



# Provider User Experience Challenge Submission

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Draft: May 10, 2016

For Submission to Challenge.gov



## ISSUE ANALYSIS

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A diagnosis of cancer can be a devastating experience. Lengthy and challenging treatment, coupled with the realization of the diagnosis itself can cause depression and anxiety in patients before, during and after treatment.

1. Further exacerbating treatment challenges, side effects of cancer treatments such as chemotherapy, radiation and prescribed medication can include nausea and fatigue. Side effects can vary greatly from patient to patient. The impacts of treatment protocols, change in medications and secondary diagnosis on the patient's mental well-being is often not transparent to the oncologist and care team.<sup>1</sup>
2. One in four people – roughly 450 million worldwide - suffer from mental disorders. Over 50% of cases go undiagnosed. As mental health conditions often present during traumatic experiences (such as during diagnosis and treatment) it's wise to take a proactive approach. Yet as undiagnosed mental conditions are not known to the oncologist during the onset of treatment, this proactive approach is often not feasible.<sup>2</sup>
3. Traditional electronic health records have limitations around the storage and actionability of behavioral health data. A “common interface” does not exist where trends and patterns in a patient's mental state can be visualized and juxtaposed against clinical treatment history and planning.

Managing the mental health of patients during treatment and throughout the recovery process has been known to improve outcomes and overall prognosis. While data capture mechanisms exist, a single solution to assess mental state from diagnosis throughout the orchestration of treatment protocols does not.

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### Cites:

1.) Artherholt SB, Fann JR. Psychosocial care in cancer. Current Psychiatry Reports 2012;14(1):23-29

2.) Prevalence, Severity, and Unmet Need for Treatment of Mental Disorders, World Health Organization World Mental Health Surveys, June 2004, Journal of the American Medical Association



## SOLUTION DESCRIPTION

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### Solution Overview

The AdvisIQ platform is a suite of mobile and web based applications which enable the capture of self-reported mood changes, pain level and other treatment factors by the patient. The oncologist and care team can access this information through a cloud based, cross-platform viewer which augments data already available in the EMR with patient and wearable collected data to spot trends, change in mental state and activity level throughout treatment.

### Patient Mobile Application

The Android and iOS patient mobile application serves three core purposes. A patient accessing the application for the first time will be greeted with a simple welcome message prompting them to enter a code given by the provider to connect the application to the AdvisIQ platform. On first use, the patient will be prompted to complete a short 5 minute assessment which aims to access current mental state, pain level and energy level. The assessment also aims to capture social and psychographic data about the patient.

The data is later used to develop behavioral based risk scores which are accessible to the provider through the AdvisIQ Provider Portal.

Throughout treatment, the patient is prompted to return to the application on a pre-defined schedule to take short mini-assessments. The mini-assessments aim to track changes in the patient's mood and behavior. Reminders are sent to the patient using standard push notifications or SMS based messaging.

Additional data can be collected by connecting the application to wearable & bluetooth devices such as activity trackers, weight scales and sleep monitors.

### Provider Portal Application

The AdvisIQ Provider Portal provides anywhere, anytime access for oncologists to manage their patients and track status throughout treatment. Built around a flexible FHIR based architecture, the provider portal is capable of pulling in record sets



## SOLUTION DESCRIPTION

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from multiple EHR sources. Data collected through the patient mobile application is displayed chronologically against elements of the medical record enabling the clinician and care team to spot patterns and trends in the patient's mental state as they relate to elements of treatment such as prescribed medications, diagnosis, physician encounters and surgical procedures.

Detailed views of the medical record and patient behavioral data is available to the oncologist by tapping elements of each timeline view.

