associated with EIEC virulence. The EIEC O96:H19 stain 52.1 is an emergent diarrheagenic pathogen likely derived from an E. coli O96:H19 strain that acquired a Shigella-like virulence plasmid by horizontal transfer.

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

1128. Utility of Anaerobic and Fungal Blood Cultures in the Pediatric Oncologic Population

Madan Kumar, DO[1] and Benjamin Hanisch, MD; [1]Infectious Diseases, Childrens National Medical Center, Washington, DC, [1]Children's National Medical Center, Washington, DC

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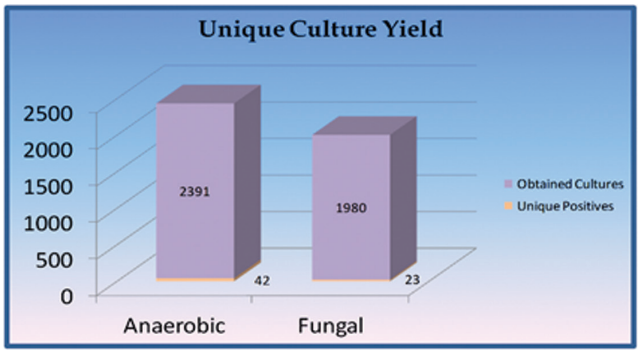
Background. In our institution, a febrile or ill appearing oncology patient will often be evaluated with aerobic, anaerobic, and fungal cultures. This is especially true in patients with persistent fevers without a clear etiology on empiric antimicrobial therapy. It is common for all three cultures to be repeated multiple times per admission.

Although this practice may seem sensible, there is to our knowledge little evidence to confirm its necessity in this population.

Methods. A record of all positive blood cultures originating from our institutions oncology ward was obtained from January 2010 to April 2017. Duplicate cultures (obtained on consecutive days with repeat organisms) were excluded. Each anaerobic and fungal culture was then evaluated for corollary positive aerobic cultures from the same time frame.

Results. A total of 10,950 blood cultures were evaluated for this study, including 2,391 anaerobic cultures and 1,980 fungal cultures. Forty-two unique anaerobic cultures (1.7%) were identified. The viridans group of *Streptococcus* was a large contributor with nine unique cultures. Only seven cultures of obligate anaerobes were observed: four cultures of *Clostridial* species, two *Propionobacterium acnes*, and one *Peptostreptococcus* species. Twenty-three unique fungal cultures (1.2%) were identified. Notably most of these isolates (14) were identified as having one colony present and regarded as probable contaminants. *Penicillium*, *Cladosporium*, and unidentified dermatiaceous molds were present in greatest frequency.

Conclusion. Over a 7-year period of routinely obtaining anaerobic and fungal cultures for febrile oncology patients only 42 unique anaerobic and 23 unique fungal cultures were identified. Given the predominance of facultative anaerobes, this may simply reflect the findings of increased blood sampling rather than added utility of the growth medium. Similarly, even among the limited unique fungal cultures the majority were of suspect validity given the presence of a single colony. These findings suggest judicious use of selective growth media in cases with higher clinical suspicion may be more useful than empiric evaluation.



Species Identified (Anaerobic Cultures)	Number of Isolates (Total = 42)
Streptococcus (viridans group)	9
Enterobacter cloacae	4
Enterococcus faecalis/faecium	4/1
Closdridual sp	4
Escherichia coli	4
Staphylococcus (coagulase negative)	3
Citrobacter freundii	2
Granulicatella sp	2
Pseudomonas aeruginosa	2
Propionobacterium acnes	2
Peptostreptococcus prevotii	1
Capnocytophaga sp	1
Salmonella (serogroup B)	1
Klebsiella pneumoniae	1
Streptococcus pneumoniae	1

Species Identified (Fungal Cultures)	Number of Isolates (Total = 23)
Penicillium	6
Cladosporium	5
Unidentified dematiaceous mold	4
Aspergillus sp	1
Bipolaris sp	1
Candida albicans	1
Candida parapsilosis	1
Rhodotorula mucilaginosa	1

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1129. Targeted Voriconazole Prophylaxis in Heart Transplantation Recipients

