Overview

We submit a Mobile Patient Portal app for the Consumer Health Data Aggregator Challenge.

The Patient Portal will enable patients to securely connect to all their health care providers' EHR systems leveraging the FHIR interface, and use the mobile interface to conduct the most basic interactions like:

- Maintain personal profile information
- Send secure messages to their health care providers
- Conduct virtual consultations (e-visits, telehealth)
- Request scheduling across organizations
- Manage their medication list and refill prescriptions
- View and pay their medical bills
- View Visit and Discharge Summary
- View lab results across organizations
- Manage Continuity of Care Document (CCD)
- Get important Patient Reminders and Alerts

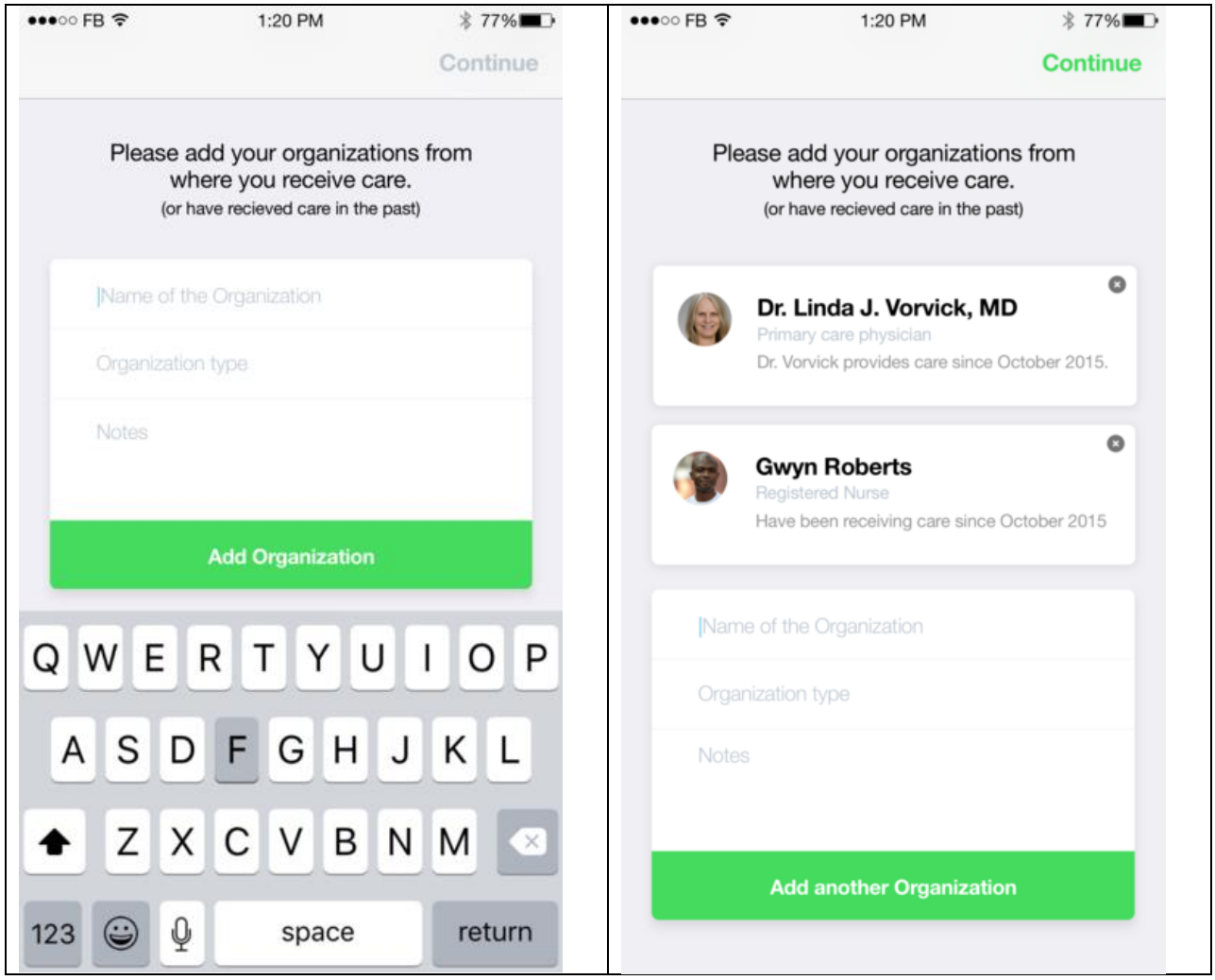
This app will be available for patients to download from iTunes app store and Google Play. Each patient will provide specific consent to each of their Providers to make their data records available via FHIR interface. That way, the App can connect to each Provider EHR to access patient data on demand.