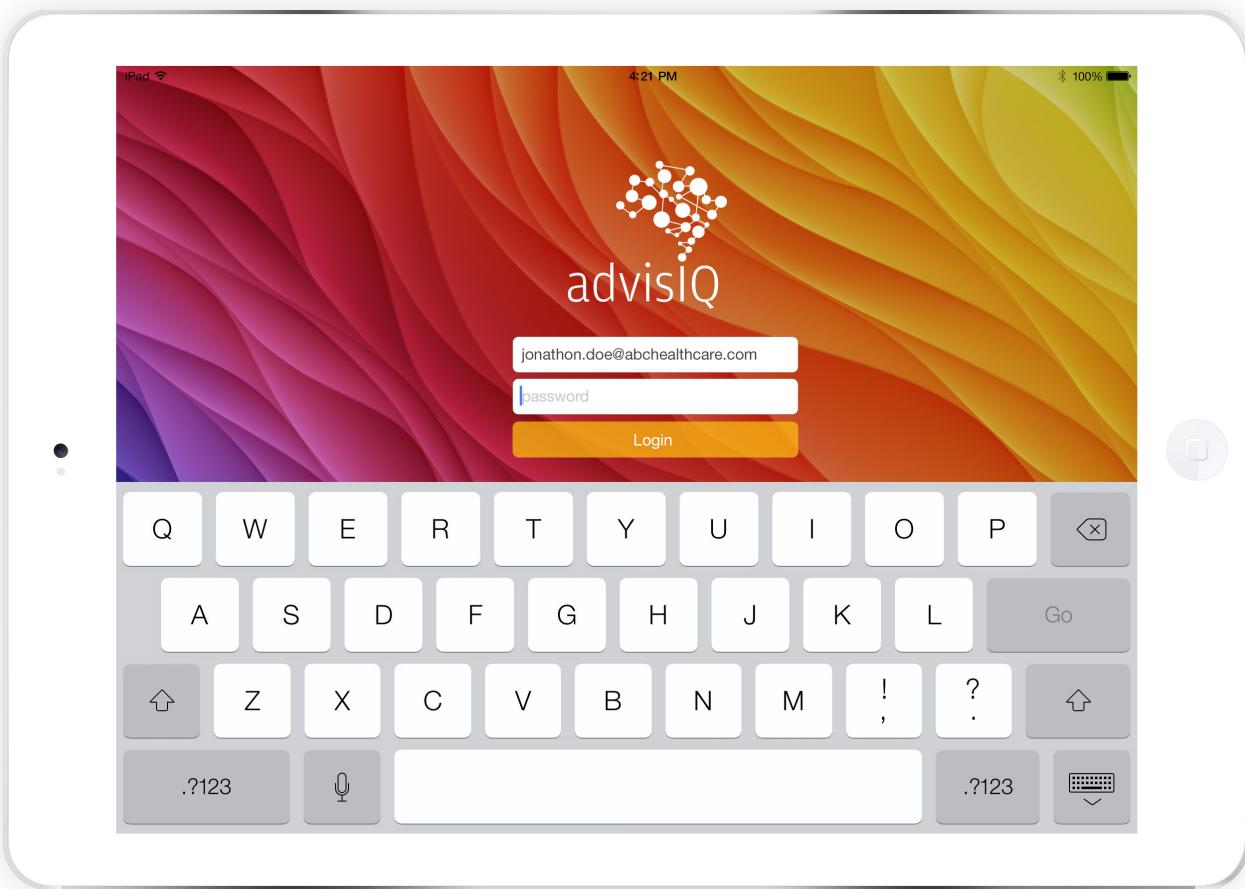
Summary level reporting is available for all patient's under the clinician care by accessing the reporting dashboard. The reporting dashboard provides a simplistic, highly customizable viewer which enabled identification of patients with the greatest change in reported mood, sleep cycle, activity level and other factors over recent time periods.

### **Integration Engine and Data Warehousing**

Data collected through the AdvisIQ platform is stored to a highly scalable Hadoop based data warehouse. Collected record sets can then be anonymized and used in institutional research as well as peer/benchmark based reporting.



