Hypertension in a randomized trial of DTG- vs EFV-based ART in pregnant and postpartum women

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on behalf of the IMPAACT 2010 Study Team

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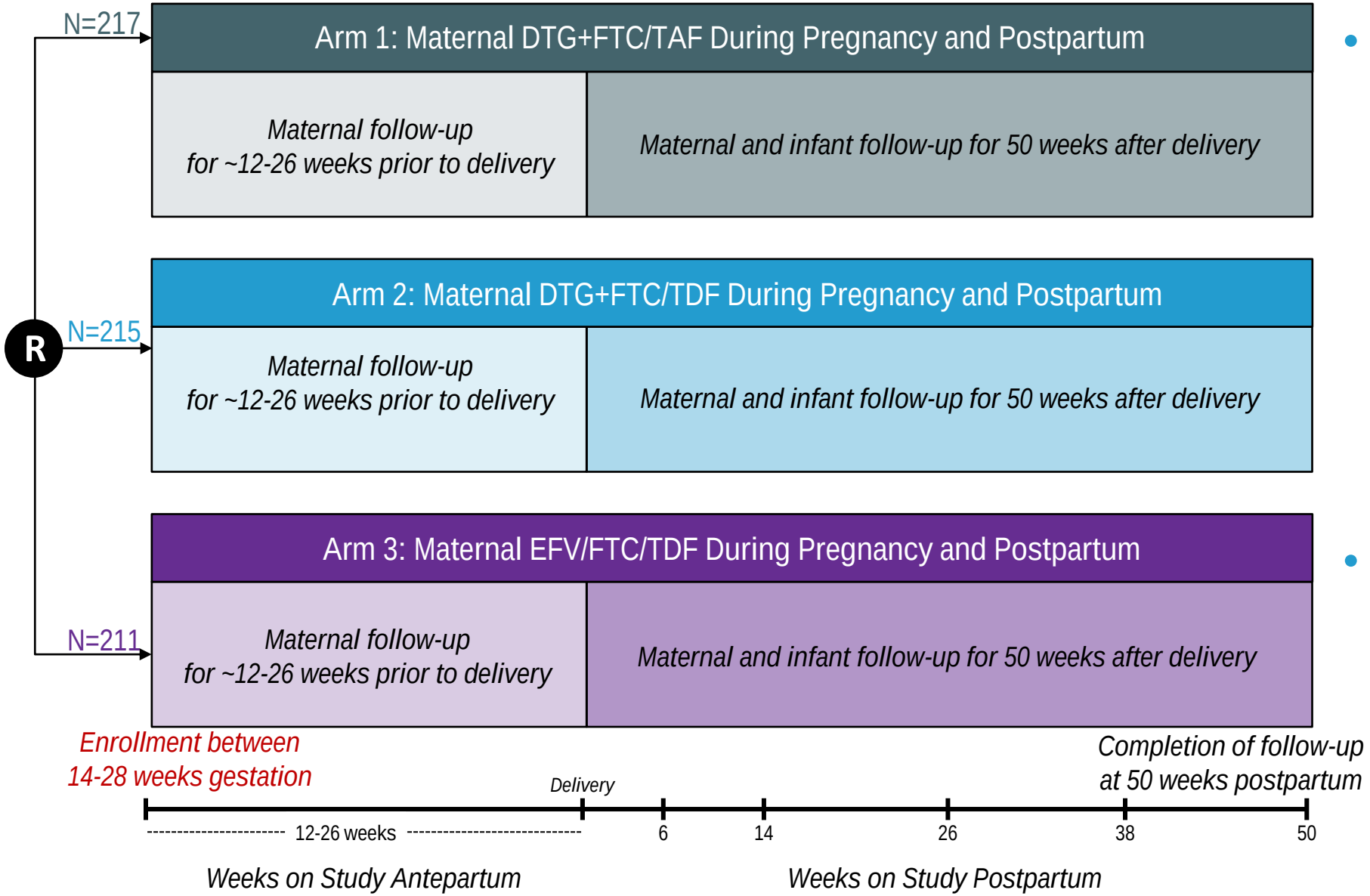
IMPAACT 2010 (VESTED) Background



