Changes in Outcomes from Admission to Discharge: Lessons Learned from the HOBIC Database in Ontario

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Overview

- **Context**: where HOBIC fits in relation to other work in this field

- **Research**: findings from analysis of data looking at changes in outcomes from admission to discharge in acute care patients

- **Your feedback**: from online survey

- **Next steps**: discuss
Other Initiatives: NQF

- **National Quality Forum (NQF)** sets standards used to measure & report on quality and efficiency of health care in US

- Serves as major driving force for CQI improvement of health care quality

- In 2004 NQF designated 15 consensus standards for *nursing-sensitive* care
Other Initiatives: NQF

- These standards consist of a collection of patient outcomes, nursing interventions, and system-level indicators

- First-ever set of *nationally standardized* performance measures that assess the extent to which nurses in acute care contribute to health care quality, patient safety, and a professional and safe work environment

*(National Quality Forum, 2004)*
## Table 1 – National Voluntary Consensus Standards for Nursing-Sensitive Care

<table>
<thead>
<tr>
<th>FRAMEWORK CATEGORY</th>
<th>MEASURE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient-centered outcome measures</td>
<td>1. Death among surgical inpatients with treatable serious complications</td>
<td>Percentage of major surgical inpatients who experience a hospital-acquired complication, such as sepsis, pneumonia, gastrointestinal bleeding, shock/cardiac arrest, deep vein thrombosis/pulmonary embolism, and die.</td>
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<tr>
<td></td>
<td>2. Pressure ulcer prevalence</td>
<td>Percentage of inpatients who have a hospital-acquired pressure ulcer (Stage 2 or greater).</td>
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<tr>
<td></td>
<td>3. Falls prevalence*</td>
<td>Number of inpatient falls per inpatient days.</td>
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<td></td>
<td>4. Falls with injury</td>
<td>Number of inpatient falls with injuries per inpatient days.</td>
</tr>
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<td></td>
<td>5. Restraint prevalence (vest and limb only)</td>
<td>Percentage of inpatients who have a vest or limb restraint.</td>
</tr>
<tr>
<td></td>
<td>6. Urinary catheter-associated urinary tract infection (UTI) for intensive care unit (ICU) patients*</td>
<td>Rate of UTI associated with use of urinary catheters for ICU patients.</td>
</tr>
<tr>
<td></td>
<td>7. Central line catheter-associated blood stream infection rate for ICU and high-risk nursery (HRN) patients*</td>
<td>Rate of blood stream infections associated with use of central line catheters for ICU and HRN patients.</td>
</tr>
<tr>
<td></td>
<td>8. Ventilator-associated pneumonia for ICU and HRN patients*</td>
<td>Rate of pneumonia associated with use of ventilators for ICU patients and HRN patients.</td>
</tr>
</tbody>
</table>
Other Initiatives: NDNQI

- **National Database of Nursing Quality Indicators (NDNQI)** established in 1998 as part of American Nurses’ Association (ANA) Safety and Quality Initiative

- ANA funded development of a national database to house *nursing-sensitive* quality indicators (Kansas University Medical Center School of Nursing)

- Provides participant hospitals with national comparative data for use in quality improvement activities
Other Initiatives: NDNQI

- Nosocomial Infections
- Patient Falls
- Patient Falls with Injury
  - Injury Level
- Pressure Ulcer Rate
  - Community-acquired
  - Hospital-acquired
  - Unit-acquired
- Pediatric Pain Assessment, Intervention, Reassessment (AIR) Cycle
- Pediatric Peripheral Intravenous Infiltration
- Restraints

NDNQI

NATIONAL DATABASE OF NURSING QUALITY INDICATORS
Our Work: HOBIC

- **HOBIC** is collecting similar data to NQF and NDNQI.

- **HOBIC** goes beyond to safety outcomes to capture process of care (ADLs, fatigue, dypsnea, nausea, TCS).

- **HOBIC** assessment data provide a unique source of standardized information on the health improvements achieved by health care providers in Ontario.
Purposes

• How can **HOBIC** data be used to examine important questions about nurse’s impact on health outcomes in acute care settings in Ontario?

