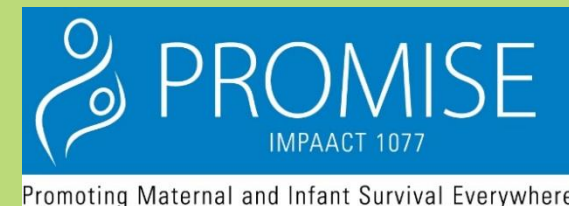


Impact of tenofovir-containing triple antiretroviral therapy (ART) on bone mineral density in HIV-infected breastfeeding women in sub-Saharan Africa

Lynda Stranix-Chibanda for the PROMISE P1084s Study Team





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Background and Rationale

- HIV-infected mothers in resource limited settings are at risk of low bone mineral density (BMD)
 - HIV infection increases risk of low BMD
 - BMD declines during lactation (3-10% at 12 months)
- Antiretroviral drug (ARV) use is also known to decrease BMD
 - Concern about adverse tenofovir (TDF) impact on bones
 - Low BMD reported in children, adolescents & adults on TDF-ART
 - Significant BMD declines seen even without HIV (on PrEP)

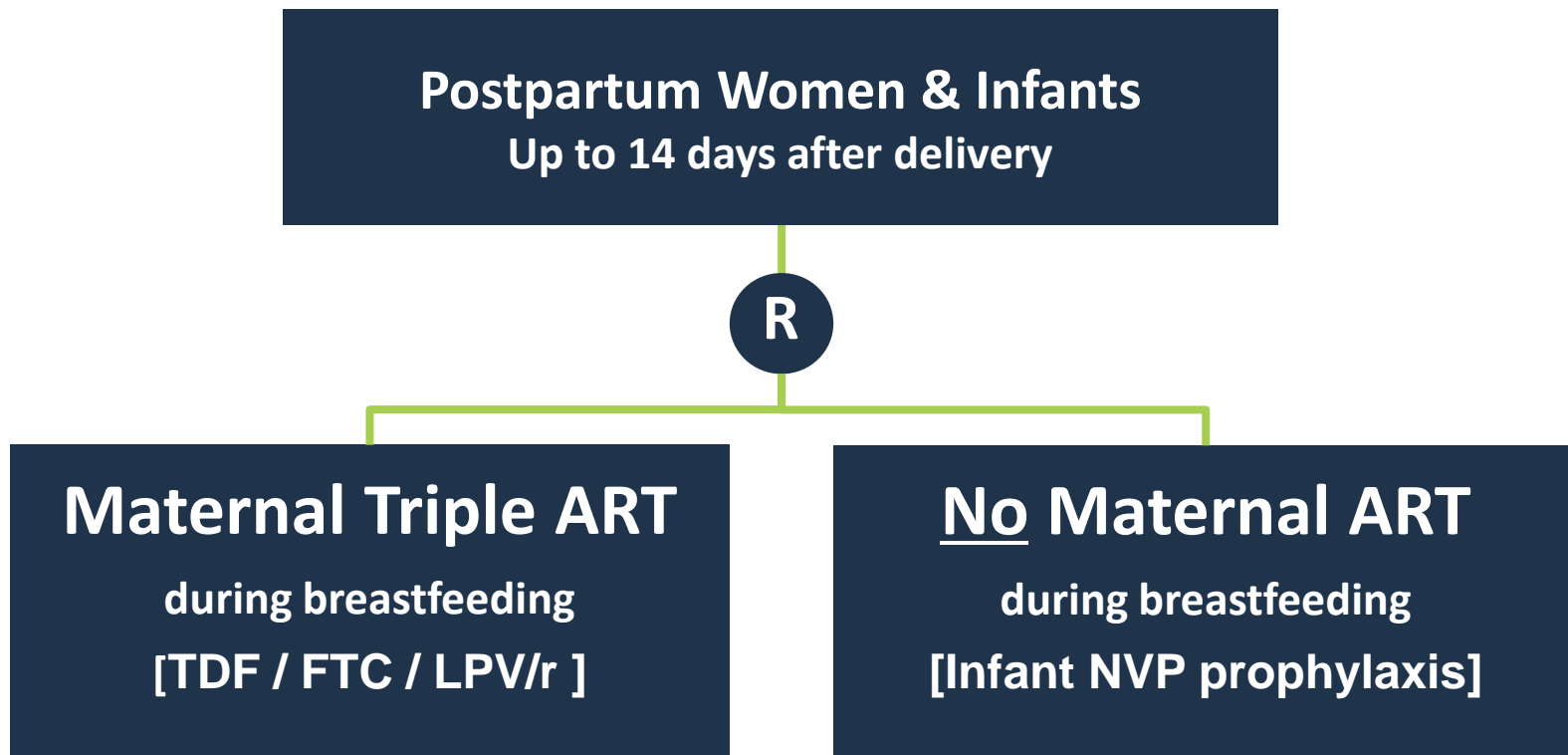
Objective

- To address concerns about the potential adverse impact on BMD of ARV use during breastfeeding, we evaluated the effect of postnatal ARV exposure on BMD among HIV-infected breastfeeding women enrolled in the bone and kidney health sub-study of the PROMISE trial
 - IMPAACT P1084s : Postpartum Component

