Overview of preventive care for cancer integrated with other chronic diseases: the scientific underpinnings of the BETTER approach

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Disclosure of interest: co-Principal Investigator of BETTER
BETTER: Building on Existing Tools to Improve Chronic Disease Prevention and Screening

Outline of the Presentation

• Rationale for BETTER: Integrated chronic disease prevention and screening
• The BETTER trial
• BETTER tools and resources
• Conclusion
BETTER: Building on Existing Tools to Improve Chronic Disease Prevention and Screening

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Rationale for BETTER: Why Chronic Disease Prevention and Screening?

The prevalence of chronic disease is steadily increasing internationally.

Chronic diseases have a substantial impact on morbidity, mortality, and healthcare services.

Primary prevention and screening for chronic diseases is the best hope to curtail that rise.
Rationale for BETTER

- Canada has a publically funded healthcare system with universal access.
- Primary care is the first point of contact with comprehensive and continuous care.
- Primary care is the setting for most chronic disease prevention and screening (CDPS) actions offered by the health care system.
- Evidence-based tools and strategies are available to improve CDPS, but they are inconsistently applied.
Traditional Health Care Model

- Diabetes
- Heart Disease
- COPD
- Depression
- Osteoporosis
Risk Factors for Chronic Disease

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The BETTER Trial: Objectives

Overall Objective: To improve prevention and screening in the family practice setting integrated for the following chronic diseases: cardiovascular disease, diabetes, and cancer and associated lifestyle factors.

Specific Objectives:

To determine if, for adults ages 40 to 65 in a Primary Care Team setting:

- a practice level Practice Facilitator intervention is effective
- a patient level Prevention Practitioner intervention is effective
  - Individualized prevention visit (Dr. Donna Manca)
The BETTER Trial: Study Setting

- 2 Canadian provinces
- 8 Primary care team practices
- 32 Family Physicians
- 800 patients - two strata: general health and moderate mental health problems

BETTER Trial Provinces
- Ontario
- Alberta
The BETTER Trial: Study Design

- Pragmatic Factorial Cluster Randomized Controlled Trial:
  - Practice level Intervention – Prevention Facilitator (PF)
  - Patient level Intervention – Prevention Practitioner (PP)

- Randomization at the level of the practice

- Outcome measure at the level of the individual patient
BETTER Trial: Design Schema
The BETTER Trial: Outcomes

Primary Outcome:
- A composite index of patients’ adherence to eligible CDPS actions at follow-up (approx. 6 months).
- Composite Index at the patient level:

\[
\frac{\text{# CDPS action met at follow-up}}{\text{# CDPS actions eligible at baseline}} \times 100
\]
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BETTER Tools and Resources

Step 1: Identifying which CDPS actions to include

Criteria for consideration:
• Published in English between 2005-present
• Addressed screening or prevention

Search strategy
• CPG developers with rigorous development policies (NICE, SIGN, USPSTF)
• Guideline repositories (CMA Infobase, NGC)
• Websites of national and specialty societies
• Included actions with Grade A recommendations
Actions Included

- **Common to several chronic diseases:**
  - Physical activity, alcohol, diet, smoking cessation

- **Cardiovascular Disease:**
  - Lipid profile, blood pressure, Framingham risk chart

- **Diabetes:**
  - Blood sugar, lifestyle factors, UKPDS risk calculator

- **Cancer:**
  - Breast, cervical and colorectal cancer screening, sun safety, smoking cessation

- **Total of 28 evidence-based actions were included**

Campbell-Scherer DL et al. CMAJ Open, 2014;(2):E1-E10
# Sample of Actions and Targets

