

# Using Mobile Health Technology to Support PrEP Uptake and Linkage in the Commonwealth of Virginia

Sylvia Caldwell<sup>2</sup>, Karen Ingersoll<sup>1</sup>, Sarah Knight<sup>2</sup>, Ava Lena Waldman<sup>2</sup>, Michelle Hilgart<sup>2</sup>, Jason Schwendinger<sup>2</sup>, Rebecca Dillingham<sup>2</sup>

<sup>1</sup>University of Virginia, Department of Psychiatry and Neurobehavioral Sciences<sup>2</sup>

University of Virginia, Department of Infectious Disease and International Health

Correspondence: [sab6ce@virginia.edu](mailto:sab6ce@virginia.edu)



## Highlights

- PrEP uptake and persistence has been a problem in the Commonwealth of Virginia, particularly in the Eastern region
- Prep'd, a mobile health app, was developed with the aim of increasing PrEP linkage and uptake
- The design for Prep'd was based on an already existing application for those living with HIV. A focus group and community advisory board was also used to test the app prototype.
- The app includes features such as daily medication, mood, and stress checks, private messaging to care team, a community message board, and reminders.
- Currently, the app has shown an average medication adherent rate of 69%, increased communication between patient and care team, and is easy for patients and providers to use.

## Method and Activities

Recruitment for the prep'd study included adults 18 years and older who were interested in starting, or those already on PrEP. Participants were recruited from 8 health departments and clinics: Hampton Roads Health Department, Portsmouth Health Department, Peninsula Health Department, Richmond City Health Department, Charlottesville-Albemarle Health Department, Waynesboro Health Department, Lexington Health Department, and Fredericksburg Area HIV and AIDS Support Services.

The intervention period was 6 months per participant. The participants were asked to answer daily EMA queries, including "Did you take your medicine?", "How are you feeling?", and "What is your stress level?".

## Challenges and Limitations

Challenges for this study include staffing turnover at the various clinics. As this pilot required provider participants to interact with the patient participants, frequent staff turnover led to issues with study continuity.

Ideally, we would have liked to have participation from the various regions of the state; however, launching the pilot proved to be a challenge.

Enrollment for this study in several locations was delayed due to the COVID-19 pandemic. As a result, the current *n* for this project remains under 100 participants.

