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“Drugs don’t work in people who don’t take them” – Adherence to HIV pre-exposure prophylaxis (PrEP)

Stefanie Vaccher | Tuesday 3 July 2018

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You Won't Get AIDS From Insects—Or A Kiss

No matter what you may have heard, the AIDS virus is hard to get and is easily avoided.

You won't just "catch" AIDS like a cold or flu because the virus is a different type. The AIDS virus is transmitted through sexual intercourse, the sharing of drug needles, or to babies of infected mothers before or during birth.

You won't get the AIDS virus through everyday contact with the people around you in school, in the workplace, at parties, child care centers, or stores. You won't get it by swimming in a pool, even if someone in the pool is infected with the AIDS virus. Students attending school with someone infected with the AIDS virus are not in danger from casual contact.

You won't get AIDS from a mosquito bite. The AIDS virus is not transmitted through a mosquito's salivary glands like other diseases such as malaria or yellow fever. You won't get it from bed bugs, lice, flies or other insects, either.

You won't get AIDS from saliva, sweat, tears, urine or a bowel movement.

You won't get AIDS from a kiss.

You won't get AIDS from clothes, a telephone, or from a toilet seat. It can't be passed by using a glass or eating utensils that someone else has used. You won't get the virus by being on a bus, train or crowded elevator with a person who is infected with the virus, or who has AIDS.

The Difference Between Giving And Receiving Blood

1. Giving blood. You are not now, nor have you ever been in danger of getting AIDS from giving blood at a blood bank. The needles that are used for blood donations are brand-new. Once they are used, they are destroyed. There is no way you can come into contact with the AIDS virus by donating blood.

2. Receiving blood. The risk of getting AIDS from a blood transfusion has been greatly reduced. In the interest of making the blood supply as safe as possible, donors are screened for risk factors and donated blood is tested for the AIDS antibody. Call your local blood bank if you have questions.

What Behavior Puts You At Risk?

You are at risk of being infected with the AIDS virus if you have sex with someone who is infected, or if you share drug needles and syringes with someone who is infected.

Since you can't be sure who is infected, your chances of coming into contact with the virus increase with the number of sex partners you have. Any exchange of infected blood, semen or vaginal fluids can spread the virus and place you at great risk.

The following behaviors are risky when performed with an infected person. You can't tell by looking if a person is infected.

RISKY BEHAVIOR

Sharing drug needles and syringes.

Anal sex, with or without a condom.

Vaginal or oral sex with someone who shoots drugs or engages in anal sex.

Sex with someone you don't know well (a pickup or prostitute) or with someone you know has several sex partners.

Unprotected sex (without a condom) with an infected person.

SAFE BEHAVIOR

Not having sex.

Sex with one mutually faithful, uninfected partner.

Not shooting drugs.



"You can't tell if someone has been infected by the AIDS virus by looking at him or her. But you aren't in danger of getting the disease unless you engage in risky behavior with someone who is infected."

— Anthony S. Fauci, M.D.
Director, National
Institute of Allergy and
Infectious Diseases and
Coordinator of the
National Institutes of
Health AIDS Research

