Two-way short messaging service (SMS) system increases PrEP continuation and adherence among young Kenyan women

Jillian Pintye, John Kinuthia, Kenneth Mugwanya, Trevor Perrier, Felix Abuna, Harison Lagat, Joseph Sila, Valarie Kemunto, Jared Baeten, Grace John-Stewart, Jennifer Unger
High HIV incidence during pregnancy

Pooled incidence estimate = 4.7 HIV infections per 100 person-years during pregnancy

Drake et al PLOS MED 2014
PREVENTING HIV DURING PREGNANCY AND BREASTFEEDING IN THE CONTEXT OF PREP

JULY 2017

Guidelines on Use of Antiretroviral Drugs for Treating and Preventing HIV Infection in Kenya
2016 Edition
Principal Investigators

Dr. Grace John-Stewart  
Dr. Jared Baeten  
Dr. John Kinuthia
Key lessons

Women initiate PrEP when offered in MCH/FP, but…

n=21,291

- 88% Initiate
- 22% Decline

Mugwanaya et al CROI 2019; Kinuthia et al IAS 2018; Mugwanya et al IAS 2018
Objective

Evaluate an mHealth system (mWACch-PrEP) to remotely facilitate continuation/adherence among PrEP initiators within maternal child health (MCH) and family planning (FP) clinics in Kenya.
Methods

- Adapted existing SMS system
- PrEP-tailored, theory-based SMS
- Approached PrEP initiators
- 2 PrIYA sites in Kisumu, Kenya
- Enrolled February-October 2018
Methods

- Evaluated implementation metrics
- Qualitatively analyzed SMS transcripts
- Compared PrEP continuation pre/post mWACh
  - Continuation – attended in-person visit & refilled PrEP
  - Discontinuation – did not attend visit or no PrEP refill
mWACf-PrEP system

Tester: Post-Partum 1234500001 ANC:

Tester, this is Valerie from Migosi. If you experience nausea or dizziness after taking PrEP try taking it with your biggest meal or at night right before you go to sleep. Are you having any side effects? Please let us know. We are here for you.

Nurse: 1 Mar 18 10:48
Sorry about that, try taking prep when taking food or when going to sleep, nausea will subside 1 week after you start taking prep.

Tester: 1 Mar 18 10:42
hi nurse, I feel nauseated when I take prep

Participant Details: Tester
- Phone number: [redacted]
- PreP Initiation: 2018-02-24
- Estimated Delivery Date: 2018-04-05
- Delivery Date: 2018-09-11
- Age: 23
- Send Day: Monday
- Send Time: Morning (8 AM)
- SMS Track: 2 - PostPartum
- Previous pregnancies

Clinic Visits and History
- Visit History

Global WACh at the University of Washington
mWACCh-PrEP system

{name}, this is {nurse} from {clinic}. It can be difficult to take medications every day especially if you are trying to be discrete. Many people ask a friend to help remind them, set a timer on their phone, or take it with a meal. You can also put it in a different container you can carry with you in private. How do you remember to take your medication? Do you have any challenges taking it every day?

Hello, as for me my medication got finished and i have not got the opportunity to come back for your clinic. Am happy because am able to prevent myself from HIV/AIDS. Apart from HIV/AIDS can the medicine prevent other sexually transmitted infections.

Hello, it would be advisable to come back to the clinic for review and also get medication. PrEP medication only prevents a person from acquiring HIV/AIDS, it doesn't prevent sexually transmitted diseases. It's advisable to use combination prevention methods such as use of condoms together with PrEP in order to prevent STI's.
No. of women screened for enrollment into mWACH-PrEP (n=334)

Did not enroll (n=144)
  • Ineligible (n=141)
  • Declined (n=3)

No. of women who enrolled in mHealth system at PrEP initiation (n=190)

Did not return for PrEP follow up visit (n=90)

No. of enrolled women who returned for PrEP follow up visit (n=100)
### Reasons for ineligibility (n=141)

<table>
<thead>
<tr>
<th>Reason</th>
<th>Percentage</th>
</tr>
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<tbody>
<tr>
<td>Did not carry Safaricom SIM</td>
<td>15%</td>
</tr>
<tr>
<td>Airtel SIM</td>
<td>13%</td>
</tr>
<tr>
<td>Orange SIM</td>
<td>2%</td>
</tr>
<tr>
<td>No phone in clinic that day</td>
<td>29%</td>
</tr>
<tr>
<td>Sharing phone/SIM card</td>
<td>25%</td>
</tr>
<tr>
<td>Broken phone</td>
<td>12%</td>
</tr>
<tr>
<td>Cannot remember phone number</td>
<td>2%</td>
</tr>
</tbody>
</table>
## Characteristics of participants

<table>
<thead>
<tr>
<th></th>
<th>Enrolled (n=190)</th>
</tr>
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<tbody>
<tr>
<td>Age (median)*</td>
<td>25 years</td>
</tr>
<tr>
<td>Recruitment clinic</td>
<td></td>
</tr>
<tr>
<td>MCH</td>
<td>91%</td>
</tr>
<tr>
<td>FP</td>
<td>9%</td>
</tr>
<tr>
<td>Married</td>
<td>90%</td>
</tr>
<tr>
<td>Partner HIV-positive</td>
<td>10%</td>
</tr>
<tr>
<td>Had sex without a condom**</td>
<td>98%</td>
</tr>
<tr>
<td>Forced to have sex against will**</td>
<td>3%</td>
</tr>
<tr>
<td>Experienced IPV**</td>
<td>2%</td>
</tr>
</tbody>
</table>

*\(p<0.05\); **In the last 6 months
57% ever responded to SMS

Response frequency to automated SMS:
- 29%
- 26%
- 20%
- 21%
- 15%
- 14%
- 10%
- 10%
- 11%
- 10%
- 8%
- 8%
- 7%

Weeks since PrEP initiation and enrollment into mWACH-PrEP:
1  2  3  4  5  6  7  8  9  10  11  12  13

Global WACH at the University of Washington
Topics raised by enrollees via SMS (n=183)

- PrEP side effects: 24%
- PrEP dis/continuation: 27%
- PrEP logistics: 16%
- PrEP clarification: 13%
- MCH/FP: 4%
- HIV risk: 3%
- Other (non-PrEP): 13%
mWACCh-PrEP enrollment & PrEP outcomes*

Attended routine PrEP follow-up visit

<table>
<thead>
<tr>
<th>Before mWACCh</th>
<th>mWACCh</th>
</tr>
</thead>
<tbody>
<tr>
<td>40%</td>
<td>53%</td>
</tr>
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</table>

Risk Ratio | p-value
----------|---------
1.3 (1.1-1.7) | 0.015

*At one-month post-PrEP initiation; **Self-reported high adherence (missed <1 pill/week)
Limitations

- Participants not randomized to mWACH-PrEP
- Relied on routinely collected data for PrEP outcomes
- No biomarkers to confirm PrEP adherence
- Only included women newly initiating PrEP
Conclusions and Implications

• Very high acceptance (98%) of mWACH-PrEP

• Improved early PrEP continuation and adherence

• Future studies needed that increase accessibility

• Adherence strategies increasingly important in MCH/FP
Acknowledgments

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