

Mobile Apps as Tools of Cost Reduction in Healthcare

Real Mobile Use Cases for Real Savings

- Mobile technology and its actual & potential impact on healthcare costs
- Examples of mobile use cases for cost reduction in hospitals
- 5 steps to prototyping and building an efficient, low-cost mobile app

MobileSmith
Your Quickest Path from Idea to App



Introduction

In the recent years, spiraling healthcare costs have become one of the top issues of public concern in the United States. According to Deloitte research, annual US healthcare spending, including hidden costs, is projected to hit **\$3.8 Trillion** in 2014 – that's more than the entire GDP of Germany.¹ While the Affordable Care Act was enacted to reduce the key factors of cost growth, it has yet to produce significant effect in the areas it specifically targeted, particularly -

- Management of chronic diseases still consumes about **70%** of healthcare costs, vs. only **30%** spent on preventive healthcare and wellness.²
- In 2013, readmission penalties hit **2,225** hospitals across the US, with **18** hospitals fined the maximum **2%** penalty.³
- Higher demand for services and shortage of primary care physicians leads to overcrowded ERs.
- Electronic Health Records, while being promising tools of insight and improvement in the long run, impose a huge cost on productivity in the short term, especially for smaller providers.

Management of chronic diseases still consumes 70% of healthcare costs.

The modern day pressures do not exactly help solve the problem -

- Massively aging population – about **10,000** people turning **65** every day;
- Some **30 million** newly insured to be included into the healthcare system;
- Lack of significant improvement in Americans' lifestyle, fitness, smoking rates, etc.

The list goes on; the costs are climbing, and there is no easy solution in sight.

38% of smartphone users deem their mobile devices “essential” for finding health and medical information.

Simultaneously, the past few years have seen a tremendous surge in the **healthcare apps** market. Almost **100 million** Americans now use mHealth technologies, and **38%** of smartphone users deem their mobile devices “essential” for finding health and medical information, according to Manhattan Research Cybercitizen Health study.⁴ Everything points to mobile health entering its golden age. According to BCC Research, the mHealth market is expected to reach **\$21.5 billion** in revenues by 2018.⁵

Naturally, the question arises, can mobile apps help reduce healthcare costs?

The Impact of Mobile Apps on Healthcare Costs

The 2013 eClinicalWorks survey found that **93%** of physicians believe mHealth apps have the potential to improve patient outcomes, and **89%** are likely to recommend a mobile health app to a patient.⁶ However, according to IMS Institute's 2013 mHealth report, most of the 43,000+ health and wellness apps currently available for download (on the US iTunes store alone!) are very limited in scope, functionality, and efficiency.⁷

Physicians are not willing to recommend an app without evidence of success or professional approval, and mobile app developers do not always have the patients' or hospitals' best interests at heart. At the same time, healthcare professionals rarely have the means or technical skills to create mobile apps themselves. Only 3% of US hospitals offered some kind of branded app in 2013.⁸

Let us explore some optimistic predictions and evidence supporting the ability of smartphone and tablet applications to reduce healthcare costs for providers, payers, and patients.

Mobile app developers do not always have the patients' or hospitals' best interests at heart, and healthcare professionals rarely have the means or technical skills to create mobile apps themselves.

Mobile technology trials showed 15%-20% reduction in hospital days and 30% fewer ER visits.

- **Addressing chronic diseases:** Accenture conducted an analysis and aggregation of early trial data of mobile monitoring solutions. Among other impacts, trial data showed, on average, a **15%-20%** reduction in hospital days and **30%** fewer ER visits with the use of mobile monitoring technology. These data demonstrated that mHealth technologies can potentially save the US more than \$23 billion by targeting patients with chronic diseases, particularly diabetes and heart disease, and bring \$2,000-\$3,000 per year in savings per patient.⁹ With the proliferation of wearable devices, Accenture's predictions appear realistic and encouraging.

- **Avoiding non-urgent use of ERs:** iTriage, one of the most popular apps for iPhone, Android, and iPad, has implemented a powerful patient engagement scenario to help reduce costs. The app offers patients an instant symptom checker; the nearest urgent care or retail clinics and ERs; and the comparative costs of visit to those facilities. The app user can get the hours of operation, wait times, and directions for the nearest in-network urgent care clinics, and even receive a reminder about filling the prescription following the visit. Potential cost savings – **\$300 to \$3,000** per visit.¹⁰

How about a branded Urgent Care app for your healthcare system? Check out the Tanner Healthcare app built without writing a line of code – see p. 6

- **Empowering patients to manage their condition:** A link has been long established between the sense of personal control and health outcomes.¹¹ A specialized, condition-specific mobile app is a great tool for patients to educate themselves, track their symptoms and progress, and take a more proactive approach to the management of their condition. Improved engagement may result in fewer visits to the hospital, healthier lifestyle, and better outcomes – all major cost-saving factors.

