

■ Advanced Practice Nurse ■ Pharmacist ■ Physician ■ Physician Assistant ■ Maternal & Child Social Worker

Conclusion. Our report suggests the unavailability of alternative ARVF has the potential to significantly impact patient care. Further research is needed to identify the root causes of this problem to determine specific solutions.

Disclosures. Milena M. Murray, PharmD, MSc, BCIDP, AAHIVP, Merck (Speaker's Bureau) Theratechnologies (Other Financial or Material Support, Medical Advisory Board) Eric Farmer, PharmD, BCPS, AAHIVP, TheraTechnologies, Inc (Other Financial or Material Support, Medical Advisory Board)

893. Evaluating Weight Gain in Treatment-naïve, HIV-infected Patients Started on Antiretroviral Therapy

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Session: P-51. HIV: Treatment

Background. There is increasing evidence that integrase strand transfer inhibitors (INSTIs) are associated with more weight gain when compared to other antiretroviral (ART) classes. Thus, the primary objective of the study was to evaluate the difference in weight gain at 6 and 18 months among treatment-naïve patients started on an INSTI-based versus a non-INSTI-based ART regimen.

Methods. This was a retrospective cohort study of ART-naïve adults who were initiated and maintained on INSTI and non-INSTI based regimens for at least 18 months at an HIV clinic in an inner-city hospital from January 2013 to June 2019. The non-INSTI-based regimens were darunavir (DRV) or rilpivirine (RPV)-based. Data collected included patient demographics, ART regimen, pre- and post-ART initiation weight in kilograms (kg), body mass index (BMI), CD4 count, and viral load. A two-tailed t-test was used to compare change in weight in INSTI-based versus non-INSTI-based regimens. Sub-group analyses were conducted using the ANOVA test.

Results. Out of 170 patients, 60% were initiated on an INSTI-based regimen, 7.1% on a DRV-based regimen, and 32.9% on a RPV-based regimen. Of the patients initiated on INSTI-based regimens, 73.5% were on elvitegravir (EVG), 16.7% on dolutegravir, 8.8% on bictegravir, and 0.98% on raltegravir. The mean age at ART initiation was 38 years with majority of the patients described as Black. More male patients received an INSTI-based regimen compared to females (77.5% vs. 32%). The average change in weight at 6 and 18 months in the INSTI-based group vs non-INSTI-based group was +3.6 kg vs. +2.9 kg (95% CI -2.2-0.7, p=0.317) and +5.7 kg vs. +4.8 kg (95% CI -3.2-1.2, p=0.357) respectively. There was no significant average change in weight among the INSTI-based regimens (+3.6 kg), vs DRV (+5.3 kg), or RPV (+2.4 kg) based regimens at 6 months (p=0.108) and 18 months [(+5.7 kg) vs (+7.2 kg), vs (+4.3 kg) (p=0.186) respectively]. Among the INSTIs, EVG was associated with the highest increase in weight at both 6 and 18 months (+3.9 kg and +5.8 kg). Forty-six percent of patients in the INSTI group were on tenofovir alafenamide (TAF) while no patients received TAF in the non-INSTI groups.

Conclusion. When comparing INSTI-based to DRV or RPV-based regimens, there was no significant increase in average weight at 6 and 18 months.

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894. Trend of Transmitted Resistance Associated Mutations in People Living with HIV (PLWH) in a Large Southeastern U.S. Ryan White Clinic

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Session: P-51. HIV: Treatment

Background. Department of Health and Human Services (DHHS) guidelines recommend integrase strand transfer inhibitors (INSTIs) as the backbone of preferred initial antiretroviral (ART) regimens (1). Baseline mutation rates for the INSTI class is 0.8% compared with an overall rate of 19% for all ART classes, based on Centers for Disease Control and Prevention (CDC) U.S. data from 2013-16 (2). First-generation INSTIs (raltegravir and elvitegravir) have a lower genetic barrier to resistance compared with newer, second generation INSTIs (bictegravir and dolutegravir) (3, 4).

DHHS guidelines do not currently recommend routine HIV genotypic resistance testing to INSTIs prior to ART initiation (1). Our study seeks to determine the current prevalence of transmitted INSTI and overall resistance in a large southeastern U.S. Ryan White clinic.

