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Sexual behaviour and STI over 4 years of PrEP use

Results from the Amsterdam PrEP demonstration project

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on behalf of the HIV Transmission Elimination AMsterdam Initiative (H-TEAM)

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Disclosures

- Mark van den Elshout

-

- AMPrEP (Public Health Service of Amsterdam)

- ZonMW
 - RIVM
 - GGD research fund
 - Gilead Sciences: incl. study medication

- H-TEAM

- Aidsfonds
 - Stichting Amsterdam Dinner Foundation
 - Gilead Sciences Europe Ltd
 - Gilead Sciences
 - Janssen Pharmaceuticals
 - M.A.C. AIDS Fund
 - ViiV Healthcare



AMPrEP (2015-2020)

- Daily / event-driven, PrEP free-of-charge
- 3-monthly STI / HIV testing, questionnaires
- Inclusion:
 - MSM and transgender persons
 - ≥ 18 years old, HIV negative
 - < 6 months:
 - Anal sex without a condom
 - Bacterial STI
 - Post exposure prophylaxis
 - Sex partner with HIV and detectable viral load



✘ ✘ AMPrEP participants (n=376) ✘

- 39 years old (IQR 32-48)
- 374 identified as male, 2 as transgender women
- 85% white
- 61% Amsterdam
- 76% college/university
- 79% exclusively sex with men

- 27% chose event-driven at initiation



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Sexual behaviour



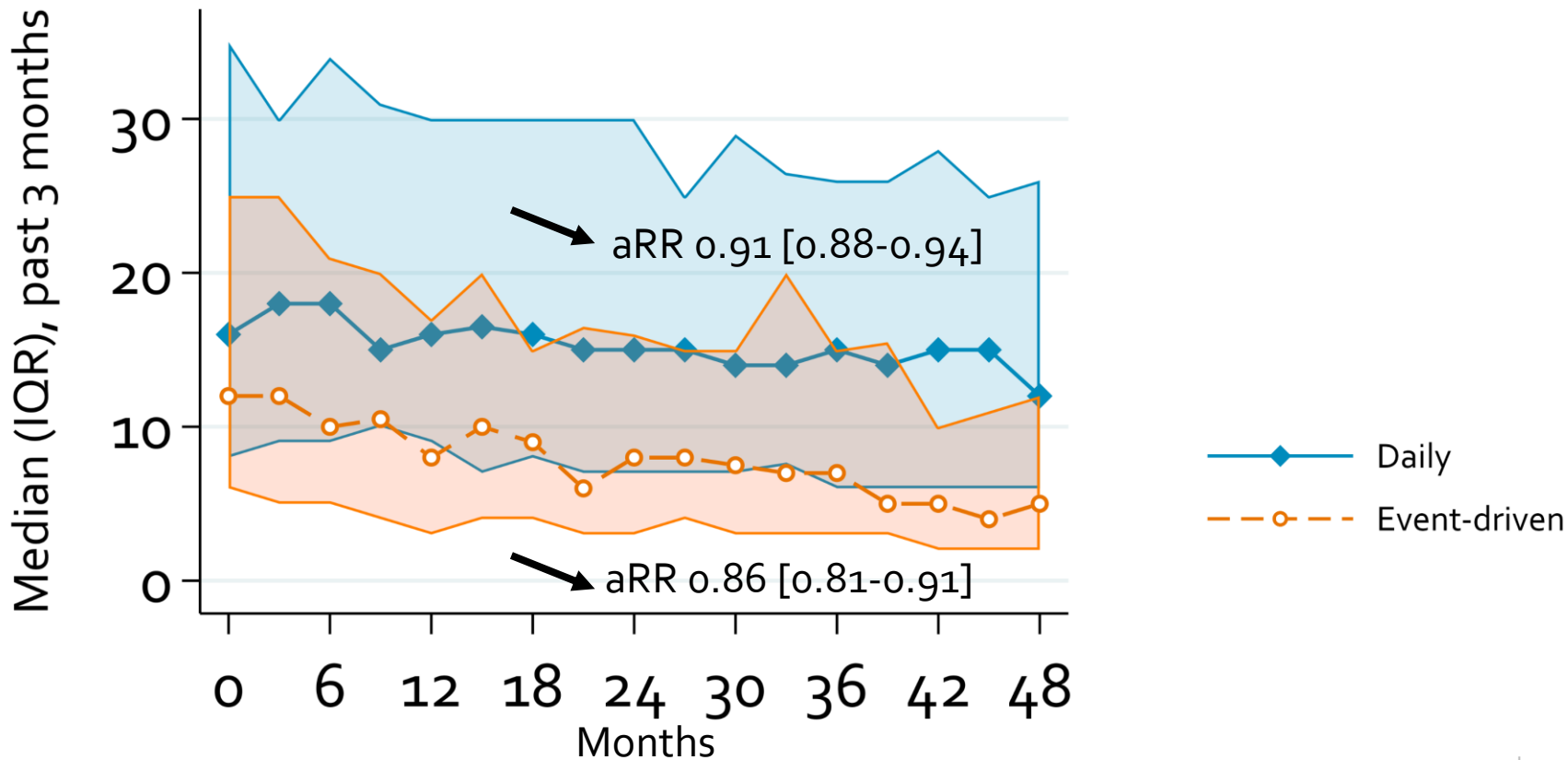
✘ ✘ ✘ Sexual behaviour (per 3 months)

