Medication Non-adherence

Abstract

This paper describes the business case for insurance companies to explore opportunities to increase patient adherence to medication regimens. It discusses the issue of non-adherence (or non-compliance) at a high level and the implications patient non-compliance has on the healthcare industry as a whole. This paper also proposes a potential solution that has the goal of increasing medication adherence by providing a connected experience for the patient, pharmacy, caregiver, and insurance company. This solution seeks to solve the problem with current available options that silo the patient experience to a single application or device and also prevent insurance companies from collecting data on individual medication compliance.

Background

Medication non-adherence can have negative implications for the patient, the physician, the hospital, and insurance company; really it negatively impacts the health care industry as a whole. The patients who are non-adherent put their health at risk while insurance companies pay for the additional medical expenses. Industry estimates suggest that the total costs of medical expenditures that result from non-adherence to medications are approximately $300 billion. [3] This cost represents more than 30% of all of the wasted costs in the healthcare system. Non-adherence of not taking prescribed medications costs the industry over $100 billion each year in hospitalizations alone. Non-adherence has also been attributed with as much as 40 percent of nursing home admissions and added medical costs of $2,000 each year per patient for physician visits, a cost the insurance company is responsible for paying.[8] Increasing adherence for as little as one thousand patients can save around $2 million a year on physician visits.

The Problem

Non-adherence can take the form of *primary non-adherence* or not filling the initial prescription, *non-conforming* or not taking the medication as prescribed, and *non-persistence* or discontinuing the medication prior to its end date.[6] The focus for our solution is on non-conforming non-adherence which can be because the patient forgot to take their medications, they mix their medications incorrectly, or even take their medications in combined doses that may have unintended, negative side effects such as dizziness and confusion.[1] Our focus will be on non-conforming primarily because forgetting to take medication as prescribed was found to be one of

the most common causes of non-adherence.[5] The statistics surrounding non-adherence are staggering:

- Three out of four Americans don't take their medications as directed.[3]
- 51% of insured Americans take at least one medication.[6]
- 10% of prescribed doses of any medication are missed daily.[6]
- at least 20% and as many as 80% of patients make errors when taking medication.[1]
- Studies have found that and 20-60% stop taking their medications before their planned end.[1]
- researchers estimated that 33%-69% of hospitalizations that were medication-related in the US were a result of non-adherence.[2]
- Nonadherence to medications is estimated to cause 125,000 deaths annually.[4]

Rates of adherence have remained relatively stagnant over the last 3 decades despite efforts to increase adherence.[4] In total, almost 75% of adults are non-adherent in one or more ways.[8]A 2009 study done on patients taking medication found that those who were adherent were hospitalized fewer times, had fewer emergency room visits, and their overall health care costs were 23% lower than those patients who did not adhere to their medications [1]

Available Solutions

The primary issue with current options on the market is that there is no connected way for the patient, caregiver, pharmacy, and insurance company to interact. The secondary issue is that a lot of the available solutions don't accommodate multi pill regimens, something many individuals need. For example, smart pill bottles are not only expensive, but it causes problems for the 32 million Americans use three or more medicines daily, while the average 75-year old has 3 chronic conditions and takes 5 medicines.[8] This option requires these patients to buy multiple bottles to handle their and also puts the burden of sorting the medications into the bottles on the patient, which leaves a lot of room for error and inevitably, non-adherence. Finding a solution that addresses the multi pill, multi dose regimens for patients is important because Adherence is inversely proportional to the number of times a patient must take their medicine each day.[8] The average adherence rate for treatments taken only once daily is nearly 30% higher than treatments that must be taken 4 times a day.[8] Our solution seeks to address

these issues by providing an easy way to connect the healthcare chain of patients as well as cater to those patients taking multiple doses of multiple medications.

Insurance Companies

Our solution integrates insurance companies in a way no other available option considers. Insurance companies can offer patients economic incentives to utilize our solution, for example by reducing premiums or copayments. This will encourage patients to use our solution and increase adherence rates which in turn will save the insurance company considerable amounts of money in the long run. In addition to cost savings, insurance companies will have access to invaluable patient adherence data that can be used to tailor coverage and research non-adherence patterns further.

Our Solution

Our solution connects insurance companies with data on patient adherence and creates an interactive environment for the patient and their system of caregivers. It addresses the issues of patients forgetting to take their medications or refill prescriptions, informs patients what it is they are taking and why, and informs caregivers on the adherence of the patient they are responsible for. It integrates the insurance company into the equation by incentivizing regular compliance and connects insurance companies with aggregated data on patient adherence. It addresses the large amount of patients taking multiple doses or multiple medications daily. Our solution provides organized, date and time stamped packages of medication. The housing for the medication packets will record when a packet is dispensed and when an empty packet is inserted in the disposal compartment. This helps track adherence by sending time stamped information to the app. If a packet is not removed on time, the patient and any caregivers who elect to be involved will receive a reminder via the app. This feature allows caregivers to help the patient adhere to their medication. Doctors will be notified when a prescription is filled and when it is refilled. Our solution will allow for real time feedback on how patients are feeling by allowing them to report any side effects they may be experiencing on the app; this information will then by shared with the doctor and caregiver. This connectivity will allow medication regimens to be updated more effectively.

Exhibit 1: Key Users

Patient

     -Scan Rx through app(Unique to our idea)

     -Complete simple set up of app

         -required to select time to take medication (time for each required dose)

     -Wait for prescription to be delivered by mail

     Once Received

     -Take pill pack according to date and time

     -How do we recycle boxes with scanner?

     -Gets notification when time to refill and can refill through app(Unique to our idea)

Pill Packaging (Similar idea to PillPack Service)

     -A pack containing each medication you have to take for each dose

 (ie. if you take five medications, you will take one pack with containing all five medications)

     -Each pack has a timestamp of when to take it, date, and which medications are inside.

     -Each pack has a scannable bar code that when scanned through the app tells you what each medication is being taken for. (Unique to our idea)

     -Packs are connected on a roll and need to be ripped apart

     -Each month patient receives a box with medication packs

     -Box has scanner inside to track and send information to app when a specific pill pack is removed from the box. (think of a roll of tickets) (Unique to our idea)

Pharmacy

     -Receives Rx for patient

     -Packages pills into individual packs

     -Packages roll of pills into box with scanner

     -Sends box via mail

Caregiver (Unique to our idea)

     -Download app

     -Sign in via caregiver sign in

     -Each patient app has caregiver login

     -Has option to receive notifications from app for:

-Package removed from box

-If package wasn't removed on time

-If multiple packages were removed

-Notification to refill

Insurance Company (Unique to our idea)

-Receive monthly report on compliance per patient

-Incentivizes consistent monthly compliance for patient

App

-Collects data each time package is removed (tracks on time and late removal)(Unique to our idea)

-Provides information on medication when pack barcode is scanned (Unique to our idea)

-Sends reminders for taking medication that the patient must verify (Y/N)

-Sends reminders if pack isn't removed on time (Unique to our idea)

-Sends weekly report to patient on adherence (ie. how many doses you took on time, late, etc.) (Unique to our idea)

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Sources: http://www.medscape.com/viewarticle/409940 [1]
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