Background. Key risk factors for tuberculosis (TB) in the United States include HIV-positive status, birth outside of the United States, incarceration and homelessness. Despite advances in antiretroviral therapy (ART) and declining HIV-TB comorbidity, TB remains an important opportunistic infection for all people living with HIV. Few studies exist which characterize HIV-TB co-infection in geographic populations within the United States In this study, we cross-reference the HIV and TB registries in Arizona from 1993 through 2016 and compare features of HIV-TB co-infected individuals with HIV-negative TB cases and the broader population living with HIV.

Methods. Case records were identified by cross-referencing two separate databases maintained by the Arizona Department of Health Services, the Report of Verified Case of Tuberculosis (RVCT) and the Enhanced HIV/AIDS Reporting System (eHARS). Data were organized and analyzed in SAS and comparisons evaluated with Pearson chi-square test.

Results. A total of 361 unique cases of HIV-TB co-infection in Arizona were identified during the study period. Annual TB diagnoses in people living with HIV range from 25 (1995) to 7 (2008 and 2016). Significant differences in birth sex and age were observed in HIV-TB co-infections compared with HIV-negative TB cases. Homelessness was more common among people living with HIV (22.6% vs. 9.0%, $\chi^2 = 70.22$, $P < 0.001$). TB disease manifestations differed ($\chi^2 = 159.7604$, $P < 0.001$) and HIV-positive individuals more frequently had concurrent pulmonary and extrapulmonary TB disease. Outcomes of TB treatment were less favorable among individuals living with HIV ($\chi^2 = 45.33$, $P < 0.001$) as more HIV-positive patients failed to complete the full course of TB therapy or died before therapy completion. Finally, among all people living with HIV, our study revealed significant differences in race ($\chi^2 = 243.53$, $P < 0.001$), country of birth ($\chi^2 = 441.88$, $P < 0.001$), HIV transmission risk factors ($\chi^2 = 125.19$, $P < 0.001$), and correctional status ($\chi^2 = 347.90$, $P < 0.001$) for those who had a TB diagnosis.

Conclusion. Our study reveals important trends in HIV-TB comorbidity in Arizona and may inform public health strategies for addressing TB and its burden among people living with HIV.

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

2264. The Burden of Respiratory Viral Illness in HIV-Infected Patients

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Background. Among individuals living with human immunodeficiency virus (HIV), pulmonary complications are the most frequent cause of morbidity and mortality. Although bacterial and fungal pathogens are well-described etiologies of lung disease, the role of respiratory viruses remains poorly understood. We sought to describe the burden of respiratory viral illness in HIV-infected inpatients admitted to our tertiary care center.

Methods. All HIV-infected inpatients from August 2015 to March 2018 were approached if they presented with respiratory symptoms, defined as cough, dyspnea, sore throat, rhinorrhea, wheezing, or stridor. Eighty patients were enrolled. After obtaining informed consent, nasopharyngeal swabs and blood were collected. If the subject underwent bronchoscopy per the treating physician, excess bronchoalveolar lavage (BAL) sample was collected. Demographic and clinical data were recorded for each subject. Multiplex PCR testing of all respiratory samples was performed.

Results. Of the 70 HIV-infected patients that have undergone complete analysis, 23 (33%) tested positive for respiratory viruses. Of these, 11 (48%) were positive for rhinovirus, 3 were positive for influenza A (13%), 2 for parainfluenza 3 (9%), 2 for coronavirus (9%), and one each tested positive for adenovirus, parainfluenza 4, respiratory syncytial virus and influenza B. One patient had co-infection with rhinovirus and human metapneumovirus. Patients infected with a respiratory virus had severe illness as nearly half (10/23; 48%) required intensive care, 5 (22%) required mechanical ventilation, 4 (17%) were discharged to a higher level of care, and 3 (13%) died.

Conclusion. The role of respiratory viruses on the lung health of HIV-infected patients is poorly defined. In this study, respiratory viruses were identified in over a third of HIV-infected inpatients, representing a substantial disease burden. Moreover, these patients demonstrated significant disease severity. Given these findings, there is a need for future studies of viral infections in HIV-infected individuals to elucidate mechanisms of susceptibility to reduce the burden of pulmonary morbidity in this vulnerable population.

