

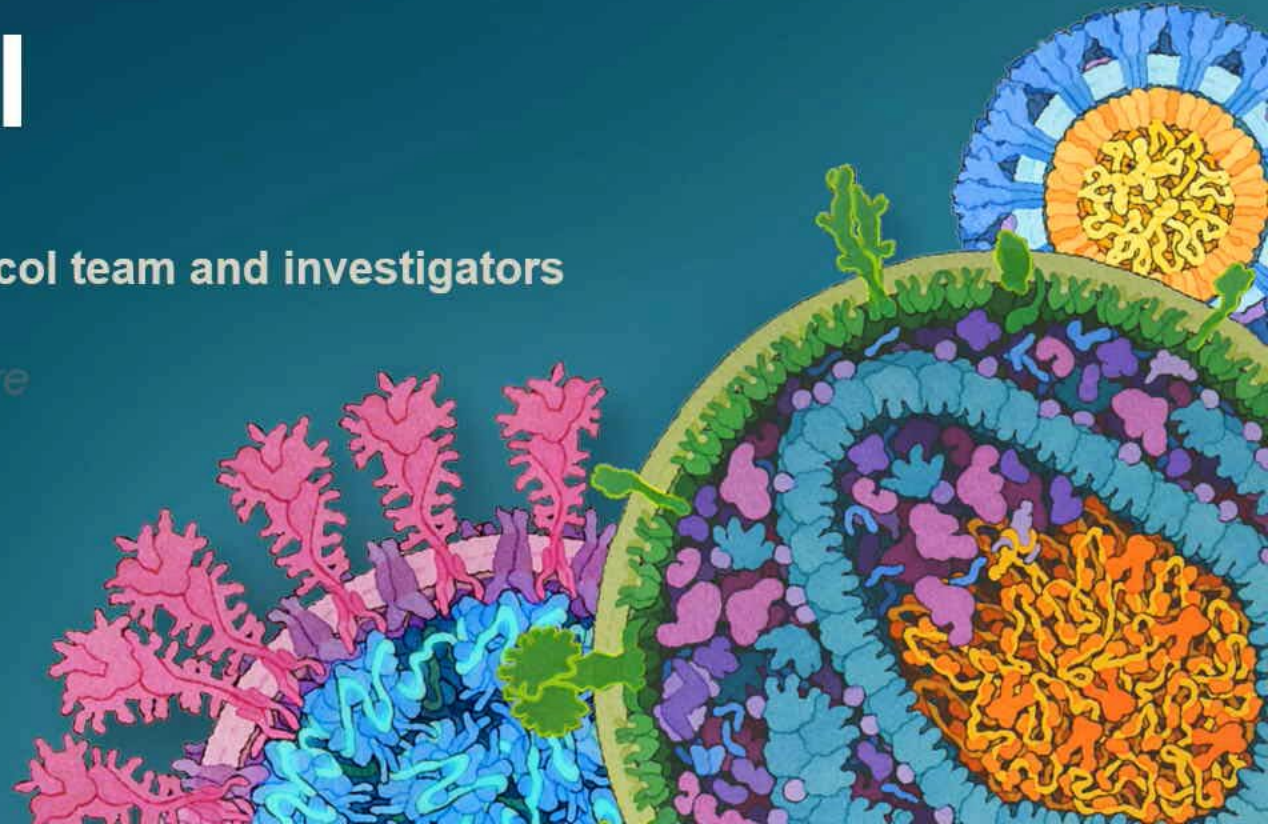
# Growth of infants with perinatal exposure to maternal DTG vs EFV and TDF vs TAF: the randomized IMPAACT 2010 trial

Lynda Stranix-Chibanda for the IMPAACT 2010 protocol team and investigators

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*Disclosure:*

None



# Growth of infants with perinatal exposure to maternal DTG vs EFV and TDF vs TAF: the randomized IMPAACT 2010 trial

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<https://www.impaactnetwork.org/studies/impaact2010>

