adjustment for other covariates. P value <0.05 was considered statistically significant. R version 3.3.2 was used for the statistical analysis.

Results. A total of 70 women and 90 men were included in the study. Median age was 41 years (19) for women and 34 years (19) for men ($P < 0.001$). Virologic suppression was documented in 76% of women and 64% of men (p 0.166). Immune recovery was documented in 60% of women and 68% of men (p 0.323). Multivariate analysis of virologic success is shown in Figure 1 and immunologic recovery is shown in Figure 2.

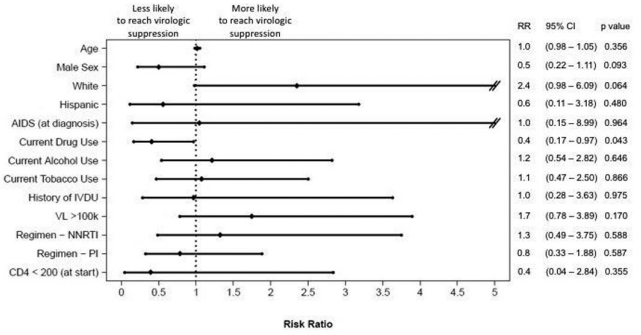

Figure 1: Multivariate Analysis of Virologic Suppression

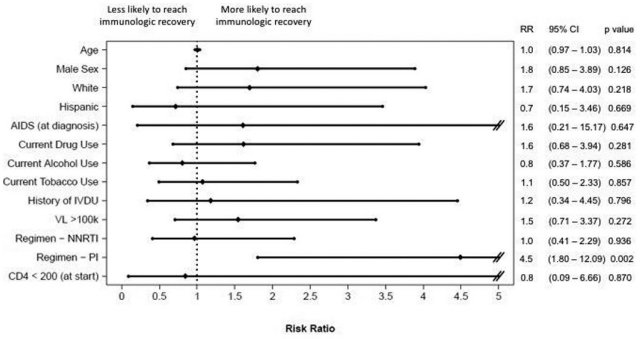

Figure 2: Multivariate Analysis of Immunologic Recovery

Conclusion. In our study, gender was not found to be associated with differences in response to ART. As expected, drug abuse continues to be an independent variable associated with lack of virologic suppression. If one of the goals of treatment is to achieve a rapid immunologic response, our study may indicate that regimens containing protease inhibitors should be the ones selected.

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

1398. Weight Gain After Switch from Efavirenz-Based to Integrase Inhibitor-Based Regimens

Jamison Norwood, MD[1]; Megan Turner, M.A.[2]; Carmen Bofill, MPH[2]; Cathy Jenkins, MS[3]; Sally Bebawy, BS[2]; Peter Rebeiro, PhD, M.H.S.[4]; Todd Hulgan, MD, MPH, FIDSA[5]; Stephen Raffanti, MD, MPH, FIDSA[6]; David Haas, MD, FIDSA[7]; Timothy R. Sterling, MD, FIDSA[8] and John Koethe, MD[9]; [1]Internal Medicine, Vanderbilt University Medical Center, Nashville, Tennessee, [2]Department of Medicine, Division of Infectious Diseases, Vanderbilt University Medical Center, Nashville, Tennessee, [3]Department of Biostatistics, Vanderbilt University School of Medicine, Nashville, Tennessee, [4]Vanderbilt University School of Medicine, Nashville, Tennessee, [5]Medicine, Vanderbilt University Medical Center, Nashville, Tennessee, [6]Vanderbilt University Medical Center, Nashville, Tennessee, [7]Medicine, Vanderbilt University School of Medicine, Nashville, Tennessee, [8]Vanderbilt Tuberculosis Center, Vanderbilt University Medical Center, Nashville, Tennessee, [9]Department of Medicine, Division of Infectious Diseases, Vanderbilt University, Nashville, Tennessee