## PROVIDER USER EXPERIENCE



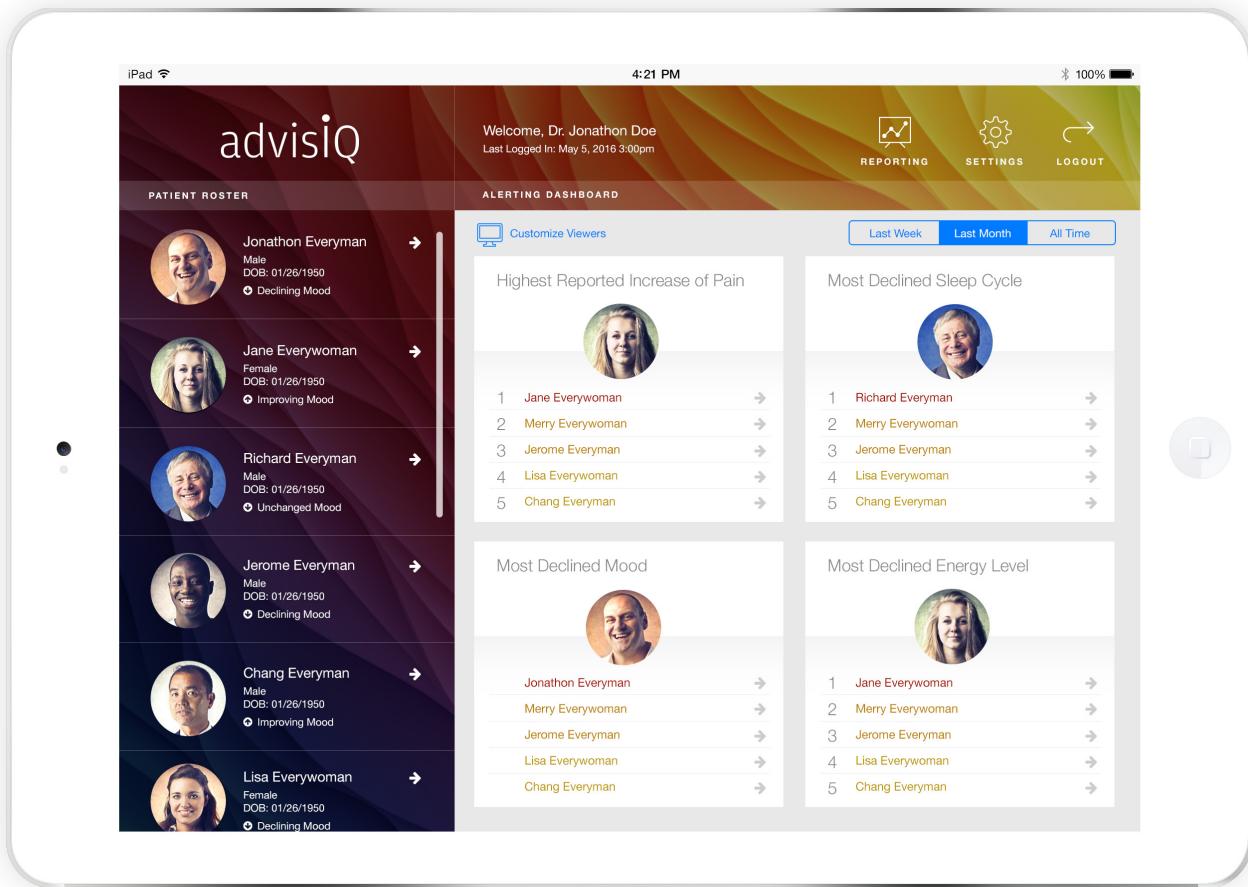
### Login and Authentication

AdvisIQ for Providers, available on iOS, Android and through modern web browsers provides secure, anywhere, anytime access to the clinical, administrative and behavioral data needed to enhance patient outcomes.

Without any special hardware to purchase.