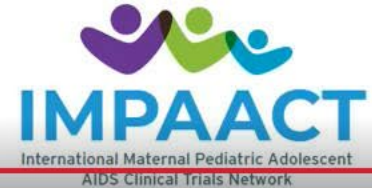
3

# Background



- ▶ Impact of contemporary antiretrovirals taken in pregnancy/breastfeeding on infant growth is not fully established
- ▶ Stunting in infancy impacts cognitive development and adult height

Grantham-McGregor, *The Lancet* 2007; Black, *The Lancet* 2008; Wedderburn, *Curr HIV/AIDS Rep.* 2019

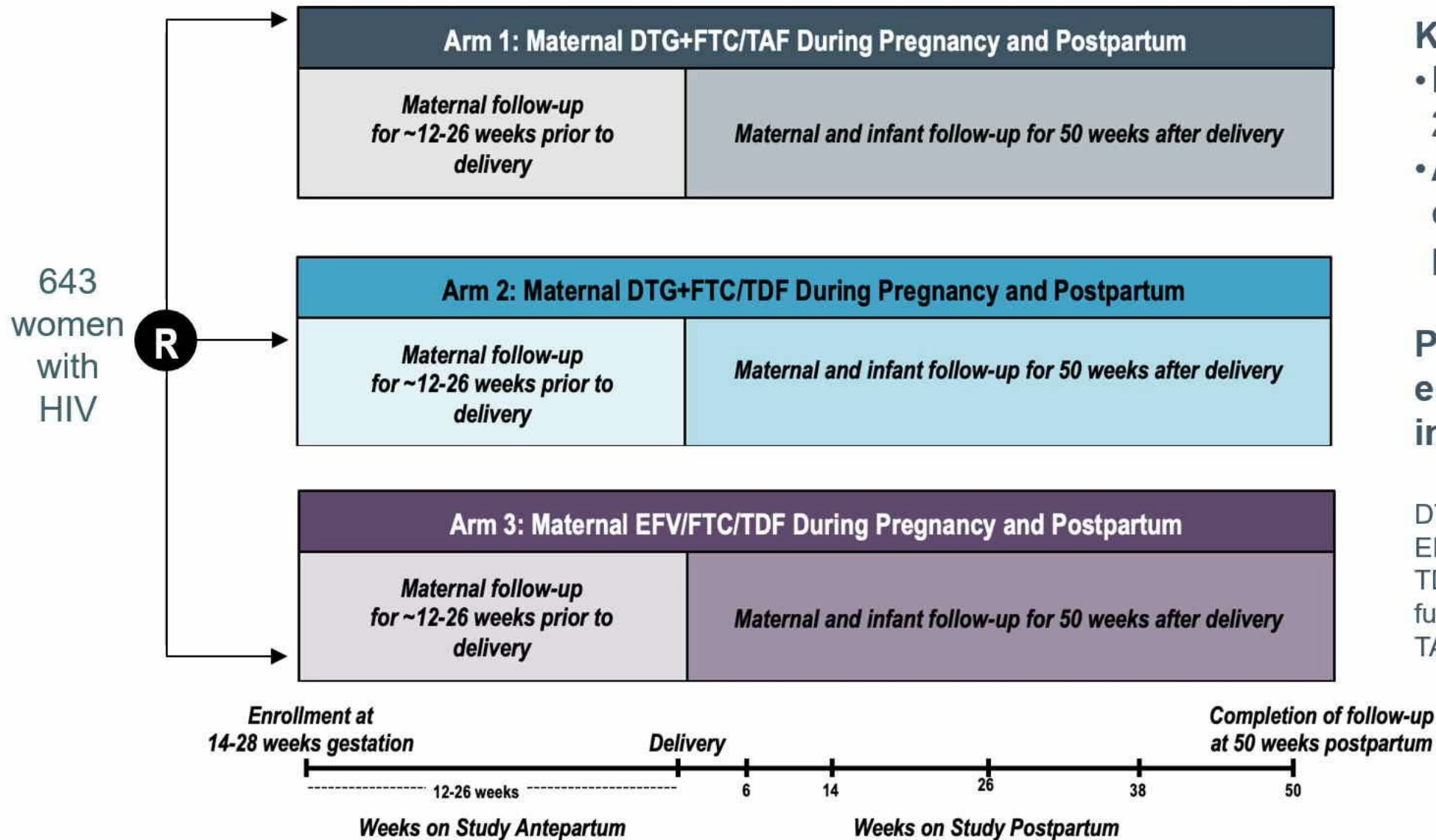


# 3 Background



- ▶ Impact of contemporary antiretrovirals taken in pregnancy/breastfeeding on infant growth is not fully established
