



Build vs Buy

Launching an integrated patient-reported outcomes program

Understanding the complexities and requirements for using PROMs to drive continuous quality improvement & unlock value throughout the enterprise.

www.patientiq.io
hello@patientiq.io

350 W. Ontario St, 3rd Floor
Chicago, IL 60654

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Quality care's conundrum

Collecting and quantifying patient-reported outcomes is a central component to improving the quality of care. Using outcomes to inform clinical decision making, operational intelligence, and instilling a culture of quality still remains an area of opportunity for many US healthcare institutions.

Despite most healthcare leaders agreeing on the importance for collecting patient-reported outcomes, there are often times infrastructure related roadblocks to making meaningful progress in implementing a successful outcomes program.

To do this effectively, many diverse stakeholders and disparate information technology systems must be coordinated to ensure a top-tier patient experience and to avoid impeding workflows. Inevitably, decision-makers must decide:

“Do we take the time to build our own outcomes program using internal resources, or do we work with a third-party vendor?”

More often than not, outcomes programs fail due to inefficient design and lack of resources to support the ongoing collection, analysis, and structuring of patient-reported data for quality reporting and actionable insights at the point-of-care.

Whether your hospital is large or small, some considerations to have when deciding between building or buying an outcomes solution are the financial and human capital resources required for integration, maintenance costs, and breadth of product.

A survey of leading health systems indicates that it takes

12-24 months

to collect your first PROM when choosing to build internally on Epic.

These leading health systems are then only achieving an average of

15%-50%

PROM compliance rates.

Don't **re-invent** the **wheel**

PatientIQ's mission is to empower clinical teams to practice data-driven medicine. Our technology has been designed to seamlessly integrate with the EHR and to help streamline the entire design-to-deployment process of an integrated outcomes program. We take on the heavy lifting to enable your teams to focus on what matters the most: improving patient outcomes.

- Institutional decision to collect PROMs.
- Establish a multidisciplinary working group.
- Identify priorities & target patient populations.
- Select PROMs.
- Select assignment logic & cadence.
- Build your workflow engine.
- Integrate multiple distinct Epic modules.
- Assign the right PROM to the right patient at the right time.
- Develop and assess conditional logic to ensure top-tier patient experience.
- Build operational dashboards for compliance monitoring.
- Solve for research, registries, and industry-sponsored studies.
- Solve for migration of legacy data.
- Train all users on new workflows.
- Manage post-go-live support.
- Ensure the ability to add new PROMs quickly.
- Collect your first PROM.



Technical requirements



Launching an integrated outcomes program is complex. On the surface, assigning a survey to a patient, capturing the responses, and making them available in an EHR sounds relatively simple. For those who have worked in production healthcare IT environments, the reality is that there are many challenges when it comes integration. To do this successfully, you must be prepared to seamlessly integrate many distinct EHR modules, IT systems, clinical stakeholders, and staff workflows to achieve success.

Taking an inventory of the moving parts in our system

At a high level, multiple EHR modules will require integration into the outcomes program development strategy. We will need to build a “Workflow Engine”, then tackle the infrastructure required to support the program’s ongoing success.

- **Cadence** – Epic’s scheduling module for Outpatient and Specialty clinics. Visits in Cadence must be targeted by our Workflow Engine (see next page).
- **OpTime** - an operating room/surgery module for Epic. It has components for inpatient surgery as well as outpatient surgery. Surgeries in OpTime must be targeted by our Workflow Engine (see next page).
- **EpicCare ambulatory** - used to document visits. By modifying Epic Ambulatory, we can make the PROMs assessable in the Flowsheet and Synopsis view.
- **Epic caboodle** – data warehouse to store and retrieve patient-reported outcomes data. Once we are ready to view population health reports, each PROM response will be mapped to Caboodle. Custom queries will need creation to make this data clinically relevant and actionable.

