CS342/MED253 Building for Digital Health
Kidney Care

Kabir Jolly, Amrita Kaur, Rachel Naidich

https://cs342.stanford.edu
cardinalkit.slack.com

Winter 2020
About Us

Kabir Jolly
2024

Amrita Kaur
2021

Rachel Naidich
2023
Project Background

- Proper outpatient care is a vital step towards recovery post kidney transplant.

- This process benefits from increased opportunities for patient management/engagement through their doctor.
  - This provides the opportunity for an app-based solution to navigate the post-op care process for a month (or longer) after transplantation.
Need Statement

- **Problem:**
  - Over 500k patients in the US alone with kidney disease on dialysis
  - Transplantation is reported to be a better alternative, both physically and economically
  - However, non-adherence to medication regimens is a massive problem with fears of potential organ rejection and graft loss

- **Population:**
  - Those who have undergone kidney transplant surgery

- **Outcome:**
  - Improved and effective patient engagement platform
    - Promotes and increases medication adherence
    - Allows for symptom/vital tracking, care navigation, and patient education in a centralized platform
Informed Consent

- 3 main types of data collection
  a. Onboarding data
     - Patient information
     - Kidney condition information
  b. Recurring check-ins and data gathering
     - SF-12 Health Information Survey
     - Daily 1-2 minute “mini-check-ins”
  c. Active Tasks
     - Gait and balance, walking, tremor
     - Cognition
Surveys (patient-reported outcomes)

- SF-12 (Short-Form survey, 12 items) to assess impact of condition on everyday/routine activities
- Daily check-in of patient mood, energy, pain, and any additional self-reported items
LIVE DEMO
Feedback from Testers

- **Accessibility**
  - Ease of Use
  - Support different languages

- **Healthcare Team**
  - Contact information (24 hour hotline, what number to call and when)
  - Allow providers to change patient medication plan
  - Allow providers to message patients
  - Sharing patient outcomes with physician through portal or patient summary page

- **Engagement**
  - Connect with other platforms like MyFitnessPal for nutrition
  - Comorbidity education/reference material

- **Design**
  - Change logo to be compatible with other organ transplants
Next Steps

1. Adding Stanford Med specific content
   - Doctor names, profiles, and contact information
   - Transplant office information and contact
   - Digitized versions of handouts/medication sheets/educational content for future reference

2. Medication adherence tracking and visualization using CareKit

3. Bluetooth connected devices for vital monitoring and reporting
   - Blood pressure cuff
   - Potentially sync with Apple Watch
   - Scale
Extensions

- Future study on connection between Prograf and hand tremors

Special Thanks

- Dr. Marc Melcher, Jenny Pan, Uerica Wang, and Dr. Tami Daugherty for feedback and ideas
- CS 342 Team for guidance and support