Table 2: veterinary isolates of Blastomyces helicus

| Case/year | Location | Animal | Sample |
|-----------|----------|--------|--------|
| v1/2005   | Colorado | Dog    | Lung   |
| v2/2007   | Unknown  | Dog    | Lung   |
| v3/2009   | Montana  | Cat    | Lung   |
| v4/2012   | Colorado | Cat    | Lung   |
| v5/2014   | Colorado | Unknown| Lung   |

Figure 1. Mycelial phase of *B. helicus* (c) at 25°C showing typical helically coiled hyphae and absence of conidia.

Figure 2. Yeast-like phase of *B. helicus* (c1) at 35°C showing typical variably sized yeast-like cells in chains.

Figure 3. Canadian provinces and US states from where Blastomyces helicus isolates were referred.

Conclusion. Blastomyces helicus caused pulmonary and fatal disseminated disease, mainly in immunocompromised persons, and lung disease in companion animals in western Canada and US. Epidemiological investigations are needed to establish the burden of disease and geographic range of this pathogen.

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173. QTC Prolongation in Patients Receiving Triazoles and Amiodarone
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Background. Prolonged QT interval may lead to ventricular arrhythmias, torsade de pointes and sudden death. Triazole antifungals are often administered to inpatients with cardiac disease and with other QT prolonging drugs. Amiodarone is a commonly used antiarrhythmic that can prolong QT and be proarrhythmic but safety of co-administering these agents in the clinical setting is not known.

Methods. We conducted a retrospective, observational cohort study of adult inpatients at Duke University Medical Center who received concomitant systemic azoles and amiodarone from 2007 to 2013. Included subjects had ≥1 electrocardiogram (ECG) performed while receiving either agent alone within 1 month of starting concomitant therapy (baseline, BL) and ≥1 follow-up (FU) EKG after ≥2 days of concomitant therapy. A paired t-test was used to assess the maximum change in corrected QT interval (QTc, Bazett’s correction) from BL to FU. Logistic regression was used to evaluate predictors of FU QTc ≥500 ms (age, race, gender, and BL QTc ≥500 ms).

Results. Of 816 subjects identified, 252 had EKG results eligible for analysis. Azoles received were fluconazole (86.5%), voriconazole (11.5%), posaconazole (1.6%) or itraconazole (0.4%). Subjects were a median of 65 (IQR 25–88) years of age, 64.3% male and 78.6% Caucasian. Median duration of concomitant therapy was 7 days (IQR 4–11 days). Mean maximal change in QTc was +32 ms from BL (95% CI 26.2–38.6, P < 0.0001). 25.4 and 48.8% of subjects had a BL and FU QTc ≥500 ms, respectively. BL QTc ≥500 ms but not age, race, or gender was associated with FU QTc ≥500 ms (OR 3.21–12.43). Thirty-day all-cause mortality was 26.2%. No cardiac events were apparent in relation to concomitant azole-amiodarone therapy.

Conclusion. Prolongation of the QTc interval was frequently observed in this cohort of patients receiving azoles and amiodarone. Clinical impact is challenging to assess in this critically ill, complex patient population but appears to be limited. Additional analyses are needed to further evaluate safety of azoles in the setting of other QTc prolonging agents.

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174. Increasing Incidence of Blastomyces Infection in Vermont
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Background. Blastomycosis is an invasive infection caused by the ubiquitous fungus Blastomyces. The clinical presentation ranges from limited cutaneous infections to pneumonia and disseminated disease. Endemic areas in the United States include midwestern, south-central, and southeastern states; yearly incidence is ~0.3 cases per 100,000. Diagnosis is based on recovery of the organism on fungal culture. A urine antigen test is available for the detection of blastomycosis which has a sensitivity of 100,000. Diagnosis is based on recovery of the organism on fungal culture. A urine antigen is positive in 78% of patients with diagnosis of blastomycosis. Data collected on demographic characteristics: zip code, comorbidities, site of infection, HIV, BD-glucan, blastomyces urine antigen, fungal culture, and treatment duration.

Results. Forty-one blastomycosis cases were found; 39 cases in Vermont residents. The incidence rate Vermont was 0.7 cases per 100,000. Mean age was 49 years, 60% of patients were male. Most patients had pulmonary (37%) or disseminated infection (37%). 17% of patients had localized cutaneous disease, bone and joint infection (7%) or CNS disease (2%). Urine antigen was positive in 78% overall, and in 90% with disseminated infection. Three deaths, none attributed to blastomycosis.

Conclusion. Vermont appears to have a higher incidence than what has been reported in the US overall. This increase may have to do with better reporting and testing rather than a true increase in disease. Most common disease presentation was
localized pulmonary or disseminated disease. Urine antigen sensitivity ranged from 78% (overall) to 90% (disseminated disease). This appears consistent with what has been reported in other studies, but is lower than the overall reported sensitivity.

