Friday, May 27, 2016

Business / Sustainability Plan

Current Landscape - Issues

Clinical data

EHRs are not interoperable. Medical records are locked up in vendor specific EHRs (using proprietary data formats). As result, app developers are not incentivized to build apps that can be used across different healths systems and hence providers are forced to use EMRs that were primarily built for coding -reimbursement purposes. In many cases, there are examples of a provider has to go through 37 clicks to discharge a patient. The lack of good UX/UI causes significant medical errors and further doesn't let a provider get a complete picture of the patient. Further, instead of an empathetic visit with the patient, the provider spends most of the (average 7 minute visit) clicking through the EHR system in the computer.

Non clinical

Further, additional data from health devices, wearables, fitness apps etc are all in disparate systems and never make into their EHR for providers to look at them. Hence a major portion of health information which could health gain better insights and potential change outcomes is lost.

Implications

Due to clinical information being in silos locked in vendor specific EHRs, physicians cannot get a complete longitudinal history of the patient thus preventing them from making decisions that would lead to best possible outcomes to their patients. In addition, this is a cause of a very high rate of medical errors causing it to be the third leading cause of death.

A significant part of a patient's daily health data such as medication adherence, moods, symptoms, vital signs etc. is never completely understood by their Providers. For eg. Medication adherence alone is a $300B problem in the US. if all of this data could be available to the respective Providers, Clinical Trial Principal Investigators etc., it would significantly improve outcomes.

Hospitals and health systems spend hundreds of thousands of dollars to build custom integrations, transforming data from proprietary formats. Further, there is a lack of good clinical apps since app developers are not economically motivated to build them. Primarily, because they are not able to access data in a standard format and there is no way deploy the same app at another hospital or health system.

Solution

Hygeiais seeks to solve this challenge by building a connected health platform built on FHIR so that all clinical data and other patient generated health data (PGHD) into a single normalized format.

Hygeias uses late binding techniques to convert data from proprietary formats of EHRs and wearables, health devices etc. to FHIR format. This makes it flexible to add more datasources as we grow. Hygeias has an implementation of FHIR standard. More information on that is on our site. http://healthapi.hygeiais.com/fhir

The integration layer of connected health platform encapsulates all of the data aggregating, data mapping into a FHIR format. All the data is codified by using our terminology services with our FHIR implementation into various coding systems SNOMED, LOINC, ICD etc as well map them into corresponding value sets. This enables downstream applications to run analytics (population as well as cohort-based)

Health Engagement Portal

Providers will have a 360-degree view of the patient since they can access patient's health data generated from different devices, health apps and thus better have insights into the patient's condition thus helping them make better decisions.

Clinical Apps built on Hygeias' Connected Health Platform

Hygeiais seeks to leverage SMART on FHIR platform onto our FHIR implementation to expose only the subset of the data that is required for each app using specific resources. App developers then don't need to know the entire data model (unlike proprietary HL7 messaging). They can collaborate with leading clinical researchers / experts to build disease specific tools that can potentially change patient outcomes (unlike most of the apps available on App stores that are not clinical vetted). This can potentially bring down the timeline of new research to community physicians' use to about 2 years - currently that takes about 11 years.

Further, app developers can build clinically proven apps by collaborating with clinical experts targeting consumers in changing their behavior and this better manage their health. SMART on FHIR platform enables these apps to scale since these apps once written can be deployed in any health system around the world where SMART on FHIR platform is deployed.

We are building a clinical trial matching app using advanced machine learning techniques leveraging data from clinicaltrials.gov. We use FHIR resources to get patient's health information in a standard way and automatically match clinical trials to which patients qualify for as given by the eligibility criteria.

During the clinical workflow of viewing a patient record, providers can click on the list of apps that are listed on the Health Engagement Platform, and when they click on trial matching app it will automatically launch with current patient's record and all the trials they qualify for. This significantly reduces the time to of the clinician of not searching disparate systems and at the same time increases accuracy.