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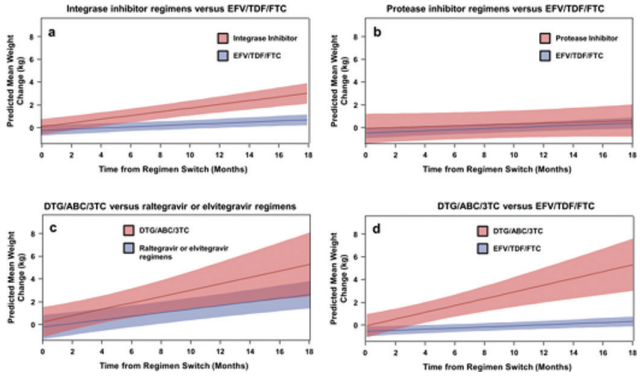
Background. Integrase strand transfer inhibitor (INSTI)-based antiretroviral therapy (ART) offers persons living with HIV a potent new treatment option. Recently, local HIV clinicians noted weight gain in patients who switched from daily, fixed-dose efavirenz/tenofovir disoproxil fumarate/emtricitabine (EFV/TDF/FTC) to fixed-dose dolutegravir/abacavir/lamivudine (DTG/ABC/3TC). To assess whether regimen switch was significantly associated with weight gain, we evaluated body weight over time among patients with sustained virologic suppression who switched from EFV/TDF/FTC to an INSTI-containing regimen, including DTG/ABC/3TC.

Methods. We analyzed data from adult patients on EFV/TDF/FTC for >=2 years with consistent plasma HIV-1 RNA <1000 copies/mL prior to date of switch (or date of sham switch for those who remained on EFV/TDF/FTC). All maintained HIV-1 RNA <1000 copies/mL for >=18 months post-switch. We assessed weight change over 18 months in patients switched to an INSTI-containing regimen or a protease inhibitor (PI)-containing regimen vs. those remaining on EFV/TDF/FTC over the same period. In a sub-group analysis, we compared patients switched to DTG/ABC/3TC vs. raltegravir- or elvitegravir-containing regimens. Linear mixed effects models assessed mean differences in weight over time, adjusting for baseline age, sex, race, CD4+ count and weight.

Results. Among 495 patients, 136 switched to an INSTI-containing regimen, 34 switched to a PI-containing regimen, and 325 remained on EFV/TDF/FTC. Patients switched to an INSTI-containing regimen gained an average of 2.9 kilograms (kg) at 18 months compared with 0.9 kg among those continued on EFV/TDF/FTC ($P = 0.003$, Figure a), while those switched to a PI regimen gained 0.7 kg ($P = 0.81$, Figure b). Among INSTI regimens, those switched to DTG/ABC/3TC gained 5.3 kg at 18 months, which was more than raltegravir or elvitegravir regimens ($P = 0.19$, Figure c) and significantly more than those continued on EFV/TDF/FTC ($P = 0.001$, Figure d).

Conclusion. Switching from daily, fixed-dose EFV/TDF/FTC to an INSTI-containing regimen among patients with virologic control was associated with weight gain at 18 months. This weight gain was particularly profound among those switching to DTG/ABC/3TC.



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

1399. Application of The Change Point Analysis to The Long-Term Restoration of CD4 Count Among Well-Controlled HIV-1 Infected Patients Who Started Antiretroviral Therapy

Mutoh Yoshikazu, MD[1]; Takeshi Nishijima, MD. PhD[1]; Noriko Tanaka, PhD[2]; Yosuke Inaba, MSc[2]; Yoshimi Kikuchi, MD, PhD[1]; Hiroyuki Gatanaga, MD, PhD[1] and Shinichi Oka, MD, PhD[1]; [1]AIDS Clinical Center, National Center for Global Health and Medicine, Tokyo, Japan, [2]Biostatistics Section, Department of Data Science, Clinical Science Center, National Center for Global Health and Medicine,tokyo, Shinjuku, Japan