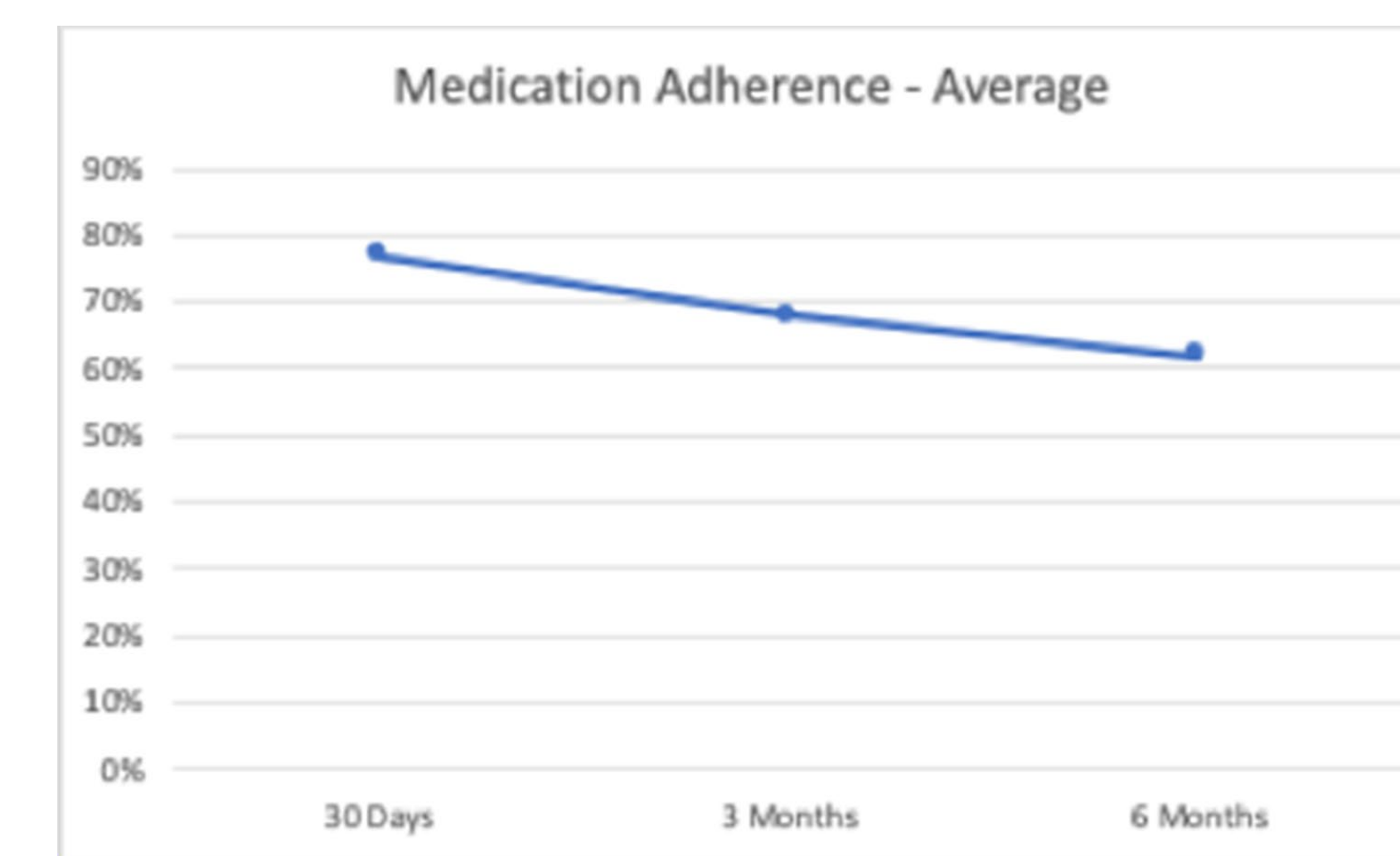
Current state: this pilot study is ongoing. We continue to enroll participants and collect data from those already enrolled.



