Development of a Health Equity Framework – Lessons Learned

Agenda

• Toronto Central LHIN Health Equity Strategy
• University Health Network
• Health Equity Analysis at UHN
  – Prior to the TC LHIN Submission
  – UHN Health Equity Task Force
  – Development of a Health Equity Framework
• Lessons Learned
Toronto Central Local Health Integration Network (TC LHIN)

TC LHIN

Total Population 1,089,140
Male 48%
Female 52%
Age 0-14 15%
Age 15-24 12%
Age 25-44 36%
Age 45-64 25%
Age 65-74 6%
Age 75+ 6%

Data Source: 2006 Census, not adjusted for census undercount

Plan, integrate and fund 204 unique health service providers, including:

Hospitals
Community Care Access Centres
Long-term Care
Mental Health and Addictions Services
Community Health Centres

University Health Network
Toronto Central LHIN Health Equity Strategy

Goal
• Reduce or eliminate socially and institutionally structured health inequalities and differential outcomes

Priorities
• September 2007, the TC LHIN struck a Health Inequalities Task Force
• February 2009, All 18 hospitals in the TC LHIN submitted health equity plans to the LHIN
• Health Equity is a system performance goal
University Health Network (UHN): Three Hospitals – One Vision

Toronto Western Hospital
Toronto General Hospital
Princess Margaret Hospital

Fast Facts:
~750 beds
~257,000 patient days
~943,000 ambulatory visits
~10,856 employees
~3,488 students
~573 active staff
~1,741 volunteers
~ Budget $1.4 billion

Data Source: Fast facts Fiscal Year 2008/09, UHN Intranet
Health Equity Analysis at UHN
Prior to the TC LHIN Report

• Hospital Report - Women’s Health Review
  – AMI Access to Coronary Angiography, Complications & Readmission rates
  – Cholecystectomy Complications & Access to Day Surgery
• Board Quality Reporting
  – Overview of Patient Population
  – Wait Times by priority and sex
  – Some specific program reviews requested (e.g., Peter Munk Cardiac Program, Transplant Program)
• Corporate Requests
  – Patient Satisfaction, Readmission, Unadjusted Mortality rates by age and sex.
• Chair in Women’s Health Presentation to Board Quality Committee

• Gaps/Limitations
  – Unadjusted rates
  – Not all research/literature based
  – Fragmented approach
### Health Equity Analysis at UHN Prior to the TC LHIN Report

#### Wait Times by Gender & Priority Level Reported to Board Quality Committee

<table>
<thead>
<tr>
<th>Service</th>
<th>Priority</th>
<th>Target (days)</th>
<th>Gender</th>
<th>Volume</th>
<th>%</th>
<th>W.T. - Median (days)</th>
<th>W.T. - 90th Percentile (days)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hip Replacement</strong></td>
<td>1</td>
<td>7</td>
<td>Female</td>
<td>&lt;5</td>
<td>71%</td>
<td>2</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Male</td>
<td>&lt;5</td>
<td>29%</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>42</td>
<td>Female</td>
<td>12</td>
<td>44%</td>
<td>17</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Male</td>
<td>15</td>
<td>56%</td>
<td>21</td>
<td>79</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>84</td>
<td>Female</td>
<td>186</td>
<td>53%</td>
<td>54</td>
<td>99</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Male</td>
<td>163</td>
<td>47%</td>
<td>51</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>182</td>
<td>Female</td>
<td>17</td>
<td>47%</td>
<td>27</td>
<td>92</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Male</td>
<td>19</td>
<td>53%</td>
<td>25</td>
<td>115</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td>Female</td>
<td>220</td>
<td>53%</td>
<td>50</td>
<td>97</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Male</td>
<td>199</td>
<td>47%</td>
<td>50</td>
<td>100</td>
</tr>
</tbody>
</table>

**Priority Description (Target Wait Time):**
1. Immediate - emergency surgery required due to peri-prosthetic fracture, uncontrolled acute infection of a joint replacement or acute irreducible dislocation of a total hip joint replacement.
2. Urgent hip or knee joint conditions/complications that actively affect an individual's role and independence in the following way: bed ridden, impending fracture or recurrent dislocation of a total hip joint replacement.
3. Some pain and disability because of hip or knee joint condition that is an imminent threat to role and independence.
4. Minimal pain and disability because of hip or knee joint condition but role and independence not threatened.

