ANRS 12249
TasP trial

Temporal trends of population viral suppression in the context of Universal Test and Treat: results from the ANRS 12249 TasP trial in rural South Africa

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SCIENTIFIC **CONTEXT**

- **Universal Test and Treat** (UTT) aims to maximize PLWHIV on ART and virally suppressed in a community.
- According to mathematical modelling, UTT would lead to **reduction in HIV incidence**.

↗ ART coverage
(% of PLWHIV on ART)

↗ Population Viral Suppression
(% being virally suppressed)

↘ HIV incidence
(new infections at population level)

THE **ANRS 12249** TASP TRIAL

- One of 5 international trials aiming at evaluating UTT approaches
- *Design:* cluster-randomised trial
- *Timeline:* March 2012-June 2016
- *Study setting:* Hlabisa sub-district
  - ~28 000 individuals aged 16+
  - isiZulu speaking
  - HIV prevalence ~30%
  - frequent migration
  - low marital rates & late marriage
  - only 10% are employed

TASP TRIAL **PROCEDURES**

Homestead Identification

Homestead visit

1. Registration of resident adults
2. Update of resident members list
3. Exit forms

Homestead procedures

1. Individual questionnaires
2. DBS sample (lab tests)
3. Rapid HIV testing

repeated every ~six months

health
Department:
Health
REPUBLIC OF SOUTH AFRICA

Local governmental clinics

- *Matching between trial and governmental database at individual level*
- CD4 and viral load results / clinic visits
- ART according to national guidelines

Trial clinics

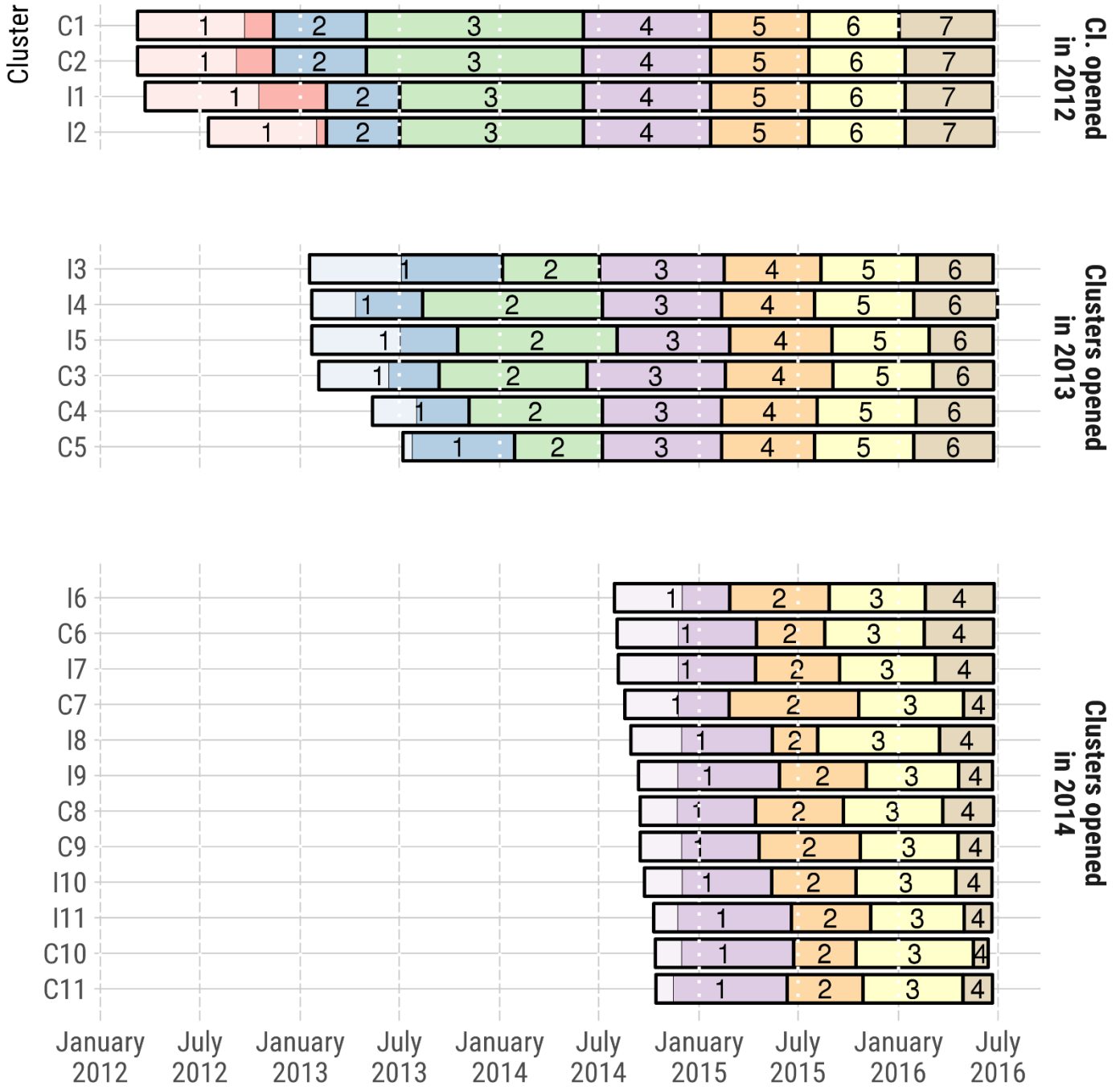
- *Intervention arm:* immediate ART
- *Control arm:* ART according to national guidelines

