

Achieving higher adherence to daily PrEP among MSM in Amsterdam by providing feedback via a mobile application: a randomised clinical trial

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Background & objective

Pre-exposure prophylaxis (PrEP) prevents HIV provided that users are adherent. We evaluated whether automated feedback on self-reported PrEP use via a mobile application (app) increases adherence, compared to using the same app without feedback.

Methods

- Randomised clinical trial among daily PrEP users
- Nested in AMPREP (Amsterdam PrEP demonstration Project among men who have sex with men (MSM) and transgender persons at the Public Health service of Amsterdam)
- Randomisation: 1:1 to the standard or the extended app
- Both apps allow reporting of sexual behaviour and medication intake
- The extended app also provides visual feedback on self-reported PrEP use and sexual behaviour (Figure 1)

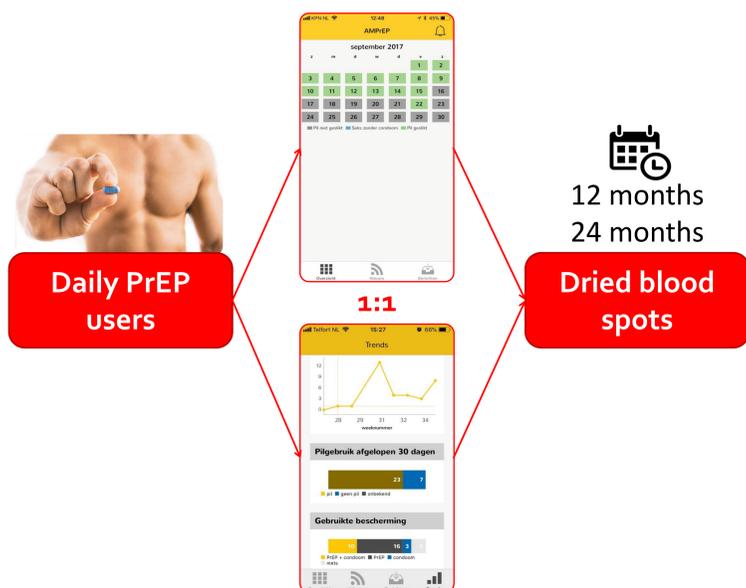


Figure 1: daily PrEP users were randomised 1:1 to the standard and extended app arms. Dried blood spots were sampled 12 and 24 months after PrEP initiation

- Dried blood spots (DBS) were sampled at 12 and 24 months after PrEP initiation
- DBS → intracellular tenofovir diphosphate concentrations [TFV-DP]
- Proportions were calculated by level of adherence at both time points and compared between arms:
 - good/excellent adherence ([TFV-DP] ≥ 700 fmol/punch; primary outcome)
 - excellent adherence ([TFV-DP] ≥ 1250 fmol/punch)

Results

- 229 randomised participants (1 transgender)
- 166 (72.5%) provided DBS at both follow-up visits while consistently using daily PrEP
- Good or excellent adherence at both visits in 89.2% (74/83) of users of the standard app and 84.3% of the extended app users (p=0.36).
- Excellent adherence at both visits among 31.3% (standard app) and 48.2% (extended app), (p=0.026).
- Figure 2 displays [TFV-DP] at 12 and 24 months.

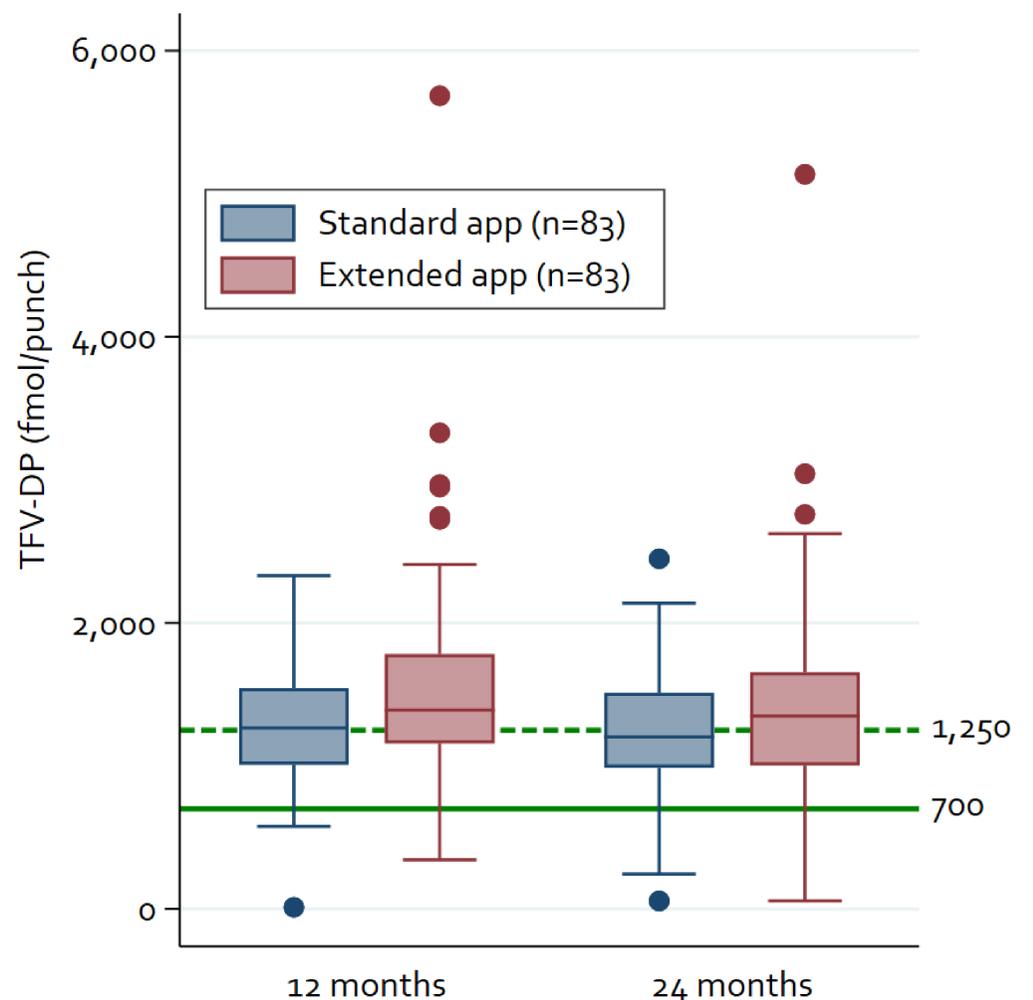


Figure 2: Tenofovir diphosphate concentration in dried blood spots (fmol/punch). Dashed green line demarcates the cut-off for excellent adherence (1250 fmol/punch). Solid green line demarcates the cut-off for good adherence (700 fmol/punch).

Conclusions

- The proportion of MSM with good/excellent adherence to PrEP was high and not affected by feedback via the app.
- Feedback did result in higher [TFV-DP] and a greater proportion of participants with excellent adherence.
- **The use of feedback on self-reported adherence via an app is a promising intervention to increase PrEP adherence.**