



Prevention-Effective Adherence per SMS Surveys within a Demonstration Project of PrEP among HIV Serodiscordant Couples in East Africa

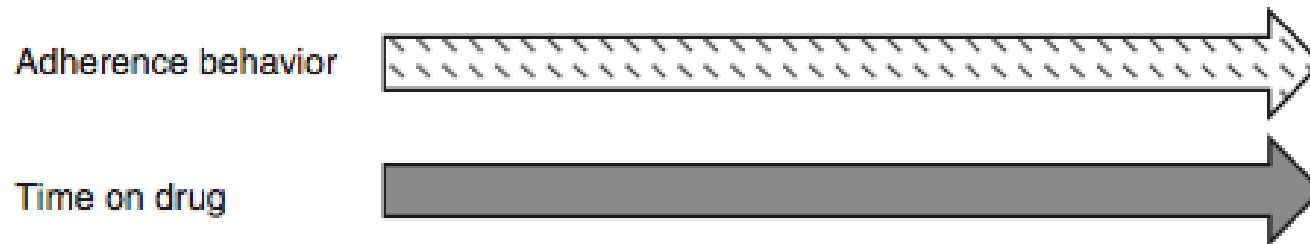
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the Partners Mobile Adherence to PrEP Team

Declarations

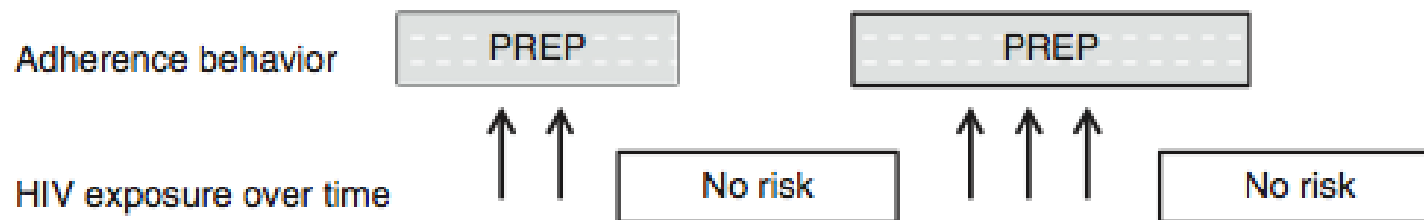
- Funding:
 - NIH
 - Bill and Melinda Gates Foundation
 - USAID
- Consultation:
 - NIH - FHI 360
 - WHO - Natera (stock)
 - IAVI

Prevention-effective adherence

(a) Paradigm for ART and clinical trials: Success is achieved through 100% adherence.

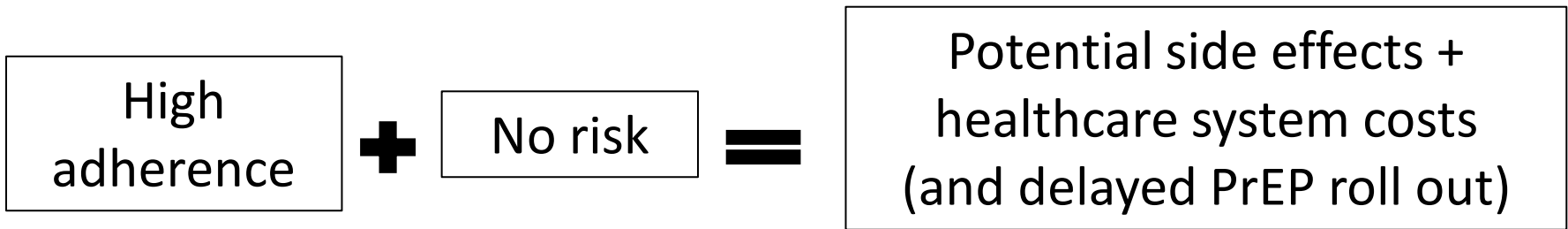
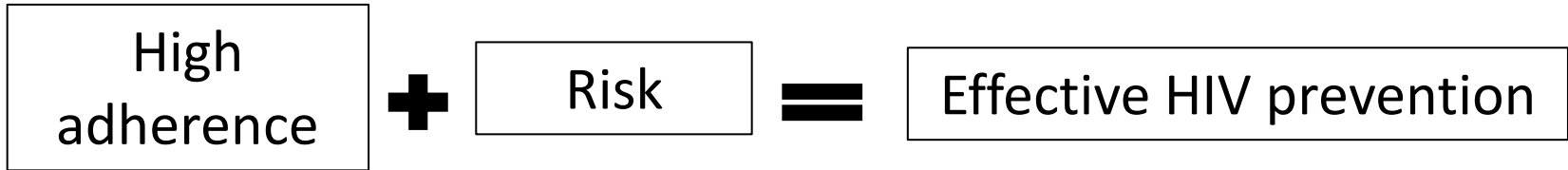


