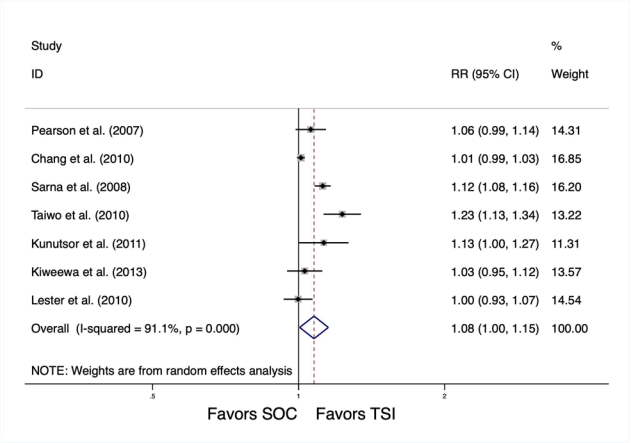

Disclosures. **All authors:** No reported disclosures.

2514. Real-time Antiretroviral Electronic Adherence Monitoring In Young African American Men Who Have Sex With Men

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Session: 263. HIV: ART Resistance and Adherence
Saturday, October 5, 2019: 12:15 PM

Background. Antiretroviral therapy adherence remains a challenge, particularly for young African American men who have sex with men (YAAMSM). We enrolled 40 YAAMSM for 3 months of electronic adherence monitoring (EAM). These data may be useful in developing an antiretroviral EAM intervention that responds to missed doses with real-time text messages.

Methods. YAAMSM (age 18–34 years) living with HIV and taking ART participated in a quantitative and qualitative study that included ART adherence monitoring with a Wisepill electronic monitoring device for up to 3 months. Interviews were performed during April 2017–April 2019 at baseline and follow-up. Monitoring data were reviewed to determine timing and patterns of missing their first true adjudicated miss for durations of 1 dose, 3 consecutive days, and 7 consecutive days. Follow-up qualitative interviews included exploring acceptability of monitoring.

Results. The median age was 28 years and median participant observation time was 90 days (interquartile range 88–90 days) (n = 40 participants). Among those with at least 2 weeks follow-up and adjudication (n = 32), 100% missed at least 1 day. Most (82%) of these participants were <80% adherent in at least one of their monitored months. One dose and 3-day misses did not cluster (e.g., no disproportion on weekends). Most (88%) first missed doses occurred during the first 9 days monitored and most (69%) of the 13 who missed 3 consecutive days missed within the first monitored month. Four participants missed 7 consecutive days. Among 31 with a follow-up interview, 28 (90%) felt receiving a text because of device monitoring would affect their medication taking in the future. Illustrative quotes included, "It made me more responsible" and "…it makes you want to do it right."

Conclusion. Most YAAMSM living with HIV in this study had adherence below the target threshold of >80%. These data support development of a text message responsive real-time electronic adherence monitoring intervention approach.

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

2515. Clinical Relevance of Immune Non-Response Among Virally Suppressed Adults Living with HIV in Africa and the United States

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Session: 264. HIV: Pathogenesis
Saturday, October 5, 2019: 12:15 PM

Background. Immune non-response (INR) for people living with HIV (PLWH) is the inability to regain healthy CD4 counts despite viral suppression (VS) on antiretroviral therapy (ART). We identified factors associated with INR in two methodologically similar but demographically diverse cohorts with open access to care and assessed the relationship between INR and incident serious non-AIDS event (SNAE).

Methods. The US Military HIV Natural History Study (NHS) and the African Cohort Study (AFRICOS) are multisite, open cohort studies enrolling PLWH. Participants with 2 years of VS < 400 copies/mL on ART were evaluated for INR, defined as CD4 < 350 cells/μL at 2 years VS. Logistic regression was used to estimate adjusted odds ratios (aOR) and 95% confidence intervals (CI) for factors associated with INR. Cox proportional hazards regression produced adjusted hazard ratios (aHR) and 95% CIs for factors associated with incident SNAE (first non-AIDS cancer, cardiovascular, gastrointestinal, genitourinary, liver, musculoskeletal or respiratory event) after 2 years of VS.

Results. 10.8% of the 1,784 NHS and 25.8% of the 984 AFRICOS subjects had INR. The AFRICOS cohort was older and had a higher proportion of females. In both cohorts, immune non-responders were significantly older and had a significantly lower CD4 at ART initiation. Those with INR also took longer to reach 2 years of VS since starting ART. Odds of INR decreased by over 60% for every 100 cell increase in baseline CD4 in both cohorts (NHS aOR = 0.31 [95% CI 0.26, 0.37]; AFRICOS aOR = 0.36 [95% CI 0.21, 0.86]). In the NHS, hazard of incident SNAE was 61% higher for those with INR (aHR = 1.61 [95% CI 1.12, 2.33]). Probability of SNAE-free survival at 15 years since 2 years of VS was approximately 20% lower comparing those with and without INR; nearly equal to the differences observed by 15-year age groups.