<table>
<thead>
<tr>
<th>ITEM #</th>
<th>Item (E)</th>
<th>Eligibility Criteria (E) Baseline</th>
<th>Target (M) at 6 Months since baseline</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>FBS Screen</td>
<td>All non-diabetes with at least one risk factor (see SECTION A) if not had an FBS in the past year</td>
<td>FBS completed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>All non-diabetics without risk factors (see SECTION A) that haven’t had an FBS in the past 3 years</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>FBS Monitor</td>
<td>All non-diabetics with impaired FBS (6 - 6.9)</td>
<td>FBS completed AND referral to health professional or specialist complete for either nutrition/diet or diabetes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>FBS completed AND referral to a program complete for any one of nutrition/diet, physical activity/exercise or weight control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>FBS completed AND discussion with health professional occurred for any one of nutrition/diet, physical activity/exercise, diabetes or weight control</td>
</tr>
<tr>
<td>3</td>
<td>BP Screen</td>
<td>All non CVD patients AND Non-hypertensive and Non-diabetic &gt; 12 months since BP check</td>
<td>BP checked</td>
</tr>
<tr>
<td></td>
<td></td>
<td>All non CVD patients AND Non-hypertensive and Diabetics &gt; 6 months since BP check</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>All non CVD patients AND Hypertensive patients &gt; 6 months since BP check</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>BP Monitor</td>
<td>All non CVD patients with hypertension</td>
<td>BP checked, since baseline AND non-diabetic with BP &lt; 140/90</td>
</tr>
<tr>
<td></td>
<td></td>
<td>All non CVD patients with hypertension</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Hypertension Treatment</td>
<td>All non CVD patients with hypertension AND Non-diabetic with BP ≥ 140/90 OR Diabetic with BP ≥ 130/80</td>
<td>Non-diabetic with BP &lt; 140/90 OR Diabetic with BP &lt; 130/80 OR Newly prescribed hypertension medication OR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1 of the following 3 options:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Referral to health professional or specialist complete for either nutrition/diet or Hypertension OR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Referral to a program complete for any one of: Visit to hypertension clinic; Nutrition/diet; Physical activity/exercise OR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Discussion with health professional occurred for any one of: Nutrition/diet; Physical activity/exercise; Hypertension or Hypertension medication</td>
</tr>
<tr>
<td>17</td>
<td>Smoking Screen</td>
<td>Smoking status not recorded in EMR</td>
<td>Smoking status captured in EMR</td>
</tr>
<tr>
<td>18</td>
<td>Smoking Cessation</td>
<td>Smoker</td>
<td>Stopped smoking</td>
</tr>
<tr>
<td>19</td>
<td>Referral Smoking Cessation</td>
<td>Smoker</td>
<td>Newly prescribed smoking cessation medication</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Referral to smoking cessation program made or complete</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Discussion to health professional regarding smoking cessation or smoking cessation medication occurred</td>
</tr>
<tr>
<td>20</td>
<td>Alcohol Screen</td>
<td>Alcohol consumption not recorded in EMR</td>
<td>Alcohol consumption recorded in EMR</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Patient at risk drinker status not recorded in EMR</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>Alcohol Control</td>
<td>2-9 drinks per week for Women</td>
<td>&lt; 9 drinks per week for Women</td>
</tr>
<tr>
<td></td>
<td></td>
<td>≥ 14 drinks per week for Men</td>
<td>&lt; 14 drinks per week for Men</td>
</tr>
</tbody>
</table>

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Risk Factors for Chronic Disease

**Male**

**Cancer**
- Colorectal Cancer
  - Fecal occult blood test (FOBT)
  - Sigmoidoscopy
  - Colonoscopy

**Diabetes**
- Fasting Blood Sugar every 3 years, <6mmol

**Heart Disease**
- Blood pressure ≤140/90, Framingham risk score <10%
- Diabetes: target blood pressure <130/80, UKPDS score
- Cholesterol

These are regular screening intervals and healthy targets

**Family History**

**Nutrition**
- Less than 1 tsp of salt each day
- Limit high fat foods
- Normal body mass index 18.5-24.9
- Waist circumference <102cm

**Physical Activity**
- Engage in 90 minutes (cumulative) of moderate physical activity each week

**Alcohol**
- Low-risk drinking guidelines: 1-2 drinks a day, total 14 drinks each week
- 1 drink = 1 beer, 5 oz wine or 1.5 oz liquor

**Mental Health**

**Smoking**
- Set a quit date
- Plan to reduce
Female

**Cancer**
- **Pap Test** every 1-3 years to screen for cervical cancer
- **Mammogram** every 2 years to screen for breast cancer
- **Colorectal cancer**
  - Fecal occult blood test
  - Sigmoidoscopy
  - Colonoscopy

