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The Move Toward Mobile: How Smart Devices are Changing the Healthcare Landscape

As the U.S. healthcare system continues to bridge the gap between the previous fee-for-service to a new value-based model, the industry is looking towards mobile technology to close gaps in healthcare costs and outcomes. The mobile technologies that the healthcare industry can appropriately utilize are smart devices such as the smartphone and tablet computer.

Smart devices have been underutilized in healthcare; however, their increasing universality can no longer be ignored. By 2016, nearly two-thirds of Americans will own smartphones while nearly one half of Americans will own a tablet according to the Pew Research Center. In accordance with an increasing number of smart device owners, by 2016, the average American is projected to spend more than 3.25 hours a day using mobile applications[1] . Of these smart device users, 62 percent will use their device to look up information on a health condition[2]. The percentage of consumers with at least one health-related application has doubled from 16 to 32 percent over the past two years[3]. Consumers are exhibiting an increased willingness for virtual interaction regarding their health and healthcare, while also showing an increased usage of wearable health tracking devices[3].

Additionally, consumers are exhibiting a preference for smart devices versus PCs and desktops when searching for medical information given their notable increased accessibility[4]. However, the effect of smart devices is not limited to the consumer; this effect is rapidly expanding to affect healthcare professionals' behavior as well.

The use of smart devices by healthcare professionals is growing rapidly in accordance with consumer usage and is set to transform clinical care and practices. A recent study found that an estimated 87 percent of physicians are using a smartphone or tablet in their workplace. This growing popularity is independent of age, as 80 percent of physicians ages 55 and older use a smart device .

Furthermore, smart devices are affecting the delivery of medical education as 85 percent of faculty, residents and medical students are using mobile devices at least once daily in the classroom, clinical and hospital settings[5].
The study also showed that the manner in which physicians use smart devices parallels that of consumers. Nearly half of the time a physician is using a smart device to conduct information searches, while over one-third of the time they

are using professional mobile applications [5]. Physicians are looking towards smart devices to improve patient engagement, communication and accessibility to information at the point of care. Given the growing ownership and usage of smart devices, insurers and employers alike are joining providers in realizing the capability of mobile technology to transform health management, provision of care and the overall landscape of healthcare.

Smartphones, tablets and mobile technology serve as promising solutions to help curb the growing prevalence of costly chronic conditions and the factors leading to them. Some studies have proven the positive effect of mobile technology on adherence to treatment of chronic illness, modification of poor health behaviors and providers' decision making [6]. Despite growing use of smart devices for searching health information, preventive health information remains one of the least searched and employed categories amongst both consumers and providers[7].

While improved clinical decision making and adherence to treatment suggests improved outcomes, prevention and behavior modifications provide the most profound opportunities for mobile technology to impact healthcare. It is through improved prevention and behavior modification strategies that the cost impact of treating chronic disease can be significantly reduced; an impact that is one of the main drivers of increasing costs in U.S. healthcare. To illustrate the need to improve prevention strategies and reduce the cost impact of chronic disease, consider the case of hypertension and heart disease in the U.S.

> "Prevention and the modification of behaviors leading to chronic conditions provide the most profound opportunity for mobile technology to impact healthcare"

Prevalence and prevention of hypertension and heart disease

The National Heart, Lung and Blood Institute (NHLBI) defines hypertension (HTN) or high blood pressure as consistent blood pressure readings of 140/90 mmHg or above [8] . In the U.S. alone, HTN affects an estimated 78 million adults. Of those affected, only 81 percent are aware they have HTN, 75 percent are treating it and yet only 50 percent have their HTN under control [9] . Furthermore, at least 85 percent of the 39 million adults with uncontrolled HTN have health insurance and a regular source of healthcare; yet choose not to access the appropriate care and treatment for it [9]. Diagnosis of HTN is only definitively made after consistent presentation of symptoms across several medical appointments, which can permit HTN to go undetected for years. This apparent gap in care can harm the individual and contribute to HTN affecting nearly half of heart disease patients and three-fourths of stroke patients [9].

The growing rates of uncontrolled hypertension and other factors contributing to heart disease led to an American Heart Association (AHA) study of the prevalence and financial impact of heart disease in 2010. The study projects that 40.5 percent of the U.S. population will suffer from some form of heart disease by 2030 [10] . Perhaps more startling are the projections that heart disease will be responsible for nearly $1.1 trillion in direct and indirect healthcare costs [10]. The study resulted in a national call to action from the AHA – one that relied heavily on prevention to reduce the growing burden of heart disease.