- ▶ Stunting in infancy impacts cognitive development and adult height
- ▶ We compared growth through 1 year of age in infants randomized to one of 3 maternal ART regimens started in pregnancy in the IMPAACT 2010 trial

# Randomized Open-label Trial of the Virologic Efficacy and Safety of Three ART Regimens Started in Pregnancy



## Key Eligibility Criteria

- Pregnant WLHIV 14-28 weeks gestation
- ART-naïve (up to 14 days ART in current pregnancy allowed)

Participants were enrolled at 22 sites in 9 countries

DTG = dolutegravir  
 EFV = efavirenz  
 TDF = tenofovir disoproxil fumarate  
 TAF = tenofovir alafenamide

# Key Outcomes at Delivery/Birth

- ▶ Maternal **DTG-containing ART** vs **EFV/FTC/TDF**:
  - ▶ Superior virologic efficacy at delivery
  - ▶ Closer to expected weight gain in pregnancy
- ▶ Maternal **DTG+FTC/TAF** lowest composite frequency of adverse pregnancy outcome\*\*
- ▶ Liveborn infants—similar except for weight
  - ▶ Higher proportion low birth weight <2500g **EFV/FTC/TDF**

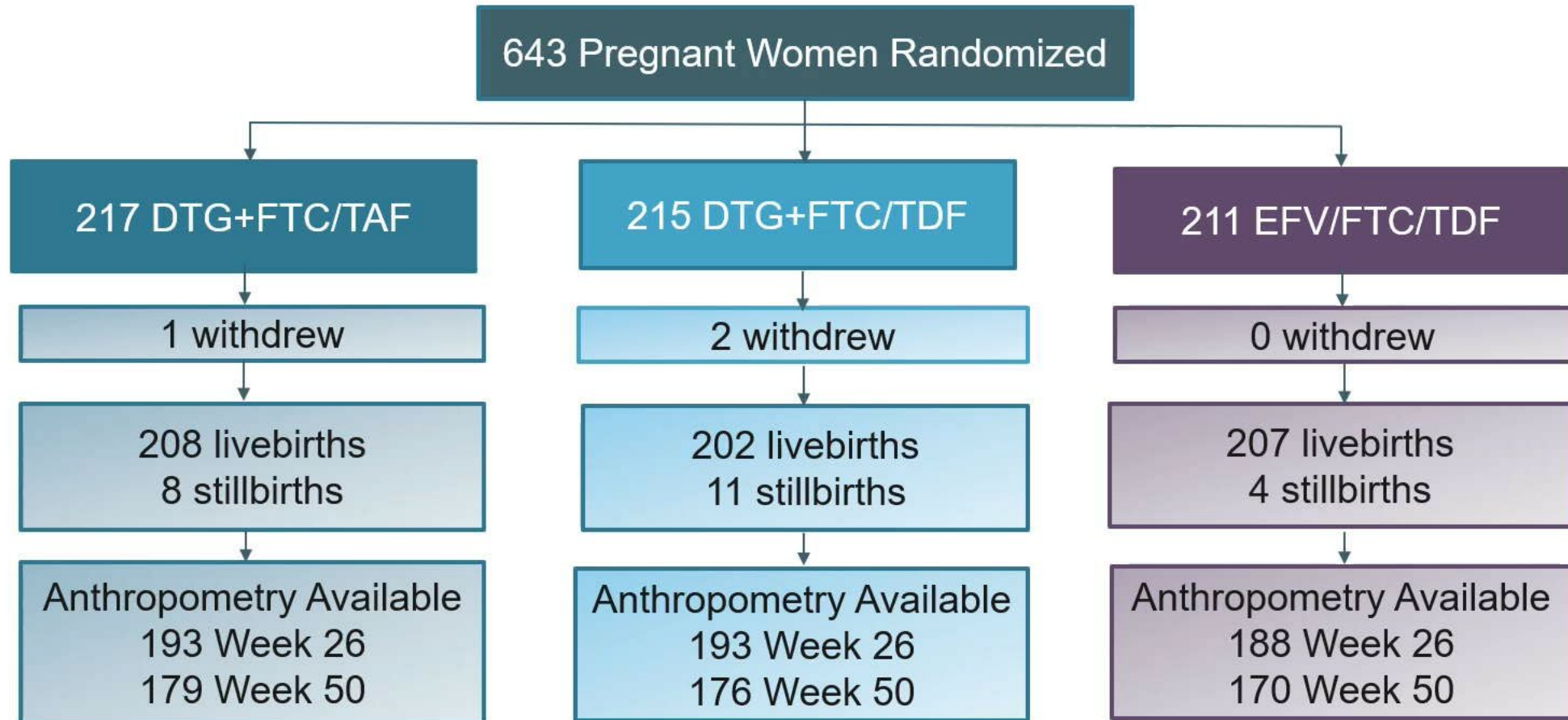
\*\*Poster 679 Brummel; Other IMPAACT 2010 posters—Fairlie; Chinula; Boyce