Conclusion. INR was common in two diverse cohorts with open access to care and treatment. The association with SNAEs suggests early identification of and interventions to prevent or reverse INR may improve clinical outcomes, but further study is needed. The clinical relevance of INR highlights the value of early HIV identification and treatment, and suggests CD4 monitoring at ART initiation and post-VS is important in settings where INR is prevalent.

Table 1. Comparison of baseline demographic and clinical characteristics in the NHS and AFRICOS [a]

Characteristic	NHS (n=1,784)			AFRICOS (n=984)		
	INR (n=193)	No INR (1,591)	p-value [b]	INR (n=254)	No INR (n=730)	p-value
Age (years) (IQR)	37.1 (31.9,42.5)	33.9 (28.3, 40.0)	<0.001	40.0 (34.2, 47.1)	36.3 (30.3,42.9)	<0.001
Females (%)	6.7	6.9	0.95	38.2	63.5	<0.001
Smokers (%) [c]	22.3	19.4	0.44	4.3	2.7	0.21
"At-risk" drinkers (%) [c]	15.0	15.5	0.55	N/A	N/A	N/A
BMI (kg/m²) (%)			0.21			0.052
Underweight (≤18.5)	1.6	0.6		12.2	8.4	
Overweight (>25)	52.3	58.8		23.2	29.6	
History of hypertension (%)	29.5	18.5	<0.001	12.6	14.1	0.54
History of diabetes (%)	11.4	3.5	<0.001	12.6	11.1	0.52
History of depression (%)	27.5	19.1	0.0062	18.1	17.8	0.92
History of chronic HBV (%)	5.8	2.6	<0.001	3.4	4.5	0.49
History of HCV (%)	6.7	3.9	0.15	1.7	1.1	0.51
History of AIDS event (%)	35.2	8.4	<0.001	20.9	15.1	0.033
History of poor ART adherence (%) [d]	33.3	25.8	0.027	10.2	10.0	0.92
Baseline CD4 (cells/μL) (IQR)	161.0 (59.5, 229.5)	374.0 (277.0, 488.0)	<0.001	112.5 (54.0, 191.0)	208.0 (112.0, 294.0)	<0.001
Baseline viral load (log_{10} copies/ml) (IQR)	4.6 (3.8, 5.2)	4.5 (3.8, 4.9)	0.012	2.6 (1.6, 5.2)	3.3 (0.0, 5.0)	0.70
Time to ART start (years) (IQR)	4.7 (3.8, 5.2)	1.6 (0.2, 5.4)	<0.001	0.2 (0.1, 0.8)	0.5 (0.1, 2.3)	<0.001
Time from ART start to 2 years VS (years) (IQR)	3.2 (2.3, 8.4)	2.5 (2.3, 3.8)	<0.001	4.3 (2.3, 6.5)	5.0 (2.5, 7.6)	0.005

[a] Baseline was defined as time of ART initiation.
[b] Chi-squared and Wilcox-Mann-Whitney tests were utilized to look for significant differences by INR status for categorical and continuous variables, respectively.
[c] Approximately 50% of baseline smoking and drinking data were missing from the NHS and therefore excluded from further analyses. AFRICOS history of drinking data was not available.
[d] In the NHS, poor adherence was defined as <95% days covered with ART between treatment initiation and 2 years VS. In the AFRICOS, poor adherence was defined as at least 1 self-reported missed dose in the last month.

Table 2. Unadjusted and adjusted logistic regression results for predictors of INR in the NHS and AFRICOS

Characteristic	Crude OR [a] (95% CI)	p-value	Adjusted OR [b] (95% CI)	p-value
NATURAL HISTORY STUDY				
Baseline viral load [c] (log_{10} copies/ml)	1.21 (1.01, 1.45)	0.035	0.64 (0.52, 0.79)	<0.001
History of hypertension (reference group=no)	1.84 (1.32, 2.57)	<0.001	1.69 (1.06, 2.70)	0.027
Baseline CD4 (cells/μl) (per 100 cells)	0.36 (0.31, 0.41)	<0.001	0.31 (0.26, 0.37)	<0.001
AFRICAN COHORT STUDY				
Baseline age (years)	1.04 (1.03, 1.06)	<0.001	1.04 (1.02. 1.06)	<0.001
Gender (reference group=male)	0.35 (0.26, 0.48)	<0.001	0.52 (0.37, 0.72)	0.001
Baseline CD4 (cells/μl) (per 100 cells)	0.39 (0.27, 0.89)	<0.001	0.36 (0.21, 0.86)	<0.001

[a] Crude ORs were calculated for all factors with significant differences by immune response status as per chi-squared and Wilcox-Mann-Whitney tests for categorical and continuous variables, respectively (p<0.05).
[b] Stepwise selection was used to create the adjusted logistic regression model. Factors significant in the crude analyses that were not significant in the adjusted models included: baseline age (NHS); time from HIV+ to ART start (both cohorts); time from ART start to 2 years VS (both cohorts); history of depression (NHS); history of diabetes (NHS); history of chronic HBV (NHS); poor ART adherence (NHS); history of AIDS event (both cohorts) and history of SNAE before 2 years VS (NHS).
[c] Baseline was defined as time of ART initiation.