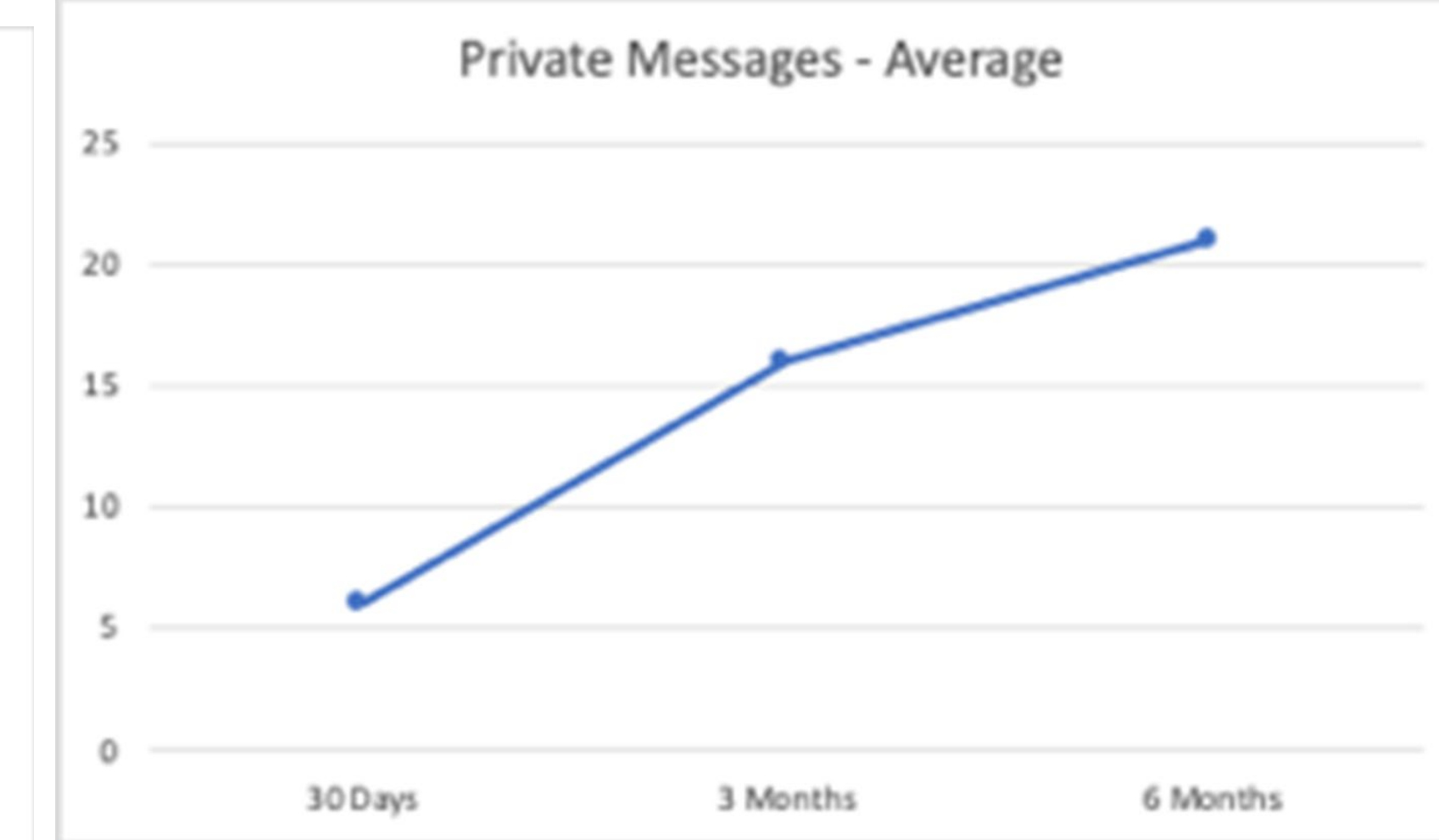
## Prep'd App Features

Features	Description	Needs Aiming to Address
Check-ins	Daily notification where members report their mood, stress, and if they took their medication	Heart rate, Pills
Reminders	Push notification 48 hours in advance of reminders entered by members or providers (e.g. prescription refills, appointments)	Heart rate, Link
Find a provider	Zip code search function to locate regional providers or services beyond their local clinic	Person, Car, People, NEW
Community	A secure, anonymous community discussion board for members to discuss topics of their choosing	Person, Bar chart, People
Messaging	Private messaging with providers and staff	Link, Gears
Documents	Document upload and sharing capability	Car, Bar chart
Explore	Frequently asked questions, PrEP, sexual health, and wellness resources	Heart rate, Link, Person, Bar chart
Questionnaire	A risk assessment form to assess if an individual is a good candidate for PrEP	Heart rate, Gears, NEW

## Daily EMA Query Response Rate



## Private Messages Per Patient



## EMA Response Rate: Medication Adherence



## Community Board Post (Total)



## Results

Currently, the daily EMA query response rate stands at 61%.

Currently, the medication adherence rate for the pilot study participants stands at 69%.

Feedback from both provider and patient participants indicate that the app has assisted with increased communication between the patients and their care team. A total of 509 private message between patient and their care teams has been recorded.

The community message board, a feature that is used highly by the PositiveLinks app members, had relatively little use, with a total of 22 post between all sites.

Patient and provider feedback also indicate that the app is easy to use.

To date, no patient participants have withdrawn from the pilot study.

