corresponding blood cultures, time to de-escalation, and duration of therapy (DOT) were collected.

***Results.*** Patients mean age 60 years, 54% were male. Candidemia risk factors included: 28% immunocompromised (cancer, chemotherapy, chronic steroids, febrile neutropenia), 26% renal failure, 19% malnutrition/TPN, 14% CVC/PICC line and 11% intra-abdominal infection/surgery. 78% of the patients were in the ICU. 9% of T2 tests were positive. The resulting species were as follows: *C. albicans/tropicalis*, 47 % *C. parapsilosis* 41% and 12% *C glabrata/Krusei*. Of the patients with a positive T2 result only 24% had a positive corresponding blood culture while those with positive blood culture results 94.9% were T2 positive. Negative T2 tests resulted in discontinuation of antifungal therapy in 23% and avoid antifungal therapy initiation in 41% of patients but 36% of patient's antifungal regimens were not discontinued despite a negative T2 result. Average time to de-escalation was 40.8 hours. Negative T2 results decreased average duration of therapy of micafungin by 2.1 days.

***Conclusion.*** T2 Candida Panel demonstrated greater sensitivity and faster to detect Candidemia compared with blood cultures. Despite the test's rapid nature and high sensitivity, time to de-escalation remains at 2 days suggesting variations in physicians' utilization of T2 test results.

***Disclosures.*** **All authors:** No reported disclosures.

**2067. Relationship of T2 Candida Panel to Disease Severity, Mortality and Time to Therapy in Patients with Candidemia**

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***Background.*** Candidemia is a common hospital-acquired infection that is associated with high mortality. Diagnosis via blood cultures (BC) is limited by poor sensitivity (50%) and slow turnaround time (2–5 days). T2Candida (T2C) is a newly available rapid test using magnetic resonance that can detect 5 species of *Candida* from whole blood in < 6 hours with a sensitivity of 91.1%.

***Methods.*** We performed a retrospective analysis of all cases of candidemia detected by BC and/or T2C during 2016 at UAB Medical Center. The test was targeted to ICU patients who had higher risk criteria for candidemia. We collected APACHE II scores at the time of BC or T2C test collection as a surrogate for severity of illness. Other outcomes included 30-day mortality and time to initiation of therapy (TTT).

***Results.*** We identified 139 patients with candidemia, defined as a positive BC (BC+) and/or positive T2C (T2C+). Performance of a single test led to diagnosis in 103 patients (74%). On initial diagnosis if both a BC and T2C were performed within a 24 hour interval, patients were grouped based on the results of both tests. 36 patients (26%) had both tests performed: 8/36 (22%) were concordant (BC+/T2C+) and 28/36 (78%) discordant. 23/28 patients (82%) with discordance were BC-/T2C+ and the remaining 5 were BC+/T2C-. The difference in APACHE II scores and 30-day mortality rate of BC+ patients (13.6, 0.36) and T2C+ patients (16.4, 0.46) were not significant (*P*-values 0.06 and 0.29, respectively); the difference in TTT between BC+ patients (1.6 day) and T2C+ patients (0.1 day) was statistically significant (*P*-value < 0.00001).

***Conclusion.*** T2C demonstrated excellent sensitivity (88.6%) in a 'real world' setting focused in the ICU. We observed a significant reduction in TTT associated with the T2C assay, but did not observe an improvement in survival with earlier therapy for candidemia defined as a T2C+. Patients with T2C+ had higher APACHE II scores suggesting biased testing towards sicker patients. We cannot explain the large number of discordant results (BC–/T2C+, BC+/T2C–), but hypothesize that T2C+ may be a more sensitive marker for invasive candidiasis/candidemia. These data strongly endorse the need for a large, prospective, multicenter study exploring the use of T2C vs. standard of care in the diagnosis and management of this disorder.

| Diagnostic Test(s) Performed | N | *C. albicans** (%) | TTT (days) | APACHE II | 30-Day Mortality |
|---|---|---|---|---|---|
| BC+ (± T2C) | 112 | 42 | 1.6 | 13.6 | 0.36 |
| BC+ (T2C not done) | 99 | 42 | 1.8 | 13.2 | 0.33 |
| BC+/T2+ | 8 | 50 | 0.13 | 14.3 | 0.5 |
| BC+/T2C- | 5 | 40 | 0.4 | 20.6 | 0.6 |
| BC-/T2C+ | 23 | 65 | 0.1 | 16.6 | 0.43 |
| T2C+ (BC not done) | 4 | 50 | 0.1 | 20 | 0.5 |
| T2C+ (± BC) | 35 | 60 | 0.1 | 16.4 | 0.46 |