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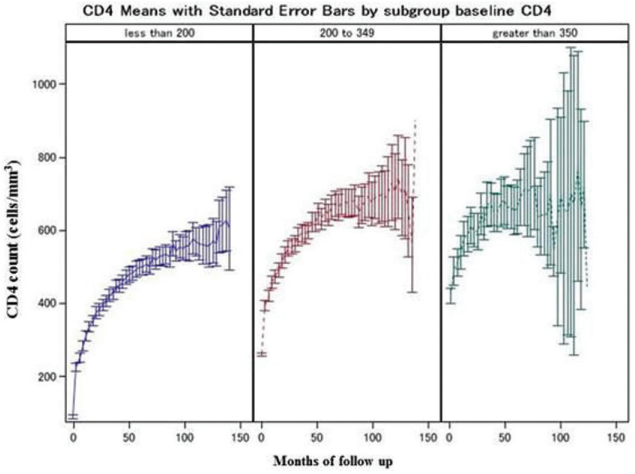
Background. Although CD4 count is an important marker for prognosis of patients infected with HIV-1, how long and how much CD4 count will increase after initiation of cART are still unknown. Hence, the aim of this study is, using change point analysis, to examine the long-term CD4 count restoration among well-controlled HIV-1 patients.

Methods. In this single-center cohort study at AIDS Clinical Center, Tokyo, we examined HIV-1 infected patients who initiated cART between January 2004 and January 2012 and achieved HIV viral load of <200 copies/mL within first 48 weeks of treatment and maintained viral suppression (VL <200 copies/mL) for at least 4 years. cART was defined as combination regimen which consisted of NNRTI, PI, or INSTI, plus two NRTIs. All patients were followed until censoring (defined by VL >200 copies/mL, discontinuation of cART for >30 days, lost to follow-up for >1 year, initiating chemotherapy for malignancy, or death), or at end of the observation period (September 30, 2015). Change point analysis was performed to determine the time point where the restoration of CD4 count becomes plateau.

Results. Of 752 patients, 708 (94.2%) were male and 89.9% was MSM. The median age was 39.3 years [IQR, 32–45] and the median baseline CD4 count and %CD4 were 172 cells/mm^3 [IQR, 61–254], and 13.8% [IQR, 7.7–18.5], respectively. The median follow-up period was 87.0 months [IQR, 65.2–109.2] and 134 were followed over ten years. With change point analysis, both longitudinal increase of CD4 count and %CD4 increased linearly until 78.6 and 62.2 months, respectively. Stratified by baseline CD4 count (<200 cells/mm^3, 200–350 cells/mm^3, and >350 cells/mm^3), CD4 count increased linearly until 76.2, 62.4, and 58.6 months, respectively. Moreover, the percentage of patient who achieved 500 cells/mm^3 during study period was 63.5%, 87.2%, and 92.0%, respectively.

Conclusion. With change point analysis, restoration of CD4 count and %CD4 continued increasing linearly until 6.5 and 5 years of cART, respectively. Patients with lower baseline CD4 count showed longer CD4 count recovery than those with higher baseline CD4; however, their CD4 count did not recover as high as those with higher baseline CD4 count.



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

1400. Treatment of HIV and Use of HAART in HIV Infected Patients with Acute Septic Shock

Christopher Polk, MD[1]; Samuel Webb, MD[2]; Nigel Rozario, MS[3]; Charity Moore, PhD[3] and Michael Leonard, MD[1]; [1]Infectious Diseases, Carolinas Healthcare System, Charlotte, North Carolina, [2]Carolinas Healthcare System, Charlotte, North Carolina, [3]Dickson Advanced Analytics, Charlotte, North Carolina

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Background. For HIV patients admitted with sepsis, ARVs are often stopped or held due to myriad concerns including drug interactions, acute renal failure, gastrointestinal dysfunction, or inability to administer crushed medications down feeding tubes. We seek to examine prescription patterns of HAART for HIV positive patients admitted for sepsis in our healthcare system and the impact of HAART prescription on patient outcomes.