Financial Estimates

Description	2016	2017	2018	2019
Net Sales	$64,000	$1,550,000	$5,360,000	$9,660,000
Cost of Sales	$122,000	$650,000	$1,096,000	$1,999,000
Gross Profit	**-$58,000**	**$900,000**	**$4,264,000**	**$7,661,000**
Operating Expenses				
Sales and Marketing	$10,000	$140,000	$220,000	$460,000
Product Development & Hosting	$76,000	$210,000	$330,000	$540,000
rProduct / Project Management	$18,000	$136,000	$254,000	$365,000
Customer support [includes Operations]	$6,000	$56,000	$96,000	$166,000
Office & miscellaneous costs	$12,000	$108,000	$196,000	$468,000
Cost of Sales	$122,000	$650,000	$1,096,000	$1,999,000

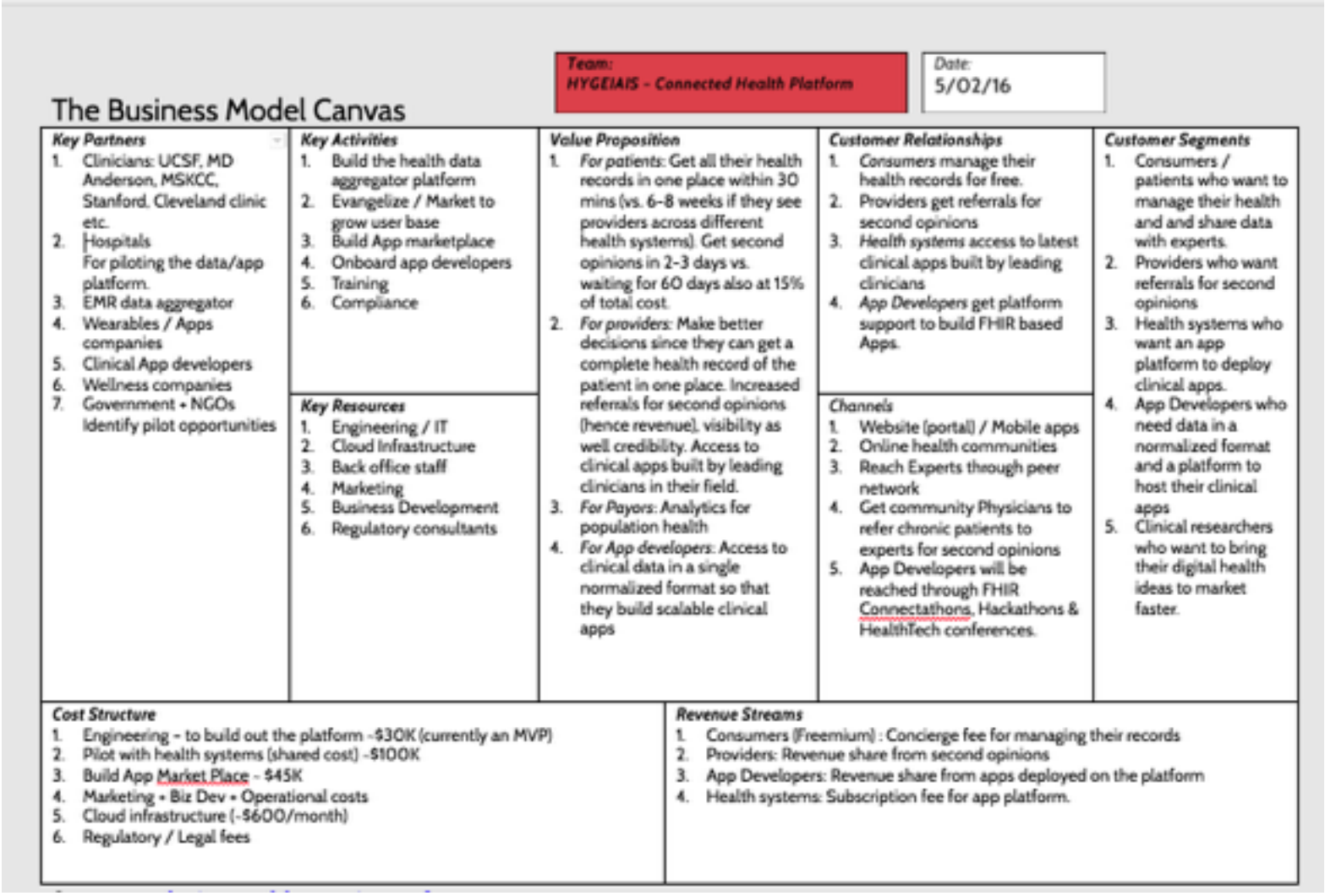
Users by products	2016	2017	2018	2019
Small clinics - Per provider subscription	30	1,000	4,000	7,000
App Platform subscription [Health systems]	2	25	40	90