- Total number of sex partners
- Number of condomless anal sex acts with casual partners



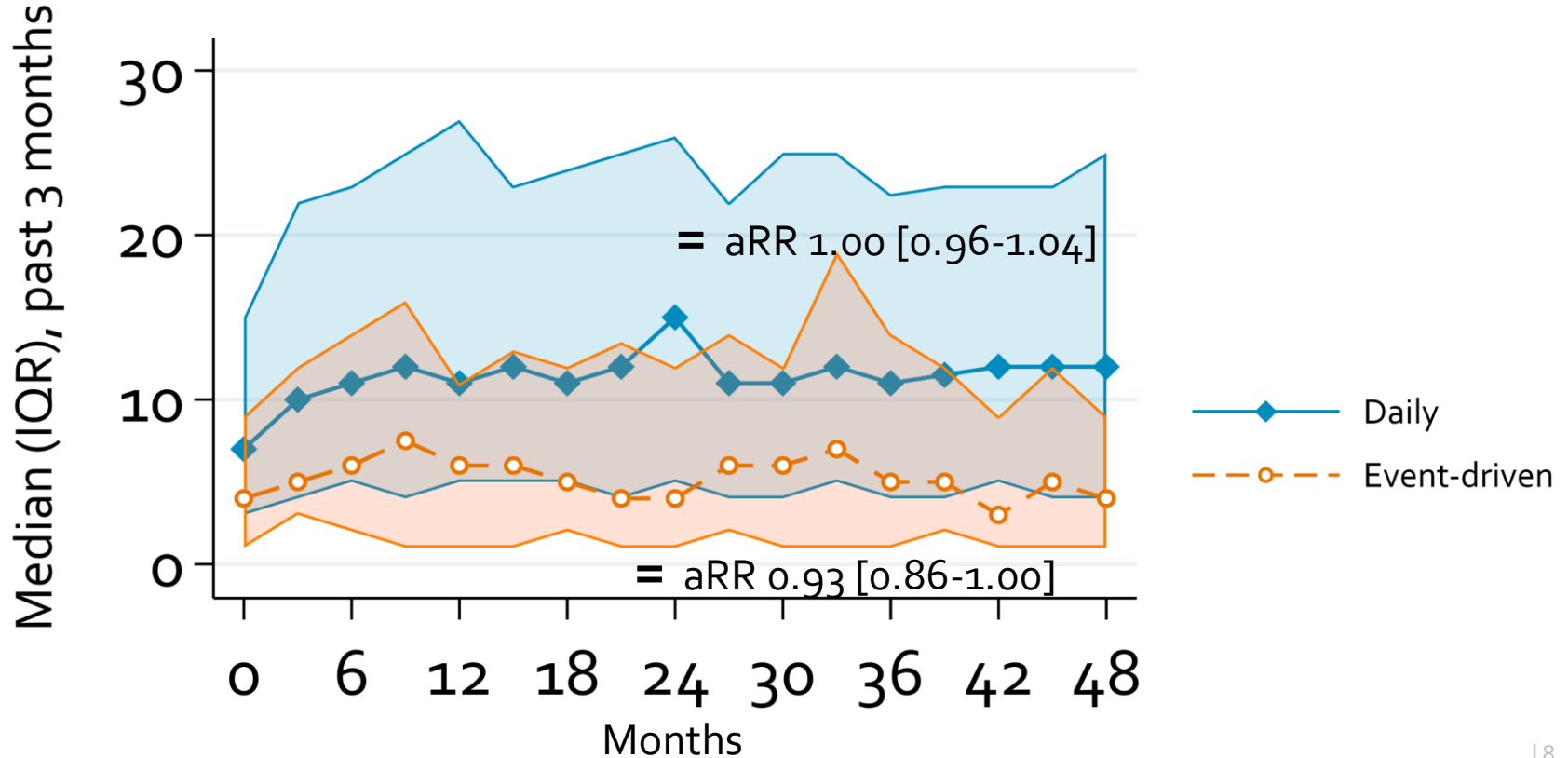


Total number of sex partners (< 3mo)