Anatomy of a workflow engine

The Workflow Engine ensures that the right PROM is assigned to the right patient at the right time. To excel at this, we have built several capabilities, such as:

Identifying the **Patient Population**

PROMs are inherently patient-centric. PatientIQ's system is robust enough to ensure that we are able to target the right PROM survey to the right patient. Search parameters must include:

Cadence Visits

- Location of Visit
- Visit Status
- Visit Reason
- Visit Description
- Attending Provider
- Date of Visit
- Type of Visit
- Department

OpTime Visits

- Surgeon
- Planned Procedure Code(s)
- Planned Procedure Description
- Date of Surgery
- Location of Surgery

Patient Demographics

- Age
- Sex
- Visit Reason
- Language preference

Patient Chart

- Diagnoses
- CPT Codes

Patient Experience of Care

- Patient satisfaction
- Patient motivation and activation

Patient-Reported Outcome Scores

- Health-related quality of life
- Functional status
- Symptoms and symptoms burden
- Health behaviors

Custom Properties

- Additional targeting data attributes must be added for each clinical scenario

Assigning the right PROM to the right patient at the right time

After PatientIQ identifies the correct patient population of interest, our platform was built to consider the nuances behind effectively assigning the questionnaires and handling the edge cases.



Cancelled visits
Do we cancel the PROM?



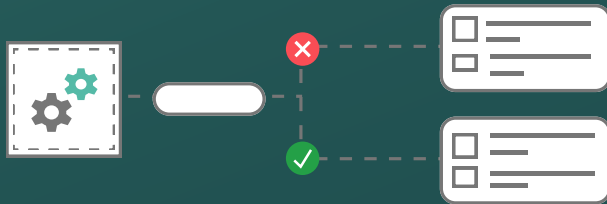
Rescheduled visits
What if the patient already completed the PROM before rescheduling?



Conditional logic
Based on where the patient is in their overall sequence!
Executed at the task level based on the prior responses of the patient



De-duplicating workflows
What if a patient is seeing multiple providers?
Do we assign the same survey twice?
Recency logic



Example

If a patient is experiencing high pain, you can conditionally assign a more detailed pain assessment.

Ensuring a top-tier Patient Experience

Having a thoughtful outcomes program tailored to the patient's needs and care will positively impact patients' experiences within our health system. Since rigid workflows may impede a top tier patient experience, additional scenarios are also considered by our engine.

Designing a system optimized for patient accessibility means that we must also consider:

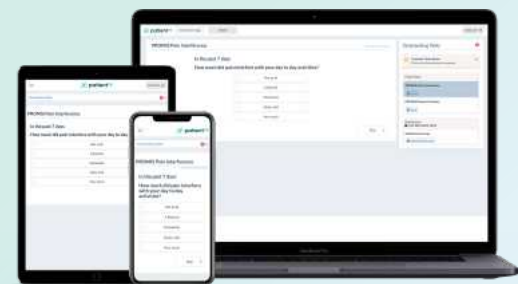
Ease of Use

- Are the PROMs easy to read and understand?
- Are they optimized for all web browsers and email clients?

Frictionless Login

- Can the patient easily access their PROMs?
- Does the patient have to remember a username or password?

