The CAR Study

Communicating About Readiness for discharge

Re-designing Health Care Team Communication to Improve Discharge and Readmissions

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&

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The CAR Study

- A combined Process Improvement and research study

- Process Improvement: Interdisciplinary communication about discharge preparation

- Research: Comparison of pre- and post-implementation
Study Aims

• Describe patterns of communication about discharge & collaboration among members of the health care team

• Determine the impact of an intervention with the inpatient care team to improve discharge preparation communication on:
  – Quality of discharge preparation
  – Readiness for hospital discharge
  – Post-discharge coping difficulty
  – Readmissions/ED visits within 30 days
4 Phase Intervention Study

Phase 1
• Baseline: Health Care Team Communication and Collaboration Patterns

Phase 2
• Baseline: Pt-RN-MD Assessments of Discharge Readiness and Post-Discharge Outcomes

Phase 3
• Intervention: HEALTH TEAM COMMUNICATION REDESIGN

Phase 4
• Repeat Phase 2
• Repeat Phase 1
# Data Collected

## Phases 1 and 4
- Survey of frequency and adequacy of communication
- Collaborative Behavior Scale

## Phases 2 and 3

### From the patient
- Quality of Discharge Teaching Scale
- Readiness for Hospital Discharge Scale
- Post-Discharge Coping Difficulty Scale

### From RNs and MDs
- Readiness for Hospital Discharge Scale

### From EHR
- Patient Characteristics
- Readmissions and ED visits within 30d
Setting & Sample

- 2-24 bed post surgical inpatient units
  - Serves 10 surgical specialties
- Phases 1&4: Clinical Nurses & Providers (Attending MDs, Residents, Mid-level Providers)
- Phases 2&3: Patients being discharged home (without hospice care) and their discharging nurse and provider
- Phase 1 & 2 – 2013 & 2014
- Phase 3 & 4 – 2015 & 2016
Intervention

• Created an interprofessional team
• Met weekly for several weeks
• Used TeamSTEPPS®
Process Map for Communication about Discharge

- Checklist
  - Patient feedback
  - Labs
  - Updated Plan of Care
  - Teaching needs
  - Destination

- RN/MD Team Bedside Rounding

- Care Coordination Rounds

- Patient/Family

- RN-RN Bedside Shift Report
  - Checklist
    - Medical Milestones
    - Goals for day
    - Teaching needs

- Estimated Date of Discharge
  - Goal for the Day
  - Transportation for discharge
  - Meds filled where

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### Bedside Communication Tool

**Updated:**
- During MD Rounds
- During Bedside Shift Report
- Anytime there is a change in the plan

#### Getting Ready for Discharge

<table>
<thead>
<tr>
<th>Item</th>
<th>Where you are Now/Specifics</th>
<th>Discharge Goal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diet</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bladder/Bowel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Activity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pain control</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Able to care for self after discharge | | ☐ I/we feel knowledgeable
|                               |                             | ☐ I/we can do the skills
|                               |                             | ☐ I/we feel confident |
| Support after discharge       |                             |                |
| Other                         |                             |                |

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*Questions*

*Thank you to the Froedtert Hospital Foundation donors for the printing of these bounds.*
Implementation Tactics

• Staff Engagement
• Getting buy in
• Training and education
• Coaching
## Results: Sample

<table>
<thead>
<tr>
<th>Pre- Intervention</th>
<th>Post-Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Phase 1:</strong></td>
<td><strong>Phase 4:</strong></td>
</tr>
<tr>
<td>Nurses: 56</td>
<td>Nurses: 83</td>
</tr>
<tr>
<td>Providers: 58</td>
<td>Providers: 29</td>
</tr>
<tr>
<td><strong>Phase 2:</strong></td>
<td><strong>Phase 3:</strong></td>
</tr>
<tr>
<td>Patients total: 438</td>
<td>Patients total: 221</td>
</tr>
<tr>
<td>PT-RHDS: 340</td>
<td>PT-RHDS: 173</td>
</tr>
<tr>
<td>RN-RHDS: 368</td>
<td>RN-RHDS: 183</td>
</tr>
<tr>
<td>MD-RHDS: 337</td>
<td>MD-RHDS: 121</td>
</tr>
</tbody>
</table>
Primary Research Question:
Did the readmission rate improve from Phase 2 to Phase 3?

Phase 2: READM30 = 18.4%, ED30 = 6.5%, READMorED30 = 22.8%
Phase 3: READM30 = 12%, ED30 = 3.7%, READMorED30 = 13.6%

p = .03 for READM30
p = .005 for READMorED30
Why did the readmission rate decrease?

Possible contributing factors:

• The health team communication intervention
• Differences in discharge experience
• Different patient characteristics
• Unmeasured differences occurring post-discharge
• Other unmeasured changes in discharge processes that may have impacted the readmission rates.
Changes in Health Team Communications (Phases 1→4)

• MDs reported more frequent communication before and on the day of discharge with RNs
• RNs did report any change in communication frequency.
## Interprofessional Collaboration: Collaborative Behavior Scale (scored 1-4)

<table>
<thead>
<tr>
<th>Provider</th>
<th>Pre-intervention</th>
<th>Post-intervention</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>MD</td>
<td>3.1 (sd=0.5)</td>
<td>3.3 (sd=0.6)</td>
<td>p=.06</td>
</tr>
<tr>
<td>RN</td>
<td>2.5 (sd=0.6)</td>
<td>2.6 (sd=0.7)</td>
<td>p=.67</td>
</tr>
</tbody>
</table>
### Differences in discharge experience

