

The Future is Consumer-Enabled Imaging: How Self-Service Kiosks Empower Patients, Improve Productivity and Lower Costs

There's a seismic shift occurring in healthcare delivery around the world. More patients are aging and in need of medical care. These patients — and those of all ages — want more control over their healthcare decisions and they expect their healthcare providers to deliver the technology that empowers them to do so. Adding to the situation, patients have more choice than ever to seek healthcare alternatives if one provider doesn't meet their needs.

At the same time, radiology departments are under extreme pressure to do more with less. Health insurance reimbursements are declining and there's reduced capital, lower operating budgets and fewer personnel to service the growing aging population. More than ever, radiology departments need solutions that help them continue to provide high quality care — while increasing productivity and cutting costs.

One way to address both sides of the equation — patient empowerment and increasing operational challenges — is to introduce more self-service solutions in healthcare. Self-service kiosks can give patients anywhere, anytime access to the radiology images and reports they want while eliminating radiology department responsibility for non-critical tasks such as printing x-rays and reports or burning them to CD/DVDs.

SECTION 1: THE SELF-SERVICE WORLD

Self-service kiosks are everywhere. We use them to check in at airports and print boarding passes. We make deposits, pay bills, transfer funds and withdraw money through self-service kiosks in bank branches or retail stores. They have become an expected convenience at grocery stores, gas stations, movie theaters and public transportation hubs.

The self-service phenomenon is anticipated to grow. In fact, the global self-service technology industry is expected to be worth \$31.75 billion by 2020, with the kiosk segment to see the greatest growth.¹

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**Consumers already use
self-service kiosks**

AIRPORT
BANK
DVD/GAME RENTAL
GAS STATION
GROCERY STORE
HEALTHCARE FACILITY
MOVIE THEATER
PHARMACY
PUBLIC TRANSPORTATION
RETAIL STORE

Self-Service in Healthcare

Self-service kiosks have become increasingly common in healthcare delivery. Primarily found in ambulatory outpatient care and emergency departments today, kiosks are used for patient check in, wayfinding (directional assistance), collecting patient balances, filling prescriptions, updating patient demographics, asking basic patient screening questions, signing consent forms and providing basic triage information.

¹ Allied Market Research, Global Self-Service Technology Market, June 2015

SECTION 2: SELF SERVICE, MOBILE EVOLUTION AND THE INTERNET OF THINGS (IOT) DRIVING CHANGE

Consumers are steering the transition to self-service. They are increasingly technology enabled and expect anytime, anywhere convenience. Today, more than half of the world’s population owns a mobile device, which has had a profound impact on culture, business, government — and healthcare.²

The transition has been driven largely by the fast-paced evolution of mobile technology, increased access to self-service kiosks and the proliferation of the IoT. According to research firm Gartner, Inc., there will be nearly 26 billion devices on the IoT by 2020.³

Already, the IoT has infiltrated healthcare as patients become more involved and invested in their health. They increasingly wear fitness trackers while on the go and many patients use health monitoring devices at home. With more healthcare-related IoT devices sure to come, patients will become increasingly empowered by technology that allows them to make more informed decisions about their health — and healthcare providers will be further challenged to keep up with their patients technology-centric world.

