Growth deficits in antiretroviral and HIV-exposed uninfected versus unexposed children in Malawi and Uganda persist through 60 months of age : AIDS

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Epidemiology and Social

Growth deficits in antiretroviral and HIV-exposed uninfected versus unexposed children in Malawi and Uganda persist through 60 months of age

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Abstract

Objective:

To compare childhood physical growth among antiretroviral drug and maternal HIV-exposed uninfected (AHEU) compared with HIV-unexposed uninfected (HUU) children.

Design:

Longitudinal follow-up of PROMISE trial (NCT01061151) AHEU and age-matched and sex-matched HUU children, enrolled (September 2013 to October 2014) in Malawi and Uganda.

Method:

We compared WHO population standardized *z*-scores [height-for-age (HAZ), weight-for-age (WAZ), weight-for-height (WHZ), head-circumference-for-age (HCAZ) at 12, 24, 36, 48, and 60 months of age]. We evaluated HUU versus AHEU [in-utero combination antiretroviral treatment (cART) versus Zidovudine (ZDV) alone]; stratified by country, using longitudinal linear and generalized linear mixed models.

Results:

Of 466 Malawian and 477 Ugandan children, median maternal age at enrollment was 24.5 years (Malawi) and 27.8 years (Uganda); more than 90% were breastfed through 12 months except

Uganda AHEU (64.0%). HAZ scores (adjusted for maternal age, breastfed, and socioeconomic status) were lower among AHEU versus HUU children at every time point, significant ($P < 0.05$) among Ugandan but not Malawian children. Similar patterns were seen for WAZ but not for WHZ or HCAZ scores. High stunting was observed in both countries, significantly higher in Malawi; and higher among AHEU versus HUU children through 48 months of age, significantly ($P < 0.05$) among Ugandan but not Malawian children. We found no differences in childhood growth trajectories with in-utero exposures to ZDV compared with cART.

Conclusion:

AHEU versus HUU children had lower median LAZ and WAZ scores persisting through 60 months of age. However, proportions of children with stunting or underweight decreased after 24 months of age.

