SIMILAR EARLY GROWTH IN HEU AND HUU INFANTS WITH MATERNAL ART OPTIMISATION

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BACKGROUND

- Early growth differences between HIV-exposed uninfected (HEU) and HIV-unexposed uninfected infants (HUU) have been demonstrated.
- We compared:
  - Growth between HEU and HUU infants aged 4-10 weeks
  - Timing of maternal antiretroviral therapy (ART) initiation and regimen, and maternal viral load (VL) on growth in HEU infants

METHODS

- HEU and HUU mother-infant pairs between ages 4-10 weeks were enrolled in six clinics in Nairobi and Kisumu, Kenya between March to September 2021.
- Continuous growth measures were calculated using WHO Z-scores (weight-for-age [WAZ], length-for-age [LAZ], weight-for-length [WLZ], head circumference-for-age [HCAZ)].
- Growth faltering was defined as underweight (WAZ<-2), stunting (HAZ<-2), wasting (HAZ<-2), and microcephaly (HCZ<-2).
- Linear regression models were used to compare continuous growth outcomes and Poisson regression to determine prevalence ratios (PR) and 95% confidence intervals (CI) for growth faltering outcomes.

HEU infants had *similar* growth in early infancy compared to HUU peers.

RESULTS

Table 1a. Sociodemographic characteristics, comparing HEU and HUU mother-infant pairs at 4-10 weeks of age in Kenya

Characteristic	n (%); Median (IQR) Overall, n=1,148[1]	HEU, n=365[1]	HUU, n=783[1]	p-value
Exclusive breastfeeding	1,107 (97%)	363 (100%)	744 (95%)	<0.001
Mother's age (years)	27 (24, 32)	31 (26, 35)	26 (23, 30)	<0.001
Mother's education, primary or below	395 (34%)	170 (47%)	225 (29%)	<0.001
Mother's BMI <18.5kg	31 (2.8%)	17 (4.8%)	14 (1.8%)	<0.01
Household hunger, moderate to severe	134 (11.4%)	63 (17.1%)	71 (9%)	<0.001

Women living with HIV (WLHIV) were older, had lower education, reported more moderate to severe household hunger and were underweight (BMI<18.5) compared to HIV-uninfected mothers

Table 1b. ART characteristics among HEU mother-infant pairs

Characteristic	N = 365[1]
Infant on ARV prophylaxis	354 (97%)
Infant's ARV regimen	
AZT + NVP	165 (47%)
NVP alone	184 (52%)
Maternal ART initiation	
Pre-conception	310 (88%)
Post-conception	44 (12%)
Maternal ART regimen during pregnancy	
EFV-based	97 (29%)
DTG-based	206 (62%)
PI based or other	28 (8.5%)
Maternal duration on ART (months)	53.2 (15.8, 85.6)
Maternal VL suppression (<400 copies/ml)	95%

All WLHIV were on ART in pregnancy with most mothers (62%) on a DTG-based regimen. Many mothers (88%) started ART pre-conception and 95% of WLHIV were virally suppressed in pregnancy. 97% of HEU were on ARV prophylaxis at enrollment; 52% on NVP and 47% on AZT+NVP.

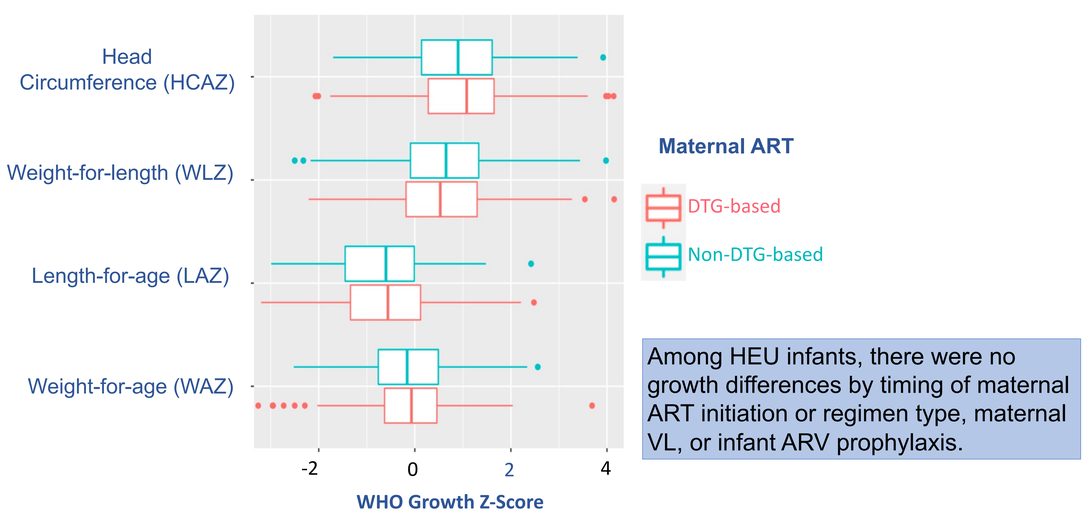
Table 2. Continuous growth measures and comparison of growth faltering between HEU and HUU at ages 4-10 weeks in Kenya.

	n (%); Median (IQR) Overall, n=1,148	HEU, n=365	HUU, n=783	Growth Faltering Unadjusted Coeff (95% CI)	p-value
WAZ[1]	0.06 (2.70)	0.13 (4.50)	0.02 (1.12)	0.11 [-0.23, 0.45]	0.52
LAZ[2]	-0.50 (2.21)	-0.55 (3.31)	-0.48 (1.44)	-0.07 [-0.35, 0.20]	0.61
WLZ[1]	0.81 (4.15)	1.10 (7.13)	0.67 (1.25)	0.43 [-0.09, 0.95]	0.11
HCAZ[2]	0.88 (1.54)	0.96 (1.19)	0.84 (1.68)	0.13 [-0.06, 0.32]	0.19

[1] Multivariate linear regression models for WAZ and WLZ adjusted for maternal age, maternal education, and infant sex;
[2] Multivariate linear regression models for LAZ and HCAZ adjusted for maternal age, maternal height, and infant sex.
Abbreviations: CI, confidence interval; IQR, interquartile range

HEU infants had similar growth compared to HUU in adjusted and unadjusted analysis.

Figure 1. Boxplot of growth z-scores by maternal ART regimen



Among HEU infants, there were no growth differences by timing of maternal ART initiation or regimen type, maternal VL, or infant ARV prophylaxis.

CONCLUSION

- HEU infants had similar growth in early infancy compared to HUU peers.
- Optimized maternal ART regimens and early ART initiation may result in similar early growth among HEU.

ACKNOWLEDGMENTS

We thank the National Institutes of Health (NIH 5R61HD103079), our collaborators and all participating mothers and infants.