relevant. We aimed to evaluate performance of (1–3)-β-D-glucan (BDG) serial testing for antifungal stewardship to improve antifungal prescribing and to stop unnecessary use without compromising care.

Methods. This was a prospective observational study on patients at high risk of IC. Adults with recent intra-abdominal surgery, admitted to surgical intensive care unit (ICU), and prescribed an antifungal for suspected IC were included. Blood samples were taken at start of and days 3, 7, 10, 14, and weekly thereafter until antifungal is stopped, for BDG quantification with Fungitell assay. Medical records were reviewed for patient characteristics, antifungal regimen and outcomes. BDG was evaluated against clinical and microbiological outcomes. Sensitivity, specificity, positive and negative predictive values of BDG and Candida score were evaluated.

Results. We included 15 patients and 74 BDG levels. Patients with confirmed IC from cultures had a median BGD of >500 pg/mL and Candida score of 3, compared with 55.5 pg/mL and score of 2 in those without confirmed IC. BGD assay anticipated diagnosis of IC with a sensitivity and specificity of 100% and 66.7%, with a positive and negative predictive value of 62.5% and 100% respectively. Of the five patients with confirmed IC, two had declining BGD, corresponding to clinical response to therapy. Their BGD were <80 pg/mL on day 7 and 14 of therapy, respectively, and were discharged from ICU, but one later had septic shock with 

Klebsiella pneumoniae bacteriaemia and demise. Repeal fungal cultures were negative. The remaining three had persistently high BGD of >500 pg/mL and eventually demise. No obvious trend was observed in the timing of these events.

Conclusion. We were able to characterise BDG levels in patients at high risk of IC. There is utility in BGD serial testing as a tool for antifungal stewardship, however more data is required to confirm findings.

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2074. Frequent False-positive Bronchoalveolar Lavage Galactomannan Values in a Real-world Setting
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Background. Invasive aspergillosis (IA) is the most common invasive mold infection (IMI) and early diagnosis is critical to improving clinical outcomes. Galactomannan (GM) is a major component of the fungal cell wall. BAL GM is one of the mycologic criteria for diagnosis of probable IA, but it is frequently positive in patients with Aspergillus airway colonization, and its specificity has not been well-studied. Our goal was to estimate the specificity of a positive BAL galactomannan value in a contemporary cohort of patients with BAL GM checked as part of their workup for potential IA.

Methods. We reviewed clinical and microbiological data of patients who had at least one positive BAL GM (≥0.5), at Brigham and Women’s Hospital from November 2009 to March 2016. We applied EORTC/MSG IMI definitions to classify patients as having possible, probable or proven IMI, excluding BAL GM result as mycologic criterion.

Results. We studied 134 patients. Median age was 58; 49% were women. 54% had hematologic malignancy (HM), 10% were solid organ (SOT) and 34% hematologic malignancy (HM). Of the 134 patients with positive BAL GM values, 51 (38%) had at least one positive BAL GM (≥0.5), 21 (16%) had at least two positive BAL GM values, and 7 (5%) had at least 3 positive BAL GM values. Two (1.5%) patients died prior to receiving antifungal therapy. The median time to positive BAL GM was 6 days (range: 1–62 days).

Conclusion. In this study, at least 42% of positive BAL GM values were falsely positive, potentially exposing these patients to unnecessary antifungals. The number of ‘probable’ IMI cases (which, along with proven IMI are typically included in clinical trials of new antifungals) would be falsely increased by 25%, using a positive BAL GM of ≥0.5 as having possible, probable or proven IMI, excluding BAL GM result as mycologic criterion.

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2076. Low Yield of Routine Fungal Culture from Periprosthetic Joint Specimens
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Background. Prosthetic joints may fail for a variety of reasons, including infection, which are estimated to occur in 1–2 percent of joint replacements. Bacterial and fungal cultures are commonly ordered on the same specimens, despite the rarity of fungal prosthetic joint infections. To evaluate the yield of fungal cultures from specimens collected from prosthetic joint revision procedures, we performed a retrospective analysis of culture positivity for orthopedic surgical specimens submitted for culture at our institution.

Methods. Microbiology culture results for all orthopedic surgical specimens collected from January 2016 through February 2017 were obtained from a laboratory information system. Bacterial and fungal culture results for each patient were matched by patient, date of specimen collection and accession number. Culture positivity was defined as growth of any microorganism on any piece of media used for bacterial or fungal media per each specimen submitted for culture.