Check out the branded Comprehensive Cancer Care app offered by Wake Forest Baptist Hospital for patient engagement - see p. 7

- **Reducing preventable readmissions:** Mayo Clinic released the results of a controlled study involving mobile monitoring applications for cardiac rehabilitation patients. The study found that only **20%** of those patients who participated in the smartphone study and recorded their blood pressure and weight on a daily basis were readmitted within three months, compared to **60%** of patients who did not participate in the program and landed back in the hospital.¹² A whopping **40%** decrease – translating into a considerable reduction in costs and penalties.

Only 20% of smartphone study participants who recorded their blood pressure and weight were readmitted within 3 months, compared to 60% of patients in the control group.

- **Improving prescription adherence:** Today, medication non-adherence is responsible for \$300 billion in healthcare costs annually, with **50%** of all chronic patients not taking their medications as prescribed.¹³ A direct dependency between improving prescription adherence and reduced healthcare usage has been established by multiple studies.¹⁴ An easy-to-use smartphone or tablet app enabled with prescription reminders and timed push messages from the patient's most trusted source – their healthcare provider – can be an efficient branded tool for improving patient education and adherence.

50% of chronic patients are not taking their medications as prescribed.

- **Addressing the needs of senior patients:** Medicare currently covers over 50 million seniors; by 2030, that number is expected to increase to about **78 million**. With age, healthcare costs increase exponentially. Luckily, seniors have been adopting smartphones and especially tablets at a rapid rate – according to Pew research, about **27%** of seniors now own tablets.¹⁵ While this number is still relatively low, it has increased **125%** in the last year alone!



A recent study by the University of Waterloo has shown that senior patients are ready to embrace health apps - they just have to see the need.¹⁶ Launching mobile apps for senior care facilities, as well as condition-specific apps for patient education, medication reminders and tracking, and symptoms monitoring, appears to be an efficient patient engagement strategy for this expanding and costly patient population.

Pew Research: **27%** of seniors now own tablet devices; tablet usage among the elderly has grown **125%** in 2013.

- **Mobile tests and remote assessment:** Inexpensive mobile ultrasound scans done as part of a routine exam, as well as cheap smartphone add-ons that can serve as EKG monitors, can eliminate **\$600** per visit, compared to performing the same test using a full-scale machine, according to innovator cardiologist Eric Topol of Scripps Green Hospital in La Jolla, CA.¹⁷

In the same vein, Botsford Continuing Care Center in Michigan is preparing to launch a mobile video-based health assessment program involving advanced paramedic care in a quest to reduce patient emergency room visits and hospital admissions, while also saving on ambulance response costs.¹⁸

- **Gamified children's apps** for pain management, diabetes, asthma, and other conditions can significantly boost adherence, patient education, and patient engagement. A well-known example is the Pain Squad smartphone app for pain management, launched by The Hospital for Sick Children in Toronto. Through an exciting game scenario and encouragement, the app helped increase self-reporting of symptoms by the young cancer patients from 11% to **90%**.¹⁹



Easy Mobile Use Cases for Cost Reduction

With **55%** of the US population owning smartphones or tablets, and with seniors adopting tablets at an increased rate, offering branded healthcare apps seems like a no-brainer for healthcare providers. A branded smartphone or tablet app is a great way to increase patient engagement and revenue, as well as to promote your organization. But most importantly, mobile apps can noticeably reduce costs, and thus prove the value of digital and mobile patient engagement.

An Urgent Care app can easily route your ER-bound patients to the more affordable options for primary care.

Below, we outline a few types of patient apps healthcare providers can launch without costly development or heavy integration with EHR/EMR systems. These use cases have been developed for MobileSmith customers, but can be easily rebranded and customized for your organization and launched within weeks.



General Hospital/Urgent Care App

To reduce long wait times and high ER costs, an easy-to-navigate **Urgent Care app** is a must for your organization. Apart from general information and directions, you can include search and wait times functions to easily route your ER-bound patients to the more affordable options for primary care.

