patients who underwent bronchoscopy with BAL GMS stain for the diagnosis of PJP. We collected additional patient factors such as age, sex, HIV status, and immunosuppressed status. For patients with a negative BAL GMS stain, we collected data on other diagnostics, including positive GMS lung biopsies, positive PJP PCR or DFA, and elevated serum (1–3)-β-D-glucan levels. We defined BAL GMS-negative cases as proven or probable based on investigator generated criteria (see Figure 1).

Results. We identified 52 patients with PJP who received a BAL GMS stain, including 28 HIV-positive and 24 HIV-negative cases. Of 24 HIV-negative cases, 11 had BAL GMS-positive PJP and 13 had BAL GMS-negative PJP (9 proven and 4 probable). In the latter group, 6 had hematologic malignancies (HM), 2 had solid-organ transplants (SOT), 1 had hematopoietic stem cell transplant, 2 had SOT plus HM, and 2 received high-dose steroids. Proven diagnoses were made by GMS-positive lung biopsy ($n = 6$), DFA ($n = 2$), and PCR ($n = 1$). Elevated (1–3)-β-D-glucan was observed in 7 of 8 cases (median: >500 pg/mL; range 39 to >500). Three patients developed adverse outcomes (1 readmission due to untreated PJP and 2 treatment delays). BAL GMS sensitivity for HIV-negative patients was 11/24 (46%) vs. 28/28 (100%) in HIV-positive patients.

Conclusion. The sensitivity of BAL GMS for PJP is poor in HIV-negative immunocompromised patients. Missed cases or delayed treatment for PJP may lead to adverse outcomes. In HIV-negative patients with a clinical syndrome compatible with PJP, a negative BAL GMS does not rule out PJP and must be confirmed by supplementary diagnostics.

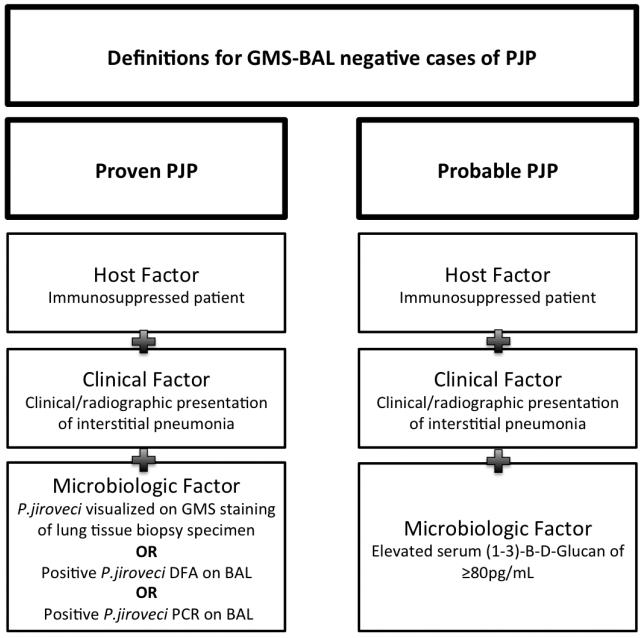

Figure 1

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

2567. Diagnosis of Invasive *Aspergillosis* in Hematological Malignancy Patients Receiving Mold-Active Antifungals: Performance of Interleukin-6 and -8, *Asp* LFD, and *Aspergillus* PCR in Same-day Blood and Bronchoalveolar Lavage Fluid Samples

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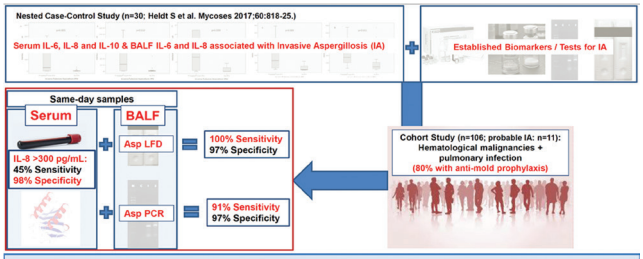
Background. *Aspergillus* spp. induce elevated levels of several cytokines, including Interleukin (IL)-6 and IL-8. It remains unknown whether these cytokines hold value for clinical routine and enhance diagnostic performances of established and novel biomarkers/molecular tests for invasive aspergillosis (IA) in patients receiving mold-active antifungals.