**Diabetes**
- Fasting Blood Sugar every 3 years, <6mmol

**Heart Disease**
- Blood pressure ≤140/90, Framingham risk score <10%
- Diabetes: Target blood pressure <130/80, UKPDS score
- Cholesterol

**Family History**

**Nutrition**
- Less than 1 tsp of salt each day
- Limit high fat
- Normal body mass index 18.5-24.9
- Waist circumference <88cm

**Physical Activity**
- Engage in 90 minutes (cumulative) of moderate physical activity each week

**Alcohol**
- Low-risk drinking guidelines: 1-2 drinks a day, total 9 drinks each week
  - 1 drink = 1 beer, 5 oz wine or 1.5 oz liquor

**Mental Health**

**Smoking**
- Set a quit date
- Plan to reduce
Prevention Prescription

Your Health Care Team and You Working Together: THE PREVENTION PRESCRIPTION

At your visit, we worked together to identify a number of important actions you can take to help prevent disease. This tool can be used to increase your understanding of the recommended guidelines for regular screening around some of the following potential lifestyle concerns and chronic diseases. Together, we can take support and improve your health and well-being.

<table>
<thead>
<tr>
<th>Screening For:</th>
<th>Your Status/Results</th>
<th>When to Re-Check</th>
<th>Referrals/Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cardiovascular Disease</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BMI</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blood pressure</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cholesterol</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Diabetes</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fasting blood sugar</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Cancer Screening</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fecal Occult Blood Test (FOBT)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sigmoidoscopy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Colonoscopy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pap test</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mammogram</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Lifestyle Concerns</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical activity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diet</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alcohol</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Smoking</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other lifestyle concerns</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Resources available to help you (websites, handouts etc.):
<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
</table>
| WAYS I CAN IMPROVE MY HEALTH – WHAT?  
(Set Your Goal) | WHAT WILL STOP YOU? | HOW MUCH? | HOW OFTEN? | WHEN? | WHERE? | RATE YOUR CONFIDENCE  
(Choose One per Goal) |
| Goal #1 | | | | | | |
| Goal #2 | | | | | | |
| Goal #3 | | | | | | |
BETTER Results: Summary of Eligible Actions and Actions Accomplished Across Groups

<table>
<thead>
<tr>
<th></th>
<th>Control</th>
<th>PF Only</th>
<th>PP Only</th>
<th>PF/PP</th>
<th>P value*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>All Patients; N</strong></td>
<td>183</td>
<td>150</td>
<td>209</td>
<td>235</td>
<td></td>
</tr>
<tr>
<td><strong>Eligible Actions: Baseline</strong></td>
<td>9.1 ± 3.4</td>
<td>8.5 ± 3.2</td>
<td>8.9 ± 3.2</td>
<td>9.2 ± 3.1</td>
<td>0.57</td>
</tr>
<tr>
<td><strong>Actions Accomplished</strong></td>
<td>1.9 ± 1.8</td>
<td>2.6 ± 2.3</td>
<td>4.7 ± 2.7</td>
<td>5.3 ± 2.6</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td><strong>SQUID</strong></td>
<td>21.0 ± 17.5</td>
<td>28.4 ± 23.6</td>
<td>53.6 ± 26.0</td>
<td>58.4 ± 23.8</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td><strong>Adjusted SQUID</strong></td>
<td>23.1 (19.2 – 27.1)</td>
<td>28.5 (20.9 – 36.0)</td>
<td>55.6 (49.0 – 62.1)</td>
<td>58.9 (54.7 – 63.1)</td>
<td></td>
</tr>
</tbody>
</table>

*P values are based on two-sided Generalized Score Tests for equality of means across 4 groups

- Mean follow-up time is balanced across treatment groups
- The distribution of eligible actions is balanced across treatment groups

Grunfeld et al. BMC Family Practice 2013;14:175
BETTER Results

<table>
<thead>
<tr>
<th>INTERVENTION</th>
<th>Mean Summary Quality Index score</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONTROL</td>
<td>0.21</td>
</tr>
<tr>
<td>PRACTICE FACILITATION</td>
<td>0.28</td>
</tr>
<tr>
<td>PATIENT FACILITATION</td>
<td>0.54</td>
</tr>
<tr>
<td>BOTH</td>
<td>0.58</td>
</tr>
</tbody>
</table>
### BETTER Results: Summary of Eligible Actions and Actions Accomplished by Stratum