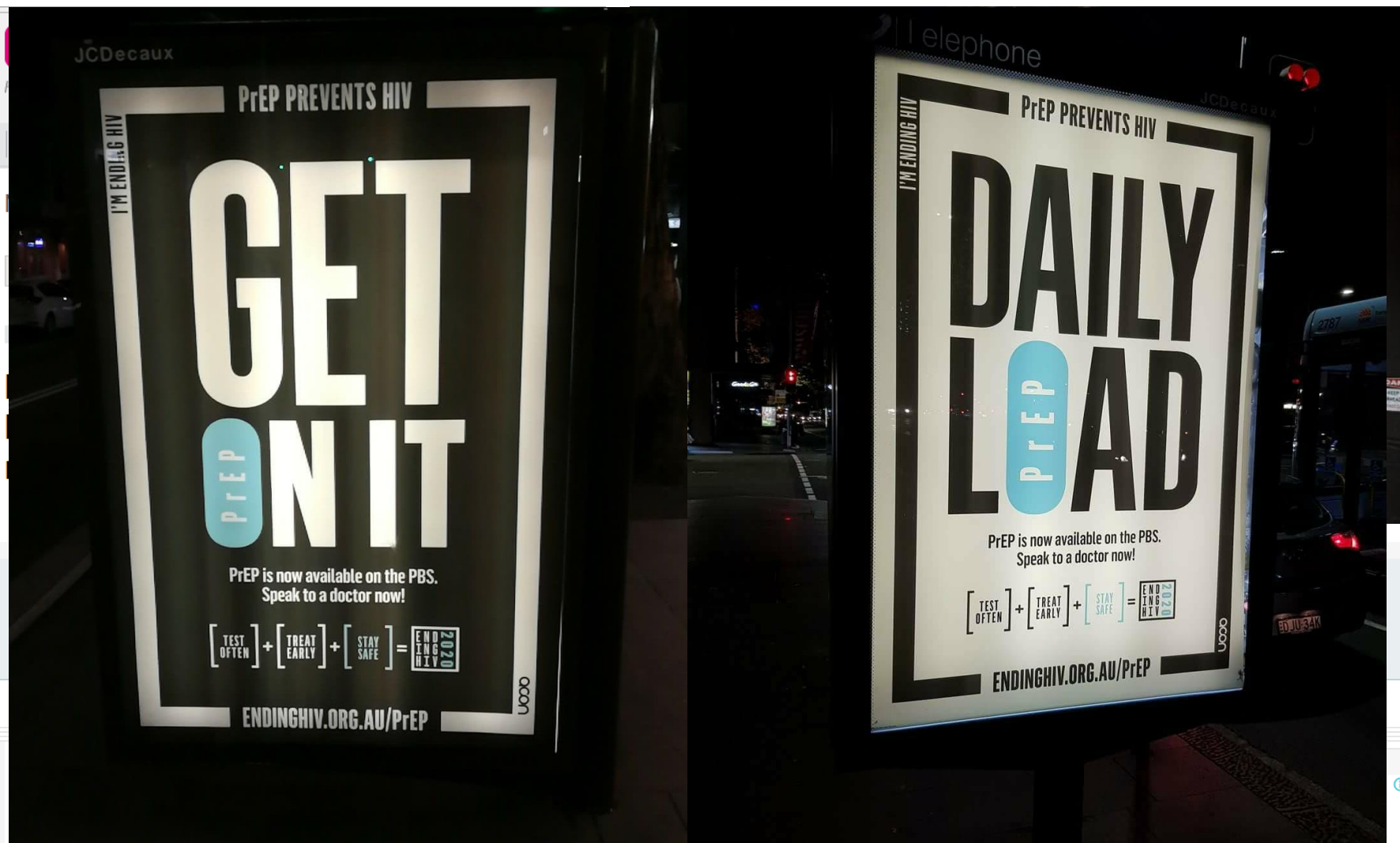
Is There A Cure For AIDS?

There is presently no cure for AIDS.

Medicines such as AZT have prolonged the lives of some people with AIDS. There is hope that additional treatments will be found.

There is also no vaccine to prevent uninfected people from getting the infection. Researchers believe it may take years for an effective, safe vaccine to be found.

The most effective way to prevent AIDS is avoiding exposure to the virus, which you can control by your own behavior.