- **Enrolled at 22 sites in 9 countries** (Botswana, Brazil, India, South Africa, Tanzania, Thailand, Uganda, US, Zimbabwe) (N=643)
- ***Post-hoc analysis of blood pressure (BP) data over the study period***

Lockman et al, Lancet April 2021; Chinula et al, Lancet HIV June 2023

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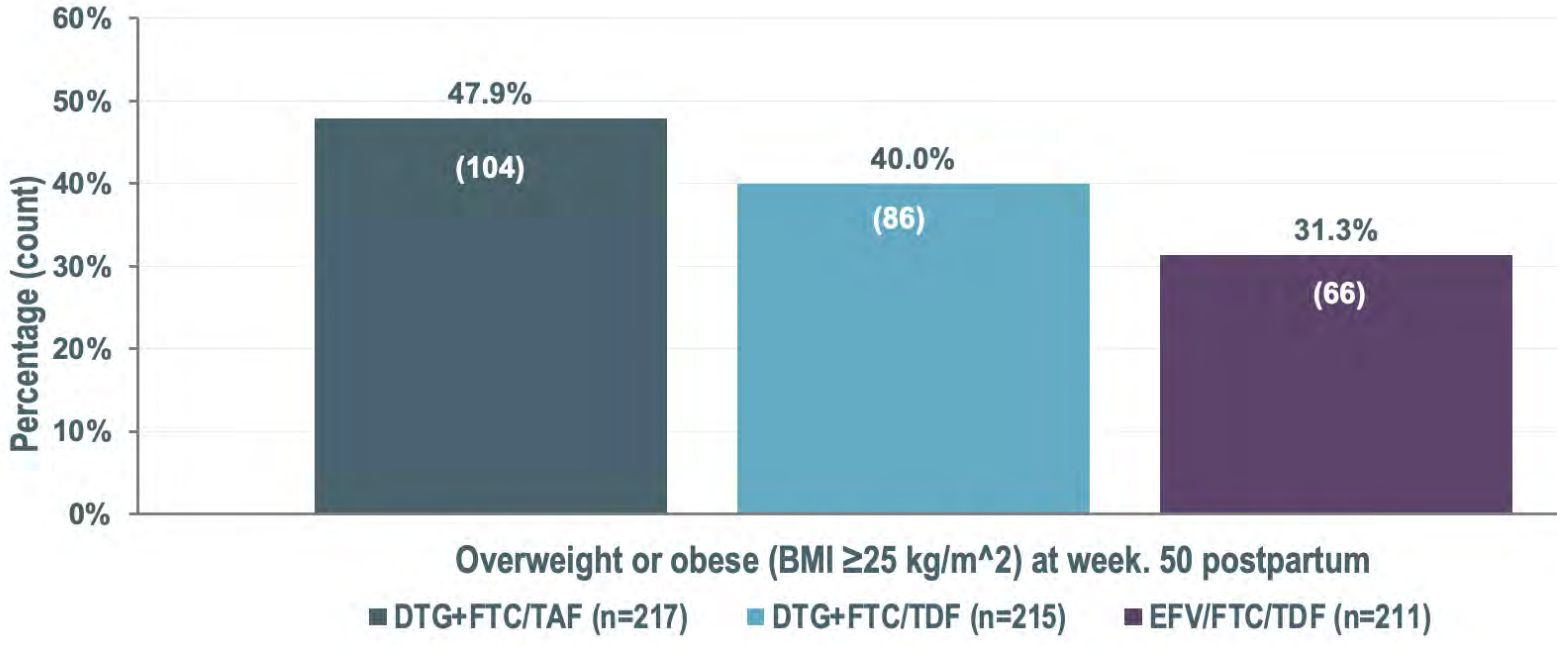
IMPAACT 2010 Key Relevant Findings

- Significantly **lower rate of composite adverse pregnancy outcome (preterm delivery, SGA, or stillbirth)** in **DTG+FTC/TAF** arm compared with other 2 arms[1]

- Antepartum weight gain in all 3 arms was lower than recommended by Institute of Medicine[2] but **closest to recommended in DTG+FTC/TAF;** highest rate of insufficient weight gain with EFV/FTC/TDF

- Participants in DTG arms more likely to have BMI in overweight/ obese category by 50 weeks postpartum[1]