if ascertained HIV+
(rapid test or self-report)
referred to trial clinic

TIMING OF FIELDWORK

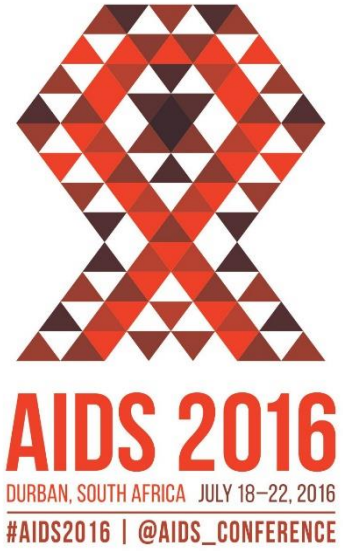
- 4 clusters (opened in 2012)
- 6 clusters (opened in 2013)
- 12 clusters (opened in 2014)

Light areas indicate the time required to complete the initial census of the population



PREVIOUS **RESULTS**

- Main results were presented in Durban in 2016
  (Iwuji et al. *Lancet HIV* 2017)
- **No significant difference** in HIV incidence between trial arms



RESEARCH QUESTION

- Did population viral suppression improve during the course of the trial?
- Differentially by arm?
- According to trial interventions or contextual changes?

APPROACH: COMPUTATION OF **DAILY STATUSES**

28,419 adult residents were registered

for each calendar day

initial census of the population,
16th birthday, in-migration events, out-migration events and deaths

⇒ RESIDENCY status
(resident / not resident)

↓ among those residents

repeat DBS, repeat rapid tests, HIV-positive self-reports and HIV clinic visits
seroconversion date imputed (random point approach)

⇒ HIV status
(HIV positive / negative)

↓ among those HIV-positive

clinic visits, ART prescription, CD4 counts and viral loads
trial clinics and local governmental HIV clinics

⇒ HIV CARE position
Viral Suppression (<400)