Patients Want Solutions That Fit Their World

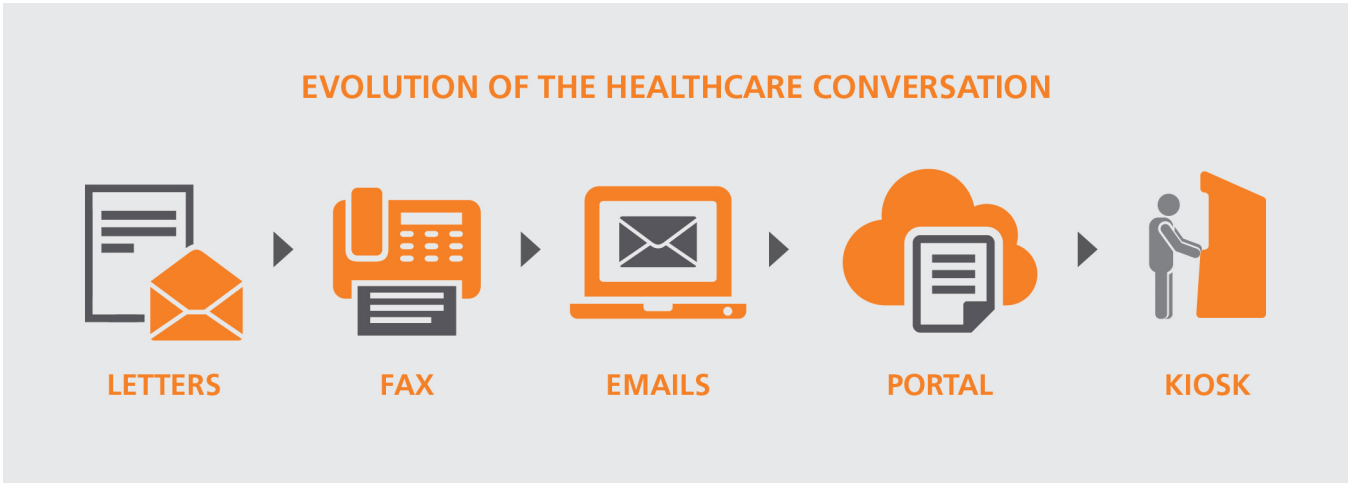
Patients are increasingly demanding more control over their healthcare decisions and treatment plans. They also want solutions that mirror how they live their lives — increasingly informed, always connected.

As a result, the way patients receive their healthcare information has evolved. Patients traditionally received information about their health by mail or fax. Then, technology made it possible to receive information via email. Next came online portals where patients can access their medical information anywhere, anytime, from any device. Now, self-service kiosks enable patients to retrieve their medical images and reports right at the point of care — without involving radiology staff.

Addressing Unmet Patient Needs

Patients have already noticed the disconnect between what they want and what healthcare providers deliver. In a Harris Interactive Poll, 65 percent of patients surveyed said online access to clinical data was important or very important to them. Yet, only 17 percent of healthcare providers provided online access to data.⁴

A self-service kiosk where patients can output medical images and radiology reports on demand at their healthcare facility serves an unmet patient need. It’s an extension of online portals that aligns with patients’ technology-enabled, convenience-centered, information-empowered world. By providing convenient access to medical images and reports at the point of care, patients have a permanent record of these exam results regardless of the healthcare facility they use.



² Groupe Speciale Mobile Association (GSMA), Global Mobile Economy Report, 2015

³ Gartner, Inc., Forecast: The Internet of Things, Worldwide, 2013

⁴ Harris Interactive Poll, 2012

SECTION 3: HEALTHCARE DELIVERY CHALLENGES

As patient expectations continue to escalate, healthcare providers are facing their own set of challenges. The aging population is surging yet insurance reimbursements, capital, operating budgets and staffing levels are declining. In the U.S. alone, roughly 10,000 Baby Boomers will turn 65 every day (approximately 3 million annually) through 2030.⁵ This is having a profound impact on healthcare delivery operations.

Adding to these financial struggles, patients have more choice than ever before, which has heightened competition among healthcare providers to attract and retain patients. Forward-thinking healthcare providers are already leveraging value-added offerings such as online portals and self-service kiosks to improve patient loyalty and differentiate from their competitors.

Outside the U.S. in high population areas around the world, waiting in long lines for medical images and reports is common. It can take hours for a patient to receive the medical images and exam reports they need to take to their next appointment — which can increase patient frustration, delay the delivery of care and potentially impact outcomes.

Patient Records Portability

Hospitals and clinics are further challenged by patient records portability. The technology, workflow and staffing models of most healthcare delivery operations are misaligned with making records portable for patients. Many patients prefer hardcopies of medical images and reports to maintain a permanent record. But providing records to patients requires radiology departments to rely on manual processes and staff involvement to deliver medical images and reports in whatever form that patients want — images on film, reports on paper or both outputs downloaded to a CD/DVD.

