

# A pilot study of daily SMS surveys of sexual behavior and PrEP use among Kenyan HIV discordant couples

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PARTNERS PrEP STUDY



# Background: Pre-exposure prophylaxis (PrEP)

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- ▶ Daily oral PrEP significantly reduces HIV infection<sup>1-3</sup>
- ▶ Adherence is critical for efficacy<sup>4-7</sup>
- ▶ Relationship between PrEP use and sex



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<sup>1</sup>Grant 2010, <sup>2</sup>Baeten 2012, <sup>3</sup>Thigpen 2011, <sup>4</sup>Haberer 2011, <sup>5</sup>Donnell 2012, <sup>6</sup>Bangsberg 2012, <sup>7</sup>Van Damme 2012



# Background: mHealth in Africa

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- ▶ Mobile phones are common in Africa
- ▶ Mobile technology for health in Africa
  - ▶ SMS reminders for ART adherence <sup>1,2</sup>
  - ▶ SMS to collect health data from patients<sup>3,4</sup>



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<sup>1</sup>Lester 2010, <sup>2</sup>Pop-Eleches 2011, <sup>3</sup>Haberer 2010, <sup>4</sup>Mark 2010

# Research Objective

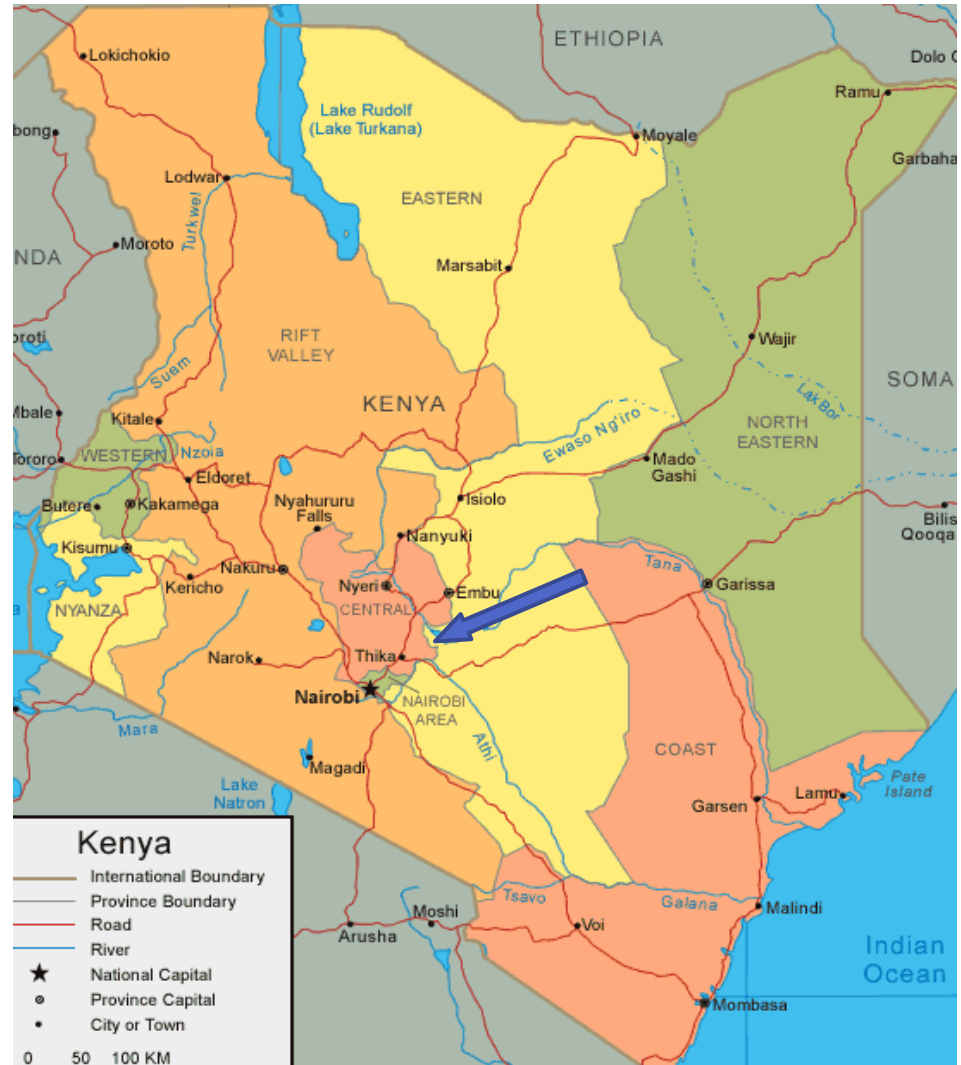
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- ▶ To use daily SMS surveys to measure sexual behavior and PrEP use in “real time”