Methods. We identified HIV positive patients from an institutional database of patients admitted for sepsis within our multi-hospital healthcare system and retrospectively extracted further clinical patient and laboratory information as well as information on HAART prescription by chart review. The impact of HAART prescription and immunologic and virologic parameters of HIV infection on mortality was examined.

Results. Inpatient mortality was 35% in HIV patients admitted for sepsis, compared with 17% for all patients with sepsis in our healthcare system. Opportunistic infections were identified in only 25% of patients while 56% had other infections identified. Only 55% of patients had HAART prescribed while inpatient. CD4 count, virologic suppression, APACHE score, presence of an opportunistic infection, admission to a tertiary care hospital, and inpatient prescription of HAART were all predictors of survival.

Table: Factors impacting mortality in HIV patients with sepsis in univariate analysis.

	Survivors (n = 50)	Deaths (n = 28)	Odds ratio of survival (p value)
Mean baseline CD4 count	309	64	($P < 0.01$)
Virologic suppression (VL<200)	48% (n = 21 of 44)	22% (n = 5 of 23)	3.3 ($P < 0.05$)
Mean APACHE score	67 (n = 32)	110 (n = 17)	($P < 0.01$)
Opportunistic infection	18% (n = 9)	39% (n = 11)	0.34 ($P < 0.05$)
Tertiary hospital admission	50% (n = 25)	21% (n = 6)	3.7 ($P < 0.05$)
Inpatient HAART prescription	68% (n = 34)	32% (n = 9)	4.5 ($P < 0.01$)

In a multivariable analysis both CD4 count and inpatient HAART prescription predicted survival in our cohort with an odds ratio of survival of 3.3 for patients prescribed HAART inpatient compared with their untreated peers.

Conclusion. Immunologic and virologic status at time of admission predicted survival in HIV patients admitted for sepsis but prescription of HAART to HIV patients admitted for sepsis may increase survival.

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1401. A Prediction Model of Pretreatment HIV RNA Levels in Naïve Thai HIV-infected Patients: An Application for Resource-limited Settings

Nisha Pongpech, MD[1]; Anchalee Avihingsanon, MD, PhD, HIV-NAT[2]; Romanee Chaiwarith, MD, MHS[3]; Pacharee Kantipong, MD[4]; David Boettiger, PhD[5]; Jeremy Ross, MD[6] and Sasisopin Kiertiburanakul, MD, MHS[7]; [1]Faculty of Medicine Ramathibodi Hospital, Mahidol University, Department of Medicine, Bangkok, Thailand, [2]Thai Red Cross AIDS Research Center, Bangkok, Thailand, [3]Medicine, Faculty of Medicine Chiang Mai University, Chiang Mai, Thailand, [4]Chiangrai Prachnukroh Hospital, Chiang Rai, Thailand, [5]The Kirby Institute, UNSW Australia, Sydney, Australia, [6]TREAT Asia, amfAR – The Foundation for AIDS Research, Bangkok, Thailand, [7]Department of Medicine, Faculty of Medicine Ramathibodi Hospital, Mahidol University, Bangkok, Thailand

Session: 156. HIV: Antiretroviral Therapy
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Background. The use of abacavir (ABC) and rilpivirine (RPV) in the first-line regimen for naïve HIV-infected patients with pretreatment HIV RNA >100,000 copies/mL is not recommended due to a high rate of treatment failure. If a model could accurately predict pretreatment HIV RNA levels, it would be a useful tool for the selection ABC or RPV in the first-line regimen.

Methods. Thai HIV-infected adults enrolled in the TREAT Asia HIV Observational Database (TAHOD) and additional patients of Ramathibodi Hospital were eligible if they had an HIV RNA result at the time of antiretroviral therapy initiation. Factors associated with pretreatment HIV RNA <100,000 copies/mL were determined by logistic regression. Based on the results of the final model, a prediction model was created.

