



CONNECTED APPS IN HEALTHCARE 2017

A Look at Trends and Provider Attitudes in a Growing Market

About This Report

Each year, KLAS interviews thousands of healthcare professionals about the products and services their organizations use. These interviews are conducted using a specialized evaluation. The scores and commentary collected are shared online in real time so that other providers and IT professionals can benefit from their peers' experiences.

The insights reported in this research come from a supplemental evaluation developed in partnership with the Substitutable Medical Applications, Reusable Technology (SMART) Health IT Project at Boston Children's Hospital and funded by the Office of the National Coordinator for Health Information Technology (ONC). The goal of this report is not to quantify specific vendor performance data but to describe healthcare organizations' thoughts on healthcare applications (apps) and these organizations' general perceptions of the marketplace.

For this report, KLAS primarily spoke with clinical leadership at larger healthcare organizations about how they use apps today, what they would like to see in the future, and what concerns they have.

This research report was funded by ONC Cooperative Agreement 90AX008/01-01 (Principal Investigator: [Kenneth D. Mandl, MD, MPH](#)) and managed by the SMART Health IT Project.

SMART Health IT is an open, standards based technology platform that enables innovators to create apps that seamlessly and securely run across the healthcare system. Using an electronic health record (EHR) system or data warehouse that supports the SMART standard, patients, doctors, and healthcare practitioners can draw on this library of apps to improve clinical care, research, and public health.

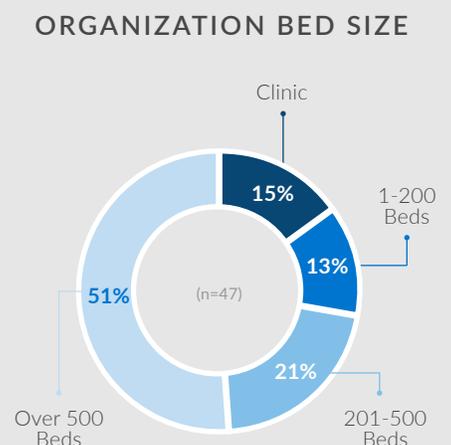
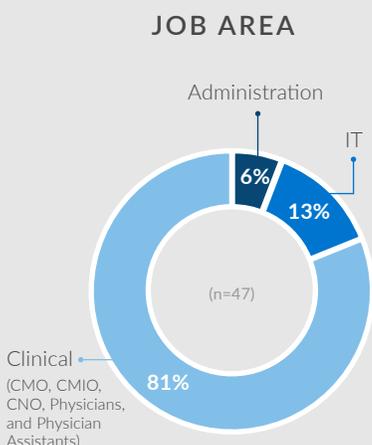
The SMART platform is composed of open standards, open source tools for developers building apps and a publicly accessible app gallery. To date, dozens of clinical applications have been built on this platform and SMART applications are being used to provide clinical care at leading healthcare institutions, including Boston Children's Hospital, Duke Medicine, and Intermountain Healthcare.

The SMART Health IT Project is run out of the not-for-profit institutions, Boston Children's Hospital Computational Health Informatics Program (<http://www.chip.org>) and the Harvard Medical School Department for Biomedical Informatics. More information about the project is available at <http://smarthalthit.org>.



Note: For the purpose of this report, the following definition of an app is used: Mobile or desktop software for clinicians that can connect to your EHR system and offer features that supplement the capabilities of the EHR. Apps may read and modify clinical data including patient demographics, vital signs, labs, problems lists, and medications. Examples of apps include risk calculators; decision support tools; data capture forms for research studies, payers, and public health agencies; customized, printable, patient handouts; streamlined clinical data entry and order entry screens; patient panel management dashboards; visualizations of lab results; etc.