(b) Prevention-effective adherence paradigm: Success is achieved because PrEP is used during all episodes of HIV exposure. Adherence to PrEP may be periodic and mapped to periods of risk.



(Haberer et al, AIDS 2015)

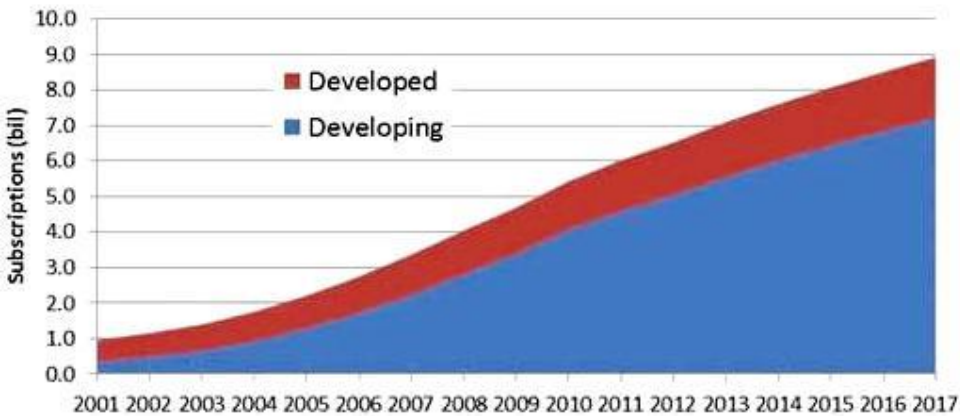
Prevention-effective adherence



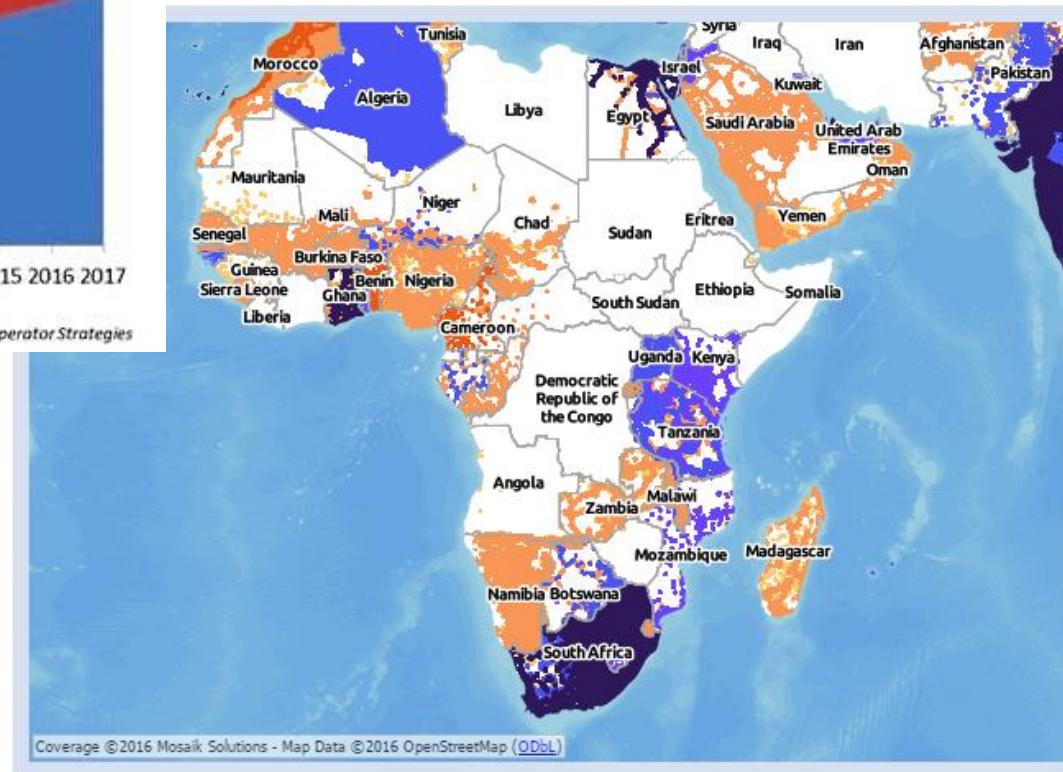
Understanding prevention-effective adherence requires knowledge of dynamic risk behaviors and concurrent use of multiple prevention strategies