<table>
<thead>
<tr>
<th>Variable</th>
<th>Pre</th>
<th>Post</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality of Discharge Teaching</td>
<td>9.3</td>
<td>9.5</td>
<td></td>
</tr>
<tr>
<td>Readiness for Discharge: PT</td>
<td>8.4</td>
<td>8.5</td>
<td>p=.09</td>
</tr>
<tr>
<td>% low readiness (&lt;7)</td>
<td>13.0%</td>
<td>8.6%</td>
<td></td>
</tr>
<tr>
<td>Readiness for Discharge: RN</td>
<td>7.8</td>
<td>8.0</td>
<td>p=.04</td>
</tr>
<tr>
<td>% low readiness (&lt;7)</td>
<td>20.6%</td>
<td>17.5%</td>
<td></td>
</tr>
<tr>
<td>Readiness for Discharge: MD</td>
<td>8.0</td>
<td>7.8</td>
<td>p=.03</td>
</tr>
<tr>
<td>% low readiness (&lt;7)</td>
<td>15.5%</td>
<td>17.4%</td>
<td></td>
</tr>
<tr>
<td>Post-Discharge Coping Difficulty</td>
<td>2.4</td>
<td>2.2</td>
<td></td>
</tr>
</tbody>
</table>

**Note:**

- Quality of Discharge Teaching: Higher scores indicate better quality.
- Readiness for Discharge: Percentages refer to the proportion of patients with low readiness (scores <7).
- Post-Discharge Coping Difficulty: Lower scores indicate better coping.
Discharge experience variables as predictors of readmission

**Trajectory of Influence**

QDTS

B = .54*** → PT-RHDS

B = -.39*** → PDCDS

P < .001

OR = 1.46*** → Readmission
Correlations of PT-RN-MD Readiness for Discharge Scores

- Correlation among Patient, RN and Provider regarding discharge readiness

<table>
<thead>
<tr>
<th></th>
<th>RN</th>
<th></th>
<th>Provider</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre</td>
<td>Post</td>
<td>Pre</td>
<td>Post</td>
</tr>
<tr>
<td>PT</td>
<td>.07</td>
<td>.15</td>
<td>.08</td>
<td>-.12</td>
</tr>
<tr>
<td>RN</td>
<td></td>
<td>.11</td>
<td>.11</td>
<td></td>
</tr>
</tbody>
</table>

- Agreement between Patients, RNs, and Providers

<table>
<thead>
<tr>
<th></th>
<th>PT-RN</th>
<th></th>
<th>PT-MD</th>
<th></th>
<th>RN-MD</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre</td>
<td>Post</td>
<td>Pre</td>
<td>Post</td>
<td>Pre</td>
<td>Post</td>
</tr>
<tr>
<td>Agree- not ready</td>
<td>3.8%</td>
<td>3.0%</td>
<td>2.1%</td>
<td>0</td>
<td>4.5%</td>
<td>2.9%</td>
</tr>
<tr>
<td>Disagree</td>
<td>25.7%</td>
<td>20.2%</td>
<td>24.3%</td>
<td>26.3%</td>
<td>26.3%</td>
<td>24.3%</td>
</tr>
<tr>
<td>Agree-ready</td>
<td>70.4%</td>
<td>76.8%</td>
<td>73.%</td>
<td>73.%</td>
<td>68.8%</td>
<td>72.8%</td>
</tr>
</tbody>
</table>
## Patient Characteristics

<table>
<thead>
<tr>
<th>Variable</th>
<th>Pre-Intervention</th>
<th>Post-Intervention</th>
<th>P Value: Pre-Post differences</th>
<th>P value: predictor of readmission</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>53.9yr</td>
<td>55.6yr</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>58.6%</td>
<td>41.4%</td>
<td>p=.000</td>
<td></td>
</tr>
<tr>
<td>Non-White</td>
<td>16.2%</td>
<td>21.7%</td>
<td>p=.08</td>
<td></td>
</tr>
<tr>
<td>Prior Hospitalization 90 days</td>
<td>8.7%</td>
<td>12.0%</td>
<td>p=.09</td>
<td></td>
</tr>
<tr>
<td>Unit 7NT</td>
<td>25.0%</td>
<td>29.8%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>75.0%</td>
<td>70.2%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LOS</td>
<td>7.0d</td>
<td>6.3d</td>
<td>p=.08</td>
<td>p=.000</td>
</tr>
<tr>
<td>Discharge to Home Health</td>
<td>10.9%</td>
<td>20.5%</td>
<td>p=.002</td>
<td></td>
</tr>
</tbody>
</table>
Summary – what we learned

• Readmissions decreased from pre to post-intervention

• Factors that **may** have contributed
  – The redesign
  – Changes in communication patterns & collaboration (MD)
  – Shorter LOS

• Unmeasured factors **may** have affected readmissions eg. Case Management, Care Coordination Rounds.
Summary – what we learned

• Other findings of interest
  – Perceptions about discharge readiness are not correlated across Patients, RNs MDs
  – There was greater agreement after the intervention for Patients and RNs
  – Quality of Discharge Teaching sets up a trajectory of influence of readiness for discharge, post-discharge coping difficulty and readmission.
Recommendations

• Attention to the process of implementation can affect the success of an process redesign.

• Barriers to implementation including disciplinary silos, competing priorities, and long time frame for implementation and evaluation can diminish the effectiveness and ultimately patient outcomes, and confound the analysis.

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** - Past team member
Thank You

- Patients, Nurses, Advanced Practice Providers and MDs who complete all of our surveys, and round together
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- The Building Bridges Research Conference Grant
Questions?

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References


References

References

- Weiss, Costa, Yakusheva, & Bobay (under review). Patient and nurse assessments of discharge readiness and return to hospital.