*T2C does not discern between *Candida albicans* and *C. tropicalis*

| | BC+ | T2C+ | *p*-value |
|---|---|---|---|
| Number | 112 | 35 | |
| Apache II | 13.6 | 16.4 | 0.06 |
| Mortality | 0.36 | 0.46 | 0.29 |
| TTT (days) | 1.6 | 0.1 | < 0.00001 |

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**2068. High-volume Sputum Culture for the Diagnosis of Pulmonary Aspergillosis**

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***Background.*** Improved diagnostics are needed for the management of invasive fungal infections. Standard sputum cultures have a low yield in the detection of mold. Conventionally only a fraction of the specimen is cultured. We studied the performance of high-volume cultures (HVCs) where the entire specimen is plated on Sabouraud agar (SA).

***Methods.*** Specimens were collected at our center from January 2015 through February 2017. For conventional culture, sputum was homogenized by mixing with an equal volume of 0.1% dithiothreitol solution and diluted 500-fold in sterile water. Ten µL of the diluted specimen was cultured on SA (2 plates) and incubated at 37°C and 45°C for up to 5 days. For HVC, the entire undiluted specimen (up to 1 mL) was cultured on SA (up to 2 plates) and incubated at 30°C for up to 14 days.

***Results.*** We studied 306 paired specimens that were collected for both conventional culture and HVC on the same day. A total of 139 patients with positive cultures had the following conditions: chronic pulmonary aspergillosis (58%), allergic bronchopulmonary aspergillosis/severe asthma with fungal sensitization (27%), *Aspergillus* bronchitis (9%), cystic fibrosis/bronchiectasis (6%).

*Aspergillus* was recovered by HVC in 114 specimens that had no mold growth by conventional culture. The same *Aspergillus* species was recovered by both HVC and conventional culture in 50 paired specimens. For 142 specimens there was no *Aspergillus* growth by HVC (*Penicillium* spp. grew in 4). For two of the negative HVC specimens *A. fumigatus* grew by conventional culture. The following species were recovered by HVC: *A. fumigatus* (80%), *A. niger* (10%), *A. flavus* (3%), other (7%). Susceptibility testing (EUCAST standard) was performed for 127 isolates of *A. fumigatus*. Rates of antifungal resistance were as follows: itraconazole 28%, voriconazole 19%, posaconazole 28%, isavuconazole 32%, amphotericin B 8%. Pan-azole resistance was detected in 17%. If HVCs were not performed, resistance to at least one of the antifungals would have been missed in 18/37 (49%) of cases.

***Conclusion.*** The recovery rate of *Aspergillus* spp. is significantly higher for HVCs compared with conventional cultures and this can impact patient care. HVCs can be performed in any microbiology laboratory without the need for additional tools.

***Disclosures.*** **R. Rautemaa-Richardson**, Pfizer, Astellas, Gilead Sciences, MSD, Basilea: Consultant, Speaker honorarium; **M. Richardson**, Pfizer, Astellas, Gilead Sciences, MSD, Basilea and Pulmocide: Consultant, Speaker honorarium

**2069. Automated Detection of *Candida auris* Direct from Whole Blood by T2MR**

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***Background.*** *Candida auris* is now recognized worldwide as a virulent pathogen that is difficult to manage, resulting in high mortality rates. The majority of *C.auris* isolates have exhibited resistance to one or more antifungal agents. Nosocomial infections caused by *C.auris* are growing due to the increasing rate of colonization and environmental causes. The diagnostic tests available for the identification of *C. auris* are limited to date. Additionally, microbiological cultures and subsequent identification of *Candida* species require 2–5 days, and have a sensitivity of approximately 50%. Accurate diagnosis of a *C.* auris infection is also hampered by misidentification of *C. auris* as other species, commonly *C. haemulonii* and *Saccharomyces cerevisiae*.

Here we evaluate the use of the T2MR platform for the highly sensitive, rapid species level identification of *C. auris, C. lusitaniae and C. haemulonii* in whole blood samples.