Study design – Postpartum Component

- Sub-study of PROMISE
- Zimbabwe, Uganda, South Africa and Malawi
- A sub-set of HIV-infected women and their uninfected healthy infants who had been randomized in the PROMISE Postpartum Component were offered co-enrolment in P1084s
 - Did not meet existing criteria for ART initiation
 - ART not standard at the time

PROMISE Postpartum Randomization



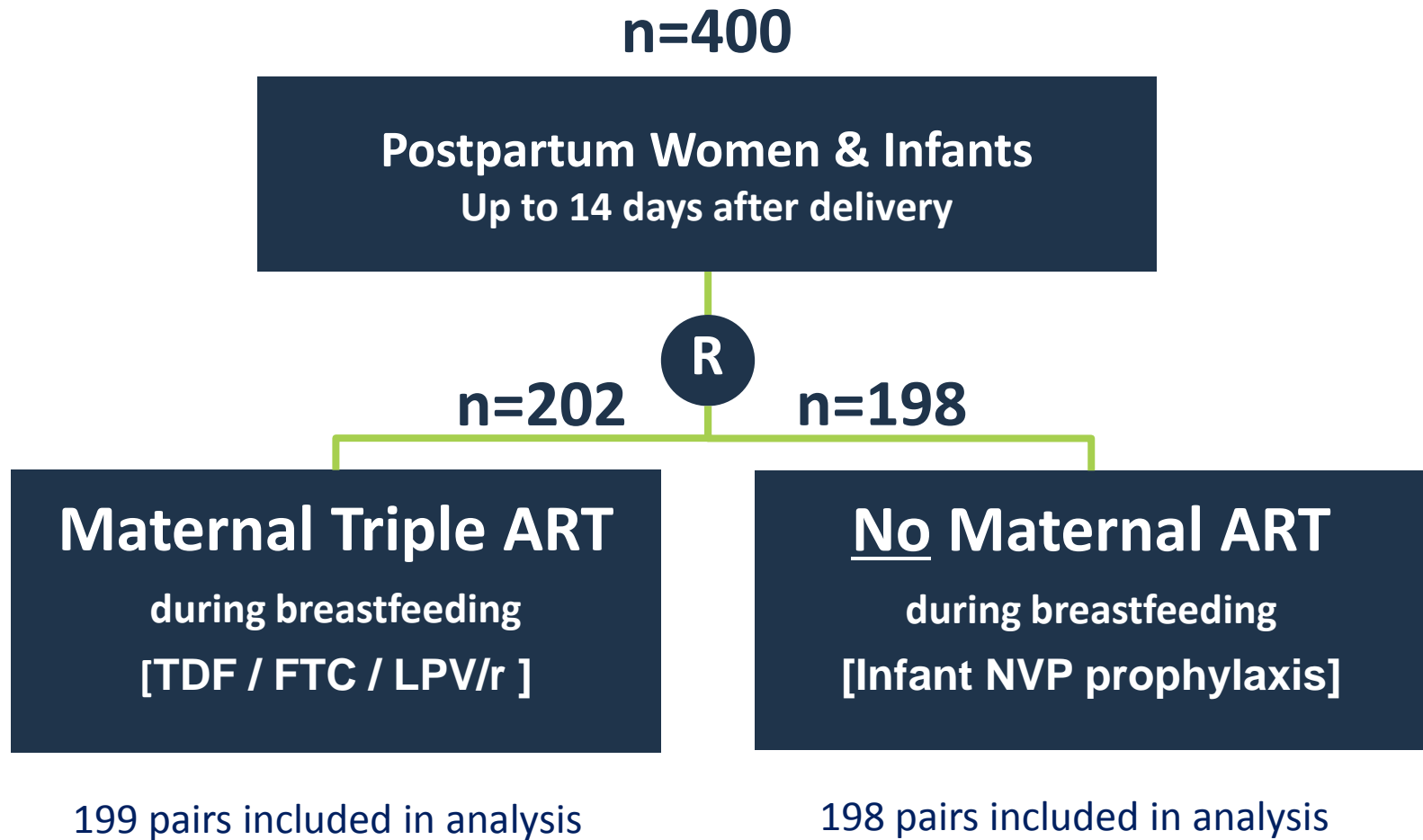
Maternal BMD assessments

- BMD lumbar spine and hip
 - Baseline measurement soon after delivery (day 5-21, “week 1”)
 - 74 weeks after delivery (+/-6 weeks)
- Dual-energy x-ray absorptiometry (DXA)
- Standard procedures followed to minimise differences between the study sites
 - Webinar training and quality review/approval of first scan for each technician
 - Hologic scanners at all sites
 - Cross-calibration with phantom
 - DXA scans were read centrally

