Reducing Unwanted and Unwarranted ED and Hospital Utilization for Frail Elders in Rural Skilled Nursing Facilities: A Hybrid Improvement-Implementation Approach

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Disclosures

- No real or perceived conflicts of interest to report
Overview

• **Why**: To reduce unwanted and inappropriate healthcare interventions (ED visits and hospitalizations) for residents in Skilled Nursing Facilities (SNFs).

• **What**: We modified an care model used in a local Continuing Care Retirement Community (CCRC) setting for implementation in SNFs.

• **How**: We adapted a model developed for a different setting via three PDSA cycles over a 6 month period in 2016 and then monitored for sustainability.

• **Results**: We substantially reduced ED utilization, hospital utilization and costs.
The Problem: “One Size Fits All” Healthcare

Frail elders need careful analysis of risks/benefits, goals and values when electing how to respond to acute health changes:

• Small perturbations have big, often harmful effects

• Most likely to want limits on healthcare

• The typical response system to acute health crises is typically an “all or nothing” approach.

Replicating a Local Model

• Continuing Care Residential Community (CCRC)
  – High socioeconomic status
  – Living under one roof
  – Small dedicated care team providing all ongoing care and off hours coverage (well defined microsystem)
  – Standardized elicitation of advance directives

• Reduced utilization of hospital and emergency department
### Characteristics of Participating SNFs

<table>
<thead>
<tr>
<th>Description</th>
<th>SNF 1</th>
<th>SNF 2</th>
<th>SNF 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small, family owned, not for profit, sold to small for profit in 2016.</td>
<td></td>
<td>Mid-size, owned by large national chain corporation, for profit.</td>
<td></td>
</tr>
<tr>
<td>Pre Post</td>
<td>60  56</td>
<td>107  105</td>
<td>85  84</td>
</tr>
<tr>
<td>Average Daily Census</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average Monthly Admissions</td>
<td>3.9  2.6</td>
<td>24.6  27.3</td>
<td>22  18.3</td>
</tr>
<tr>
<td>Percentage LTC</td>
<td>65  70</td>
<td>72  77</td>
<td>82  83</td>
</tr>
<tr>
<td>Gender (Females:Males)</td>
<td>1.6  1.53</td>
<td>2.1  1.8</td>
<td>2.2  1.3</td>
</tr>
<tr>
<td>Average Age (SD)</td>
<td>80.9 (3.6)</td>
<td>79.0 (3.4)</td>
<td>72.8 (3.0)</td>
</tr>
<tr>
<td>Case Mix Index (Acuity)</td>
<td>1.0042</td>
<td>1.0412</td>
<td>.0964</td>
</tr>
<tr>
<td>Overall Star Rating</td>
<td>5  3</td>
<td>5  5</td>
<td>1  1</td>
</tr>
</tbody>
</table>

### Improvement Trajectory

- **Baseline (1/15-12/15)**
  - Dedicated on-call team
  - Adv. Care Directives Initiative
  - Tracking system
  - Weekly Case review
  - Modified advanced care directives process emphasis on wishes re hospitalization and added “Treat in Place” option.

- **PDSA 1 (1/16-3/16)**
  - Added benchmarking and goal setting to case review sessions
  - Nurse to Nurse training on frailty
  - “Call us before family and before EMS”
Process Flow Changes

Monthly ED and Hospital Utilization

Pre=2015, Post=2016-June 2017, *p<0.01
Average Monthly Hospital Charges ($USD)

Stratified Pre-/Post Analyses (t Test, df=28)

