

Rx Transition

Prescribing Safe Transitions in Care

The problem:

Nearly 20% of discharged patients return within 30 days.

The goal from Partnership for Patients:

By the end of 2013, preventable complications during a transition from one care setting to another would be decreased so that all hospital readmissions would be reduced by 20% compared to 2010.

Our strategy:

Improve communication, understanding, and compliance during and after discharge.

Our product:

A web application to coordinate the care providers during a transition and to automate parts of the follow-up process.

How it works

- Patient completes the CMS Discharge Checklist a day or two in advance of discharge.
- During the discharge interview the care provider, such as a hospital nurse, creates a workflow for the patient using this web app.
 - They *talk together* about the checklist items and the provider enters information into the web app.
 - The provider completes a follow-up plan: a schedule of both personal phone calls and automated text messages sent to the patient.
- Automated follow-ups are sent to the patient by text message. Each message also includes instructions to call a certain phone number if the answer to the specified question is abnormal. For example, if they see a certain symptom.
- Reminders about the personal phone-based follow-ups are sent to the provider (nurse) by email (containing no patient data in the email).
- As follow-ups are done, the results are recorded in the app.
- The data can be shared with other providers by either authorizing them within the app or by data download/export into another system.

Traditional approach

Vs.

- In many hospital discharge meetings, the nurse gives an overwhelming amount of information and does not confirm whether the patient has understood it.
- There are not clear lines of communication between the hospital providers and the post-transition providers.
- Many important questions are never asked of the patient after discharge.
- Follow-ups and other steps are missed because there is a lack of systematic monitoring.

Our system

- The CMS checklist is given in advance, so that the discharge meeting is time for review and active confirmation of understanding.
- The discharge nurse can design the transition workflow but also share it with other providers.
- The system prompts for key questions and allows the provider to easily check them off as appropriate -- even if they should be asked at a later time.
- The system sends reminders and other automated messages to providers and patients.

Operationalization Plans

- **Coding and Systems Administration**

- This system has been implemented with the following stack, for high performance and scalability: nodeJS with MongoDB, hosted on Amazon Elastic Compute Cloud (EC2).
- Use GitHub for version control, collaboration, and tracking of bugs and feature requests.
- Develop Continuity and Disaster Recovery plans.
- Achieve HIPAA compliance. Amazon EC2 helps with several parts of HIPAA compliance: data can be encrypted in transit and at rest; encrypted backups (snapshots) are automatically be moved to remote sites.

- **Tracking and Monitoring**

- Robust and detailed logging will be built in from the start, to allow for flexibility in auditing.
- Google Analytics can provide basic traffic statistics, such as precise tracking of the fluctuation in popularity of the site over time.
- A custom-built tracking module will process the important user-submitted data to identify trends and other patterns in usage. This will be a critical part of the development cycle: responding to how people are actually using the system.
- Overall performance and uptime of the system will also be monitored, using a basic monitoring package that is triggered (and itself monitored) by alertra.com – which can call the system administrator(s) in the event of an outage or performance problem.

Future Development

- **Accessibility**

- The text messages to patients should be available in multiple languages.
- Data can be sent to other health systems using NHIN protocols such as Direct.
- This application works on tablets such as the iPad. It also works on smartphones (including the iPhone) but is not optimized for that use. If smartphone use is important, this would need further development.

- **Additional features**

- Supplementary educational material for the patient, in different languages, could be made available through this system.
- If useful, certain follow-up calls could be administered through automated phone calls (Interactive Voice Response). This is not expensive or technically difficult, due to platforms such as Twilio.com.
- More machine intelligence. An easy example is that the system can suggest follow-ups based on answers to the discharge survey. The provider could then decide which suggestions to approve.
- Features surrounding the medication list and upcoming appointments. These areas were not dealt with in the system yet, since they are addressed already in other products.