Measuring Patient-Centred Care
Integration of PROMs/PREMIs into EHRs

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University of Victoria
Outline

• Current EHR Landscape
• Integrating PROMs/PREMs into EHR
• Implementation Issues
• References
Current EHR Landscape - Context

• EHR definition – Repository of patient data over time

• Infoway – Summary Corporate Plan 2014-15

• Opportunities for action
  – Bring care closer to home
  – Provide easier access
  – Support new models of care
  – Improve patient safety
  – Enable a high performing health system

• Corporate objectives
  – Deploy EHR for Canadians
  – Get key information into hands of clinicians
  – Improve patient experience for Canadians
Current EHR Landscape – Evidence

• Whitepaper on coordinated EHR strategy for Canada
• Realist review to make sense of evidence
  – 38 Canadian and 35 international studies, grey literature, 9 interviews
  – eHealth value framework with investment, adoption, value and lag time
• Take home message
  – Under right conditions, eHealth adoption can be associated with clinical and health system benefits in processes, outcomes and return
  – Evidence is strong in processes, mixed in outcomes, weak on return
  – Question is: under what conditions can benefits be realized & maximized
  – 10 suggestions for a coordinated EHR strategy
Integrating PROMs/PREMs into EHR

• Integrating PROMS into EHR
  – Estabrooks 2012 - Harmonized patient-reported data elements
  – IOM 2014 - Social and behavioral domain-measures phase 2
  – Krist 2013,2014 – MOHR example in primary care

• Integrating PREMs into EHR
  – Browne 2010 – PREM as a strategy to improve primary care
  – Ralston 2010 – PREM as meaningful use criteria?
Table 4  Recommended common data elements by domain

<table>
<thead>
<tr>
<th>Domain</th>
<th>Final measure</th>
<th>Recommended frequency</th>
<th>Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eating patterns</td>
<td>Modified from starting the conversation (STC)\textsuperscript{22}</td>
<td>Annual</td>
<td>Over the past 7 days:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>a. How many times a week did you eat fast food or snacks or pizza?</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>b. How many servings of fruits/vegetables did you eat each day?</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>c. How many soda and sugar sweetened drinks (regular, not diet) did you drink each day?</td>
</tr>
<tr>
<td>Physical activity</td>
<td>The exercise vital sign\textsuperscript{23}</td>
<td>Annual</td>
<td>a. How many days of moderate to strenuous exercise, like a brisk walk, did you do in the last 7 days?</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>b. On those days that you engage in moderate to strenuous exercise, how many minutes, on average, do you exercise at this level?</td>
</tr>
<tr>
<td>Risky drinking</td>
<td>Alcohol use screener\textsuperscript{24}</td>
<td>Annual</td>
<td>How many times in the past year have you had X or more drinks in a day? (where X is 5 for men and 4 for women)</td>
</tr>
<tr>
<td>Smoking/tobacco use</td>
<td>Tobacco use screener\textsuperscript{25}</td>
<td>Annual</td>
<td>Have you used tobacco in the last 30 days?</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Smoked cigarettes: Yes/No</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Smokeless tobacco product: Yes/No</td>
</tr>
<tr>
<td>Substance use</td>
<td>Drug use screener\textsuperscript{26}</td>
<td>Annual</td>
<td>How many times in the past year have you used an illegal drug or used a prescription medication for non-medical reasons?</td>
</tr>
<tr>
<td>Anxiety and depression</td>
<td>PHQ-4\textsuperscript{27}</td>
<td>Annual</td>
<td>Over the past 2 weeks have you been bothered by these problems? (Leichert scale: not at all, several days, more days than not, nearly every day)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>a. Feeling nervous anxious, or on edge</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>b. Not being able to stop or control worrying</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>c. Feeling down, depressed, or hopeless</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>d. Little interest or pleasure in doing things</td>
</tr>
<tr>
<td>Stress</td>
<td>Distress thermometer\textsuperscript{28}</td>
<td>Annual</td>
<td>Please circle the number (0–10) that best describes how much distress you have been experiencing in the past week including today.</td>
</tr>
<tr>
<td>Demographics</td>
<td>Multiple sources\textsuperscript{29}</td>
<td>Variable</td>
<td>9 items: Sex, date of birth, race, ethnicity, English fluency, occupation, household income, marital status, education, address, insurance status, veteran’s status.</td>
</tr>
<tr>
<td>Sleep</td>
<td>Adapted BRFSS\textsuperscript{25}; Neuro-QOL\textsuperscript{30}</td>
<td>Annual</td>
<td>Do you snore or has anyone told you that you snore? In the past 7 days, I was sleepy during the daytime... never, rarely, sometimes, often, always</td>
</tr>
</tbody>
</table>
### IOM 2014 – Social and behavioral domains and measures