The AHA set a goal to improve national heart health and reduce mortality due to heart conditions by 20 percent by 2020[9]. In order to accomplish this goal, it released seven metrics for consumers to adopt for improved heart and overall health :

Results from a 2015 National Health and Nutrition Examination Survey showed that people who achieved at least six of these metrics will significantly reduce their risk of all-cause mortality than those who meet no more than one metric. Despite this proven reduction, the survey identified that less than 1 percent of adults follow a healthy eating regimen, only 32 percent exhibit a normal BMI and over 30 percent fail to meet target cholesterol or blood pressure readings[11]. Additionally, there was a relatively high prevalence of smoking adults and adults exhibiting sedentary lifestyles[11].

Despite the proven reduction in mortality, American adults fail to exhibit the necessary behaviors to prevent such chronic conditions. Thus, the prevalence of these costly chronic conditions continues to grow. The study suggests two key causes:

- Current consumer education and engagement strategies are inadequate in preventing chronic conditions and changing health behavior.
- There are substantial challenges to overcome in order to motivate consumers to change their behavior and adhere to prevention guidelines.

The need for more effective prevention strategies to reduce the growing costs of the healthcare system is evident. While nationwide efforts like the AHA's have proven unsuccessful, workplace wellness programs are serving as promising prevention solutions . Specifically, these programs are incorporating smart device technology to drive meaningful use of consumer data to improve population health management, prevention and cost savings.

> "Workplace wellness programs are promising prevention solutions ."

Workplace wellness programs: a long-term solution to population health management?

As a result of targeted mandates, taxes and fees in the Affordable Care Act (ACA), employers are experiencing major cost impacts associated with the legislation. A 2014 study by the American Health Policy Institute attempted to quantify this impact by reviewing internal analyses of more than 100 large employers. The study projects that the ACA could cost large employers—depending on size—up to an additional $5,900 per employee, or $200 million per employer, over the next 10 years [12].

Employers are looking toward workplace wellness programs as a potential solution to negating the increased costs incurred by the ACA. One study found that workplace wellness programs reduce average health costs per employee by 18 percent and up to 28 percent for older working adults and retirees . These savings will only increase over time as more data is gathered and more effective preventative strategies for risk factors are realized [13]. The wellness programs that experienced these savings focused on the reduction of risk factors similar to the AHA, yet were able to engage their enrollees and promote health strategies more effectively. The success of these programs is due in part to the adoption and integration of mobile technology.

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Smartphones and tablets are able to gather real-time data that goes far beyond the scope of information captured in brief clinical consultations. This data provides pertinent context to an individual’s daily lifestyle by gathering the information and support necessary to understand the individual’s behavior and motivate change. Preliminary studies are proving the positive influence of mobile health tools on education, behavior changes and adherence related to engagement in physical activity, consistent exercise and healthy eating habits [14] . Smart devices are proving to be a meaningful tool in clinical communication, individual monitoring and self-management of disease [15].

Sophisticated workplace wellness programs are experiencing these benefits through mobile and online solutions to produce data that is representative of their employee population and leads to increased engagement. This data is employed to personalize wellness programs and incentives, as well as monitor health indicators and facilitate intervention when necessary. Such mobile solutions are providing a continuum of care that has yet to be realized in provider and hospital settings. The solutions are resulting in significant healthcare savings, reduced risk profiles and ultimately, a happier, healthier and engaged employee.

One company leading the evolution of workplace wellness programs and population health management strategies for the past decade is BioIQ [16] . Its sophisticated platform employs a suite of mobile consumer engagement and wellness tools that are innovating prevention strategies and providing cost savings nationwide. BioIQ baseline analytics first identify the main health conditions affecting an employee population. Then, through a five-pronged mobile and online engagement strategy, BioIQ ensures flexible, real-time data capture to facilitate customized wellness programs for each individual. Thousands of healthcare professionals are employing the company’s engagement strategy through smart devices (including tablets) to:

- Acquire measurements of individual health
- Coordinate screenings
- Integrate clinical care models
- Increase accessibility of care on behalf of employers and health plans

> “Mobile solutions provide significant healthcare savings, reduce risk profiles and ultimately, a happier, healthier and engaged employee.”

Depending on risk profiles and employer preferences, action can then be taken through integrated third-party wellness tools that provide targeted education and health coaching. These tools are paired with comprehensive reminders and alert systems to sustain engagement. Overall, BioIQ provides a long-term, intuitive health tracking solution that leads to improved outcomes, cost savings, reduced risk profiles and ultimately, a healthier population.

About the Author

Pete Desai brings strategic focus along with strong industry acumen to BioIQ as Vice President of Corporate Development and Marketing. He has an extensive background in developing and implementing innovative healthcare programs and services within small and large organizations. With over 15 years of healthcare experience, Pete is responsible for marketing BioIQ's solutions while raising awareness of the company's mission to Connect, Measure and Achieve.

End Notes

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