# Context: The Partners PrEP Study

- ▶ Randomized controlled trial of PrEP among 4758 HIV serodiscordant couples in 9 sites in Kenya & Uganda
- ▶ Pilot of SMS Survey at Thika, Kenya site
- ▶ Data collected December 2011- April 2012



# Methods: SMS Survey

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- ▶ Eligibility criteria:
  - ▶ HIV-uninfected & taking PrEP
  - ▶ Literate
  - ▶ Owned a mobile phone
  - ▶ Knew how to send and receive SMS
  - ▶ Regular access to electrical outlet
  - ▶ High response rate ( $\geq 5$  daily surveys completed) during week 1
- ▶ Completed practice survey at enrollment
- ▶ Automated daily SMS surveys for 60 days
- ▶ Compensated with “airtime” 2x week
  - ▶ 50 KSH/completed survey ( $\approx$  \$0.50)
  - ▶ 5 KSH/SMS



# Survey Questions

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## ▶ Daily questions:

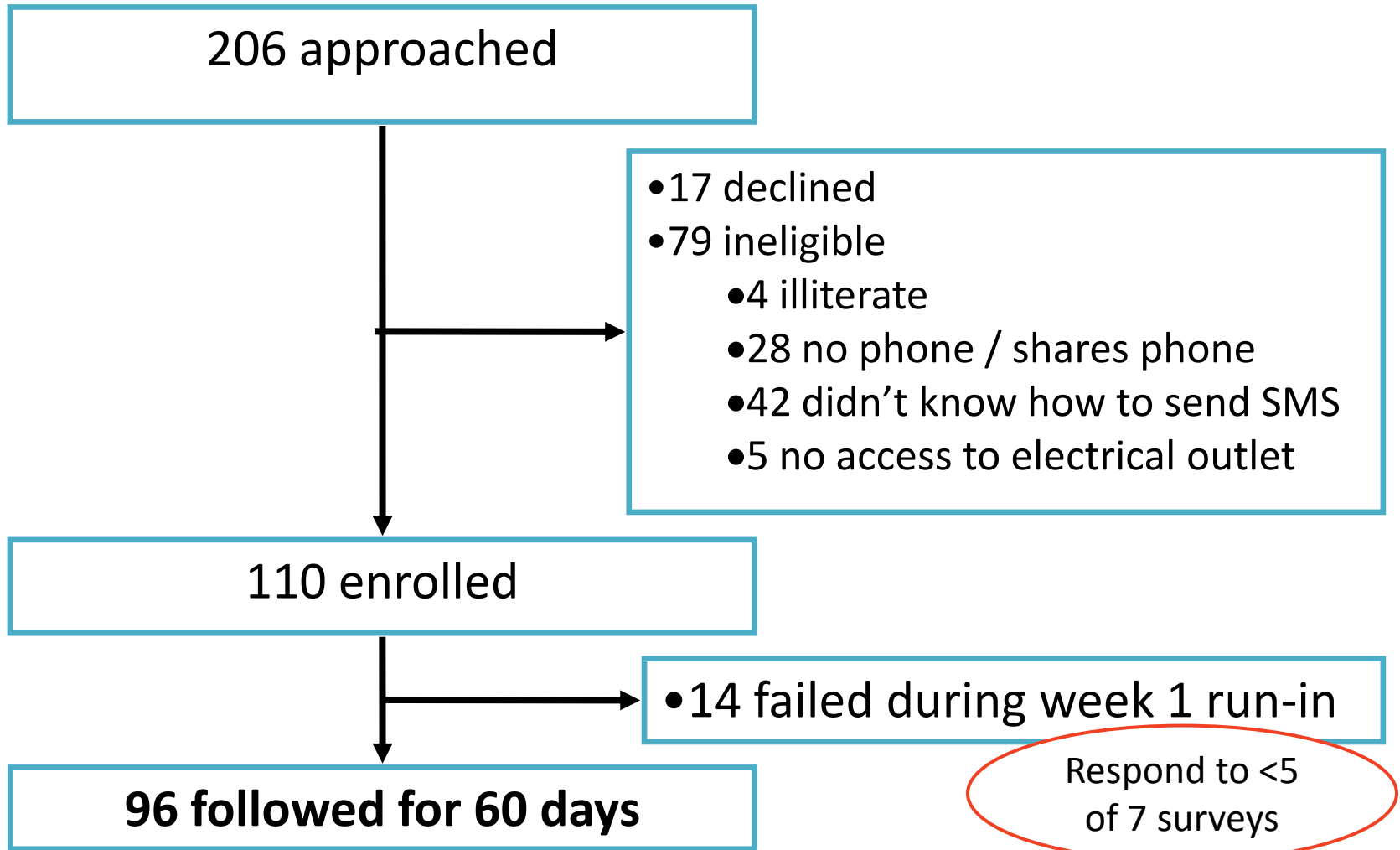
1. What is your secret password?
2. Did you have sex yesterday?
3. Did you or your partner use a condom when you had sex?
4. Do you think you will have sex tomorrow?
5. Did you remember to take your study pill yesterday?

