Improving Care Coordination and Readmissions in Southeastern Michigan Through a Hospital and Skilled Nursing Facility Collaboration

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Brenton Spiker, MPH
Objectives

- History of the Tri-County SNF Collaborative
- Care transitions quality metrics review
- Barriers and lessons learned
- Care Transitions Quality Metrics portal
- Data and findings
- Current state and future action plans
The Detroit Tri-County Area
The Detroit Tri-County Area

- In 2013, the city of Detroit filed for bankruptcy
- Hospitals in Detroit received higher readmission penalties in both 2013 and 2014 when compared to five other metropolitan areas in each of five nearby states
  - Detroit also had highest income disparities and highest rates of poverty and unemployment of the metropolitan areas studied
- Healthcare leaders recognized the need for alternate solutions to provide quality care for Detroit residents and reduce avoidable readmissions
  - 30% of readmissions came from skilled nursing facilities (SNFs)
Landscape of Healthcare

• Encouraging coordination of care for patients requires new ways of contracting and paying for services across the continuum
• More post-acute care (PAC) networks being established by hospitals
• Increasing interest for comprehensive evaluations
• Nursing Home Compare 3.0 changes aim to improve the validity of self-reported measures & raise the standards to which nursing homes are held
Tri-County Collaborative: Why We Started

• Recognized need to address the changing landscape of health care
  • A community problem and not an individual hospital problem
• Each health system had their own SNF initiative in place to improve care coordination and reduce avoidable readmissions
  • Each hospital’s SNF initiative had many similarities to the others
  • Most of the same SNFs were involved in each initiative
  • Much of the same data was being reported by SNFs to each health system separately
MPRO – Helping Health Care Get Better

• Michigan’s QIO local health systems leader
  • Represent CMS, the largest payer in the system; Medicare FFS data
  • Develop relational strategies based on RCA
  • Share leadership without formal authority
  • Identify, assist and enhance communication amongst coalition champions
  • Incorporate data into value-based calls-to-action

• MPRO performed analysis showing 30% of the patient population was shared among the three systems
Social Network Analysis

- Social network analysis investigates relationships among actors in a network and enables the user to visualize the network as a diagram of interconnected nodes. The network diagram provided in this document displays the flow of transitions among providers in a community with at least 15 transitions.
Social Network Analysis

Figure 1: Transitions among all providers in the Primary Service Area

Blue - SNF
Red – ACH
Yellow - Hospice
Pink - HHA
History in the Making

• Detroit Medical Center, Henry Ford Health System, and St. John Providence health systems with MPRO

• Tri-County SNF Collaborative first came together in 2014 to:
  • Align hospital and post-acute care provider goals
  • Reduce duplication of efforts
  • Improve quality of care in Oakland, Macomb and Wayne counties

• Goal: The collaborative develops and implements best practices for improving care transitions and eliminating avoidable re-hospitalizations
Benefit for SNFs

• Reduce duplication of efforts
• Establish relationships through enhanced communications about patient transitions
• Large forum for discussion to address barriers and successes
• Data showing improvement demonstrates quality, drives volume of discharges to SNFs
Barriers

- Lack of trust among all involved
- Competition between all organizations, hospitals and SNFs
- Lack of transparency between SNFs/hospitals
- Needed data for progress
  - No means to collect the data in a standard way
  - No objective and reliable data for verification of self-reported information
  - Needed agreement by SNFs to submit data
Why Data Matters: Measurable Aims

• Data driven quality improvement plans
  • Data inspires progress and galvanizes change
  • Reveals where progress is being made and where major challenges remain
  • Helps us visualize, question, analyze, interpret and understand data to reveal relationships, patterns and trends
  • Becomes the benchmark for development and framework of quality improvement plans
First Steps

• Establishing the vision
  • Created a partnership of cooperation and transparency
  • Identified common metrics used by all three health systems
  • Developed agreed upon operational definitions for each metric
  • Reached out to each system’s SNF partners
  • Created a charter to solidify cooperation and collaboration

• Development of single data entry portal
DATA USE AND CONFIDENTIALITY AGREEMENT AND AUTHORIZATION TO RELEASE OF INSTITUTION-SPECIFIC DATA TO PARTICIPATING HOSPITALS

This is an agreement between the Michigan Peer Review Organization (“MPRO” or “Data Recipient”) and ______________ (“Healthcare Facility”) CCN: 235 __________. MPRO and the Healthcare Facility enter into this Data Use and Confidentiality Agreement (“DUA” or the “Agreement”) effective __________.