Outline

Background

PrEP and adherence literature

PrELUDE study

Chapter 1

Chapter 2

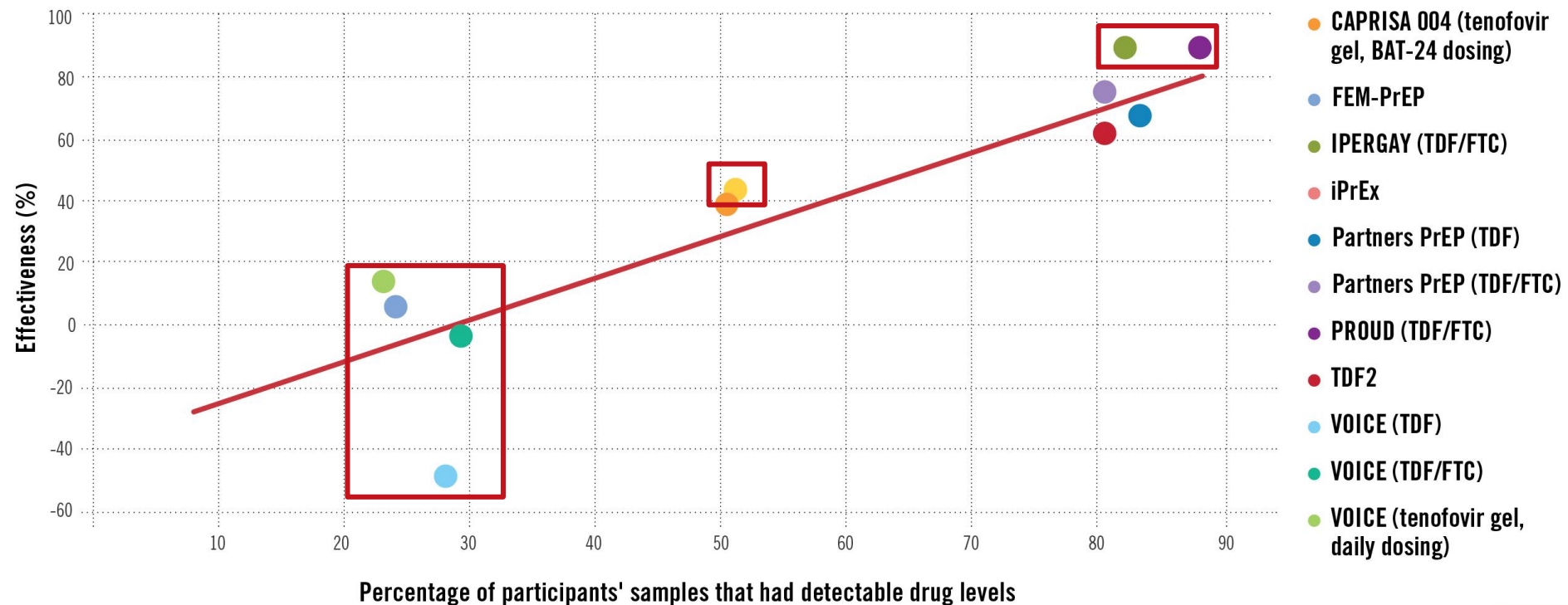
Chapter 3

Discussion



PrEP and adherence

PrEP Works if You Take It — Effectiveness and Adherence in Trials of Oral and Topical Tenofovir-Based Prevention



PrEP and adherence

Analysis	No. of studies	Total N	Risk Ratio (95% CI)	P value	I ²
RCTs comparing PrEP with placebo					
Overall ^a	10	17 423	0.49 (0.33–0.73)	0.001	70.9
Mode of Acquisition					
Rectal	4	3166	0.34 (0.15–0.80)	0.01	29.1
Vaginal/penile ^b	6	14 252	0.54 (0.32–0.90)	0.02	80.1
Adherence					
High (>70%)	3	6149	0.30 (0.21–0.45)	<0.001	0.0
Moderate (41–70%)	2	4912	0.55 (0.39–0.76)	<0.001	0.0
Low (≤40%)	2	5033	0.95 (0.74–1.23)	0.70	0.0
Biological sex ^c					
Men	7	8704	0.38 (0.25–0.60)	<0.001	34.5
Women	6	8714	0.57 (0.34–0.94)	0.03	68.3
Age					
<25 years	3	2997	0.71 (0.47–1.06)	0.09	20.5
≥25 years	3	6291	0.45 (0.22–0.91)	0.03	72.4
Drug regimen ^d					
TDF	5	8619	0.49 (0.28–0.86)	0.001	63.9
FTC/TDF	7	11 381	0.51 (0.31–0.83)	0.007	77.2
Drug dosing ^e					
Daily	8	16 951	0.54 (0.36–0.81)	0.003	73.6
Intermittent	1	400	0.14 (0.03–0.63)	0.01	0.0
RCTs comparing PrEP to no PrEP					
Overall	2	723	0.15 (0.05–0.46)	0.001	0.0

Challenges that need to be addressed

- Adherence is the ‘Achilles heel’ of HIV prevention
- Understanding levels of risk perception in regards to the suitability of PrEP for individuals
- Strategies for monitoring adherence in the clinic are needed to ensure adequate patient support can be provided
- Stigma and lack of knowledge about how and why PrEP is taken in ‘real-world’ settings

PrELUDE

- Single-arm, open-label demonstration project
- 327 people (mostly) at high risk of HIV infection
- Quarterly study visits
 - HIV and STI tests, pregnancy where applicable
 - Assessment of eligibility, side effects, adherence
 - Online behavioural and adherence survey
- Blood samples taken in a subset of patients at Month 1, Month 6, and Month 12 study visits

Downloaded from <http://bmjopen.bmj.com/> on June 29, 2016 - Published by group.bmj.com