**Data Source:** WTIS FY0910, total volume of cases = 419.
**Target Source:** Ministry of Health and Long-Term Care (MOHLTC)
UHN Health Equity Task Force

• Vision

Achieving equity of access and quality of care for all patients is foundational to the work of the University Health Network (UHN).

UHN is committed to respect and fairness in the provision of healthcare services.

We aim to provide equitable access and exemplary patient-centred care that meets the needs of a diverse population.

Data Source: Report “Open Doors: Health Equity at UHN” (February 2009)
Priority Areas

1. Integrate Health Equity into the Quality Framework of UHN
   - The development of a framework to collect data is required to understand gaps and identify opportunities for improvement in services and supports at UHN. Once completed, program quality indicators related to health equity access and outcomes will be recommended for incorporation into our Quality Framework and approved by the Board’s Quality Committee. This will promote and sustain health equity at UHN.

2. Build upon the Cultural Competency of the Organization (Theory to Practice)

3. Expand specific service capacities for specific populations with new funding

Data Source: Report “Open Doors: Health Equity at UHN” (February 2009)
## Development of a Health Equity Framework Caring Dimension of Balanced Scorecard (BSC)

### UHN 2009/10 Balanced Scorecard

<table>
<thead>
<tr>
<th>Domain/Theme</th>
<th>Goal</th>
<th>Initiative</th>
<th>Measure</th>
<th>Measure Definition</th>
<th>08/09 Target</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Caring</strong></td>
<td>Make UHN safer for our patients</td>
<td>SHN Interventions</td>
<td>Hospital standard mortality rate</td>
<td>A ratio of observed to expected deaths multiplied by 100 (CHI Definition)</td>
<td>&lt;90</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Palliative care coding</td>
<td>Hand hygiene - limited to MRSA rate</td>
<td>Percentage incidence of patients contracting <em>C. Difficile</em> (C. Difficile) while in hospital (rate per 1000 patient days)</td>
<td>0.50 cases per 1000 patient days (10% reduction)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Initiative to reduce the incidence of <em>C. Difficile</em></td>
<td>Hand hygiene - limited to MRSA rate</td>
<td>Percentage incidence of patients contracting <em>C. Difficile</em> (C. Difficile) while in hospital (rate per 1000 patient days)</td>
<td>0.41 cases per 1000 patient days (10% reduction)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MOLTC, Just Clean Your Hands, MOLTC mandatory reporting of compliance, and UHN’s specific Hand Hygiene program that includes posters and education</td>
<td>Hand washing compliance</td>
<td>Percentage compliance on audit with Hand Hygiene initiatives prior to patient contact</td>
<td>new</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Interprofessional unit-based strategy development</td>
<td>Pressure ulcer incidence</td>
<td>Percentage incidence of patients who have developed pressure ulcers while hospitalized (of all patients)</td>
<td>11.5%</td>
</tr>
<tr>
<td><strong>Improve access to care and satisfaction for our patients</strong></td>
<td>Cancer Program Ambulatory Care Redesign</td>
<td>Overall patient mean score (ambulatory oncology patient satisfaction)</td>
<td>Mean score represents the average score for each patient on the FIMH ambulatory oncology patient satisfaction survey</td>
<td>new</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Patient-centred care</td>
<td>Inpatient satisfaction scores</td>
<td>Percent of inpatients who are &quot;very satisfied&quot; with the perceived staff, communication and sensitivity of nurses and the quality of care provided by the nursing team</td>
<td>77.8%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Clinical anesthesia information system (CAIS) implementation</td>
<td>Patients assessed by CAIS</td>
<td>Proportion of surgical cases in which number of patients assessed using CAIS pre-operatively expressed as a percentage</td>
<td>new</td>
<td></td>
</tr>
<tr>
<td><strong>Efficient, safe, patient-centered care in an integrated care delivery environment</strong></td>
<td>Enhance system partnerships to integrate care processes for our patients</td>
<td>Partnerships for system improvement (LIC and patient flow, Palliative Care)</td>
<td>Average ALC days</td>
<td>This measure describes the number of Alternate Level of Care (ALC) patients waiting and averages their period of stay designated as ALC. Measures efficiency of managing ALC patients toward discharge</td>
<td>11.8 days (10% reduction)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Partnerships for system improvement (LIC and patient flow, Palliative Care)</td>
<td>% of non-admitted CTAS I and II patients treated within ED-LOS of 8 hours or less and within 6 hours or less for non-admitted CTAS III patients</td>
<td>Percentage of non-admitted patients who are treated within 8 hours or less for CTAS I and II and the percentage of non-admitted patients who are treated within 6 hours or less for CTAS III (weighted average)</td>
<td>new</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Partnerships for system improvement (LIC and patient flow, Palliative Care)</td>
<td>% of non-admitted CTAS IV and V patients treated within ED-LOS of 4 hours</td>
<td>Percentage of non-admitted patients who are treated within 4 hours or less</td>
<td>new</td>
</tr>
</tbody>
</table>
## Development of a Health Equity Framework
### Overview of Performance Measures for Board Quality Committee