• Conduct initial data quality assessments of **HOBIC** database

• Explore sensitivity of **HOBIC** outcome measures to change (from admission to discharge)
Data Sources

- **HOBIC** data collected by nurses in 33 acute care settings in Ontario
- Data collected between Dec 2006 and March 2010
- Representing several LHINs
- Majority are non-teaching sites
Methods

- Transfer **HOBIC** assessment data to ICES secure servers

- Link **HOBIC** assessment data to CIHI DAD based on linkage variables (Dates, Institution, and Chart Number)

- Perform initial data quality checks
Data Analysis

- Examine sensitivity of the patient outcome measures to change by comparing the mean scores obtained at time 1 (upon admission) and at time 2 (around discharge)

- Applicable only when there are two occasions of measurement

- 59,157 acute care assessments (where both admission and discharge HOBIC assessment available for patients)
HOBIC Measures

**Acute Care & Home Care Measures**

- **Functional Status:** ADL* & Bladder Continence*
- **Symptom management:** Pain, Fatigue, Dyspnea, Nausea
- **Safety Outcomes:** Falls*, Pressure Ulcers*
- **Therapeutic Self-care**

- Collected on admission & discharge

- * InterRAI measures used

**Long-term Care & Complex Continuing Care Measures**

- **Functional Status:** ADL* & Bladder Continence*
- **Symptom management:** Pain*, Fatigue, Dyspnea, Nausea
- **Safety Outcomes:** Falls*, Pressure Ulcers*

- Collected on admission, quarterly & client condition changes

- * InterRAI measures used
Statistically significant change from *requiring maximal assistance* on admission to needing less although still *extensive assistance* on discharge *(i.e., weight bearing support from two to one helper)*
Pain Frequency

Statistically significant change indicating *pain symptoms present & exhibited* to nurse on admission but *no longer visible* by discharge.
Pain Intensity

Statistically significant change from admission to discharge on 10-point scale  

\( 0 = \text{no pain at all in past 24 hours;} \)

\( 10 = \text{worst possible pain in past 24 hours} \)
Statistically significant change from *some minimal fatigue with diminished energy* on admission to *little or no fatigue symptoms* on discharge.
Therapeutic Self Care

Small but statistically significant change from admission to discharge suggesting patient’s ability & knowledge needed to manage own health, symptoms & prescribed health plan improved while hospitalized.
Patients did not report experiencing the other symptoms either at admission or discharge (data quality considerations i.e., falls)
Discussion

• Sensitivity of measures to change for some of outcomes in this study

• Further study needed for others

• Consider relevance of measure for a sector (i.e. falls in past 90 days for acute care)
Data Quality

<table>
<thead>
<tr>
<th>HOBIC Assessments</th>
<th>March 31, 2009</th>
<th>March 31, 2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Both admission and discharge assessments</td>
<td>24,967</td>
<td>59,157</td>
</tr>
<tr>
<td></td>
<td>24,967</td>
<td>59,157</td>
</tr>
<tr>
<td>Admission assessments</td>
<td>19,859</td>
<td>43,311</td>
</tr>
<tr>
<td>only</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Discharge assessments</td>
<td>7,685</td>
<td>27,120</td>
</tr>
<tr>
<td>only</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total records</td>
<td>77,478</td>
<td>188,745</td>
</tr>
</tbody>
</table>

Some *data quality issues* noted (re: both admission and discharge assessment availability)
On-line Survey

- Surveyed 54 nurse leaders participating in HOBIC
- Gain better understanding of benefits realized by organizations, challenges with implementation and how managed them, future potential
- 38 respondents (70% response rate)
- 70% acute care; 30% long-term care
Organizational Benefits

- **Data comparability**

  “able to compare patient data from one admission to another and from admission to discharge”

  “better able to track fatigue in our residents.”
Organizational Benefits

- Effective care planning & delivery for nurses and managers

- “It has helped nursing think about the patients status on admission and then how they have improved over their stay to discharge. Managers are beginning to look at [HOBIC] reports and think about how the patient’s status needs relate to nursing care and staffing levels.”
Organizational Benefits

- *Positive impact on enhancing employee skill level with technology*

- “Increased exposure to online documentation and allows for those who have not been computer savvy to become more computer literate.”