1-Hoffman et al; CID 2024 Jan 5; 2-Institute of Medicine National Academies Press; 2009

Methods: Data Collection and Statistics

- ***Objective: To characterize elevated BP and hypertension during pregnancy and postpartum***
- BP and weight measured at each visit (every 4 weeks antepartum; delivery; 5 times through 50 weeks postpartum), height measured at entry
- Summarized the occurrence of elevated BP and incident mild or worse hypertension through 50 weeks postpartum
- Summarized incident gestational hypertension, preeclampsia, eclampsia (antepartum through 12 weeks postpartum)
- Cox proportional hazard model for by-arm comparisons of occurrence of elevated BP or incident mild or worse hypertension through 50 weeks postpartum
  - Analysis done with and without adjustment for time-varying weight

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Methods: Blood Pressure Definitions for Incident Events

Hypertension from antepartum to 50 weeks postpartum: ≥2 values, or initiation of antihypertensive medication*	Category
Elevated blood pressure**	130-139 and/or 80-89 mmHg
Mild hypertension	140-159 and/or 90-99 mmHg
Moderate hypertension	160-179 and/or 100-109 mmHg
Severe hypertension	≥180 and/or ≥110 mmHg

Gestational hypertension: onset ≥20 weeks gestation with resolution by 12 weeks postpartum (≥2 values or initiation of antihypertensive medication*)	Category
Mild gestational hypertension	≥140-159 and/or ≥90-109 mmHg
Severe gestational hypertension	≥160 and/or ≥110 mmHg

*First BP value defined the category if second was the same or higher; If second was lower, the lower value defined the category; new antihypertensive medication(s) were not systematically collected

**Defined as stage 1 hypertension by 2017 AHA/ACC Guidelines

Preeclampsia and eclampsia were reported by sites based on local definitions

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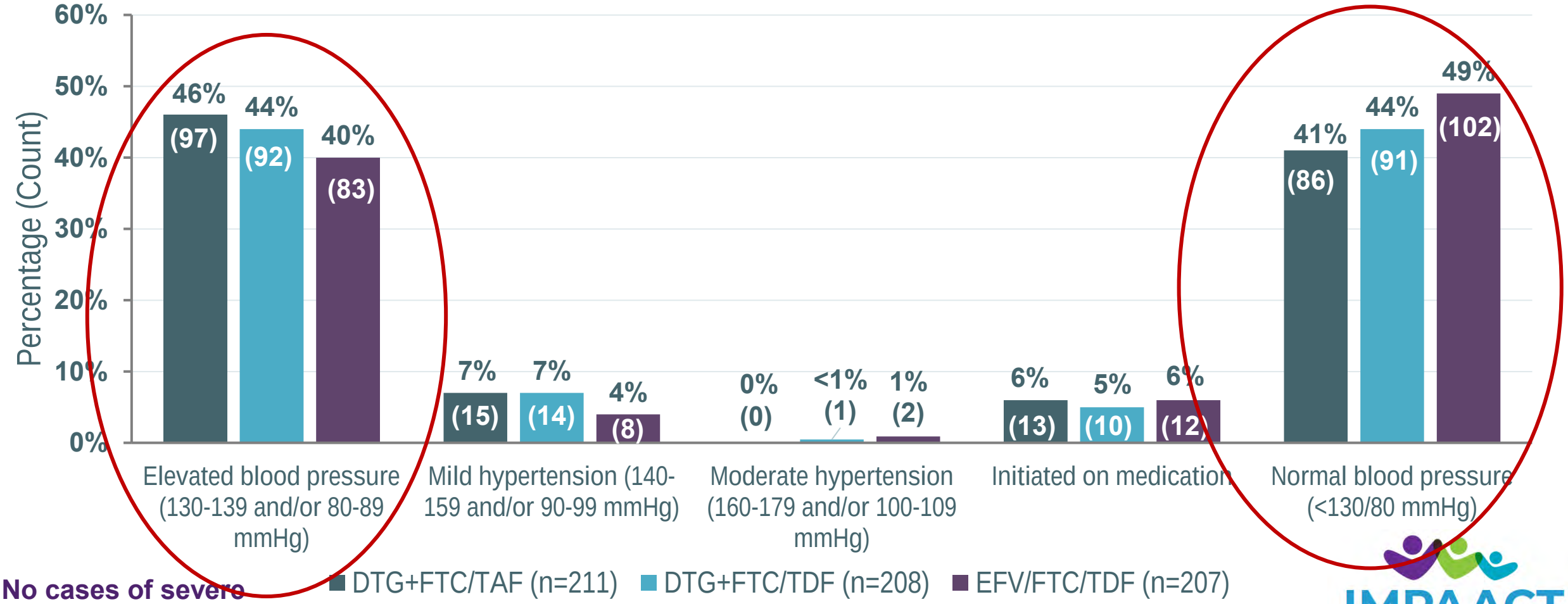
Maternal Baseline Characteristics