Michael Lin, BS[1]; Ignacio Echenique, MD[2]; Michael Angarone, DO[3]; Allen Anderson, MD[4] and Valentina Stosor, MD, FIDSA[5]; [1]Northwestern University Feinberg School of Medicine, Chicago, Illinois, [2]Infectious Diseases, Cleveland Clinic Florida, Weston, Florida, [3]Infectious Diseases, Northwestern University Feinberg School of Medicine, Chicago, Illinois, [4]Cardiology, Northwestern University Feinberg School of Medicine and Bloom Cardiovascular Institute, Chicago, Illinois, [5]Infectious Diseases & Organ Transplantation, Northwestern University Feinberg School of Medicine, Chicago, Illinois

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Background. The use of antifungal prophylaxis, targeted or universal, remains controversial and unstudied. The goal of this study is to determine the role of targeted voriconazole prophylaxis (VORI) in prevention of invasive fungal infections (IFI) after heart transplantation (HT).

Methods. We conducted a single-center, prospective, observational cohort study of 276 HT recipients from June 2005 to April 2017 to characterize the incidence and outcome of IFI following targeted VORI. Starting in June 2013, HT recipients with thymoglobulin (ATG) treatment received VORI for 3 months. Probable/proven IFI were defined by EORTC/MSG criteria. Descriptive frequencies and univariate analyses were performed.

Results. Mean duration of follow-up post-HT was 1,165 days (0–3,152 days). 149 (54%) and 70 (25%) received basiliximab and thymoglobulin induction, respectively. Thirty-one (11%) received VORI, following use of ATG in the setting of induction (68%) or rejection (32%). VORI was started at median of 6 days (0–1,008 days) post-HT for a mean duration of 97 days (5–251 days). Overall, 23 IFIs occurred in 23 recipients (8%) at mean 283 days post-HT (range 2–1,579 days), including seven *Aspergillus* (one occurring after VORI completion), seven invasive *Candida* (five with candidemia), two *Rhizopus*, one *Cunninghamella*, two histoplasma, two blastomyces, one *Cryptococcus*, and one multifocal cutaneous Alternaria.

Characteristics and Outcomes of 276 Heart Transplant Recipients with Targeted VORI

	VORI (n = 31)	No VORI (n = 245)	P-value
Outcomes	%	%	
Invasive Aspergillosis	3.2	2.4	0.57
Invasive Candidiasis	0.0	2.9	1.00
IFIs	3.2	9.0	0.49
IFIs within 180 d	0.0	5.7	0.38
1-yr Mortality	22.6	19.6	0.70
Overall Mortality	12.9	9.0	0.51
Characteristics	% or Mean	% or Mean	
Mean Age in Years	48.7	57.7	0.001
Female Gender	54.8	29.4	0.004
African-American	45.2	19.6	0.001
ATG Induction	67.7	20.0	0.00
Desensitization	29.0	8.6	0.002
Antibody-mediated Rejection	45.2	18.0	0.00
2R/3R Rejection	30.8	36.0	0.96
Re-transplantation	12.9	2.9	0.03
Diabetes Mellitus	19.4	29.8	0.23
Renal Impairment	54.8	38.8	0.09

Conclusion. Targeted VORI resulted in reduced incidences of both early and overall IFI after HT although this did not reach statistical significance. Since instituting this strategy, we have observed a single case of aspergillosis following VORI discontinuation. Overall and 1-year mortality were not impacted. The use of antifungal prophylaxis following HT requires continued investigation both to determine efficacy and toxicity in this patient population.

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

1130. Low Risk of *Pneumocystis jiroveci* Pneumonia in Patients With Waldenstrom's Macroglobulinemia on Ibrutinib

Amanda E. Kusztos, BS[1,2]; Matthew P. Cheng, MD[1,3,4]; Joshua N. Gustine, MPH[5]; Toni E. Dubeau, NP[5]; Ann E. Woolley, MD[2,4]; Sarah P. Hammond, MD[1,3,4]; Lindsey R. Baden, MD[1,3,4]; Jorge J. Castillo, MD[4,5] and Nicolas C. Issa, MD[1,2,4]; [1]Division of Infectious Diseases, Brigham and Women's Hospital, Boston, Massachusetts, [2]Medical Oncology,