<table>
<thead>
<tr>
<th>People (We)</th>
<th>Patient-Centred Care &amp; Program Integration (Caring)</th>
<th>Research &amp; Innovation (Creative)</th>
<th>Resources &amp; System Integration (Accountable)</th>
<th>Teaching (Academic)</th>
</tr>
</thead>
</table>
| • Employee Opinion Survey | • Mortality - HSMR  
• Morbidity  
• Patient Safety  
  – Medication incidents  
  – Incident falls  
  – Pressure ulcer incidence  
  – SSIs  
  – Infection Rates  
    • MRSA  
    • VRE  
    • C. Difficile  
  • Waiting Times for Service  
  • Patient Satisfaction  
  • Patient Education | • Proportion of Cited and Highly Cited Papers  
  • Trended comparative proportions of highly cited papers | • Variance Reports (actual vs. budget)  
  • Chart completion  
    – Discharge Summary  
    – Operative Notes | • Education |

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**University Health Network**

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## Development of a Health Equity Framework

### Indicator Development: Indicator Methodology

<table>
<thead>
<tr>
<th>FY0910 (YTD Dec)</th>
<th>Inpatients</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cases</td>
</tr>
<tr>
<td>Total Separations</td>
<td>23,414</td>
</tr>
<tr>
<td>Palliative Care (PC) as MRDx</td>
<td>389</td>
</tr>
<tr>
<td>Diagnosis Group (PC as MRDx excluded)</td>
<td>13,637</td>
</tr>
<tr>
<td>Age (not 0 to 120 yrs)</td>
<td>0</td>
</tr>
<tr>
<td>Sex (not Male or Female)</td>
<td>0</td>
</tr>
<tr>
<td>LOS (not 1-365 consecutive days)</td>
<td>&lt;5</td>
</tr>
<tr>
<td>Admission (neither &quot;Elective&quot; nor &quot;Urgent&quot;)</td>
<td>0</td>
</tr>
<tr>
<td>Postal Code (not Canadian Resident)</td>
<td>&lt;20</td>
</tr>
<tr>
<td>Cadaver</td>
<td>0</td>
</tr>
<tr>
<td>Stillborns</td>
<td>0</td>
</tr>
<tr>
<td>Sign-outs</td>
<td>71</td>
</tr>
<tr>
<td>Did Not Return</td>
<td>0</td>
</tr>
<tr>
<td>Brain Death as MRDx</td>
<td>0</td>
</tr>
</tbody>
</table>

**Total Separations Excluded**: 14,120

**Cases Remaining**: 9,294

**Deaths**: 595
## Development of a Health Equity Framework

### Indicator Development: Determining Risk Adjustment Factors

### HSMR Mortality Rates

<table>
<thead>
<tr>
<th>Risk Factors</th>
<th>Category</th>
<th>% of Total Population</th>
<th>Significant risk factor for mortality?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age in years</td>
<td>45 – 64</td>
<td>34</td>
<td>Yes (P-value &lt;0.05)</td>
</tr>
<tr>
<td></td>
<td>18 – 44</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&gt;= 65</td>
<td>57</td>
<td></td>
</tr>
<tr>
<td>Sex</td>
<td>Male</td>
<td>58</td>
<td>No (P-value &gt;0.05)</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>42</td>
<td></td>
</tr>
<tr>
<td>Income Quintile</td>
<td>1 – 5</td>
<td>100</td>
<td>No (P-value &gt;0.05)</td>
</tr>
<tr>
<td>Preferred Language</td>
<td>English</td>
<td>82</td>
<td>No (P-value &gt;0.05)</td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>Admission</td>
<td>Elective</td>
<td>29</td>
<td>Yes (P-value &lt;0.05)</td>
</tr>
<tr>
<td></td>
<td>Urgent</td>
<td>71</td>
<td></td>
</tr>
<tr>
<td>Co-morbidity level</td>
<td>0 – 4</td>
<td>100</td>
<td>Yes (P-value &lt;0.05)</td>
</tr>
<tr>
<td>Transfer</td>
<td>No</td>
<td>95</td>
<td>No (P-value &gt;0.05)</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>LOS in days</td>
<td>3 – 9</td>
<td>43</td>
<td>Yes (P-value &lt;0.05)</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>19</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td></td>
<td>10 – 15</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td></td>
<td>16 – 21</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td></td>
<td>22 – 365</td>
<td>9</td>
<td></td>
</tr>
</tbody>
</table>

