frequently require greater than 1 year of therapy. Although the toxicity profile of fluconazole has been evaluated in clinical trials, there is a paucity of data regarding the tolerability of this agent with long-term therapy.

Methods. We conducted a single-center, retrospective study of adult patients (≥18 years) with proven or probable coccidioidomycosis between 2010 and 2018 receiving long-term fluconazole therapy for an intended duration of 28 days or greater. Outcomes: (1) Incidence and type of adverse events. (2) Result of adverse event on treatment course. (3) Association between adverse events and therapeutic drug levels. (4) Association between adverse events and fluconazole dose. (5) Efficacy of fluconazole therapy via modified Mycoses Study Group criteria. Sample: (1) 165 patients identified; (2) 42 excluded for not receiving long-term fluconazole; (3) 22 excluded with lack of documented coccidioidomycosis or long-term fluconazole; (4) 3 excluded for insufficient follow-up.

Results. Out of 165 patients identified, 98 were included for analysis. Forty-eight patients (48.9%) experienced adverse effects directly attributed to fluconazole therapy by the evaluating physician. The most common adverse effects were xerosis (19.4%), alopecia (16.3%), fatigue (10.2%), and arthralgia (6.1%). Twenty-nine patients (29.5%) experienced adverse effects requiring therapeutic intervention such as dose reduction, discontinuation, or switch to new antifungal. The median therapeutic drug levels did not significantly differ between patients who experienced adverse effects from those who did not (30.5 µg/mL vs. 27.2 µg/mL; $P = 0.5$).

Conclusion. A considerable proportion of patients experienced toxicity during anticipated long-term fluconazole therapy. With this information, providers will be able to identify toxicities associated and utilize alternative agents where necessary.

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393. Isavuconazole in the Treatment of Coccidioidal Meningitis

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Session: 56. Fungal Disease: Management and Outcomes
Thursday, October 4, 2018: 12:30 PM

Background. Patients with coccidioidal meningitis require life-long antifungal therapy and cumulative toxicity from these agents may occur. Isavuconazole is the newest triazole antifungal and has demonstrated a lower toxicity profile than voriconazole and may represent a useful therapy in meningitis, although no data regarding efficacy in coccidioidal meningitis has yet been presented.

Methods. We conducted a retrospective analysis of all coccidioidal meningitis patients treated at our centers. Data abstracted included demographic and clinical information, results of laboratory and radiographic studies, serologic results, and outcomes. Responses to therapy were measured using a previously validated scoring system used in clinical trials of coccidioidal meningitis (MSG Coccidioidomycosis Scoring System).

Results. Nine patients met criteria for inclusion. Seven of nine were previously treated with voriconazole and transitioned to isavuconazole following: photodermatitis, five patients; transaminitis and photodermatitis one patient; failure of therapy, one patient. Two other patients failed fluconazole therapy and were transitioned to isavuconazole as salvage therapy. All patients transitioned to isavuconazole had a complete response to therapy five patients; or were deemed partial response (stable disease), four patients.

Conclusion. Isavuconazole therapy resulted in symptomatic and laboratory improvement in five of nine patients. The remaining patients exhibited clinical resolution of symptoms or continued with stable disease following adverse reactions to prior alternative triazole therapy. Isavuconazole may be a useful addition to the therapeutic choices currently available for coccidioidal meningitis.

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394. Outcomes in Patients With Disseminated Noncentral Nervous System Cryptococcus

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Session: 56. Fungal Disease: Management and Outcomes
Thursday, October 4, 2018: 12:30 PM

Background. Differentiating between localized and disseminated cryptococcal disease is key to the management of this infection, since induction therapy with amphotericin B and flucytosine is warranted in the latter. We compared mortality in disseminated *Cryptococcus* with non-central nervous system (CNS) involvement, with those with CNS involvement and localized pulmonary disease.

Methods. Demographics, predisposing factors, presentation, laboratory values, treatment and outcome data were collected retrospectively on patients hospitalized at an academic tertiary-care hospital for cryptococcal infection from 2002 to 2017. Outcomes were compared between three patient groups based on extra-pulmonary and CNS involvement. Survival analysis was performed using univariate and multivariate Cox Regression with censoring at 90 days.

