Chronic Disease Mobile Health Apps Need Better Value Propositions and Evidence

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Summary

Rising healthcare costs and the increased prevalence of chronic disease in the US are incentivizing stakeholders to develop new solutions to tackle these issues. Many have turned to digital health innovations like mobile health applications to facilitate care prevention and management for chronic disease, but significant gaps remain in their ability to be used in real-world practice.

Chronic diseases account for 70% of US deaths, they are the leading cause of disability, and individuals with chronic conditions are the most frequent users of healthcare. Furthermore, chronic illness is the largest driver of medical costs, accounting for 75% of the nation’s annual health care expenditures. The need for innovative solutions to prevent and manage care for patients with chronic diseases is critical, particularly with a rising baby boomer population faced with increased care needs and a healthcare system shifting toward value-based care.

Among other uses, mobile health apps provide a platform for patient–provider communication and a documentation system to track health and wellness goals. These apps have the potential to change care delivery for patients with chronic disease, empowering patients to self-manage their conditions with less frequent in-person clinician visits. Despite a rapidly growing market of chronic disease management apps, research indicates that organizations are slow to adopt these
apps in practice. There are 2 major factors for app developers to consider while seeking to drive the digitization of chronic disease care management.

**Adoption of Mobile Health Apps Requires a Strong Value Proposition**

Mobile health apps are difficult to sell directly to patients, introducing additional complexity for how to fund the provision and maintenance of these technologies. With relatively few patients willing to pay for digital tools, health care organizations – providers (health systems or primary care practices) and payers (self-insured employers or health insurers) – often assume the costs. To date, little evidence demonstrates improved health outcomes or lowered costs that can justify the cost of development and adoption. However, some promising examples demonstrate clinical efficacy and cost savings in digital chronic disease management solutions, such as Canary Health’s digital Diabetes Prevention Program.

The Institute for Clinical and Economic Review (ICER) reported that the Canary Health program demonstrated “incremental or better net health benefit compared to usual care.” Specifically, ICER estimated that the intervention would cost approximately $7,800 per quality-adjusted life-year (QALY) gained from a health system perspective. Using a $100,000 per QALY threshold, the intervention was found to be cost effective in over 95% of model iterations in a probabilistic sensitivity analysis. In 2018, Canary Health’s platform achieved the CDC’s prestigious full recognition status, providing validation that the program is effective and conforms to the highest quality standards. These results came from published studies that demonstrated improved health outcomes and reduced costs for patients with diabetes.

To drive broader use and adoption of digital solutions in chronic disease, app developers need a strong value proposition that can demonstrate improved outcomes and cost efficiency to organizations that can both pay for apps and incentivize providers and physicians to use them. This requires a research framework and a robust evidence generation strategy that considers outcomes of interest to clinicians who might recommend use of these apps to their patients. Without these in mind, apps may be developed that are user friendly and have high acceptability but a low probability of long-term adoption.

**An Evidence-Based Framework that Considers Patient Engagement Should Inform Mobile Health App Design**

The use of mobile health apps can enhance patient experiences that translate into clinically meaningful effects in the real world. Growing evidence suggests that engaged and activated patients—those who are involved with their decision making and collaborate with their providers—result in better outcomes to the healthcare system. As chronically ill patients track
their health goals and maintain treatment plans, it is imperative that these tools are guided by patient values and their preferences to make informed decisions about their care. Design of mobile health apps should closely follow recommendations from clinical guidelines, standards of care, evidence-based research, and best practices.

App developers should consider frameworks such as “The Chronic Disease mHealth App Intervention Design Framework,” which describes a 7-step waterfall process as seen below in Figure 1. This process guides both the development of the product features (downward arrows) and the evaluation of their effectiveness in driving desired outcomes (dotted upward arrows).

As chronically ill patients manage the multiple factors that contribute to their health conditions, apps can serve as a self-management tool to improve patient health-related behaviors and clinical outcomes. These tools are only successful, however, if they consider evidence-based, patient-centered frameworks to provide a platform that engages patients in their care. It is critical that these solutions use evidence-based frameworks to drive desired outcomes for all
stakeholders.

A strong appetite exists for the uptake of digital health solutions to drive innovation in chronic disease management. In order to implement these solutions effectively, app developers need an evidence generation strategy to ensure stakeholders can demonstrate the value necessary to engage clinicians in the adoption of these tools. Furthermore, app effectiveness is highly dependent on incorporating evidence-based frameworks that integrate end-user preferences and values. Ultimately, these 2 strategic considerations can facilitate effective digital health tools such as mobile apps to change behaviors, drive prevention efforts, and improve chronic disease care management in the realm of population health.

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