Open Access

Protocol

BMJ Open Protocol for an open-label, single-arm trial of HIV pre-exposure prophylaxis (PrEP) among people at high risk of HIV infection: the NSW Demonstration Project *PRELUDE*

S Vaccher,¹ A Grulich,¹ J McAllister,² D J Templeton,³ M Bloch,⁴ A McNulty,⁵ J Holden,⁶ I M Poynten,¹ G Prestage,^{1,7} I Zablotska,¹ on behalf of the PRELUDE Study Team

PrELUDE Participant Characteristics	n (N=327)	%
Age		
<30	91	27.8%
30 to <40	119	36.4%
40 to <50	91	27.8%
≥50	26	8.0%
Gender		
Male	320	97.9%
Female	4	1.2%
Trans, Male-to-Female	1	0.3%
Trans, Female-to-Male	2	0.6%
Sexual self-identification		
Gay	290	88.7%
Bisexual	17	5.2%
Other	9	2.8%
Demographics		
Born in Australia	205	62.7%
Employed full or part-time	255	78.0%
University education	208	63.6%

Outline

Background

Chapter 1 – What are PrEP users' preferred dosing schedules?

Chapter 2

Chapter 3

Discussion



Baseline Preferences for Daily, Event-Driven, or Periodic HIV Pre-Exposure Prophylaxis among Gay and Bisexual Men in the *PRELUDE* Demonstration Project

Stefanie J. Vaccher¹, Christopher Gianacas¹, David J. Templeton^{1,2}, Isobel M. Poynten¹, Bridget G. Haire¹, Catriona Ooi^{3,4}, Rosalind Foster^{1,5}, Anna McNulty^{6,7}, Andrew E. Grulich¹ and Iryna B. Zablotska^{1*}, On Behalf of the *PRELUDE* Study Team

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OPEN ACCESS

PrEP dosing strategies

Daily

One pill, once per day

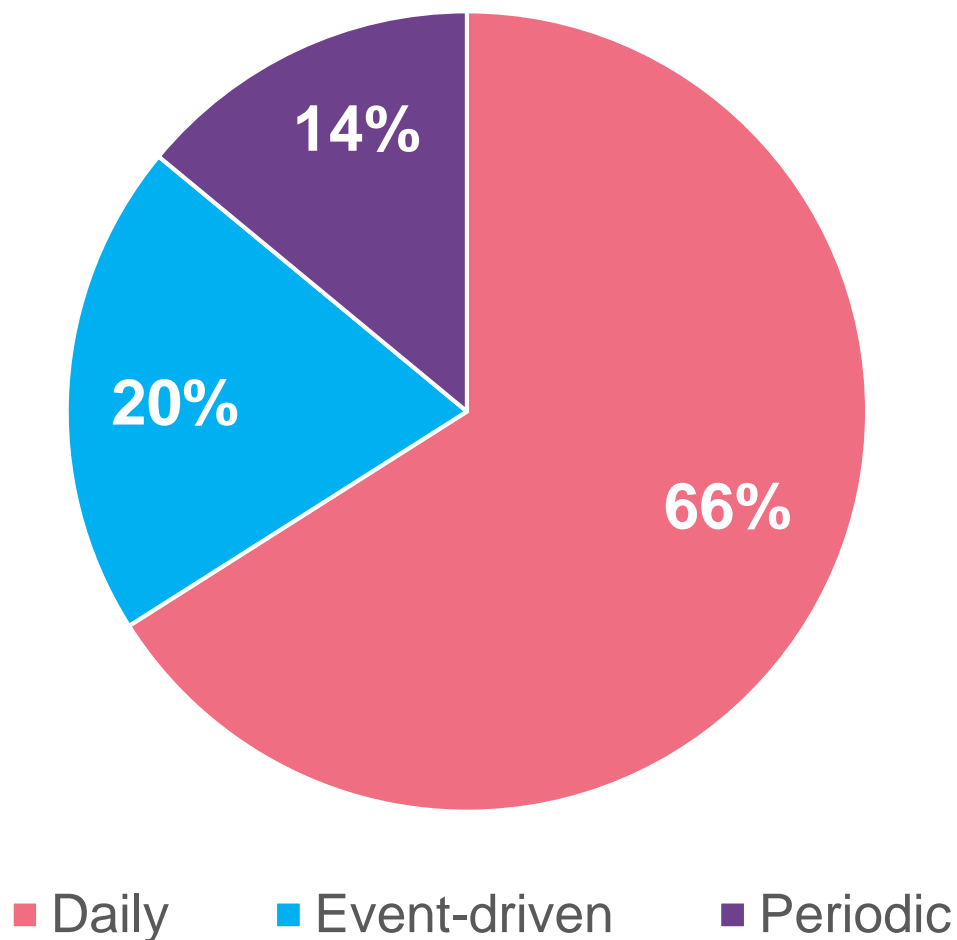
Event-driven (On-demand/IPERGAY)