Methods. This cohort study included 106 prospectively enrolled (2014–2017) adult cases with underlying hematological malignancies and suspected pulmonary infection undergoing bronchoscopy. Serum samples were collected within 24 hours of bronchoalveolar lavage fluid (BALF) sampling. Both serum and BALF samples were used to evaluate diagnostic performances of the *Aspergillus*-specific lateral-flow device test (LFD), *Aspergillus* PCR, galactomannan, β-D-glucan, and cytokines that have shown significant associations with IA in our previous matched case–control analysis (including IL-6 and IL-8), for IA classified according to the revised EORTC/MSG criteria.

Results. Among the 106 cases, 11 had probable IA, 32 possible IA, and 63 no evidence for IA; 80% received mold-active antifungals at the time of sampling. Diagnostic tests and biomarkers showed significantly better performance in BALF compared with blood, with the exception of serum IL-8 which was highly specific for IA and proved to be the most reliable blood biomarkers. Combinations of serum IL-8 with either BALF LFD (sensitivity 100%, specificity 94%) or BALF PCR (sensitivity 91%, specificity 97%) were highly sensitive and specific for differentiating probable IA from no IA.

Conclusion. High serum IL-8 levels were highly specific, and when combined with either the BALF *Aspergillus*-specific LFD, or BALF *Aspergillus* PCR also highly sensitive for diagnosis of IA.



Performance of diagnostic tests in serum samples (IL-8, IL-6, LFD, *Aspergillus* PCR, and BDG) and in same-day BALF samples (IL-8, LFD, *Aspergillus* PCR), as well as combinations, for differentiating probable invasive aspergillosis (IA; n=11) versus no evidence for IA (n=63) ordered by Diagnostic Odds Ratios (DOR).

Test/test combination	Sensitivity	Specificity	PPV	NPV	DOR	Positivity in Possible IA / possible IMI cases	Positivity in possible IA / probable IMI cases
Serum IL-8 (>300 pg/mL)	45% (5/11)	98% (62/63)	83% (5/6)	91% (62/68)	51.7 (5.1-518)	8% (2/25)	0% (0/7)
Serum IL-8 (>60 pg/mL)	55% (6/11)	92% (58/63)	55% (6/11)	92% (58/63)	13.9 (3.1-62.2)	16% (4/25)	43% (3/7)
Serum IL-8 (>14 pg/mL)	82% (9/11)	63% (40/63)	28% (9/32)	95% (40/42)	7.8 (1.6-39.4)	48% (12/25)	57% (4/7)
Serum IL-6 (>40 pg/mL)	73% (8/11)	70% (44/63)	30% (8/27)	94% (44/47)	6.2 (1.5-25.9)	20% (5/25)	29% (2/7)
Serum LFD (45 min)	9% (1/11)	97% (61/63)	33% (1/3)	86% (61/71)	3.0 (0.3-36.9)	16% (4/25)	0
Serum BDG (>80 pg/mL)	45% (5/11)	75% (47/63)	24% (5/21)	89% (47/53)	2.4 (0.7-9.1)	4% (1/25)*	86% (6/7)
Blood Aspergillus PCR	0% (0/10)	100% (55/55)	-	85% (55/65)	-	0	0
Serum LFD (15 min)	0% (0/10)	98% (54/55)	-	84% (54/64)	-	4% (1/25)	0
BALF LFD (10 min)	73% (8/11)	95% (60/63)	73% (8/11)	95% (60/63)	53.3 (9.2-310)	0	0
BALF Aspergillus PCR	27% (3/11)	98% (58/59)	75% (3/4)	91% (58/64)	21.8 (2.0-235)	4% (1/24)	0
BALF LFD (15 min)	73% (8/11)	87% (55/63)	50% (8/16)	95% (55/58)	18.3 (4.0-83.8)	12% (3/25)	43% (3/7)
BALF IL-8 (>556 pg/mL)	91% (10/11)	48% (30/63)	23% (10/43)	97% (30/31)	9.1 (1.1-75.3)	52% (13/25)	71% (5/7)
BALF IL-8 (>1000 pg/mL)	73% (8/11)	67% (42/63)	28% (8/29)	93% (42/45)	5.3 (1.3-22.2)	36% (9/25)	43% (3/7)
Serum IL-8 (>300 pg/mL) AND/OR Serum IL-6 (>40 pg/mL)	73% (8/11)	70% (44/63)	30% (8/27)	94% (44/47)	6.2 (1.5-25.9)	20% (5/25)	29% (2/7)
Serum IL-8 (>300 pg/mL) AND/OR BALF LFD (10 min)	100% (11/11)	94% (59/63)	73% (11/15)	100% (59/59)	304 (15.3-6042)	8% (2/25)	0% (0/7)
Serum IL-8 (>300 pg/mL) AND/OR BALF LFD (15 min)	100% (11/11)	86% (54/63)	55% (11/20)	100% (54/54)	132 (7.2-2432)	20% (5/25)	43% (3/7)
Serum IL-8 (>300 pg/mL) AND/OR BALF Aspergillus PCR	91% (10/11)	97% (57/59)	83% (10/12)	98% (57/58)	285 (23.6-3447)	12% (3/25)	0