Survey Participants By:



Introduction

The role of apps in healthcare is growing and healthcare providers feel apps have the potential to deliver a speedy return on investment (ROI) and positive clinical impact. For years, healthcare providers have been adopting increasingly integrated healthcare IT (HIT) suites from a single vendor, but healthcare apps buck this trend, with many organizations looking to third-party vendors to supply niche solutions to improve organizational efficiency and patient care. The recent passage of the 21st Century Cures Act, which states that a year from now open APIs will be necessary for EHR system certification, is expected to drive further growth in the app ecosystem. Despite the buzz around apps, the industry has questions around usage. KLAS interviewed 47 healthcare organizations about their app strategies to answer the following:

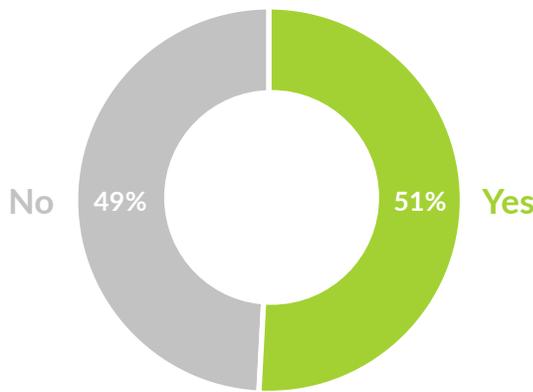
- 1 What does the healthcare app market look like today?
- 2 What are providers looking for in healthcare apps?
- 3 How do providers select healthcare apps?
- 4 What concerns do providers have around third-party app usage?



App Landscape Is Immature, But Viewing Basic Patient Data Is Common

ARE YOU CURRENTLY USING ANY APPS AT THE POINT-OF-CARE?

(n=47)

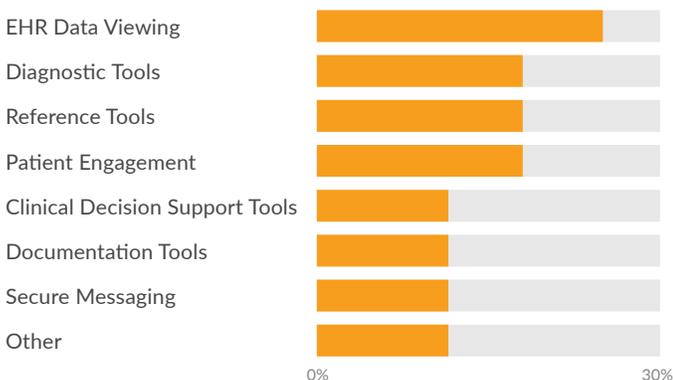


Use of apps in healthcare is still early. Around half of healthcare organizations do not formally use apps at the point-of-care today, though individual clinicians often make use of them. Additionally, the current app landscape primarily consists of basic apps that allow data in the EHR to be viewed. Few organizations are live with more advanced use cases today. Still, the use of apps is fairly widespread and healthcare providers leverage these tools for a number of reasons.

The most common reason providers use apps at the point-of-care is to view patient information in the EHR. Often, these tools are provided by their EHR vendor, such as athenahealth, Cerner, or Epic, and they are typically view only without any documentation capabilities. (Documentation tools are less common and are often provided by third-party vendors.) Diagnostic apps to assess a patient's overall health and condition, medical reference apps, and patient engagement apps are also among the most common types of apps used at the point-of-care today: "One of the apps that I use frequently is a colposcopy recommendation app for when a woman has an abnormal pap smear and needs a biopsy done...It is a reference tool. I enter in the data I collect, and the app tells me the latest recommendations of what my next steps should be." (Medical Director)

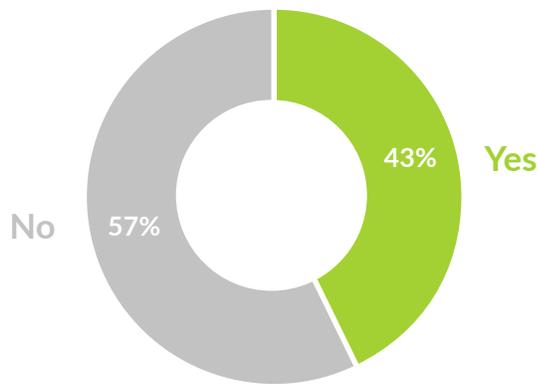
IF USING APPS AT THE POINT-OF-CARE, WHAT TYPES OF APPS ARE YOU USING?

(n=24)



DO YOU CURRENTLY INPUT ANY CLINICAL DATA INTO AN APP OUTSIDE THE EHR?

