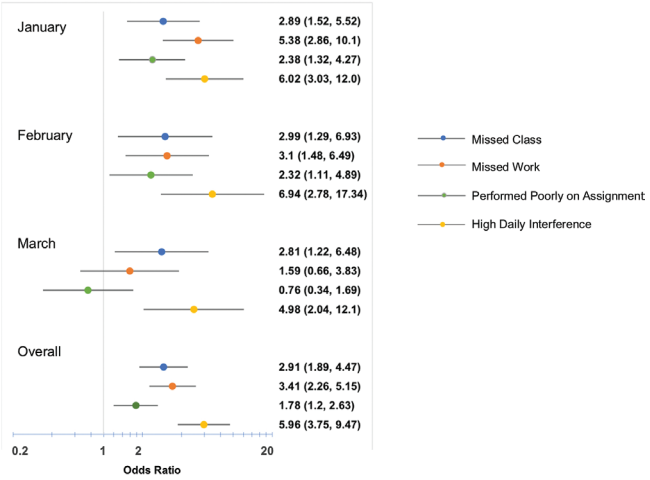
those with ILI and those with non-ILI. Having symptoms of ILI was associated with reports of missing work (OR 2.9; 95% CI: 1.9, 4.5), missing class (OR 3.4; 95% CI: 2.3, 5.2), performing poorly on assignments and exams (OR 1.8; 95% CI: 1.2, 2.6), and having high interference with daily life (OR 6.0; 95% CI: 3.8, 9.5) as compared with individuals with a non-ILI illness. These impacts were strongest during January and February.

Conclusion. A high prevalence of ILI was observed on campus. These symptoms were found to have a substantial impact on academic and occupational productivity. This demonstrates the need for greater illness prevention efforts on college campuses during influenza season.

Figure 1. Odds ratios of performance outcomes among those with ILI compared to those with other illness symptoms stratified by enrollment month.



Disclosures. **All Authors:** No reported Disclosures.

96. Human Papilloma Viruses Associated Diseases in a Cohort of Patients with Idiopathic CD4 Lymphopenia

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Session: 34. Virus Infections - Host, Pathogen, and Impact of Intervention
Thursday, October 3, 2019: 11:19 AM

Background. Idiopathic CD4 Lymphocytopenia (ICL) is a rare immunodeficiency characterized by an absolute CD4+ T count of < 300 cells/μL, in absence of HIV-infection or any other known cause. Patients with ICL have an increased risk of opportunistic infections. The prevalence, natural history, and spectrum of Human Papillomaviruses (HPV) associated diseases in ICL patients are unknown.

Methods. ICL patients were enrolled in a prospective observational study (N = 90). Demographic, clinical, and immunologic data were analyzed by nonparametric Methods. Immunophenotyping was performed by flow cytometry.

Results. The median age of ICL patients was 48 years, 47% were women, and 92% were Caucasian. Sixty-five percent of patients had at least one opportunistic infection, with HPV being the most prevalent (34.4%), followed by cryptococcal disease (22%), shingles (15.5%), molluscum contagiosum (8.8%), *Histoplasma capsulatum* (4.4%), *Mycobacterium avium* complex (4.4%), and progressive multifocal encephalopathy (2.2%). HPV-related diseases were identified in 18 women and 13 men. ICL patients with HPV disease were younger compared with those without (median age 34 vs. 53.5 years, $P < 0.0001$). Nine (29%) had anogenital, 9 (29%) had a cutaneous disease (verruca plana, verrucous carcinoma, squamous cell carcinoma) while 13 (42%) had both anogenital and cutaneous disease. Patients with HPV-related disease were also more likely to have history of cryptococcal disease, shingles or molluscum ($P = 0.036$, $P = 0.22$ and 0.11, respectively). Thirteen patients had HPV-associated cancers: 7 both mucosal and skin and 3 either skin or mucosal malignancies. Patients with HPV-disease had lower CD4+ T cells (median CD4 70 vs. 114 cells/μL, $P = 0.036$). No differences were observed in the numbers of CD8+ T cells, B cells, NK cells, and levels of IgG between patients with and without HPV disease.

Conclusion. HPV-related disease represents the most common opportunistic infection in ICL patients. Patients with ICL and HPV disease are younger, have lower CD4s and high prevalence of HPV-associated malignancies. Therefore, for patients presenting early in life with severe HPV disease further immunological workup should be considered and for patients with ICL excessive screening for HPV-related malignancies should be a priority.

Disclosures. **All Authors:** No reported Disclosures.

97. Competition Experiments for the Baloxavir-Resistant I38T Influenza A Mutant

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Session: 34. Viral Infections - Host, Pathogen, and Impact of Intervention
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Background. Baloxavir marboxil (BXM), a cap-dependent endonuclease inhibitor, has been recently approved in the United States for the treatment of influenza infections. It is superior to oseltamivir for reducing the time of viral shedding but is reported to have a low barrier of resistance. We sought to evaluate the viral fitness of the predominant BXM-resistant I38T PA mutant in the A/H1N1 and A/H3N2 viral backgrounds.

Methods. Recombinant A/Quebec/144147/2009 (H1N1) and A/Switzerland/9715293/2013 (H3N2) influenza viruses and their respective I38T PA mutants were generated by reverse genetics. Standardized inoculums (500 PFUs) of wild-type (WT) and mutant mixtures were inoculated on α2,6 MDCK cells. On day 3 post-infection (pi), the supernatants were collected and the ratios of WT/mutant viruses were determined by droplet digital PCR using specific LNA probes. Single infections and competitive experiments were also performed in C56/BL6 mice with quantification of lung viral titers on days 3 and 6 pi.

Results. *In vitro* A/H1N1 studies showed similar total copy numbers for the WT and mutant viruses on day 3 pi (1.2×10^9 and 1.3×10^9 copies/mL, respectively). The initial 50%/50% mixture became 70%/30% (WT/mutant) after one passage in cells. For A/H3N2, the total copy numbers were 8.1×10^9 and 1.0×10^9 copies/mL for the WT and mutant viruses. The initial 50%/50% mixture became 94%/6% (WT/mutant) after one passage. The I38T mutants remained stable after 4 passages in α2,6 MDCK cells. In mice, the A/H1N1 WT and I38T mutant induced similar weight loss and generated comparable lung titers on days 3 and 6 pi. In contrast, the weight loss of the A/H3N2 mutant was greater than that of the WT between days 3 and 7 pi with comparable lung titers on days 3 and 6. Following infection with 50%/50% mixtures, the mutant virus predominated over the WT on day 3 pi (73% A/H1N1 and 58% A/H3N2).

Conclusion. The BXM-resistant I38T PA mutant replicates well both *in vitro* and *in vivo* in the A/H1N1 and A/H3N2 backgrounds. Surveillance for the emergence and transmission of such mutant in the community is required.

Disclosures. **All Authors:** No reported Disclosures.

837. Prior Hospitalizations Among Cases of Community-Associated Clostridioides difficile Infection—10 US States, 2014–2015

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Session: 81. *Clostridium difficile*
Thursday, October 3, 2019: 1:45 PM

Background. Despite overall progress in preventing *Clostridioides difficile* Infection (CDI), community-associated (CA) infections have been steadily increasing. Although the incubation period of CDI is thought to be relatively short, gastrointestinal microbial disruption from remote healthcare exposures (e.g., inpatient antibiotic use) may be associated with CA-CDI. To assess this potential association, we linked CA-CDI infections identified through CDC's Emerging Infections Program (EIP) to Medicare claims data to describe prior healthcare utilization.