<table>
<thead>
<tr>
<th>Monthly Outcomes Mean (SD)</th>
<th>SNF 1 Pre</th>
<th>SNF 1 Post</th>
<th>t</th>
<th>SNF 2 Pre</th>
<th>SNF 2 Post</th>
<th>t</th>
<th>SNF 3 Pre</th>
<th>SNF 3 Post</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total ED Transfers</td>
<td>4.6(2.8)</td>
<td>2.2(2.1)</td>
<td>2.70**</td>
<td>11.4(4.8)</td>
<td>7.9(2.5)</td>
<td>2.60**</td>
<td>8.0(3.8)</td>
<td>5.6(2.5)</td>
<td>2.10*</td>
</tr>
<tr>
<td>STC ED Transfers</td>
<td>2.6(2.1)</td>
<td>1.2(1.6)</td>
<td>2.00*</td>
<td>6.7(3.7)</td>
<td>6.5(3.2)</td>
<td>0.13</td>
<td>3.8(1.7)</td>
<td>3.75(2.2)</td>
<td>0.40*</td>
</tr>
<tr>
<td>LTC ED Transfers</td>
<td>2.0(2.1)</td>
<td>0.9(0.8)</td>
<td>1.90**</td>
<td>4.8(2.3)</td>
<td>1.4(1.5)</td>
<td>4.80**</td>
<td>4.3(3.0)</td>
<td>1.8(1.2)</td>
<td>3.30**</td>
</tr>
<tr>
<td>Total Hospitalizations</td>
<td>2.7(2.1)</td>
<td>1.4(1.7)</td>
<td>1.80*</td>
<td>7.4(4.9)</td>
<td>5.8(2.5)</td>
<td>1.40</td>
<td>5.7(2.6)</td>
<td>3.6(2.3)</td>
<td>2.30*</td>
</tr>
<tr>
<td>STC Hospitalizations</td>
<td>1.3(1.1)</td>
<td>0.8(1.1)</td>
<td>1.40</td>
<td>4.7(2.8)</td>
<td>4.9(2.8)</td>
<td>0.30</td>
<td>3.1(2.0)</td>
<td>2.6(2.2)</td>
<td>0.60</td>
</tr>
<tr>
<td>LTC Hospitalizations</td>
<td>1.3(1.2)</td>
<td>0.7(0.8)</td>
<td>1.80*</td>
<td>2.8(1.9)</td>
<td>0.9(1.0)</td>
<td>3.50**</td>
<td>2.6(1.7)</td>
<td>0.9(0.7)</td>
<td>3.60**</td>
</tr>
<tr>
<td>Total Charges (x $1,000)</td>
<td>204.2(256)</td>
<td>50.3(63)</td>
<td>2.60**</td>
<td>447.7(350.1)</td>
<td>304.5(186.1)</td>
<td>1.64</td>
<td>389.4(250)</td>
<td>106.1(102.5)</td>
<td>2.95**</td>
</tr>
<tr>
<td>STC (x $1,000)</td>
<td>62.9(61.5)</td>
<td>29.8(50.3)</td>
<td>0.87</td>
<td>387.8(329.7)</td>
<td>255.1(217.6)</td>
<td>1.49</td>
<td>179.8(127.6)</td>
<td>91.7(82.6)</td>
<td>2.10*</td>
</tr>
<tr>
<td>LTC (x $1,000)</td>
<td>141.2(300.7)</td>
<td>20.5(36.5)</td>
<td>3.30**</td>
<td>598.8(100.3)</td>
<td>49.4(84.5)</td>
<td>0.43</td>
<td>209.6(259.3)</td>
<td>58.7(63.5)</td>
<td>2.27*</td>
</tr>
</tbody>
</table>

Pre=2015, Post=2016-June 2017, *p<0.01
Onset and Sustainability of Improvement

Another Look at Cost
### Critical Success Elements

<table>
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<th>Success Elements</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dedicated On-Call Team of &quot;SNF-ists&quot; (Specified Microsystem)</td>
<td>Ongoing and acute care provided exclusively by a consistent, small, dedicated team of providers familiar with SNFs.</td>
</tr>
<tr>
<td>Advanced Care Directives (ADs)</td>
<td>A priority is placed on completing ADs and using them to inform the on-call team of resident preferences in the event of an acute status change.</td>
</tr>
<tr>
<td>&quot;Treat in Place&quot; Option (Preference Sensitive Care)</td>
<td>SNF residents are offered an additional option for care— receiving health care at the SNF rather than being transferred to the ED.</td>
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<tr>
<td>&quot;Call us First&quot; Communication Protocol</td>
<td>Early and active involvement of providers during an acute event. Providers are actively involved with staff and family throughout.</td>
</tr>
<tr>
<td>Provider Case Review Team Meetings (Transparency and Continuous Improvement)</td>
<td>Regular and consistent reviews of all ED transfers leads to increased transparency and creates a continuous improvement culture.</td>
</tr>
</tbody>
</table>

### Preliminary Implementation Model: Reducing Avoidable Facility Transfers (RAFT)

#### Before Acute Event
- **SNF-ists**
  - All scheduled and off-hours patient care managed by small pool of providers familiar with SNFs

#### During Acute Event
- **Call us first**
  - Early and active involvement of provider with family and staff
- **Expanded Advance Directives**
  - Systematic elicitation of ADs, POLST and wishes re hospitalization. Formal options include:
  - Hospitalize: Unlimited Interventions
  - Hospitalize: Limited Interventions
  - Do Not Hospitalize – Treat in Place
  - Do Not Hospitalize – Comfort

#### After Acute Event
- **Bi-monthly Case Review**
  - Was there something we could have done differently before or during the acute event to prevent this transfer?
- **Goal Informed Decision Making**
  - Providers are aware of ADs during acute events and make recommendations in this context.
Implications

• This pilot was feasible and achieved significant outcomes that have been sustained in the short term.

• Microsystem design and transparent/reflective practice were key success elements.

• This work is an example of the use of improvement methods to iteratively develop a preliminary implementation model.

• This approach has potential to significantly impact outcomes, utilization and cost and is worthy of continued study for longitudinal impact and at greater scale.

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