SMS to determine prevention-effective adherence

Worldwide Mobile Subscriptions



Source: Strategy Analytics, Wireless Operator Strategies



SMS to determine prevention-effective adherence

- SMS may provide reduced social desirability and recall biases
- SMS surveys appears to be feasible and acceptable (*Curran, AIDS Behav 2013*)
- Ngure Poster 110; Muwonge presentation



Partners Demonstration Project

- Open-label study of integrated PrEP and ART among 1,013 high-risk serodiscordant couples in East Africa (4 sites)
- HIV-uninfected partners encouraged to take PrEP until their HIV-infected partners took ART 6+ months
- 2 years follow-up with quarterly visits
- Study completion June 2016

Partners Mobile Adherence to PrEP (PMAP)

- Objective: SMS data used to define PrEP adherence in the context of HIV risk (i.e., prevention-effective adherence)
- Enrollment criteria
 - Taking PrEP
 - Literate
 - Own phone with ability to charge
 - Able to send/receive SMS
- Setting
 - Thika, Kenya
 - Kampala, Uganda

SMS surveys

| Enrollment | | Months | | | | | | | | |
|------------------------------|--|----------------------|---|---|---|----------------------|---|-----|--|---------------|
| 0 | | 1 | 2 | 3 | 4 | 5 | 6 | etc | | |
| PrEP given (1 mo) | | PrEP given (3 mo) | | | | PrEP given (3 mo) | | | | |
| Survey training period | | SMS survey | | | | SMS survey | | | | SMS survey |

- 10 SMS per survey, including
 - What is your password?
 - Since this time yesterday, did you have sex?
 - Did you use a condom for all sex acts?
 - Did you take your study pill since this time yesterday?
- SMS were free for participants
- Survey incentivized at ~\$0.50 for completion
- Partner ART use obtained through study visit report

