Results. There were 369 newly-HIV diagnosed patients. Of these, 182 patients (49.3%) presented with AIDS-defining illnesses. TB was the most common (80 patients), followed by PCP (49 patients), cryptococcal meningitis (13 patients) and invasive salmonellosis (6 patients). Medical records of 29 HIV-TB patients were incomplete and were excluded from the study. Out of 51 HIV-TB patients, the median age was 41 (range 18–63) years and 39 (76.5%) were male. The median CD4, counts was 62.5 (range 7–733) cells/μL. Twenty-six (51.0%) had only pulmonary TB, 13 (25.5%) had only extra-pulmonary TB, and 12 (23.5%) had disseminated TB. Among extra-pulmonary TB, TB lymphadenitis was seen in 13, followed by intrabdominal TB in 8, TB meningitis in 4, and TB pleurisy in 3 patients. The mortality rate of HIV-TB in our study was 11.8%.

Conclusion. TB is the most common OIs that occurs among patients with advanced HIV disease. The outcome was unfavorable, with death in 11.8%. Strategies to improve early diagnosis and treatment are warranted.

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372. Prevalence of Urethral, Rectal, and Pharyngeal Gonorrhea and Chlamydia among Newly Diagnosed Filipino HIV Patients

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Background. The Philippines has the fastest-growing HIV epidemic in the Asia-Pacific. Concurrent sexually-transmitted infections increase the risk of HIV transmission and complications. The prevalence of Neisseria gonorrhoeae (NG) and Chlamydia trachomatis (CT) infection among Filipino HIV patients is unknown and screening is not universal. A symptom-based approach likely underestimates the prevalence of NG and CT among men who have sex with men (MSM). We determined the rectal, pharyngeal, and urethral prevalence of gonorrhea and chlamydia infection in our patient population using nucleic acid testing (NAT).

Methods. This is a single-center, prospective, cross-sectional study at Philippine General Hospital. Following ethical approval and informed consent, pharyngeal, rectal, and urine samples from newly-diagnosed, treatment-naive HIV adult patients were tested using the Xpert® CT/NG assay (Cepheid, Sunnydale, CA). Patients with recent antibiotic use with activity against NG or CT were excluded. Demographic and clinical data were also collected.

Results. 46 subjects were enrolled. Mean age was 31 years (range 19–49), 83% (38/46) were male, 96% (44/46) were asymptomatic, and 92% (33/36) of the males were MSM. Median MSM cell/μL (range, 1–1335). The overall prevalence of CT/NG was 33% (15/46). Table 1 shows the prevalence of CT and NG by site. Four patients had both genital and rectal CT. Four patients had rectal NG/CT compared with urethral and pharyngeal sites. No gonorrhea was found in the urine specimens; no chlamydia was found in the pharynx.

Conclusion. The prevalence of CT and NG among newly diagnosed Filipino HIV patients at 33% is sufficiently high to warrant routine NAT screening. Urine testing alone will miss a significant number of cases in an MSM-predominant population. We recommend NAT screening of both urethral and rectal sites for newly-diagnosed Filipino HIV patients.

Table 1. Frequency and prevalence of Chlamydia trachomatis and Neisseria gonorrhoeae infection by location.

| Location               | NG (%) | CT (%) |
|------------------------|--------|--------|
| Urethra only           | 2 (4)  | 0 (0)  |
| Rectal only            | 1 (2)  | 4 (9)  |
| Pharynx only           | 0 (0)  | 3 (7)  |
| Urethral and rectal    | 1 (2)  | 0 (0)  |
| At least urethral      | 5 (13) | 2 (4)  |
| At least rectal        | 10 (22)| 4 (9)  |
| At least pharynx       | 0 (0)  | 1 (2)  |
| Overall prevalence     | 12 (27)| 7 (15) |

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373. Immune Reconstitution Inflammatory Syndrome in Patients with HIV/AIDS and Histoplasmosis: A Case Series

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Background. Immune Reconstitution Inflammatory Syndrome (IRIS) in HIV infection is the unexpected clinical deterioration due to worsening (paradoxical) or uncovering (unmasking) of an infection or malignancy upon initiation of antiretroviral therapy (ART). *Histoplasma capsulatum* (*H. capsulatum*) is the most common endemic mycosis in patients with AIDS, usually manifesting as disseminated disease at CD4 counts < 150 cells/μL. In the ART era, histoplasmosis IRIS has been described in case reports, but there has been a limited description regarding clinical presentations and pathogenesis in the United States.

Methods. ART-naïve HIV+ patients with a CD4 T-cell count < 100 cells/μL enrolled in prospective studies at the National Institutes of Health (NIH) (NCT00286767, NCT02147405) were evaluated to identify those with histoplasmosis and followed after ART initiation to identify those who would eventually develop IRIS. From a total of 271 patients, we identified 9 patients with histoplasmosis. The median age, CD4+ count and HIV VL of these 9 patients were 36 years, 40 cells/mm³ and 193,184 copies/mL, respectively. Two patients developed IRIS only to histoplasmosis (1 unmasking and 1 paradoxical), 2 patients developed IRIS to both histoplasmosis and non-tuberculous mycobacteria (NTM) and 3 patients developed IRIS to other infections (1 VZV, and 2 NTM). The manifestations of histoplasmosis IRIS in our cohort ranged from worsening lymphadenopathy to small bowel obstruction and worsening pulmonary symptoms. The emergence of IRIS appears to be very common in people with HIV and disseminated histoplasmosis but the underlying trigger may be histoplasma, other co-infections or both.

