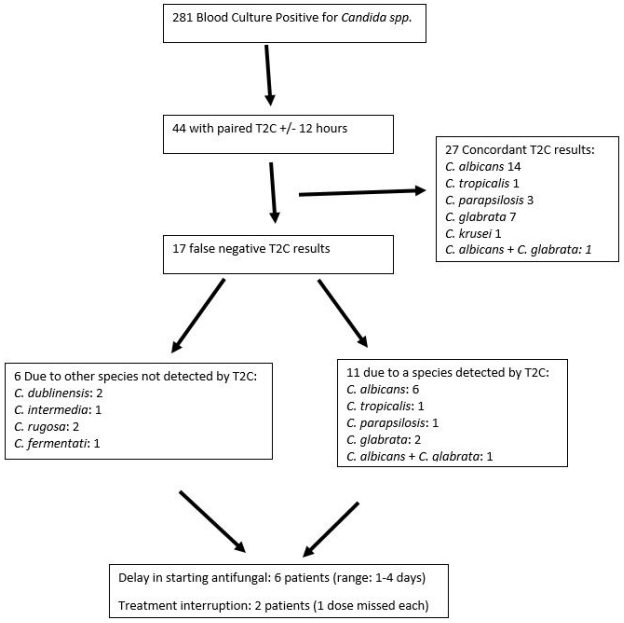
Figure 1



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

259. Racial Differences in Clinical Phenotype and Hospitalization of Blastomycosis Patients

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Background. Dimorphic fungal infections, such as blastomycosis, cause significant morbidity and mortality. Most studies describing blastomycosis have focused on non-Hispanic Caucasians and our understanding of the clinical presentation and outcomes for patients of other race/ethnicities is limited. We evaluated whether clinical presentation and disease severity varied across racial/ethnic groups.

Methods. Blastomycosis patients were identified from Marshfield Clinic Health System and patient data were abstracted from electronic medical records. *Blastomyces* genotyping was performed for cases with available isolates. Univariate analyses using χ^2 tests and multivariate logistic regression modeling were used to determine the association of race/ethnicity with clinical presentation. Significance was defined as $P \leq 0.05$.

Results. In total 477 patients were included.Age differences were observed across race/ethnicity categories ($P < 0.0001$). Non-Hispanic, Caucasians were oldest (47 years, SD 20) and Asians were the youngest (30 years, SD 18). Underlying medical conditions were more common in non-Hispanic Caucasians (55%) and African Americans (AA) (52%) than Hispanic Caucasians (27%) and Asians (29%, $P = 0.0002$). Risk for hospitalization was highest for Hispanic Caucasian (aOR 2.9, 95% CI 1.2–1.7), American Indian Alaskan Native (AIAN) (aOR = 2.4; 95% CI 1.0–5.5), and Asian (aOR = 1.9; 95% CI 1.0–3.6) patients when compared with non-Hispanic Caucasian patients. Ninety percent of *B. dermatitidis* infections occurred in non-Hispanic Caucasians whereas blastomycosis in Hispanic Caucasian, AIAN, and Asian patients was frequently caused by *B. gilchristii* ($P < 0.0001$).

Conclusion. Hispanic Caucasian, AIAN, and Asian blastomycosis patients were younger and healthier, but more frequently hospitalized. Patients in these racial/ethnic groups may need more aggressive treatment and closer therapeutic monitoring. Underlying host factors along with organism virulence likely play a role in these differences.

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

260. Detection of Aspergillus fumigatus Infection in Mice with 2-Deoxy-2-[18F] fluorosorbitol

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Background. Invasive aspergillosis is a major cause of infectious morbidity and mortality in immunocompromised patients.However, definitive diagnosis of invasive Aspergillus infection is still difficult due to the lack of a rapid, sensitive and specific diagnostic methods. In this studies, we investigated 2-deoxy-2-[^{18}F]fluorosorbitol ([^{18}F]FDS) which has been reported to be accumulated in Gram-negative bacteria but not in Gram-positive bacteria or healthy mammalian or cancer cells, for the imaging detection of *Aspergullus fumigatus* infections with PET *in vivo*.