Data Analysis

- Compare Maternal ART to no maternal ART for percent change in BMD between week 1 and week 74 at the lumbar spine (primary outcome) and hip
- Analysed by assigned strategy with a t-test
- Mean and 95% confidence interval (CI) are presented

P1084s Postpartum Accrual

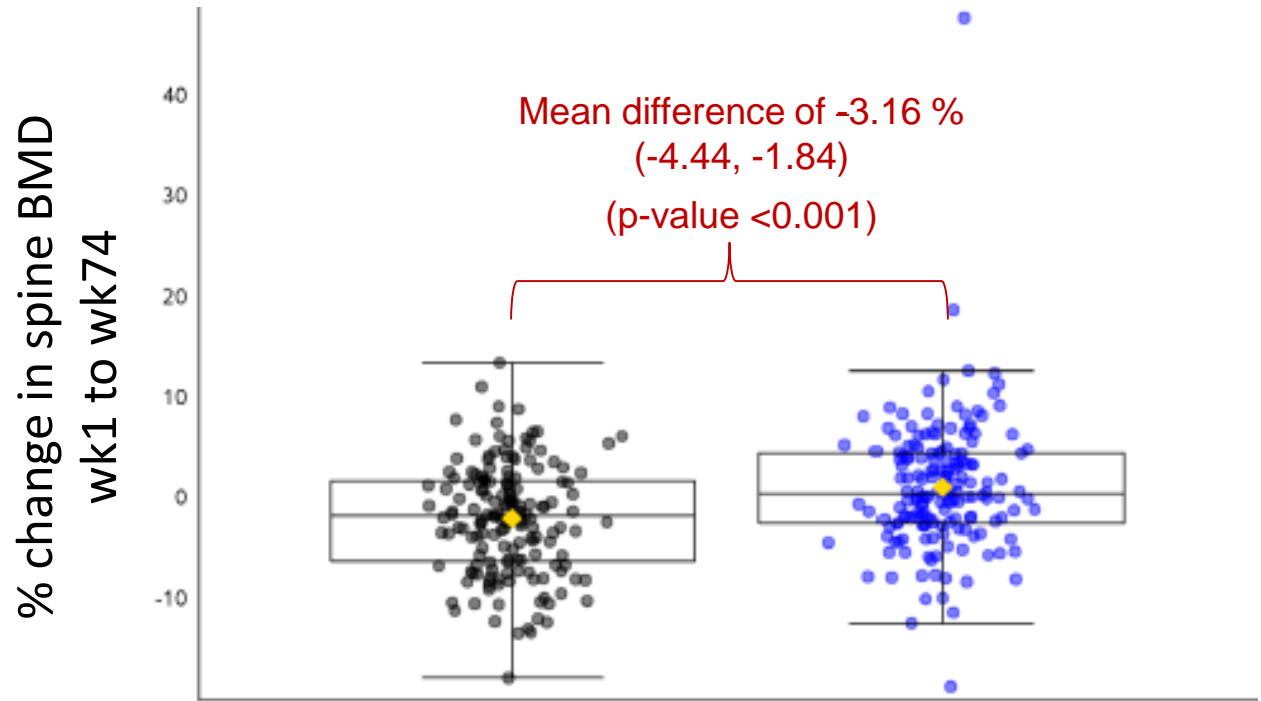


Baseline Characteristics

Characteristic	Median	Q1 – Q3
Age	26.5 years	23.2 – 30.0
Body Mass Index	24.7 kg/m ²	22.3 – 28.0
CD4 count	671.5 cells/mm ³	544.0 – 857.5
Viral Load	400 copies/mL	86 – 2289

- At week 1 postpartum (6-14 days)
- Prior use of alcohol/tobacco 12%
- Median duration of breastfeeding 61 weeks
- No significant difference between study arms

Lumbar spine BMD % decline week 1 to 74 greater in maternal ART study arm



Maternal Triple ART

N=167

-2.06
(-2.9, -1.23)

