

**586. The Aging Epidemic: Virologic Control, Immunologic Recovery, Treatment Regimens, and Clinical Outcomes Among Older Adults Living with HIV in Washington, DC**

Hana Akselrod, MD, MPH<sup>1</sup>; Annette Aldous, MPH<sup>2</sup>; David Parenti, MD, FIDSA<sup>1</sup>; Gary Simon, MD, PhD, FIDSA<sup>1</sup> and DC Cohort Executive Committee; <sup>1</sup>Infectious Diseases, George Washington University Medical Center, Washington, DC, <sup>2</sup>Epidemiology and Biostatistics, The George Washington University Milken Institute School of Public Health, Washington, DC

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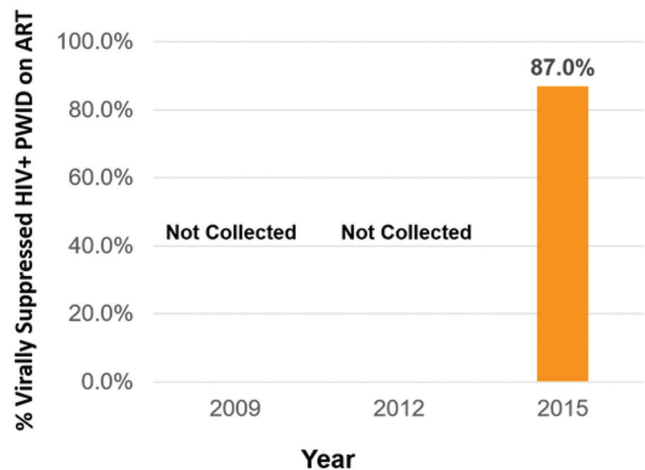
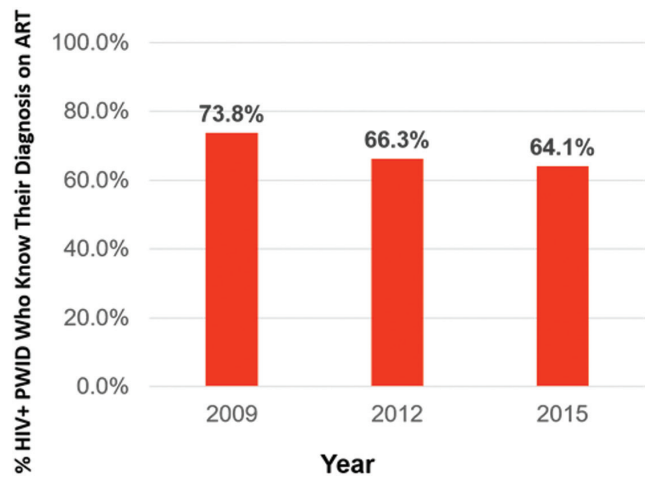
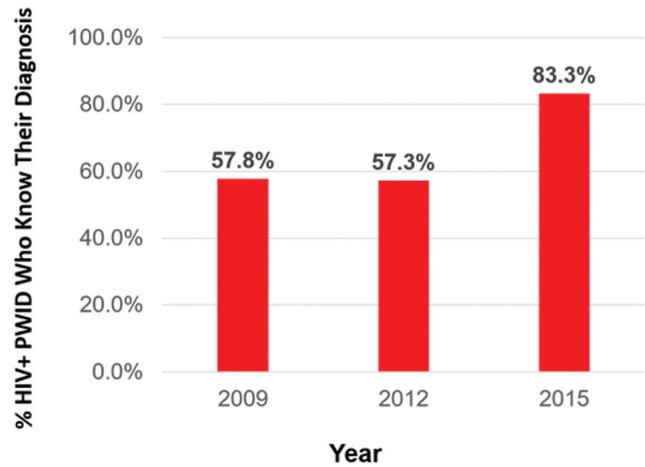
**Background.** As the number of older people living with HIV (PLWH) in the US rises, there is a need to identify factors that lead to poorer clinical outcomes. This study aimed to identify age-based disparities in virologic, immunologic, and clinical disease control.

