



The Usage of Tablets in the Healthcare Industry

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Since they were brought to market, the healthcare industry has dreamed of embracing tablets and leveraging the innovative technologies and features innate to these types of mobile devices. The ability to gather and access information with the touch of a fingertip, and carry it around wherever you go is invaluable for those working in this sector and a trend that is transforming the industry as we speak.

The launch of the first truly portable, user friendly and user experience (UX) rich tablet the Apple iPad, a revolutionary device in terms of mobile computing is changing the way in which the healthcare sector operates.

Regarding the iPad and other portable tablets, the healthcare industry was enthusiastic about their features and abilities, yet slow to jump on the bandwagon and truly adopt/embrace the technology. The reason for this slow adoption is primarily due to issues including security, privacy of patient information and data (regulations such as HIPAA), and integration with backend systems. Additionally, no one truly figured out how to create a compelling user experience for mobile applications in this space. There was a lack of understanding about which apps would be best suited for tablets in the healthcare segment.

This however, is all starting to change. The rapid adoption of tablets, including the iPad both in the consumer and enterprise world has put pressure on the healthcare industry to evolve and truly embrace this new technology. This pressure stems from increasingly prevalent industry trends and factors such as the Bring Your Own Device (BYOD) phenomena, the use of healthcare apps in the consumer sector, and the overall adoption of smartphones and other mobile devices by doctors, patients and vendors alike. All of these trends have brought a whirlwind of change to the healthcare sector.

The pressure to evolve was felt by healthcare industry segment, as other segments of the industry were adapting mobile technologies at a rapid pace, and the healthcare industry was increasingly being viewed as laggards. Perceiving this weakness, many entrepreneurs started writing apps for this segment as they realized that doctors, nurses, pharmacists and other healthcare personnel had acquired tablets and smartphones but they were lacking the apps to do their day to day work using these devices. There was a vacuum in this space, and this reinforced the pressure on the healthcare industry to move fast and close the gap.

Let's take a closer look at the evolution of tablet adoption across the healthcare spectrum:

Doctors and nurses were the early adopters of tablets, which is no surprise given they were also the early adopters of smartphones, and today, are the demographic that uses them the most in the healthcare industry. Drugstores followed doctors and nurses as they searched for better, more efficient and more convenient ways to serve consumers. Drug stores began leveraging tablets to offer prescription and non-prescription drug order applications and provide store and pharmacy locations as well as drug-related information to patients.

The pharmaceutical industry followed suit by developing apps and tablet-friendly mobile web sites that offered important information about the drugs to doctors, nurses and patients alike. The ability to access drug-related information on the go as well as a patient's allergic information at the same time helps doctors and pharmacists to avoid prescribing and issuing medicine to patients that may cause them harm, thus saving lives and costly healthcare expenditure in treating unwanted drug interactions. Instant availability on patient and drug, disease and treatment information results in fewer cases of misdiagnosis, quicker and safer drug prescriptions, quicker approvals for Rx and a reduction in medical malpractice lawsuits.

The bio-tech industry soon hopped on board as they started adopting tablets for collecting observation data, field level monitoring and quick image capture using the highly advanced tablet cameras. Genentech is an example of a company that has embraced tablet use, having standardized and issued more than 7,000 iPads to its employees worldwide. The tablets run customized native and mobile web apps that provide accurate reports including current state of research on the many

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drugs and treatments that Genentech is working on. It provides the dashboard customized for each user and a communications hub built on top of Apple Facetime and iChat that allows employees in its San Francisco headquarters to be connected over voice and video with field offices in 30 other locations worldwide. Genentech also uses tablets to collect the field information and patient data on clinical trials. Unlike the traditional data collection methods, iPads enable them to record audio, video and high resolution images of the patients and send them for processing and reference in a centralized repository.

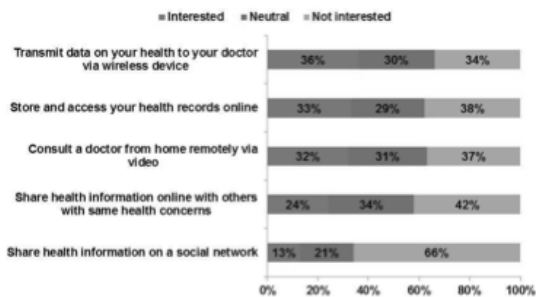
Finally, hospitals, healthcare management facilities and institutions have now warmed up to the notion of tablet use. These organizations are starting to use tablets for patient monitoring, financials, inventory updates, notifications, communication as well as to manage task lists. Stanford medical Center Hospital in Palo Alto, California and its affiliates across the nation, The University of California San Francisco (UCSF) medical center, Kaiser Permanente, the largest healthcare provider in US, The Washington hospital group among others now provides tablets to its doctors, paramedics, pharmacists and administrative staff. They use the tablets to schedule patient checkups in both outpatient and inpatient wards, issue and authorize prescriptions, record and transmit patient data in multimedia format and use instant live audio and video conferencing and chat features to enhance collaboration. This model is being rapidly adopted across the spectrum by healthcare providers in the United States.