## PROVIDER USER EXPERIENCE



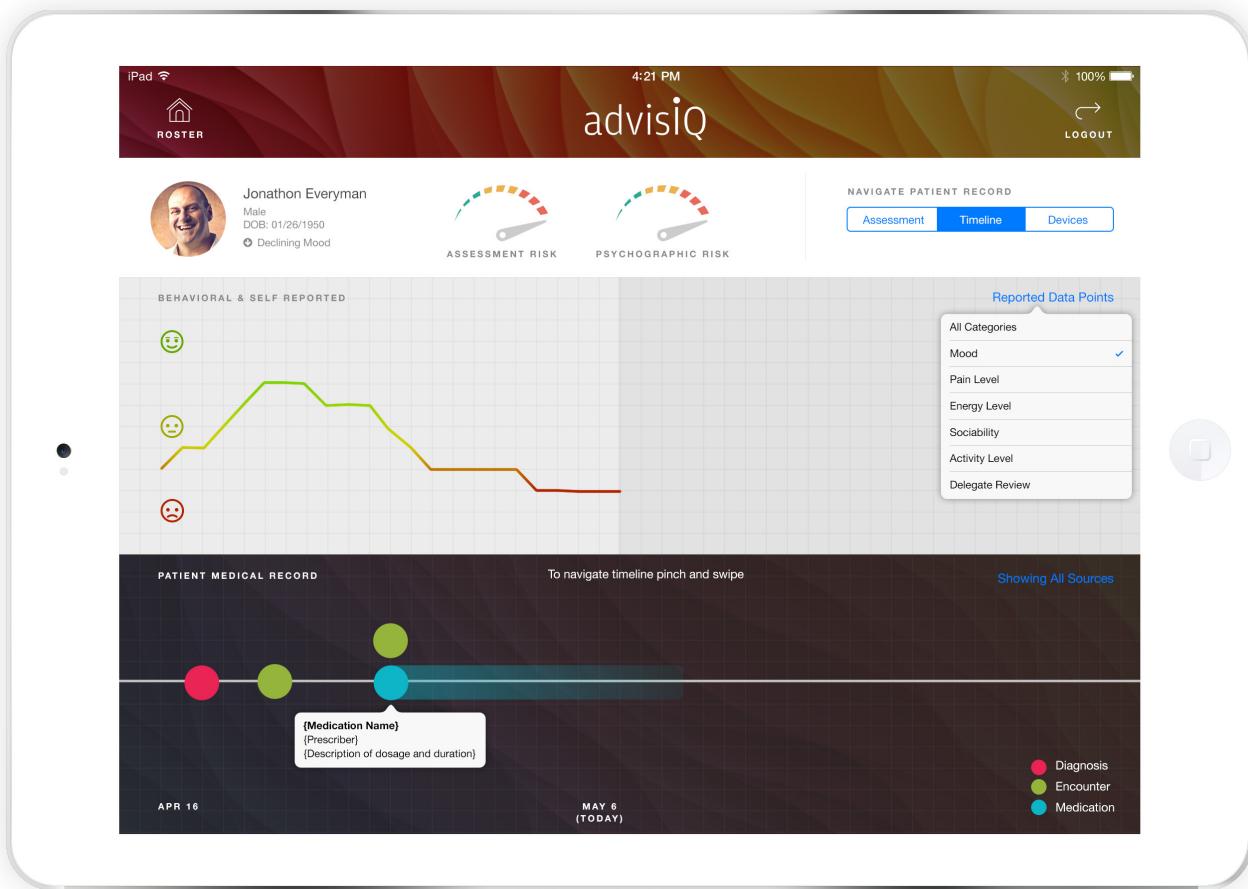
### Alerting Dashboard

The Alerting Dashboard provides simplistic navigation to individual patient records along with notification widgets which display patients with the most significant change in self and device reported treatment data points.

The interface can be customized based upon individual clinician needs and workflows.