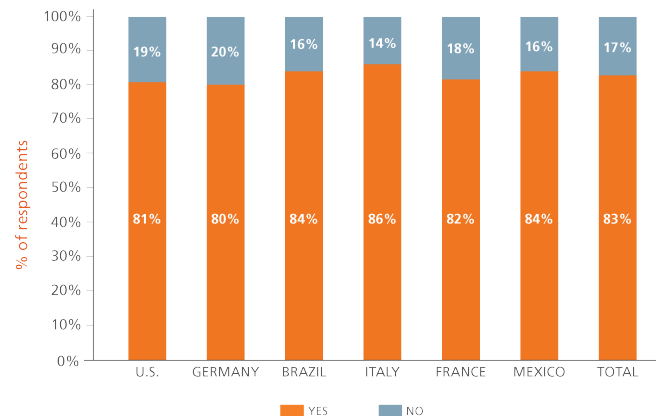
These distribution methods are a burden on staff as well as the bottom line. The time and labor required for radiology department staff to print and distribute images and reports to patients inhibits productivity, taking them away from more vital tasks. Purchasing and accounts payable departments also get involved in buying and maintaining paper and film printers, CD/DVD publishing equipment and service agreements for support. There are also consumables that need to be monitored and replenished.

SECTION 4: ANYWHERE, ANYTIME ACCESS TO IMAGES AND REPORTS

In 2013, Carestream introduced our MyVue patient portal to address the growing demand for patients to be able to access their radiology images and reports online — anywhere, anytime, from any device. It was launched following a series of successful trials in radiology practices and departments around the world. From a trial at a hospital in Italy, we gained valuable insight into how online portals would be received by patients and what benefits a healthcare facility could expect to achieve by offering a portal.

1. More than 98 percent of patients involved in the trial continued to use the portal after it ended.
2. The portal accomplished:
 - Improved the hospital's relationship with patients by providing a direct link between patients and the radiology department
 - Patients found the portal easy to navigate
 - Allowed the hospital to email patients when new images and reports were available to view

PATIENT PREFERENCE FOR BOTH
A PATIENT PORTAL AND MEDIA



Furthermore, Carestream conducted an online survey in 2016 with 661 healthcare consumers in the U.S., Germany, France, Italy, Brazil and Mexico to determine their preferred methods of receiving medical imaging. The results confirmed patient preference for accessing medical imaging both online using a patient portal and hardcopy (film, CD, DVD, paper and USB). In fact, an overwhelming majority — 80 percent and higher — said they would like to receive their medical images and reports via a patient portal and as a hard copy. Offering both a patient portal and a self-service kiosk delivers true anywhere, anytime access.

⁵ Pew Research Center, 2010

White Paper | CARESTREAM MyVue Center Self-Service Kiosk

Empowering Patients and Healthcare Facilities

The MyVue Center was developed with patient convenience in mind. It's also what radiology departments need to contend with growing patient populations and increasing workflow, productivity and cost pressures.

With MyVue Center, patients simply step up to the kiosk, provide a secure method of identification and output their medical image study and radiology report. Healthcare facilities can configure the kiosk to output the desired media type for their patients. Reports and images are available quickly and we employ globally accepted internet security protocols to ensure information remains private and secure. If a facility has both the MyVue patient portal and MyVue Center installed, patients can use the kiosk to enter the email addresses of family members, friends or healthcare providers they wish to share access to their medical images and reports.

MyVue Center takes patient empowerment a step beyond online access, giving healthcare providers a powerful tool for patient retention. Patients spend less time waiting — or no waiting at all — in lines to receive images and reports. It also aligns with patient expectations that their healthcare providers offer technology that mirrors their increasingly mobile, self-service lifestyle.



SECTION 5: ALLEVIATING HEALTHCARE DELIVERY PRESSURES

MyVue Center also relieves the pressures busy radiology departments face as they try to serve the growing population base with fewer resources. It addresses patient records portability by providing secure access to medical images and reports no matter where a patient is — at home or at the point of care. By automating medical image and report distribution, there is great potential to improve the workflow and productivity of radiology department staff.

A self-service kiosk can also be a significant cost reduction tool, as it eliminates or reduces many of the costs associated with distributing radiology images and reports to patients. Equipment costs for film and paper printers and CD/DVD publishers can be eliminated. Service agreements for equipment would no longer be needed. Consumable inventories for associated paper, film, CD/DVDs and toner could be reduced.

Also, fewer radiology personnel would be needed to output and consolidate CD/DVDs, films and reports — freeing them for more vital tasks. Purchasing and accounts payable departments could also see a reduction in the amount of time and resources they devote to acquiring equipment, consumables and service contracts.

Simple Kiosk Deployment and Monitoring

Carestream offers a simple business model to implement the MyVue Center Kiosk. The healthcare facility pays a monthly kiosk rental and a fee per exam output. Carestream owns and services the kiosk and supplies consumables.