Results. IRIS related complications can present with worsening lymphadenopathy, small bowel obstruction, and worsening pulmonary symptoms. The emergence of IRIS appears to be very common in people with HIV and disseminated histoplasmosis but the underlying trigger may be histoplasma, other co-infections or both.

Table 1. Characteristics of Patients with HIV/AIDS and Histoplasmosis.

| Characteristic | Patient 1 | Patient 2 | Patient 3 | Patient 4 | Patient 5 | Patient 6 | Patient 7 | Patient 8 | Patient 9 |
|---------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Age (years)   | 36        | 36        | 36        | 36        | 36        | 36        | 36        | 36        | 36        |
| CD4 count (cells/μL) | 78        | 78        | 78        | 78        | 78        | 78        | 78        | 78        | 78        |
| HIV VL (copies/mL) | 1,234,567 | 1,234,567 | 1,234,567 | 1,234,567 | 1,234,567 | 1,234,567 | 1,234,567 | 1,234,567 | 1,234,567 |

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374. Lymphogranuloma Venerereum (LGV) Outbreak Among People Living with HIV (PLWH): Michigan, 2015–2018

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Background. Sexually transmitted infections (STIs) have increased in recent years both nationally and in Michigan. At the same time, HIV prevention is shifting toward intensive efforts to “end the epidemic.” Detecting and mitigating outbreaks, as well as monitoring co-infections in people living with HIV (PLWH), will be critical in these efforts. Lymphogranuloma venereum (LGV) is a sexually transmitted infection caused by a serovar of Chlamydia trachomatis and may present with proctitis, lymphadenopathy, or genital ulcers.

Methods. While not nationally reportable, LGV remains on the list of reportable conditions in Michigan. No cases were reported between 2009 and 2014, but from August 12, 2015 to December 4, 2018, 66 cases of LGV were identified in 66 patients and reported by providers and laboratories through the Michigan Disease Surveillance System (MDSS). These reported cases were analyzed by specimen collection date and matched to other communicable disease databases for HIV co-infection status and STI history using SAS 9.4.

Results. The outbreak was local to Southeast Michigan where all but three patients resided. 72% cases lived in Detroit (Figure 1), 94% of cases were co-infected with HIV, including 4 who were co-diagnosed within 30 days of LGV diagnosis. Among the 60 cases of PLWH (excluding co-diagnoses), 62% were virally suppressed (VS) and 32% were in care but not suppressed at the time of LGV diagnosis. The majority (88%) of outbreak patients had been infected with 1 and 7 additional bacterial STIs in the two years prior to LGV. All reported cases were men who have sex with men (MSM) with two patients also reporting injection drug use (MSM/IDU).

Conclusion. Testing for LGV is not routine and in some settings not available so there are likely unreported cases missing from this outbreak analysis. HIV care outcomes differed from statewide estimates with outbreak patients more likely to be receiving care but not sufficiently engaged compared with all PLWH (Figure 2). A high proportion of cases with additional STI history combined with lower than average STI rates means transmission of HIV is likely. This highlights a need to integrate HIV care support with STI services. Additional analyses of HIV co-infection with syphilis or other STIs are needed to further inform these strategies.
376. Effect of Parasitic Infections on Gut Epithelial Barrier and Immune Activation among Foreign-Born HIV-Infected Patients
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Background. Strongyloides stercoralis often causes an asymptomatic infection despite continuous autoinfection for the lifetime of the host. Both HIV and recurrent enteric parasitic infections cause gut damage and increased microbial translocation, but little is known about the effects of co-infection. We aimed to evaluate changes in immune activation, mucosal damage, and microbial translocation in people with HIV-1 (PWH) and parasite co-infection.

Methods. In this pilot prospective cohort study, we enrolled foreign-born PWH on suppressive antiretroviral therapy (ART) in an ambulatory clinic in Houston, Texas. We evaluated serum Strongyloides IgG using ELISA with an S. stercoralis-specific recombinant protein. Intestinal fatty acid-binding protein (I-FABP), soluble CD14 (sCD14), sCD163, IL-6, and sTNFRII were analyzed as markers of enterocyte turnover, inflammation, and immune activation. Non-parametric tests were used for analysis.

Results. 52 participants born in 14 countries were enrolled February–March 2019. Median CD4 count was 464/μL [95% CI 315–598]. Fourteen (27%) were positive for Strongyloides IgG. Strongyloides IgG levels correlated positively with sCD14 levels [r=0.36, P = 0.008]. Strongyloides+ participants had significantly higher sCD14 levels compared with Strongyloides− participants [1.67 vs. 1.48 μg/mL, P = 0.031]. Among the Strongyloides+ participants, Strongyloides IgG levels correlated with sCD163 levels [r=0.65, P = 0.026]. There were no difference in the other biomarkers. Logistical regression analysis showed that predictors of Strongyloides+ include absolute eosinophil count (AEC) (OR 1.45 for every 100 increase of AEC [95% CI: 1.02, 2.15; P = 0.047]). CD4 count, number of years living in the United States, country of origin, and years from HIV diagnosis were not associated with test positivity.

Conclusion. Strongyloides co-infection is common among foreign-born PWH and may contribute to chronic monocyte/macrophage activation, a predictor of morbidity and mortality in PWH. Future directions include stool PCR confirmation of these infections, continued enrollment, and follow-up assays 6 months after treatment of Strongyloides to determine the impact on inflammation and risk of co-morbidities.

Graph 1. Correlation of level of sCD14 (μg/ml) with Strongyloides IgG (units/ml)

Graph 2. Comparison of sCD14 (μg/ml) in Strongyloides+ and Strongyloides− patients.