## PROVIDER USER EXPERIENCE



### Record View

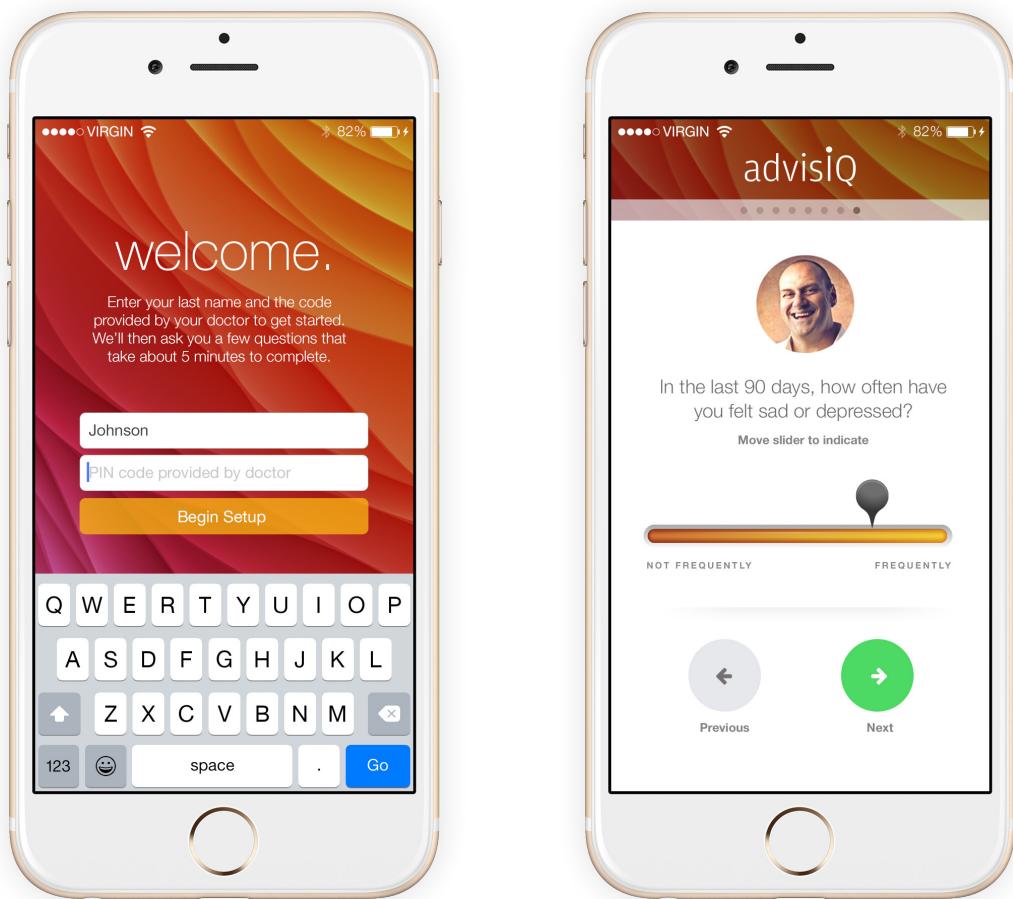
The record view aggregated data from multiple EHR sources and provides a simple viewing experience where clinicians can spot patterns and trends by comparing patient and device reported data against granular aspects of the treatment protocol.

Clicking or tapping any element of the timeline opens a detailed view displaying the record source and attributes.

Example trend above shows potential side effect of a recently prescribed medication



## PATIENT USER EXPERIENCE



### Profile Setup + Initial Assessment

Upon download the app, the patient enters a simple PIN code which assigns them a provider instance. The patient is then asked a simple set up questions which guide them through profile creation and an initial assessment which can warn the provider of initial mental state risks to treatment.



## PATIENT USER EXPERIENCE



### Daily “Quick” Assessment

The patient is sent a daily push notification which prompts them to take a simple 30 second survey where they can report change in mood, pain level and other factors related to treatment.



## PATIENT USER EXPERIENCE



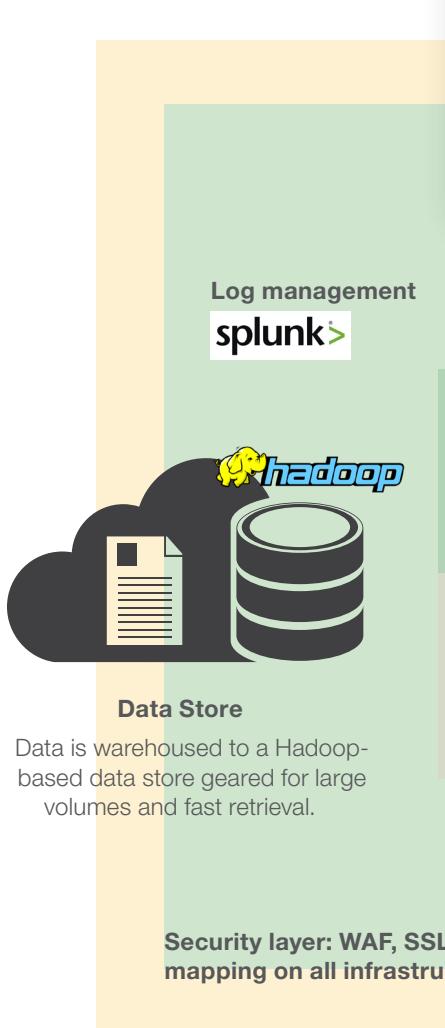
### Device Manager

The AdvisIQ application also integrates with Apple HealthKit and over 175 wearable devices. These data sources can be connected by the patient or clinician to monitor change in weight, activity level and sleep cycle.

Data captured within the application is pushed back to the physician dashboard for analysis and monitoring.