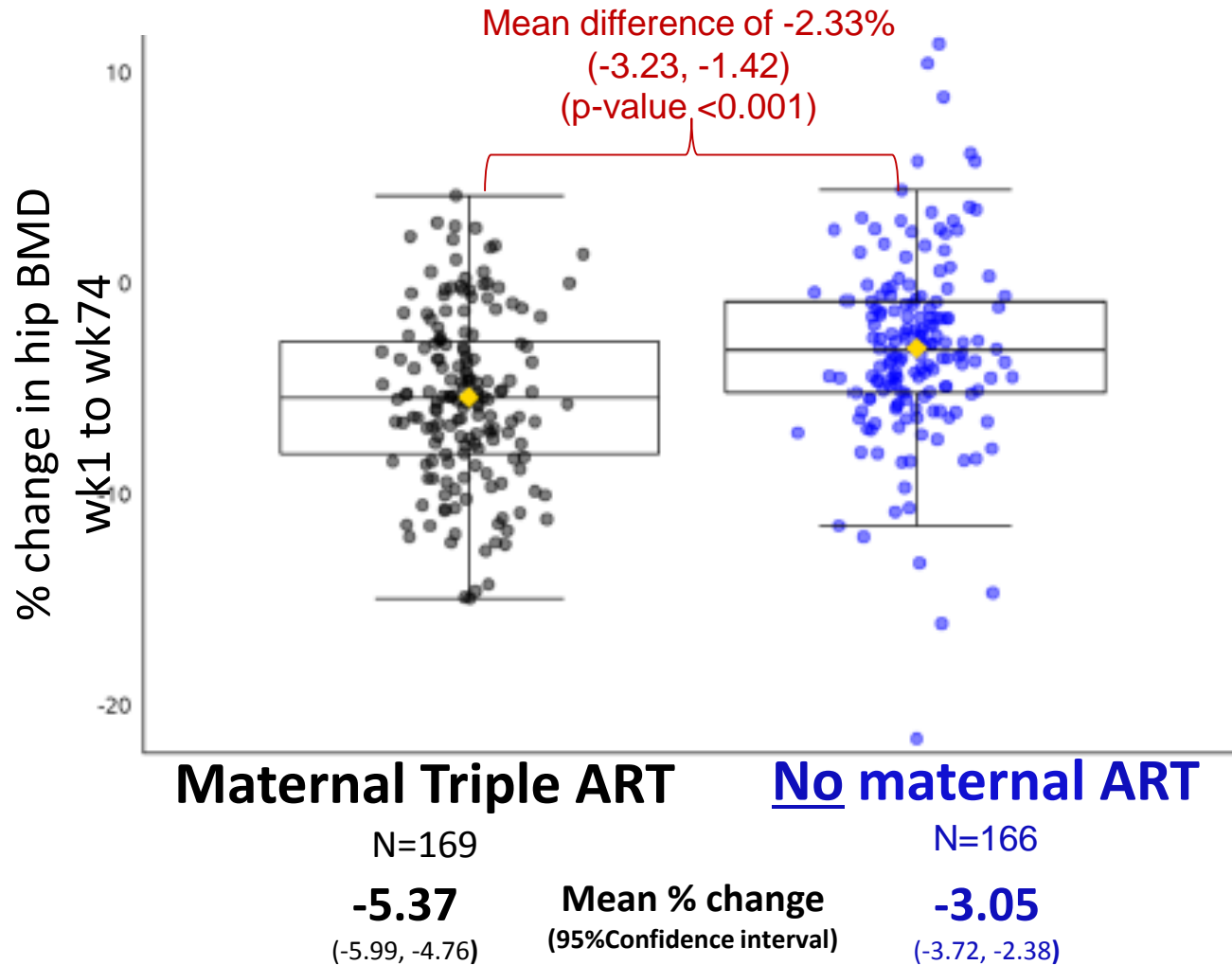
No maternal ART

N=170

+1.09
(0.11, 2.07)

Mean % change
(95% Confidence Interval)

Hip BMD % decline week 1 to 74 greater in maternal ART study arm



Conclusions

- BMD decline between week 1 and week 74 postpartum was statistically significantly greater among HIV-infected women receiving ART during breastfeeding compared to no ART
- These data indicate a negative effect on BMD of maternal ART use in the postpartum period
 - Not able to show if BMD returned to baseline after cessation of breastfeeding
- Highlight the importance of BMD in settings where breastfeeding is standard as we enter the Treat All era

P1084s Protocol Team and Site Investigators

The PROMISE study team gratefully acknowledges the dedication and commitment of the more than 3,500 mother-infants pairs without whom this study would not have been possible.

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