With Carestream MyVue Center Kiosk Solutions — an exclusive, easy to use web portal — healthcare facilities can make more informed business decisions by monitoring kiosk media usage, inventory, service activities and invoices. This eliminates or minimizes expenses such as:

- Costly expedited shipments due to unforeseen media shortages
- Staff hours spent generating purchase orders and media purchase administration
- Cost of mailing checks and reconciling invoices
- Unplanned expenses for service requests and critical parts replacement
- Cost of inventory management

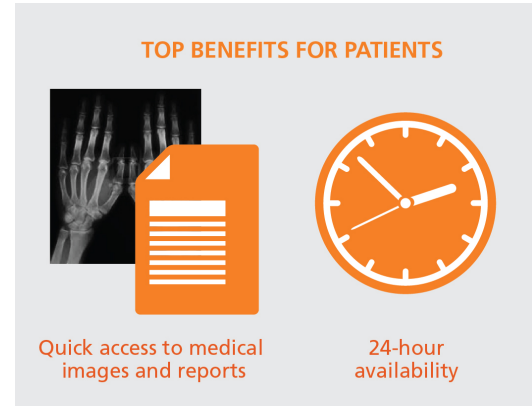
In addition to monitoring, Carestream also provides dedicated customer service support for the kiosk for the term of the agreement.

White Paper | CARESTREAM MyVue Center Self-Service Kiosk

SECTION 6: WHAT RADIOLOGY ADMINISTRATORS AND PATIENTS THINK OF MYVUE CENTER

Carestream conducted research with radiology administrators around the world to determine the demand for a self-service kiosk and what benefits could be realized by installing MyVue Center. Overall, 71 percent of survey respondents who said they were interested in a self-service kiosk felt it would be an improvement over current methods of distributing medical images and reports to patients. The most frequently cited benefits among survey respondents were time savings for radiology facility personnel and patient convenience.

Other key benefits for patients were no longer having to wait for a receptionist to provide images and reports, being able to control what they receive and easily share medical information with family members.



SECTION 7: RIGHT TIME, RIGHT SOLUTION

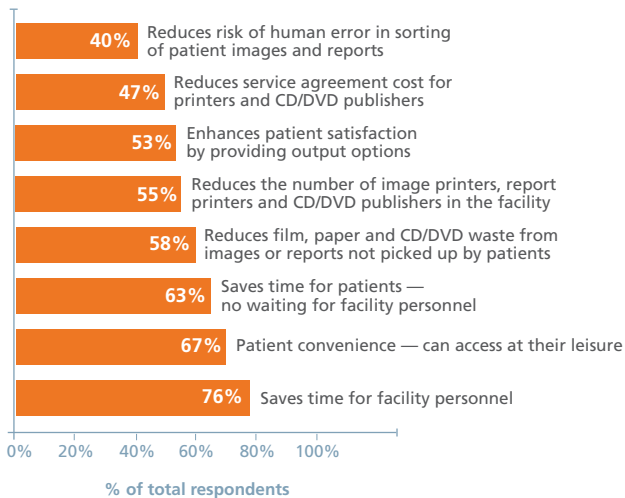
The evolution of technology is driving patient expectations to new heights and prompting healthcare facilities to revise their models to continue delivering high quality care, attract and retain patients and remain profitable.

In large part, the proliferation of mobile technology, self-service convenience and the IoT has led to this seismic cultural shift. Mobile technology will continue to evolve at a staggering pace and set the bar higher and higher. As more kiosks infiltrate the consumer landscape, self-service will become the norm, rather than the exception. Furthermore, the IoT is just getting started and is expected to make everything “smart” — from cars to cities to household appliances.

Meanwhile, healthcare providers are facing unprecedented productivity and cost pressures as the population ages and healthcare delivery models change. To keep their operations healthy, these facilities need to attract and retain patients who want technology solutions that enable them to take charge of their health decisions and treatment plans.

The MyVue Center kiosk addresses these needs in our constantly evolving world. It allows radiology departments to reduce costs, improve productivity and streamline workflows — while improving the patient experience and making patient images and reports more easily portable.

BENEFITS OF THE KIOSK



The Patient Perspective

We also surveyed patients to determine their interest and comfort level using a self-service kiosk to output radiology images and reports at their healthcare facility. The survey findings indicate that quick access to this information and 24-hour availability — which ultimately saves patients time and meets their need for convenience — were the top benefits for patients.