

## The Future of mHealth - About to Explode But Key Challenges Remain

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Today in the U.S., 45% of the population (133 million) suffers from at least one chronic disease, and they account for 75% of the \$1.7 trillion spent on healthcare today. Importantly, two-thirds of adults over 65 have multiple chronic health conditions, and this is the age group least familiar with the internet.

On a personal level, almost everyone knows someone with a chronic disease. Most likely it is a form of diabetes, asthma or congestive heart problems, the three most common chronic illnesses. When chronic disease directly affects someone or involves a friend or relative, people naturally worry as they become acutely aware of their vulnerabilities, yet feel that they cannot spend the time constantly monitoring their state of health. Instead, the natural tendency is to have frequent check-ups and to contact a physician whenever there is some kind of “red flag” or unusual symptom arising.

But often it is too late!

Fortunately, these concerns and risks may soon become passé. The omnipresence of the internet has contributed to phenomenal advancements in remote health monitoring and communications, also known as ‘mHealth’, among patients and healthcare professionals – physicians, nurses, providers/insurance carriers, payers and other healthcare administrators. While the technology for mHealth devices has progressed to the point where the ease of adaptation and use should no longer be an issue, major challenges remain, especially involving behavioral changes. And senior citizens who have the highest incidence of multiple chronic diseases are typically the most reluctant to change (by 2030, about 71.5 million will be over 65, compared to 37 million in 2006).

### **The State of mHealth Today**

mHealth (or “mobile health”) can be broadly defined as any kind of device or service which facilitates a seamless flow of information over some form of mobile network (e.g. cellular, wireless, etc.), that will enhance the delivery of appropriate medical support or healthcare solutions. The ability to access and respond to health information, quickly and securely, is a direct result of a new generation of technology that allows for real-time interaction among a broader audience of patients and healthcare professionals. We are about to witness a historical “tipping point” soon where the acceptance of mHealth will explode, as the usage of remote medical devices is becoming firmly integrated into the basic lifestyle of millions of mainstream adults.

Nearly everyone in the US recognizes the gross inefficiencies of our healthcare system today. In 2008 we spent \$ 2.5 trillion on Healthcare, up 7% from 2007, and this is projected to be \$3.1 trillion in 2012 and \$4.3 trillion in 2016, or 20% of the U.S. GDP. And what have these

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inflated costs given us? A quality of healthcare service that is inferior to almost every other industrialized country, with inadequate care and excessive waste throughout our system.

### **What Will Drive mHealth Growth in the Future?**

The ubiquitous acceptance of the internet across every patient segment, coupled with the technological advancements that offer optimal patient safety, easier access, better care and lower costs, provides a perfect setting for an explosion of the mHealth industry. This growth will be driven by two key segments of mhealth, medical devices and electronic health records (EHR). Today the market for RPM (Remote Patient Monitoring) services is over \$3 billion, and is expected to almost triple to over \$8 billion by 2012. We are indeed on the verge of an enormous transformation of healthcare, driven by a number of irrepressible forces:

- **Paradigm Shift in Connected Consumers** – the emergence of social networking websites like Facebook, Twitter and PatientsLikeMe are enabling more patients to easily go online to connect, exchange ideas and retrieve medical information. Contributing to this social media revolution is the iPhone, which will offer a multitude of meaningful mHealth applications and stimulate more doctor-to-patient interaction. Today 75-80% of adult internet users seek such medical data online, making these internet sources second only to a physician for gathering trustworthy healthcare information. However, the advantage of the internet and mobile connections will go beyond being simply a source of information in the future; it will become an integral vehicle for interactive communications that will help patients manage and prevent further health deterioration.
- **Proliferation of “Next Generation” Devices** – Building on this expanded familiarity and usage of wireless/mobile tools, the door has been opened wider for hundreds of entrepreneurial start-ups with more user friendly, convenient devices for every sector of the healthcare industry. Innovations from these small pioneering firms are further supported by giants like GE, Intel, Philips, Medtronic, UnitedHealth Group, Cisco and Qualcomm, which are either buying up these start-ups or forming joint partnerships. The result is that they are contributing to the next wave of innovation and importantly can more effectively achieve widespread distribution and trial of these new devices.
- **Support from New Legislation** – as part of the “American Recovery & Reinvestment Act” signed by President Obama in February 2009, the HITECH Act has appropriated \$19.5 billion to encourage healthcare organizations to adopt new Electronic Health Records (EHR), designed to establish more effective healthcare information exchanges and ensure the security of patient data. This legislation provides incentive payments of about \$40,000 per physician and millions of dollars for hospitals that adopt EHR solutions. In addition, the “Medicare Teledigital Health Enactment Act of 2009” will expand Medicare reimbursements for doctors who monitor patients remotely in urban and suburban areas.
- **Infrastructure Coordination and Efficiencies** – the mHealth business is complicated. There are so many “players” in this emerging industry, from patients to doctors, hospitals, payers, providers and even investors. The basic IT platform for providing the tools for communicating this data is also very diverse, with giants from the computer and wireless technology categories (e.g. cellular and Wi-Fi) all getting involved – Google, Microsoft, Apple, IBM, HP and Nokia, for example. To date, the absence of standards for safety and compliance has resulted in gross inefficiencies and excess costs. Fortunately acceptable

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standards are evolving which will provide a clear roadmap for greater coordination and integration of cellular and Wi-Fi. For example, there is an association (“Continua”) consisting of hundreds of big and small healthcare companies now working together to standardize such procedures. Also the costs for medical devices are coming down which will further help the patient acceptance in mHealth.

Capitalizing on the mHealth revolution will also require overcoming significant barriers. One such hindrance to the growth of mHealth mobile communications has been the high capital requirements and maintenance costs for building an adequate personal health records system. The April 16, 2009 issue of the “New England Journal of Medicine” found from their survey that only 1.5% of the U.S. hospitals have a comprehensive electronics record system, and 7.6% have even a basic electronic system in at least one clinical unit.

### **What Special Benefits Can We Expect from mHealth**

The most obvious and important benefit will be the countless lives that will be saved with continued quality health, mainly from slowing down the advancement of an illness to a more severe state. It is projected that 60 million people will benefit from using remote Patient Monitoring devices by 2013 to prolong their health, which will also generate sales of over \$4.4 billion.

The other major advantages will include significant decreases in costs and waste from inefficiencies. At present about 5% of the people in the U.S. account for 50% of the total healthcare costs. This disproportionate share of the financial burden among a relatively small sector will make it easier for mHealth companies, physicians and providers to target and gain acceptance among these patients. Much of these savings will come from reducing unnecessary hospitalization, ER, in-office and home visits. But ultimately the challenge of changing one’s behavior and adapting to a new lifestyle will determine the success of mHealth.

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