Disclosures. **G. Johnson**, OLM Diagnostics: Employee, Salary.

2568. Variability in Pediatric Antibiotic Prescribing for Upper Respiratory Illnesses by Provider Specialty

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Background. Antibiotic prescribing varies among providers, contributing to antibiotic resistance and adverse drug reactions.

Objective. To evaluate variation in antibiotic prescribing between pediatric and nonpediatric providers for common upper respiratory illnesses.

Methods. Patient encounters for children aged <18 years from a regional healthcare system were identified. Electronic medical records from 2011 to 2016 were extracted for diagnoses of upper respiratory infection (URI), pharyngitis, acute otitis media (AOM), and sinusitis. Encounters with competing medical diagnoses, recent hospitalization, and antibiotic prescriptions within 30 days were excluded. Adherence to antibiotic guidelines was assessed by provider training (pediatric, nonpediatric physicians, and advance practice providers [APP]). Additional factors assessed included clinic or urgent care setting, calendar year, and patient's age, gender, insurance status, and number of sick visits in the prior year.

Results. Across 6 years, 141,361 visits were examined: 43,914 for URI, 43,701 for pharyngitis, 43,925 for AOM, and 9,821 for sinusitis. Pediatricians were more likely than APPs and nonpediatric providers to have guideline-concordant prescribing for pharyngitis (pediatricians 66.7 (54.5, 77.0)%, nonpediatricians 49.1 (36.3, 62.0)%, APPs 52.2(39.4, 64.7)%, $P < 0.0001$) and sinusitis (pediatricians 70.8(53.8, 83.4)%, nonpediatricians 63.3(46.8, 77.2)%, APPs 62.1(45.1, 76.5)%, $P = 0.48$) and

to withhold antibiotics for URI than APPs and nonpediatric providers (pediatricians 86.6(81.2, 90.6)%, nonpediatricians 80.8(73.0, 86.8)%, APPs 76.8(68.4, 83.5)%, $P < 0.0001$). Pediatricians were less likely to prescribe antibiotics for pharyngitis without a positive Group A *Streptococcus* test than APPs and nonpediatric providers (pediatricians 15.1(10.4, 21.6)%, nonpediatricians 29.4(20.8, 39.6)%, APPs 27.2(19.3, 36.9)%, $P < 0.0001$). First-line antibiotic prescribing for pharyngitis and AOM did not differ between provider specialties. A trend toward more guideline-concordant prescribing was seen for pharyngitis and sinusitis over the study period.