**Methods.** We analyzed data from the DC cohort, a longitudinal observational cohort of patients receiving HIV care at 15 clinics in 2011–2016 in Washington, DC. We compared 608 patients aged ≥60 years with 832 patients aged 18–35 years. *t*-Test and Wilcoxon rank-sum test were conducted for continuous variables, and chi-square or Fisher's exact tests for categorical variables.

**Results.** Older patients reported less MSM-related (25% vs. 60%, *P* < 0.0001) and more IDU-related (18% vs. 0.5%, *P* < 0.0001) HIV acquisition than younger patients. The proportion of older patients with CD4 >500 cells/uL was higher at enrollment (56% vs. 53%, *P* = 0.0067), but lower at CD4 nadir (18% vs. 21%, *P* < 0.0001) and at most recent recording (60% vs. 69%, *P* = 0.0003). Younger patients were more likely to have HIV VL >200 copies/mL at enrollment (35% vs. 11%, *P* < 0.0001), recently (18% vs. 6%, *P* < 0.0001), and peak VL >100,000 copies/mL during the study period (15% vs. 4%, *P* < 0.0001). Viral re-emergence after initial suppression was less common in older PLWH overall (27% vs. 39%, *P* < 0.0001), but more common in older patients infected for ≥10 years (29% vs. 22%, *P* = 0.0607). There was a shift toward novel ART regimens (TAF and INSTI) during the study period, with more older patients on an INSTI by its end (59% vs. 50%, *P* = 0.0007). Among older patients, 23% had chronic kidney disease (CKD), and 24% had a serum creatinine rise of ≥150% during the study period. Of patients with CKD, 16% remained on TDF. The incidence of malignancies during the study period was 3.5% among younger and 14.3% among older patients). These were mainly (92.2%) non-AIDS-defining cancers.

**Conclusion.** Older PLWH in DC have a high burden of complications related to renal dysfunction, lower CD4 counts, and non-AIDS-defining malignancies; those with longer duration of infection also had more viral re-emergence. Opportunities to improve care include closer monitoring for resistant virus and new cancers, and consideration of ART regimens with high efficacy and better renal safety profiles.

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**587. HIV Care Outcomes Among PWID in San Francisco, 2009–2015**

Nathan Kim, B.A.<sup>1</sup>; Susie Welty, MPH; Tania Reza, MPP<sup>2</sup>; David Sears, MD<sup>4</sup>; Willi McFarland, MD PhD<sup>5</sup> and H. Fisher Raymond, DrPH, MPH<sup>6</sup>; <sup>1</sup>Public Health, School of Medicine, University of California, San Francisco, San Francisco, California, <sup>2</sup>Institute for Global Health Sciences, UCSF, San Francisco, California, <sup>3</sup>University of California, San Francisco, San Francisco, California, <sup>4</sup>Medicine, University of California San Francisco, San Francisco, California, <sup>5</sup>HIV/AIDS Surveillance and Epidemiology, San Francisco Department of Public Health, San Francisco, California, <sup>6</sup>San Francisco Department of Public Health, San Francisco, California

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**Background.** Around 16% of HIV infections in the United States are among persons who inject drugs (PWID). PWID have a higher mortality than other persons living with HIV due to delayed diagnosis, lower use of antiretroviral therapy (ART), and other factors. Understanding the specific barriers to virologic suppression, however, is challenging as PWID are less likely to engage in care. Here we present trends in HIV care indicators for PWID in San Francisco from 2009 to 2015, using a novel system of behavioral health surveys. These data will inform international and local initiatives for population-level HIV control, such as San Francisco's "Getting to Zero" initiative and UNAIDS's "90-90-90" targets.

**Methods.** We used data from serial cross-sectional surveys of PWID conducted in 2009, 2012, and 2015 as part of the CDC-led National HIV Behavioral Surveillance system. PWID were recruited using respondent-driven sampling, in which PWID refer their peers to the surveys. We tracked the number of PWID who were: (i) living with HIV, (ii) knew their HIV status, (iii) were on ART, and (iv) for 2015 only, were virally suppressed (self-reported).