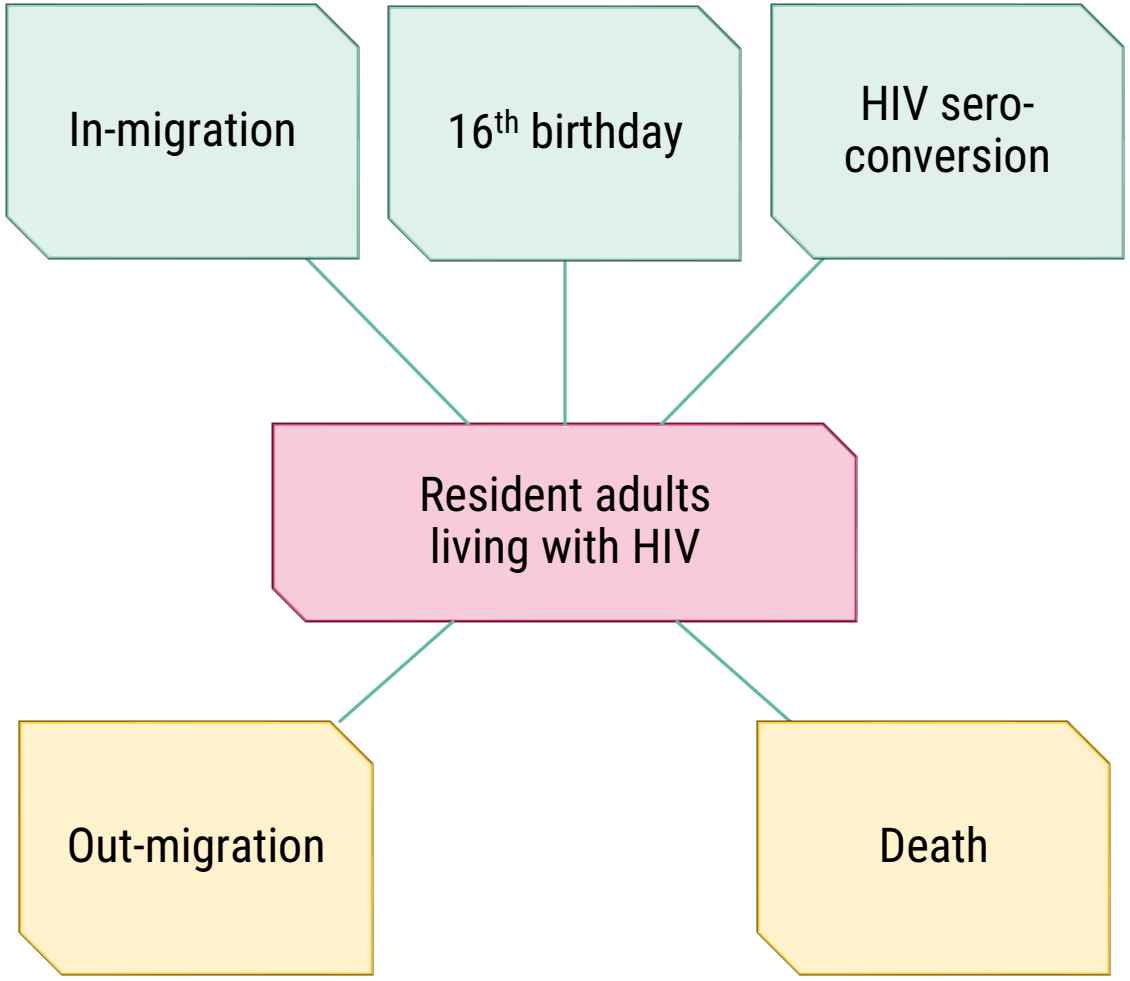
CLUSTER-LEVEL

POPULATION VIRAL SUPPRESSION

% being in care, on ART and virally suppressed