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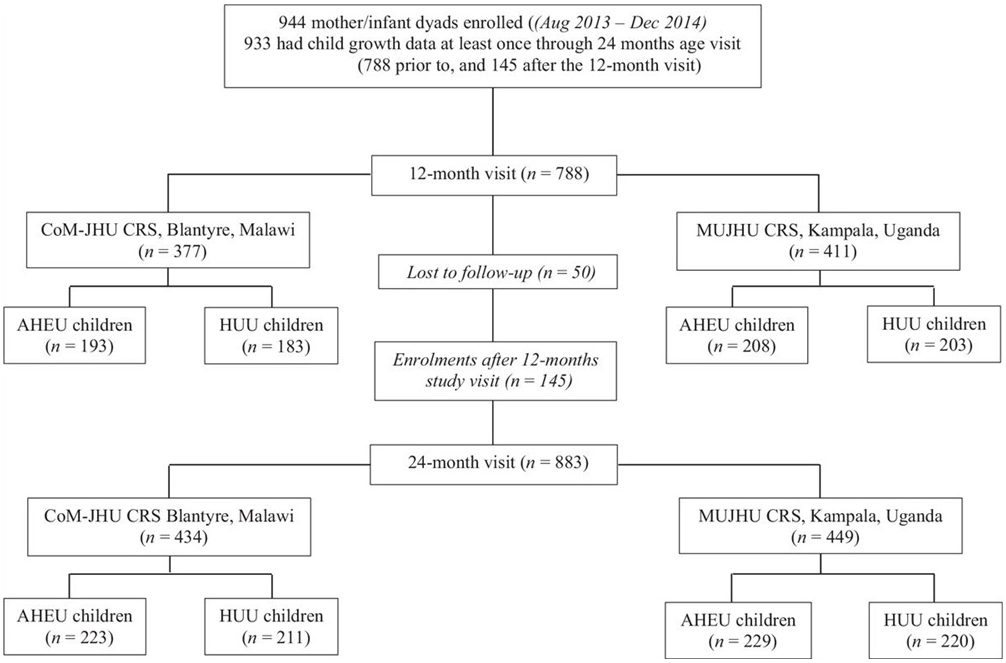
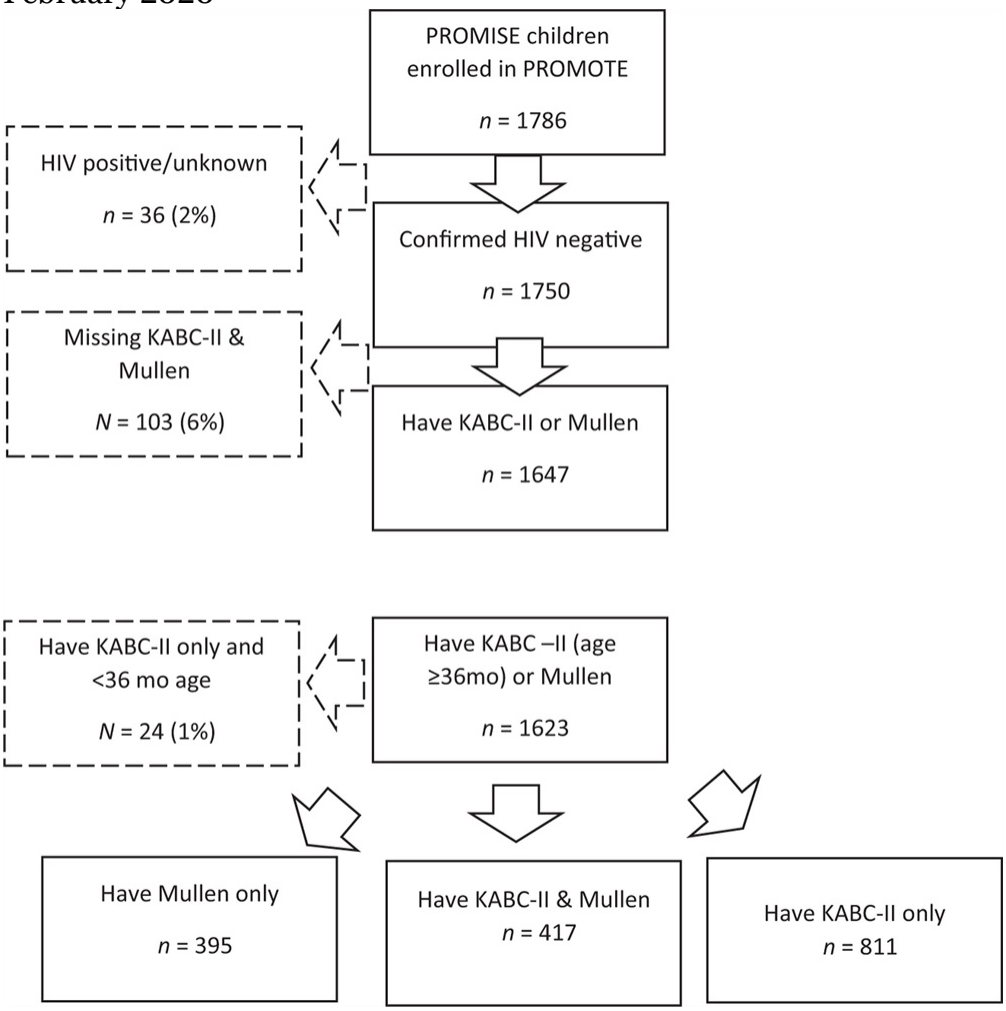


Decreased growth among antiretroviral drug and HIV-exposed uninfected versus unexposed children in Malawi and Uganda

February 2020



Neurodevelopmental outcomes of HIV/antiretroviral drug perinatally exposed uninfected children aged 3–6 years