- “Easy to use which is beneficial, to help nurses begin to move towards forms of electronic documentation.”
Challenges with Implementation

- **Level of computerization/information technology at the site**

- “Information technology – embedding the measures into the current electronic documentation.”

- “Accessing the HOBIC reports without having to go to another website. [It] would be best to be able to retrieve reports in a more simple way for the front line staff. Sometimes it is difficult to log on and navigate the system.”
Challenges with Implementation

• **Busy work environment impacting buy-in from staff**

  “Time factors—staff are very busy and at times cannot complete the required information in the appropriate time frame.”

• “A barrier that we have faced is getting staff “buy in” to the HOBIC tool.”
Challenges with Implementation

- **Data quality / competing priorities**

  “Staff not completing HOBIC questions therefore [the] data are not reliable. Duplication of work from point of care nurse and [this] increases time [spent on] documentation. Competing priorities of manager has not allowed them to focus on reviewing [the] report.”
Challenges with Implementation

- **Integration of HOBIC**

  - “The biggest barrier for our organization has been the reports and linking that information back to the unit.”

  - “Understanding the data. [It is] labour intensive to pull reports.” “Another challenge we face is having staff know how to integrate the individual HOBIC findings into the patient’s plan of care.”
Overcoming the Challenges

- **Staff education and support**

  “Ongoing education and support re: using the computer and reiterating the importance of the information collected.”

  “We have identified leads in the programs that are using HOBIC, they are focusing on their areas through audits.”
Overcoming the Challenges

• **Staff education and support**

  “Currently we are providing managers with a presentation about each of the reports and then we will be retraining the manager group to use the reports. After that is complete as an organization we will develop set times to discuss/compare data and set goals. This should include representatives from the front lines too.”
Overcoming the Challenges

- **Staff education and support**

- “Including the value of these measures in other initiatives such as our Senior Friendly Environment, reducing 30 day readmission rates, enhancing patient education using a discharge checklist (including therapeutic self care).”

- “Managers provide reports to the staff who do not have to access them.”
Overcoming the Challenges

- **Staff education and support**
  - “More proficient users help others.”
  - “We are trying to do more regular reporting at our Nursing Advisory Council.”
  - “It was a matter of setting priorities.”
Overcoming the Challenges

• **IT support**

  “Working with IT to redevelop the current admission and discharge assessment to include the HOBIC measures. We worked together to try and increase compliance.”

  “Our IT has been a key driver to overcome any barriers we had.”
Future Potential

• **Inform quality reporting**

• “We use HOBIC in our Quality Reports for inpatient areas to evaluate our protocols and clinical guidelines (i.e. falls prevention, pain management).”

• “Improved care planning and effective decision making related to health outcomes that are evidence based and in real time. More information = better care.”
Future Potential

- **Inform quality reporting**

  “The potential to have a better understanding of the health status of the patients admitted to the unit and then see nursing’s contribution to care. Also, [HOBIC] helps identify common health status challenges in the community and develop interventions/teaching to help with this.”

- “It supports quality initiatives, [such as]… “the Excellent Care for All Act (surveying patients for satisfaction).”
Future Potential

• **Inform quality reporting**

• “..promotion of best practice and supporting policy development.”

• “The potential is really unlimited! Being able to access patient information between organizations (i.e. one hospital to another to the CCAC) would be of great benefit to the patients.”
Discussion

• Evident that nurse leaders place substantial value on having access to real-time clinical data for making comparisons (admission to discharge, between admissions)

• Using data to assess effectiveness of care being provided within their sites

• HOBIC is having considerable influence on how nurses assess and deliver care (outcomes informed)
Moving Forward

- IT challenges and integration issues are key factors in moving forward
- Consider embedding HOBIC measures into existing assessments
- Consider context of competing priorities
- Environmental and staff readiness
- What is the ‘go forward’ plan for utilizing the data
Questions

• Research programs:
  - www.hsprn.ca
  - www.mcgillishall.com

HOBIC:
  - www.health.gov.on.ca/hobic