## 6

# Additional Infant Characteristics

	<b>DTG+FTC/TAF (N = 208)</b>	<b>DTG+FTC/TDF (N = 202)</b>	<b>EFV/FTC/TDF (N = 207)</b>	<b>Total (N = 617)</b>
<b>Initiated breastfeeding, n (%)</b>	161 (77)	158 (78)	160 (77)	479 (78)
<b>Median (Q1, Q3) breastfeeding duration (weeks)</b>	50 (44, 51)	50 (44, 51)	50 (41, 51)	50 (43, 51)
<b>ARV prophylaxis, n (%)</b>	203 (98)	200 (99)	196 (95)	599 (97)
<b>Cotrimoxazole prophylaxis, n (%)</b>	179 (86)	174 (86)	169 (82)	522 (85)
<b>Acquired HIV, n (%)</b>	2 (1)	1 (0.5)	1 (0.5)	4 (0.6)

# Inclusion Flow Chart



20 infants died: DTG+FTC/TAF— 2 (1%); DTG+FTC/TDF—4 (2%); EFV/FTC/TDF—14 (7%)



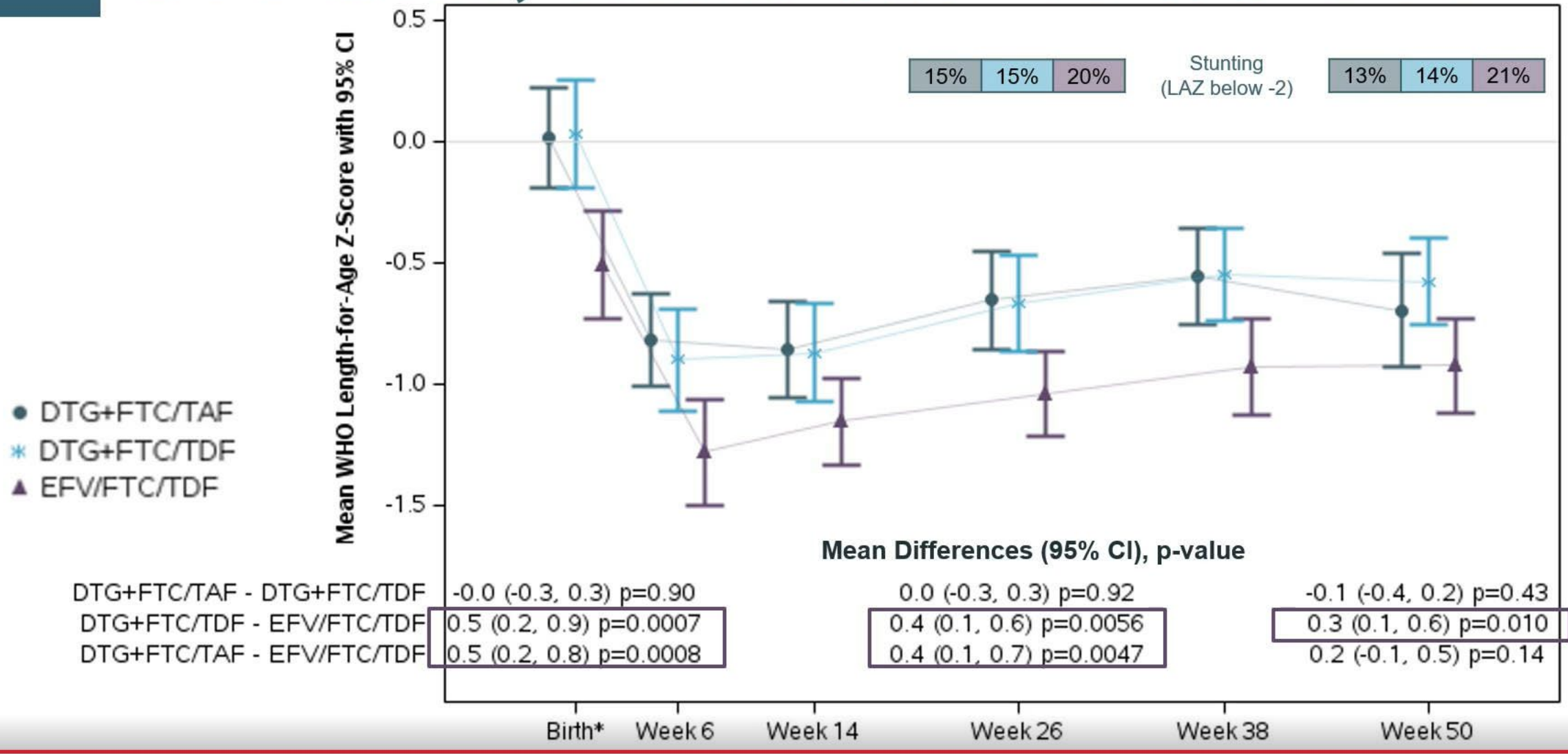
# Infant Growth Statistical Approach

- ▶ Infant growth WHO Z-scores computed at Weeks 26 and 50 for liveborn infants retained on-study with length and weight data available:
  - Length-for-age (LAZ)
  - Weight-for-age (WAZ)
  - Weight-for-length (WHZ)
- ▶ WHO standards and software used for Z-score calculations ([www.who.int/childgrowth/software/en](http://www.who.int/childgrowth/software/en))