***Methods.*** A multiplex assay targeting *C. auris, C. lusitaniae,* and *C. haemulonii* was developed using cultured cells spiked in $K_2$EDTA anticoagulated blood from healthy human donors. *C. auris* isolates received from the CDC were cultured overnight, automated cell counting was used to determine concentration. From this stock, the culture was diluted to a target titer, and inoculated into whole blood, followed by confirmation plating to confirm cell titer. Four mL spiked blood samples were processed on the T2Dx Instrument.

***Results.*** Sensitive and specific detection of *C. auris* was achieved direct from blood in less than 4 hours on the T2Dx Instrument. A Limit of Detection (LoD) for *C. auris* was demonstrated to be ≤10 CFU/mL. T2MR signals of samples spiked with target were approximately 30 times higher than samples with no target present, and no cross reactivity was observed between *C.auris, C. haemulonii, C. lusitaniae and C. krusei.*

***Conclusion.*** Low concentrations of *Candida* cells can be detected and identified by T2MR. This prototype assay potentially allows for the rapid screening and identification of patients infected with *Candida auris* with high specificity and sensitivity, aiding in the hospital management and targeted therapy of this emerging multi-drug resistant pathogen.

***Disclosures.*** **B. Manning**, T2 Biosystems: Employee and Shareholder, Salary; **J. L. Snyder**, T2 Biosystems: Employee and Shareholder, Salary; **B. Chang**, T2 Biosystems: Employee and Shareholder, Salary; **C. Wong**, T2 Biosystems: Employee and Shareholder, Salary; **T. Higa**, T2 Biosystems: Employee and Shareholder, Salary; **R. Shivers**, T2 Biosystems: Employee and Shareholder, Salary; **T. J. Lowery**, T2 Biosystems: Employee and Shareholder, Salary

**2070. Contribution of the qPCR for the Diagnosis of Pneumocystosis**

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***Background.*** *Pneumocystis jirovecii* pneumonia (PCP) is an opportunistic fungal respiratory infection. The incidence of PCP has decreased among HIV patients, however among non HIV-negative patients on immunosuppressive drugs; an increase in incidence is noted. In this population, the diagnosis of PCP is difficult because the clinical presentation is atypical and the direct examination (DE) of the respiratory secretions is often negative. In this context, detection of *Pneumocystis jirovecii* DNA in respiratory secretions by real-time quantitative chain reaction (qPCR) should be usefull.

***Methods.*** In order to evaluate the usefulness of qPCR, all patients hospitalized in medicine or intensive care unit (ICU) in a university hospital and having a positive qPCR in respiratory secretions were included in a retrospective study conducted between 2013 and 2016. Based on clinical data, respiratory secretions, imaging and treatment, patients were classified into three groups: certain PCP, possible, or colonization, irrespective of the value of qPCR.

***Results.*** One hundred and fifty patients, including 38 infected with HIV, were included: 75 in medicine and 75 in intensive care. Ninety patients (60%) had bronchoalveolar lavage. The diagnosis of PCP was considered certain or possible for 52 and 77 patients respectively and rejected (colonization) for 21 patients. DE was negative for 78% of non-HIV patients and 29% of HIV patients. Among the 129 patients with PCP, the hospital mortality was 35.9% in ICU and 21.5% in medicine. The median value of qPCR was 76,650 copies/mL among patients with PCP and 3,220 copies/mL among colonized patients ($P < 0.001$) with no significant difference in type of respiratory specimen or place of hospitalization. The optimal threshold value of qPCR determined from the ROC curve was 10,100 copies/mL with a sensitivity of 76.6% and a specificity of 86%. Specificity was 100% at the threshold of 59,250 copies/mL.

***Conclusion.*** If qPCR alone is imperfect for the differential diagnosis between colonization and infection, it has the merit of guiding the clinician towards the diagnosis of PCP especially for non-HIV patients whose DE of the respiratory secretions is negative in nearly 80% of cases, both in medicine and ICU.

***Disclosures.*** **All authors:** No reported disclosures.

**2071. Endocarditis Is Not Rare and Is an Independent Predictor of Mortality in Candidaemia**

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***Background.*** Candida endocarditis (CE) is a highly fatal manifestation of candidaemia. Currently, screening for CE is not recommended as a routine in patients presented with candidaemia, as CE is considered rare. The objective of this study was to determine the incidence, risk factors and outcome of CE in candidaemia, in order to guide the screening.

***Methods.*** Retrospective chart review of patients with candidaemia from a tertiary center in Australia, admitted between January 2005 and December 2015, was conducted. Clinical characteristics and outcomes of patients with CE and without CE were compared, and logistic regression analyses were performed to identify the risk factors associated with CE and mortality.