Results. A total of 1,223 patients were included in the analysis. Among those in the derivation data set, median [interquartile range (IQR)] age was 36.3 (30.5–42.9) years, median (IQR) CD4 count was 122 (39–216) cells/mm^3, and pretreatment HIV RNA was 100,000 (32,449–229,777) copies/mL. Factors associated with pretreatment HIV RNA <100,000 copies/mL were anemia [odds ratio (OR) 2.05 vs. no anemia; 95% confidence interval (CI) 1.28–3.27], CD4 count >200 cells/mm^3 (OR 3.00 vs. CD4 count <200 cells/mm^3; 95% CI 2.08–4.33), and non-heterosexual HIV exposure (OR 1.61 vs. heterosexual HIV exposure; 95% CI 1.07–2.43). No AIDS-defining illness (11.5), no anemia (18.5), age <35 years (11), CD4 count >200 cells/mm^3 (27), duration of HIV infection >1 year (9), and weight >50 years (11) were included in the clinical prediction tool scores. A score ≥45 yielded a sensitivity of 45.3%, specificity of 76.7%, positive predictive value of 68.1%, and negative predictive value of 56.1% among patients in the derivation. The area under the receiver-operator characteristic curve was 0.655 (95% CI 0.614- 0.696) and 0.600 (95% CI 0.533–0.667) in the derivation and validation patients, respectively.

Conclusion. Our final prediction model had poor sensitivity and specificity for predicting HIV RNA <100,000 copies/mL. Further study on a larger population with a greater diversity of data variables available is necessary to improve the model. Pretreatment HIV RNA remains necessary before ABC or RPV initiation for naïve Thai HIV-infected patients.

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

1402. Principal Components and Costs of HIV-Associated Hospitalizations in the United States: A National Study in the Current Era

Carlos Santos, MD MPHS[1] and Allan Tenorio, MD[2]; [1]Rush University Medical Center, Chicago, Illinois, [2]ViiV Healthcare, Research Triangle Park, North Carolina

Session: 157. HIV: Health Care Utilization and Costs
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Background. HIV-associated illness in the US has evolved with the advent of antiretroviral therapy and aging of the HIV-infected population. While changes in the causes of mortality in these patients are well documented, reasons for hospitalization and costs associated with hospital stays are not well studied at the national level.

Methods. We collected billing and demographic data of 84,666 HIV-associated hospitalizations across 3,564 hospitals nationwide using the 2012 and 2013 National Inpatient Sample, and used principal component analysis to arrive at predominant themes of HIV-associated hospitalization. Components with eigenvalues greater than one were retained, and orthogonal rotation was performed to identify variables that significantly loaded each component. Estimated hospital costs were determined by multiplying inflation-adjusted charges with hospital-specific cost-to-charge ratios and inverse wage indexes, and average costs associated with principal components were computed.

Results. Kidney disease predominated as a theme for HIV-associated hospitalization and accounted for 9% of the total variance. This was followed by liver disease, opportunistic infections with *Pneumocystis* and *Candida*, septicemia, and substance abuse, which accounted for 7%, 6%, 5% and 4% of the total variance respectively. Other significant contributors to hospitalization were heart disease, low socioeconomic status, complicated diabetes mellitus, and other opportunistic infections. The highest costs were associated with septicemia which averaged $25,557 per hospitalization, whereas the lowest costs were associated with substance abuse which averaged $7,534 per hospitalization.

Conclusion. Kidney and liver disease are important components of HIV-associated hospitalization in the current era reflecting an aging population overlain with complications from HIV and viral hepatitis. Opportunistic infections continue to be major contributors to hospitalization indicating ongoing challenges in access and adherence to antiretroviral therapy. Research efforts should focus on ameliorating