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175. Epidemiology and Prognostic Factors of Non-albicans Candida species Candidemia: A Multicenter Study Yu-Lin Lee, MD, MPH; Chih-Chang Liu, MD; Szu-Han Lin, MD; I-Lun Hou, RN2; Huei-Wen Lai, RN2; Fu-Der Wang, MD, PhD; Yin-Ching Chuang, MD, PhD2 and Wei-Lun Liu, MD3; Division of Infectious Diseases, Department of Internal Medicine, Changhua Christian Hospital, Changhua, Taiwan, 1Center for Infection Prevention and Control, Changhua Christian Hospital, Changhua, Taiwan, 2Division of Infectious Disease, Department of Internal Medicine, Taipei Veterans General Hospital, Taipei, Taiwan, Taipei, Taiwan, 3Department of Intensive Care Medicine, Chi-Mei Medical Center, Liouying, Tainan, Taiwan

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**Background.** The incidence of Non-albicans Candida (NAC) fungemia has increased over the past decades with high mortality rates. However, the epidemiology and prognosis of Candida species, the presence of shock, the highest sequential organ failure assessment (SOFA) score and the predisposing factors including diabetes, steroid use, hematologic malignancy, cancer, central venous catheter (CVC) placement and neutropenia. The incidence of the first 3 years (2002–2004) and last 3 years (2006–2008)

**Methods.** To analyze the risk factors of Candidemia-related fungal endophthalmitis, total 50 Candidemia cases underwent ophthalmology examination between April 2011 and March 2016 were retrospectively collected from the medical records. Ten Candidemia with endophthalmitis cases were compared with 40 Candidemia cases without endophthalmitis were reviewed to analyze the risk factors associated with mortality.

**Results.** In total, 61 non-duplicated patients were enrolled. Candida tropicalis (n = 245, 42.3%) was most common followed by Candida glabrata (n = 213, 34.9%), Candida parapsilosis (n = 106, 17.3%) and others (n = 76, 12.2%). The overall 30-day mortality of all NAC candidemia was 47.7%. C. tropicalis infection had higher 30-day mortality (54.6%) than C. glabrata (42.8%) and C. parapsilosis (36.8%) (P < 0.05). In general, Charlson Comorbidity Index (CCI), liver cirrhosis, double lumen use, and recent steroid exposure in cancer patient who was encoun tered a poor prognosis. Instead, central line infection was a protective factor (OR 0.42; 95% CI 0.24–0.71; P = 0.001) because removal of central line was a most effective method for infection source control. In individual species of NAC patients, C. parapsilosis infection took advantage from favorable host factors including younger age, lower CCI, fewer steroid exposure and more from central line infection than other two species. On the other hand, though the host factors were similar between C. glabrata and C. tropicalis infection, patients with C. glabrata infection took benefit from more echinocandin or high dose fluconazole (>10 mg/kg/day) which ascended lower mortality than those with usual dose flucona zole (6–10 mg/kg/day). However, the echinocandin or high dose fluconazole did not improve outcome of C. tropicalis infection.

**Conclusion.** The epidemiology and prognostic factors were different among NAC species. Risk assessment and therapeutic strategy should be individualized according to species when facing the rising threat of NAC infections.

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

176. Ocular Candidiasis in Patients with Candidemia at a Large Tertiary Care Center Bonny Lee, MD1; Lydia Breskin, MS2; Laya Reddy, MD3; Alessandro Illiceto, BHA1; Debesh Dutta, MD1; George Parkeny, MD, MD1; Jonathan Nussdorf, MD4 and Julia Garcia-Diaz, MD, FDFA1, 1Ochsner Clinic Foundation, New Orleans, Louisiana, 2Tulane University School of Medicine, New Orleans, Louisiana, 3University of Queensland/Ochsner Clinical School, Jefferson, Louisiana, 4University of Queensland, Ochsner Clinical School, New Orleans, Louisiana, 1Institute of Translational Research; Laboratory of Infectious Disease Research, Ochsner Clinic Foundation, New Orleans, Louisiana, 2Infectious Diseases, Ochsner Clinic Foundation, New Orleans, Louisiana

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**Background.** Bloodstream infections (BSI) caused by Candida sp. have a high mortality rate and have been increasing in recent years. Ocular candidiasis (OC) is one systemic and local manifestation of Candida infection; either chorioretinitis or endophthalmitis, and may lead to vision loss. Therefore, IDSA recommends an ophthalmology exam be performed. The MIC50 for voriconazole was 0.5 mg/l in both groups, and for amphotericin B were 0.5 and 1 mg/l, and for voriconazole 0.5 and 1 mg/l.

**Methods.** One hundred and forty-four patients were identified from January 2013 to December 2015 with at least one positive blood culture for Candida sp. (only albicans, glabrata, and parapsilosis were included). Records were reviewed through the EPIC system.