Methods. [^{18}F]FDS was synthesized by reduction of 2-deoxy-2-[^{18}F]fluoro-D-glucose ([^{18}F]FDG) using $NaBH_4$. When the reaction was complete, the mixture was adjusted to a pH value to 6.5–7.5. Subsequently, the solution was filtered directly into a sterile product vial through a Sep-Pak Alumina N cartridge with a sterile filter. The probe uptake assay was performed by incubating bacterial cell and fungi with [^{18}F] FDS (20 μCi) at 37°C for 2 h. Female BALB/c were immunosuppressed with cyclophosphamide and cortisone acetate prior to *A. fumigatus* intranasal, intramuscular, brain infection. The mircoPET images were obtained at 2 h after *i.v.* injection of [^{18}F] FDS in infected mice.

Results. In vitro uptake test revealed significantly higher accumulation of [^{18}F]FDS at 2 hin *A. fumigatus, C. albicans* and *R. oryzae* rather than with bacterial strains (Figure 1). PET imaging of BALB/c mice with pulmonary *A. fumigatus* infections showed obvious accumulation of [^{18}F]FDS in the infected lungs compared with control (Figure 2). [^{18}F]FDS PET imaging also detected *A. fumigatus* muscle and brain infection in mice. In infected shoulder muscle of mice, [^{18}F] FDS PET imaging showed high legion-to-background ratio at 2 h. (4.05 ± 1.59, Figure 3).

Conclusion. [^{18}F]FDS PET study demonstrated stable uptake in infected tissue with *A. fumigatus* and rapid clearance from the blood and other organs. [^{18}F]FDS could be a useful imaging probe visualizing the invasive aspergillosis *in vivo*.

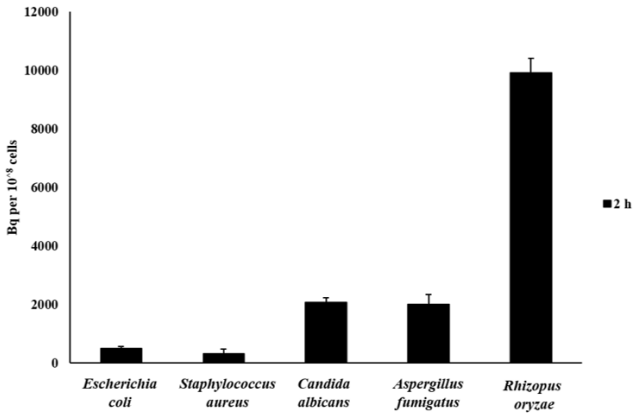

Figure 1. In vitro uptake of [^{18}F]FDS in *Escherichia coli* (positive control), *Staphylococcus aureus* (negative control), *Aspergillus fumigatus*, *Candida albicans* and *Rhizopus oryzae* after 2 hours of incubation.

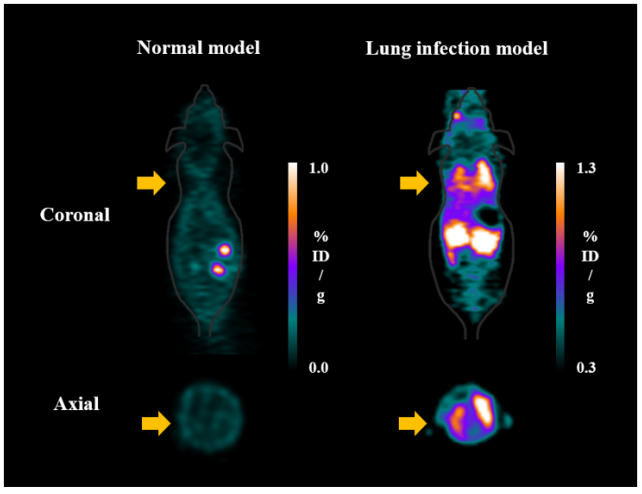

Figure 2. Coronal (upper) and transaxial (lower) images of a normal and lung infection model with *Aspergillus fumigatus* (yellow arrow) at 2 h post-injection of [^{18}F]FDS.