***Results.*** Eighty-six patients with candidaemia were identified with mean ± SD age of 52 ± 22 years, comprising 51% males. Candida *albicans* was the most common species (41%). Echocardiogram was performed in 88% of cases. Eleven patients (13%) had CE. Most candidaemia cases were hospital-acquired, but patients with CE were more likely to have community-acquired fungaemia ($P < 0.001$), dissemination to other organs ($P < 0.001$), and a cardiac prosthesis ($P < 0.05$). On logistic regression, community-acquired fungaemia (odds ratio OR: 22.3; $P < 0.001$) and presence of a cardiac prosthesis (odds ratio OR: 4.0; $P < 0.05$) were predictors of CE. Overall mortality rates for candidaemia were 14% for 30-day and 16% for 90-day. Mortality was much higher in patients with CE (27% for 30-day and 36% for 90-day), and CE was an independent predictor of candidaemia-related mortality (OR: 6.2; $P < 0.05$ for 30-day, and OR: 8.3; $P < 0.05$ for 90-day).

***Conclusion.*** CE is not rare in candidaemia, and is associated with very high mortality. Low index of suspicion for CE and early investigation with echocardiogram are indicated, especially in patients with cardiac prosthesis or community-acquired candidaemia.

***Disclosures.*** **All authors:** No reported disclosures.

**2072. Comparison of One vs. Two BACTEC Myco/F Lytic Bottles for Recovery of Fungi and Mycobacteria**

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***Background.*** The BACTEC Myco/F Lytic bottle (Becton Dickinson), along with the Wampole Isolator lysis centrifugation tube (Alere) are used to enhance recovery of fungal and mycobacterial organisms from blood. At our institution, one Isolator tube and two Myco/F Lytic bottles are inoculated for each suspected case of fungemia or mycobacteremia. A retrospective analysis of 7518 cultures over 6 years was performed to determine whether one or twoMyco/F Lytic bottles were required for optimal recovery of these organisms.

***Methods.*** Blood was collected by a phlebotomy team and distributed into three blood culture receptacles: 2 Myco/F Lytic bottles each with 4 mL of blood and one Isolator tube with 8 mL of blood. The sediment from the processed Isolator tube was inoculated onto Inhibitory Mold Agar, Emmons Sabouraud Dextrose Agar, and Middlebrook 7H11/7H11 Selective Agar. The Myco/F Lytic bottles were incubated for 42 days on the BACTEC FX instrument and the plated media was incubated for 30 days. We compared the recovery of fungal and mycobacterial organisms from one vs. two Myco/F Lytic bottles at our institution from April, 2004 through October, 2010. Myco/F Lytic bottles were randomly assigned as the first or second bottles and additional culture positivity results for the second bottle was compared with that of the first bottle and the Isolator tube together.

***Results.*** 171 (2.3%) cultures were positive with fungal or mycobacterial isolates from a total of 7518 cultures. Among 171 positive cultures, 28 (16.4%) grew only in the second Myco/F Lytic bottle. Among these, 20 were fungi (*Histoplasma capsulatum, n* = 7, *Candida* sp., *n* = 7, filamentous fungi, *n* = 4, *Cryptococcus neoformans, n* = 1, other yeast, *n* = 1), 7 were mycobacterial species (*Mycobacterium avium* complex, *n* = 7) and 1 was an aerobic actinomycete (*Streptomyces* sp). 7/45 (15.6%) of *H. capsulatum* isolates, 7/18 (38.9%) of *M.avium* complex isolates and 1/17 (5.9%) of *C.neoformans* isolates grew in the second Myco/F Lytic bottle only.

***Conclusion.*** The use of two Myco/F Lytic bottles increases the recovery of certain fungal and mycobacterial organisms from blood as compared with one Myco/F Lytic bottle.

***Disclosures.*** **All authors:** No reported disclosures.

**2073. Utility of Serial β-D-Glucan Levels in Patients with High Risk for Invasive Candidiasis: A Potential Tool for Antifungal Stewardship**

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***Background.*** Invasive candidiasis (IC) is a severe infection in which diagnosis is challenging and often made late in the course of infection. Patients with delayed initiation of antifungals have high mortality risk; physicians tend to start empiric therapy at earliest clinical suspicion of IC. Excessive use of antifungals worsens selection pressure for resistance. Thus, alternative ways to aid antifungal stewardship are highly