

determine screening frequencies for potential comorbid conditions, including tuberculosis, hepatitis B and C, type 2 diabetes, and three sexually transmitted infections (STI), and to assess demographic and clinical factors associated with screening in the previous 12 months.

**Results.** In the NYC MMP cohort ( $N = 439$ ), 18% of patients were screened for hepatitis B, 26% for hepatitis C, 37% for type 2 diabetes, 38% for gonorrhea, 41% for chlamydia, 42% for tuberculosis, and 46% for syphilis in the past year. In multivariate analyses, having three or more medical visits with a CD4 count or viral load test during the year was significantly associated with STI screening (OR = 3.84, 95% CI: 1.94, 7.57) and hepatitis C screening (OR = 3.45, 95% CI: 1.65, 7.21). Hispanic PLWH were more likely to be screened for hepatitis C (OR = 1.72, 95% CI: 1.05, 2.81) and non-Hispanic Whites were less likely to be screened for type 2 diabetes (OR = 0.30, 95% CI: 0.10, 0.88), compared with non-Hispanic Blacks. Self-reported sexual risk behaviors and history of injection drug use were not associated with screening for STI and hepatitis C, respectively.

**Conclusion.** We found a range of screening frequencies for comorbid conditions among PLWH in medical care during 2012, indicating a need for improved integration of HIV care with other clinical services. More frequent HIV care was associated with screening for STI and hepatitis C, possibly due to increased opportunity for testing or care related to the screened-for condition. Notably, we found no relationship between established risk factors for STI and hepatitis C and screening for these conditions.

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### 562. The Prevalence of *Legionella* Species as a Co-pathogen in HIV-Associated Community-Acquired Pneumonia

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**Background.** Due to the lack of clinical suspicion, poor diagnostic performance, increased patient immunosuppression, and the increased chance of co-infection, HIV-associated *Legionella* community-acquired pneumonia (CAP) is currently under-reported. Thus, this study aimed to determine the frequency of *Legionella* in CAP-infected HIV patients.

**Methods.** Following initial diagnosis, DNA extracted from bronchoalveolar lavage (BAL) from CAP-infected HIV patients hospitalized at Hospital San Vicente Fundación in Medellín, Colombia were assayed for the presence of *Legionella* species (PAN *Legionella*, *L. Anisa*, *L. bozemanii*, *L. micdadei*, *L. pneumophila* and *L. pneumophila* serogroup 1) using singleplex real-time PCR (qPCR). Results were validated with agarose gel electrophoresis and reconfirmed using pre-amplification qPCR.

**Results.** Of the 59 HIV-infected individuals in the study, majority were non-smokers (64.4%), male (77.9%), and highly immunosuppressed (CD4 cell count <200 cells/ $\mu$ L). Initial CAP diagnoses were *M. tuberculosis* (37.3%), *P. jiroveci* (32.2%) and others (30.5%). Initial screening of pooled BAL samples indicated that majority of positive PAN *Legionella* were associated with *M. tuberculosis* and *P. jiroveci*. Of the 14 individual *M. tuberculosis*-infected patient BAL assayed, 10 were positive for PAN *Legionella*. Likewise, 6/9 *P. jiroveci*-infected BAL were also positive. Of all of the detected *Legionellaceae* infections, 31.3% were *L. Anisa*, 25.0% *L. bozemanii*, 18.8% *L. pneumophila*, and 12.5% *L. micdadei*, and 37.5% uncharacterized. Interestingly, none of the *L. pneumophila* infections were due to serogroup 1. Of note, all *L. bozemanii* and *L. micdadei* infections were associated with *P. jiroveci*, while all *L. pneumophila* infections were associated with *M. tuberculosis*. *Legionella*-infected patients had more complications and higher mortality rates compared with un-infected patients.

**Conclusion.** Results indicate that *Legionella* are prevalent in the BAL of HIV co-infected patients. Clinicians should be aware of the possibility of the presence of *Legionella*—and not just *L. pneumophila*—in HIV-associated CAP. The role *Legionella* plays in clinical presentation, disease severity and inflammation remains to be determined. If further investigation supports these findings, this could change the way that CAP is managed in HIV-infected individuals.

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### 563. Performance of Early-Warning Scores in Predicting Mortality in an HIV-Infected Population with Sepsis in Uganda

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**Background.** Early-warning scores (EWS) have the potential to improve resource allocation and hasten care in sub-Saharan Africa (SSA). Despite the high prevalence of HIV infection in SSA, current EWS do not take into account HIV serostatus.