#### TABLE S-3 Core Domains and Measures

<table>
<thead>
<tr>
<th>Domain</th>
<th>Measure</th>
<th>11 domains 12 measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Race/ethnicity</td>
<td>U.S. Census (2 Q)</td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td>Educational attainment (2 Q)</td>
<td></td>
</tr>
<tr>
<td>Financial resource strain</td>
<td>Overall financial resource strain (1 Q)</td>
<td></td>
</tr>
<tr>
<td>Stress</td>
<td>Elo et al. (2003) (1 Q)</td>
<td></td>
</tr>
<tr>
<td>Depression</td>
<td>PHQ-2 (2 Q)</td>
<td></td>
</tr>
<tr>
<td>Physical activity</td>
<td>Exercise Vital Signs (2 Q)</td>
<td></td>
</tr>
<tr>
<td>Tobacco use and exposure</td>
<td>NHIS (2 Q)</td>
<td></td>
</tr>
<tr>
<td>Alcohol use</td>
<td>AUDIT-C (3 Q)</td>
<td></td>
</tr>
<tr>
<td>Social connections and social isolation</td>
<td>NHANES III (4 Q)</td>
<td></td>
</tr>
<tr>
<td>Exposure to violence: Intimate partner violence</td>
<td>HARK (4 Q)</td>
<td></td>
</tr>
<tr>
<td>Neighborhood and community compositional characteristics</td>
<td>Residential address</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Census tract-median income</td>
<td></td>
</tr>
</tbody>
</table>

**NOTE:** Q = question(s).
Krist 2013 – MOHR example in primary care

### Patient Health Summary Report

**Date of Birth:** 1/1/1970

<table>
<thead>
<tr>
<th>Measure</th>
<th>Recommended Score</th>
<th>Your Score</th>
<th>Level of Concern</th>
<th>Ready to Change?</th>
<th>Want to Discuss?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Overall Health Rating</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reason: I am working too hard at my job.</td>
<td>Good to Excellent</td>
<td>Poor</td>
<td>A Lot</td>
<td>✅</td>
<td>✅</td>
</tr>
<tr>
<td><strong>Body Mass Index</strong></td>
<td>20-25</td>
<td>27.7</td>
<td>Some</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Health Behaviors

<table>
<thead>
<tr>
<th>Measure</th>
<th>Recommended Score</th>
<th>Your Score</th>
<th>Level of Concern</th>
<th>Ready to Change?</th>
<th>Want to Discuss?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fruit/Vegetable Intake</td>
<td>5+/day</td>
<td>Less than 2/day</td>
<td>A Lot</td>
<td>✅</td>
<td>✅</td>
</tr>
<tr>
<td>Fast Food Intake</td>
<td>Less than 1 time/week</td>
<td>1-3 times/week</td>
<td>Some</td>
<td>✅</td>
<td>✅</td>
</tr>
<tr>
<td>Soda/Sugary Beverage Intake</td>
<td>Less than 1/day</td>
<td>1 to 2/day</td>
<td>Some</td>
<td>✅</td>
<td>✅</td>
</tr>
<tr>
<td>Physical Activity Participation</td>
<td>150+ minutes/week</td>
<td>175 minutes/week</td>
<td>None</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sleep</td>
<td>Never/rarely sleepy</td>
<td>Often sleepy</td>
<td>Some</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alcohol Intake</td>
<td>Never</td>
<td>Never</td>
<td>None</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tobacco use</td>
<td>No</td>
<td>Yes</td>
<td>A Lot</td>
<td>✅</td>
<td></td>
</tr>
<tr>
<td>Illegal Drug/Prescription Use</td>
<td>Never misuse</td>
<td>Never misused</td>
<td>None</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Mental Health

<table>
<thead>
<tr>
<th>Measure</th>
<th>Recommended Score</th>
<th>Your Score</th>
<th>Level of Concern</th>
<th>Ready to Change?</th>
<th>Want to Discuss?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stress</td>
<td>Less than 5</td>
<td>8</td>
<td>A Lot</td>
<td>✅ ✪ ✔️</td>
<td></td>
</tr>
<tr>
<td>Anxiety/Worry</td>
<td>Not at all/rarely</td>
<td>Not at all/rarely</td>
<td>None</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depression</td>
<td>Not at all/rarely</td>
<td>Not at all/rarely</td>
<td>None</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Keep up the GOOD Work!**

- You are meeting or exceeding the physical activity recommendations for health.
- You said there are few days you feel nervous, anxious, on edge or unable to stop or control worrying.
- You said there are few days you feel down, depressed, hopeless or have little interest or pleasure.
- You never drink too much alcohol.
- You do not use illegal drugs or prescription medications for non-prescribed reasons.