PMAP participant and SMS overview

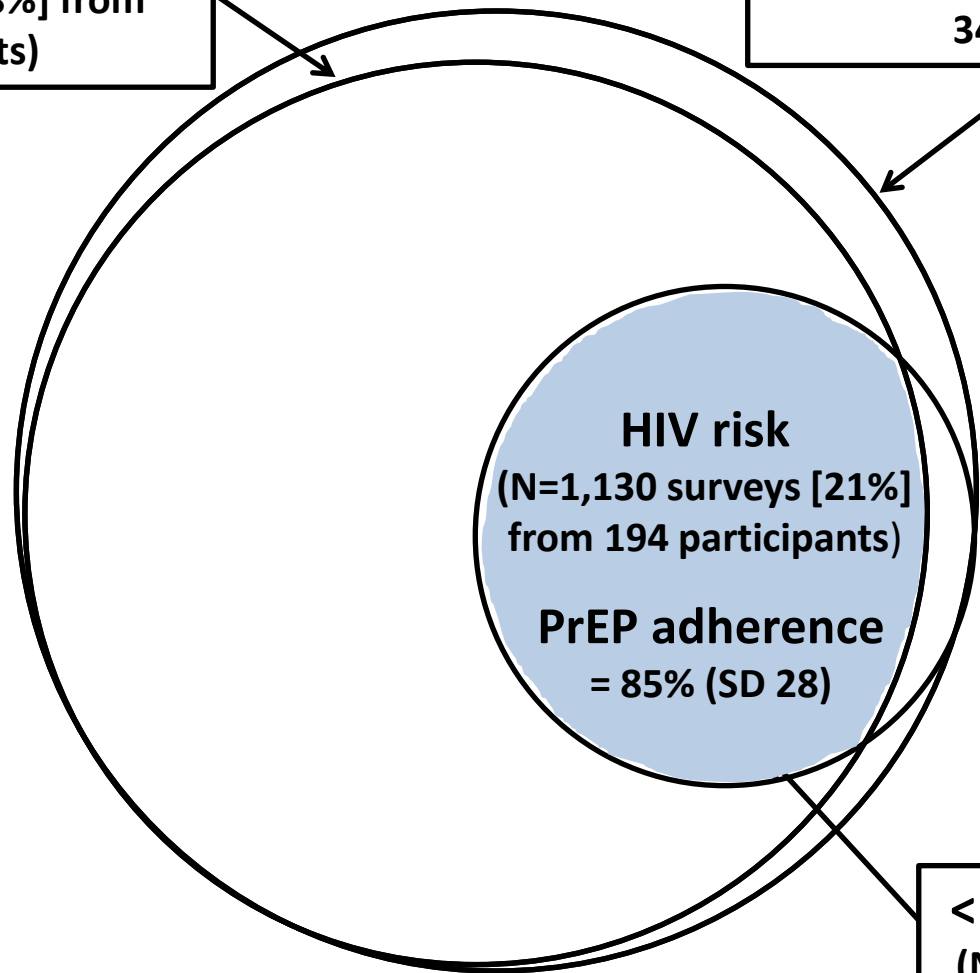
- Eligible = 424 (68% of Partners Demonstration Project participants at the 2 sites)
- Enrolled = 393 (93% of those eligible)
 - Male: 68%
 - Mean age: 31 years
 - Median education: 10 years
- Total 16,512 SMS surveys completed
 - Mean of 47 surveys/participant
 - Mean of 4.8 survey periods/participant
 - 66% of all surveys sent

Prevention-effective adherence

- HIV risk
 - Sexually active with HIV-infected study partner
 - <6 months of ART by HIV-infected study partner
 - <100% reported condom use
- Reported on 21% of survey-days
- Concurrent mean PrEP adherence: 85% (SD 28)

<6 months partner ART use
(N=4,717 surveys [88%] from
333 participants)

Sex with HIV-infected partner
(N=5,342 surveys from
342 participants)



HIV risk
(N=1,130 surveys [21%]
from 194 participants)

PrEP adherence
= 85% (SD 28)

<100% condom use
(N=1,305 surveys [24%]
from 201 participants)

Better adherence with higher risk

- While HIV-infected partner ART use was <6 months, mean PrEP adherence
 - Lower for survey-days not reporting sex versus reporting sex (78% v 85%, $p < 0.001$)
 - Similar for survey-days reporting condom use versus not reporting condom use (87% v 85%, $p = 0.85$)

Limitations

- SMS may still be associated with social desirability and recall bias
- Effectiveness does not vary strictly by day (“seasons of use” better account for pharmacokinetics of tenofovir)
- Unclear if missing data (34% of surveys) is random

Conclusions

- SMS surveys allowed for assessment of periodic, daily risk for HIV
- Prevention-effective adherence was generally high among HIV-uninfected members of serodiscordant couples in East Africa
- Future studies
 - Explore other relevant risk factors (e.g., additional sexual partners)
 - Compare with similar data from routine visits
 - Assess PrEP adherence interventions tied to real-time SMS data collection

Partners Demonstration Project Team

Investigators

- University of Washington Coordinating Center: Jared Baeten (protocol chair), Connie Celum (protocol co-chair), Deborah Donnell (protocol statistician), Renee Heffron (project director), Ruanne Barnabas, Bettina Shell-Duncan, ICRC Operations, Data and Administration teams
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- Johns Hopkins: Craig Hendrix
- Fred Hutchinson Cancer Research Center: Dara Lehman
- DF/Net Research (data management)

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Research participants



BILL & MELINDA
GATES foundation



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PMAP team

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Thank you!

Questions?

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