(n=47)



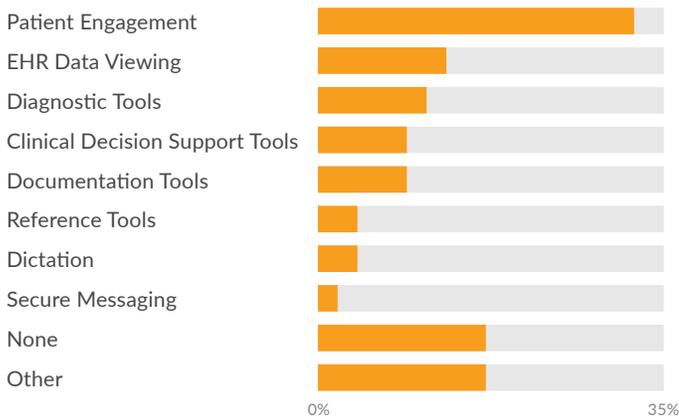
In most cases, providers are not inputting clinical data into healthcare apps, although a few organizations have taken this step. Those who are inputting clinical data find that it streamlines their ability to initially assess a patient. Other providers are hoping to input clinical data into currently available apps in the future as their healthcare app strategy evolves and becomes more formalized: “We are just starting to talk about apps and availability. One of the things on our road map for our EMR and our other systems is the API and what we could do. That is going to be a big topic for us this year.” (CMIO)



Patient Engagement Emerges as Top Area for Development

WHAT HEALTHCARE APPS DO YOU WANT TO CREATE OR BUY?

(n=47)



Looking forward, providers would like to purchase or develop patient engagement apps to help monitor patient health, provide patient education, and allow patients to access records and results with ease. Monitoring apps particularly stand out as an area in which providers would like to see development. This type of app has the potential to improve management of chronic diseases, such as diabetes and heart disease, and some organizations are already leveraging these types of apps to ensure patients and families are properly managing care: “Patients want to be able to connect their home health monitoring devices. . . . We have an innovations group creating a continuous blood glucose monitoring system for patients that will be implanted subcutaneously. That will send a notification to the patients’ spouses when the patients’ blood sugar drops below a certain value.” (CMIO)

Another way providers would like to keep patients engaged in their care is through more robust patient portal apps. Many providers would like to see portal tools that go beyond simply allowing patients to access test results to providing kiosk functionality, prescribed patient education, and alerting capabilities. “What I would like a patient app to do for us is to keep patients informed all throughout their two- to four-hour ED stay,” a CMO explained. “For instance, the app could inform them that their CBC has come back okay and that their physician is waiting on the read. That way patients would stay updated and know that their provider isn’t in the back room sipping lattes just because she hasn’t visited their room for an hour.”

Beyond patient engagement, there is a desire for additional tools to help clinicians see patient information and appropriately diagnose and treat a condition. What these tools have in common is the potential to increase clinician efficiency and efficacy at the point-of-care, two things that are critical in the healthcare environment, where clinicians may spend hours each day documenting after patient encounters.

In smaller hospitals, the ability to view EHR data using apps is still largely absent. However, many of these organizations hope to adopt apps to help with EHR data viewing in the future.



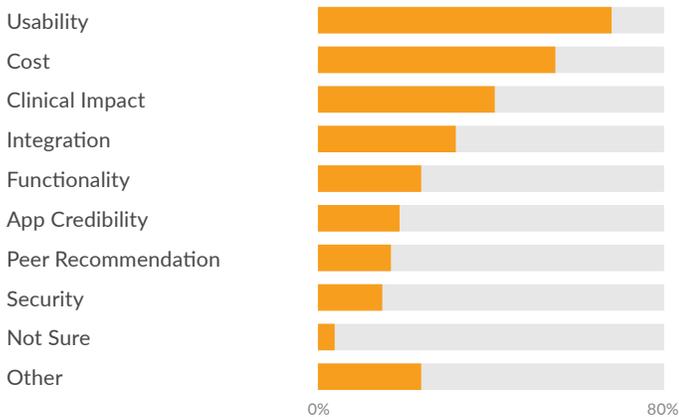
The App Selection Process: Selection Criteria, Decision Makers, and App Education



The process of procuring an app for an organization is somewhat ambiguous and few healthcare providers have a formal department and procedure for deciding what apps to purchase. Still, as apps become a greater area of focus several trends around purchasing have emerged.