## ▶ *Please respond*

- ▶ **1: yes,**
- ▶ **2: no,**
- ▶ **3: I choose not to respond.**



# Flow of Enrollment





# Participant Characteristics

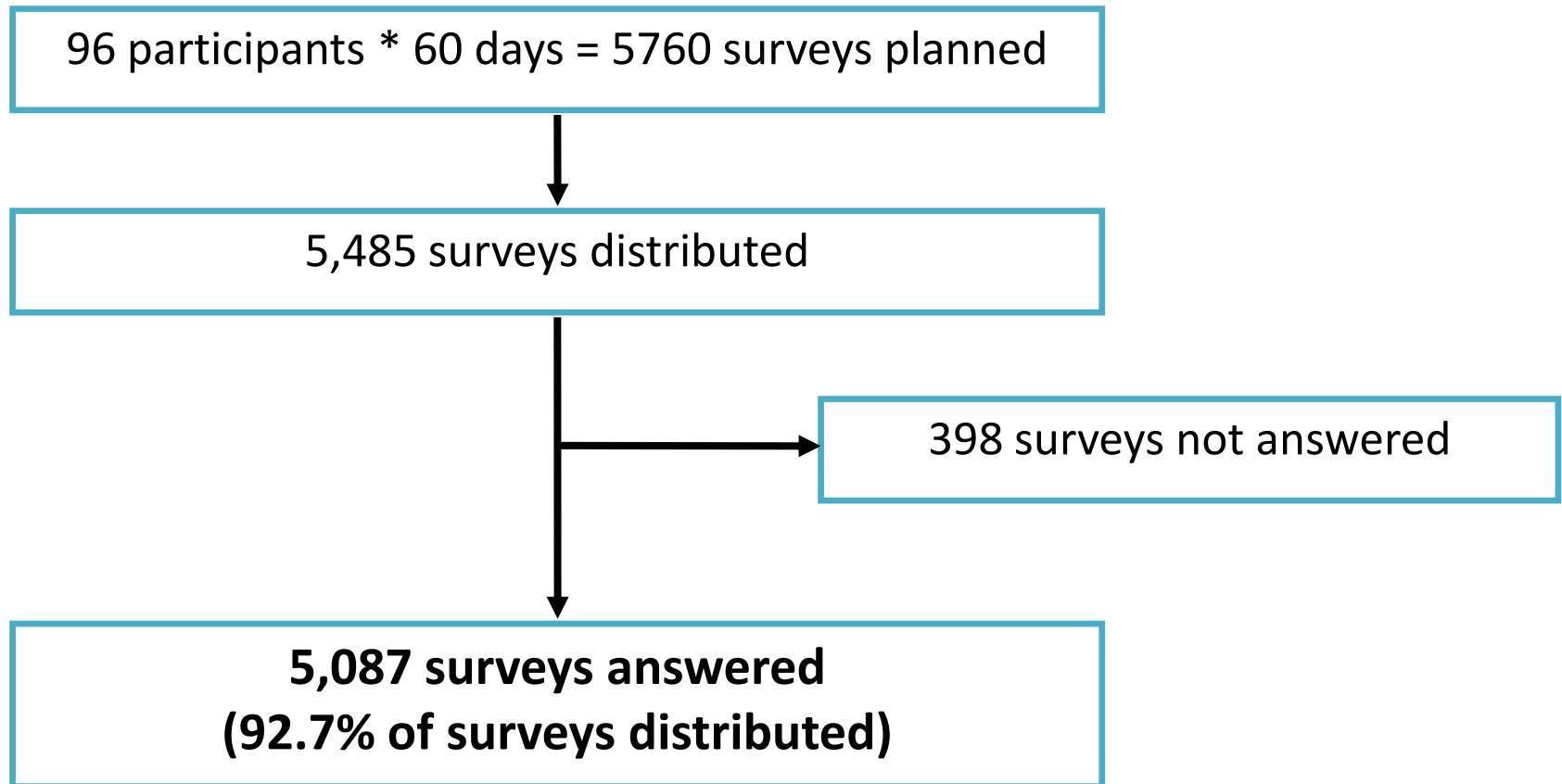
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	<b>N (%) or Median (IQR)</b>
Male	72 (75.0%)
Age	33 (31 – 37)
Married	93 (96.9%)
# children with study partner	1 (0-2)
# years in school	11 (8-12)
Earning any income	90 (93.8%)
Have electricity at home	46 (48.9%)
Time in Partners PrEP Study (years)	2.1 (1.7-2.4)