Conclusion. Pediatricians were more likely to adhere to guidelines for pediatric acute respiratory infections. Pediatric antibiotic stewardship efforts should also target non-pediatricians.

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

2569. High Incidence of Enterovirus, HHV6, Parechovirus and Adenovirus Blood Viremia in Children 0 to 3 Years Old Presenting With Fever Without Source

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Background. Fever without source (FWS) is defined as a fever in which an extensive history and clinical examination fail to identify a cause. Although the vast majority of children with FWS have a self-limited viral infection, up to 10–25% have a serious bacterial infection (SBI). Therefore, many children require invasive diagnostic tests, hospital admission, and empirical administration of broad-spectrum antibiotics. The aim of this study was to assess the respective role of Human enterovirus (HEV), human parechovirus (HPeV), adenovirus (ADV) and herpesvirus type 6 (HHV6) viremia in children <3 years old presenting with FWS.

Methods. Prospective monocentric diagnostic study. Between November 2015 to December 2017, children <3 year olds with FWS had, in addition to the standardized institutional work-up for FWS, plasma tested by real-time (reverse-transcription) polymerase chain reaction (PCR) for ADV, HHV6, HEV, and HPeV. Specimens with cycle threshold values <40 were considered positive. Quantification was performed on positive specimens for HEV, ADV, and HHV6 specimens when volume permitted.

Results. One hundred thirty-five patients had plasma PCR for ADV, HHV6, HEV, and HPeV. Male:female ratio was 1.45:1 and median age was 2.4 months (interquartile range 1.3–9.7). Among those, 47/135 (34.8%) had at least 1 virus detected in the plasma. More specifically, HEV was detected in 19 patients (14.1%), HHV6 in 15 (11.1%), HPeV in 8 (5.9%), and ADV in 7 (5.2%). Co-infection with 2 viruses was detected in 2 patients (ADV/HEV and ADV/HPeV). No patient with positive plasma PCR had a positive blood or CSF culture. Two patients with positive plasma PCR fulfilled American Academy of Pediatrics criteria for urinary tract infection. The first was HEV+ in plasma and CSF, midstream urine was positive for leukocytes and grew *E. coli* 10^6 CFU/mL, whereas the second was HHV6+ in plasma and catheter urine was positive leukocytes/nitrites and grew *P. mirabilis* 10^5 CFU/mL.

Conclusion. This epidemiological study highlights the frequent detection of active enteroviral, adenoviral, and HHV6 infections in plasma of children with FWS. Virus–virus and virus–bacteria co-infections are rare. Further studies are needed to establish causality between FWS and viremia.

Disclosures. **A. G. L'Huillier**, Gertrude Von Meissner foundation: Investigator, Research grant. Ernst and Lucie Schmidheiny foundation: Investigator, Research grant. Research and Development Grant, Geneva University Hospitals: Investigator, Research grant. **L. Kaiser**, Swiss National Funds: Investigator, Research grant. **A. Galetto-Lacour**, Gertrude Von Meissner foundation: Investigator, Research grant. Ernst and Lucie Schmidheiny foundation: Investigator, Research grant. Research and Development Grant, Geneva University Hospitals: Investigator, Research grant.

2570. HCV Screening Practices Among Adolescents and Young Adults in a National Sample of Federally Qualified Health Centers in the United States

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Background. The opioid crisis has been associated with an increase in hepatitis C virus (HCV) infections among 15–30 year olds. Federally Qualified Health Centers (FQHCs) provide comprehensive healthcare to diverse and underserved communities. However, little is known about HCV screening practices among adolescents and young adults seen at FQHCs across the United States.

Objective. To characterize the continuum of HCV testing and care among adolescents and emerging adults in a large national sample of US FQHCs.