Results. Of 312 patients identified, 63 (20%) had pulmonary, 154 (49.2%) CNS and 95 (30.4%) had disseminated non-CNS disease. At day 90, 38 (40%) from the disseminated non-CNC group had died, compared with 37 (24%) in the CNS disease and 13 (20.6%) in the pulmonary groups. After adjusting for age ≥55 years, organ transplant, end-stage liver disease (ESLD) and AIDS, 90-day mortality risk was higher in the disseminated non-CNS group compared with the pulmonary (HR 2.97 [95% CI 1.55, 5.7]; $P = 0.001$) and the CNS disease group (1.84 [1.16, 2.93]; $P = 0.009$) (Figure 1). Median [IQR] time to diagnosis was 10 [4, 19] days and not significantly different between groups ($P = 0.752$). Induction therapy for ≥2 weeks was more common in the CNS disease (64.3%) that in the pulmonary (33.3%) or disseminated non-CNS disease group (38.7%) ($P = 0.01$). Median duration of azole therapy in days was longer (315 [61, 750]) in the CNS disease than in the disseminated non-CNS (184 [23.5, 403.5]) or the pulmonary group (214 [86, 415]) ($P = 0.04$).

Conclusion. Patients with disseminated cryptococcal disease without CNS involvement have higher risk for mortality than those with CNS disease. However, management of patient's disseminated non-CNS cryptococcosis was similar to those with localized pulmonary infection.

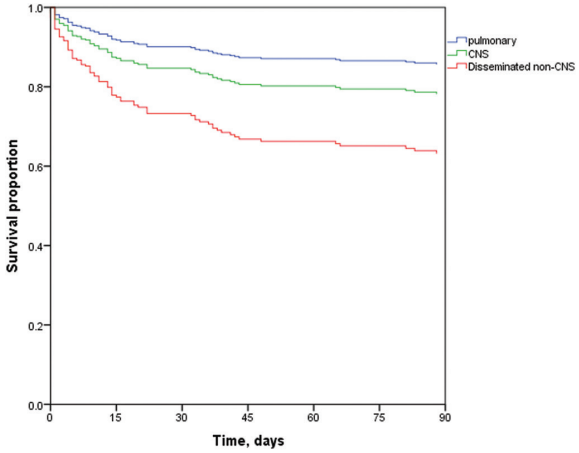

Figure 1. Survival curve of 312 patients with *Cryptococcus* infection by localization, adjusted for age ≥55, organ transplant, ESDL, and AIDS.

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

395. Missed Opportunities for Diagnosis of Cryptococcal Disease in Patients From Florida

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Session: 56. Fungal Disease: Management and Outcomes
Thursday, October 4, 2018: 12:30 PM

Background. Cryptococcal disease (CD) often has an insidious presentation and can be difficult to recognize. However, delayed diagnosis can lead to increased morbidity and mortality.

Methods. To estimate the potential number of missed opportunities for CD diagnosis we utilized the Healthcare Cost and Utilization Project State Inpatient Database from the Agency for Healthcare Research and Quality for the state of Florida from 2005 to 2014. We defined a missed opportunity as an admission with a new diagnosis of CD preceded by a hospitalization in the prior 90-days coded for an infection, respiratory, or central nervous system condition suggestive of CD. We performed descriptive statistics including mortality in each exposure group within one year after CD diagnosis.

Results. We identified 1,622 CD-related hospital discharges in Florida from April 2005 to December 2014. The median age of CD patients was 47 years, 30.6% were female, and 55.5% were coded for HIV/AIDS. Of those, 850/1,622 (52.4%) had meningitis. Five hundred sixty (34.5%) had a prior hospitalization within 90 days before the first hospitalization coded for CD. Of those, 50.9% (285/560) had a potentially missed opportunity to diagnose CD of whom 138/285 (48.4%) were HIV-positive. Of 560 patients, 49 (8.7%) were coded during a prior hospitalization with CNS conditions, 162 (28.9%) with respiratory conditions and 74 (13.2%) coded with both CNS and respiratory conditions. Patients who were coded for CNS diagnoses in a prior admission were more likely to be diagnosed with CD meningitis ($P < 0.001$). Of those with prior respiratory conditions 29/218 (13.3%) died during the CD admission, and 12.5% of those with prior CNS conditions died during the CD admission. Of those without a prior admission in the past 90 days, 110/1,062 (10.4%) died during the CD admission.

Conclusion. Cryptococcosis is a deadly disease that affects patients with both competent and incompetent immune systems. Missed opportunities to diagnose CD are relatively commonmand may contribute to worse outcomes.

