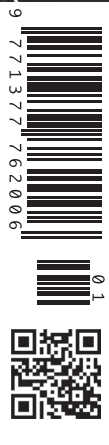




Cover Story:

# Reimagined Hospitals



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# How Far Is the Future?

Summary: Endless noise about new technologies in healthcare has providers struggling to find valuable tools among the vapourware. Conversations with thousands of providers, payers, and vendors can help us predict what healthcare will probably look like in 10 years.

In healthcare, uncertainty about the future can yield damning apprehension or expensive gambles. With the industry at fever pitch over emerging technologies, leaders of healthcare organisations continually ask themselves many intimidating questions:

- Which of the market’s buzzwords and rumours have substance?
- Are the hottest and newest tools worth investing in right now?
- Where can we be conservative without falling behind?
- When, if ever, will our dreams for healthcare IT materialise?

No single entity has all of the answers. That’s why my colleagues and I speak to thousands of healthcare providers, payers and vendors from every continent and speciality every year. Collectively, they paint an accurate picture of healthcare’s status quo and trends.

In a spirit of both optimism and realism, I’d like to give stakeholders a 10,000-foot view of healthcare’s newest technologies as they are today and as I think they will be in a decade. I hope this view helps leaders make important decisions and provide better offerings for patients.

## Artificial Intelligence

**Current Status:** *Mostly hype but some outcomes from robotic process automation.*

**In 10 Years:** *Increased impact from robotic process automation, major progress in image reading.*

To speak in terms of Gartner’s Hype Cycle, artificial intelligence (AI) is at the “Peak of Inflated Expectations” (Gartner Inc. 2019). A lot more is being said about AI than is being done.

Nearly every vendor claims to have AI functionality; that is easy to do because the industry has no standard definition of AI. In the 2019 Healthcare AI report KLAS and CHIME published together, we included the following definition: “Software that provides machine learning (ML) or natural language processing (NLP) capabilities for healthcare-related clinical, operational, or financial areas” (Pretnik and Krotz 2019).

From this perspective, the field begins to narrow. I’ve been pleasantly surprised to find that some AI vendor tools are starting to show some early outcomes. However, these vendor efforts have been very targeted.

For example, one technology that is really hot now and will shape the market in the next five years is robotic process automation (RPA). This involves automating fairly repeatable processes – such as many in the revenue cycle – that are currently done mostly by people. Certain vendors are doing really well at RPA, and provider leaders are eating it up. They see deep value in saving FTEs for more high-level processes. RPA tools are already leading to positive outcomes and will have a huge impact over the next few years.

Clinical applications of AI are also stepping into the limelight. For instance, vendors are honing their tools’ abilities to read mammography and other images. Widespread adoption is not in the immediate future, however; vendors need more time to improve the technology.

In addition, many radiologists and other physicians don’t yet trust technology to do work that has traditionally been theirs. People are much quicker to condemn an AI tool for a mistake than they would be to condemn an employee for human error. Before adoption increases, opinions must soften. Perhaps that will happen as image-reading tools are improved. In any case, I expect to see major progress within the decade.

## Patient Engagement

**Current Status:** *Limited patient adoption due to alignment issues.*

**In 10 Years:** *More patient-friendly tools, higher patient adoption.*

KLAS just finished some research for the University of Pittsburgh Medical Center (UPMC) and their Center for Connected Medicine. Ironically, this research found that the biggest barrier to progress in the patient engagement industry is the patient. “Patients are increasingly demanding a digital experience on par with what they have in other, more technologically advanced industries, but

adoption is still low,” the report says. “Organisations report that, on average, [only] 35% of patients have adopted the technologies that are available to them” (Center for Connected Medicine 2019).

If patients want more digital tools, why aren't they using the ones that are offered? I think one answer is that much patient engagement technology is aligned with provider desires instead of patient desires. Too many in the industry have been asking, “How can we engage the patient so that physicians can work efficiently and get paid more quickly?” This focus has led to the creation of patient engagement tools that don't really help the patient.

I have a personal example of this unfortunate truth. I recently got a text message from my physician's office saying, “You have an appointment this week. Text Yes if you'll be there.” I knew I would be unable to attend, but the text didn't tell me what to do if I couldn't make the appointment. After scouring the office's website and making

most of the healthcare world. A few great health systems – mostly academic ones – are sprinting ahead, but precision medicine will be slow to reach everyone else. In fact, of the vendor and provider leaders who attended KLAS' 2019 Precision Medicine Summit, 80% said that it will take at least five years to achieve widespread adoption of precision medicine (Hansen and McIntosh 2019).

There are two main barriers to the adoption of precision medicine tools. One of these is a lack of reimbursement; the other is problems with the technology. There are some pretty sophisticated tools specifically for DNA testing, but oncologists and other physicians also need to know what to do with the genomic data. The decision-support tools designed for the precision medicine field are still extremely clunky. A user would almost need a PhD to read the tools and decide how to change a patient's care plan.

Will government leaders come to appreciate the value of precision medicine and set aside specific funding?

## A lot more is being said about AI than is being done

two phone calls, I still hadn't been able to reschedule my appointment. It was obvious that the organisation was just trying to fill their schedule, not make my life easier.

