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Abstract # A-IAS2021-01071

Title: Self-Reported Antiretroviral Adherence: Association with Maternal Viral Load Suppression in HIV-1-Infected Postpartum Women in Promoting Maternal and Infant Survival Everywhere (PROMISE)-Randomized, Open-label trial in Sub-Saharan Africa and India.

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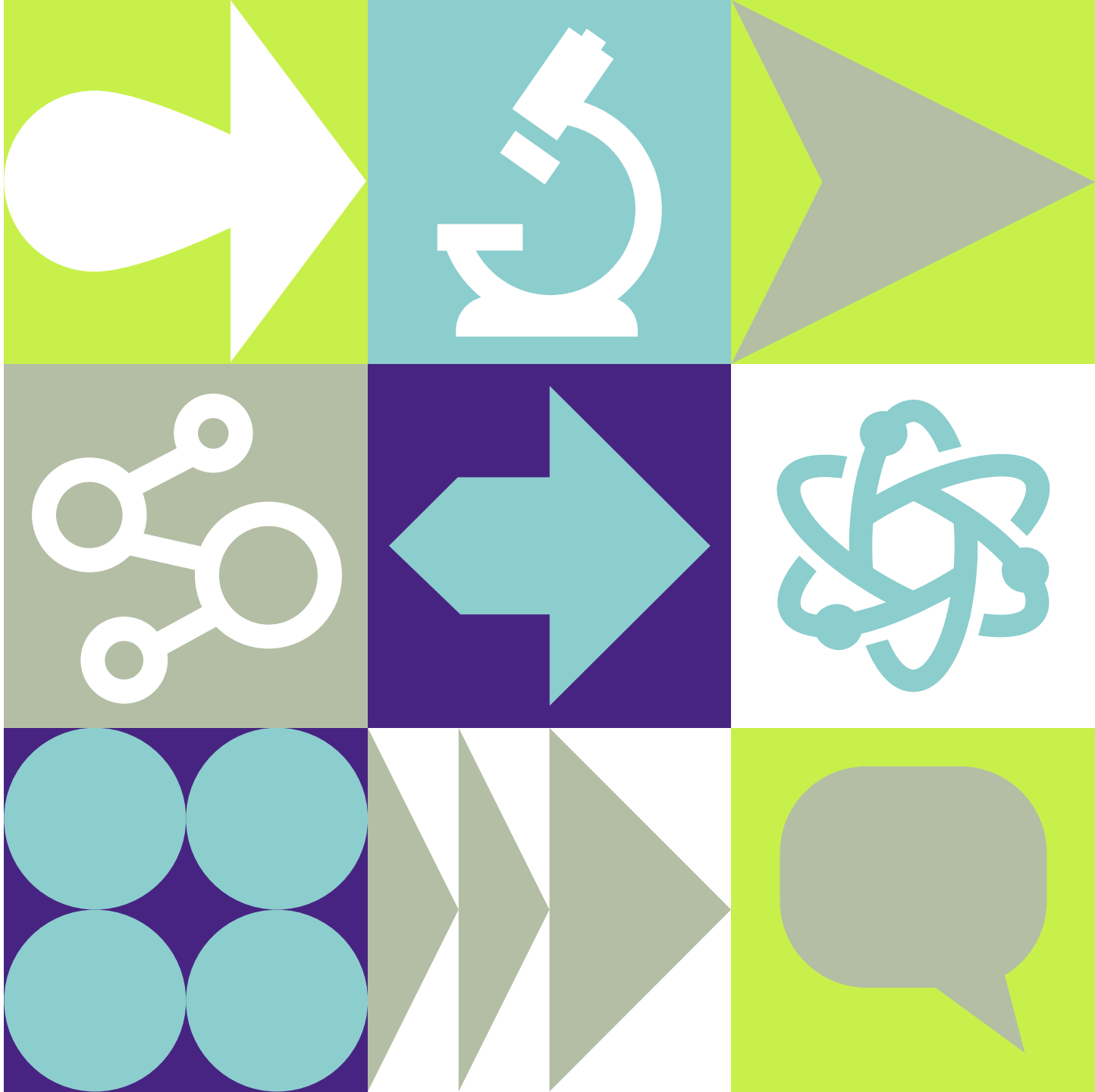
IMPAACT
International Maternal Pediatric Adolescent AIDS Clinical Trials Network



Disclosure

I have NO financial disclosure or conflicts of interest with the presented material in this presentation.