	DTG+FTC/TAF (N = 217)	DTG+FTC/TDF (N = 215)	EFV/FTC/TDF (N = 211)	Total (N = 643)
Age (median years)	26.8	26.0	26.6	26.6
Enrolled in Africa	187 (86%)	189 (88%)	188 (89%)	564 (88%)
Gestational age (median weeks)	22.1	21.3	22.1	21.9
CD4 count (median cells/mm^3)	467	481	439	466
HIV-1 RNA (median copies/mL)	781	715	1357	903
Enrollment weight, mean kg (SD), mean BMI kg/m^2 (SD)	67.7 (15.1) 26.6 (5.8)	66.3 (16.8) 26.0 (6.2)	64.5 (13.3) 25.2 (4.7)	66.2 (15.2) 25.9 (5.6)
Chronic hypertension or gestational hypertension	6 (2.8%)	7 (3.3%)	4 (1.9%)	17 (2.6%)
Taking antihypertensive medication	4 (1.8%)	5 (2.3%)	2 (0.9%)	11 (1.7%)

Results: Occurrence of elevated blood pressure and incident mild or worse hypertension by arm, antepartum through 50 weeks postpartum



No cases of severe hypertension observed

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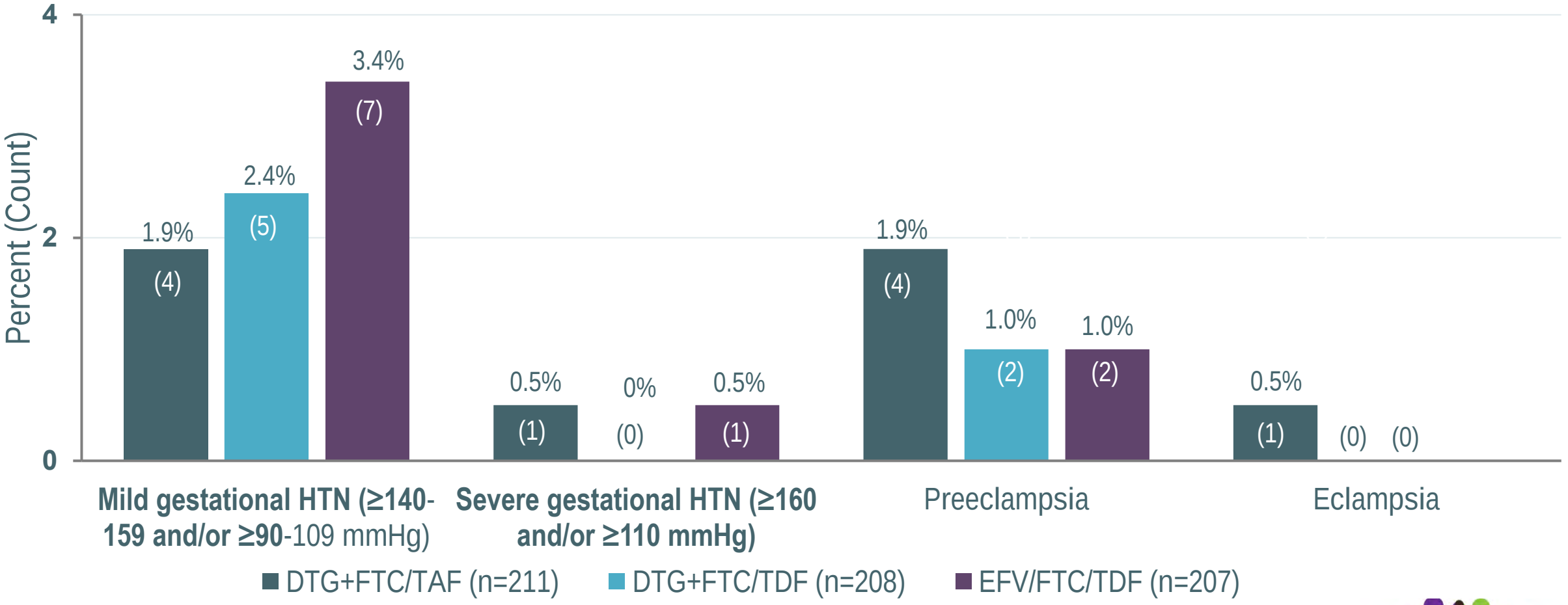
Results: Gestational hypertension (HTN), preeclampsia, and eclampsia