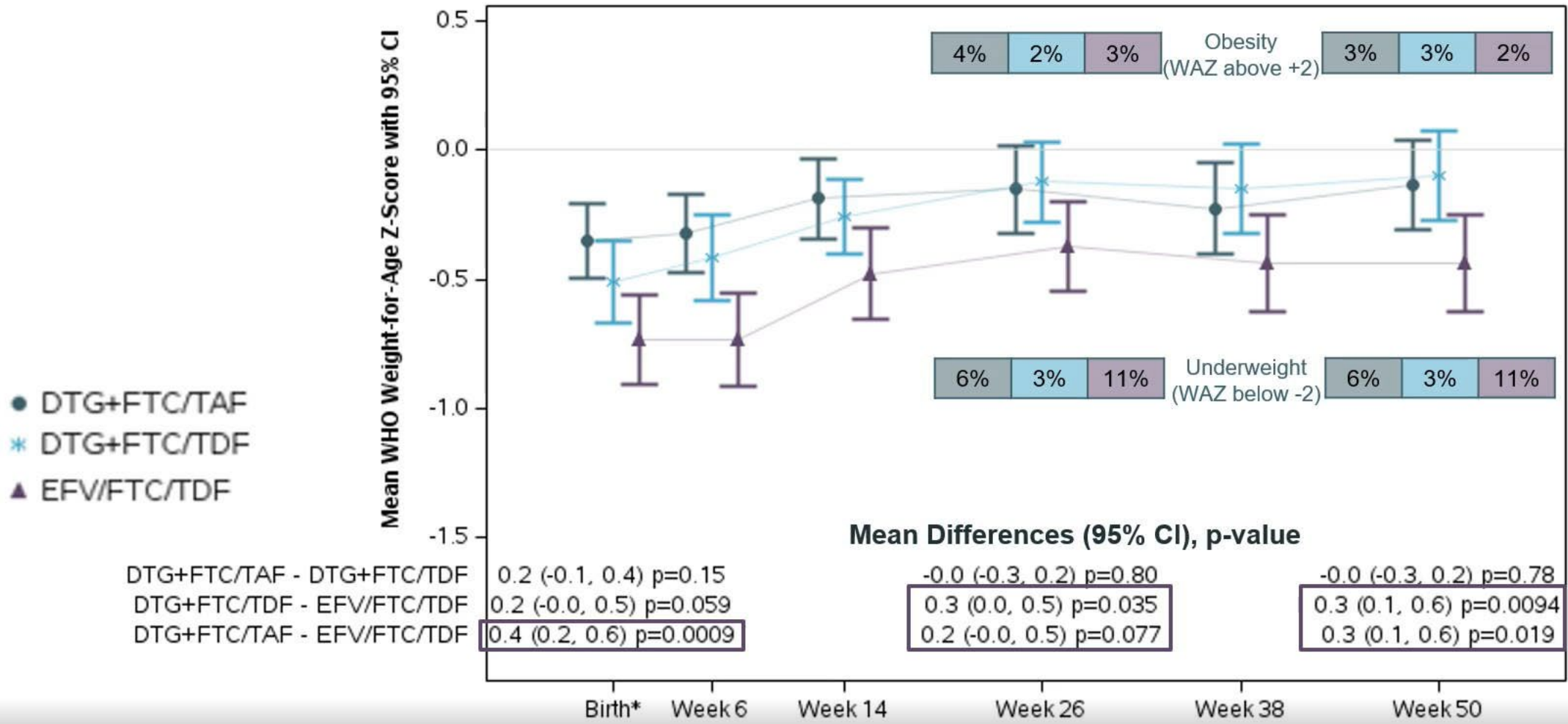
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- ▶ WHO standards and software used for Z-score calculations ([www.who.int/childgrowth/software/en](http://www.who.int/childgrowth/software/en))
- ▶ Pairwise comparisons of mean z-scores by two-sample t-tests
- ▶ Proportion stunting (LAZ <-2) estimated

