

Feasibility of assessing prevention effective use (PEU) utilizing a phone-based self-reporting system: Early CATALYST study findings

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Background

PrEP reduces HIV acquisition when temporally dosed in alignment with potential exposure, referred to as prevention effective use (PEU).

However, efforts to assess PEU are nascent because continuous daily measurement of both dosing and exposure is challenging.

We developed a phone-based, daily, self-reporting system to evaluate PEU within CATALYST, a PEPFAR/USAID-supported study, initially offering choice of oral PrEP and the PrEP ring to women. This analysis assesses the feasibility of the self-reporting system in PEU evaluation.

Methods

A subset of CATALYST participants received three questions daily via cellphone, over no more than two six-week periods (84 days), about:

- PrEP method used prior day
- Sex prior day
- Condom use during the episode(s)

Escalating incentives were issued for responses received; bonuses awarded for consistent responses (Table 1).

Participants also completed a survey about their impressions of the self-reporting system. We analyzed survey findings and the completeness of response data, using descriptive statistics, to evaluate feasibility.

Regression analysis assessed associations between response rates and factors, including age, education, income, sex-worker status, alcohol use, and primary sex partner status.

Table 1. Incentive structure

Timing	Approximate daily incentive (USD)	Daily incentive South Africa (USD)	Daily incentive Kenya (USD)
Week 1 / Week 7	\$0.63	\$0.67	\$0.58
Week 2 / Week 8	\$0.62	\$0.67	\$0.58
Week 3 / Week 9	\$1.25	\$1.33	\$1.16
Week 4 / Week 10	\$1.25	\$1.33	\$1.16
Week 5 / Week 11	\$1.74	\$1.93	\$1.55
Week 6 / Week 12	\$2.80	\$3.26	\$2.33
Bonuses	\$4.23 / \$6.71	\$4.59 / \$5.66	\$3.88 / \$7.75

Amounts vary slightly between countries, they were reached based on phone airtime costs, which cost slightly more in South Africa. People who respond every day achieve a total incentive of \$127 in Kenya and \$138 in South Africa.

Results

Data were analyzed for 379 participants across Kenya and South Africa: 53.6% using oral PrEP and 46.4% using PrEP ring at enrollment. The mean observation period was 79 days (SD: 13 days), with a median of 62 days (IQR: 53–81 days) of complete responses (Table 2).

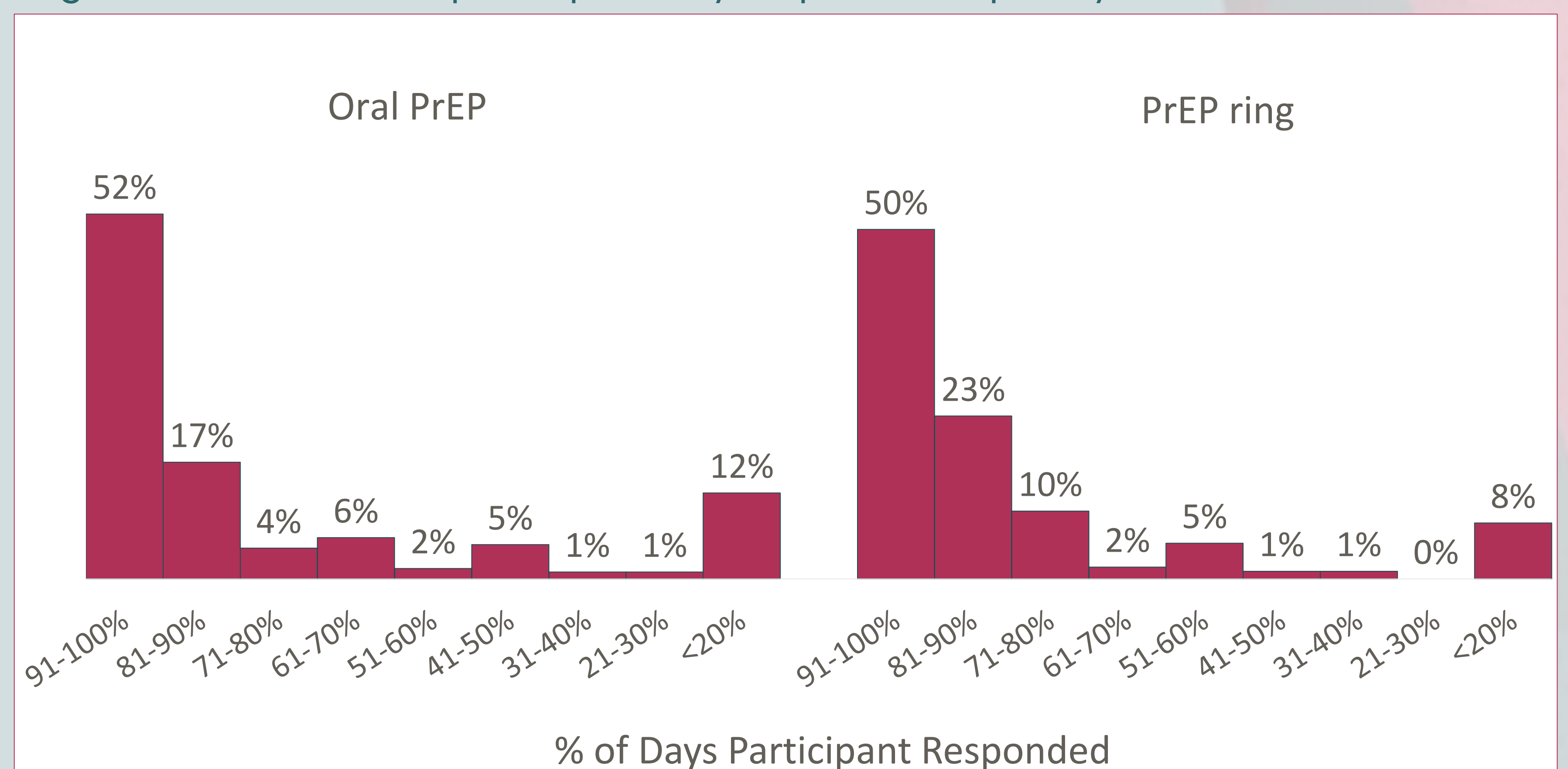
Table 2. Number enrolled and response by enrollment method

	Oral PrEP	PrEP Ring	Overall
Number enrolled in PEU	203 (53.6%)	176 (46.4%)	379 (100.0%)
Average days PEU observed per participant	81.5	76.4	79.0
Mean (Median) days with complete responses	62.0 (76.0)	73.0 (52.0)	62.9 (75.0)

About 50% of oral PrEP and ring users responded almost daily (Figure 1). The proportions responding with "refused" or "do not remember" were <1%. When asked if they would respond without an incentive, 68% said "definitely" and 23% said "probably."

Higher monthly income was significantly ($p < 0.05$) associated with lower response rate and completing secondary education with a higher response rate. Almost all participants (95%) reported the system was easy to use.

Figure 1. Distribution of participants by response frequency and method



Conclusion

- Collecting PEU data using an incentive-laden, phone-based self-reporting system is feasible, given high response rates and reported ease of use among users of either PrEP product.
- Additional validity assessments for self-reported PEU, including comparative lab assays, will further examine the method's utility.
- Effective PEU measurement can advance user-aligned PrEP programming.

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