## VISUALIZING THE PLATFORM



### Security layer: WAF, SSL, Hipaa mapping on all infrastructure

### Patient Application

The AdvisIQ patient application enables the capture of patient self-reported data as well as data from wearable devices.



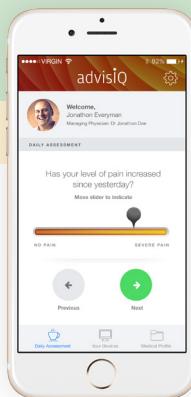
### Provider Application

Providers can analyze patient self-reported data through the intuitive cross-platform AdvisIQ application.



### EMR Data Source(s)

The AdvisIQ platform can pull data from multiple EMR data sources. Examples:



### FHIR-Based Web Services Layer



### Wearable Integration

Interoperability with 175+ devices



advisIQ

## FINANCIAL ESTIMATES

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### Assumptions Made in Financial Model

The following assumptions are made in the posed pro-forma financial model:

1. The model represents capturing only a small percentage of marketshare (a total of 276 customers) over a period of 5 years. Please see engagement plan for a more detailed breakdown of potential marketshare. 100% customer retention is also assumed in the model.
2. Open source solutions - as represented on the previous page - would be employed to reduce overall cost of ownership for the platform. Amazon web services would be used for hosting of infrastructure to support scalability as the business grows.
3. After initial build out of the product, the IT and Development team would be split into three groups: Implementations, Research/Development and IT Support enabling the same group of staffing to support both build activities as well as customer roll-outs.
4. Sales model demonstrates linear growth of the sales team between year 1 and 2 with static sales goals for the duration of the 5 year plan.
5. A static, annual license cost of \$50,000 per institution is represented. Final pricing model would be determined based upon further market research and after orchestration of a pilot. Final pricing model could include: one time implementation fees, data source integration fees, PMPM based pricing as well as licensing by product feature.
6. Cost of orchestrating a pilot implementation is not shown in the model but would be necessary to refine the product and gain market credibility.

### Capital Needs

Due to the capital needs required to develop, prove and grow the solution in the market, AdvisIQ aims to partner with an existing solution and/or capital provider on the execution of the platform and initial pilot program.



## FINANCIAL ESTIMATES

A pro forma balance sheet is presented below based upon the assumptions made on the previous page. This model is also available in Microsoft Excel format and is included with the submission.

	2016	2017	2018	2019	2020
<b>Personnel Assumptions</b>					
<b>Senior Management Compensation</b>					
Chief Executive Officer	218,750	218,750	218,750	218,750	218,750
Chief Information Officer	187,500	187,500	187,500	187,500	187,500
Chief Marketing Officer	93,750	187,500	187,500	187,500	187,500
Chief Medical Officer	93,750	187,500	187,500	187,500	187,500
Total Senior Management Salaries & Benefits	593,750	781,250	781,250	781,250	781,250
Total Senior Management Headcount	3	4	4	4	4
<b>Business Development Compensation</b>					
Manager	46,875	93,750	93,750	93,750	93,750
Total Business Development Salaries & Benefits	46,875	93,750	93,750	93,750	93,750
Total Business Development Headcount	1	1	1	1	1
<b>Sales Compensation</b>					
Director of Sales	37,500	75,000	75,000	75,000	75,000
Salesperson 1	20,125	40,250	40,250	40,250	40,250
Salesperson 2	-	40,250	40,250	40,250	40,250
Total Salesperson Salaries & Benefits	57,625	155,500	155,500	155,500	155,500
Total Salesperson Headcount	1	3	3	3	3
<b>Marketing Compensation</b>					
Manager	46,875	93,750	93,750	93,750	93,750
Digital Marketing Specialist	-	55,000	55,000	55,000	55,000
Total Marketing Salaries & Benefits	46,875	148,750	148,750	148,750	148,750
Total Marketing Headcount	1	2	2	2	2
<b>IT Compensation</b>					
Manager/Chief Architect	125,000	125,000	125,000	125,000	125,000
Manager/Implementation	125,000	125,000	125,000	125,000	125,000
ETL Developer	87,500	87,500	87,500	87,500	87,500
ETL Developer 2	87,500	87,500	87,500	87,500	87,500
Web Services Specialist	87,500	87,500	87,500	87,500	87,500
Front-end developer 1	62,500	62,500	62,500	62,500	62,500
Front-end developer 2	62,500	62,500	62,500	62,500	62,500
Database Architect	87,500	87,500	87,500	87,500	87,500
Database Architect 2	87,500	87,500	87,500	87,500	87,500
AWS Specialist	87,500	87,500	87,500	87,500	87,500
Java Developer 1	87,500	87,500	87,500	87,500	87,500
Java Developer 2	87,500	87,500	87,500	87,500	87,500
Security Specialist	112,500	112,500	112,500	112,500	112,500
Total IT Salaries & Benefits	1,187,500	1,187,500	1,187,500	1,187,500	1,187,500
Total IT Headcount	13	13	13	13	13
<b>Other Compensation</b>					
Legal Support	156,250	156,250	156,250	156,250	156,250
Finance Associate	25,875	51,750	51,750	51,750	51,750
HR Associate	-	51,750	51,750	51,750	51,750
Compliance Associate	-	45,000	45,000	45,000	45,000
Total Other Salaries & Benefits	182,125	304,750	304,750	304,750	304,750
Total Other Headcount	2	4	4	4	4
<b>Total Salaries &amp; Benefits</b>	<b>2,114,750</b>	<b>2,671,500</b>	<b>2,671,500</b>	<b>2,671,500</b>	<b>2,671,500</b>
<b>Total Headcount</b>	<b>20</b>	<b>27</b>	<b>27</b>	<b>27</b>	<b>27</b>
<b>Income Statement</b>					
Estimated AWS Infrastructure Expense	3500	18000	24000	24000	60000
Cost of institutional annual software license					
Licenses sold per sales person					
Annual revenue generated per sales person					
Annual revenue generated total (assumes 100% retention)	0	300000	6600000	10200000	13800000
Number of customers	0	60	132	204	276
<b>Revenue less expense</b>	<b>(2,118,250)</b>	<b>310,500</b>	<b>3,904,500</b>	<b>7,504,500</b>	<b>11,068,500</b>