<table>
<thead>
<tr>
<th>Stratum 1: General health patients; N</th>
<th>Control 119</th>
<th>PF Only 107</th>
<th>PP Only 129</th>
<th>PF/PP 158</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eligible Actions</td>
<td>8.9 ± 3.3</td>
<td>8.4 ± 3.1</td>
<td>8.5 ± 3.0</td>
<td>9.0 ± 3.0</td>
<td>0.80</td>
</tr>
<tr>
<td>Actions Accomplished</td>
<td>1.9 ± 1.7</td>
<td>2.7 ± 2.3</td>
<td>4.8 ± 2.5</td>
<td>5.3 ± 2.5</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>COMPOSITE INDEX (CI)</td>
<td>21.5 ± 16.8</td>
<td>30.3 ± 24.1</td>
<td>57.7 ± 25.1</td>
<td>59.7 ± 23.4</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Adjusted (CI)</td>
<td>23.5 (19.3 - 27.7)</td>
<td>31.6 (22.9 – 40.4)</td>
<td><strong>60.0 (52.8 – 67.2)</strong></td>
<td>60.3 (55.6 - 65.1)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Stratum 2: Mental health patients; N</th>
<th>64</th>
<th>43</th>
<th>80</th>
<th>77</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eligible Actions</td>
<td>9.5 ± 3.5</td>
<td>8.8 ± 3.4</td>
<td>9.6 ± 3.3</td>
<td>9.6 ± 3.5</td>
</tr>
<tr>
<td>Actions Accomplished</td>
<td>1.9 ± 1.8</td>
<td>2.4 ± 2.2</td>
<td>4.5 ± 2.9</td>
<td>5.3 ± 2.9</td>
</tr>
<tr>
<td>COMPOSITE INDEX (CI)</td>
<td>20.1 ± 18.7</td>
<td>23.6 ± 21.7</td>
<td><strong>47.1 ± 26.2</strong></td>
<td>55.7 ± 24.8</td>
</tr>
<tr>
<td>Adjusted (CI)</td>
<td>21.0 (13.3 – 28.8)</td>
<td>21.3 (11.9 – 30.6)</td>
<td><strong>46.6 (39.4 – 53.7)</strong></td>
<td>57.0 (52.3– 61.7)</td>
</tr>
</tbody>
</table>

* P values are based on two-sided Generalized Score Tests for equality of means across 4 groups.
BETTER: Building on Existing Tools to Improve Chronic Disease Prevention and Screening

Outline of the Presentation

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• The BETTER trial
• BETTER tools and resources
• Conclusion
BETTER: Conclusion

• The core elements of BETTER
  • Primary care setting
  • Patient-level intervention
  • Prevention Practitioner trained in chronic disease prevention and screening
  • An integrated approach for chronic diseases (heart disease, diabetes, cancer plus underlying lifestyle factors (smoking, diet, exercise, alcohol)
  • Personalized prevention prescription

• The BETTER multifaceted approach is effective in high-resourced setting
• Effectiveness in under-resourced settings needed to be established
thank you
BETTER Trial: Design Schema

Toronto

Primary Care Teams

Primary Care Physicians (R)

Patients (RS)
28 per Primary Care Physician

Edmonton

Practice Intervention

Practice Wait-list Control

Patient Intervention

Patient Wait-list Control

R Random Allocation

RS Random Selection
Design Schema
Is the practice-level intervention alone effective?

Outcome measure
Design Schema
Is the patient-level intervention alone effective?

Outcome measure

Practice Intervention  C  Practice Wait-list Control  C  Patient Intervention  C  Patient Wait-list Control

Toronto

Edmonton

Primary Care Teams (R)
Primary Care Physicians (R)
Patients (RS)
28 per Primary Care Physician

Random Allocation
RS  Random Selection

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Design Schema

Is a combination of practice-level and patient-level interventions effective?

Outcome measure
Design Schema
Is neither intervention effective?

Outcome measure

Toronto

Edmonton

Primary Care Teams (R)

Primary Care Physicians (R)

Patients (RS) 28 per Primary Care Physician

Practice Intervention

Practice Wait-list Control

Patient Intervention

Patient Wait-list Control

R Random Allocation

RS Random Selection

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