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

2265. The Changing Landscape of AIDS Defining CNS Infections in S. Alberta, Canada Over 30 Years

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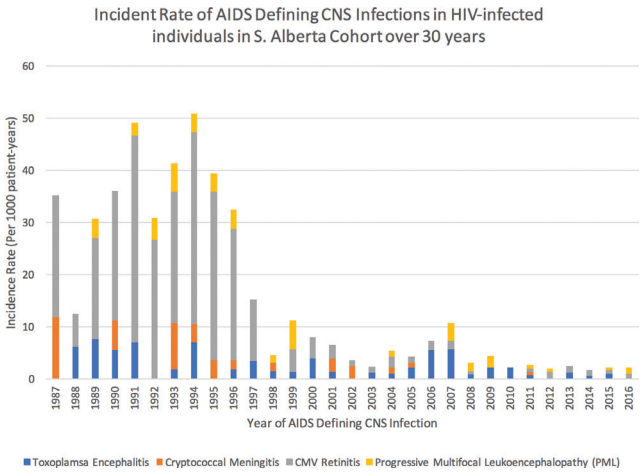
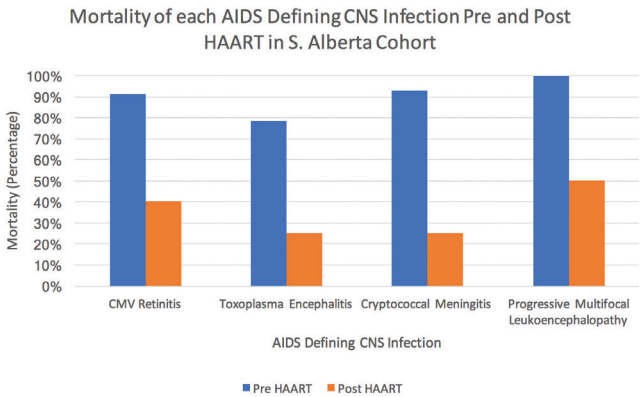
Background. The incidence of AIDS defining CNS infections declined significantly with HAART; however, the longitudinal change in factors and effects of disease has not been well described. We characterized the changing incidence and outcomes in AIDS defining CNS infections over the past 30 years in the geographically defined, well-characterized southern Alberta HIV Cohort (SAC).

Methods. All episodes of cytomegalovirus (CMV) retinitis, progressive multifocal leukoencephalopathy (PML), toxoplasma encephalitis (TE) and cryptococcal meningitis (CM) between January 1, 1987 and January 1, 2017 were identified from the SAC database. Mycobacterium Tuberculosis CNS infections were excluded due to <5 cases. CD4 most proximal to CNS infection and the length of survival to date of death or January 1, 2017 were determined. We compared incidence and outcomes before and after implementation of highly active antiretroviral therapy (HAART), defined as January 1, 1997.

Results. Of the 3,633 patients followed at SAC between January 1, 1987 and December 31, 2016, with 27,776 years of follow-up, 256 cases of AIDS defining CNS infections occurred in 241 individuals including; 150 episodes of CMV retinitis, 50 of TE, 21 of CM and 35 of PML. Two or more concurrent CNS infections were identified in 30 cases. Pre-HAART, the overall incidence rate of CNS infections was 40.5/1,000 patient-years (163 cases), declining to 6.5/1,000 patient-years (53 cases) from 1997 to 2007 and to 3.1/1,000 patient-years (48 cases) after 2007 (Figure 1). CNS infection occurred an average of 52 months (SD: ±49.1 months) following HIV diagnosis. Of note, 14% of CM, 26% of PML and 32% of TE cases were diagnosed within 3 months of HIV. The median CD4 count at diagnosis of CMV retinitis was 19 /mm^3, PML 29 / mm^3, CM 60 /mm^3 and TE 77 /mm^3. Pre-HAART 5-year all-cause mortality for AIDS defining CNS infections was 88.0%; with post-HAART decreasing to 38.7% (Figure 2). Of people who died, survival pre-HAART was 10.4 months and post-HAART was 18.5 months.

Conclusion. With the widespread use of HAART, the incidence of AIDS defining CNS infections decreased more than tenfold leading to a significant decline in all-cause mortality. The survival differences and legacy from functional impairment is currently under further examination.