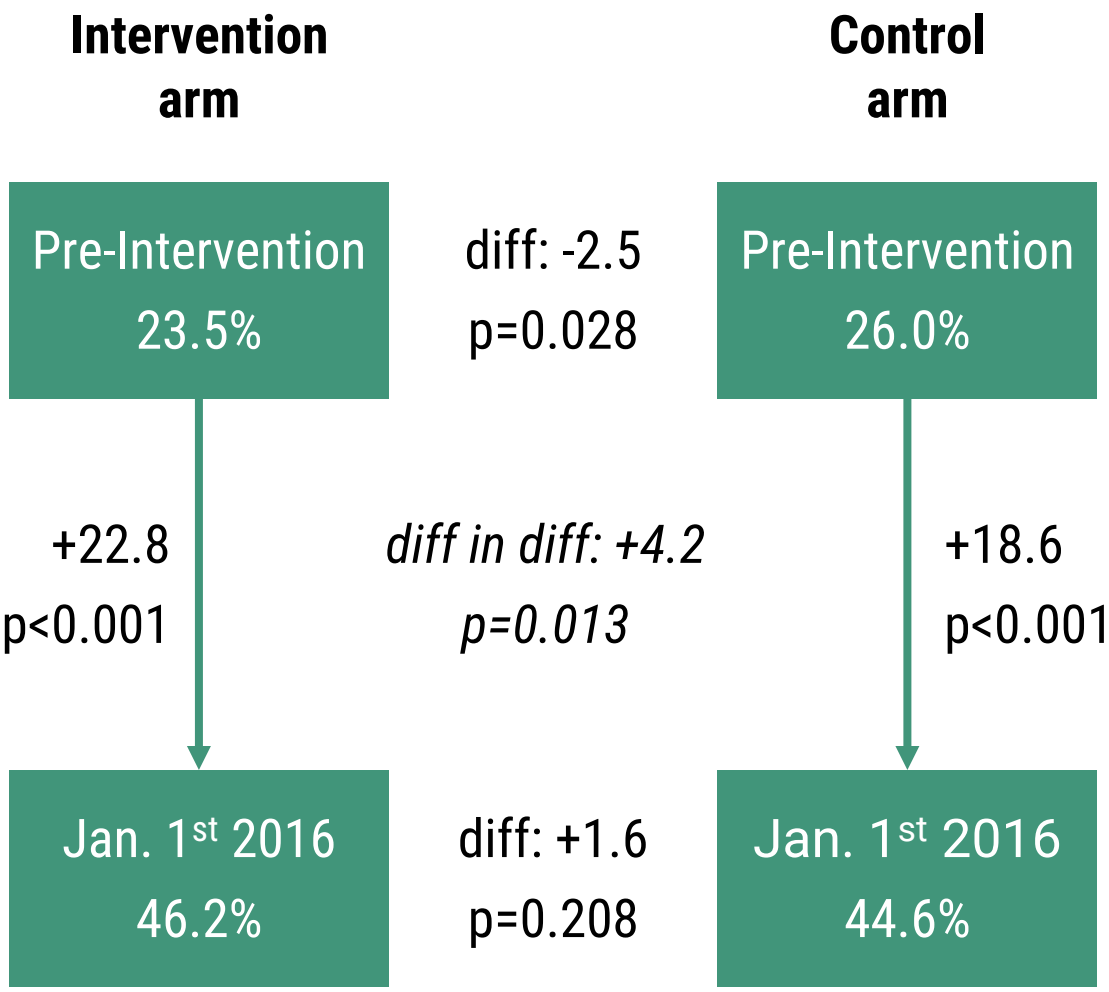
Computed at different time points (pre-intervention + daily)