Preeclampsia/eclampsia based on site report of diagnosis and not standardized across the study

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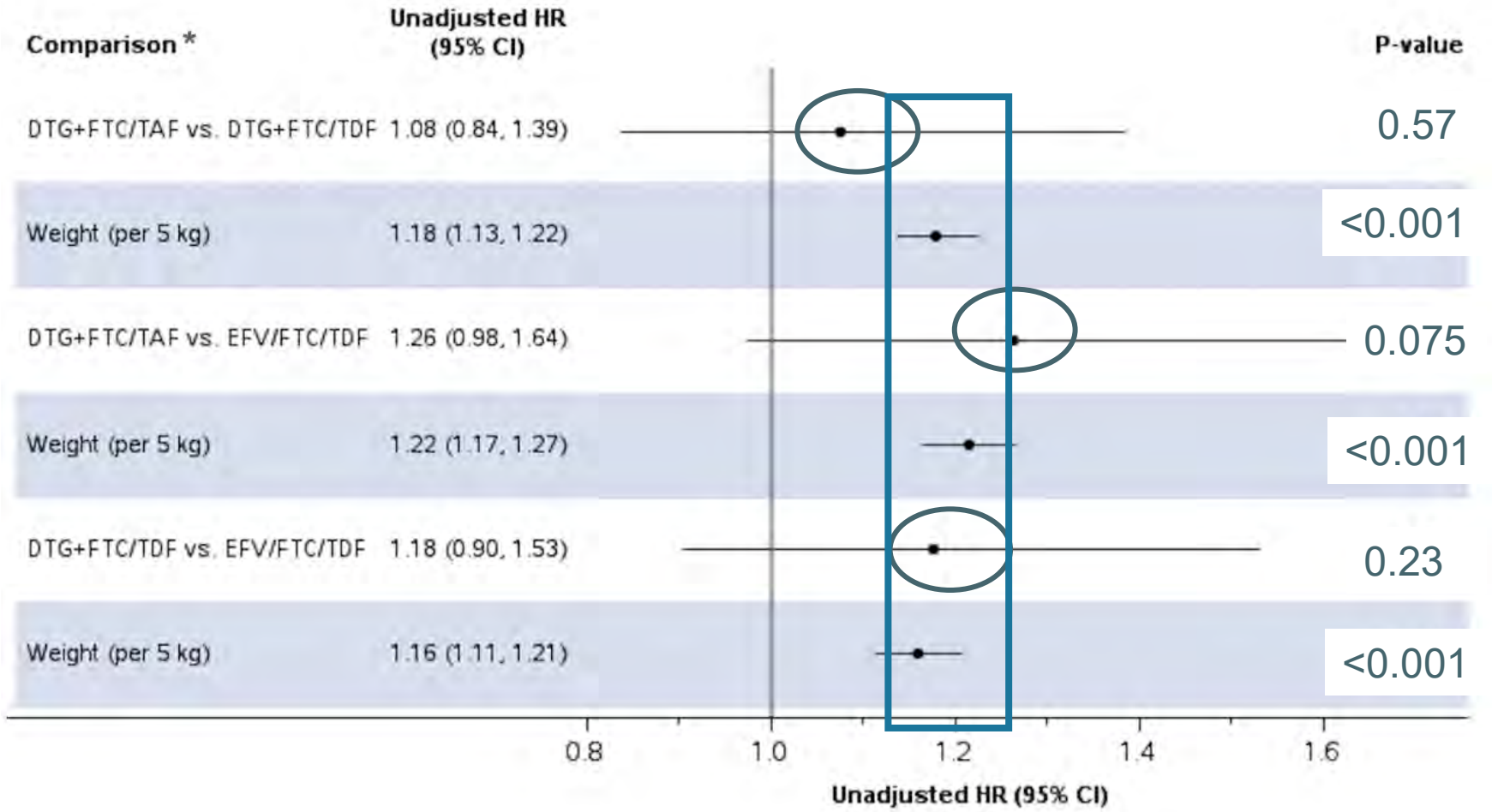
Results: Hazard ratios for occurrence of elevated blood pressure and incident hypertension by arm, antepartum through 50 weeks postpartum