September 2022

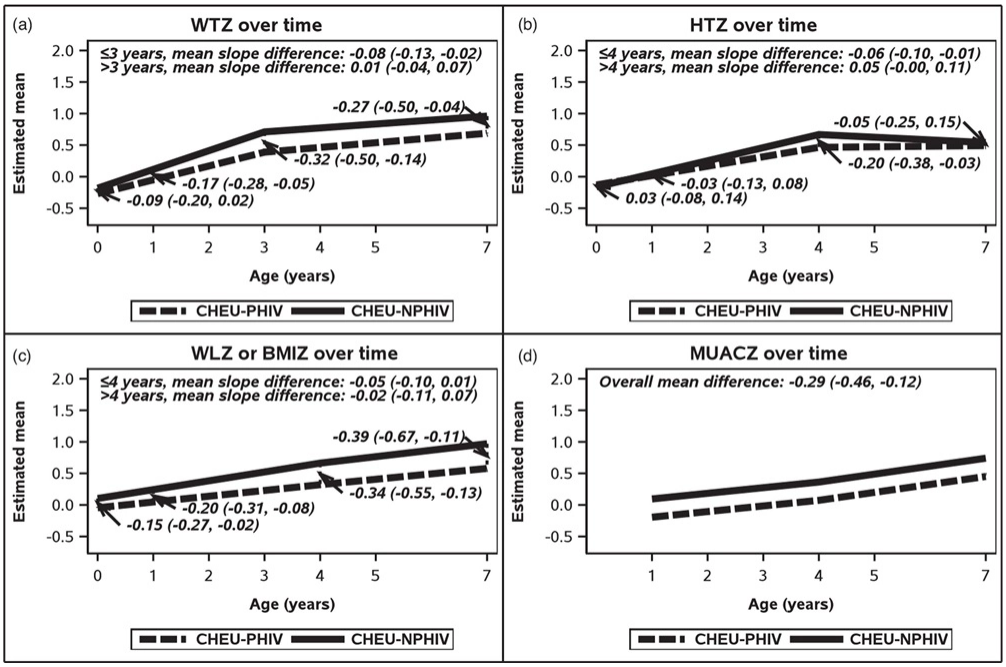
Table 1 - Characteristics of HIV-exposed uninfected (HEU) and HIV-unexposed uninfected (HUU) infants and their mothers at week 6 and month 9 immunization visits at randomly selected clinics in Kenya.

	% (95% CI) or mean (95% CI)					
	6-week immunization visit			9-month immunization visit		
	HEU (*n* = 231)	HUU (*n* = 1178)	*P* value	HEU (*n* = 225)	HUU (*n* = 823)	*P*-value
Infant characteristics						
Age (weeks)	5.6 (5.6, 5.7)	5.8 (5.7, 6.0)	0.04	36.6 (36.0, 37.1)	36.3 (35.9, 36.7)	0.42
Male	51.5 (46.9, 56.2)	50.3 (47.4, 53.1)	0.66	47.6 (42.7, 52.4)	51.6 (48.3, 55.0)	0.19
Birth weight (kg)	3.11 (3.03, 3.19)	3.23 (3.19, 3.27)	0.009	3.24 (3.14, 3.34)	3.25 (3.21, 3.29)	0.81
MUAC	–	–	–	14.2 (13.9, 14.5)	14.2 (13.9, 14.5)	0.79
Currently breastfeeding	96.1 (92.1, 98.1)	99.9 (99.4, 100.0)	<0.001	72.4 (62.6, 80.5)	98.2 (97.0, 98.9)	<0.001
Prior hospitalization	2.6 (0.9, 7.3)	4.5 (3.3, 6.2)	0.28	11.6 (6.8, 18.9)	12.2 (9.3, 15.7)	0.86
Cotrimoxazole[a]	–	–	–	96.9 (91.6, 98.9)	–	–
Nevirapine for PMTCT	97.4 (94.4, 98.8)	–	–	98.2 (95.3, 99.3)	–	–
Maternal characteristics						
Age (years)	28.0 (27.3, 28.7)	25.3 (25.0, 25.7)	<0.001	28.8 (28.1, 29.4)	25.8 (25.4, 26.3)	<0.001
Primary education and below (ref: above primary)	67.1 (59.6, 73.8)	51.5 (47.5, 55.6)	<0.001	62.2 (55.6, 68.5)	52.3 (47.0, 57.5)	0.02
Number of children	3.0 (2.8, 3.2)	2.9 (2.8, 3.1)	0.69	3.2 (3.0, 3.4)	2.9 (2.7, 3.1)	0.06
Married/cohabiting	84.4 (78.3, 89.1)	86.5 (84.1, 88.6)	0.47	81.3 (76.4, 85.4)	87.6 (84.8, 90.0)	0.01
Body mass index (kg/m^2)	23.2 (22.6, 23.8)	23.7 (23.3, 24.1)	0.08	23.5 (23.0, 24.0)	23.7 (23.3, 24.1)	0.57
Height (cm)	160.3 (159.0, 161.6)	160.4 (159.5, 161.3)	0.85	161.3 (159.9, 162.7)	160.5 (159.6, 161.3)	0.30
Crowding (≥3 per room)	42.4 (35.0, 50.3)	41.0 (35.7, 46.5)	0.74	47.6 (40.4, 54.8)	42.4 (37.7, 47.3)	0.22
cART before pregnancy	45.5 (38.3, 52.8)	–	–	40.4 (34.5, 46.7)	–	–
ARVs during pregnancy						
Combination ART	68.0 (60.1, 75.0)	–	–	60.9 (52.6, 68.6)	–	–
Monotherapy (AZT)	17.8 (12.4, 24.7)	–	–	27.1 (19.4, 36.5)	–	–
No ART or ARVs	14.3 (9.2, 21.5)	–	–	12.0 (7.7, 18.2)	–	–

