Connecting the Organizational and Clinical Benefits of Optimal Use of Electronic Medical Records

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OBJECTIVE: To share how good quality EMR data can enable more proactive chronic disease management, preventative care and data sharing through:

• EMR Clinical Data Prioritization and Standardization
• Clinician Engagement, Change Management and Training
• Benefits Evaluation and Realization
• A broad engagement of primary care practitioners

CFFM FHT: providing integrated primary care to over 24,000 patients in the Waterloo Region.

New Vision FHT: providing integrated primary care to over 24,000 patients in the Waterloo Region.

Project ALIVE, funded by:
The Problem

• Clinicians like to express themselves\(^1\)...
  • 285 ways of capturing depression
  • 701 ways of capturing diabetes
  • 670 ways of capturing hypertension
  • 302 ways of capturing COPD
• Keeping patient charts up-to-date can be a challenge
• Clinicians want better data, but not at the expense of patient care

1. From: CIHI PHC Voluntary Reporting System-EMR Data Source
Project Scope

• Stream 1 – Support the meaningful use and management of EMR data by working with 30 Primary Care practitioners to:
  o Standardize a sub-set of EMR data (One FHT 12 conditions; Other FHT 18 conditions)
  o Implement the use of a reporting tool
  o Implement processes focussed on sustainable data standardization

• Stream 2 – Report on the current state of information management in Primary Care through:
  o Broad engagement of 300 Primary Care practitioners with EMRs
  o Broad engagement of 35 Primary Care practitioners without EMRs
Coded Data = Simpler Searches

**Coded Search**

<table>
<thead>
<tr>
<th>Search Name: MD TypeII Search</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPP Prob SNOMED CT® any item starts with DB-61030</td>
</tr>
<tr>
<td>or</td>
</tr>
<tr>
<td>CPP HPH SNOMED CT® any item starts with DB-61030</td>
</tr>
</tbody>
</table>

**Un-coded Search**

Search Name: MD Diabetes - Type 2 Population

Member Status = FHO Enrolled and

- PROB/Problem List/Problem List contains Type 2 Diabetes or
- PROB/Problem List/Problem List contains Diabetes Type 2 or
- PROB/Problem List/Problem List contains DM or
- PROB/Problem List/Problem List contains DM2 or
- HPH/Past Hx/History of Past Health contains Diabetes Type 2 or
- HPH/Past Hx/History of Past Health contains Type 2 Diabetes or
- HPH/Past Hx/History of Past Health contains DM or
- HPH/Past Hx/History of Past Health contains DM2 and
- HPH/Past Hx/History of Past Health does not contain gestational and
- PROB/Problem List/Problem List does not contain gestational and
- PROB/Problem List/Problem List does not contain Type 1 and
- HPH/Past Hx/History of Past Health does not contain Type 1
Simpler, Faster Searches that Yield more Accurate Results

Uncoded vs Coded Search (Type II Diabetes) - Speed

The uncoded search for Clinician 2 brought up several false positives
More Accurate Patient Searches

% of patients who have the condition but were not identified in existing EMR Search

<table>
<thead>
<tr>
<th>Condition</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asthma</td>
<td>13.5%</td>
</tr>
<tr>
<td>Dementia</td>
<td>8.5%</td>
</tr>
<tr>
<td>Type 1 Diabetes</td>
<td>33%</td>
</tr>
<tr>
<td>Type 2 Diabetes</td>
<td>8.5%</td>
</tr>
</tbody>
</table>

Impact: Clinicians learn not to trust the EMR functionality such as reminders and searches
More Accurate Patient Searches

% of patients who do not have the condition but were incorrectly identified as having the condition

<table>
<thead>
<tr>
<th>Condition</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asthma</td>
<td>16.4%</td>
</tr>
<tr>
<td>COPD</td>
<td>24.7%</td>
</tr>
<tr>
<td>Dementia</td>
<td>19.7%</td>
</tr>
<tr>
<td>Pre-diabetes</td>
<td>35.7%</td>
</tr>
</tbody>
</table>

Impact: Clinicians learn not to trust the EMR functionality such as reminders and searches
Enhanced Patient Care Opportunities

Opportunity to use teams to enhance patient care through the use of Medical Directives and standardized process flow/ EMR Information.
Practice/Patient Benefits

**Quick and Flexible Reports** to better inform clinicians and the organization of the needs of their patients and which patients with chronic conditions require follow-up care.