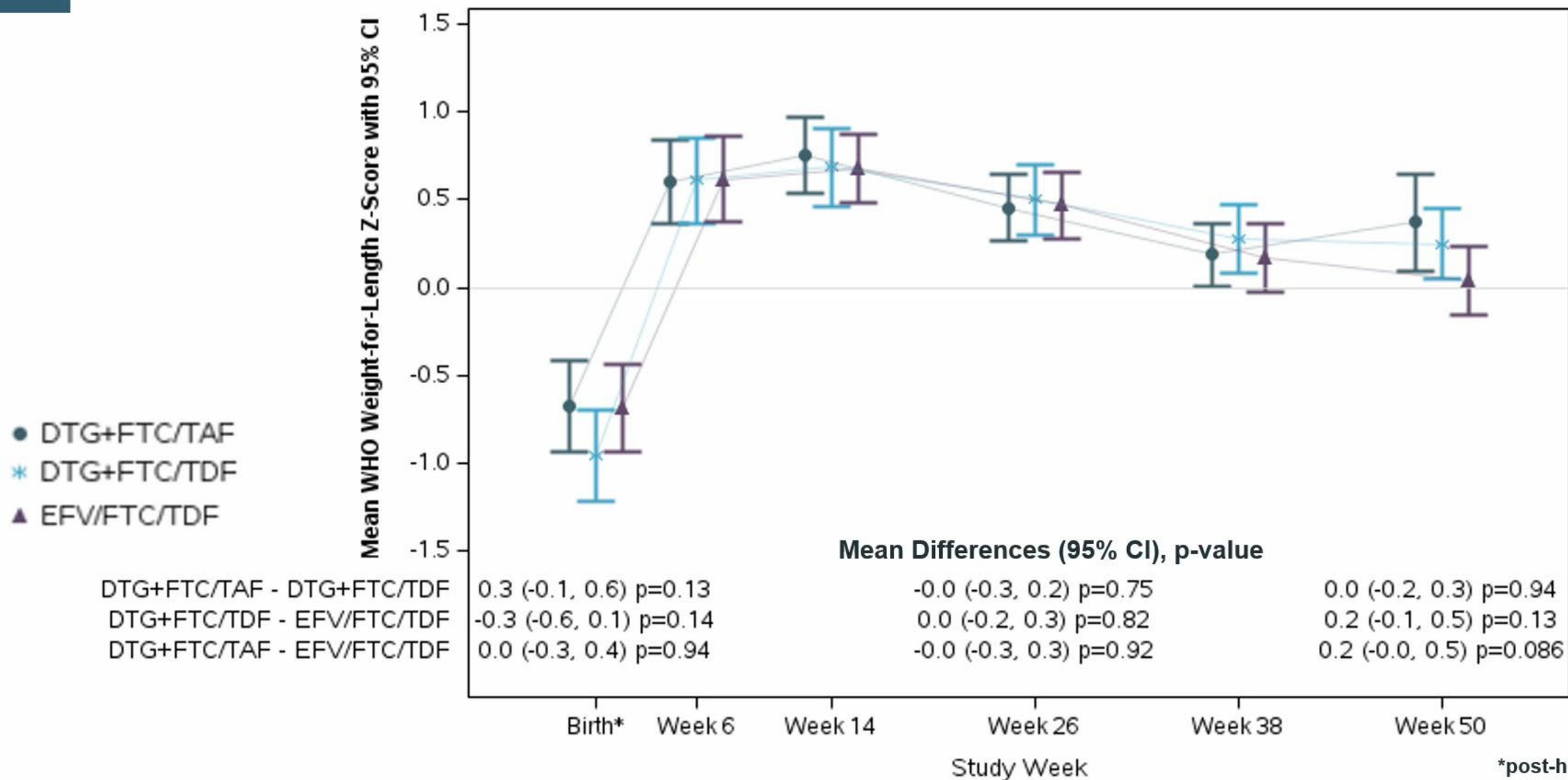
# Length-for-Age Z-scores lower in EFV vs DTG arms, similar TDF- vs TAF-DTG



# Weight-for-Age Z-scores lower in EFV vs DTG arms, similar TDF- vs TAF-DTG



# Weight-for-Length Z-scores, no apparent differences



# Limitations

- ▶ Infant follow-up limited to one year of age
- ▶ Included women who started ART in pregnancy (not women conceiving on ART)
- ▶ Predominantly breastfeeding populations studied, primarily in Africa

# Conclusions

- ▶ Infants born to mothers who started EFV/FTC/TDF in pregnancy were significantly smaller throughout infancy than infants whose mothers started DTG+FTC/TAF or DTG+FTC/TDF
- ▶ Rates of stunting were high across all arms and higher in EFV arm (1 in 5) than the DTG arms (1 in 7)
- ▶ Mechanisms of this difference remain unclear
  - ▶ Potential influence of differential maternal weight gain in pregnancy
- ▶ Infant growth was similar following exposure to maternal TDF vs. TAF in combination with DTG+FTC

# Conclusions

- ▶ Extended follow-up required to assess persistence of observed differences
- ▶ Infant growth should be factored into the choice of optimal maternal ART regimens during pregnancy and breastfeeding



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