Dana-Farber Cancer Institute, Boston, Massachusetts, [3]Dana-Farber Cancer Institute, Boston, Massachusetts, [4]Harvard Medical School, Boston, Massachusetts, [5]Bing Center for Waldenstrom's Macroglobulinemia, Dana-Farber Cancer Institute, Boston, Massachusetts

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Background. Ibrutinib is a Bruton's tyrosine kinase inhibitor that is FDA approved for the treatment of chronic lymphocytic leukemia (CLL), mantle cell lymphoma, marginal zone lymphoma, and Waldenstrom's macroglobulinemia (WM). Fungal infections including *Pneumocystis jiroveci* pneumonia (PCP) are increasingly reported in patients with CLL and lymphoma on ibrutinib possibly due to the off-target effect of ibrutinib on the adaptive immune system. Whether this increased risk is due to the effect of ibrutinib alone or in combination with immune dysregulation due to underlying malignancy is unknown. The purpose of this study was to assess the incidence of PCP in patients with WM on ibrutinib therapy.

Methods. A retrospective cohort study was performed of all patients with WM who initiated ibrutinib monotherapy at Dana-Farber Cancer Institute between July 1, 2015 and January 30, 2018. Baseline characteristics, laboratory parameters, previous and concomitant malignancy treatment regimens, and antimicrobial medications were collected by chart review. Patients were followed until April 1, 2018 for the development of PCP.

Results. There were a total of 106 patients with WM on ibrutinib during the study period. Sixty-one (58%) were male, and the median age at initiation of ibrutinib was 69 years (range 43 – 89). Forty-six patients (43%) received prior therapy for WM, with a median of two previous treatment courses (range 1–6). Fourteen patients (13%) were on PCP prophylaxis for a combined duration of 8 person-years. No cohort patient developed PCP during the study period, which included 146 person-years of ibrutinib exposure. Three patients (3%) died due to disease progression ($n = 2$) and *E. coli* sepsis ($n = 1$).

Conclusion. Patients with WM on ibrutinib monotherapy appear to have a different infectious risk profile than patients with CLL or lymphoma and do not have a high risk of developing PCP. These data suggest that PCP prophylaxis is likely not beneficial for patients with WM on ibrutinib.

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1131. Characteristics and Risk Factors for Mortality in Hematologic Patients with Invasive Non-*Aspergillus* Mold Infections: A Single-Center 7-Year Cohort Study

Hyeon-Jeong Lee, MD[1]; Dong-Gun Lee, MD, PhD[2] and Sung-Yeon Cho, MD[2]; [1]Divisions of Infectious Diseases, Department of Internal Medicine, College of Medicine, The Catholic University of Korea, Seoul, Korea, Republic of (South), [2]Division of Infectious Diseases, Department of Internal Medicine, College of Medicine, The Catholic University of Korea, Seoul, Korea, Republic of (South)

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Background. Since anti-mold active azole prophylaxis has become a standard approach for patients with high-risk hematologic diseases, the epidemiology of invasive fungal infections (IFIs) has shifted toward non-*Aspergillus* molds in recent years. The aim of this study was to identify the epidemiology and characteristics of non-*Aspergillus* invasive mold infections (NAIMIs) in the real-world.

Methods. Proven/probable NAIMIs developed in patients with hematologic diseases were reviewed from January 2011 to January 2018 at the Catholic Blood and Marrow Transplantation Center.

Results. There were 662 patients with proven/probable IMIs, of which 40 patients (41 isolates) were diagnosed with NAIMIs. The incidence of NAIMIs showed an increasing trend since 2013 when posaconazole prophylaxis was approved in Korea [correlation coefficient (r) = 0.735, $P = 0.265$]. Mucormycosis ($n = 24$, 58.5%) was the most common, followed by *Fusarium* ($n = 7$, 17.1%), *Alternaria* ($n = 2$), *Scopulariopsis* ($n = 2$), *Scedosporium* ($n = 2$), *Paecilomyces* ($n = 1$), *Coprinus* ($n = 1$), *Chaetomium* ($n = 1$), and *Schizophyllum* ($n = 1$). Twenty-eight patients were under neutropenia upon diagnosis of NAIMI and 35.0% were allogeneic stem cell transplantation recipients. The most common sites of NAIMI were the lungs (60.0%), followed by the paranasal sinus (17.5%) and disseminated infections (12.5%). There were 35.5% breakthrough IMI cases. In addition, there were 42.5% mixed or concurrent IFIs and 77.5% had coexisting bacterial or viral infections. The overall mortality at 6 and 12 weeks was 32.5% and 42.5%, respectively. The mortality rates for mucormycosis and nonmucormycosis at 6 weeks were 21.7% and 47.1%, respectively. Breakthrough IFIs [adjusted hazards ratio (HR) = 4.83, $P = 0.018$] and surgical treatment [HR = 0.09, $P = 0.003$] were independently associated with 6-week mortality.