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

396. Clinical Features of Proven and Probable Cases of Histoplasmosis and the Role of Urinary Histoplasma Antigen Testing: A Case Series From India

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Session: 56. Fungal Disease: Management and Outcomes
Thursday, October 4, 2018: 12:30 PM

Background. Histoplasmosis is considered uncommon in India, and the diagnosis usually depends on invasive tissue sampling. The histoplasma urinary antigen assay is a non-invasive test that has been recently introduced in India.

Methods. This was a single-centre retrospective study done from January 2013 till February 2018. Case records of patients with proven (confirmed by demonstrating intra-cellular yeast like organisms on histopathology or culture) and probable (presence of antigenuria—done by IMMY Alpha Histoplasma enzyme immunoassay) histoplasmosis were analysed.

Results. A total of 37 patients (18 proven and 19 probable) with mean age of 51.59 ± 11.17 years were studied. Diabetes was the most common co-morbidity (15 patients) followed by HIV (6), whereas no co-morbidity was found in 10 patients. Adrenals (29%), lungs (27%), lymph nodes (27%), and skin and oral mucosa (24.3%) were the most common organs involved (Figure 1). Anti-tubercular therapy based on granulomatous inflammation was given to 10 patients prior to the diagnosis. Raised GGTP and ALP (54%) and hyperglobulinemia (40%) were the common laboratory features. Most patients (83.7%) came from endemic areas (North-Eastern states, West Bengal, and Bangladesh) whereas all six cases from non-endemic areas were classified as probable (Figure 2). All-cause mortality rate was 10.8%, with 27 cases (72.9%) showing improvement at a median follow-up of 6 months. Comparison of proven and probable cases revealed that the following features were significantly higher in theprobable group: female sex ($P = 0.001$), coming from nonendemic areas ($P = 0.009$), requiring in-patient care ($P = 0.001$), leucocytosis ($P = 0.043$), absence of skin and oral mucosal findings ($P = 0.002$), simultaneous alternate diagnosis ($P = 0.039$), and death ($P = 0.039$).

Conclusion. This study emphasises that histoplasmosis is an under recognised entity in India. Histoplasma antigenuria does help in making the diagnosis easily and needs to be more extensively utilized by clinicians. However, it can yield false-positive results in patients belonging to nonendemic areas and lacking typical clinical features of histoplasmosis. Further studies are needed to determine the utility of the antigen test in Indian settings.

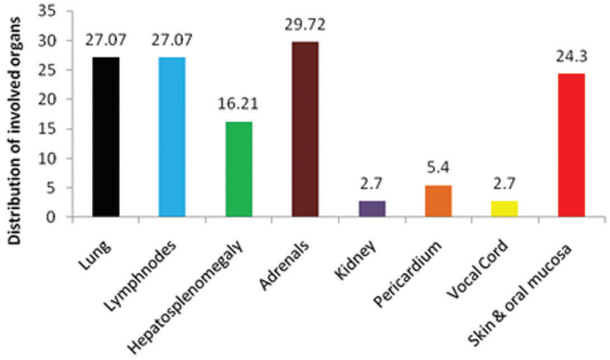

Figure 1. Distribution of involved organs.

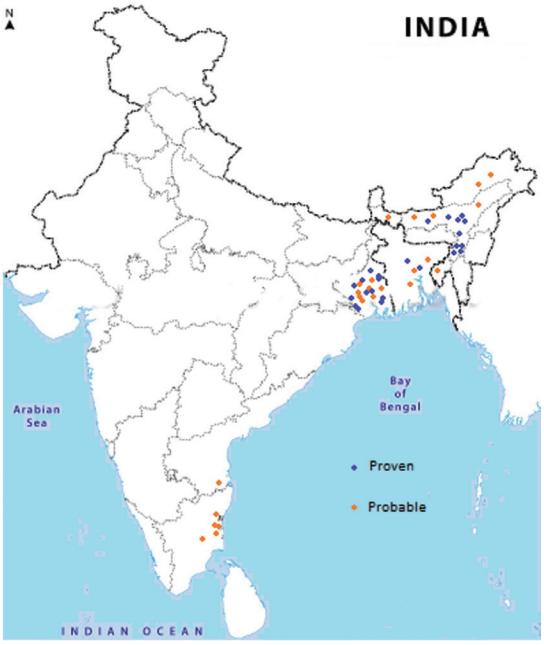

Figure 2. Distribution of cases in the study across Indian states.

