Examining Clinician Perspectives of and User Experiences with New Technology to Address Hospital Readmissions

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OVERVIEW

• Reducing Readmission Rates

• Types of Interventions For Reducing Readmission Rates

• Reducing Readmissions at Carolinas HealthCare System
  – Goals of the multi-component approach
  – Adoption of a risk scoring model
  – Examining user experiences with it
  – Development of a User Experience Journey Map
  – Benefits of a Continuous Learning Research Approach
Efforts to reduce readmission rates have intensified due to:
- Increased awareness of the prevalence of readmissions
- Linking of financial penalties to readmission rates

Readmissions have been linked to various factors including:
- Inadequate discharge planning
- Poor coordination between the hospital and community clinicians
- Ineffective longitudinal community-based care

Even a small reduction in hospital readmissions can result in:
- Significant savings in healthcare costs
- Improved patient health outcomes (e.g., improve quality of life, functional ability, etc.)
TYPES OF INTERVENTIONS

Predischarge Interventions
• Efforts that are initiated prior to the patient’s discharge
  - Risk models, patient education, discharge planning
  - Medication reconciliation, appointment scheduled before discharge

Postdischarge Interventions
• Efforts that are initiated after the patient is discharged
  - Timely follow-up visit, patient hotline
  - Home visit, follow-up phone call

Bridging Interventions
• Connect hospital and post discharge periods through multiple disciplines
  - Transition clinic, transition coach/ personnel
  - Provider continuity
Our Healthcare System

Carolinas HealthCare System includes a network of 39 hospitals and more than 900 care locations in North Carolina, South Carolina, and Georgia.

- The region’s only Level I trauma center
- One of only five academic medical centers in North Carolina
- One of the largest HIT and EMR systems in the country
- More than 11.5 million patient encounters in 2014

Map highlights acute care locations
Carolinas HealthCare System has developed a multi-component approach for reducing readmissions that is focused on:

- Providing Highest Quality of Care for Patients When They Must Be Hospitalized
- Preparing Patients for Success When They Go Home
- Preventing Future Hospitalization

Use of Predictive Analytics is a key component in the approach
In 2013, 7 CHS facilities adopted a software tool to predict a patient’s risk for 30-day readmissions prior to discharge.

**OUR APPROACH**

- Predict Risk for 30-day Readmissions
- Reduce Preventable Readmissions
- Help Providers Make More Informed Patient Discharge Decisions at Bedside
- Improve Patient Health and Outcomes
Care Managers (CMs) were the primary users of the new software tool

- CMs were trained to use the new software tool to plan discharge interventions to help high-risk patients manage their health.

Care Managers (CMs) received risk scores and suggested interventions from the risk scoring model.

<table>
<thead>
<tr>
<th>Unit</th>
<th>Patient Name</th>
<th>Room</th>
<th>Readmission Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>3T</td>
<td></td>
<td></td>
<td>Very High</td>
</tr>
<tr>
<td>3T</td>
<td></td>
<td></td>
<td>Medium</td>
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<tr>
<td>3T</td>
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<td></td>
<td>High</td>
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<tr>
<td>3T</td>
<td></td>
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<td>Low</td>
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<td></td>
<td></td>
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</tr>
</tbody>
</table>

**Interventions**
- Office Visit in 7 Days
- Transportation to Office Visit
- DME Report
RESEARCH OBJECTIVES

1. Explore Clinician Feedback
   • Perceptions of Tool
   • Experiences with Deployment Process

2. Use Clinician Feedback
   • Inform Tool Redesign
   • Improve Usability

3. Foster A Continuous Learning Process
   • Build upon insights gained at each phase of research
Conducted two focus groups with primary users:
- Care Managers (CMs)
- Managers of CMs
- Directors

(N= 7 in each group)

Explored the following topics:
- Perceptions of Tool
- Perceptions of Training
- Impact on Workflow

Conducted a Theme Analysis of transcripts from the focus groups

Developed a Journey Map of user experiences with the tool

METHODS (N= 7 in each group)
WHAT IS A JOURNEY MAP?

A visual illustration of what users are Doing, Thinking, and Feeling throughout their interaction and relationship with a product (service, organization, or brand).
A USER EXPERIENCE MAP EXAMPLE

Customers often select services based on the quality of their touchpoint experiences

Cell Phone Purchase Experience

Cell Phone User Experience

Customer Service Experience

Customer Shares Experience on Social Media

Decision Making Experience (About Future Purchases)

Thank you for helping me.

It’s not working as I expected it to. I’m frustrated.

Can you fix the problem?

I’ll do some research to see if anyone else has had this problem.

Maybe I should switch to another brand?
JOURNEY MAP OF CARE MANAGERS’ USER EXPERIENCES
Thinking
Understanding the unique needs of multi-disciplinary care teams would foster a broader sense of buy-in and collaboration.