There are several factors driving the change in how the business and processes run inside healthcare organizations. Healthcare organizations are moving from traditional methods of information collection and retrieval to a mobile and on site and on demand collection, retrieval, collaboration and communication in the healthcare sector. Some of these changes are being driven by the doctors, some by patients and others by pharmacies. Additionally, bio-tech and pharmaceutical companies are in fierce competition which forces them to evolve and embrace new technology if they wish to be successful. On the provider side, no hospital or healthcare provider wants to be tagged as laggard and outdated in terms of technology adoption, which is causing these institutions to embrace tablets. It's interesting to note that according to data collected by Manhattan Research, 81% of physicians used a Smartphone in 2011, up from 72% in 2010. Doctors, nurses and patients are demanding access to information on their tablets and smartphones, which is driving organizations to embrace tablets.

In a separate study conducted by American Electronics Association, doctors and patients were asked about how they would like to use wireless devices (smartphones and tablets). Most of the respondents wanted to use their device to communicate with their doctors, pharmacists and nurses and vice versa. Many of them also want to be able to store and access their healthcare records including diagnostic records online through the mobile device.

The figure below explains the questions asked and the response in detail:

Interest in New Health Technologies
Consumers most interested in communicating health data with physicians



Source: The New Role of Technology in Consumer Health and Wellness, Consumer Electronics Association, October 2011

What specific applications in the consumer and enterprise space are driving tablet adoption? (Conversely, what apps are driven by the adoption of tablets in the enterprise?).

The biggest use of tablets is driven by the fact that patients feel the need to stay in touch with their healthcare providers including doctors, nurses, pharmacists and health plan administrators at all times. Patients are connected to their mobile devices 24/7, creating a natural platform from which they can interact with their healthcare providers through applications.

A Healthcare IT Insights and Opportunities' study conducted by CompTIA found that 38% of physicians with smartphones use medical apps on a daily basis. This

figure is expected to rise to 50% by the third quarter of 2012. It was also found that two-thirds of respondents consider implementing or improving mobile technologies to be a high or mid-level priority. Within clinics, doctor's offices, hospitals and laboratories, the biggest usage of tablets stems from four main areas:

- Patient monitoring and data collection – this includes using the Bluetooth enabled sensor devices and Wi-Fi+ Bluetooth enabled interfaces to patient monitoring devices, to medical instruments that can transmit information to the tablet when in the vicinity.
- Dashboard and Reports – covering patients, prescriptions, diagnostics, legal, financial and operational information summaries and details
- Appointment scheduling – this includes doctor and nurse visits, laboratory tests, reminders, re-scheduling, cancellations and delegation, doctor to assistant/junior doctor, nurse etc.
- Prescriptions, authorizations, refills, patient-drug interaction and dosage management. Fast and timely approval of Rx refills and Rx authorizations means the difference between life and death in many cases and this is an area that smartphones and tablets help in reducing the turnaround time required by doctors to approve the requests from pharmacies and patents by up-to 90%.

What are the key advantages of using the tablets in healthcare space?

- Tablets avoid cumbersome and error prone human data entry. They eliminate human introduced errors such as in data entry by feeding in data form patient care systems.
- Tablets eliminate the need to record information on paper and enter into systems. This saves time, energy, money and improves efficiency.
- Easy information access: Tablets provide rapid access to information wherever healthcare personnel need it
- Paperwork minimization: Tablets help minimize the messy paperwork and the manual workflow process – again, increasing efficiencies
- Voice, Video, Image and Text: The visual, multimedia (audio, video) and graphics capabilities can be leveraged to record and provide on demand information such as the visual images of a patient, disease progression and sounds, such as an irregular heartbeat.
- Communication capability: Allows doctors, nurses and other healthcare personnel to communicate virtually and more effectively
- Privacy and Security of data: The iPad and similar tablets provide 128 and even 256 bit encryption of data on storage and transmission. This minimizes data leak and security violations from manual handling of un-encrypted paper forms and other hard copy documents

Where is the industry headed?

Tablets are gaining an increasing foothold in the healthcare sector across all segments. Tablets are improving patient care wellness programs, hospitals, laboratories, clinic management systems, pharmaceutical services and biotechnological advancements.

With doctors increasingly using their own tablets to manage and maintain their schedules and reminders, the healthcare organizations are now forced on building applications that are optimized for tablets. These applications provide the integration of existing information systems, and introduce tablets as a form for both data gathering and dissemination of critical information.

New and emerging advancements in technology have enabled patient monitoring devices and instrumentation to communicate directly with tablets within a vicinity using tools such as Bluetooth. These devices can also upload patient data using a Wi-Fi network over the web, which can then be monitored in real time by nurses and doctors.

Increasingly sophisticated apps are being created, which cater to all aspects of healthcare management for usage by both healthcare personnel and patients. These apps range from providing dashboards for patient information, disease and condition monitoring to patient data collection and consolidation. Apps also help with business intelligence and analytics, scheduling and calendar management, prescription dispensing, pharmaceutical refills and authorizations, drugs and new treatment information, collaboration, and communication. In terms of tablet adoption in the healthcare industry, we have only begun to scratch the surface. With technological advancements increasing by the day, the possibilities are endless as healthcare professionals continue to search for better ways to provide care.

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