WHAT ARE YOUR TOP FIVE CRITERIA WHEN EVALUATING A POTENTIAL APP FOR PURCHASE?

(n=47)



Usability, Cost, and Clinical Impact Matter Most When Selecting an App

The first emerging trend is that usability is the most important factor healthcare organizations take into account when purchasing an app. Since one of the primary reasons apps are used in the first place is to save time and improve efficiency, most providers will not consider apps with low usability that may not be adopted by clinicians or that may require additional training.

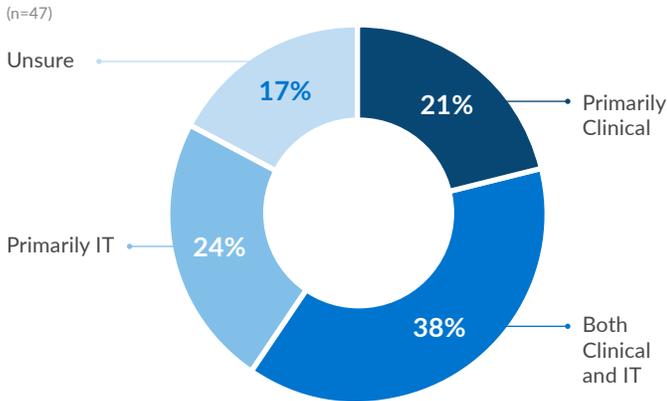
Usability goes hand in hand with the overall value providers derive from a given app, as explained by a CMO: *“The product has to be usable, as this will impact the product’s utility in clinical care. Ease of use will also greatly outweigh any upfront or maintenance costs. If I end up wasting 30 minutes per patient using an unfriendly interface, then I don’t care how much money I am saving; I am going to lose it in the end.”*

Another key factor providers consider when purchasing an app is upfront cost. Just as usability is tied to overall value, providers’ views on cost are closely tied to clinical impact, another important selection factor. *“Cost has to be an issue for small practices, but I am willing to pay more if we get something that truly helps us,”* shared a physician. *“For example, it looks like athenahealth’s system would cost us over \$1,000 more per month compared to our current EMR, but I think in the long run, it would be worth it.”* Additionally, providers are interested in the business model of an app company and how that may impact how the app is funded (one-time cost vs. subscription) and the possibility of implementation, data storage, or ongoing maintenance fees.

Integration is another criteria that matters today and it will likely become even more important as providers move beyond the initial adoption. Because one of the goals of using healthcare apps is to streamline care and reduce clinician documentation time, the ability to integrate is critical to long-term app satisfaction. A chief development officer explained, *“I don’t want anything that would make our providers have to do double data entry, once in the app and again within our EMR.”*

Beyond selection criteria, one CMIO cautioned that providers ought to establish a real need before moving forward with an app purchase: *“IT should not be a solution in search of a problem. We should have the problem before searching for an IT solution.”*

WHO IN YOUR ORGANIZATION IS RESPONSIBLE FOR SELECTING AND PURCHASING HEALTHCARE APPS?



IT Plays Critical Role in App Selection

When it comes to who decides which apps will be purchased, the IT department tends to play the most influential role. Even in cases where a selection committee includes members from both clinical and IT backgrounds, IT is often given the final say in purchasing.

This is the case for three primary reasons. First, the IT department understands the healthcare organization’s overarching security strategy and is best positioned to determine which apps will best fit that strategy. Second, the ability to integrate apps into the EHR, patient accounting system, and other solutions is of growing importance to providers and IT is responsible for ensuring the flow of data is possible. Finally, apps, like any other healthcare IT systems, require updates and other ongoing maintenance that will be carried out by IT.

