Candida auris is emerging as a global pathogen that has been described as a serious global threat by the CDC. It has caused outbreaks in healthcare settings as it is transmissible between patients. The risk factors for candidemia caused by C. auris are different than candidemia caused by other Candida spp.

**Methods.** We performed a multicenter, retrospective case-control study at three hospitals in Brooklyn, New York between 2016 and 2020. Patients with at least one positive blood culture for Candida spp who were started empirically on an antifungal within 24 hours of blood culture positivity were included in the study. Subsequent cases in the same patient were excluded unless separated by at least 90 days from the initial case. Similar variables such as antibiotics and antifungals within the same drug class were compressed into one variable. Variables with a $p$-value $<0.05$ on univariate analysis were entered into a multivariable analysis with a $p$-value $≤0.05$ considered to be statistically significant.

**Results.** 84 cases of C. auris candidemia and 105 cases of candidemia caused by other Candida spp were included in the analysis. The most common species of other Candida spp was C. glabrata (N=33; 31.7%) followed by C. albicans (N=32; 30.4%). In the multivariable model, the strongest risk factor for C. auris candidemia was prior infection or colonization with C. auris (OR 17.5; 95% CI 1.60-192.93; $p=0.019$) followed by prior infection or colonization with multidrug-resistant bacteria (OR 6.97; 95% CI 1.49-32.74; $p=0.014$). A history of peripheral vascular disease (PVD) (OR 7.78; 95% CI 1.34-45.34, $p=0.023$), cerebrovascular disease (CVA) (OR 4.24; 95% CI 1.18-15.20, $p=0.027$) and hemiplegia (OR 6.43; 95% CI 1.19-34.85, $p=0.031$) were also statistically significant. These risk factors remained significant analyzing only patients without any history of C. auris.

**Conclusion.** These data suggest that in hospitalized patients with candidemia, a history of colonization or infection with C. auris, prior infection or colonization with multidrug-resistant bacteria, as well as a history of PVD, CVA, and hemiplegia are associated with C. auris candidemia.

**Disclosures.** Samuel Simon, PharmD. Accelerate Diagnostics (Employee)

### Table 1. Imaging Findings in Patients with Invasive Pulmonary Mucormycosis

| CXR Findings | CXR Findings N (%) | CT Findings N (%) |
|--------------|--------------------|-------------------|
| Consolidation | 24 (56%)           | 27 (65%)          |
| Nodular Lesion(s) w/ or w/o Ground Glass Halos | 5 (13%) | 22 (56%) |
| Cavitary Lesion on CXR, Nodular or Consolitative Lesion(s) w/ Reverse Halo Sign or Cavitation on CT | 1 (3%) | 12 (31%) |
| Patchy, Heterogeneous or Non-Specific Findings on CXR or Ground Glass opacities on CT | 13 (33%) | 13 (33%) |

**Conclusion.** A negative CXR does not preclude PM, especially in neutropenic pts. A CT is recommended for better sensitivity and although there was concordance in CXR with CT findings in some chest abnormalities (mass, consolidation), CT more commonly revealed nodules and signs highly suggestive of PM such as RHS. Although small numbers precluded a robust comparison, it is possible that HEM pts with PM and negative initial CXR have better prognosis, perhaps reflecting a lower burden of pulmonary involvement.

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### 711. A Unique Breath Secondary Metabolite Volatile Signature for the Diagnosis of Histoplasmosis

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**Session:** P-34. Eukaryotic Diagnostics

**Background.** Histoplasmosis is a common endemic fungal infection in the Americas, causing significant morbidity and mortality, particularly in immunocompromised patients. Existing diagnostic methods are limited in their sensitivity (especially in pulmonary histoplasmosis) and turnaround time.

**Methods.** We examined prospectively collected breath samples from 84 patients with suspected histoplasmosis 3/2019 - 2/2020 at Hospital Roosevelt (HR; Guatemala City, Guatemala, n = 56) and suspected invasive fungal disease 1/2019 - 10/2019 at Brigham and Women's Hospital (BWH; Boston, MA, USA, n = 28) using thermal desorption gas chromatography-tandem mass spectrometry (TDG-GC-MS/MS). Patients were evaluated for histoplasmosis and other infections according to the local standard of care – of note, 18/56 patients at HR did not have Histoplasma urine antigen testing.

**Results.** Median age was 44 years, 60 (71%) were male, 23 (27%) had HIV, 15 (18%) had hematologic malignancy. 7 patients were diagnosed with histoplasmosis over the study period (4 at HR, 5 at BWH), with a clinical syndrome + positive Histoplasma urine or serum antigen test, with some patients also having yeast forms on tissue biopsy: 3 patients had disseminated and 4 pulmonary histoplasmosis. 4 patients with histoplasmosis had co-infections – 2 tuberculosis (TB), 1 influenza, and 1 Pneumocystis jiroveci (PJP) pneumonia. 4 patients were receiving antifungal therapy active against Histoplasma at the time of their first breath sample. We found 3 sesquiterpenes: (A) cyperene, (B) 1R,4aR,8aR)-2,5,5,8a-Tetramethyl-4,5,6,7,8,8a-hexahydro-1H-1,4-methanoaphthalene, and (C) viridiflorol in patients with histoplasmosis, that distinguished these patients from those with other pneumonia (TB, coccidioidomycosis, invasive aspergillosis, mucormycosis, PJP, bacterial pneumonia) with 100% sensitivity and 70% (95% CI 59, 80) specificity.