**Results.** Of the 144 patients, 65 were females and 79 males; average age 58 years. Seventy-six (52.8%) had an ophthalmological exam at Ochsner; excluding one patient who refused exam, one patient with excessively combative, and one patient in whom exam was deferred due to medical condition. Three patients (3.9%) showed Candida chorioretinitis; none endophthalmitis.

**Conclusion.** OC can have devastating consequences if left untreated and early diagnosis is imperative. Our analysis reveals that OC is present in 3.9% of ophthalmology exams, but this may be biased towards patients who are cooperative and can tolerate a dilated eye exam. Critical patients with multiple co-morbidities may be at higher risk for OC. A weakness of our study is that it is limited to ophthalmology records at Ochsner, and there may be records at outside facilities. Further data is required to make recommendations in patients with Candida BSI.

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177. The Risk Factors and the Characteristics of Fungal Endophthalmitis following Candida Blood Stream Infection, a Case-Control Study Hideaki Kato, MD5; Kayoko Sano, MT1; Yoshifumi Sugiyama, MT2; Risa Sakai, MD2; Sei Samukawa, MD4 and Hideaki Nakajima, MD, PhD1; Department of Infection Control and Prevention, Yokohama City University Hosp., Yokohama, Japan, 1Department of Hematology and Clinical Immunology, Yokohama City University School of Medicine, Yokohama, Japan, 2Clinical Laboratory Department, Yokohama City University Hospital, Yokohama, Japan, 3Clinical Laboratory Department, Yokohama City University Medical Center, Yokohama, Japan

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**Background.** Fungal endophthalmitis is one of the severe complications following Candida blood stream infection (Candidemia).

**Methods.** To analyze the risk factors of Candidemia-related fungal endophthalmitis, total 50 Candidemia cases underwent ophthalmology examination between April 2011 and March 2016 were retrospectively collected from the medical records. Ten Candidemia with endophthalmitis cases were compared with 40 Candidemia cases without endophthalmitis were reviewed to analyze the risk factors and characteristics; patients’ age, gender, causative Candida species, the presence of shock, the highest sequential organ failure assessment (SOFA) score and the predisposing factors including diabetes, steroid use, hematologic malignancy, cancer, central venous catheter (CVC) placement and neutropenia.

**Results.** By bivariate analysis, candidemia caused by C. albicans (40% vs. 6.7%, P = 0.009), the presence of shock (36.4% vs. 15.4%, P = 0.197), CVC placement (25.7% vs. 0%, P = 0.092), and neutropenia (40% vs. 15%, P = 0.097) were found higher in Candidemia-related endophthalmitis. In multivariate regression analysis, C. albicans candidemia was only found to be a significant risk factor (adjusted odds ratio 9.41 (95% CI 1.42–64.76)).

**Conclusion.** C. albicans is most responsible causative agent for candidemia-related endophthalmitis. Candidemia cases with the presence of shock, CVC placement and neutropenia should be closely monitored to early detect Candidemia-related endophthalmitis.

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178. Antifungal Resistance and Predictors of Response in Patients with Hematologic Malignancy Shiuin (Shannon) Vey, PharmD, PhD; Jane Kriengkauskayit, PharmD1; Ayla Chan, PharmD1; Bernard It gruesome, PhD2; James Ito, MD3 and Sanjesh Davdaw, MD3

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**Background.** Invasive aspergillosis (IA) causes significant morbidity and mortality in patients with hematologic malignancies (HM). Azole resistance has emerged as a therapeutic challenge in managing IA. The aim of this study was to investigate Aspergillus susceptibility to antifungal agents. Forty patients were identified. MICs for amphotericin B slightly increased over the past decade (P = 0.08, P < 0.61). The MIC50 during the first 3 years (2002–2004) and last 3 years (2006–2008)

**Methods.** All Aspergillus isolates banked from 2002 to 2014 isolated from HM patients with probable/proven IA were tested for antifungal susceptibility. Patients with hematopoietic cell transplant, leukemia and non-vertebral isolates were excluded. Data were collected on demographics and clinical factors that could affect the treatment response, antifungal susceptibility (MICs/MECs), and treatment response at 14, 30, and 90 days.

**Results.** Forty patients were identified. MICs for amphotericin B slightly increased over the past decade (R = 0.32, P < 0.09), but were stable for voriconazole (R = 0.08, P = 0.61). The MIC50 during the first 3 years (2002–2004) and last 3 years (2012–2014) for amphotericin B were 0.5 and 1 mg/l, and for voriconazole 0.5 and 1 mg/l.

**Conclusion.** Although not statistically significant, a trend of increasing Aspergillus amphotericin B MICs was observed over the past decade. Neutropenia and treatment failure were correlated with treatment failure. Clinical response was not affected by the azole or polyene MICs.

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