Revenue by products	2016	2017	2018	2019
Small clinics - Per provider subscription	$36,000	$1,200,000	$4,800,000	$8,400,000
App Platform subscription [Health systems]	$28,000	$350,000	$560,000	$1,260,000
Net Sales	$64,000	$1,550,000	$5,360,000	$9,660,000

Key Assumptions	Annually
Small clinics - Per provider subscription	$1,200
App Platform subscription [Health systems]	$14,000

Engagement Plan

Business Model Canvas



The Business Model Canvas

Team: HYGEIAIS - Connected Health Platform

Date: 5/02/16

Key Partners
1. Clinicians: UCSF, MD Anderson, MSKCC, Stanford, Cleveland clinic etc.
2. Hospitals For piloting the data/app platform.
3. EMR data aggregator
4. Wearables / Apps companies
5. Clinical App developers
6. Wellness companies
7. Government + NGOs Identify pilot opportunities

Key Activities
1. Build the health data aggregator platform
2. Evangelize / Market to grow user base
3. Build App marketplace
4. Onboard app developers
5. Training
6. Compliance

Key Resources
1. Engineering / IT
2. Cloud Infrastructure
3. Back office staff
4. Marketing
5. Business Development
6. Regulatory consultants

Value Proposition
1. *For patients:* Get all their health records in one place within 30 mins (vs. 6-8 weeks if they see providers across different health systems). Get second opinions in 2-3 days vs. waiting for 60 days also at 15% of total cost.
2. *For providers:* Make better decisions since they can get a complete health record of the patient in one place. Increased referrals for second opinions (hence revenue), visibility as well credibility. Access to clinical apps built by leading clinicians in their field.
3. *For Payors:* Analytics for population health
4. *For App developers:* Access to clinical data in a single normalized format so that they build scalable clinical apps

Customer Relationships
1. Consumers manage their health records for free.
2. Providers get referrals for second opinions
3. Health systems access to latest clinical apps built by leading clinicians
4. App Developers get platform support to build FHIR based Apps.

Channels
1. Website (portal) / Mobile apps
2. Online health communities
3. Reach Experts through peer network
4. Get community Physicians to refer chronic patients to experts for second opinions
5. App Developers will be reached through FHIR Connectathons, Hackathons & HealthTech conferences.

Customer Segments
1. Consumers / patients who want to manage their health and and share data with experts.
2. Providers who want referrals for second opinions
3. Health systems who want an app platform to deploy clinical apps.
4. App Developers who need data in a normalized format and a platform to host their clinical apps
5. Clinical researchers who want to bring their digital health ideas to market faster.

Cost Structure
1. Engineering - to build out the platform ~$30K (currently an MVP)
2. Pilot with health systems (shared cost) ~$100K
3. Build App Market Place ~ $45K
4. Marketing + Biz Dev + Operational costs
5. Cloud infrastructure (~$600/month)
6. Regulatory / Legal fees

Revenue Streams
1. Consumers (Freemium) : Concierge fee for managing their records
2. Providers: Revenue share from second opinions
3. App Developers: Revenue share from apps deployed on the platform
4. Health systems: Subscription fee for app platform.

MARKETING STRATEGY

IP Acquisition

Patent application. Efforts targeting licensing the platform to leading specialty practices

Marketing Programs

- Patients

Blogs, PR, Social media, SEM, Referrals

- Clinics

Visits, Advertising, Demos

Education

Comprehensive content organized by classification all in one place for resident and fellows of each specialty.

Partnerships

Health Plans
Clinics and hospitals for revenue share
Corporate wellness plans
App developers for revenue share

Events

Trade shows, Health 2.0 , digital health conferences, ASCO etc.

Bundles

Include curated premium content as add on for patient engagement. Also, bundle records, sync when user signs up for