For example, [Tanner Health System](#) is getting ready to launch a branded app developed using the MobileSmith platform, with the following functions:

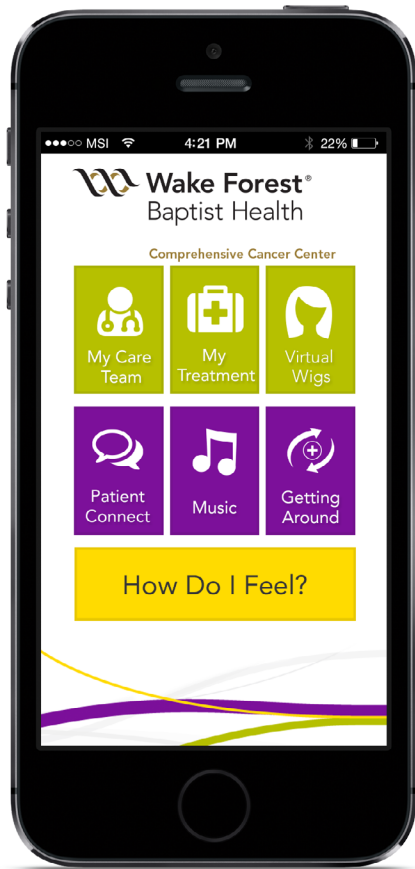
- **Info center** – including contact info, directions, and hours of operation
- **Wait times** – streaming wait time data for multiple facilities
- **Find a doctor** – easy search for primary physicians and specialists in the nearest facilities
- **Tanner news** – continuous engagement and brand visibility via mobile news feed

Stay tuned for the cost control case study following the launch of the Tanner app!

This app involves an easy API integration with Tanner's backend database, to enable it to stream real-time urgent care wait time data to patients' smartphones.

Outpatient Care App

A customized, condition-specific **Outpatient Care app** can help you ensure that recently discharged or outpatient customers stay informed, engaged, and connected throughout their healthcare journey.



For example, Wake Forest Baptist Health [Comprehensive Cancer Care app](#) helps improve outpatient experience by allowing patients to:

- Track their treatment, medications & lab results
- Build and manage their care team
- Track their daily pain levels or feelings
- Network and socialize with other patients
- Upload their photos and try on virtual wigs

Built by graphic designers without any coding, the WFBH Comprehensive Cancer Care app snagged a prestigious [Communicator Award of Distinction](#) this year and is also among the [finalists of Ragan's 2014 Health Care PR and Marketing Awards](#).

Outpatient care apps can have tremendous impact on patient care costs by reducing **preventable readmissions** and helping patients **adhere to medications**. They can also serve as excellent **patient education tools**. With MobileSmith, your team can easily develop multiple condition-specific apps for various patient populations. Offer useful interactive functionality to engage your patients, and drive educational content and push notifications via a role-based CMS.



Wellness App

The most popular mobile use case, your hospital's branded **Wellness app** will help your patients lead a healthy lifestyle, while staying educated and connected through your brand.

For example, Henry County Health Center's [Healthy Living](#) mobile app - the Bronze winner of the 2013 WebHealth Award - includes the following features:

- Set and track wellness goals; get educated about healthy lifestyle;
- Connect with dietitian; track 'food mood'; find cooking classes and healthy recipes;
- Track symptoms and exercise effects; list emergency contacts and health care team; manage allergies, appointments, blood sugar, blood pressure, labs, etc.
- Find wellness facilities & clubs; connect with wellness community members.

This app was also built entirely by non-programmers; without any coding.

5 Steps to Launch a Cost-Effective Patient App

The best healthcare apps for cost reduction are designed with the patients' needs, and the provider's bottom line, in mind. To ensure your mobile use case is inexpensive to develop and optimized to reduce larger costs, follow these simple steps:

1. Involve Line-Of-Business in mobile use case development.

Your marketing and medical teams have the best knowledge of your patients' mobile needs. Give these people the tools to design and prototype patient-facing apps. Bringing app development into the hands of the stakeholders can ensure an optimized end-user experience, a higher impact on the target Key Performance Indicators (KPIs), and a better chance for your app to be adopted and retained by patients.

2. Review your prototype live, and polish your app.

Ease of navigation and smoothness of user experience is a huge part of your app's success. Unlike custom development projects, MobileSmith empowers you to improve UI/UX easily by instantly building your test app for any or all mobile platforms, and sending it to any device for live testing. To make any changes, simply return to the platform and modify your app until you are 100% satisfied with the user experience. No additional development costs involved.

Bringing app development into the hands of the stakeholders can ensure a higher impact on the target KPIs.

3. Build your customized app in hours by using MobileSmith's library of generic hospital apps.

Building your native app from scratch is easy with MobileSmith, but if you want to speed up development, you can quickly re-skin and customize any number of the [bullet-proof hospital apps](#) we have already developed for your convenience.