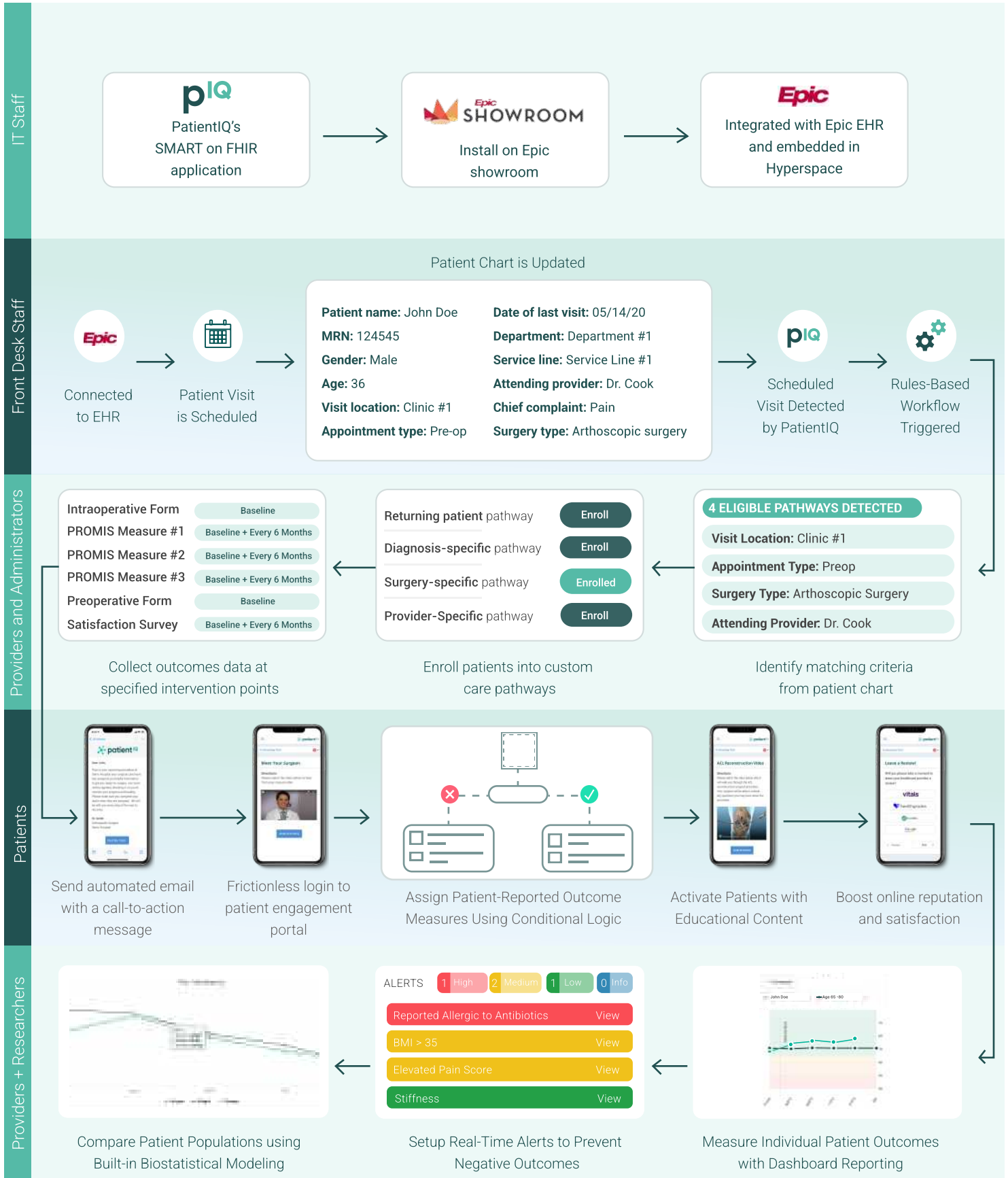
Upon completing the build of our workflow engine, we will need to establish a monitoring system to gain business intelligence for evaluating the program's success.



Example

Patients can complete their tasks from any internet connected device (smartphone, tablet, laptop, desktop).

Meet the PatientIQ Workflow Engine



Operational dashboards and shared decision- making

Monitoring **Program health**

Ensuring that we can effectively monitor the outcomes program, identifying areas of improvement, and using data to inform future investments and infrastructure is critical. A successful outcomes program must be equipped with operational dashboards that clinical staff, program managers, IT stakeholders, and administrators can use with ease.

Integration into the **point-of-care**

It is important to remember that the goal of developing an outcomes program is not simply to collect data, but more importantly to improve patient care. Therefore, we need to design the strategy for incorporating PROMs into the point of care in a seamless workflow for our providers.

PatientIQ recommends building out the following reports & dashboards to start:

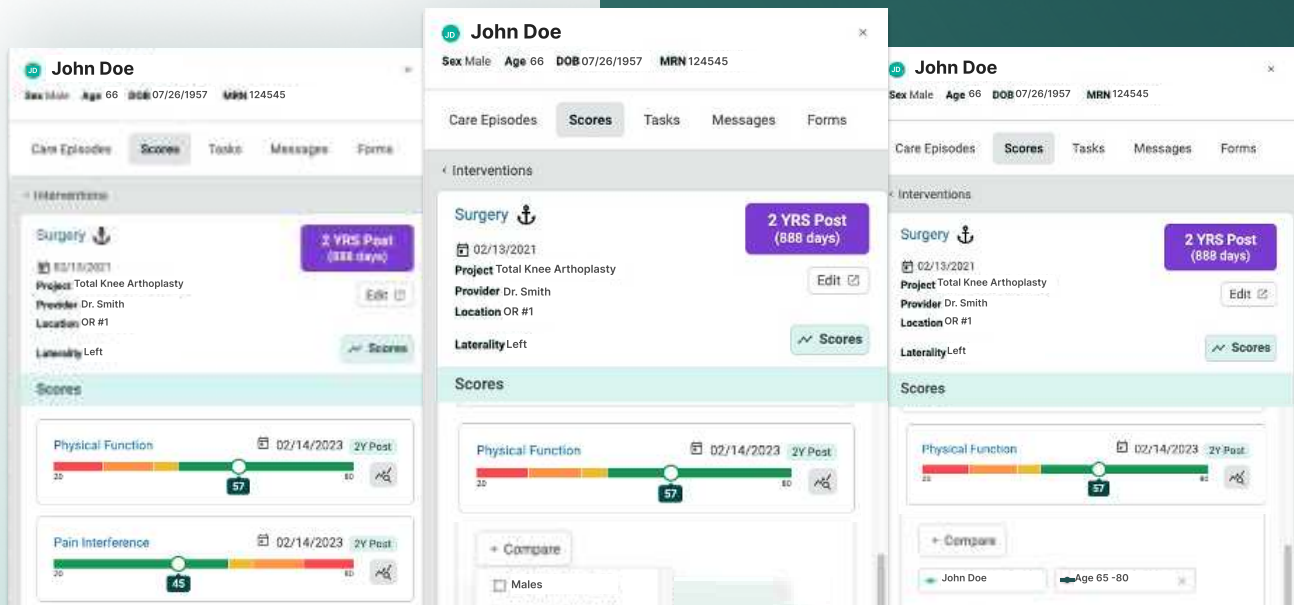
Compliance reporting by:

-  Department
-  Visit type (new vs. return)
-  Clinic
-  Targeted patient population
-  Service line
-  Time interval
-  Provider

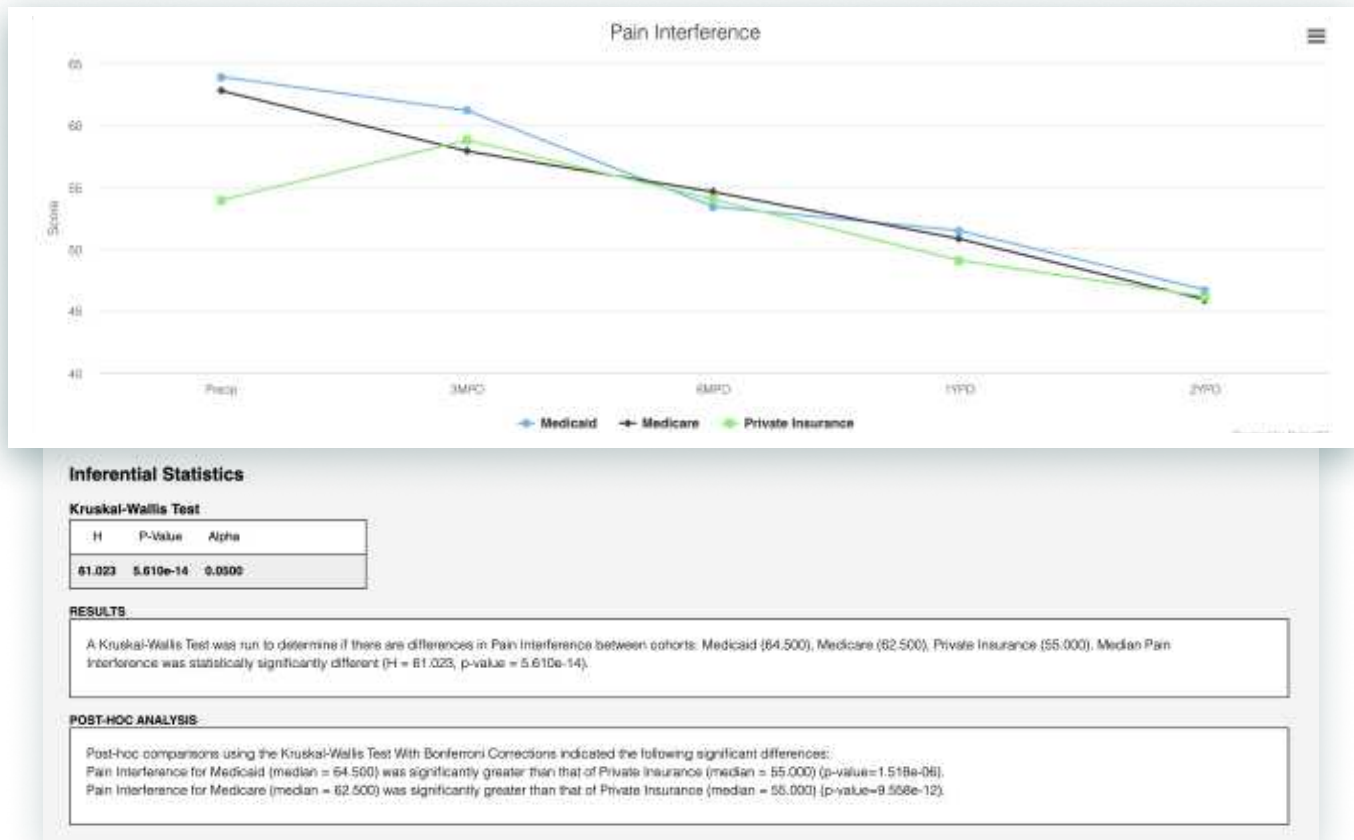
PatientIQ recommends generating insights that are easy to understand and actionable for providers:

Benchmark PROM scores by:

-  Department
-  Comorbidities
-  Diagnosis code
-  Risk factors
-  Procedure code
-  Similar patient groups



Population health management and quality reporting



PatientIQ generates **real-time insights**

Having the ability to support real-time reports, dashboards, and analytics specific to the various patient populations is critical. Stakeholders can monitor how they're performing across the full cycle of care. The democratization of these reports is the most effective way to make sure that your quality initiatives are a first-class citizen at your institution. PatientIQ achieves this by fostering a data-centric culture and developing product features that seamlessly integrate data-driven insights directly at the point of care.

As we shift towards value-based care, entities ranging from the Joint Commission to Medicare, as well as accreditation bodies such as AAOS, are mandating that institutions regularly submit their patient-reported outcomes data. Our platform aggregates and submits regulatory reports automatically, all by leveraging the underlying data structures built into PatientIQ's front-end when initially launching in your institution.

We believe that each provider on the front lines of patient care should be equipped with data-driven insights to gain complete visibility into how their treatments are translating into patient outcomes.

Business considerations



Upfront costs



Maintenance costs



Speed to deployment



Scalability

Upfront costs

The initial costs associated with launching an outcomes program are a primary business consideration, as these expenses represent a significant portion of the financial investment against which the program's return on investment will be measured. The up-front costs can be segmented into three primary categories:

- **Program Design** – the time required from the broader project team to design an outcomes program that successfully meets the needs of a diverse group of stakeholders.
- **PRO Licenses** – acquiring the necessary licenses to administer patient-reported outcome surveys, such as the PROMIS assessments.
- **Custom Epic Build** – the internal Epic IT resources needed to: I) build the outcome surveys and other custom forms, II) integrate the program across various Epic modules to successfully power the underlying patient engagement engine (see Section 2 for more details), and, III) build the reporting needed to measure the program's success.

How PatientIQ can help

PatientIQ's engagement engine is already built and comes with out-of-the-box support for core Epic data models that require no customization. There is no need to reinvent the wheel, especially when considering the significant cost measures that are thrust upon the customer when needing to do so.

PatientIQ's technology can be easily configured to mold around existing, provider-specific workflows, therefore providing a truly custom solution that meets the unique needs of your institution.

Population health management and quality reporting

The cost of ownership of an outcomes program consists primarily of the up-front expenses, the maintenance costs required to optimize workflows, and above all else, making the outcomes data you collect actionable. Of note, the maintenance costs are difficult to quantify on the front-end, and as a result, these costs are often understated or occasionally neglected entirely. However, regardless of the investment made on the front-end of launching an outcomes program, there will always be future maintenance. These maintenance costs most commonly come in the form of:

- **Modifying Existing Workflows** – Once the program is up and running, healthcare providers and administration will inevitably identify ways to improve upon what has been built to unlock incremental value.
 - Example – building and assigning an additional outcome measure to a patient population, which may also require a new flowsheet end point or discrete data field to display the score in the patient's chart.
 - Example – updating the order sets to remain current with industry best practices as new and improved patient reported outcome measures are validated.
- **New Workflows / Order Sets** – Expanding the program to better target a patient population with a specific diagnosis or prescribed treatment, thereby creating a more personalized experience for the patient and unlocking more valuable insights for the provider / health system
 - Example – building a more specified ACL Reconstruction order set that varies from the original and more generic Sports Knee order set (this may also require new conditional logic to be built into the patient engagement engine).
- **Enhanced Business Intelligence** – Continuing to enhance the reporting and dashboard capabilities to generate easy-to-consume and actionable insights will be critical to extracting value from your outcomes data.
 - Example – adding the ability to easily benchmark patients against customizable peer sets (e.g. patients with a similar diagnosis who are at a similar time interval in their treatment cycle).