**Results.** HIV prevalence among PWID was 11.4% in 2009, 12.0% in 2012, and 16.8% in 2015. The percentage of PWID living with HIV who knew their HIV+ diagnosis remained stable (57.8% in 2009; 57.3% in 2012) before increasing to 83.3% in 2015. Among PWID who knew their HIV status, the proportion reporting they were currently taking ART declined from 73.8% in 2009 to 66.3% in 2012 to 64.1% in 2015. In 2015, the only year the question was asked, 87.2% of HIV+ PWID reported that their most recent viral load was suppressed.

**Conclusion.** We successfully tracked trends in engagement in HIV care among PWID from 2009 to 2015. Our data are notable for an apparent improvement in HIV diagnosis over time, a persistent gap in treatment with ART, and—in 2015—a relatively high rate of self-reported viral suppression when on ART. All three measures fall short of the UNAIDS 90-90-90 goals. The decline in getting PWID on ART from 2009 to 2015 is particularly concerning and warrants additional linkage to care and retention efforts. This is especially important given the high rates of viral suppression PWID can achieve once on ART, as seen in our study and other reports from published literature.

**588. Retrospective Analysis of Clinical Characteristics and Treatment Patterns Among HIV Patients with Commercial and Medicare Advantage Health Insurance in the United States**

Julie Priest, MSPH<sup>1</sup>; Tanya Burton, PhD<sup>2</sup>; Cori Blauer-Peterson, MPH<sup>2</sup>; Katherine Andrade, MPH<sup>3</sup> and Alan Oglesby, MPH<sup>1</sup>; <sup>1</sup>ViiV Healthcare, Durham, North Carolina, <sup>2</sup>Health Economics and Outcomes Research (HEOR), Optum, Eden Prairie, Minnesota, <sup>3</sup>Optum, Eden Prairie, Minnesota

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**Background.** With modern antiretroviral (ARV) regimens, HIV infection has evolved into a manageable chronic condition. The ultimate goal of treatment is to maximize the virologic suppression of HIV virus while minimizing intolerance,

toxicity, drug-to-drug interactions, and noncompliance. The objectives of this study were to describe clinical characteristics and treatment history of currently treated HIV-1 patients in commercial and Medicare Advantage health plans in the United States.

**Methods.** A retrospective cohort study of adults ( $\geq 18$  years) with  $\geq 1$  ARV pharmacy claim from January 1, 2012 to March 31, 2017 and  $\geq 1$  HIV-1 diagnosis code in the Optum Research Database. A claims-based algorithm was used to identify lines of therapy (LOT), including the most recent LOT (LOT0) and previous LOTs dating back to January 1, 2007. Subjects were continuously enrolled 12 months prior to the start of LOT0 (baseline) and comorbidities assessed. Treatment-naïve subjects were defined as having LOT0 only during baseline, while subjects with  $>1$  LOT were defined as treatment-experienced. Study variables were summarized descriptively and results were stratified by treatment status, insurance type, and age groups.

**Results.** There were 18,699 eligible subjects, of whom 27% were treatment naïve. Average age was 47 years ( $\pm 12$ ), 84% were male, 51% Caucasian, and 82% had commercial insurance. Common baseline comorbidities among subjects were hyperlipidemia (41%), cardiovascular disease (41%), hypertension (34%), and depression (17%). Most comorbidities increased with age except for depression and anxiety, which were mostly constant across age groups. Among all subjects, the average cumulative proportion of days covered with an ARV was 85%. Average total pills per day, ARV and non-ARV, increased with age corresponding with Medicare subjects having 9.2 and commercial subjects having 3.7 pills per day.

**Conclusion.** As ARV regimens have improved the life expectancy for patients with HIV, management of comorbidities and overall medication burden has become increasingly complex. HIV treatment guidelines suggest streamlined ARV regimens may be considered as patient complexity evolves over time to decrease disease burden taking into account co-morbidities, drug-drug interactions and total pill burden.