Total Population: 7,451
Development of a Health Equity Framework

Example of Indicator Development: Other Analysis

- Replication of indicators suggested by the Centre for Research on Inner City Health, St. Michael’s Hospital re: Measuring Equity of Care in Hospital Settings: From Concepts to Indicators

  Examples:
  - Accessibility of Language Services
  - Patient Satisfaction
  - Perforated appendix rate
  - Minimally invasive cholecystectomy rate
  - Use of analgesics for pain management
  - Rate of death within 30 days of hospital admission for acute myocardial infarction (AMI)
  - Pressure ulcer rate among elderly patients

- Progress Made
  - Literature based
  - Good “first step” indicators
  - Preliminary descriptive statistics as well as ANOVA and Chi Square statistics used

- Gaps/Limitations
  - Not all recommended indicators are based on our strategic priorities
  - Do not collect information on socioeconomic status, race and ethnicity in our Electronic Patient Record (EPR)
  - No detailed technical report available so assumptions made
  - Response rate to patient satisfaction scores

Reference: Measuring Equity of Care in Hospital Settings: From Concepts to Indicators; Centre for Research on Inner City Health, St. Michael’s Hospital, May 2009
# Development of a Health Equity Framework

## Granularity of Various Data Sources

<table>
<thead>
<tr>
<th>Data Availability:</th>
<th>EPR (UHN Data)</th>
<th>Postal Code (available online)</th>
<th>FSA (language purchased)</th>
<th>CMA (PCCF+ file purchased)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete</td>
<td>●</td>
<td>Proxy information</td>
<td>● Proxy category breakdown</td>
<td>○</td>
</tr>
<tr>
<td>Unavailable</td>
<td>○</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Partially Complete</td>
<td>○</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Statistics Canada Level of Data Availability**
  - Complete 95%
  - Proxy information
  - Proxy category breakdown
  - Categories by FSA vs. postal code
  - Quintiles by postal code

**Data Sources:**
- Electronic Patient Record (EPR)
- Forward Sortation Area (FSA)
- Census Metropolitan Area (CMA)
- Postal Code Conversion File Plus (PCCF+)

**Categories by FSA vs. postal code**
Development of a Health Equity Framework

Evolution of Health Equity Analysis

Evolution of Analysis (Time)

Complexity of Analysis (Type)

Descriptive Statistics:
( Resource Weights, Length of Stay)

Quick & easy breakdown by age, sex

ANOVA:
(Patient Satisfaction by Age & Sex)

Chi Square:
(Pressure Ulcer by Age & Sex)

Logistic Regression:
(Mortality among HSMR)

Validity improved as relevant factors controlled for

Resource intense
Increased predictability of models

Expertise

Collaboratives?

Clinical Experts

Statistician

Business Analyst

University Health Network
Development of a Health Equity Framework

Next Steps

- Work with key stakeholders to develop program measures
- Replicate Published Analysis:
  - Intensive Care Unit (ICU) Age and Sex Investigation, Dodek et al.
  - Project for an Ontario Women’s Health-Evidence Based Report (POWER)
  - Cardiac Gender Differences in Clot Busting Drug Use
- Consult with clinical experts to determine additional factors to control for to further improve model statistical power
Lessons Learned

- Data available from Statistics Canada website however UHN catchment area too large to lookup proxy Socio Economic Data by Postal Code
Lessons Learned Con’t

- Restrictions on use of Statistics Canada data
- Purchasing of full datasets can be cost prohibitive; able to purchase specific fields of data at lower costs
- Various data available by postal code at no cost online
- Require expertise in SAS or SPSS statistical software to merge files and conduct analysis
- Trial and error required to become familiar with Statistics Canada file
- Income quintile and geographic area most useful purchased data
Credit to contributors:

- UHN Health Equity Task Force
- Quality Committee of the Board
- Senior Management Sponsors
- Management Decision Support Department