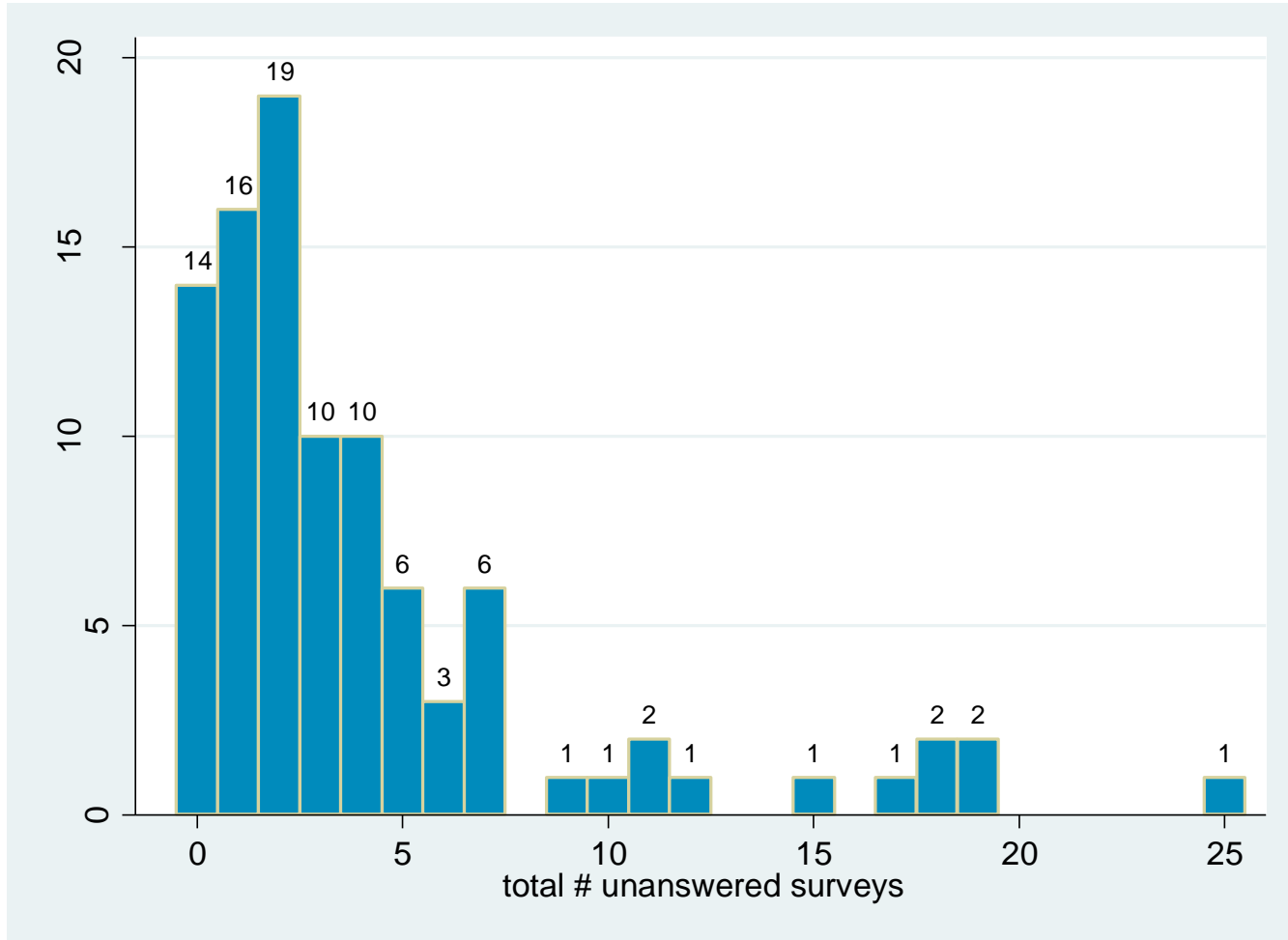


# SMS Survey Response Rates

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## Distribution of Total # of Unanswered Surveys per Participant



median (IQR) of total # uncompleted surveys = 2 (1-5)



# Sexual Behavior

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	<b>N (%)*</b>
Days sex reported	1,692/5,087 (33.3%)
Days unprotected sex reported	248/5,087 (4.9%)
Participants ever reported unprotected sex	45/96 (46.9%)