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#### 589. Assessment of an Antiretroviral Therapy Policy in Patients with Human Immunodeficiency Virus at a Large Academic Medical Center

Elizabeth Barber, PharmD<sup>1</sup>; Kady Phe, PharmD<sup>1</sup>; Hannah Palmer Russo, PharmD<sup>1</sup> and Mayar Al Mohajer, MD, MBA, CAQ, FACP<sup>2</sup>; <sup>1</sup>CHI St. Luke's Health - Baylor St. Luke's Medical Center, Houston, Texas, <sup>2</sup>Department of Medicine, Section of Infectious Diseases, Baylor College of Medicine, Houston, Texas

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**Background.** Accurate medication reconciliation upon hospital admission is crucial for patients with human immunodeficiency virus (HIV) to ensure continuation of appropriate antiretroviral therapy (ART). An ART policy was implemented at our institution which restricted ART ordering to infectious diseases physicians to increase appropriate ART prescribing following admission. The purpose of this study was to evaluate the effectiveness of the HIV medication restriction policy on the appropriateness of ART re-ordering upon admission.

**Methods.** This was a single-center, retrospective chart review conducted from July 2014 to June 2017 as a pre-post intervention study. The pre-intervention group included adult patients with HIV who received one or more doses of ART prior to implementation of the HIV medication restriction policy. The post-intervention group included adult patients with HIV who received one or more doses of ART after implementation of the policy. Exclusion criteria included patients who received ART for hepatitis B infection or prophylaxis, HIV post-exposure prophylaxis, or patients receiving a first dose of ART for occupational exposure. Home ART medication regimen and inpatient ART medication regimen were evaluated. The primary endpoint was to compare the rate of appropriate medication reconciliations completed before and after implementation of the HIV medication restriction policy. The secondary endpoint was to compare the time to restart of ART following admission.

**Results.** A total of 115 patients were included in this study. Appropriate medication reconciliation increased from 76% to 100% after implementation of the policy ( $P = 0.014$ ). However, the mean time to re-initiation of ART increased from 7.9 hours to 14.5 hours after implementation of the policy ( $P = 0.01$ ). ART regimens were restarted within 24 hours of admission in 96.7% of the pre-HIV policy group vs. 84% in the post-HIV policy group ( $P = 0.02$ ).

**Conclusion.** The mean time to re-initiation of ART increased after implementation of the HIV policy. However, restriction of ART ordering to infectious diseases physicians significantly increased the rate of appropriate medication reconciliation for patients with HIV. In light of these results, a procedure will be established to ensure the timely re-initiation of ART.

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#### 590. Tackling HIV/AIDS in Brooklyn New York Within a Network of Federally Qualified Health Centers

Neil Pasco, MD<sup>1</sup>; Finn Schubert, MPH<sup>2</sup>; Jessica Hayon, MD<sup>3</sup>; Tiffany Yi Shan Lee, MD<sup>3</sup>; Anum Aamir, MD<sup>3</sup>; Marilyn Chacko, DO<sup>3</sup> and Isaac Dapkins, MD<sup>1</sup>; <sup>1</sup>Family Health Center, Family Health Centers at NYU Langone Health, Brooklyn, New York, <sup>2</sup>Clinical Research, NYU Langone Hospital-Brooklyn, Brooklyn, New York, <sup>3</sup>Internal Medicine, Family Health Centers at NYU Langone Health, Brooklyn, New York

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**Background.** As of June 30, 2016, 122,945 New Yorkers had been diagnosed and were known to be living with HIV/AIDS. The Family Health Centers at NYU Langone (FHC) has for the past 27 years continued to build an evolving network of services which aim to tackle the epidemic through the principles of hot-spotting, elevating cultural competency, and applying the continuum of care model for the communities we serve.

**Methods.** FHC's network covers a service area of six NYC Community Districts in Brooklyn. Utilizing best practices, FHC has built a network which addresses the cascade of care through EMR embedded screening, education on cultural competencies in the LGBTQ community, dedicated health navigators, and a comprehensive panel of providers to deal with biopsychosocial factors that prohibit access to healthcare delivery. Utilizing automated referral pathways within the EMR along with a daily review of all testing results performed within the network, care coordination teams and patient navigators are able to identify patients. Dedicated case management teams are then assigned to locate patients and link patients to treatment and assist in overcoming care access barriers.