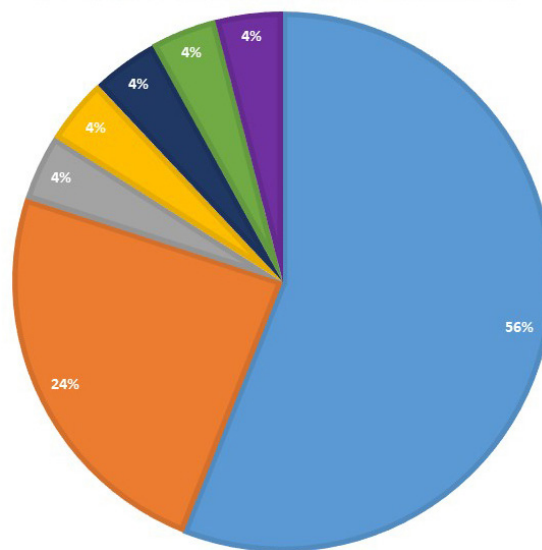
Methods. This was a single-center, retrospective analysis of treatment naïve PLWH presenting for care from January 1, 2017 to December 31, 2020. Of these, 164 had a baseline genotype performed by one of two commercially available assays – Vela Genomics or ViroSeq. Subsequent interpretations were based on Stanford HIV Drug Resistance Database.

Results. 65 patients (39.6%) had at least one transmitted resistance associated mutation (RAMs). Of these, 24 (36.9%) had an INSTI RAM. Baseline PI, NRTI, and NNRTI RAMs declined during the four-year interval (2017-2020), while the rate of INSTI RAMs increased from 11.1% to 19%; all conferred resistance to the first generation INSTIs with one also conferring resistance to second generation INSTIs.

INSTI Resistance Associated Mutation Prevalence 2017-2020

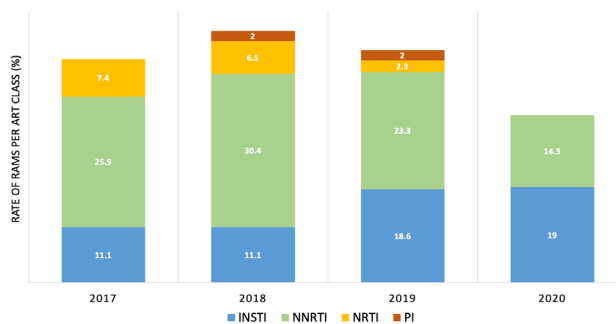
INSTI RAM PREVALENCE

■ E157Q ■ T97A ■ Q95K ■ G163R ■ G163K ■ S147G ■ Q148R



Frequency of Antiretroviral Therapy Class Mutations Per Year

FREQUENCY OF ART CLASS MUTATIONS PER YEAR (2017-2020)



Trend of INSTI Mutations and Resistance Associated Mutations 2017-2020

Genotype Year	Number of Patients	INSTI Mutations	INSTI Resistance Associated Mutations
2017	54	6 (11.1%)	6 (11.1%)
2018	46	7 (15.2%)	6 (11.1%)
2019	43	8 (18.6%)	8 (18.6%)
2020	21	4 (19%)	4 (19%)
Totals	164	25 (15.2%)	24 (14.6%)

Conclusion. Unlike the CDC data which showed the overall prevalence of INSTI RAM transmission rates during 2013-2016 to be 0.8%, our data suggests a higher rate of INSTI RAMs (14.6%) with overall ART RAM transmission of 39.6%. This increase in baseline resistance to the INSTI class, which occurred over time, mimics the historical development of RAMs seen in the earlier ART classes. Though suboptimal adherence in the population promotes development of RAMs, increased frequency of INSTI RAMs may be due to a lower barrier to resistance of first generation INSTIs. Should our observed trend continue, routine baseline INSTI resistance testing may need to be considered prior to ART initiation.

Disclosures. Cheryl Newman, MD, Gilead (Scientific Research Study Investigator)GSK/ViiV (Scientific Research Study Investigator, Advisor or Review Panel member, Speaker's Bureau)Janssen (Scientific Research Study Investigator)Merck (Scientific Research Study Investigator)

895. Impact of Telemedicine on HIV Care and Prevention Services at an Academic Ryan White-Funded Clinic

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Session: P-51. HIV: Treatment

Background. Telemedicine (TM) has been seldom used for the care of persons with HIV. However, the COVID-19 pandemic has forced HIV clinics to rapidly scale TM resources. With the increase of TM, the impact on HIV patient care remains uncertain. The purpose of this study is to examine the effects of TM on HIV care and retention at a Ryan White-funded clinic.

