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Background. Despite available prophylaxis, *Pneumocystis jirovecii* pneumonia (PJP) still occurs in immunocompromised hosts. We set out to determine the overall burden of PJP among cancer patients in the modern era at our cancer center. Furthermore, we sought to describe reasons for failure to use prophylaxis among these patients.

Methods. In this retrospective cohort study, we identified PJP cases among patients admitted between January 2007 and December 2016 at our center. PJP was defined as any positive test (immunofluorescence or PCR) from sputum and/or bronchoalveolar lavage. Patient demographics, underlying malignancy, anti-pneumocystis antibiotics and mortality were assessed through electronic medical records. Current National Comprehensive Cancer Network (NCCN) guidelines were used to determine who should have received prophylaxis. Cases not on prophylaxis at the time of diagnosis were reviewed to determine reasons why prophylaxis was not administered. Incidence of PJP for the last 5 years of the study was estimated based on a Poisson distribution.

Results. A total of 37 patients had confirmed PJP over the 10-year study period. The majority were male (68%) with a median age of 60 years (IQR: 47, 67). The most common underlying malignancy was acute myeloid leukemia (24%); 24/37 (65%) were bone marrow transplant recipients. The 5-year incidence between 2012 and 2016 was 2.28 per 10,000 inpatient days (95% CI, 1.50–3.32). There was no evidence of clustering of PJP diagnoses. Overall, 26/37 (70%) of PJP patients were not on prophylaxis at the time of diagnosis, 12 of whom met NCCN criteria for use. Twenty-three were deceased by the end of the study with 11/23 (48%) deaths occurring within 30 days of diagnosis. The main reason prophylaxis was not administered was neutropenia (19%). A documented sulfa allergy was noted in seven PJP cases (19%); 2/7 (29%) were not administered alternate prophylaxis despite recommendations for use.

Conclusion. PJP incidence in this large cohort of cancer patients was low, but one-third of patients who developed PJP were not on recommended prophylaxis in accordance with NCCN guidelines. Infection Prevention and Antimicrobial Stewardship teams should enhance efforts to address missed opportunities for PJP prophylaxis in high-risk patients.

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403. Prognostic Factors in 260 Adults With Invasive Scedosporiosis From Literature and FungiScope™

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Background. Invasive scedosporiosis (iS) and lomentosporiosis (iL) are an increasing concern due to intrinsic resistance of such pathogens to antifungal therapy. Guidelines recommend voriconazole, amphotericin B and surgery to treat scedosporiosis, irrespective of the causative species. *Scedosporium* spp. are often resistant to amphotericin B but susceptible to posaconazole and voriconazole, whereas *Lomentospora prolificans* (LoPro) is usually pan-resistant. Mortality rates rise to 90%, despite comprehensive treatment. Here, we describe the epidemiology of iS/L.

Methods. A retrospective analysis of patients with iS/iL was conducted to evaluate clinical characteristics and outcomes. Cases diagnosed from January 2000 until August 2017 were selected from the literature and the FungiScope™ registry. *In vitro* susceptibility to approved and new antifungals was determined according to EUCAST and CLSI methods.

Results. We identified 208 cases with infection caused by *Scedosporium* spp. and 56 by LoPro. iS was most frequently reported in patients after solid organ transplantation (27.9%), iL in patients with underlying malignancy (51.9%). Skin, lung, CNS, and eye were most frequently involved in iS cases, whereas involvement of lung, eye, and blood stream infection were most common in iL cases. Posaconazole and voriconazole showed good *in vitro* activity against most *Scedosporium* spp. isolates, but not LoPro. The new antifungal drug Olorofim was highly active against all isolates tested *in vitro*, also *LoPro*. All-cause mortality in *Scedosporium* spp. cases ranged from 12.5% in trauma patients to 55.2% in patients with malignancy, in the LoPro group from 28.6% in surgical patients to 85.2% in patients with malignancy. In iS cases worse outcome was associated with disseminated disease and CNS involvement in transplant recipients, and lung involvement in patients with malignancy. In iL cases, malignancy and fungemia were associated with worse outcome.

Conclusion. Clinical presentation and outcome vary between iS and iL cases. Blood stream infection and CNS involvement are associated with worse outcome. Activity of Olorofim against *Scedosporium* spp. and LoPro will be evaluated in an upcoming phase III trial.

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404. Tinea Capitis: Are Epidemiologic Shifts Associated With Distinct Clinical Presentations?

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Background. Tinea capitis is an infection of the hair on the scalp caused by dermatophytic fungi. Geographic distribution of individual organisms has changed significantly over time. In early 20th century Europe, *M. audouinii* and *T. schoenleinii*predominated, both of which are anthropophilic species, being passed from human to human. This was followed by a rise of zoophilic species, those passed from animals to humans, such as *M. canis* and *T. mentagrophytes*. The epidemiological and biological underpinnings of these continuous changes over time are complex and the importance of environmental factors, genetic predisposition, and movement of populations has been broadly debated. This study aims to characterise the organisms causing tinea capitis at a pediatric tertiary care center in Minneapolis, Minnesota.

Methods. We retrospectively reviewed the electronic medical record from 2010–2015 and identified 42 children with culture positive tinea capitis.

Results. In the 18 (42.9%) patients that were infected with either *T. violaceum* or *T. soudanese*, all were of African ethnicity. In contrast, *T. tonsurans*, which is now the most common cause of tinea capitis in the United States, was identified in a minority of African patients (3.8%). These ethnic differences in infective species were statistically significant (Fischer exact test *P*-value <0.0001). We also identified inter-species differences in the presence of an inflammatory response as measured by bogginess, pustulation, and lymphadenopathy ($P = 0.027$). Though anthropophilic species such as *T. tonsurans* and *T. violaceum* classically cause less inflammation, we identified differences between these anthropophilic species. Specifically, we found that *T. tonsurans* was more likely to cause an inflammatory response than *T. violaceum* (68% vs. 22%).

Conclusion. Historically, *T. violaceum* was partially geographically limited to Africa and Asia, while *T. soudanese* was seen only in Africa. Both *T. violaceum* and *T. soudanese* can cause tinea capitis with minimal inflammation, mimicking seborrheic dermatitis, and leading to misdiagnosis and incorrect treatment. Studying epidemiologic changes in tinea capitis can help us understand shifts in the clinical presentation of this disease as our population make-up evolves, allowing us to provide crucial quality health care to all.

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405. Outbreak of Prototheca Wickerhamii Algaemia in a Tertiary Care Chemoradiation Oncology Unit

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Background. *Prototheca* is an emerging, opportunistic, pathogenic, zoonotic achlorophyllous green alga, expanding in pathogenicity and host range, causing localized and disseminated infections. This outbreak of *Prototheca wickerhamii* algaemia