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

397. Long-Term Mortality of HIV Patients Following Cryptococcal Infection

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Session: 56. Fungal Disease: Management and Outcomes
Thursday, October 4, 2018: 12:30 PM

Background. Prevalence of cryptococcosis in HIV-positive patients in the developed world has decreased considerably in the modern antiretroviral (ART) era. While early mortality of cryptococcal infection is lower than in non-HIV-infected patients, late mortality in HIV+ patients has not been previously evaluated. Here, we describe the presentation and outcomes of HIV+ patients with cryptococcosis.

Methods. We conducted a retrospective cohort study of patients with HIV infection and cryptococcosis from January 2002 to June 2017 at our institution. Data included demographics, clinical features, diagnostics, and outcomes. Death date was obtained from the hospital system's Medical Informatics database and the Social Security Death Index.

Results. We reviewed 105 HIV+ patients with cryptococcosis. At time of analysis: 55 were living (52.4%), 17 died within 90 days of cryptococcal diagnosis (early mortality, 16.2%), and 33 died after 90 days (late mortality, 31.4%) (Figure 1). Late mortality patients were more likely to have known HIV+ status at the time of cryptococcal diagnosis (97%) than living (70.9%) or early mortality (70.6%) ($P = 0.03$); less likely to be ART adherent (15.2%) than living (43.6%) or early mortality (35.3%) ($P = 0.02$); less likely to have private insurance (6.1%) than living (34.5%) or early mortality (17.6%) ($P = 0.007$); and more likely to have Medicaid (51.5%) than living (29.1%) or early mortality (17.6%) ($P = 0.03$). Presenting symptoms and diagnostics were similar between groups. Prevalence of substance abuse (48.6%) and psychiatric history (31.4%) were high in all groups but not significantly different.

Conclusion. Despite improvements in ART, HIV+ patients have high mortality following cryptococcal infection which persists beyond their initial hospitalization. Identifying patients at higher risk for mortality is critical for successful treatment and outcomes. In our study, nonadherence to ART was associated with a higher risk of dying. Follow-up studies of late mortality in other opportunistic infections would be beneficial.

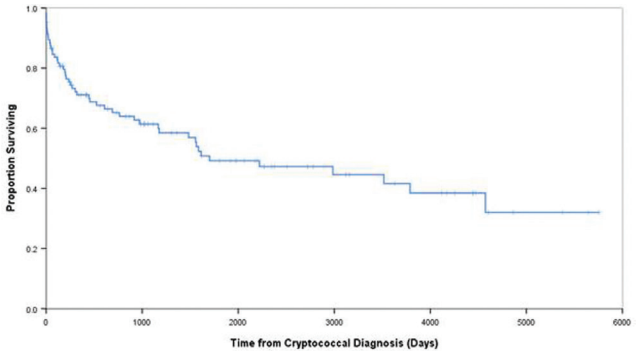

Figure 1. Kaplan–Meier curve of 105 patients with HIV and cryptococcosis. Overall mortality of 47.6% at 5,000 days with 17 patients dying in first 90 days (16.2%) and 33 patients dying after 90 days (31.4%).

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

398. Review of Mucormycosis Cases at the University of Colorado Hospital From 2012 to 2018 and Evaluation of Risk Factors and Appropriateness of Antifungal Prophylaxis

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Session: 56. Fungal Disease: Management and Outcomes
Thursday, October 4, 2018: 12:30 PM

Background. Healthcare associated outbreaks of mucormycosis have been described in the literature. In 2017, the University of Colorado Hospital (UCH) had an increased number of cases of mucormycosis. The objective of this study was to evaluate possible risk factors and weather patterns associated with cases of mucormycosis diagnosed at UCH from 2012 to 2018 in order determine whether the current antifungal prophylaxis used at UCH should be modified.

Methods. A retrospective cohort was conducted involving patients >18 years old who were admitted to UCH between 2012 and 2018 and were diagnosed with proven or probable mucormycosis as defined by the European Organization for Research and Treatment of Cancer/Mycosis Study Group (EORTC/MSG) criteria. Medical records were reviewed, and data were collected on risk factors, antifungal prophylaxis, and mortality outcome. Weather data were collected from the National Centers for Environmental Information (NCEI).

Results. Twenty-five cases of proven or probable mucormycosis were identified. On average patients had at least two risk factors associated with mucormycosis. The most common risk factors included diabetes mellitus (DM) (13 patients), hematologic