**Results.** Within the FHC catchment area the incidence of new HIV infections was heavily concentrated among poor minorities. Among the FHC population, minority races comprised 79.3% of those PLWHA, with 58% of the population having the risk factor of MSM activity. For those patients who fall under  $>20\%$  below Federal poverty level, New York's HIV/AIDS death rate is at 74.7%. Despite national and regional trends, the FHC over the last 3 years has managed to not only to provide greater opportunities for access to care, but has increased the rate of viral load suppression among patients served (393 patients in 2014 to 416 patients in 2016 and VLRS of 92.4-95.6%).

**Conclusion.** HIV/AIDS prevalence is still characterized by wide gaps in healthcare disparities and inequality, particularly among those communities who are poor, LGBTQ and/or minority background. By building an infrastructure that follows best practices in a culturally sensitive context, the FHC is able to provide greater access to care in a dwindling population while creating a medical home for quality care regardless of payer base, race, or gender.

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#### 591. Impact of an Antimicrobial Stewardship (ASP) Initiative Evaluating Antiretroviral Regimens for HIV-Positive Patients

Kwabena Nimarko, PharmD<sup>1</sup>; Aiman Bandali, PharmD, AAHIVP<sup>1</sup>; Tiffany Bias, PharmD, BCPS, AAHIVP<sup>2</sup> and Sharon Mindel, PharmD<sup>1</sup>; <sup>1</sup>Pharmacy, Hahnemann University Hospital, Philadelphia, Pennsylvania, <sup>2</sup>Hahnemann University Hospitals, Philadelphia, Pennsylvania

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**Background.** Advancements in the development of antiretrovirals (ARVs) have led to reduced HIV-related morbidity and mortality and improved patient adherence. Despite the simplicity of current ARV regimens, medication errors still frequently occur. This study evaluated the impact of an antimicrobial stewardship (ASP) team in identifying and reducing ARV medication errors.

**Methods.** A retrospective study was conducted to evaluate ARV medication errors pre- and post-implementation of an ASP initiative in HIV-positive patients admitted between July 2016 and December 2017. The ASP team consisted of a PGY2 infectious diseases (ID) pharmacy resident and an ID clinical specialist. The ASP intervention occurred upon admission and consisted of a comprehensive ARV review to assess for dosing, drug-drug interaction, and completeness of regimen. The following endpoints were assessed: incidence of errors, classification of errors, and the number of errors detected/corrected.

**Results.** Three hundred and fifty-six patients were included in the analysis; 153 patients in the pre-intervention group and 203 patients in the post-intervention group. A total of 243 errors were identified in 175 patients; 119 errors ( $n = 78$ ) in the pre-intervention group and 124 ( $n = 97$ ) in the post-intervention group. The overall number of errors were stratified by classification: dosing (42/243; 17%), drug-drug interaction (159/243; 66%), and completeness of regimen (42/243; 17%). Drug-drug interactions involving integrase inhibitors and cations were the most frequently occurring medication error in both cohorts. There was a statistically significant difference in errors detected, and subsequently corrected in the pre-intervention group compared with the post-intervention group (12/119 vs. 85/124,  $P < 0.001$ ). Of the 39 errors that were missed by the ASP team, six were not detected, 12 occurred post-review, and 21 were not accepted by the primary team.

**Conclusion.** Pharmacists play a vital role in mitigating errors in HIV-infected patients upon hospital admission. However, continuous review throughout the hospital course and at discharge, as well as education of all practitioners, is critical to preventing propagation of errors.

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#### 592. Determining the Impact of an Antiretroviral Stewardship Team on the Care of HIV-Infected Patients Admitted to an Academic Research Institution

Ashley DePuy, PharmD<sup>1</sup>; Rafik Samuel, MD, FIDSA<sup>2</sup> and David Koren, PharmD<sup>1</sup>; <sup>1</sup>Department of Pharmacy, Temple University Hospital, Philadelphia, Pennsylvania, <sup>2</sup>Section of Infectious Diseases, Lewis Katz School of Medicine at Temple University, Philadelphia, Pennsylvania

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**Background.** The American Society of Health-System Pharmacists and The American Academy of HIV Medicine have established guidelines on the pharmacist's