2 pills 2-24 hrs before sex, 1 pill 24 hrs after first dose, 1 pill 24 hrs after that

Periodic

Taking daily PrEP only during 'seasons of risk'

Preferences for dosing strategy



Factors associated with dosing preference

Daily

HIV-positive main regular partner

[aOR 0.20, 95%CI 0.04 – 0.87]

Better at taking medications on self-efficacy scale

[aOR 0.39, 95%CI 0.20 – 0.76]

Event-driven

Perceived casual partners as the biggest HIV risk*

Periodic

Trade/vocational education [aOR 4.58, 95%CI 1.68 – 12.49]

Perceived sex work client as the biggest HIV risk*

Implications from these findings

- One-third of participants reported a preference for non-daily modes of PrEP
 - Relevance for PrEP use more broadly
- Benefits and limitations of non-daily PrEP
 - Consider cost, side effects, adherence
- Translation to actual use
 - Actual study adherence data presented in next chapter

Outline

Background

Chapter 1

Chapter 2 – How does PrEP use change over time?

Chapter 3

Discussion

Adherence measurements used

1. Tenofovir (TDF) concentrations in plasma

Lookback period: 2 – 3 days

2. TDF-DP concentrations in peripheral blood mononuclear cells (PBMCs)

Lookback period: ~ 7 days

3. Facilitated recall to clinicians (number of pills)

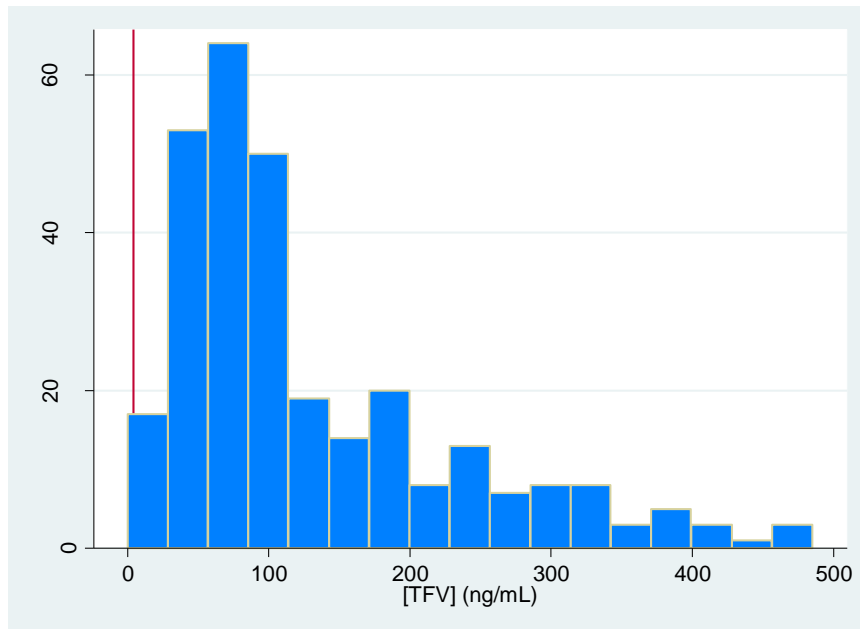