*HRs for by-arm comparisons were similar when adjusted for weight

Results similar for antepartum vs postpartum vs overall

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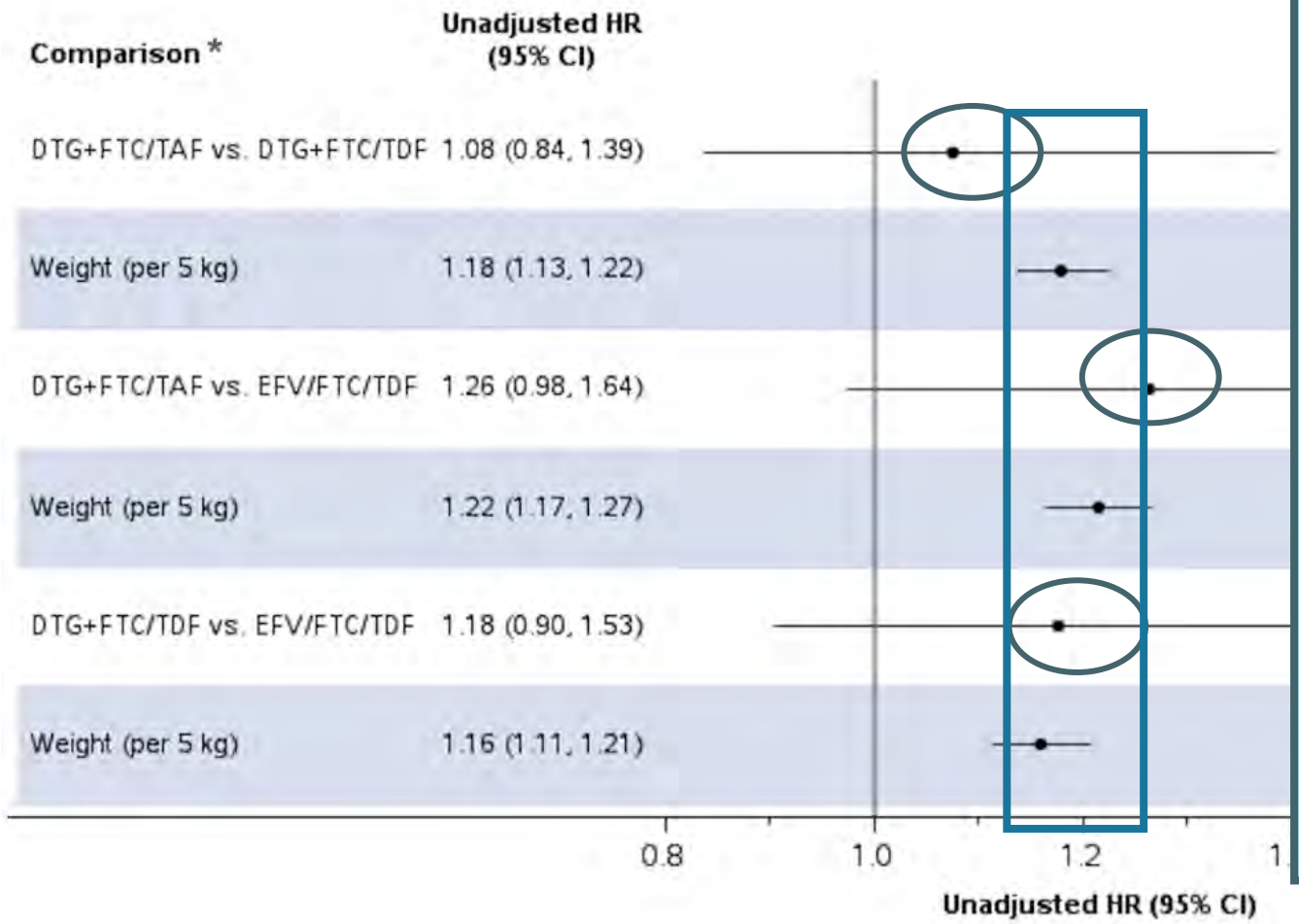
Results: Hazard ratios for occurrence of elevated blood pressure and incident hypertension by arm, antepartum through 50 weeks postpartum