The DUA establishes a formal data access and data use relationship between the MPRO and the Healthcare Facility and authorizes the release of Healthcare Facility-specific data to designated hospitals participating in the Tri-County Skilled Nursing Facility Collaborative. This agreement covers Healthcare Facility level data, received by MPRO that were voluntarily submitted by the Healthcare Facility through the My MPRO Portal.
Care Transitions Quality Metrics

Working collaboratively across the continuum to improve care transitions, reduce avoidable hospitalizations and improve overall outcomes for the SNF resident

Welcome!

Welcome to the secure web portal developed for the Tri-County SNF Collaborative dashboard metric submission and data report access. Please select your SNF below to access the facility-specific page.

Data uploaded to this portal are to be used for quality improvement purposes only. The intent of the data is to assist participating hospitals and SNF providers to target areas for improvement and work collaboratively to identify intervention strategies. Data are not to be used for any administrative purposes including changes in referral patterns or development of a preferred provider list.

Please see the available RDR portal user guide under the Care Transitions Quality Metric Resource tab on the Home page for instructions on how to navigate the portal and to submit data. Additionally, a resource dictionary will soon be available under the Care Transitions Quality Metric Resource tab as a reference and informational guide.

ATTENTION: It is the responsibility of the facility to update all changes to contact persons that have access to the Tri-County SNF Collaborative portal. It is important to remember that if a facility employee that has a portal account leaves your facility, he/she will still have access to you facility data/feedback reports. It is in the best interest of your facility to report these changes and update the contact information for the facility to the snfporthelpdesk@mpro.org and have user/users accounts deactivated. If you would like to add a new user please request a portal user contact form to complete. All requests must be submitted via snfporthelpdesk@mpro.org.
<table>
<thead>
<tr>
<th>Measure Category</th>
<th>Key Performance Measures</th>
<th>Performance Review Measures</th>
<th>Measure Description/Formula</th>
<th>Frequency of Data Collection and Reporting</th>
<th>Data Source</th>
<th>Patient Population</th>
<th>Data Collection Methodology(ies)</th>
<th>Data Elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety Measures</td>
<td>1a Average Daily Census (ADC)</td>
<td>ADC: Average number of patients in the facility per day, calculated by dividing the number of patient days by the number of days of the study period</td>
<td>Monday</td>
<td>SNP reported</td>
<td>All patients, All Payors</td>
<td>Report your average daily census data for the study period.</td>
<td>Total number of patient days</td>
<td>Daily, monthly, yearly.</td>
</tr>
<tr>
<td></td>
<td>1b Length of Stay (LOS)</td>
<td>LOS: Average length of time patients stay in the hospital during the study period</td>
<td>Monday</td>
<td>SNP reported</td>
<td>For Medicare Patients Only</td>
<td>Use Medicare LOS data for the study period.</td>
<td>Total number of patient days</td>
<td>Daily, monthly, yearly.</td>
</tr>
<tr>
<td></td>
<td>1c Mortality</td>
<td>Mortality: Number of patients who died during the study period</td>
<td>Monday</td>
<td>SNP reported</td>
<td>All patients, All Payors</td>
<td>Use mortality data for the study period.</td>
<td>Total number of patient days</td>
<td>Daily, monthly, yearly.</td>
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</tbody>
</table>

**Transition Measures**

<table>
<thead>
<tr>
<th>Measure Category</th>
<th>Key Performance Measures</th>
<th>Performance Review Measures</th>
<th>Measure Description/Formula</th>
<th>Frequency of Data Collection and Reporting</th>
<th>Data Source</th>
<th>Patient Population</th>
<th>Data Collection Methodology(ies)</th>
<th>Data Elements</th>
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<tbody>
<tr>
<td></td>
<td>2a 28-Day Readmission Rate</td>
<td>Readmission: Number of patients who were readmitted within 28 days of discharge</td>
<td>Monday</td>
<td>SNP reported</td>
<td>All patients, All Payors</td>
<td>Use readmission data for the study period.</td>
<td>Total number of patient days</td>
<td>Daily, monthly, yearly.</td>
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<tr>
<td></td>
<td>2b 30-Day Hospital Readmission Rate</td>
<td>Readmission: Number of patients who were readmitted within 30 days of discharge</td>
<td>Monday</td>
<td>SNP reported</td>
<td>All patients, All Payors</td>
<td>Use readmission data for the study period.</td>
<td>Total number of patient days</td>
<td>Daily, monthly, yearly.</td>
</tr>
<tr>
<td></td>
<td>2c 30-Day Posthospitalization Death</td>
<td>Death: Number of patients who died within 30 days of discharge</td>
<td>Monday</td>
<td>SNP reported</td>
<td>All patients, All Payors</td>
<td>Use death data for the study period.</td>
<td>Total number of patient days</td>
<td>Daily, monthly, yearly.</td>
</tr>
</tbody>
</table>