Methods. We used the OCHIN electronic medical record to create a retrospective cohort of 13 to 21 year olds who had a least 1 outpatient visit at any of 98 participating US FQHCs across 19 states from 2012 to 2017. Primary outcome was HCV testing during this timeframe. We also identified predictors of HCV screening using multivariable logistic regression adjusting for age, sex, race/ethnicity, and substance use.

Results. Among 269,287 youth who met inclusion criteria, 54.7% were female, 37.6% White, 33.5% Hispanic, 17.6% Black, and 11.3% other. Mean [SD] age at first HCV screening was 18.5 [2.2] years. Over the study period, 2.5% (6849/269,287) were tested for HCV and 153 (2.2%) had reactive HCV testing. Of those, 117 (76.5%) had confirmatory RNA testing and 65 (55.6%) had detectable RNA. Thirty-five percent (325/933) with ICD-9 codes for opioid-use disorder (OUD) and 8.9% (2080/23,345) with any ICD-9 code for drug use were tested for HCV. Only 10.6% (728/6,849) of individuals tested for HCV had also been tested for human immunodeficiency virus (HIV). Older age (19–21 vs. 13–15 years old at study end, aOR 5.64, 95% CI 5.13–6.19), Black race (aOR 1.88, 95% CI 1.76–2.00), and ICD-9 codes for substance-use disorder, in particular amphetamine (aOR 5.82, 5.10–6.64), opioids (aOR 3.50, 2.92–4.19), cocaine (aOR 2.90, 2.43–3.47), or cannabis (aOR 2.46, 2.31–2.62) were independently associated with HCV testing in multivariable analysis.

Conclusion. During the current opioid crisis, only a third of adolescents/young adults diagnosed with OUD in a large national sample of FQHCs were tested for HCV. In addition, only 10% of those tested for HCV were also screened for HIV. Initiatives are needed to increase HCV and HIV screening among at-risk youth at FQHCs.

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

2571. Higher Rates of Hospitalization and Infection-Related Hospitalization Among HIV-Exposed Uninfected Infants Compared with HIV Unexposed Uninfected Infants in the United States

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Background. Studies from multiple countries have suggested impaired immunity in perinatally HIV-exposed uninfected (HEU) children, with elevated rates of all-cause hospitalization and infections. We estimated the incidence of all-cause hospitalization and infection-related hospitalization in the first 2 years of life among HEU children and compared this with HIV-unexposed uninfected (HUU) children in the US Among HEU children, we evaluated associations of maternal HIV disease-related factors during pregnancy with risk of infant hospitalization.

Methods. We evaluated HEU children enrolled in the Surveillance Monitoring for ART Toxicities (SMARTT) Study dynamic cohort of the Pediatric HIV/AIDS Cohort Study (PHACS) network who were born 2006–2017 and followed from birth. Data on HUU children were obtained from the Medicaid Analytic Extract database, restricted to states participating in SMARTT. We compared rates of first hospitalization, total hospitalizations, first infection-related hospitalization, total infection-related hospitalizations, and mortality between HEU and HUU children using Poisson regression. Among HEU children, multivariable Poisson regression models were fit to evaluate associations of maternal HIV factors with risk of hospitalization.

Results. Our analysis included 2,404 HEU and 3,605,864 HUU children. HEU children had approximately 2 times greater rates of first hospitalization, total hospitalizations, first infection-related hospitalization, and total infection-related hospitalizations compared with HUU children (figure). There was no significant difference in mortality. Among HEU children, maternal HIV disease factors, including viral load, CD4 count, antiretroviral regimen, and mode of HIV acquisition, were not associated with hospitalization rates.

Conclusion. Compared with HUU, HEU children in the United States have nearly twice the rate of hospitalization and infection-related hospitalization in the first 2 years of life, consistent with studies in other countries. Closer monitoring of HEU infants for infection and further elucidation of immune mechanisms is needed.