ART, antiretroviral therapy; ARVs, antiretroviral drugs; AZT, zidovudine; MUAC, mid upper arm circumference.
aCotrimoxazole initiated at 6-week immunization visit.

Higher prevalence of stunting and poor growth outcomes in HIV-exposed uninfected than HIV-unexposed infants in Kenya

March 2022



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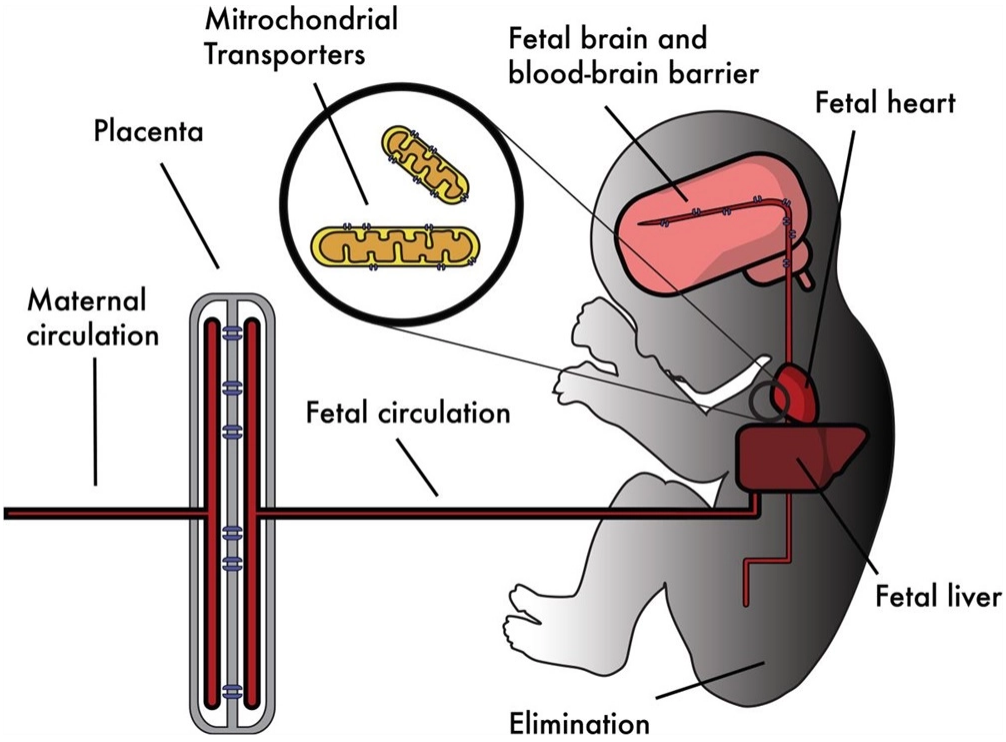
- 