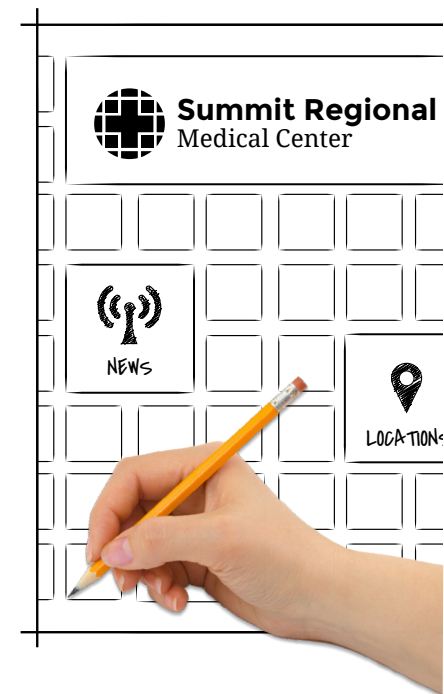
4. Easily manage your entire app portfolio.

Use the MobileSmith content management system to securely manage content and messaging in all of your apps, with role-based access established for your staff. You can publish rich content, import data in various formats, enable data sorting and filtering, schedule and push secure notifications, as well as feed relevant content to specific groups of patients. Personalized alerts, smooth app version control, and real time content updates will make your app(s) a truly satisfying experience.

5. Quickly establish a secure data exchange.

To guarantee patient privacy, MobileSmith uses reliable user authentication scenarios and direct XML data streaming between your backend systems and each mobile device, *bypassing the MobileSmith server*. You can engage your patients with condition-specific content without having to worry about exposing sensitive patient data.

To learn more about the [MobileSmith](#) platform and discuss your mobile ideas, contact us at [+1.800.578.9000](tel:+18005789000), or [sign up](#) for a platform demo.



References

- ¹ [Annual U.S. Healthcare Spending Hits \\$3.8 Trillion](#), by Dan Munro, Forbes, February 2, 2014
- ² [Fiscal, Demographic Realities Make mHealth Key to Reducing Care Costs](#), FierceMobileHealthcare, 2013
- ³ [Bigger Readmission Fines Hit Hospitals](#), Kaiser Health News, August 5, 2013
- ⁴ [mHealth Enters Consumer Golden Age](#), by Erin McCann, HealthcareITNews, October 25, 2013
- ⁵ [Mobile Health \(mHealth\) Technologies and Global Markets](#), BCC Research, 2014
- ⁶ [What the Doctor Ordered: Apps](#), eClinicalWorks, 2013
- ⁷ [Patient Apps for Improved Healthcare](#), IMS Institute, October 2013
- ⁸ [Analysis: 205 Hospital-Branded Apps for Patients](#), MobiHealthNews, September 19, 2013
- ⁹ [Still Waiting for mHealth? Mobile Devices Create New Opportunity in Healthcare](#), Accenture, June 5, 2012
- ¹⁰ [Engage Patients in Their Healthcare to Improve Clinical Outcomes](#), Aetna
- ¹¹ E.g., C. Peterson, A. Stunkard, [Personal Control and Health Promotion](#), Pergamon Press, 1989
- ¹² [Mayo Uses mHealth to Reduce Cardiac Readmissions by 40%](#), by Jennifer Bresnick, EHR Intelligence, April 3, 2014
- ¹³ [The \\$300 Billion Elephant: Strategies for Addressing Patient Nonadherence](#), Decision Resources, November, 2013
- ¹⁴ Roebuck et al, [Medication Adherence Leads to Lower Health Care Use and Costs Despite Increased Drug Spending](#), Health Affairs, January 2011
- ¹⁵ [Pew: More Seniors Own Tablets or e-Readers than Smartphones](#), by Sam Kirkland, Poynter, April 16, 2014
- ¹⁶ K. A. Grindrod, M. Li, A. Gates, [Evaluating User Perceptions of Mobile Medication Management Applications With Older Adults: A Usability Study](#), University of Waterloo, JMIR Publications, 2014
- ¹⁷ [This Doctor Will Save You Money](#), MIT Technology Review, September 9, 2013
- ¹⁸ [Mobile Video Pilot Aims to Reduce Ambulance, Hospital Admission Costs](#), by Judy Mottl, FierceHealthcare, March 10, 2014
- ¹⁹ [Interview with Pain Squad creator, Jennifer Stinson](#), MedGadget, February 12, 2014