



THE MOVEMENT TO MOBILE

How smartphone and handheld devices are changing health care

BY TOM PECK

Health care has seen many transformative moments throughout history. The creation of penicillin. The development of the polio vaccine. The use of gene therapy to treat a variety of illnesses, including cancer. The evolution of minimally invasive surgery. All have substantially transformed the well-being of humanity. Perhaps the biggest transformation within the past decade is the movement to mobile — the drive to

place critical information in the hands of the consumer, physicians, and other health-related professionals when and where they need it.

Mobile leverages best practices from the past by taking health care out of the doctor's office or hospital and placing it back in the patient's home or other care setting. It also places information on best practices in the

hands of practitioners when they are bedside or with the patient and family, helping them make informed decisions to improve the care they deliver.

OUR WORLD WILL NEVER BE THE SAME

The integration of mobile technology with smartphones, tablets, and other devices is a global phenomenon that promises



to change the very fabric of our businesses and our everyday lives. Health care delivery is an excellent case study in how mobile technology is transforming and improving the health of billions of people. Mobile health, otherwise known as mHealth, has turned heads in the C-suite because of its mammoth revenue potential — some estimates place it at \$20 billion by 2018. Today, more than 100,000 health apps are available for download to smartphones and handheld devices. In fact, almost every person in the U.S. — 247 million — currently has a health care app on his or her personal device.

The true magnitude of the mobile health tsunami is apparent when you glance at the agenda of the recently held 2014 mHealth Summit. Many Fortune 500 companies — IBM, Samsung, Pfizer, Sprint, and Verizon — as well as leading health care organizations that included the National Institutes of Health, Kaiser Permanente, Partners HealthCare, and

Walgreen's came together at a meeting designed to focus on real-world applications and innovations being integrated into care delivery today. Their impact includes increased patient-provider communication, greater access to care for populations around the world, and empowered individuals who have tools to better manage their own health and wellness.

mHEALTH EXPANSION AND SMARTPHONE ADOPTION

So, why are mHealth apps so popular and who is behind the development and rollout of this technology? In its recently published fourth annual study on mHealth app publishing, research2guidance, a global market research company focused on the world's app economy, predicted the main market drivers for the next five years are the increasing penetration of capable devices and user/patient demand. In today's "I want it right



now" society, individuals are eager to use mobile technology that could lead to improved health while using apps that will help them monitor their blood pressure, measure their blood sugar, keep up on daily pollen counts, sleep better, eat healthier, manage medications, get and stay fit, and much more — when and where they need it.

According to the study's authors, fitness apps, which today constitute the category that offers the highest business potential for mHealth app publishers, will diminish in their relative importance, slipping to fifth position within five years. The app categories that have the highest expected market potential in the near future are remote monitoring and consultation.

INNOVATION AND ENTERPRISE DRIVING THE FUTURE

The power of mobile health to connect people in some of the most remote regions of the globe with researchers and physicians

is being driven by universities and academic medical centers. Johns Hopkins University and the University of California, San Francisco, are two prime examples of mHealth innovation hubs.

The work being done by Alain Bernard Labrique, PhD, exemplifies the advances mHealth has made in the academic realm. He currently serves as an associate professor in the Department of International Health, Department of Epidemiology at Johns Hopkins University in Baltimore, Md., and director of the Johns Hopkins University Global mHealth Initiative (JHU-GmI). "I'm an infectious disease epidemiologist, trained in molecular biology, but an innovator at heart," says Labrique. "I've lived and worked in rural south Asia and Sub-Saharan Africa for more than 20 years, and I've seen how information and communications technologies have not only emerged out of thin air as a consumer phenomenon, but also as a transformative force in how global health programs are being implemented."

Labrique's work through JHU-GmI includes partnering

with the Ministry of Health in Bangladesh and social enterprise company mPower Health to develop and test an integrated mobile phone pregnancy surveillance system. He has also been instrumental in perfecting Momconnect, a project aimed at using mHealth messaging services to create awareness among pregnant women about available health services in the Republic of South Africa.

"mHealth strategies stand to democratize health and accelerate our achievement of universal health coverage by empowering citizens with information where and when they need it, by extending the arm of providers to reach citizens, no matter how remote they may be, and by filling long-standing information gaps that have led to inefficiencies and dysfunction," says Labrique.

Leading health care enterprises such as Partners HealthCare, affiliated with Harvard University, have realized mHealth's potential for embellishing their brand and expanding their patient base to global proportions. Joseph C. Kvedar, MD, founder and director of the Center for Connected Health at Partners HealthCare, has developed a technology platform that leverages cellphones, computers, networked devices, and remote health monitoring tools to improve care delivery. He also established the first physician-to-physician online consultation service in an academic setting, linking patients from around the world with specialists at Harvard-affiliated teaching hospitals.

The Federal Communications Commission (FCC) has jumped into the mHealth fray by adopting rules that enable Medical Body Area Networks (MBAN), low-power wideband networks consisting of multiple body-worn sensors that transmit a variety of patient data to a control device. Investors see the potential in MBAN, offering venture funding in the first quarter of 2013 that has supplied \$42 million to companies developing products in the remote monitoring space.

David Muntz, senior vice president and chief information officer for GetWellNetwork and former principal deputy in the Office of the National Coordinator for Health Information Technology in the Department of Health and Human Services, sees MBAN as a sign of things to come for mobile health. "One of the biggest advantages of mobile health technology

is that it has closed the digital divide between those lacking resources and those flush with resources," Muntz says. "People around the globe own mobile phones because they are generally affordable. This helps researchers and clinicians reach and treat traditionally underserved populations who experience costly chronic illnesses."

IMPACT ON NON-CLINICAL DECISION-MAKING

Novation, a health care services company that develops and manages contracts with more than 700 suppliers for the members and affiliates of VHA, Inc. and UHC, has developed VHA LYNX™, a suite of mobile analytics solutions tailored for various components of the hospital supply chain. "By giving members access to the right information in the right place at the right time via their smartphones or tablets, we help them improve their productivity and save money," says Hari Subramanian, Novation's director of product management. "Our members have found the mobile solutions to be especially helpful when they are sitting across the table from a supplier, negotiating a contract."

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CAUTIOUS OPTIMISM FOR A BOLD NEW FUTURE

A recent *Becker's Hospital Review* article points to increasing adoption and acceptance of mHealth by consumers. By 2016, a majority of consumers expect mHealth to

significantly change their health care experience by helping them access information, manage their health, and communicate with their physicians and other caregivers. They also think that mHealth will make care more convenient, improve quality, and reduce costs.

What factors could cloud this rosy picture for mHealth? Industry experts warn that data security could present barriers to progress. Regulation and red tape imposed by government oversight, accompanied by a lack of clarity, could also be a threat to the burgeoning sector.

Challenges aside, it's clear that mHealth is no longer a fad—the movement has become firmly embedded in global health care diagnosis and delivery. What's the future prognosis? Rapid improvement and continual innovation.