

6 Meet John Houghton CEO of Nephros

18 How Innovative mHealth Apps Are Transforming Patient Care

16 Taking Speech Therapy Online: A Technology Journey to Integrate the App and Online Experience for People with Aphasia



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HOW INNOVATIVE mHEALTH APPS ARE TRANSFORMING PATIENT CARE

BY TORI COONS, OBJECTFRONTIER SOFTWARE

These days, your smartphone fulfills many roles beyond just being a medium for conversation. It is your personal assistant, your calendar, your DJ, your TV, your camera, your library, your navigator, your researcher, and the list goes on... Ever wonder if the role of “doctor” could be added to that list? It sounds like a far stretch, but in reality, the latest mHealth apps are doing some truly remarkable things to help reduce or eliminate inconvenient and lengthy trips to the doctor, hospital, or lab as well as to improve personalized patient care. Through better and smarter mobile technology, patients will start to see entirely new methods of delivering patient care – through digital means.

Just look around and it’s easy to see how our world is quickly becoming digital, with businesses and consumers embracing smartphones, tablets, and mobile apps in their personal and professional lives. However, it is not just that our world is becoming digitized, with data being converted to digital form, and business processes and interactions now be conducted via digital device. In fact, digital is having a much deeper impact on our world.

Digital creates entirely new ways to provide new value to customers of businesses in every industry.¹ It is not just through mobile devices, but also through social, cloud, and data analytics technologies that companies are able to create truly innovative, original digital offerings. These days, compelling software is not simply a “nice-to-have” feature

in business. Rather, great digital offerings are now table stakes to even compete in today’s world.

Look no further than the effects of mobile banking on the financial services industry to see how mobile technology can quickly spread and disrupt the daily expectations of customers in an industry. Healthcare is beginning to experience this disruption as well, as more and more mHealth apps with a tangible benefit to the health of users are now being developed by businesses and being desired by patients.

Recent apps such as the following exemplify innovative uses of mobile technology which can and will disrupt the status quo in the healthcare:

1. An App to Manage Diabetes – BlueStar will soon be the first prescription-only app released in the US, as the FDA deems it so impactful to require a doctor’s permission for use.² The app will help patients manage their type 2 diabetes through real-time coaching and support on lifestyle and medication changes based on users’ blood-sugar levels, diet, and exercise. Delivering this type of care through a mobile device means patients can receive individualized attention 24/7, giving them a better chance at effecting long-term change in their lives.

2. An App to Treat Vision Problems – Caterna Vision Therapy is a prescription-only mobile app out of Germany to treat the vision problem amblyopia in children.³ It provides eye-training exercises to strengthen their weaker eye through therapeutic light stimuli on a mobile device screen. These vision treatment exercises require no recurrent visits with

an expensive specialist, but rather can be experienced from the comfort of a patient's home and at the patient's convenience.

3. An App To Test Your Blood – Created by Qloudlab Technology, this soon-to-be-released technology is specifically designed for patients undergoing anticoagulant treatments to prevent blood clots.⁴ Patients first place a disposable plastic film on top of a mobile device's screen and then put one drop of their blood on it. The app uses the device's touchscreen technology to detect a variation of changes in the blood sample, recording any disruptions it finds and sharing it instantly with the user's doctor. Instead of traveling to a lab or hospital every few days for the blood monitoring, these patients can now perform the test at home within a few minutes thanks to this groundbreaking app.

4. Apps to Track Sleep Patterns – An astonishing 113 million people in America describe themselves as “sleep concerned”, meaning they have trouble getting a restful night's sleep.⁵ Rather than paying for an expensive, uncomfortable sleep study, new, convenient ways of tracking sleep with wristbands and bedding, such as aXbo and Beddit, which integrate with your mobile device, are providing an easier and much cheaper way for concerned sleepers to receive valuable data on their sleep habits.⁶

5. An App to Diagnose Diseases and Infections

– Colorimetrix utilizes commercially available, inexpensive colorimetric test strips that diagnose a range of illnesses including diabetes, kidney disease, and UTI's.⁷ Usually, an expensive lab spectrophotometer and technician are needed to read the results. However, with this app, users can simply perform the test themselves, testing their urine, saliva, or other bodily fluid with the strip, and then taking a picture of it with their phone. The app analyzes the photo by evaluating the colors and comparing them with a pre-recorded calibration. It then displays a numerical value for the result, which it stores, sends to doctors, and uses to give a diagnosis.

These apps are providing new ways of care for patients outside of the traditional physician/hospital treatment. With smartphones now in the hands of 58% of American adults (and 83% of millennials), mobile devices provide a unique opportunity to deliver individualized health monitoring, support, and treatment ever at the fingertips of patients.⁸

No longer will they have to travel to their doctor, hospital, or lab every time they need a blood test, sleep study, or routine treatment if they can perform it digitally themselves. And with the abilities of big data analytics, which can analyze millions upon millions of bits of random information, mHealth apps have the potential to act with intelligence to accurately diagnose conditions and prescribe the best course of care for patients as these abilities are fine-tuned in the near future.

mHealth apps help put control back in patients' hands and provide a more convenient and personalized healthcare experience that is based on the individual, including their medical history, vital signs,

medications, diet, exercise, and treatment regimen. However, creating good, quality mHealth apps is far from easy, as an app must be both effective in its intended purpose and compelling and engaging enough to be embraced and used by patients. It must be connected and communicative with other healthcare systems and data, and it must be as accurate as dealing with a real-life doctor if it is to be trusted by patients.⁹

Currently, though, the majority of mHealth apps on the market do not achieve all these aims. Building good healthcare software is very difficult and requires not only a knowledge of the healthcare domain but also a product development focus and agile methodology in order to create commercial-grade software. Anyone can build software, but commercial-grade software is architected for long-term use, built using an agile method to respond quickly to change, designed with an engaging UI, tested for proper functionality and user acceptance, and connected into your existing software systems. All of these aspects combine to

create not simply an app, but a worthy product that will actually be purchased and used to help people. Well-functioning mHealth apps require the same expertise that any good software product needs to be sold successfully in a market. Fortunately there are a number of professional software product engineering firms that have emerged who can properly execute mHealth initiatives.

With recent estimates predicting the mHealth app services market will reach \$26 billion by 2017, mHealth apps are poised to deliver a massive disruption to the

healthcare industry.¹⁰ Mobile technology provides an optimum channel for delivering non-stop, convenient, individualized, and intelligent care to patients, and innovators will find unbelievable ways to use it to prevent, diagnose, manage, and treat illnesses. Those who handle their apps like a product will be the ones to truly capitalize on this emerging, explosive market, as they create cutting-edge, commercial-grade software that will forever transform patient care. ■



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