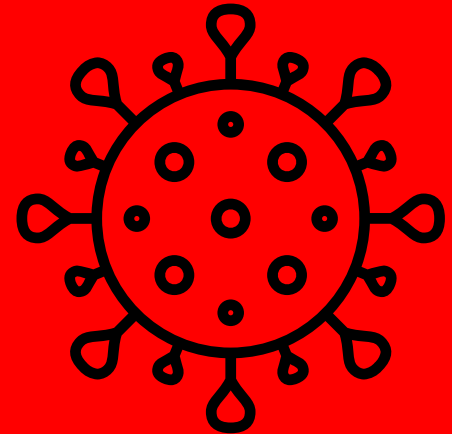
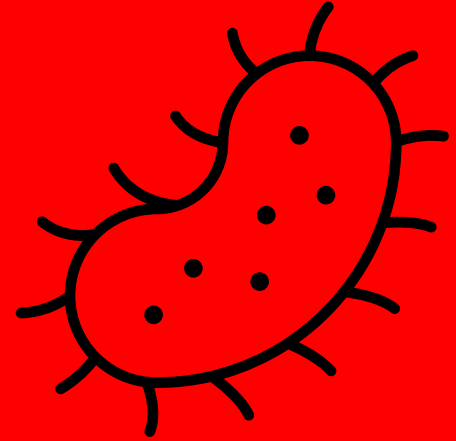
Condomless anal sex acts with casual partners (< 3mo)