## Acknowledgements

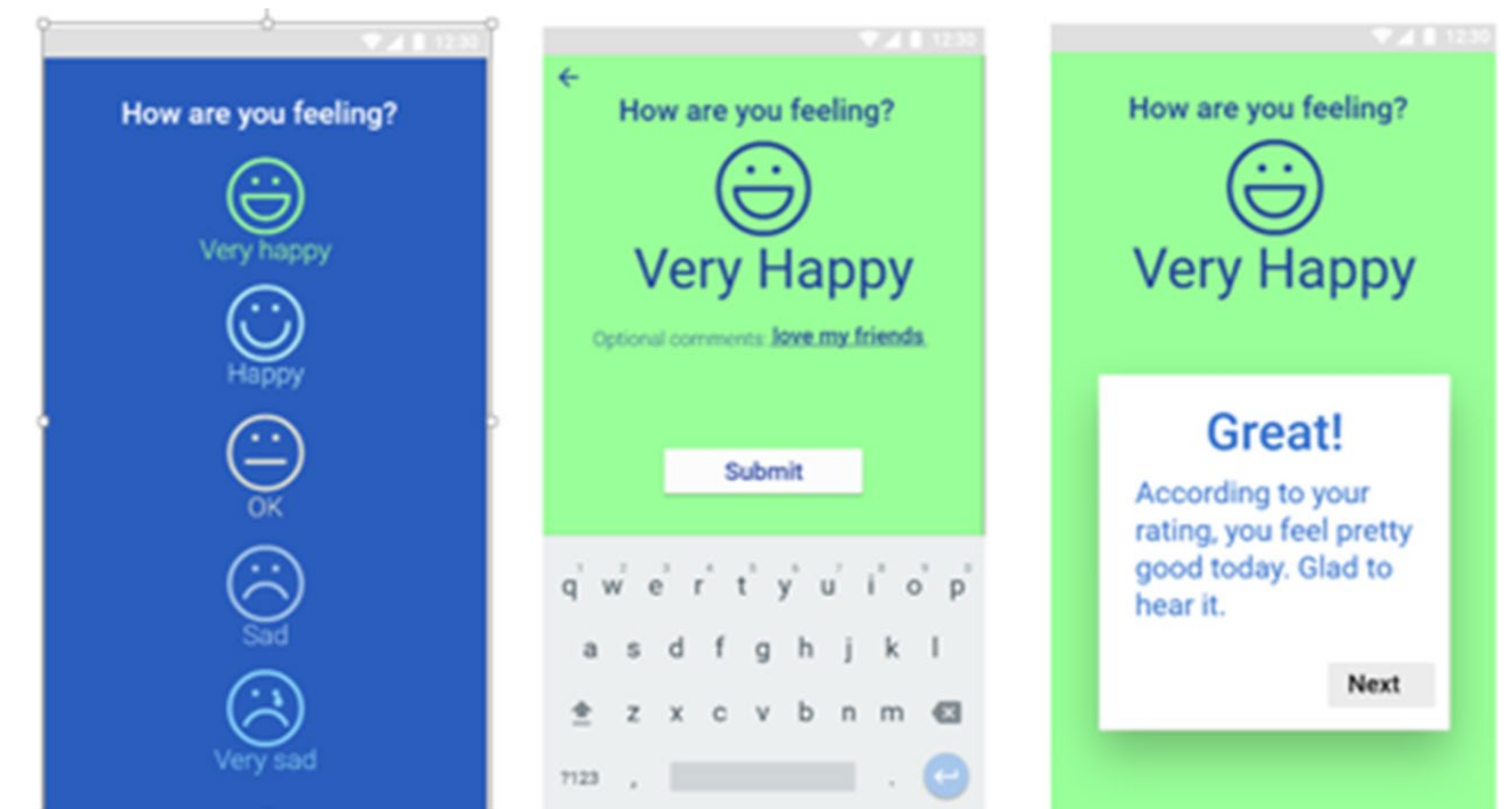
We thank the Virginia Department of Health, especially Eric Mayes and Elaine Martin for their visionary support of app development and statewide implementation of the intervention pilot study.

We thank Professor Greg Gerling and his undergraduate UX design class for development example designs and ideas on features and the app's look and feel.

We thank instructional designer Dr. Michelle Hilgart for developing the final look and feel of prep'd.

Special thanks to the PostiveLinks and prep'd team members:  
Ben Elliott  
Tiyani "Freddie" Jin  
Pravalika Donthineni

## Screenshot of "How are you feeling?" EMA query



## Prep'd Screen Shots of: Log in screen, Reminders, Document Upload, FAQ pages and Community Message Board