Mockup/wireframes of the app

Patient Persona: Paul Watney

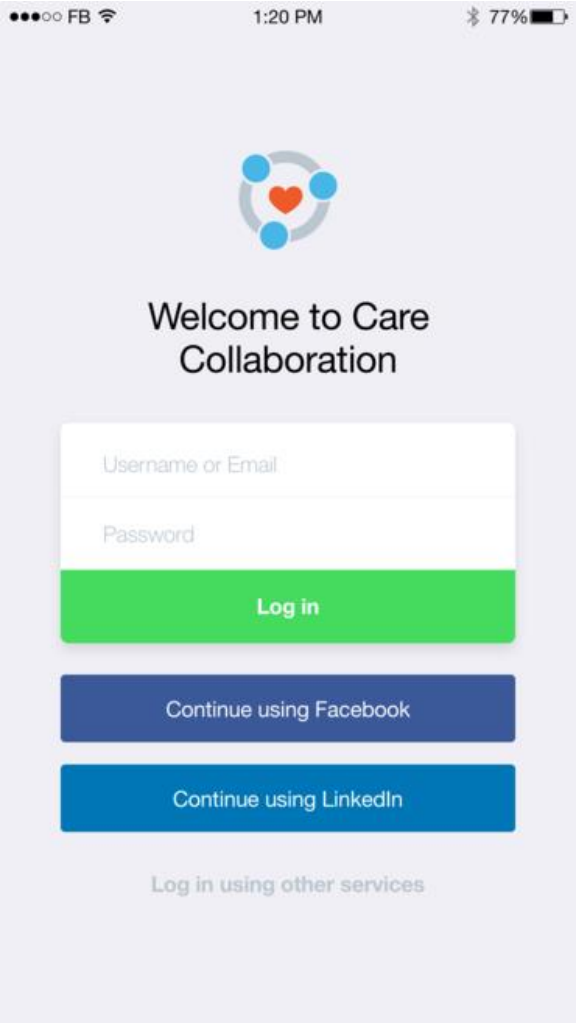
Screen 1:

Screen shows list of participating providers;
Patient selects provider from where they want to access their records



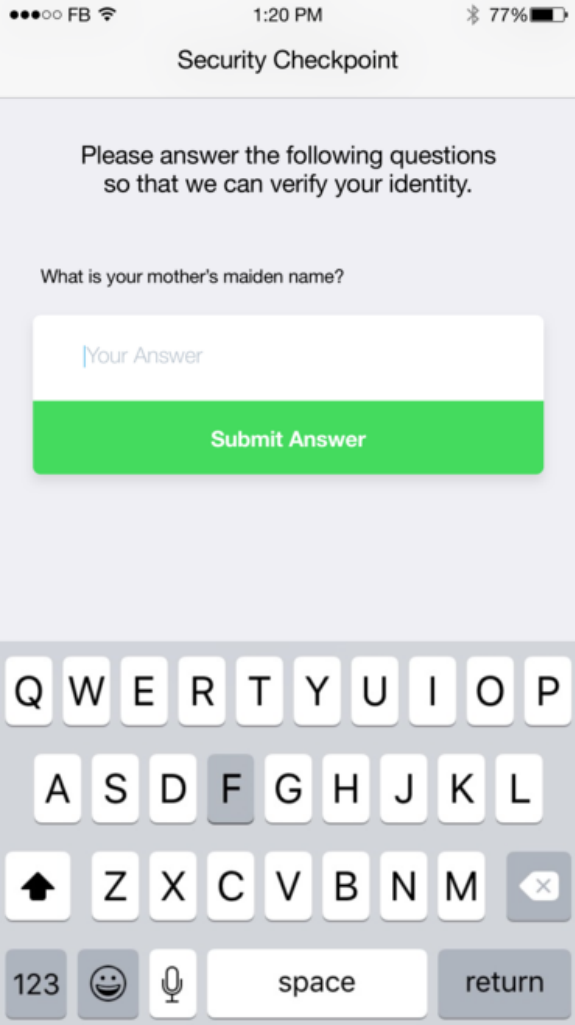
Screen 2:

Patient Logs in (or creates account first) using common existing ID’s Google, Facebook, Apple, Twitter, LinkedIn AND using 2-factor authentication



Screen 3:

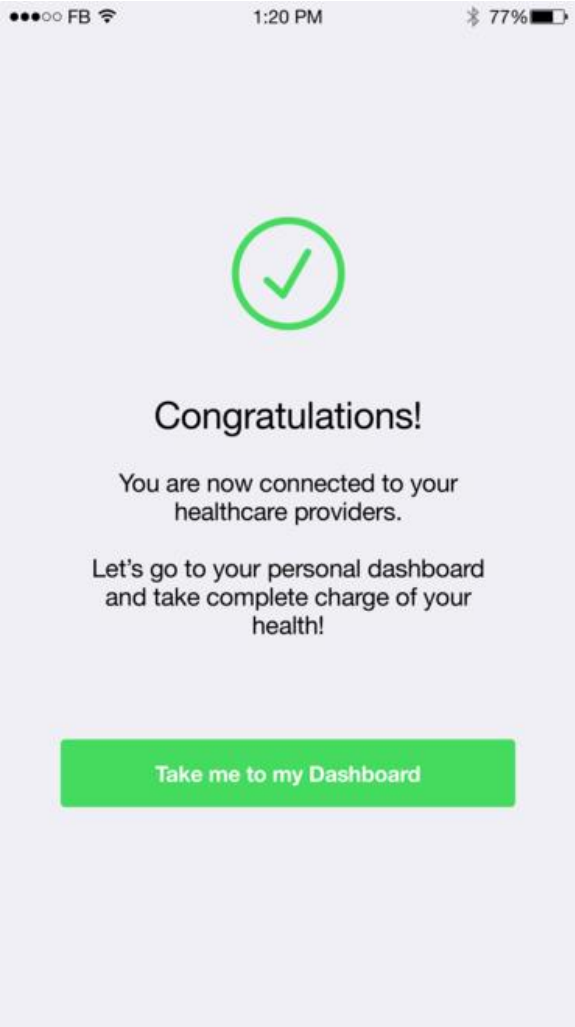
Show credit score company like screen showing challenge questions to verify identity - this is to ensure Patient is who they say they are



Screen 4:

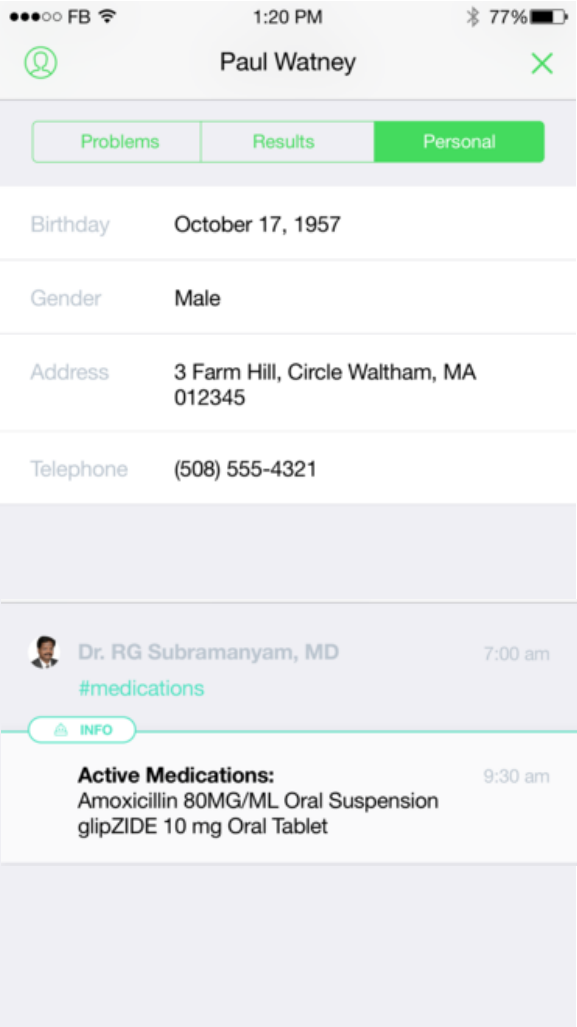
Confirmation

“Congratulations! You are now connected to your healthcare provider - let’s go to your personal dashboard and take complete charge of your health”