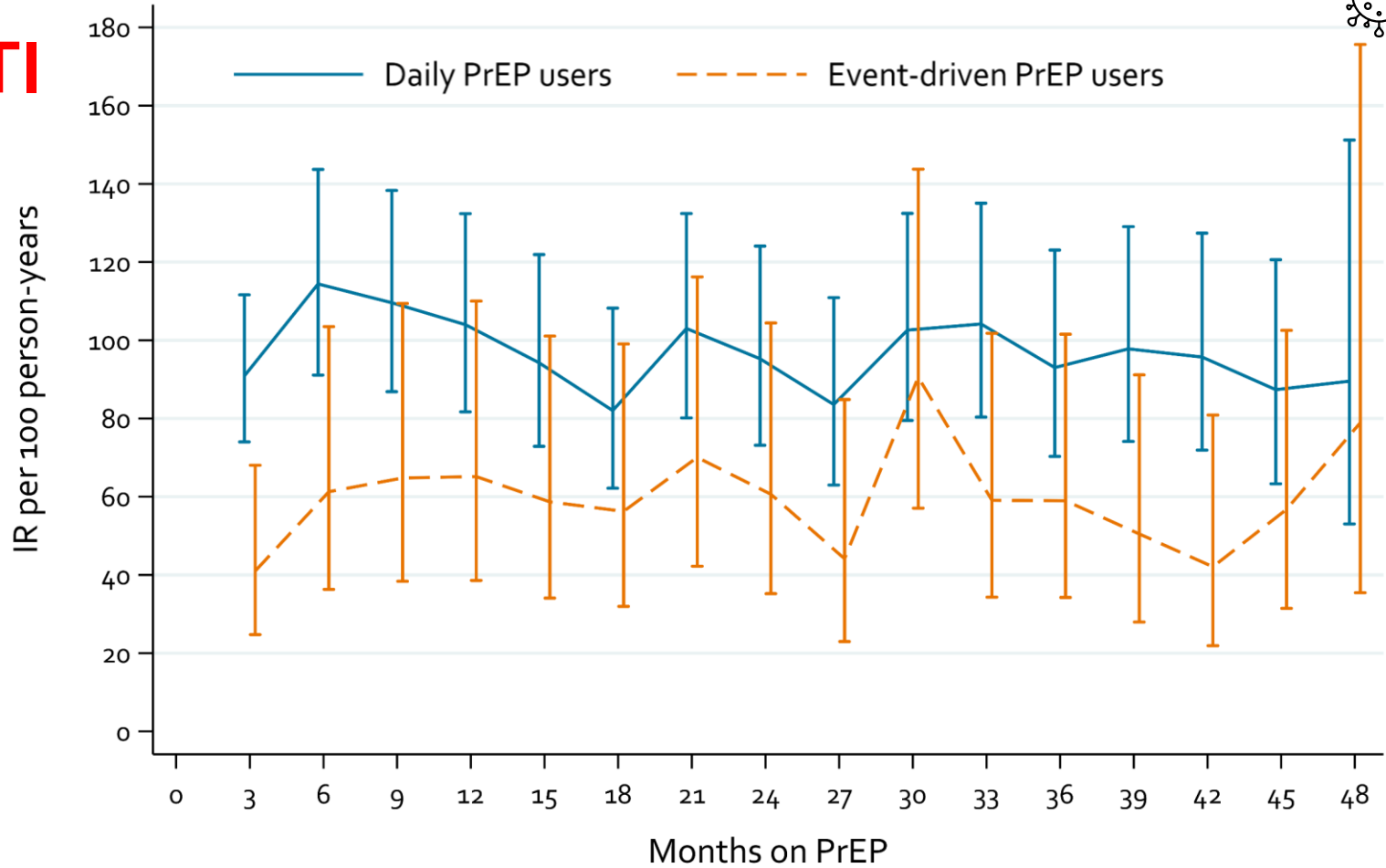
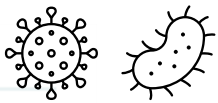


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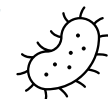
STI, HIV & Hepatitis C