**Methods.** We conducted a retrospective study at Mbarara Regional Referral Hospital (MRRH) in Uganda to evaluate the performance of CRB-65, modified early-warning score (MEWS), quick sepsis-related organ failure assessment (qSOFA), rapid acute physiology score (RAPS), rapid emergency medicine score (REMS), South

African triage scale (SATS), and shock index (SI) in predicting mortality among HIV-infected patients presenting with sepsis. We included patients admitted with sepsis to MRRH between January 2014 and December 2015 that had an HIV-positive serostatus and at least one valid heart rate, respiratory rate, systolic blood pressure, diastolic blood pressure, temperature, and oxygen saturation. Glasgow coma scale was imputed with the median. We used the area under the receiver operating curve (AUC) with tenfold cross-validation to assess the performance of each EWS.

**Results.** Of the 193 patients, the median (interquartile range) age was 34 (27, 42) years, 87 (45.0%) were female and 65 (44.6%) died. The AUC (95% confidence interval) was 0.53 (0.43, 0.62) for CRB65, 0.53 (0.44, 0.62) for MEWS, 0.57 (0.46, 0.68), for qSOFA, 0.60 (0.51, 0.69) for RAPS, 0.55 (0.46, 0.63) for REMS, 0.53 (0.45, 0.62) for SATS, and 0.54 (0.46, 0.63) for SI.

**Conclusion.** The ability of EWS to predict mortality in an HIV-infected patient population with sepsis in Uganda was poor. EWS used in SSA should be derived from African patient populations and adjust for HIV serostatus.

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### 564. Hearing Loss and Quality of Life Among Human Immunodeficiency Virus (HIV)-Infected and Uninfected Adults

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**Background.** Research has established that human immunodeficiency virus (HIV) causes hearing loss. Studies have yet to evaluate the impact on QOL. This project evaluates the effect of hearing loss on QOL by HIV status.

**Methods.** The study participants were from the Multicenter AIDS Cohort Study (MACS) and the Women's Interagency HIV study (WIHS). A total of 248 men and 127 women participated. Pure-tone air conduction thresholds were collected for each ear at frequencies from 250 through 8000 Hz. Pure-tone averages (PTAs) for each ear were calculated as the mean of air conduction thresholds in low frequencies (i.e., 250, 500, 1,000, and 2,000 Hz) and high frequencies (i.e., 3,000, 4,000, 6,000, and 8,000 Hz). QOL (QOL) data were gathered with the Short Form 36 Health Survey and MOS-HIV instrument in the MACS and WIHS, respectively. A median regression analysis was performed to test the association of PTAs with QOL by HIV status.

**Results.** There was no significant association between hearing loss and QOL scores at low and high pure-tone averages in HIV-positive and negative individuals. HIV status, HIV biomarkers and treatment did not change the lack of association of low and high pure-tone averages with poorer QOL.

**Conclusion.** Although we did not find a statistically significant association of hearing loss with QOL by HIV status, testing for hearing loss with aging and recommending treatment may offset any presumed later life decline in QOL.

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### 565. Cutaneous Diseases among an Aging HIV Cohort, Receiving Care at an Infectious Diseases/Primary Clinic

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**Background.** Since the initial description of HIV/AIDS in the USA, cutaneous manifestations have been important in the diagnosis of the disease, and have been frequently associated with immune dysfunction. We sought to describe current dermatologic manifestations in our HIV seropositive veterans who are greater than 50 years of age and compare these to recent reports in HIV seronegative individuals.

**Methods.** This was a retrospective cohort study performed at the South Texas Veterans Health Care System Immunosuppression Clinic. The aim was to review the charts of older HIV-positive veterans with a minimum age of 50, evaluated from January 1, 2015 to December 31, 2015, to investigate any manifestations of cutaneous pathology, HIV and non-HIV-related, analyze the correlation of the dermatological diagnoses made by the ID physicians and those made by dermatologists, and stratify the findings by age and CD4 counts.

**Results.** Two hundred and Forty-one of the 381 HIV seropositive clinic patients met the criteria (236 males, 5 females), the mean age was 59.95  $\pm$  7.41. The median CD4 count was 446 cell/ $\text{mm}^3$ . There were 558 dermatological diagnoses made in the year of 2015, 172 of these were new diagnoses. Of the 38 patients also seen by dermatologists for the presenting skin condition, 57.9% of the diagnoses agreed with the diagnosis from the referring infectious disease provider.

New Diagnosis	Cases % (total 241 patients)
Syphilis	5.39% (13)
Actinic keratosis	4.98% (12)
Seborrheic keratosis	4.56% (11)
Seborrheic dermatitis	4.56% (11)
Onychomycosis	3.73% (9)