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2266. Persistent Inflammation in HIV Patients With Community-Acquired Pneumonia and Its Correlation With Lung Injury

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Background. HIV patients face higher rates of morbidity compared with the general population, largely due to the earlier development of age related diseases (cardiovascular, kidney, and liver disease). While it is likely that chronic immune activation and inflammation are the main contributors to this process, it's relation to lung injury in HIV remains unknown. Despite restoration of systemic immune function following Antiretroviral Therapy, the risk for lower respiratory tract infection remain elevated in the HIV population. The objective of the study was to assess the relationship between pulmonary inflammation and lung injury.

Methods. A prospective cohort study was performed, participants include patients hospitalized in Hospital Universitario San Vicente Fundación and Clínica SOMA, in Colombia. Patients were eligible if they were over the age of 18 and had a documented HIV infection or if they have HIV with newly diagnosed community acquired pneumonia (CAP). The main exclusion criteria were chronic lung disease and immunosuppression that is not due to HIV. Patients belonged to two groups: HIV and HIV + CAP. Plasma, sputum samples and pulmonary function test measurements (PFT) were retrieved within 48 hours of hospital admission and at one month follow-up. The concentrations of 13 biomarkers were measured and correlated with PFT values, followed by a comparison between the two groups.

Results. Principle Component Analysis revealed that CCL3, CCL4, BAFF, APRIL, and TIMP-1 accounts for the majority of the variation between the two groups. Furthermore, Kruskal–Wallis testing demonstrates that BAFF and CCL3 are elevated in the HIV + CAP group, compared with the HIV group ($P < 0.005$). Other markers of bacterial translocation and monocyte activation did not differ between these groups. FVC and FEV_1 measurements are lower in the HIV + CAP group compared with the HIV group, while FEV_1/FVC remain constant.

Conclusion. The results of this study identify a unique constellation of biomarkers in HIV patients with CAP, this constellation of biomarkers consists of pro-inflammatory cytokines and regulators of extracellular matrix remodeling, hinting at the occurrence of an inflammatory and tissue injuring process in the lungs. This is supported by the restrictive ventilation pattern seen in this group of patients.

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2267. The Effect of Opportunistic Infection (OI) Prophylaxis on the Gastrointestinal Microbiome (GIM) and Immune Reconstitution (IR) in Veterans With HIV and AIDS

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Background. Despite antiretroviral therapy (ART), some patients do not achieve IR. Moreover, GI bacterial translocation may lead to a decrease in CD4 counts with an increase in IL-6 in blood. However, the effect of OI prophylaxis on the GIM, bacterial translocation and IR has not been studied in HIV+ veterans. Here we studied the gut microbiome and bacterial translocation in VA patients with (i) stable HIV on ART (controls), (ii) newly diagnosed HIV starting on ART (new dx) and OI prophylaxis, and (iii) resuming ART (resumers).

Methods. Blood and stool specimens from 16 controls, 4 new dx and 3 resumers were obtained at 3 visits, as well as clinical and virological data. PCR electrospray ionization mass spectrometry (ESI-MS) was performed on blood samples to detect bacteria. Quantitative cultures and gut microbiome (deep sequencing bacterial 16S rRNA) was done on stool.

Results. There was no relation between CD4 count, log CFU TMP-SMX-resistant Gram-negative bacteria (GNRs) or total anaerobes. Except for 2 control patients with a decrease in CD4 count <200, none took TMP-SMX. One of these control patients started TMP-SMX, while the other took atovaquone. Neither had TMP-SMX R GNRs in stool, despite low CD4 /TMP-SMX. Major stool phyla in controls were Bacteroidetes (37 ± 19%), Firmicutes (37 ± 14%), Proteobacteria (15 ± 14%); while resumers had 54 ± 15% Bacteroidetes, 33 ± 12% Firmicutes and 7 ± 1% Proteobacteria. Only one new dx individual had CD4 count <200 at dx and took doxycycline initially for hidradenitis supparativa. Dapsone was initiated due to sulfa allergy. He was also diagnosed with lung cancer, treated with resection/XRT and received cefazolin. His VL became undetectable but CD4 <200. He had persistence of TMP-SMX-resistant GNRs despite dapsone and a shift in his GIM was observed over the first 6 months of care, i.e., Bacteroidetes decreased from 61.5% to 29.5% and Firmicutes increased from 30.6% to 53.3%.