- Independent of treatment:
  - For every 5 kg increase in weight: ≈16-22% increase in the hazard of elevated blood pressure or mild or worse hypertension
- Non-significant trend for increased hazard in by-arm comparisons, more notable for DTG+FTC/TAF vs EFV/FTC/TDF

*HRs for by-arm comparisons were similar when adjusted for weight

Results similar for antepartum vs postpartum vs overall

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Conclusions

- High proportion of young women had elevated BP (130-139/80-89 mmHg)
  - Clinical significance unclear
- Low incidence of mild or worse hypertension (≥140/90 mmHg)
- Gestational hypertension/preeclampsia/eclampsia uncommon and less common than in cohorts from Africa (women without HIV)[1]
- Independent of treatment arm, weight associated with increased hazard of elevated blood pressure and incident hypertension
  - More participants on DTG in overweight/obese BMI categories at 50 weeks postpartum[2]
- However, important benefits of DTG-based ART in pregnancy/postpartum
  - Healthier antepartum weight gain and lower risk of adverse pregnancy outcomes (especially DTG/TAF)[2]
- Given benefits of DTG-based ART in pregnancy/postpartum, focus should be on healthy weight and identification and management of hypertension

1-Gemechu et al; Women's Health 2020 (Vol 16); 2-Hoffman et al; CID 2024

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Acknowledgements

The IMPAACT 2010/VESTED Protocol Team gratefully acknowledges the dedication and commitment of the 643 mother-infant pairs, their communities, and CAB representatives, without whom this study would not have been possible.

Sponsors:
US National Institutes of Health (Patrick Jean-Philippe, Renee Browning, Lynette Purdue, Nahida Chakhtoura)
Gilead Sciences, Mylan, ViiV Healthcare Ltd

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India: *BJMC*: Pradeep Sambarey
South Africa: *CAPRISA-Umlazi*: Sherika Hanley; *FAMCRU:* Gerhard Theron; *Soweto*: Haseena Cassim; *Wits RHI Shandukani*: Lee Fairlie
Tanzania: *KCMC*: James Ngocho
Thailand: *Siriraj:* Kulkanya Chokephaibulkit; *Chiang Rai:* Jullapong Achalapong; *Chiang Mai Univ:* Linda Aurpibul
Uganda: *MUJHU*: Deo Wabwire; *Baylor-Uganda:* Violet Korutaro
United States: *Univ Miami:* Gwendolyn Scott; *Univ Fl Jacksonville:* Mobeen Rathore
Zimbabwe: *St. Mary's:* Patricia Mandima; *Seke North:* Lynda Stranix-Chibanda; *Harare Family Care*: Tichaona Vhembo

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Acknowledgements

IMPAACT 2010/VESTED is funded by the US National Institutes of Health (NIH).

Overall support for the International Maternal Pediatric Adolescent AIDS Clinical Trials Network (IMPAACT) was provided by the National Institute of Allergy and Infectious Diseases (NIAID) with co-funding from the Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD) and the National Institute of Mental Health (NIMH), all components of the National Institutes of Health (NIH), under Award Numbers UM1AI068632 (IMPAACT LOC), UM1AI068616 (IMPAACT SDMC) and UM1AI106716 (IMPAACT LC), and by NICHD contract number HHSN275201800001I.

The content is solely the responsibility of the authors and does not necessarily represent the official views of the NIH.

The study products were provided by ViiV Healthcare Ltd, Gilead Sciences, Mylan.

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