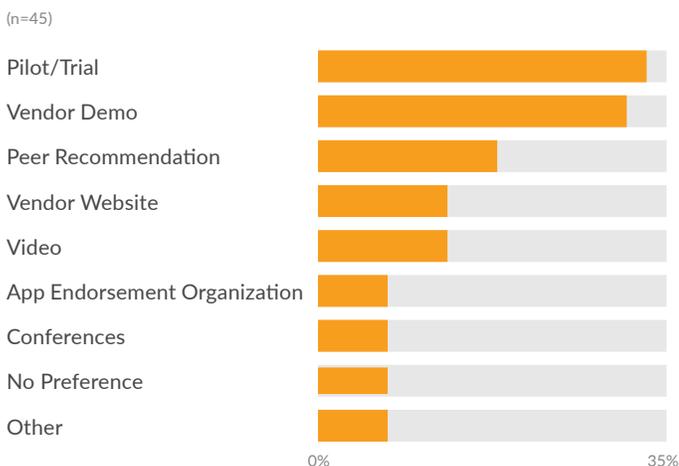
Some larger healthcare organizations have established formal app selection committees run by the IT department and more and more organizations anticipate formalizing the role of app selection by creating a new role within IT. Today however, this role is rare, though the use of selection committees is growing:

We try to run all of the IT purchasing decisions through our governance process. We have an IT executive steering committee and an application advisory committee. We have a technology and infrastructure advisory committee. We send the requests up to that committee and they are filtered up through to the

IT executive steering committee and most of the time, that committee makes the final decision. The projects that require 80 hours of work, multiple teams’ involvement, or capital dollars go through the IT executive steering committee. We have a lot of smaller things that go through our chief medical information officer and IT leadership for approval. (IT Director)

While IT may drive app decisions in most organizations, around one-fifth of organizations interviewed by KLAS lack any established purchase process specifically for apps.

WHAT IS YOUR PREFERRED WAY OF LEARNING ABOUT APPS PRIOR TO MAKING A PURCHASE?



Pilots and Demos Most Effective Ways to Learn About Apps

When it comes to how both IT and clinical decision makers want to learn about apps, one thing is clear: providers don’t want to be cold called. *“If I learned about apps through solicitations by vendors, I would be sitting here all day doing nothing but responding to those solicitations,”* said a CMIO. Instead, providers prefer to learn about apps through other means—such as conferences, peer recommendations, and websites—before bringing in an app vendor for a pilot or demo.

These pilots and trials are seen by providers as invaluable to the app selection process. Unlike some healthcare IT segments that have a limited number of reputable players, the number of companies who can develop and market a healthcare app is unlimited and knowing how these apps will perform can be next to impossible. Fortunately for providers, an app deployment is often simple compared to a standard HIT implementation, allowing product pilots to become the preferred method for app discovery. For many, a pilot helps mitigate the risk of purchasing an app: *“We prefer to do a trial, especially with a new vendor. The less established the company, the more they have to make it worth our while to invest the time and effort necessary to bring in a new app.”* (CMIO) Trials and pilots are especially common in large organizations, who need the app to demonstrate scalability before purchase and who have the IT resources to pilot more complex apps.

Vendor demos are also an important way providers would like to learn about healthcare apps, though as previously mentioned, unsolicited calls and emails are often ignored.

Instead, providers prefer to seek out a vendor for a demo once they have established the need to solve a particular problem. Often, providers will seek out an app vendor for a pilot or demo based on a peer recommendation. These demos are particularly valuable for smaller hospitals, who do not always have the IT infrastructure to pilot or fully evaluate an app independently.

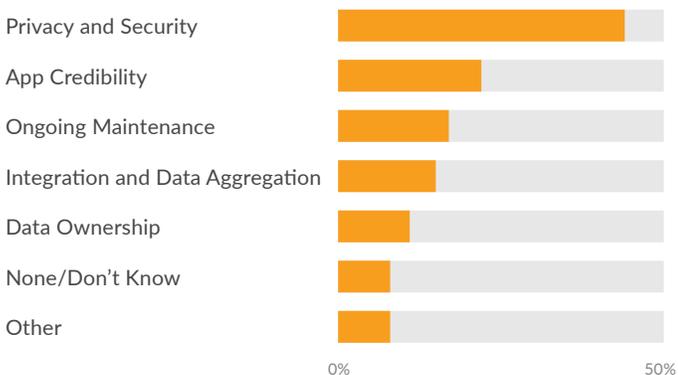
A few providers mention that they would like to see reputable healthcare organizations and associations create a formal list of apps they endorse. A CMIO said, *“There are thousands of apps out there and I am sure that the people who built them all meant well. But it seems that a lot of apps die out about six months after their release dates when the apps don't do well. It would be nice to have a professional organization vet them out. I would be pretty excited to tell patients about apps created by professional organizations, available at no cost or a reasonable cost and vetted by professional resources in the recent past.”*