Methods. This was a retrospective study of patients seen at an academic clinic in Pittsburgh, PA between 1/1/20 – 12/31/20. Encounter information was extracted from the clinic electronic health record. Primary outcomes were viral load (VL) suppression (< 200 copies/ml) and retention in care for persons seen via TM (phone, video +/- in person) vs those seen in-person. Secondary outcomes included flu vaccination and STI screening rates.

Results. Amongst 1414 patients, 608 patients had at least one scheduled TM visit, with 97 seen exclusively via TM, and 806 were scheduled for only in-person visits. In those with at least one TM visit, 92.72% had a suppressed VL. 89.69% of those with only TM visits were suppressed. 92.43% were suppressed in the in-person group. Average show rate amongst patients who had at least one TM visit was 60.39% (+0.96% from 2019, +1.71% from 2018), vs 64.38% amongst patients who only had in-person visits. Amongst patients who were only scheduled for TM visits, show rate was 83.97%. 40.18% of patients who had at least one TM visit received their flu vaccine in 2020 (-37.45% from 2019, -36.72% from 2018) vs 37.62% who were only seen in-person. Amongst patients who had at least one TM visit, syphilis screening rate was 43.09% (-7.64% from 2019, -8.55% from 2018) vs 43.51% for those seen only in-person. Gonorrhea and chlamydia screening rates were both 42.91% (+9.46% from 2019, +15.27% from 2018 for chlamydia screening; +8.36% from 2019, +14.73% from 2018 for gonorrhea screening). Amongst patients who were exclusively seen in-person gonorrhea screening rate was 48.24% and chlamydia screening rate was 47.57%.

Table 1. Characteristics of Patients Seen in 2020

	Patients scheduled for TM visits	Patients scheduled only for OV	806
Total population	608	51.56 (Range 20-87)	
Average age	50.12 (Range 21-85)	51.56 (Range 20-87)	
Gender identity			
Male	448 (73.68%)	613 (76.05%)	
Female	153 (25.16%)	161 (19.98%)	
Transgender	7 (1.15%)	10 (1.24%)	
Average years enrolled in clinic	11.15 (Range 0-30)	11.06 (Range 0-35)	
Average household income (\$)	32141.11	37094.07	

Table 2. Primary and Secondary Outcomes for Patients Seen in 2020

	Patients scheduled for TM visits	Patients scheduled only for OV
Percent suppressed	92.72%	92.43%
Show rates	60.39%	64.38%
Change from 2019	0.96%	
Change from 2018	1.71%	
Influenza vaccination rates	40.18%	37.62%
Change from 2019	-37.45%	
Change from 2018	-36.72%	
Syphilis screening rates	43.09%	43.51%
Change from 2019	-7.64%	
Change from 2018	-8.55%	
Gonorrhea screening rates	42.91%	48.24%
Change from 2019	8.36%	
Change from 2018	14.73%	
Chlamydia screening rates	42.91%	47.57%
Change from 2019	9.46%	
Change from 2018	15.27%	

Conclusion. VL suppression rates were similar across both groups, but retention in care was highest in the TM-only group. Flu vaccination rates and STI screening were lower in the groups that included TM. TM is an effective method for maintaining VL suppression and retention in care but has room for improvement with provision of preventative services.

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896. Examining the Impact of the COVID-19 Pandemic on Delivery of HIV Care and Prevention Services Among Patients in a Ryan White Clinic

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Session: P-51. HIV: Treatment

Background. We sought to characterize the impact of the COVID-19 pandemic on HIV-related outcomes in a cohort of patients by examining rates of viral load (VL) suppression, retention-in-care, PrEP access, and STIs.

Methods. This was a single center, retrospective study of adults receiving HIV treatment or HIV/STI prevention services from 01/2019 - 12/2020. HIV outpatient visits were identified through HRSA's CareWARE. Visits (in-person, telehealth) only included HIV primary care. HRSA core performance measures were utilized (Table 1). STI positivity rates and descriptive characteristics were calculated. New and refill PrEP prescriptions were tabulated. Chi-square tests compared unmatched non-parametric variables; McNemar's test matched non-parametric variables. Multivariable logistic regression identified variables associated with retention in care and viral suppression.