I wished my provider's text message had included a link to a webpage where I could reschedule my own appointment. This functionality does exist, but most healthcare organisations are reluctant to offer patients the freedom of self-scheduling tools and similar abilities. Too many physicians are scared to lose control of their calendars. As long as provider organisations prioritise their own power over patient convenience, patient engagement tools will fail to please or progress.

My hope is that every vendor, payer and provider leader will begin to focus on the most important question: “How can we create a better experience for the patient?” If this happens quickly, I expect that patient-friendly patient engagement tools will be filling the market – and patient smartphones – by 2030.

### Precision Medicine

**Current Status:** *Few provider players, clunky decision-support functionality.*

**In 10 Years:** *Higher adoption, more room for improvement.* Of all the buzzword technologies in healthcare today, the one with the most potential for improving and personalising patient care may be precision medicine. Providers with access to precision medicine tools could, for example, look at a cancer patient's genome and learn that certain medications would be ineffective for the patient. Imagine a world with no more unnecessary stints of chemotherapy!

Sadly, precision medicine is not currently benefitting

Will vendors be able to simplify their decision-support tools enough for any physician to use them? I believe so. However, the industry still has incredibly far to go. I don't think 10 years will be long enough to make precision medicine a given for most hospitals.

### Ambient Speech

**Current Status:** *Vendors in arms race to release first tools.*

**In 10 Years:** *Adopted by a few progressive health systems.*

The epidemic of physician burnout is often blamed on the EHR. But H.C. Eschenroeder Jr., CIO of OrthoVirginia, points out that it's not the EHR itself that's the main problem – it's the time that physicians spend using it. “To get paid, doctors are increasingly distracted and diverted from the thing that they love, which is taking care of their patients” (Eschenroeder 2019). How can providers keep the EHR but reduce their hours inside of it? Ambient speech tools have been hailed as the ultimate solution.

Stakeholders are absolutely craving this technology. Companies from MModal and Nuance to Apple and Amazon are eager to deliver, and several new niche players – including Suki and Notable – are also jumping into the space. Several tools are already on the market, and countless others are in development.

However, most of what's available now is focused on just capturing spoken data. Providers need more. Some providers are pushing to use tools like Google Glass or products that can project needed data on the wall; these tools often involve the work of on-site or remote scribes. Instead, some providers want an ambient speech tool to proactively suggest a course of action based on data from thousands

of similar patients.

Those functionalities will become game-changers by giving physicians new ways to react to patients and data. My guess is that impressive ambient speech tools will be adopted by the most progressive health systems in 5 years and used by many organisations in 10 years.

### Sending Healthcare Home

A wise attendee of a recent KLAS summit said, “Shifting from fee-for-service models to value-based care means shifting the centre of care out of the hospital and into the home.” I think this shift will be the culmination of the technologies I’ve been discussing. As patients are offered easier tools, more attention from their doctors, and truly personalised care, patients will have less of a need to go to clinics and hospitals. Countless serious conditions will be prevented, leading to huge savings for health systems and payers.

Already, many provider organisations are conducting virtual visits with their patients. These virtual visits will quickly become commonplace. In addition, nurses will begin to deliver more and more care at patient homes, and not just through traditional hospice models. Health systems will start small; they’ll begin offering more services at ambulatory locations instead of hospitals. Then it will be fairly simple to move from the clinic to a patient’s home.

It isn’t hard to imagine an Apple Health Kit with a tool to check for strep throat and a cheap ultrasound device that could be connected to an iPhone. I don’t think it will be long before there are drones delivering prescriptions. However, a new perspective must precede any drastic changes.

We are so accustomed to thinking, “I sprained my wrist again – I should head to the urgent care clinic.” But after some time and effort, it will be natural to say, “I sprained my wrist again – I should call my doctor on Facetime so that she can send me some pain medication and a splint.”

### Pitfalls and Progress

The trail to more advanced technology includes some potential pitfalls. What will privacy look like in healthcare apps? How will patients maintain control over their own data? Industry leaders can help by being proactive in these areas, but they will be most effective if they focus primarily on providing good tools and good care.

I hope it has been helpful for providers and payers to learn where the buzzword technologies currently stand and how soon they may yield significant results. There’s no way to foresee everything about the future. But if vendors focus on creating patient-friendly tools and providers focus on offering the best possible tools and care, the enormous improvements to healthcare will be pleasantly predictable.

### About KLAS

KLAS is a healthcare IT-focused market research firm. Our mission is to improve the world’s healthcare by amplifying the voice of providers and payers through data. KLAS provides transparent insights on the software and services that healthcare leaders use every day. ■

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### Key Points

- Amidst the AI hype, there are positive outcomes from robotic process automation.
- In 10 years, there will be increased automation and major progress in image reading.
- Patient adoption will only increase if R&D focuses on pleasing the patient and not just on provider needs.
- There are few provider players in precision medicine, and decision-support functionality is clunky, leaving much room for improvement.
- Vendors are in an arms race to release healthcare’s first ambient speech tools with adoption likely over next five to ten years.
- The development of these and other technologies will enable patients to receive more of their care at home.

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