How PatientIQ can help

PatientIQ offers full-service, direct end-user support for every PatientIQ user. As a result, the cost required to maintain the outcomes program offloads onto PatientIQ's Customer Success team.

Outside of the initial set-up/implementation process, PatientIQ customers typically average 1 - 2 requests per quarter related to the outcomes program that will require ISD involvement. Leveraging PatientIQ as an extension of your team will help unlock your IT bandwidth to focus on other high-value initiatives at your institution.

Speed to **deployment**

The time required to deploy a solution, whether it's built internally or purchased from a third-party, is always an important consideration for business leaders. There is a significant cross-functional effort required on the front-end to build a successful outcomes program (as detailed in **Section 2 – Technical Considerations**). These efforts incur direct costs – an investment, which will not begin to realize any return on investment until much farther down the road. More importantly, these workstreams will always have accompanying opportunity costs. The opportunity costs and the strategic tradeoffs they inherently create is what most often leads to project delays, scope reduction, and/or dissatisfaction in the end product. However, prioritizing speed to deployment on the front-end will only yield additional maintenance costs on the back-end while also risking a negative patient experience in the interim.

How PatientIQ can help

PatientIQ's out-of-the-box solution will reduce the "time to first value", or when you collect your first patient-reported outcomes survey, from 12-18 months (depending on the engagement engine's level of sophistication), to only 4-6 weeks on average. PatientIQ has **launched an outcomes program at large integrated health systems in as little as 13 business days** from kickoff to collecting the first patient outcome questionnaire, including an Epic integration, user training, and everything in between.



Scalability

As the use cases for patient reported outcomes expand across medical specialties, scalability is an increasingly important consideration when it comes to implementing an outcomes solution. Due to the customization performed on certain Epic modules (eg. Interfaces with MyChart, Ambulatory, etc.) during PatientIQ's initial implementation, the program scales with ease given the light touch modifications that may be required as new groups adopt the platform.

Given the differing patient populations, new PRO assessments and scoring algorithms will need to be built as the program expands across departments. There is also a high probability that the decision logic in the patient engagement engine underlying when those assessments are triggered and to which patient populations will also require modification. This is especially the case when leveraging conditional logic to assign patient tasks – a critical component to delivering personalized medicine in a highly automated manner.

How PatientIQ can help

PatientIQ offers a scalable solution that your institution will be able to continue to grow on in a cost-effective manner. On average, it has taken 18-24 months for health systems and large academic medical centers to successfully launch and stabilize an outcomes program in a single department. PatientIQ can accelerate the roll-out of your outcomes program dramatically. For example, in less than 12 months, PatientIQ launched over 50 pathways across four departments at a large integrated health system, while also achieving over 90% compliance rates on patient outcome collection.

Outcomes collection is just the beginning

When it comes to designing and launching an outcomes program, all too often the conversation centers solely around how to assign and collect the right surveys from the right patients. Understandably, this is a primary focus given the patient engagement engine is foundational to the program (and patient experience). Defining this just as an outcomes program is short sighted – outcomes collection is just the beginning.

PatientIQ offers a suite of integrated solutions built upon the outcome program's patient engagement backbone to enable our customers to better execute on their digital health strategy.



Clinical
Protocol



Check-in
Reminders



Pre-procedure
Instructions



Visit
Reminders



Patient
Engagement



Risk
Stratification



Proactive
Monitoring



Integrated Patient
Education



Personalized
Medicine



Research
& Registries



FDA Compliant
eConsenting



Alerts &
Care Navigation



Dashboard
Reporting



Pre-
Habilitation

Most solution's goals are to collect patient outcomes,
PatientIQ's goal is to **improve them.**



For more, visit www.patientiq.io

PatientIQ is the healthcare technology partner for practicing data-driven medicine. Its proprietary, cloud-based platform has demonstrated years of experience and an unparalleled ability to help empower healthcare organizations with patient outcomes data. Through an EHR-integrated platform, healthcare organizations can systematically collect and analyze patient-reported outcomes enabling a comprehensive assessment of care delivery and informed decision-making. The platform facilitates collaboration, from research to registries, to drive better care for all.

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