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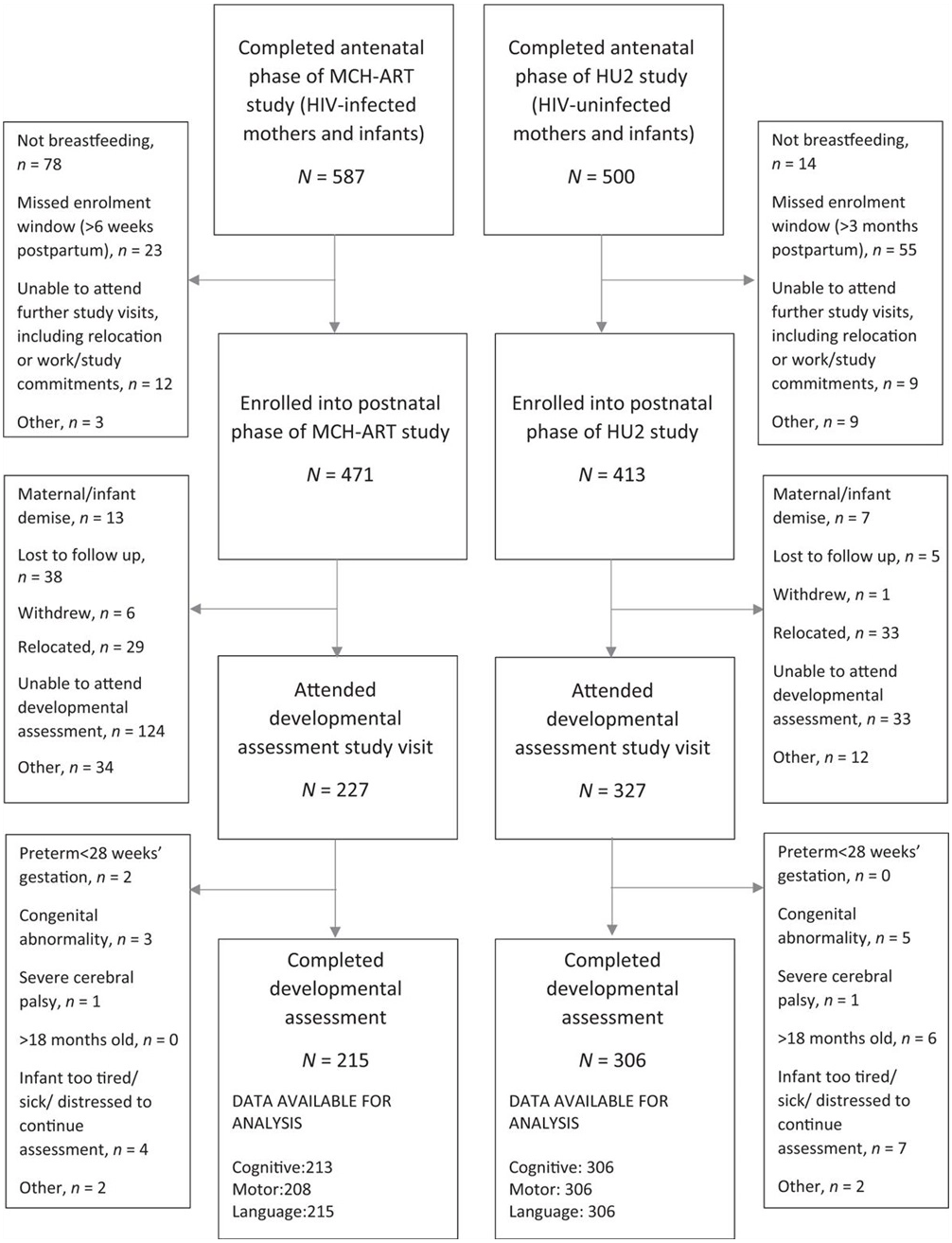

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