**Exhibit**

- **2017 QUALITY SUMMIT • MAY 31-JUNE 2 • BALTIMORE, MD**
Care Transitions Quality Metrics

• Two acuity measures
• Eight transitions metrics
• Four quality metrics
• Two readmission metrics
Number of SNFs Submitting Data

- Q1 2015: 85
- Q2 2015: 87
- Q3 2015: 92
- Q4 2015: 98
- Q1 2016: 106
- Q2 2016: 108
- Q3 2016: 106
- Q4 2016: 102
- Q1 2017: 112

Number of SNFs
SNF Demographics – Star Ratings

Number of SNFs

<table>
<thead>
<tr>
<th>Star Rating</th>
<th>Number of SNFs</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>13</td>
</tr>
<tr>
<td>2</td>
<td>19</td>
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<tr>
<td>3</td>
<td>19</td>
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<tr>
<td>4</td>
<td>25</td>
</tr>
<tr>
<td>5</td>
<td>26</td>
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</tbody>
</table>
SNF Feedback Report Example

2b: Percentage of 7 day follow-up PCP appointment scheduled prior to discharge, that will occur within 7 days of SNF discharge to the community

<table>
<thead>
<tr>
<th>Month</th>
<th>Your NH</th>
<th>Tri-County</th>
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<tbody>
<tr>
<td>Jan 16</td>
<td>92.3</td>
<td>51.8</td>
</tr>
<tr>
<td>Feb 16</td>
<td>93.3</td>
<td>60.4</td>
</tr>
<tr>
<td>Mar 16</td>
<td>92.6</td>
<td>60.4</td>
</tr>
<tr>
<td>Apr 16</td>
<td>95.0</td>
<td>60.3</td>
</tr>
<tr>
<td>May 16</td>
<td>95.7</td>
<td>62.0</td>
</tr>
<tr>
<td>Jun 16</td>
<td>93.3</td>
<td>71.3</td>
</tr>
<tr>
<td>Jul 16</td>
<td>96.2</td>
<td>64.6</td>
</tr>
<tr>
<td>Aug 16</td>
<td>94.1</td>
<td>65.1</td>
</tr>
<tr>
<td>Sep 16</td>
<td>90.5</td>
<td>68.5</td>
</tr>
<tr>
<td>Oct 16</td>
<td>90.9</td>
<td>67.8</td>
</tr>
<tr>
<td>Nov 16</td>
<td>92.0</td>
<td>69.5</td>
</tr>
<tr>
<td>Dec 16</td>
<td>90.5</td>
<td>69.6</td>
</tr>
</tbody>
</table>
Acuity Measure 1b
Facility Average Length of Stay
Trend: 2015-2016
Acuity Measure 1b
Facility Average Length of Stay
Frequency Distribution: December 2016

Mean = 23.6 days
7 Day PCP Follow-Up Scheduled Prior Discharge From SNF

RIR: 57.5%
PCP Notification Completed Within 24 Hours of SNF Discharge

RIR: 36.2%
Discharge to the Community Within 30 Days

RIR: 37.6%
30 Day Readmission Rate (Medicare FFS Beneficiaries)

RIR: 9.3%
SQUIRE Report: Introduction

• Quasi-experimental time-series study design
  • Measure the association between participation in the collaborative and improved care transitions and reduction in readmissions

• Twelve quality metrics – 10 self-reported, two Medicare Part A claims
  • One acuity measure
  • Five transition measures
  • Four quality measures
  • Two readmissions measures
SQUIRE Report: Analysis

