-month period.

Results. There were 32 broad-range fungal PCR tests performed on 25 patients during the study period, and six (19%) tests were positive for five (20%) patients. Of the patients with positive results, only in one (4%) case did the test result alter antifungal therapy: for this case, fungal cultures were not performed, and the only specimen used to measure serum BDG levels (pg/mL).

Conclusions. Fungal culture is more clinically sensitive and specific than broad-range fungal PCR. The results from broad-range PCR are more likely to be positive when fungal organisms are seen in surgical pathology specimens; however, based on our number of cases, these results are not statistically significant. Larger studies are needed to identify optimal situations for the utilization of broad-range fungal PCR.

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2079. PCR-based Diagnosis of Mucormycosis Targeting Mucorales-specific Genes
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Background. Mucormycosis is a life-threatening infection caused by fungi in the order Mucorales. Among the more than 280 species in this group, the best candidate primers were used to detect the presence of pathogen DNA from biological samples taken from mice infected intratracheally with different Mucorales.

Results. Our best candidate primers could amplify the specific sequence from Rhizopus, Mucor, M. circinelloides, L. corymbifera and C. albicans. These primers had a sensitivity of detecting 10 spores into a spiked sample. The specificity for the unique CotH target enabled us to differentiate between Mucorales and closely related filamentous fungus, e.g., Aspergillus fumigatus. Genomic DNA extraction was successful from all considered biological samples; remarkably, infection was successfully detected from biological samples taken from mice infected with different Mucorales as early as 24 hours post infection.

Conclusions. We have successfully developed a simple PCR-based approach which is fast, reliable and sensitive enough to detect Mucorales gDNA in murine biological samples as early as 1 day post infection. PCR targeting CotH genes as target will allow a better differentiation between Mucorales species and other closely related filamentous fungi.

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2080. Invasive Candidiasis in Pediatric Patients at King Fahad Medical City in Riyadh, Saudi Arabia: A 5-year Retrospective Study
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Background. Invasive candidiasis in children is associated with high morbidity and mortality. We aim to identify predisposing factors, species distribution, antifungal susceptibility, and outcomes among patients with candidemia.

Methods. A data collection form composed of seven sections including 51 questions was designed to gather demographic and clinical information. We collected data from all 129 patients with invasive candidiasis from January 2010 to January 2015.

Results. The 129 patients had the following risk factors: 30 (23.26%) were preterm, 34 (26.36%) had low birth weight, 59 (45.74%) had a central venous catheter, 26 (20.16%) had a malignancy, 23(19.35%) received immunotherapy, and 56 (43.41%) ventilator support. A multivariate analysis revealed a more than two-fold mortality rate in patients who had vegetation in the heart (OR 2.9), and patients who had Candida isolated from their blood were more than twice as likely to die as patients with Candida isolated from other sites (OR 2.2). A total of 48.33% of patients on ventilator support died, and 26.09% of patients who were not on ventilator support died (P = 0.009); 43.75% of patients in the intensive care unit (ICU) died vs. only 24.49% of patients who were not in the ICU (P = 0.03). C. parapsilosis exhibited the highest mortality rate among all Candida species (56.2%).

Conclusion. The study revealed that C. albicans was the most common isolate among all Candida species. Mechanical ventilation and an ICU stay were significant risk factors for death in children with invasive candidiasis.

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2081. Does a Negative Rapid Diagnostic Test for Detection of Candida Bloodstream Infection Lead to Less Antifungal Use?
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