POPULATION VIRAL SUPPRESSION **DENOMINATOR**



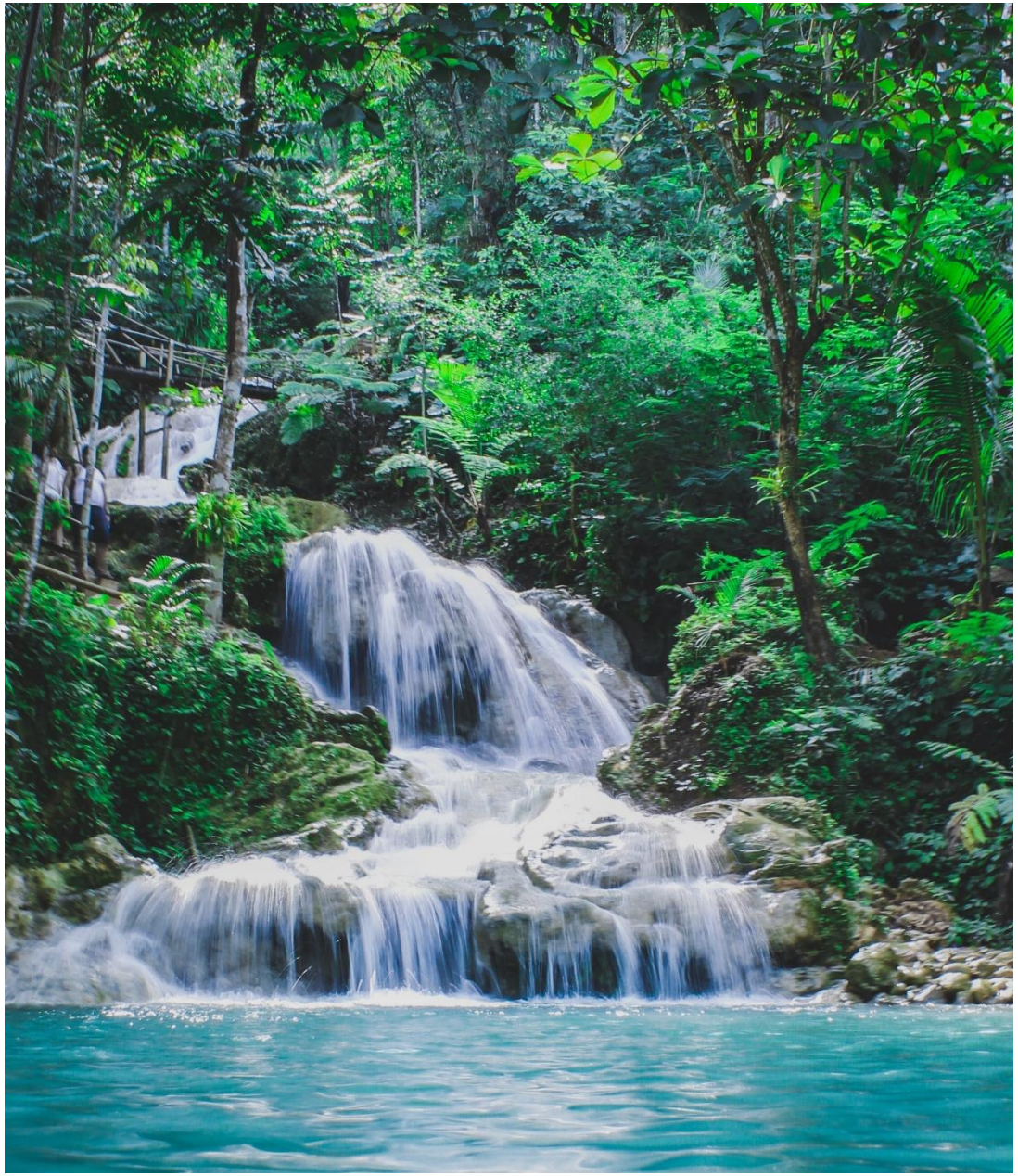
OVERALL **RESULTS**

- At baseline, population viral suppression **slightly lower** in intervention arm
- **Significant increase** in both arms
- A **slightly higher increase** in intervention arm
- **No significant difference** between arms at the end of the trial