- Trend analysis
  - Test for a statistically significant slope (alpha=0.05)
  - Examine differences in the level and rate of improvement between groups
- Pearson correlation coefficient
  - Test the linear correlation between SNF readmissions and the dashboard measure
SQUIRE Report: Results – Readmissions

**Figure 1: 30-Day SNF Readmission Rates**
Collaborative vs. Non-Collaborative
January 2015 - December 2016

- **Linear (Collaborative):** $y = -0.115x + 25.303$
  $R^2 = 0.40$

- **Poly. (Non-Collaborative):**
  $y = -0.002x^3 + 0.073x^2 - 0.766x + 21.698$
  $R^2 = 0.27$

- **Linear (Rate Difference Between Collaborative and Non-Collaborative):** $y = -0.078x + 5.225$
  $R^2 = 0.21$
SQUIRE Report: Results – Acuity Measure

Acuity Measure
SNF Average Length of Stay
January 2015 - December 2016

y = -0.199x + 29.361
R² = 0.78
P<0.0001
# SQUIRE Report: Results – Transition Measures

<table>
<thead>
<tr>
<th>Measure</th>
<th>$R^2$</th>
<th>Estimate</th>
<th>SE</th>
<th>95% CI</th>
<th>t Value</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timeframe for 1st physician(H&amp;P) evaluation at admission</td>
<td>0.48</td>
<td>0.241</td>
<td>0.053</td>
<td>0.131 - 0.351</td>
<td>4.54</td>
<td>0.0002</td>
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<tr>
<td>7 day follow-up appointment scheduled with PCP prior to discharge from SNF to community</td>
<td>0.91</td>
<td>4.380(T)</td>
<td>0.539</td>
<td>3.259 - 5.500</td>
<td>8.13</td>
<td>&lt;.0001</td>
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<tr>
<td></td>
<td></td>
<td>-0.102(T$^2$)</td>
<td>0.021</td>
<td>-0.145 - -0.058</td>
<td>-4.87</td>
<td>&lt;.0001</td>
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<tr>
<td>PCP notification completed within 24 hours of patient discharge from SNF to community</td>
<td>0.87</td>
<td>4.422(T)</td>
<td>0.611</td>
<td>-1.469 - -0.062</td>
<td>7.24</td>
<td>&lt;.0001</td>
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<tr>
<td></td>
<td></td>
<td>-0.112(T$^2$)</td>
<td>0.024</td>
<td>0.008 - 0.137</td>
<td>-4.73</td>
<td>0.0001</td>
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<tr>
<td>Discharge summary provided to PCP</td>
<td>0.85</td>
<td>1.170</td>
<td>0.103</td>
<td>0.956 - 1.384</td>
<td>11.35</td>
<td>&lt;.0001</td>
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<tr>
<td>Discharge to the community within 30 days</td>
<td>0.94</td>
<td>2.585(T)</td>
<td>0.296</td>
<td>1.969 - 3.200</td>
<td>8.73</td>
<td>&lt;.0001</td>
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<tr>
<td></td>
<td></td>
<td>-0.054(T$^2$)</td>
<td>0.011</td>
<td>0.011 - -0.077</td>
<td>-0.03</td>
<td>0.00</td>
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</table>
## SQUIRE Report: Results – Quality Measures

<table>
<thead>
<tr>
<th>Dataset</th>
<th>R²</th>
<th>Estimate</th>
<th>SE</th>
<th>95% CI</th>
<th>t Value</th>
<th>P-value</th>
</tr>
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<tbody>
<tr>
<td>Nosocomial UTI rate</td>
<td>0.82</td>
<td>-0.122(T)</td>
<td>0.039</td>
<td>-0.2043</td>
<td>-3.12</td>
<td>0.005</td>
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<tr>
<td></td>
<td></td>
<td>0.013(T²)</td>
<td>0.004</td>
<td>0.006</td>
<td>3.67</td>
<td>0.002</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-0.000(T³)</td>
<td>0.000</td>
<td>-0.001</td>
<td>-3.37</td>
<td>0.003</td>
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<tr>
<td>Nosocomial pneumonia rate</td>
<td>0.07</td>
<td>0.003</td>
<td>0.003</td>
<td>-0.002</td>
<td>1.31</td>
<td>0.20</td>
</tr>
<tr>
<td>Falls with major injury rate</td>
<td>0.13</td>
<td>0.006</td>
<td>0.003</td>
<td>-0.001</td>
<td>1.83</td>
<td>0.08</td>
</tr>
<tr>
<td>Short Stay-New/worse pressure ulcer</td>
<td>0.59</td>
<td>-0.569(T)</td>
<td>0.140</td>
<td>-0.861</td>
<td>-4.06</td>
<td>0.0006</td>
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<tr>
<td></td>
<td></td>
<td>0.017(T²)</td>
<td>0.005</td>
<td>0.005</td>
<td>3.04</td>
<td>0.01</td>
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SQUIRE Report: Results – Correlation