<table>
<thead>
<tr>
<th>Stages</th>
<th>Education Roll-Out</th>
<th>Training</th>
<th>Deployment (Usage)</th>
<th>Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doing</td>
<td>More information and communication would improve engagement</td>
<td>Providing short-term and long-term training components would create opportunities to identify learning gaps and to provide feedback</td>
<td>Degree of usage of the tool across multiple locations would be facilitated by improving the user experience</td>
<td>Continuous communication between users, designers, and other stakeholders would enhance the re-design process</td>
</tr>
<tr>
<td>Thinking</td>
<td>Roll-out would be facilitated by leveraging support for improving patient health outcomes</td>
<td>Having more data about successful outcomes of the new technology would be a motivation to use it</td>
<td>Minimizing concerns about effectiveness of the new technology would improve integration of it into the workflow</td>
<td>Understanding the unique needs of multi-disciplinary care teams would foster a broader sense of buy-in and collaboration</td>
</tr>
<tr>
<td>Feeling</td>
<td>Explaining how old &amp; new technology would co-exist could reduce anxiety</td>
<td>Reducing confusion about some aspects of the technology would enhance user comfort with it</td>
<td>Providing feedback on user experience increased hopes that improvements would be made</td>
<td>Re-imagining a more user-centered technology would improve user satisfaction</td>
</tr>
</tbody>
</table>

User Experience Journey Map

| Experience | • Comprehensive communication would enhance engagement | • Learning more about the technology and its effectiveness would foster confidence in it | • Improving ease of use would facilitate efforts to fully integrate it into workflow | • Quickly incorporating feedback into re-design would build collaboration in support process |

Opportunities

<table>
<thead>
<tr>
<th>Areas to Improve</th>
<th>Qualitative Research</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Explain Process</td>
<td>2. Focus Groups</td>
</tr>
<tr>
<td>4. Share Success Stories</td>
<td>Dickson Advanced Analytics</td>
</tr>
</tbody>
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Guiding Principles

| Improve Patient Health and Outcomes | Help Providers Make More Informed Patient Discharge Decisions at Bedside | Reduce Preventable Readmissions | Predict Risk for 30-day Readmissions |

1. Standardized Training
2. Learning Gaps
3. Ease of Use / Quality
4. Incorporation of Feedback from Users

1. Cognitive Walkthroughs
2. Focus Groups
3. Stakeholder Interviews

1. Awareness
2. Satisfaction
3. Level of Usage
Thinking Stage

User Experience Journey Map

Doing
More information and communication would improve engagement

Thinking
Roll-out would be facilitated by leveraging support for improving patient health outcomes

Feeling
Explaining how old and new technology would co-exist could reduce anxiety

Experience Key Insight
Comprehensive communication would enhance engagement

Areas to Improve
1. Communicate Goals
2. Explain the Process
3. Share Success Stories

“Everyone wants to know a little bit more.”
Thinking Stage

User Experience Journey Map

Doing

Providing short-term and long-term training components would create opportunities for users to identify learning gaps and to provide feedback.

Thinking

Having more data about successful outcomes of the new technology would be a motivation to use it.

Feeling

Reducing confusion about some aspects of the technology would enhance user comfort with it.

Experience Key Insight

Learning more about the technology and its effectiveness would foster confidence in it.

Areas to Improve

1. Learning Gaps
2. Ease of Use / Quality

“We’ll always make changes based on feedback, if it’s relevant and we feel like we can impact it, and it’s a good patient outcome.”
Thinking

Minimizing concerns about effectiveness of the new technology would improve integration of it into the workflow.

Doing

Degree of usage of the tool across multiple locations would be facilitated by improving the user experience.

Feeling

Providing feedback on user experience increased hopes that improvements would be made.

Experience Key Insight

Improving ease of use would facilitate efforts to fully integrate technology into workflow.

Areas to Improve

1. Ease of Use / Quality
2. Incorporate User Feedback

“...If we could copy and paste that into our assessment... we have to toggle back and forth to remember which ones you need to type in...”
LIMITATIONS

• Participants were asked to recall their experiences with the tool, which may have impacted the level of detail they were able to provide about their user experiences.

• Focus group participants were recommended for participation by their managers.
CONCLUSIONS

1. Incorporate Clinician Feedback Quickly
   - Explore perceptions
   - Examine experiences
   - Consider impact on users

2. Collaboration Across Multiple Teams is Key
   - Identify various needs
   - Leverage expertise
   - Understand limitations

3. Journey Mapping Is An Effective Qualitative Tool
   - Illustrates the experience
   - Multi-dimensional view
   - Informs understanding
   - Guides strategy / planning
**Journey Mapping in the Research Process**

1. **Focus Groups**
   - Explored perceptions
   - Examined experiences
   - Developed Journey Map to guide next steps

2. **Ethnographic Research**
   - Observed user interactions with tool in a complex environment
   - Examined role of tool in clinical decision making
   - Identified opportunities to improve user experience

3. **Design Session**
   - Applied human-centered approach to innovation in design session
   - Participants included current and future users, designers, and key stakeholders
   - Re-imagined the user experience

4. **Next Steps**
   - Incorporate feedback from current and future users into re-design of tool
   - Continue to evolve our understanding of readmissions and the key factors that impact it

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*A Continuous Learning Process*

Dickson Advanced Analytics

Carolinas HealthCare System
REDUCING READMISSION RATES

- **CHS** has a multi-component strategy for reducing hospital readmission rates

- **Predictive analytics** play a key role in our strategy by helping to:
  - Identify high risk patients
  - Organize resources
  - Develop transition plans

- **Our continued collaboration** with clinicians and designers is aimed at improving patient health outcomes
THANK YOU

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