Screen 5:

Portal dashboard

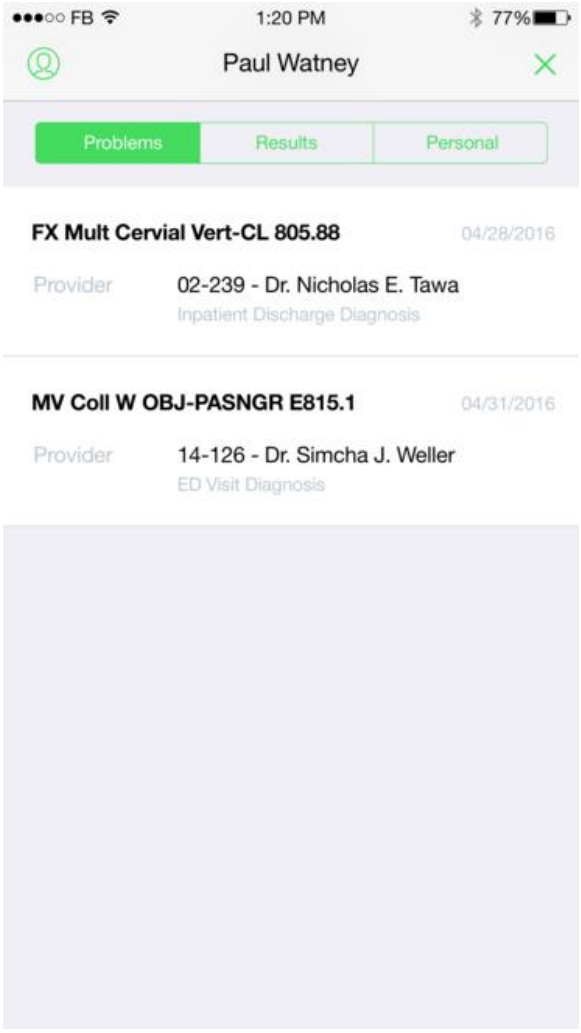


Screen 6:

View my medications

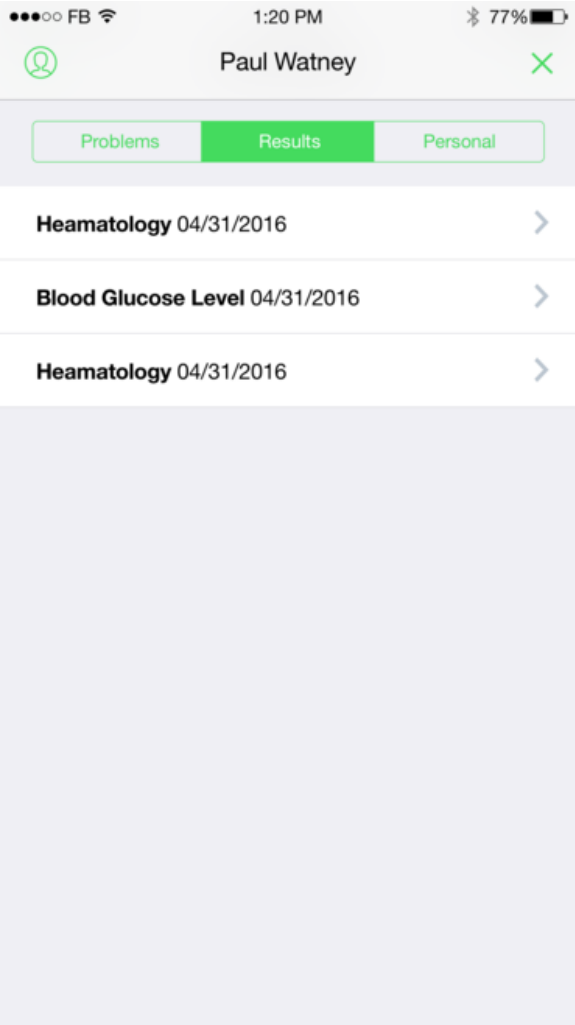
Screen 7:

View Problem list and visit summaries



Screen 9:

View lab results across organizations



Screen 10:
Send secure message to your doctor - “Dr Subarmanyan - my knee is still bothering me”

Screen 11:
Receive secure message from your doctor - “Are you available to do a video chat in 1 hour?”

