Pharmacy Automation and Technology

Reducing Hospital Readmissions Through Prescribable Mobile Apps

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Quality of care continues to be a major focus for hospitals, especially as major payors like the US government create new standards and regulations for the patients whose lives they cover. In this article, we examine the potential role of mobile apps to help with hospital readmissions.

Hospitals and health systems are facing a significant challenge that the Centers for Medicare and Medicaid Services (CMS) has put before them: reduce the number of hospital readmissions. Included in the Patient Protection and Affordable Care Act, the Hospital Readmissions Reduction Program aims to reduce the number of patients readmitted to the hospital for 3 high-risk conditions: acute myocardial infarction, heart failure, and pneumonia. Hospitalizations are expensive, accounting for 30% of all health care expenses. In the Medicare population, hospitalizations account for 37% of spending. Estimates indicate that 18% to 20% of Medicare patients return to the hospital within 30 days of discharge. In 2010, these readmits cost the Medicare program an additional \$17 billion.^{1,2} Clearly, there is a need to address hospital readmissions.

The argument can be made that readmissions are unavoidable, sometimes even planned, and that hospitals should not be penalized for something that is beyond their scope of control or is part of sound provision of care.¹ You have likely heard these arguments and can see their logic. However, readmissions are often not due to sound medical practice and, in fact, represent instances where patient care was not optimal. Circumstances in which the health care system does not equip patients with the necessary tools to remain out of the hospital are the specific, avoidable readmissions that CMS is targeting.

One group has created a list of 10 methods that they argue can effectively reduce hospital readmissions³:

1. Identify and target patients at greater risk for readmission.
2. Target patients with limited English proficiency.

3. Participate in payor incentive programs aimed at decreasing readmissions.
4. Join a collaborative focused on preventing readmissions.
5. Schedule patient follow-up visits within 7 days of discharge.
6. Implement a robust program for home health care services.
7. Address continuity across transitions of care.
8. Educate patients on postdischarge instructions.
9. Utilize telemonitoring equipment in the homes of the chronically ill.
10. Provide higher regular time nurse staffing.

You can likely identify other ways to reduce readmissions, whether from your own experiences or from published data detailing creative ways that others have addressed the readmission problem. This list is useful, however, in that it provides a way to contextualize efforts to reduce readmissions: by location (in/out of the hospital) and by target (health system or patient). Although hospitals are the target of CMS's financial penalties for poor readmission rates, patients' health is ultimately where the greatest impact is found.

Lately, we have been discussing the concept of prescribable health apps.⁴ Patients leave the hospital with numerous medication prescriptions as well as directions for behavior and other activities. Is there an opportunity for authoritative, clinically sound apps to become part of discharge instructions? If a core set of apps was identified, tested, and "certified" for reliability and validity, could it become the patients' personal health assistant once they left the hospital? Could a set of apps effectively decrease readmissions?

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Would a set of apps be more cost-effective than other approaches to reducing readmissions?

The functions a core set of apps would need are dependent upon the patient's condition(s). We divide the app functions into 4 broad categories. First, the app would need to serve as a communication tool. The patients are the hub of the communication wheel in our vision of this tool. They are the recipients of information that may originate from their provider, the institution, or other caregivers such as family members. Patients may also want to initiate communication, such as asking questions, scheduling appointments, or determining the status of medication prescriptions.

Education is the second functional category for an app set. The delivery of educational information is a primary example of communication that the institution might initiate. Education must be delivered in multiple formats, whether that is languages, graphical depictions, or some other medium. Education could be interactive in that a patient's education status reports back to an assigned provider to let them know of a specific area in which the patient needs additional follow-up.

We believe that any effective app set must address medication adherence. Primary nonadherence (not filling or picking up a new prescription) represents a significant challenge, as does secondary nonadherence (not taking a medication as prescribed). Patients are faced with complicated regimen schedules, but they are also challenged with distinguishing many dosage forms from one another. The adherence problem should be a focus for decreasing hospital readmissions.

The last functional category for an app set designed to decrease hospital readmissions is measurement. The patient's condition dictates the measurements that are

appropriate, but the ability to automatically measure weight, for example, in a heart failure patient and communicate significant changes to the responsible provider represents an opportunity to intervene and to potentially prevent a hospital readmission.

We have presented a rather simple view of what we believe to be the core features of a prescribable app set, but we are not suggesting that readmissions are simple problems with simple solutions. Factors influencing hospital readmissions vary across geographic regions, medical conditions, patient's race, and a host of other factors, including institution-level factors. We are suggesting that the phones that the majority of patients have with them may be an untapped resource for addressing an important problem of hospitals and health systems. We welcome your comments: Brent at foxbren@auburn.edu, Bill at felkebg@auburn.edu, and on our blog, www.pharmacy-informatics.com.

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