Conclusion. OI prophylaxis does not affect the GIM of stable HIV VA patients on ART. TMP-SMX-resistant GNRs in stool are unrelated to TMP-SMX exposure or CD4 count. Other antibiotics such as doxycycline can alter GI microbiota and may affect immune reconstitution.

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

2268. Clinical Difference of *Mycobacterium haemophilum* Infections Between HIV and Non-HIV-Infected Patients

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Background. *Mycobaterium haemophilum* has emerged as one of nontuberculous mycobacteria which caused localized and disseminated infections in immunocompromised patients. Infections caused by this pathogen were rarely diagnosed and reported because it can grow only in heme supplemented culture media.

Methods. We performed a case–control study at Siriraj hospital, the biggest tertiary care hospital in Thailand, to determine the clinical difference and treatment outcome of this infection between HIV-infected and non-HIV-infected individuals.

Results. From January 2012 to December 2017, there were 21 patients diagnosed with *Mycobacterium haemophilum* infections. Eight of them were HIV infected. Rest of the patients were non-HIV immunocompromised which SLE was the most common comorbidities (autoimmune diseases 6 patients, anti-IFN gamma auto Ab 2 patients, kidney transplant recipients 2 patients, diabetes mellitus 2 patients and nephrotic syndrome 1 patient). The most common clinical manifestation was cutaneous involvement (13 patients, 61.9%). The result revealed that HIV-infected patients were much younger in comparison with non-HIV-infected patients (mean age 39 ± 10 VS. 52 ± 14 years; $P = 0.025$). Disseminated infection was more common in HIV-infected patients (37.5% vs. 15.4%, $P = 0.325$) and three of eight HIV-infected patients (37.5%) had central nervous system involvement whereas none of non-HIV infected patients had it ($P = 0.042$). The prognosis was slightly worse in HIV-infected individuals (Unfavorable prognosis 27.5% in HIV-infected VS. 15.4% in non-HIV-infected patients; $P = 0.325$).

Conclusion. HIV infection is the most common immunocompromised condition related with *Mycobacterium haemophilum* infection. Central nervous system involvement is more common in HIV-infected patients.

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2269. HIV-Positive Individuals Who Report Being in Care Are Less Likely to Be Co-Infected With an STI; an Analysis of "Network Testing," A Service Program Offering HIV and STI Testing Services to Individual at Risk for HIV

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Background. The prevalence of STIs among people living with HIV (PLWH) has implications for HIV treatment as prevention and community efforts to stop the spread of HIV. We explored the factors associated with HIV/STI co-infection in HIV-positive individuals.

Methods. We analyzed data from our "Network Testing" service program, which was designed to expand HIV/STI testing services to high-risk individuals including gay, bisexual, and other men who have sex with men (MSM) in Chicago's South side, a high HIV prevalent area. This program provides incentivized testing to participants and up to six referred individuals within their social network. The prevalence of selected STIs, including syphilis, gonorrhea, or chlamydia infection, among HIV-positive individuals was evaluated. Bivariate and multivariable logistic regression analyses were used to assess sociodemographic, testing history, and risk factors significantly associated with HIV/STI co-infection.

Results. Of the 295 HIV-positive individuals, 110 (37%) tested positive for at least one STI, with 90 (32%) testing positive for syphilis, 23 (16%) for gonorrhea, and 12 (8%) for chlamydia. The median age was 27 years old and 91% of clients were MSM. In multivariable analyses, individuals who reported being in care were less likely to be co-infected (adjusted odds ratio [aOR] 0.45, 95% confidence interval 0.23–0.90). Additionally, participants who reported having a previous STI test were more likely to be co-infected (aOR=6.10, 95% CI: 1.87–19.90). We found no association with co-infection and other risk factors including multiple partners and condomless sex.

Conclusion. The high STI prevalence among HIV-positive individuals suggests: 1) a continued need for regular STI testing and treatment among PLWH to reduce the likelihood of HIV transmission to others; and 2) the receipt of HIV care serves as an important opportunity to provide comprehensive services including STI testing/treatment.