Screen 12:
Virtual consultations (e-visits) - conduct a video chat with your doctor - “you should go see an ortho specialist, I will enter in a referral, and you can schedule an appointment directly from your app”

Screen 13:
Request scheduling across organizations

Screen 14:
Patient Reminders and Alerts
“You have an appointment with Ortho Specialist X on June 30th, please wear loose clothing and comfortable shoes”

Screen 15:
Billing -- “here is the total cost of your ortho specialist visit, insurance paid X, you need to pay Y - would you like to do that now?”

Screen 16:
Payment
Very much like a e-commerce checkout
“Pay using Paypal, credit card, BitCoin, or direct bank ACH transfer”

Screen 17:
Manage Continuity of Care Document (CCD)

For example, Paul travels to Nepal and reinjures his knee while trekking -- he is flown to a nearby hospital in Pokhara. Paul pulls out his phone and downloads his CCD and shows it to the local doctor in Pokhara so the doctor knows about his general health, and the recent treatment Paul has had on his knee.

Technical Specifications

The Patient Portal app assumes that there is a FHIR interface available at each EHR system from the care providers. The app maintains its own master patient index (MPI) to keep track of the patient’s identity and security token to each EHR system. Generally, the app does NOT store any patient data on the local device. If the patient wants to “download” a copy of their data, the app stores any such data in a secure, encrypted hosted container (like ClearData). All communication between the App and the EHR FHIR interface is encrypted.

As patient requests for their data from each EHR, the App makes API calls as defined in the Argonaut Project’s sprints – https://github.com/argonautproject/implementation-program/wiki , and expects result sets containing patient data represented as FHIR resources.

Since app retrieves patient data from multiple EHR in the same common FHIR resource representation, it can combine the records as a single consolidated data set, and present it as a single view to make it easier for the patient to view their health records from multiple organizations in a simple and unified manner.

Business/sustainability plan

How does the submitter propose to enter the market and lead to a successful app? The plan should include the following:

Issue analysis, demonstrating understanding of the issue (1 page)

Solution description, describing the solution and how it addresses the issues (2 pages)

Financial estimates, including revenues and expenses (2 pages)

Engagement plan, including targeted customer base and stakeholders (2 pages)

The App will be available to general public at Apple iTunes app store and Google Android Play store. It will be supported via a “freemium model”, where Patients can download it for free and start using it for basic services, and they can also get a paid version which has premium features (still TBD, but we are considering services like prescriptions refill, appointment scheduling, bill payment, as premium features)

The free version will also display ads from pharmaceutical companies and other healthcare products and solution providers -- targeted ads based on patient profile (important: patient identity never released to advertisers, unless the patient voluntarily engages with an advertisement).

Our business goal is to build a critical mass of patients using the app. With a critical mass of patients, there is a possibility to offer services to insurance companies where they can offer patients savings on their insurance premiums for sharing their clinical data, the underlying assumption being that insurance companies benefit by rewarding patients for “good behavior” such as keeping healthy habits, and adhering to their treatment plans prescribes by their care providers.

For patients who consent to receiving such offers from insurance companies, we will charge an ongoing monthly fee for providing patient data records to insurance company (important to have full transparency to patient as to what data is shared and how often, and allow them to opt-out at any point)

For the same patient group, we also plan to offer a set of analytics services to provide to insurance companies that analyses patient clinical data records and quantifies health risk.

Provider partnership

We plan to partner with the following provider organizations to implement the systems. Our team is already providing services to UCSF and has had past business relationships with the other two organizations (SF General and John Muir), and as such we are confident to get their support for this partnership.

Provider Organization	**EHR System Vendor**
UCSF	Epic
SF General	Cerner
John Muir	Epic