Providers Have Concerns around Privacy and Security

WHAT ARE YOUR BIGGEST CONCERNS ABOUT USING THIRD-PARTY APPS?

(n=47)



Even as healthcare organizations establish more standardized ways to select and test apps, there are a number of concerns providers would like addressed: security and privacy, app credibility, ongoing maintenance, integration and data aggregation, data ownership (does the vendor or hospital own the data in the app), etc.

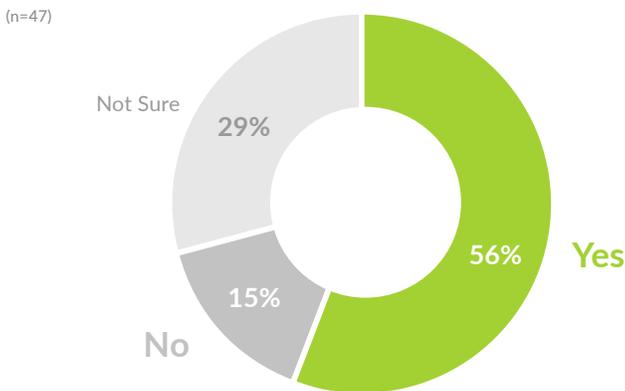
Privacy and security are far and away the number one concern healthcare providers have around third-party apps. Healthcare apps, especially those used for EHR data viewing, documentation, and patient engagement, store sensitive patient health information that organizations must protect. To combat this concern, a few organizations have established protocols for evaluating app security: *“For apps and other entrepreneurial efforts*

that involve someone accessing and working with our data or with our systems, we have a pretty rigorous screening process. We have a security review, a privacy review, and a legal review, and we look for an internal champion who can look out for the effort and speak for it. We obviously have concerns about security and privacy around PHI. I don't know if there is anything novel about that, but we have a rigorous process that handles those things.” (CMIO)

An additional problem created by the number of solutions in the market is app credibility, including the vendor's sustainability and the quality of the app's content. A CMIO elaborated on this concern: *"Things come and go, but the science is changing so rapidly that it is important for us to have some real clarity about the integrity of apps that we recommend to patients. I think professional organizations would play a great role in monitoring that. It would be great to have a subscription service to a company that would help us know how our apps are doing in comparison to others."*

Ongoing maintenance, the ability to integrate, and data ownership were also mentioned by a number of providers as concerns. One approach to alleviating some of these concerns is the use of standardized legal agreements (e.g., BAAs, SLAs, licenses) in which app vendors agree to specific delivery terms.

WOULD YOUR ORGANIZATION CONSIDER USING STANDARDIZED LEGAL AGREEMENTS WITH PURCHASED APPS (e.g., BAAs, SLAs, OR LICENSES)?



The majority of providers interviewed by KLAS said they would be open to using standard legal agreements, though just over one-quarter have reservations. For those who said they would not consider using standardized legal agreements, most say that even if these agreements were endorsed by professional organizations they would still opt not to use these types of standardized agreements. A CIO outlines some of the challenges: *"It might work for the HIPAA regulatory framework to somehow reference that an app met HIPAA criteria. Things of that nature are always tricky across the marketplace because our agreements are not with the government; they are with the vendor. Because of regulation changes, we don't know whether items that were endorsed a year ago are still endorsed."*

Conclusion

The app market is still immature, but providers are looking forward to adopting solutions that will positively impact clinical outcomes. As purchasing moves forward, IT will continue to be at the forefront of app purchases, hoping to proactively solve problems around security and other areas of concern. Moving forward, KLAS will continue to monitor the healthcare app market with the eventual goal of measuring provider satisfaction.