## ENGAGEMENT PLAN

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In 2016, an estimated  
**1,685,210**  
new cases of cancer will be diagnosed  
in the United States alone

Nearly  
**14,000,000**  
survivors living beyond a diagnosis in 2014  
(expected to increase to 19 million by 2024)

Sadly  
**39.6%**  
of men and women will be diagnosed  
with cancer during their lifetime

Approximately  
**1,500**  
cancer centers exist in the United States  
as of 2015.

Sadly, the numbers above speak for themselves.

AdvisIQ seeks to initiate an un-paid pilot to validate the actionability of data and insights derived from the patient and provider application suite. Ideal pilot would include integration of multiple physician EHR sources and deployment of the patient mobile application within a population of 100+ patients. Results of the pilot would be used to further refine the product itself and form the basis of initial market engagement.

A board of physician and intitutional advisors would be recruited as thought leaders and avocates of the product. Initial market outreach would co-authored to boost market credibility.

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**Cites:**

- 1.) NCI-Designated Cancer Centers, <http://www.cancer.gov/research/nci-role/cancer-centers>
- 2.) Cancer Facts and Figures 2015, American Cancer Society



## ENGAGEMENT PLAN

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### Customer Segments

Once established, the AdvisIQ business development team and advocacy board would seek to implement the platform as part of treatment protocols in the following organization types. The AdvisIQ team would work with organizations to seek grant funding to aid in offsetting the cost of implementation.

1. Private Cancer Centers
2. NCI-Designated Cancer Centers
3. Behavioral Health Management Organizations
4. Quality of care based organizations

Additionally, once sufficient datasets are available, AdvisIQ aims to open anonymized result sets for institutional and ongoing research initiatives.

### Marketing Strategy

AdvisIQ intends to use simplistic marketing strategies including but not limited to the below to boost customer acquisition and interest:

- 1. Social Media Thought Leadership:** Raise awareness of the impacts of mental state and behavioral health management as an integral component of successful oncology treatment protocols. Connect with industry thought leaders on platforms such as LinkedIn to bolster company voice
- 2. Conferences and Tradeshows:** Become a known voice in the industry through attendance, sponsorship and demo opportunities at tradeshows and conferences
- 3. Publications:** Co-author articles in medical journals with physicians engaged in the treatment of patients in active pilots





advisiq.com