# PrEP Adherence

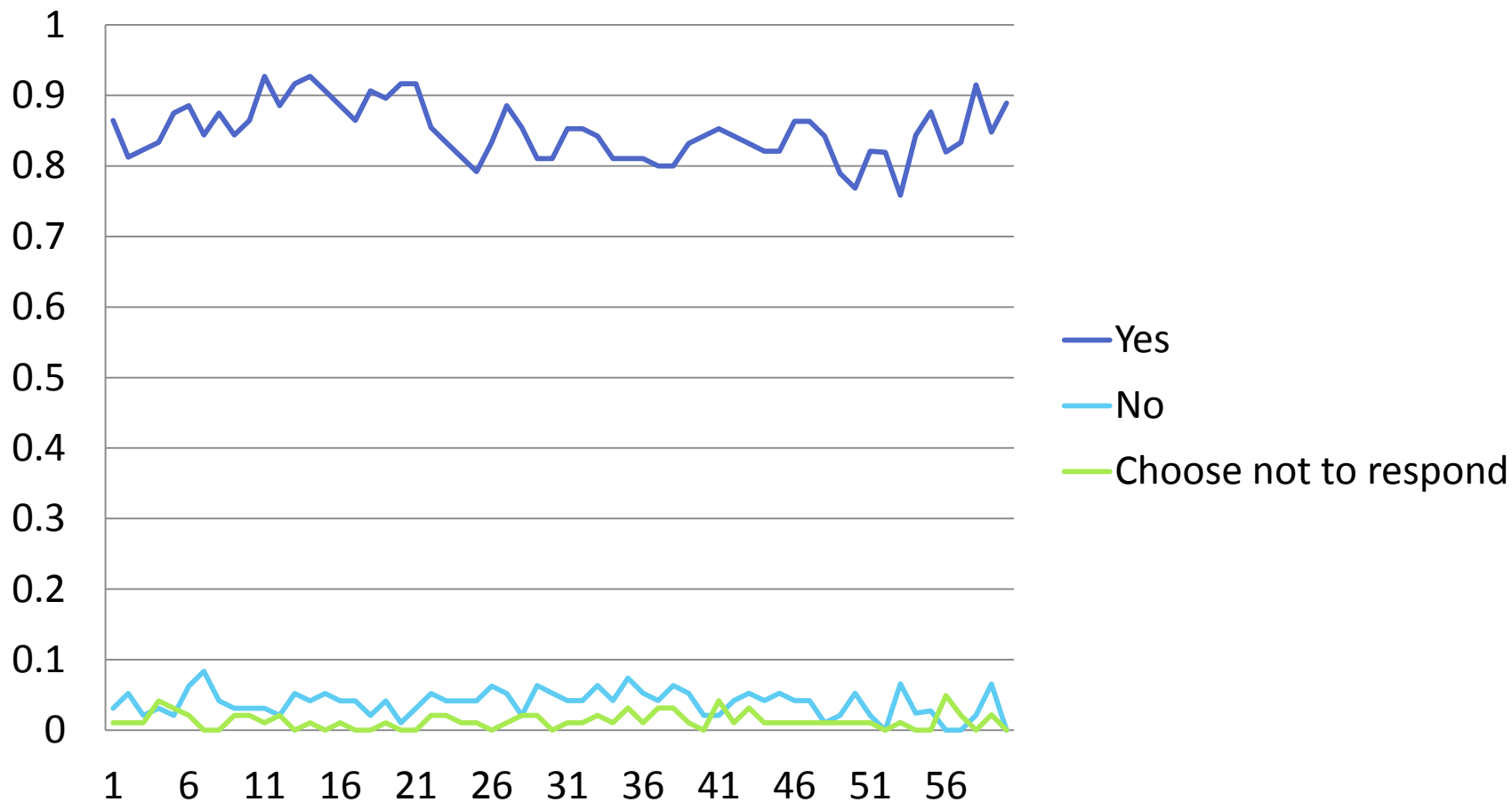
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	N (%)*
Days reported missed PrEP dose	216/5,087 (4.3%)
Participants ever reported missed PrEP dose	68/96 (70.8%)
Participants reported taking PrEP $\geq$ 80% of days	88/96 (91.7%)



# Proportion reporting taking PrEP by time in study (days)

Did you remember to take your study drug yesterday?



# Preliminary Results: Exit Survey

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Out of 87 (of 96) completed exit surveys:

- ▶ **97%** described study as **very or somewhat easy**
- ▶ **78% preferred** to answer questions by **SMS**
- ▶ **97%** reported **willing** for another **SMS survey**
- ▶ **11%** reported **SMS read by someone else**
  
- ▶ Survey reminded to take PrEP & use condoms



# Implementation Challenges & Study Limitations

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- ▶ Manual reimbursement of airtime
- ▶ Lost phones
- ▶ Mid-study block on surveys to one phone provider
  - ▶ Provider stopped delivery of all bulk SMS from outside Kenya
- ▶ Small, selective population limits generalizability
  - ▶ Clinical trial, literate, owned phone, high response week 1





# Conclusions & Future Analyses

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- ▶ SMS data collection of sensitive health information is feasible, acceptable, and for many preferable
  - ▶ Incentives & airtime reimbursement are critical
  - ▶ Privacy & frequency may improve accuracy
  - ▶ May save time & money
- ▶ Self-reported PrEP adherence was high
- ▶ Self-reported unprotected sex was infrequent, but common
- ▶ Future analyses:
  - ▶ Correlation of PrEP adherence & sex
  - ▶ Correlation of anticipated & actual sex
  - ▶ Comparison of daily SMS data to monthly clinic data



# Acknowledgments

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