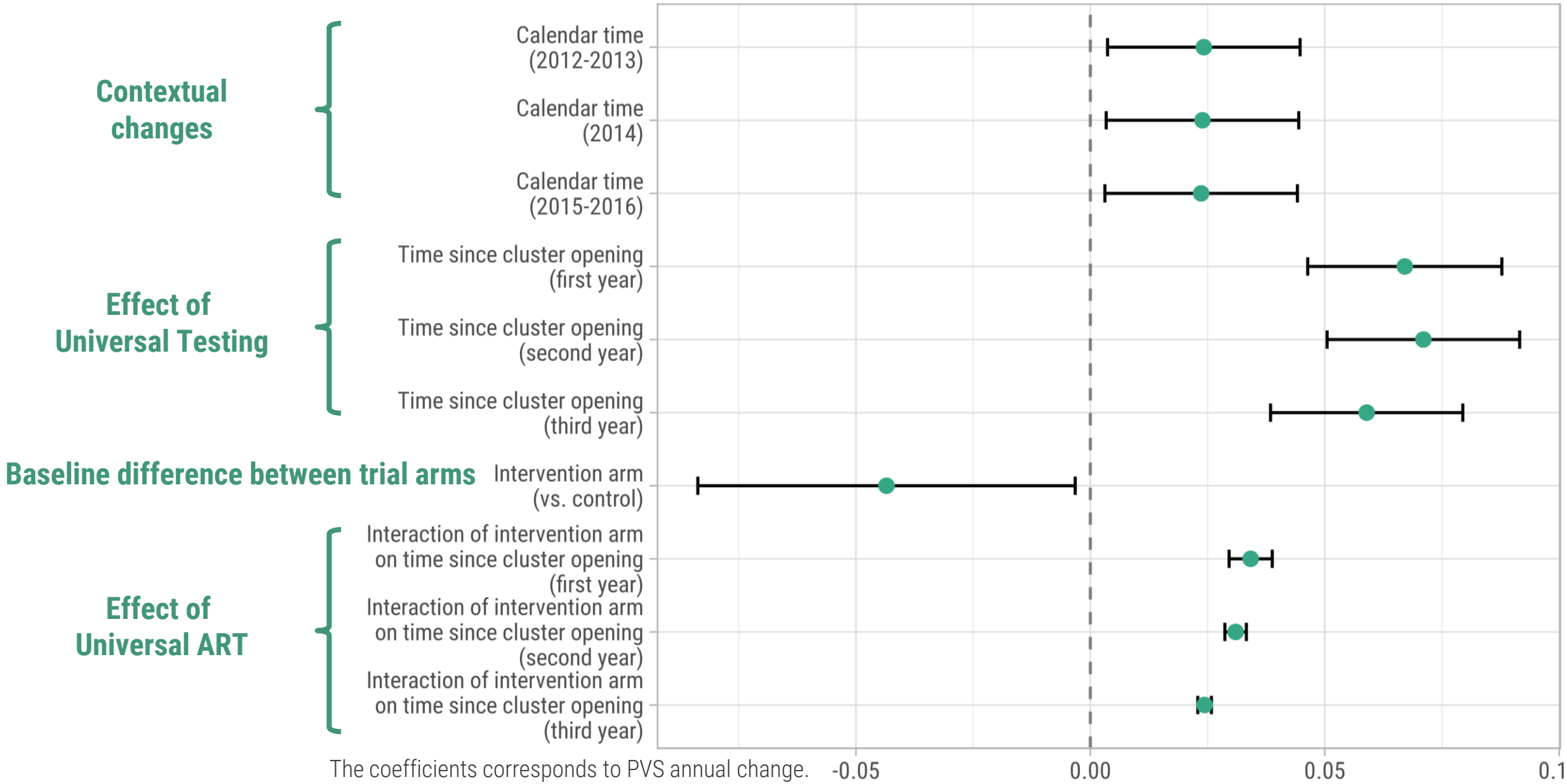


MODELLING POPULATION VIRAL SUPPRESSION

- Mixed linear model
- One record per cluster and per day
- Outcome: cluster-level population viral suppression
- Factors:
  - calendar time
  - time since cluster opening
  - trial arm
  - interaction between trial and time since cluster opening
  - socio-demographic characteristics (cluster-level)



MODEL RESULTS: POPULATION VIRAL SUPPRESSION, TASP ANRS 12249



LIMITATIONS

- Care received in governmental clinics probably **underestimated** due to participants not matched between governmental and trial datasets
- Care received in **private sector** or **outside the trial area** not captured
- 9.5% of trial population with no observed HIV status and excluded from the analysis
- Sensitivity analysis: results unchanged

DISCUSSION

- Although suboptimal, the TasP strategy **significantly improved** population viral suppression over time.
- Mainly due to **universal testing** rather than **universal treatment**
- Increase similar between arms
  ➔ explain the null effect of HIV incidence

Changes in treatment guidelines not enough to increase population viral suppression

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ANRS 12249
TasP trial

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