Background

- Globally, almost 50% of the 38 million adults living with human immunodeficiency virus (HIV) are women[1].
- Option B+ antiretroviral therapy (ART) strategy has increased the number of HIV-positive women initiating lifelong ART since 2013.
- Adherence to ART among women remains a great concern especially during postpartum period.
- Poor adherence increases the risk of virologic failure, maternal HIV disease progression, mother-to-child transmission (MTCT) and emergence of antiretroviral drug resistance.
- Detecting suboptimal adherence to ART is important because adherence-improving interventions may improve viral response, maternal health and survival.

1. J Acquir Immune Defic Syndr. Author manuscript; available in PMC 2019 April 01.

Methods

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Study Design: PROMISE study was an open label, randomized controlled, multi-component clinical trial conducted between June 2011 to September 2014.

Study Visits:

Maternal: at weeks 1, 6 and 14 after delivery and then every 12 weeks through week 74.
Infant: at post birth weeks 1, 6, 10, 14, 18, 22 and 26, then every 12 weeks until week 98, with a final visit at week 104.

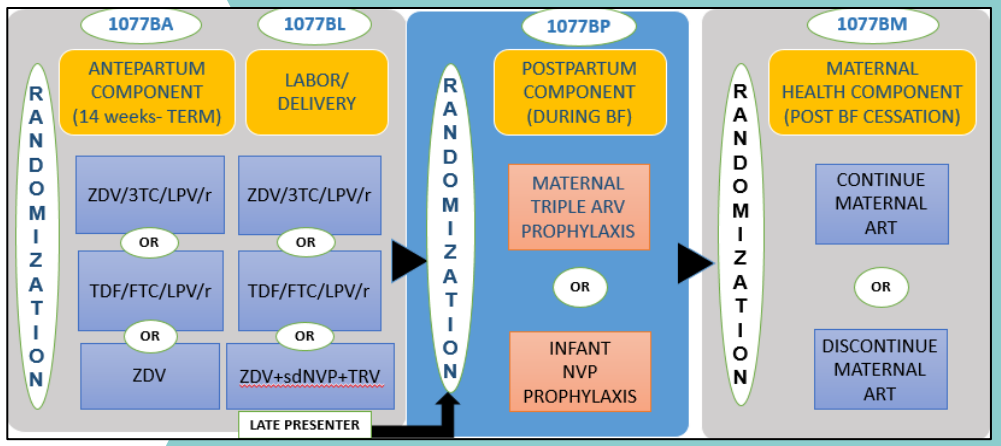
Study Measures:

1. Exposure Variable: Self-reported adherence to maternal ART (mART) and infant nevirapine (iNVP) prophylaxis.
2. Outcome of Interest: Maternal viral load suppression.

Study Evaluations:

1. Self-Reported Adherence
2. Maternal Viral Load

Week 1 (6-14 days postpartum), weeks 6, 14, 26, 50 and 74



Analyses

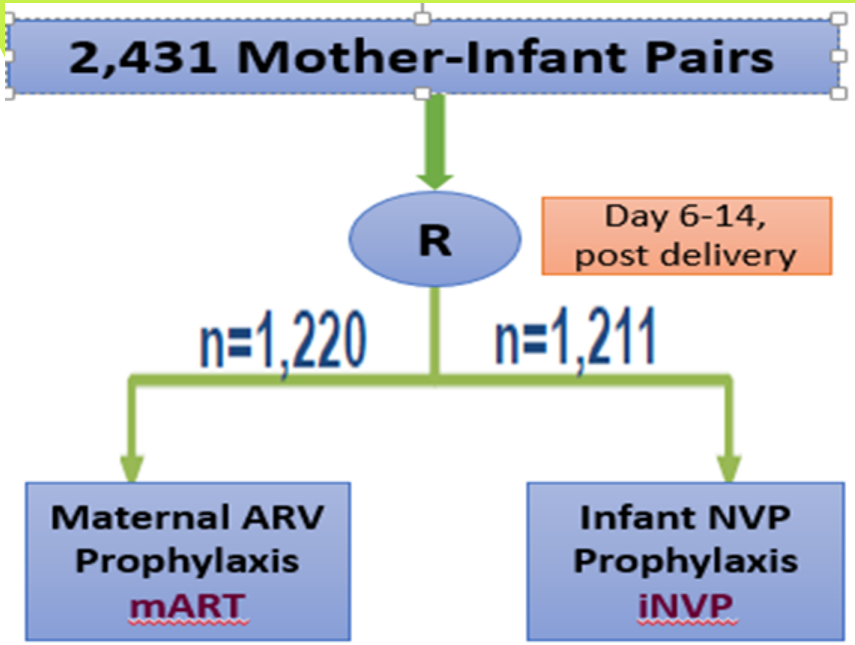
Secondary analyses within the postpartum breastfeeding component of the PROMISE study.

Self-reported adherence was assessed using dichotomous and continuous measures.

Overall adherence measure between treatment arms was compared using a Chi-Square test.

Time-to-event analyses were performed to explore the association between maternal adherence and maternal viral load (MVL) with both adherence measures as time-dependent predictors.

Adherence measures as predictors of: time to first MVL ≥400 copies/ml and time to first MVL ≥1000 copies/ml after 6 weeks of randomization in mART arm were analyzed.



Results

The median age at entry was 26 years [interquartile range (IQR) 23–30]

97% were in WHO Clinical Stage I

Median CD4+ T-cell count was 686 cells/mm^3 (IQR 553–869)

Median MVL was 322 copies/mL (IQR 40-1422).

Table 1: Baseline Characteristics[1] of mothers in both arms

Maternal Characteristics	mART Arm (N=1,220)	iNVP Arm (N=1,211)	Total (N=2,431),
Age (years) Median (IQR)	26 (23-30)	26 (23-30)	26 (23-30)
Race Black African Asian (Indian) Coloured	 1,178 (97%) 41 (3%) 1 (0%)	 1,168 (96%) 42 (3%) 1 (0%)	 2346 (97%) 83 (3%) 2 (0%)
WHO Clinical Stage I	1,174 (96%)	1182 (98%)	2356 (97%)
Screening CD4 count (cells/mm^3) Median (IQR)	 682.5 (555-870)	 691 (550-868)	 686 (553-869)
HIV-1 Viral Load (copies/ml) [at delivery/week 1 postpartum] Median (IQR) <400	 220 (40-1029) 276 (23%)	 400 (40-1960) 296 (24%)	 322 (40-1422) 572 (24%)
On Study ART regimen LPV/r based NNRTI	 98% 1%	 N/A	 ----

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1. J Acquir Immune Defic Syndr. Author manuscript; available in PMC 2019 April 01.

Results Contd.

Table 2: Self-reported Adherence with Dichotomous MAeasure combined over all study visits using Chi-Square test

Adherence Measures	mART Arm (N=1220)	iNVP Arm (N=1211)	P-value
Did not miss any dose within last 4 weeks at any study visit	776 (65.82%)	987 (83.29%)	< 0.0001
Missed a dose within last 4 weeks during any study visit	403 (34.18%)	198 (16.71%)	
Did not miss any dose within last 2 weeks at any study visit	835 (70.88%)	1010 (85.23%)	< 0.0001
Missed a dose within last 2 weeks during any study visit	343 (29.12%)	175 (14.77%)	