Lookback period: 7 days

4. Self-reported adherence in online surveys (%)

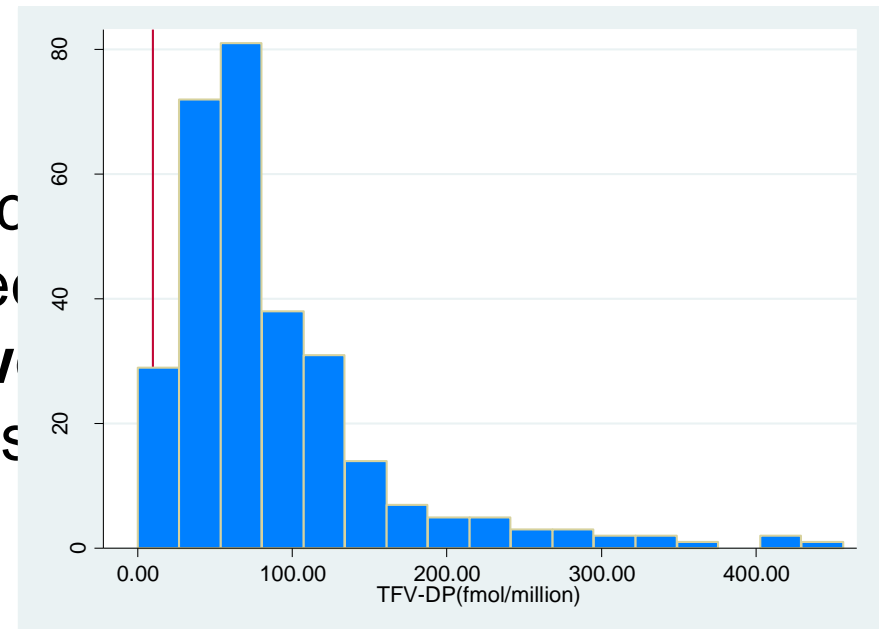
Lookback period: 90 days

Protective blood drug concentrations

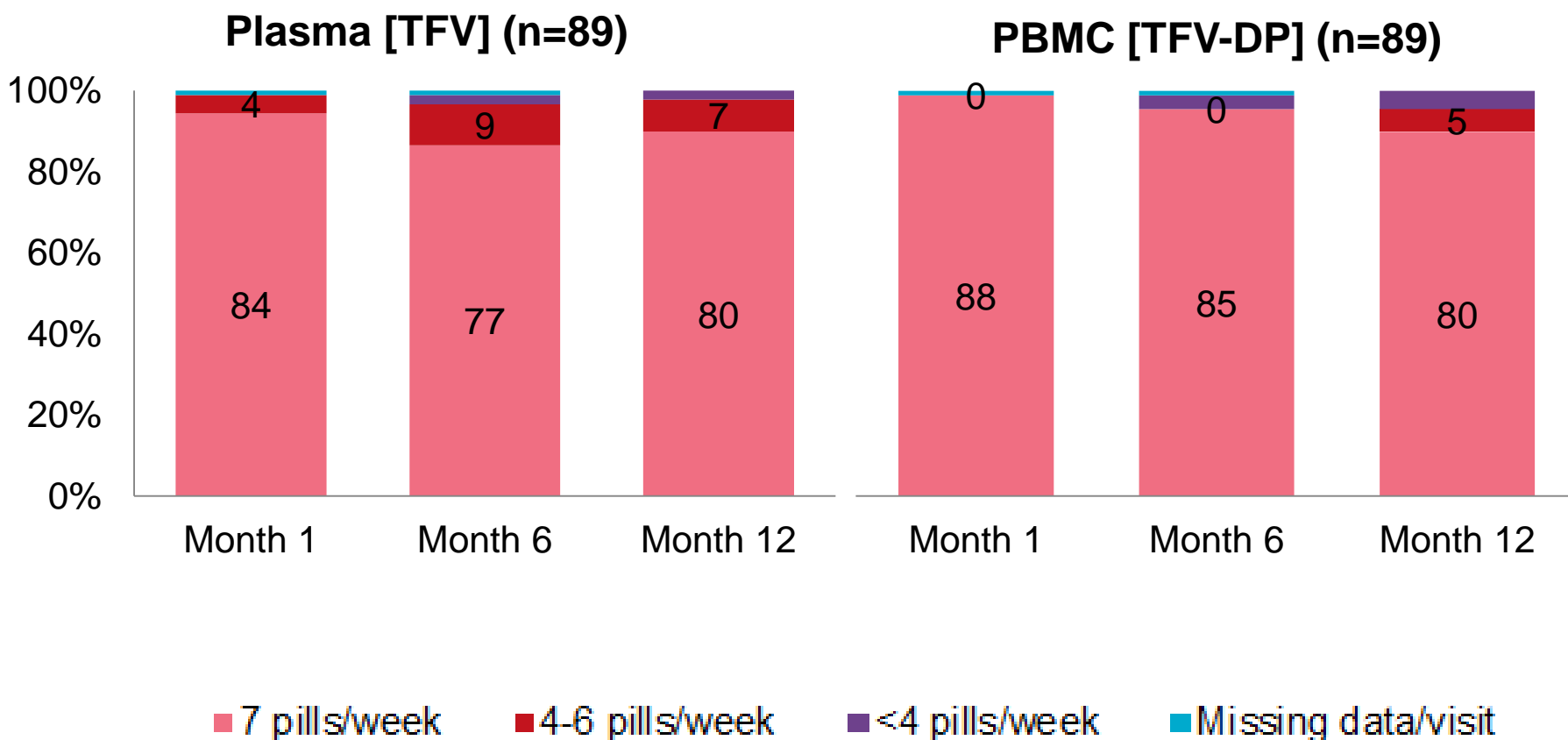
Plasma



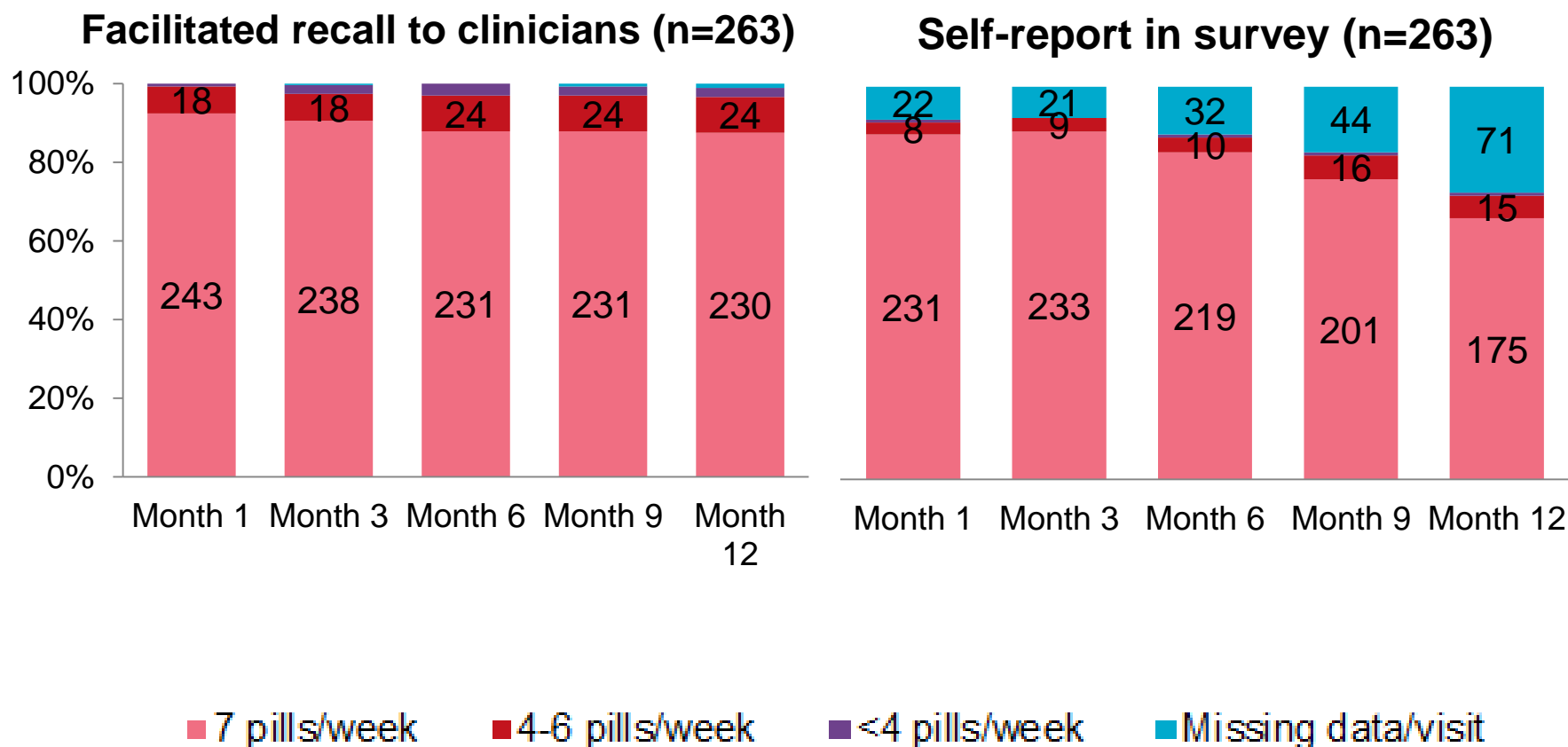
PBMCs



Comparison of study adherence measures



Comparison of study adherence measures



Comparison of study adherence measures

	Sensitivity	Specificity	% agreement
Plasma [TDF]	98.82%	25.00%	95.51%
Facilitated recall to clinicians	98.82%	25.00%	95.51%
Self-report on online survey	80.00%	0.00%	76.40%

n=89 (participants with a blood sample at month 12)