Results. Over a 14-month period, 888 cultures from 189 unique surgical events were examined. Of these, 28% (256/888) were fungal cultures. On average, 5 specimens were submitted per patient (range 1–11). Of these, 352 specimens (40%) were positive for bacterial growth. Ninety-seven percent of specimens submitted for bacterial culture had a corresponding fungal culture order. Only 1 of the 861 fungal cultures ordered was positive for fungal growth (0.1%). One specimen from a shoulder revision grew Aureobasidium pullulans, a ubiquitous fungus that is a rare human pathogen. Direct exam of the specimen revealed no PMNs or organisms. No A. pullulans was isolated from eight other cultures from the same procedure. This organism was likely viewed as a contaminant as no anti-fungal therapy was initiated.

Conclusion. Over a recent 14-month period at our institution, the yield of fungal culture of orthopedic surgical specimens was exceedingly low (0.1% positivity). Importantly, yeasts such as Candida species, can readily grow on bacterial culture media, especially if incubation times are extended. Therefore, fungal culture from periprosthetic joint specimens should be strongly considered for fungal culture.

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2077. Experience with β-D-Glucan Assay for Diagnosis of Invasive Candidiasis in ICU Patients: Pilot Study from India
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Background. Candida auris is an emerging multidrug-resistant pathogen associated with high infections and high mortality. This report describes the first 9 cases of C. auris in Central America in a hospital in Panama City, Panama, and highlights the challenges of accurate identification and methods for susceptibility testing.

Methods. Isolates initially identified at a Panama City acute care hospital during July–October 2016 as Candida haemulonii (a common misidentification for C. auris) or Candida species by Vitek 2 automated system (bioMérieux) were further characterized by molecular methods. Antifungal susceptibility testing was performed and results were compared between standard and reference methodologies. Patient demographic, clinical, and laboratory data were collected from the medical record.

Results. A total of 14 isolates from 9 hospitalized patients were confirmed as C. auris. Isolates were from urine (11), blood (1), catheter tip (1) and pleural fluid (1). Results of susceptibility testing were highly discrepant between automated and reference techniques for fluconazole (92% resistant vs. 77%, respectively) and amphotericin B (100% vs. 8%). Six (67%) patients were male, and the mean age was 53 years (range 42–78). All patients were admitted to the intensive care unit and were mechanically ventilated. Seven (78%) patients died.

Conclusion. C. auris is present in Central America. Healthcare facilities in the region should be vigilant for this concerning pathogen, particularly given challenges in its identification and need for infection control precautions. Although automated testing overestimated amphotericin B resistance, most initial isolates were susceptible by reference testing.

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Background. β-1,3-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-organ ischemic ICU of a tertiary care hospital in South India. Case records of adult (> 18 years) non-neutropenic patients having 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

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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 fungi in this order, Rhizopus spp. and Absidia spp. are the most common species recovered in patients with mucormycosis. Differentiation between different Mucorales species is important for accurate diagnosis. Though there are whole-genome sequence databases available for some Mucorales species, there is a lack of a specific method to test all Mucorales species. The goal of this study is to design a diagnostic test to aid in the differentiation of Mucorales species.

Methods. We designed a specific PCR assay to detect mucormycosis infections. We used bioinformatic analysis to identify short consensus sequences (SCS) present in the genomes of several Mucorales species. We tested several candidate primers against mucormycosis and other filamentous fungi. We collected DNA from mucormycosis and Fusarium species. We used these DNA sequences to design a PCR assay which distinguishes Mucorales species from other filamentous fungi.

Results. We successfully designed a PCR assay which distinguishes Mucorales species from other filamentous fungi. We tested the PCR assay on DNA from different Mucorales species and obtained specific amplification products. We also tested the PCR assay on DNA from Fusarium species and obtained no amplification products. We tested the PCR assay on DNA from other filamentous fungi and obtained no amplification products.

Conclusion. We successfully developed a simple PCR-based approach which is fast, reliable and sensitive enough to detect Mucorales species in mucormycosis patients. This approach 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 candidiasis.

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: 32 (25%) were premature, 34 (26.36%) had low birth weight, 59 (45.74%) had a central venous catheter, 20 (15.5%) had a malignancy, 20 (15.5%) received immunotherapy, and 56 (43.41%) received ventilator support. A multivariate analysis revealed a more than two-fold mortality rate in patients who had a malignancy (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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