<table>
<thead>
<tr>
<th>Measure</th>
<th>SNF Collaborative Readmission Rate R (P-Value)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acuity 1: Average Length of Stay</td>
<td>0.57475 (p=0.0033)</td>
</tr>
<tr>
<td>Transition 1: Timeframe for first physician evaluation (history and physical examination or H&amp;P) at admission</td>
<td>-0.41712 (p=0.0426)</td>
</tr>
<tr>
<td>Transition 2: Seven day follow-up appointment scheduled with primary care provider (PCP) prior to discharge from SNF to the community</td>
<td>-0.54962 (p=0.0054)</td>
</tr>
<tr>
<td>Transition 3: PCP notification completed within 24 hours of patient discharge from SNF to the community</td>
<td>-0.50167 (p=0.0125)</td>
</tr>
<tr>
<td>Transition 4: Discharge summary provided to the PCP</td>
<td>-0.54568 (p=0.0058)</td>
</tr>
<tr>
<td>Transition 6: Discharge to the community within 30 days</td>
<td>-0.67988 (p=0.0003)</td>
</tr>
<tr>
<td>Quality 2: Nosocomial pneumonia rate</td>
<td>0.54428 (p=0.0060)</td>
</tr>
<tr>
<td>Quality 3: Falls with major injury rate</td>
<td>0.54780 (p=0.0056)</td>
</tr>
<tr>
<td>SNF Collaborative Readmission Rate</td>
<td>1.0000</td>
</tr>
</tbody>
</table>
SQUIRE Report: Discussion

• Highlights the collaboration’s impact
  • Significant trends

• Limitations
  • Mismatched control group for readmissions
  • No control group for other metrics (self-reported)
  • Missing data
    • Not all SNFs reported every quarter
    • Invalid data entry
    • Failure to enter data for some metrics, not all
Impact of the Collaborative

- Quarterly meetings with health systems and more than 130 SNFs
- Standardization of reported metrics through single portal
- Identification of best practices across all partners to improve care to the Detroit community
- Ability to benchmark and compare quality across facilities
- Focused interventions on opportunities for improvement:
  - Readmissions
  - Sepsis
  - Disease specific conditions impacted by bundling
Lessons Learned

• Challenges with data reporting from SNFs
  • Limited resources/staff, accurate data submission
• Understanding different levels of care from hospitals and SNFs
  • Challenges aligning goals between SNFs and hospitals
• Sharing of internal best practices processes amongst competitors
• Need for coordination of efforts across all post-acute care for condition-specific interventions
Current State of the Tri-County SNF Collaborative

• Setting evaluation and performance targets
• Continued evaluation of measures
• Expanded collaborative to include other regions in southeast Michigan
• Implemented bridging med program, sepsis program and advance directives and care planning
• Expanding to other health care providers/organizations
  • Outpatient dialysis
  • Home health
MPRO’s Governor’s Award of Excellence

• Implement and demonstrate positive trending in:
  • Screen and reduce adverse drug events (required)
  • Improve quality of care and outcomes in post-acute care settings
  • Reduce readmissions in acute care settings
  • Improve provider, patient, caregiver communication in ambulatory settings

• Achieve the following for at least two levels of care:
  • 3% RIR in **acute care** admission and 5% RIR readmission rate (both aggregate)
  • 3% RIR in **SNF** admission and 5% RIR readmission rate (both aggregate)
  • 3% RIR in **HHA** admission and 5% RIR readmission rate (both aggregate)

• 112 Governor’s Award of Excellence winners in the Tri-County SNF Collaborative
Thank you!

Contact us at gpizzo@mpro.org

This material was prepared by the Lake Superior Quality Innovation Network, under contract with the Centers for Medicare & Medicaid Services (CMS), an agency of the U.S. Department of Health and Human Services. The materials do not necessarily reflect CMS policy.