Conclusion. NAIMIs showed an increasing trend, mixed/concurrent IFIs were substantial, and coexisting bacterial or viral infections were found in more than two-thirds of patients. Breakthrough IFIs and surgical treatment have significant impact on mortality. More meticulous approaches to diagnosis and treatment strategies of NAIMIs are needed.

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

1132. Pneumocystis Infection in Children: National Trends and Characteristics in the United States, 1997–2012

Kengo Inagaki, MD[1]; Chad Blackshear, MS[2] and Charlotte V. Hobbs, MD[3]; [1]University of Mississippi Medical Center, Jackson, Mississippi, [2]Data Science, University of Mississippi Medical Center, Jackson, Mississippi, [3]Pediatrics, University of Mississippi Medical Center, Jackson, Mississippi

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Background. Although epidemiology of immunocompromising condition in children has evolved over time, updated epidemiology of pediatric pneumocystis infection in the United States is not available.

Methods. We performed a retrospective analysis using the Kids' Inpatient Database, a nationally representative sample of US pediatric hospital discharges collected in 1997, 2000, 2003, 2006, 2009, and 2012. Pneumocystis cases were identified using *International Classification of Diseases, Ninth Revision, Clinical Modification* code 136.3 among children aged 0–18 years. Demographic data of cases with and without mortality were compared.

Results. We identified 1,902 (standard error, SE: 95) pneumocystis cases during the study period. The pneumocystis hospitalization rate decreased from 7.5 (SE: 0.91) to 2.7 (SE: 0.31) per a million US children from 1997 to 2012 (63.2% decrease). Cases with human immunodeficiency virus (HIV) infection decreased from 285 (SE: 56) cases in 1997 to 29 (SE: 7) cases in 2012, although non-HIV-associated cases remained relatively stable. After 2009, HIV was the third common underlying disorder after hematologic malignancy and primary immunodeficiency. All-cause in-hospital mortality was 11.7% (SE: 1.3%) and was particularly high among cases with hematopoietic stem cell transplant (HSCT) (32.4% [SE: 7.1%]) ($P < 0.001$).

Conclusion. Pneumocystis infection in children showed a marked decrease from 1997 to 2012 in the United States, largely driven by the reduction in HIV-associated cases. Non-HIV illnesses including hematologic malignancy and primary immunodeficiency became prominent underlying conditions over time. HSCT-associated cases had particularly high mortality. Non-HIV conditions should be the target for primary and secondary prevention in reducing the disease burden.

Figure 1: Change in pneumocystis hospitalization rates per a million US children, 1997 to 2012

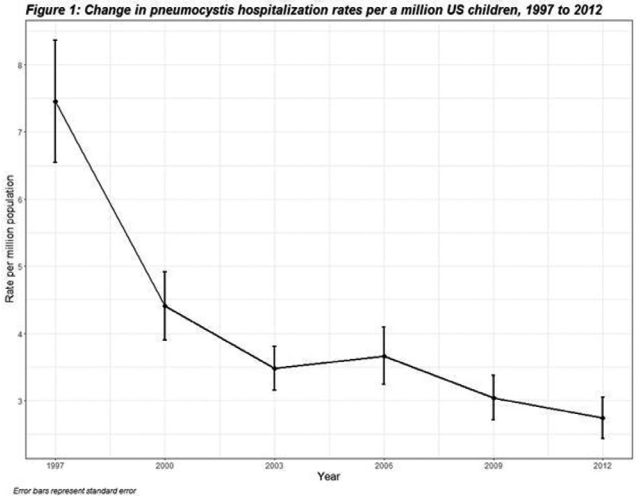

Figure 2: Trend of underlying conditions for pneumocystis infection HIV vs non-HIV, 1997-2012