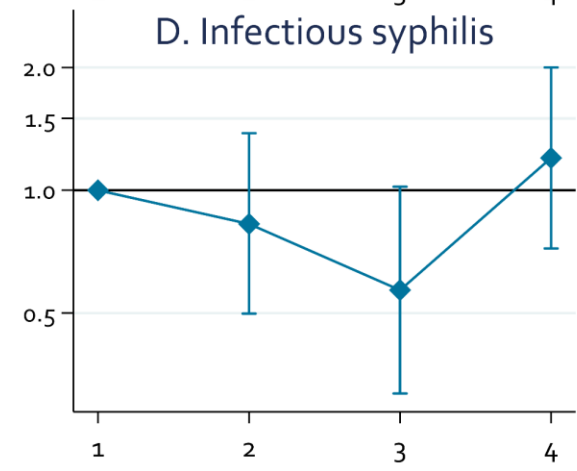
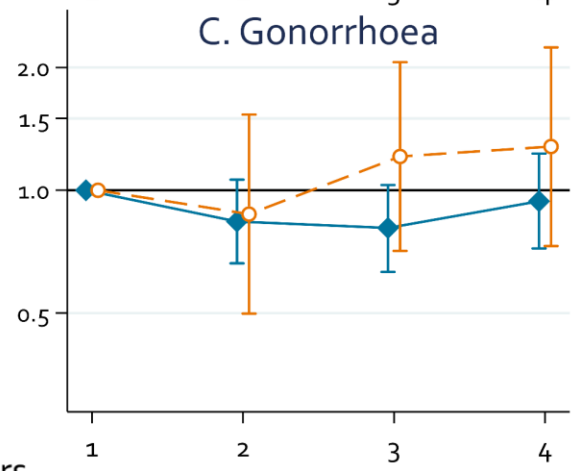
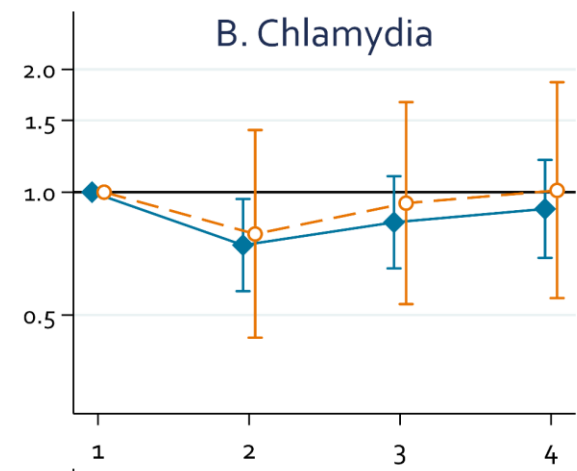
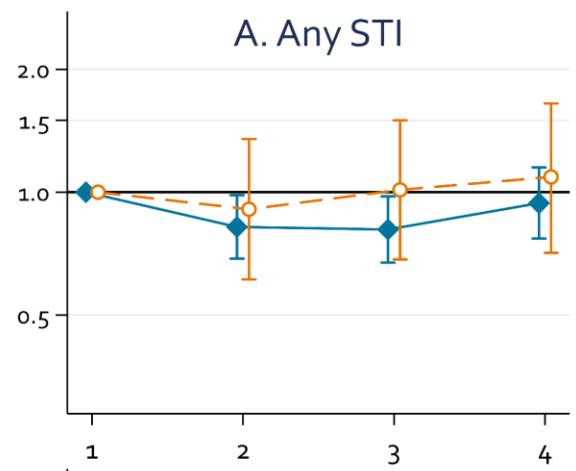
XXX
STI



STI



IRR (compared to year 1)



— Daily PrEP users
 - - - Event-driven PrEP users

Year on PrEP

XXX HIV



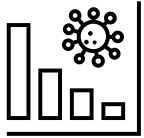
- 2 infections: daily PrEP users, both in the first year
- IR 0.16/100PY (95% CI 0.04-0.64)

- 1: stopped taking PrEP
- 1: confirmed good adherence¹

¹Hoornenborg et al. "Acquisition of wild-type HIV-1 infection in a patient on pre-exposure prophylaxis with high intracellular concentrations of tenofovir diphosphate: a case report." *The lancet HIV* (2017): e522-e528.