**Recommendations to improve Your Health**

- **Medium Priority**
  - Excess weight can lead to a number of health problems. Increase physical activity and/or limit the unhealthy food you eat to reduce your weight.
  - Decrease your fast food meals or snacks to less than one per week.
  - Decrease the number of soda or sugary drinks you drink to less than 1 per day.
  - Try to get 7-8 hours of sleep each night.
- **High Priority**
  - Increase fruits and vegetables to 5 or more servings per day.
  - You reported feeling stressed often. Discuss ways to reduce your stress.
  - Discuss options for decreasing or quitting tobacco use.
Krist 2013 – MOHR example in primary care

Notes/Things to Discuss During My Appointment


Health Goals

The best goals to set are those that are specific, measurable, achievable, realistic, and timely and focus on the who, what, where, when and how you will achieve them in order to be able to measure your success. List 1-5 goals you have to try to improve your health based on your health update.

Example Goal:
What will you do?
Decrease fast food by eating out 2-3 less times per week.
Pack a lunch to bring to work 2 times per week and cook dinner one more time a week.
Gradually work up to this over the next 3 weeks by decreasing fast food meals by one per week until I reach 3.

By when?

Goal #1:
What will you do?
How will you do it?
By when?

Goal #2:
What will you do?
How will you do it?
By when?

Goal #3:
What will you do?
How will you do it?
By when?

Follow-up Plan

When:

How:
• Definition of patient experience
  – elicited reports from patients on what they did or did not encounter in their interaction with providers and the healthcare system

• Recommendations and implications for EHR
  – Use standardized, validated survey instrument
  – Capture information for all types of patients
  – Provide data at the provider and practice site levels
  – Analyze data by patient demographics
  – Use data to identify system issues
  – Improve the quality of patient care
  – Establish provider payment incentives
  – Incorporate CAHPS* into medical practice standards
  – Continue to support regional implementation
  – Develop and test new technologies
• **Definition of meaningful use**
  – Providers qualify for incentives with measures of care and EHR use
  – Patients gain access to info, engage in care, communicate with providers

• **Web based tools for patients at Group Health, WA**
  – 1/3 outpatient visits thru secure electronic messaging with providers
  – Request medication refills and schedule office appointments
  – Access to online medical test results and after visit summaries
  – Review lists of medical conditions and immunizations

• **Measuring patient experiences**
  – Evaluate care experience that includes direct engagement with EHR
  – Evaluate care that includes engagement with online services linked to EHR
  – Reimbursement to include electronic communication and EHR use
Implementation Issues

• Aligning with overall EHR strategy
• Harmonization and RE-AIM in primary care
• IOM Report identified challenges
• Implementation issues for Canada?
Implementation Issues – EHR Strategy

**Investment**
- Invest in 3-4 short/intermediate term goals (10)
- Decide on long-term eHealth investment (1)

**Adoption**
- MACRO
  - Align with other health care reforms (3)
  - Align health care incentives (4)
  - Adopt national standards (6)
- MESO
  - Develop regional data sharing infrastructures (7)
  - Build eHealth leadership (9)
- MICRO
  - Engage stakeholders in aligned projects (5)

**Value**
- Define eHealth Value (2)
- Integrate evaluation (8)

**Adoption Lag Time**
**Impact Lag Time**
Implementation Issues – Harmonization

Future activities

Draft Common Data Elements (CDEs)

Align with related efforts (ie, CMS health risk appraisal)

Survey harmonization
- Simplicity and flow
- Time frames, question structure, and phrasing

Cognitive testing

Field test set of CDEs

Focus groups (physicians, nurses)

Promote software development
- Open source
- Immediate scoring
- Patient feedback
- Clinical decision support

Feasibility trials
- Reach and adoption
- Effectiveness
- Patient/provider burden
- Maintenance
- Cost/time to implement

Encourage Implementation through leader organizations (eg, HMOs, VA, IHS, CMS)

Revisions as appropriate

Widespread use of standard CDEs in US primary care

Publications
- Guidebook
- Journal article
- White papers

Estabrooks 2012 Figure 1, p580
Implementation Issues – RE-AIM

• Purpose
  – Implement *MyOwnHealthReport* (MOHR) in primary care

• Methods
  – Cluster-randomized pragmatic trial of paired-practices – early/delayed
  – Electronic/paper MOHR paired with counseling and goal setting
  – RE-AIM: reach, *effectiveness*, adoption, implementation, maintenance

• Results
  – *Reach*: 591/1782 pts (50%), higher when done by staff (71% vs 30%)
  – *Adoption*: 18/30 practices or 60%
  – *Implementation*: by mail done on web x3, by phone x1, on paper in office x1, staff helped patients on web in office x4; added 28 minutes/visit
  – *Maintenance*: None continued after study, 6 adapted into PHR or pre-visit

• Conclusion
  – MOHR feasible, counseling pts requires effort, practices need support
Implementation Issues – IOM Report

• Adding any data to EHR is challenging
• Collecting/storing social-behavioral data in EHR
• Collecting/using self-reported data
• Privacy protection
• Resource considerations
• Linking to public health and community agencies
• Anticipating/preventing unintended consequences
Implementation Issues for Canada?
References