Table 1: US Health Resources and Services Administration (HRSA) HIV/AIDS Bureau Performance Measures

Term	Description
Performance Measure	A set of evidence-based Core Clinical Measures (CCMs) that targets high-priority health conditions found among HRSA's safety-net populations, which were identified by the Institute of Medicine (IOM) as needing national action for health care quality improvement.
HIV Viral Load Suppression	Percentage of patients, regardless of age, with a diagnosis of HIV with a HIV viral load less than 200 copies/ml at last viral load test during the measurement year.
Annual Retention in Care	Percentage of patients, regardless of age, with a diagnosis of HIV who had at least two (2) encounters within the 12-month measurement year.

*Missing viral loads = detectable viremia per HRSA classification

Results. 1721 patients received care; 1234 were seen in both years, 334 only in 2019, 153 only in 2020. The number of telehealth visits increased significantly: video (0% to 31%, < 0.001), phone (0% to 0.4%, p < 0.001). Though the proportion of kept appointments increased (57.2% vs 61.2%), the annual retention in care rate decreased from 74.5% to 70.9% (p = 0.002). Overall, 9.7% of patients had detectable VLs at any point. Compared to 2019, a lower proportion of patients maintained VL suppression in 2020, (91.6% vs 83.5% p = 0.075). More patients did not have a VL drawn in 2020 than in 2019 (10.3% vs 2.0%, p < 0.001). Patients with detectable VLs in 2019 were more likely than those who were undetectable to have detectable VLs in 2020 (OR 18.2, 95% CI 9.91-33.42). Black race was associated with higher likelihood of lack of VL suppression (OR = 2.0; 95% CI 1.10-3.66). There were no significant differences between gender or age groups in rates of viral suppression, number screened for bacterial STIs or positive results. Visits for new and refill PrEP prescriptions decreased by 59% and 7%, respectively.

Conclusion. Rates of viral load suppression and retention in care decreased in 2020 compared to 2019. The proportion of clinic visits attended increased after the integration of telemedicine in 2020. These data may be used to inform evidence-based interventions to improve the HIV continuum of care through telehealth.

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897. Trends and Correlation of HIV-1 Reservoir in Acute HIV Infection and Chronic HIV Infection in China

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Session: P-51. HIV: Treatment

Background. Among acute HIV infection (AHI) and chronic HIV infection (CHI), the association of HIV-1 DNA and HIV-1 RNA is currently a hot spot of concern. We studied HIV-1 DNA levels in patients with AHI and CHI before initiation of ART to explore the growth characteristics of the HIV reservoir.

Methods. From 2016/10/31 to 2020/11/23, 97 patients were enrolled in the first hospital of Changsha in China. According to the patient's epidemiological history, HIV-1 antibody conversion time, presence of opportunistic infection (OI), to determine whether the patients were in the acute or chronic infection period, and divided into two arms: AHI and CHI. Leukomonocyte, HIV-1 RNA, and CD4/8 of all patients were collected. The HIV-1 DNA in peripheral blood mononuclear (PBMC) was detected by PCR-Fluorescence Probing. The results were analyzed by SPSS 22.0 and GraphPad Prism 8.0. P-value < 0.05 were statistically significant.

Results. 93 of 97 were male and 85 of 97 with sexual transmission. In AHI arm, the mean of HIV-1 RNA was 5.15 log₁₀ copies/ml, and the mean of HIV-1 DNA was 2.83 log₁₀ copies/10⁶ PBMCs. In CHI Arm, the mean value of HIV-1 RNA was 4.90 log₁₀ copies/ml, and the mean value of HIV-1 DNA was 3.19 log copies/10⁶ PBMCs. The HIV-1 DNA of CHI group was higher than that of AHI group (p = 0.002), but the HIV-1 RNA of CHI group was lower than that of AHI group (p = 0.183). There were no significant differences between AHI and CHI in age, sex, body weight, route of infection, ART, other viral infection, leukomonocyte, CD4+ T cell count, CD4+ T cell percentage, CD8+ T cell count, CD8+ T cell percentage and CD4/CD8 ratio (P > 0.05). In Group AHI, HIV-1 DNA was positively correlated with HIV-1 RNA (r = 0.548, p < 0.001), but not in Group CHI (r = 0.14, p = 0.347).