**Better Identification of Patients** allowing the full inter-professional team to better care for complex patients.

**2 Clinical Best Practice Reminders** have been activated by utilizing advanced EMR functionality based on the coded data. This includes outstanding lab work for diabetes and outstanding vaccinations for patients with congestive heart failure.

Example: Clinical Best Practice Reminder for CHF patient, within patient record

CFFM, 2014
Examples of Patient Care Opportunities

Opportunity to use teams to enhance patient care through the use of Medical Directives and standardized process flow/EMR Information.
Better Continuity of Care for Patients

Opportunity to use teams to enhance patient care through the use of Medical Directives and standardized process flow/EMR Information.
From Historical to Go-Forward Coding

Change Management coaching deployed to incorporate the standardization of patient data into existing workflows, allowing for **Ongoing and Sustainable Standardization by Clinicians.**

**February 5, 2015**

<table>
<thead>
<tr>
<th>Encounter - Condition List</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Anxiety disorder</td>
</tr>
<tr>
<td>□ Asthma</td>
</tr>
<tr>
<td>□ Atrial Fibrillation</td>
</tr>
<tr>
<td>□ Coronary Artery Disease (CAD)</td>
</tr>
<tr>
<td>□ Cerebrovascular (CVA)</td>
</tr>
<tr>
<td>□ COPD</td>
</tr>
<tr>
<td>□ Congestive Heart Failure (CHF)</td>
</tr>
<tr>
<td>□ Dementia</td>
</tr>
<tr>
<td>□ Depression</td>
</tr>
<tr>
<td>□ Diabetes - Gestational</td>
</tr>
<tr>
<td>□ Diabetes - Type1</td>
</tr>
<tr>
<td>□ Diabetes - Type2</td>
</tr>
<tr>
<td>□ Hypertension</td>
</tr>
<tr>
<td>□ MCI</td>
</tr>
</tbody>
</table>

□ Multiple Sclerosis (MS)  
□ Osteoporosis             
□ Parkinson Disease        
□ Spinal Cord Injury (SCI)  

Example: Template to allow simple “point and click” standardization from within patient record

CFFM, 2014
Value/Benefit in Health Organizations

Ravichandran and Lertwongsatien (2005) suggested an organization’s performance “can be explained by how effective the firm is in using information technology to support and enhance its core competencies.”

*Journal of Management Information Systems 21(4), p. 237*
Project ALIVE developed Organizational and Clinical Value in EMRs. This offers the potential to learn about and improve care delivery informed by different information.

The process of developing clinical value using informants from the EMR introduces multi-professional care and change the way Primary Care Organizations function.
# Options for Pursuing Value

<table>
<thead>
<tr>
<th>Basic</th>
<th>Intermediate</th>
<th>Advanced</th>
</tr>
</thead>
<tbody>
<tr>
<td>All providers need to develop reliable data. Cost variation by number of chronic diseases coded</td>
<td>Building on improved data completeness, work with PCO to identify CDPM clinical processes and organizational processes that can be enabled</td>
<td>More custom features developed, more workflow and change management required</td>
</tr>
<tr>
<td>Historical coding of patient records</td>
<td>Develop workflow analysis to integrate workflow changes into organizational processes</td>
<td>Improved links to clinical guidelines to proactively manage chronic diseases i.e. reminders for vaccines, interventions etc.</td>
</tr>
<tr>
<td>Improved basic report generation</td>
<td>Improve organizational processes to improve billing search efficiency</td>
<td>Develop dashboard feature for performance improvement, professional development, QIP opportunities</td>
</tr>
<tr>
<td>Tools to make EMR functionality more accessible to enable coding</td>
<td>Improved intra-organizational and inter-organizational referrals for chronic disease management</td>
<td>Develop improved communications interface within the EMR to manage communications with specialty clinics</td>
</tr>
</tbody>
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Primary Care Performance Measurement Framework

(Ontario Primary Care Performance Measurement Steering Committee, June 2013)

Legend

- ALIVE Direct Impact on Achievement
- ALIVE Enabler of Achievement

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- ALIVE Direct Impact on Achievement
- ALIVE Enabler of Achievement

Equity

Equity is a cross cutting domain and will be assessed in relation to a variety of economic and social variables such as income, education, gender, urban/rural location, age, sexual orientation/identity, language, immigration, ethno-cultural identity and Aboriginal status.
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