Self-reported adherence to mART with the Dichotomous measure was lower than adherence to iNVP within 4 and 2 weeks prior to study visits

Table 3: Self-reported ARV adherence with the Continuous measure

Study Visit Week		mART Arm (N=1220)	iNVP Arm (N=1211)	Total (N=2431)
Week 6	N Mean (SD) Median (Q1-Q3)	1,179 0.069 (0.337) 0 (0-0)	1,184 0.058 (0.352) 0 (0-0)	2,363 0.063 (0.345) 0 (0-0)
Week 14	N Mean (SD) Median (Q1-Q3)	1,123 0.039 (0.221) 0 (0-0)	1,139 0.038 (0.286) 0 (0-0)	2,262 0.038 (0.256) 0 (0-0)
Week 26	N Mean (SD) Median (Q1-Q3)	1,070 0.049 (0.299) 0 (0-0)	1,090 0.041 (0.305) 0 (0-0)	2,160 0.045 (0.302) 0 (0-0)
Week 50	N Mean (SD) Median (Q1-Q3)	851 0.036 (0.284) 0 (0-0)	888 0.048 (0.344) 0 (0-0)	1,739 0.042 (0.316) 0 (0-0)
Week 74	N Mean (SD) Median (Q1-Q3)	377 0.086 (0.454) 0 (0-0)	385 0.060 (0.381) 0 (0-0)	762 0.073 (0.419) 0 (0-0)

Proportion of doses missed in the 3 days prior to study visits was quite low in both arms

Results contd.

- Self-reported adherence to infant NVP was high in both arms.

-The adherence to infant NVP in the mART arm was higher than the mother's adherence to mART

Table 4: Comparison of adherence for infants on NVP at Week 6

Study Visit Week	Adherence Measures	mART Arm (N=1220)	iNVP Arm (N=1211)	P-value
Week 6 (N=2277)	Did not miss any dose within last 4 weeks	1072 (96.58%)	1109 (95.03%)	0.0664
	Missed a dose within last 4 weeks	38 (3.42%)	58 (4.97%)	
Week 6 (N=2277)	Did not miss any dose within last 2 weeks	1074 (96.76%)	1112 (95.29%)	0.0735
	Missed a dose within last 2 weeks	36 (3.24%)	55 (4.71%)	

Results contd.

Maternal Virologic Outcome

- Missing 1 full day of doses of mART over the past 3 days prior to a study visit was associated with a 58% or 66% higher risk of having a MVL ≥400 or ≥1000 copies/ml, respectively.

Table 5: Time-to-Event Analyses with Adherence as a Time-varying Predictor of MVL

Parameter	Hazard Ratio (95% CI)	Standard Error	P-value
1st occurrence of MVL ≥400			
Missed dose within 4 weeks of visit	0.97% (0.75,1.25)	0.13104	0.8044
Missed dose within 2 weeks of visit	1.04 (0.78,1.39)	0.14853	0.8011
Missed dose within 1 week of visit	1.08 (0.74,1.58)	0.19315	0.6855
* Total doses missed / Total doses expected over past 3 days	1.58 (1.33,1.87)	0.08785	<.0001
1st occurrence of MVL ≥1000			
Missed dose within 4 weeks of visit	1.11 (0.83,1.48)	0.14750	0.4724
Missed dose within 2 weeks of visit	1.15 (0.83,1.60)	0.16873	0.3991
Missed dose within 1 week of visit	1.21 (0.80,1.86)	0.21628	0.3682
* Total doses missed / Total doses expected over past 3 days	1.66 (1.37,1.99)	0.09467	<.0001

Conclusion and Implications

- Postpartum women in mART arm were more adherent to providing nevirapine to their infants than taking ART for themselves.
- The self-reported missed mART doses were associated with increased risk of unsuppressed MVL.
- The findings also highlight the need for individual counseling and education regarding the importance of adhering to ART for mother's own health after delivery.
- Strategies and interventions to optimize postpartum maternal ART adherence are needed for long term benefits of ART use and sustained viral suppression.

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