Factors associated with daily adherence

Attending a private study clinic

[aOR 1.50, 95%CI 1.07 – 2.11]

Group sex in the previous three months

[aOR 1.33, 95%CI 1.15 – 1.53]

Length of time on the study

[aOR 0.83, 95%CI 0.75 – 0.93]

Outline

Background

Chapter 1

Chapter 2

Chapter 3 – Why do people adhere to PrEP?

Discussion

SIN-PrEP

- Semi-structured hour long interviews, followed by iterative coding with thematic analysis
- 24 gay and bisexual men (cis and trans); median age 38 years (range 18 – 53)
- Accessed PrEP in several different ways
- Wide variety of participant lived experiences

Interview domains and themes

1 How individuals adhere to PrEP

- Identifying disruptions
- Creating contingency plans
- Figuring out a routine

2 Factors that aid PrEP adherence

- Tools
- Guidance/tips
- Personal support
- Risk practices

3 Barriers to PrEP adherence

- Health-related
- Accessibility
- Dosing requirements
- Disclosure/stigma

How individuals adhere to PrEP

Figuring out a routine

*I have it with my breakfast 'cause I [also take] two fish oil capsules. So I just make sure that, when I'm having those, I've got my little blue pill next to it
(Chukki, 43)*

I started taking it at night at first 'cause I'd heard things about side effects (Mark, 24)

Factors that aid PrEP adherence

Personal support

I'm a little bit forgetful myself but my partner always remembers when I don't. So that helps. (Marc, 32)

I really, really like the doctor that's looking after me. He's been really excellent at asking lots of questions and making sure that I feel comfortable and have a good understanding.

(Manacounda, 30)

Factors that aid PrEP adherence

Risk practices

I can honestly say I am more vigilant and certainly acutely more aware of self-discipline in taking them [PrEP pills] if I have had a recent sexual encounter, particularly if it is I guess what you would call a higher risk. (David, 40)

It's most effective when you take it every day without fail... I'm a catastrophiser (Mannie, 35)

Barriers to PrEP adherence

Dosing requirements

It's interestingly hard, isn't it? Like I've never, if you've never taken a pill once a day...

I would have to try and remember it. So a lot of the time I did forget... 'cause it's just too busy.

(Sugarballs, 30)

Barriers to PrEP adherence

Disclosure/stigma

My long-term partner doesn't know I'm taking it. So that's just something that needs to be managed.
(Chukki, 43)

I had a little bit of discomfort 'cause the bright blue Truvada pills everyone knows what they are... I guess it's just old-school, sexual shame stuff
(Liam, 37)

Summary of interview findings

- High rates of adherence were reported, supporting previous findings
- Challenges were varied but rarely insurmountable
- Participants were actively engaged in ensuring adherence to PrEP was maintained
- Broader acceptance, with fewer moral and ethical debates than other settings

Outline

Background

Chapter 1

Chapter 2

Chapter 3

Chapter 4

Discussion

Summary

1. What are PrEP users' preferences for dosing?

1 in 3 participants are interested in non-daily PrEP, although most participants reported daily PrEP use

2. How does PrEP use change over time?

Adherence rates remain high overall, particularly among people at higher risk of HIV

3. Why do people adhere to PrEP?

Broad personal benefits and community support

Why is this new, innovative, and important?

- Provides evidence that individuals can be highly adherent to PrEP in real-world settings
- Targeting of PrEP to high-HIV risk individuals is possible, and they can accurately perceive their HIV risk
- Identifies a suitable method of assessing adherence in PrEP users in routine clinical practice
- Begins a discussion about different dosing strategies and the wants and needs of PrEP users
- Highlights the importance of community support and discussion around novel HIV prevention strategies

Where to from here?

- Subsidised PrEP (PBS) and other modes of access
- Different dosing strategies and patterns of use depending on personal circumstances
- Broader context of PrEP use and the incorporation into other drug use regimens

Thanks to...

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