Hepatitis C



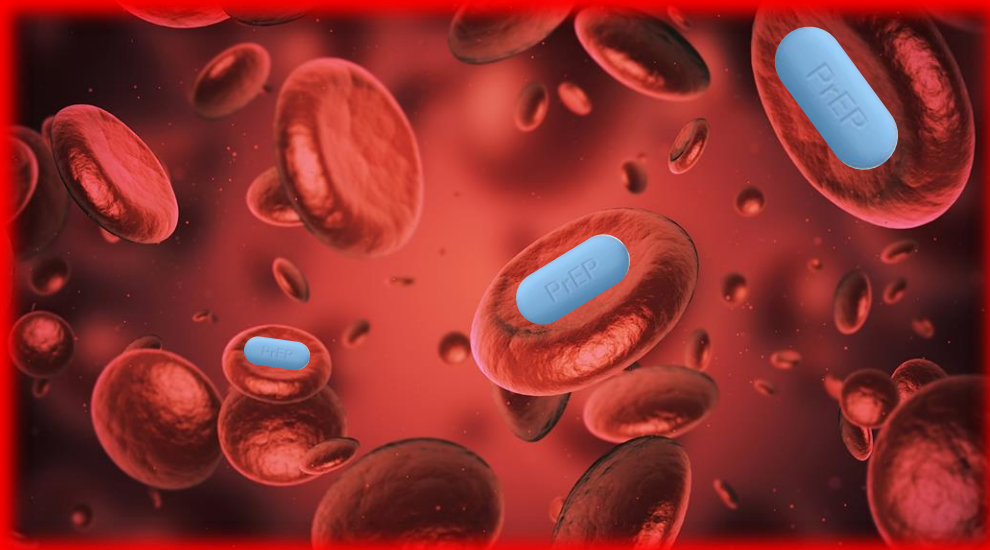
- 17 infections among 15 participants
 - 14 in daily users
 - 6 reinfections

| | Year 1 | Year 2 | Year 3 | Year 4 |
|--------------|-----------|---------|----------|----------|
| # infections | 6 | 8 | 2 | 1 |
| IR/100PY | 1.8 | 2.6 | 0.68 | 0.42 |
| 95% CI | 0.79-3.93 | 1.3-5.2 | 0.17-2.7 | 0.06-2.6 |



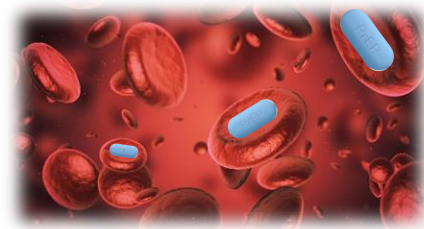
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Adherence





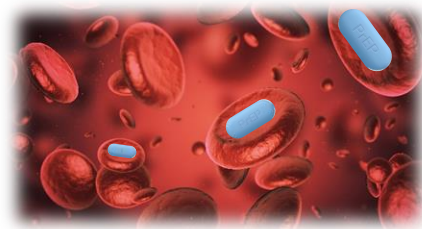
Adherence



- Intracellular tenofovir diphosphate (TFV-DP) in red blood cells
- Long half-life: 17 days vs. 10-50 hours in PBMC's / 17 hours in plasma
- → longer term adherence, not per sexual contact
- 12, 24 and 48 months
- Dried blood spots



Adherence (daily PrEP users)



| | 12 months | 24 months | 48 months |
|-----------------------|-------------|-------------|-------------|
| n | 259 | 223 | 127 |
| [TFV-DP] (fmol/punch) | 1299 | 1288 | 1693 |
| IQR | 1021-1627 | 1005-1617 | 1310-2252 |

| Interpretation | tablets/week | [TFV-DP] (fmol/punch) |
|----------------|--------------|-----------------------|
| Poor | <4 | < 700 |
| Sufficient | 4 ≥ 7 | 700 ≥ 1250 |
| Perfect | 7 | ≥ 1250 |



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Conclusions





Conclusions & recommendations

- Sexual behaviour
 - Fewer sex partners
 - Sexual activity stable
- Infections
 - STI high and stable
 - Low HIV incidence, HCV seems to decrease
- Adherence
 - Very good



Conclusions & recommendations

- PrEP remains efficacious over 4 years
- Supports wide and low-threshold implementation
- Need for better representation
 - Gender diverse persons
 - People of colour
 - Younger persons
 - Education levels other than college/university



Acknowledgements

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- Furthermore, we thank Roel Achterbergh, Ertan Ersan, Michelle Kroone, Dominique Loomans, Kees de Jong, Ilya Peters, Princella Felipa, Myra van Leeuwen, Jason Schouten, Kenneth Yap, Hanne Zimmermann and all members of the H-TEAM consortium