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The pulse of digital healthcare: What's the prognosis for the future?

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Since the advent of digital healthcare, both capital investment and consumer interest have continued to accelerate with no signs of slowing down. In fact, [funding](#) of the digital healthcare market exceeded \$4.3 billion in 2015, driven in large part by consumers engaging with their personal healthcare.

For many of today's consumers, digital healthcare is defined by [electronic health records](#) and wearable fitness trackers. Yet the market is already delivering some amazing innovations that extend well beyond the benefits of sharing patient data.

Connected care today

Connectivity is a key aspect of digital healthcare. The ability to connect people, data and things enables greater communication, efficiency and accuracy, ultimately resulting in quality care for improved patient outcomes. More and more, the connection of smart objects, or things, in the internet of things is leading to new life-saving technologies that were unimaginable not too long ago.

Early this year, for example, doctors in Miami were able to devise a way to operate on a baby with birth defects so rare they had never been seen before by the medical community. The [solution](#) involved connectivity between an iPhone and Google Cardboard "goggles," allowing doctors to map out the operation in three-dimensional virtual reality.

While innovations of this sort are already offering the promise of better care, we've only begun to fully realize the potential of digital healthcare. In the future, we see a number of emerging opportunities to leverage the connectivity of smart objects for improved patient outcomes. Yet when developing these new technologies, it's essential to [proceed carefully](#) and follow trusted best practices and guidelines to ensure patient safety and privacy.

As the arena of healthcare application development grows, robust testing and quality assurance are vital to patient health and well-being. The critical nature of these apps and connected wearables necessitates a shift in mindset from standard QA procedures to continuous quality engineering processes in order to ensure the utmost in patient safety.

Smart care outlook

We expect there will be an array of new digital health apps and wearables coming to market that engage consumers, such as a Bluetooth-enabled pillbox to remind patients to take their medication. Other new products on the horizon will include a mobile app to monitor blood sugar and automatically adjust insulin levels, a wristband to relieve patient nausea without drugs, and wearables to monitor temperature, heart rate and breathing rate 24/7.

Chronic diseases represent a significant healthcare problem worldwide. Some, like diabetes, often are lifestyle-related, and traditional health systems are not set up to sufficiently address the root causes. As a result, doctors are struggling with how to develop treatment plans that incentivize patients to become fit. One possible option might involve linking a patient's insurance premium to their level of physical fitness, using data from wearable fitness trackers to monitor activity levels.

The challenge of treating lifestyle-related disease also is expected to give rise to new breakthroughs in digital medicine, like [Proteus Discover](#). This healthcare feedback system involves a wearable patch and an ingestible pill embedded with microscopic sensors to securely communicate patient [biometric data](#), providing insight into patient activity and health habits for individualized treatment plans.

Going forward, we expect to see an even greater use of [smart sensors](#), as well as wearables and [virtual reality](#) to help doctors and caregivers provide life-saving support in complex situations. For example, robust virtual reality applications and tools with smart, gyroscope-enabled sensors could be used to help medical providers deliver critical, first-level support in simulated environments.

Critical information could be relayed via smart eyewear to a doctor during surgery to assist in treatment. Likewise, caregivers could even receive data using connected eyewear while still on the way to an emergency, allowing faster assessment of a patient's situation when seconds count.

Secure, smart mobile apps can be used to collaborate and communicate information in a variety of ways not yet explored. In the case of a patient facing acute pain after a procedure, recording the information in a smart app would allow the nurse to quickly capture and relay the information to the doctor for better pain management.

New, [IoT](#)-connected smart devices also could see widespread use in management of environmental controls for hospitals. Automatic adjustment of temperature, lighting, security cameras or digital displays can save time and free up staff to focus on patient care. This control could cover the entire hospital or just specific rooms, even allowing patients or their family members to control the ambience in a patient's room using Wi-Fi or Bluetooth-enabled smartphones, helping patients rest more comfortably.

Quality control for quality care

We don't expect the digital healthcare market to slow down anytime soon.

As we witness this transformation of the healthcare system, it's critical that application developers focus on quality engineering processes to ensure patient safety as well as address privacy concerns. This is particularly true with IoT, where disparate devices or things need to speak to each other and work independently, but industry standards are still evolving.

With the power of IoT and the ubiquitous nature of smart devices, innovative companies will continue to accelerate the connection of smart objects in new and differentiated ways to reinvent healthcare, making it more accessible, manageable and ultimately delivering better quality patient care.

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