Multi-level factors influence the implementation and use of complex innovations - synoptic reporting tools - in cancer care

Robin Urquhart\textsuperscript{1}, Geoffrey Porter\textsuperscript{1,2}, Joan Sargeant\textsuperscript{3}, Lois Jackson\textsuperscript{4}, Eva Grunfeld\textsuperscript{5}

\textsuperscript{1}Cancer Outcomes Research Program, Capital Health/Dalhousie University; \textsuperscript{2}Department of Surgery, Dalhousie University; \textsuperscript{3}Division of Medical Education, Dalhousie University; \textsuperscript{4}School of Health and Human Performance, Dalhousie University; \textsuperscript{5}Ontario Institute for Cancer Research and Department of Family and Community Medicine, University of Toronto
Background
Knowledge to practice

• Moving knowledge into healthcare practice is a significant challenge

• Critical issues relate less to dissemination and more to implementation\(^1,2\)

• Characterized by *action*
  “The transition period during which targeted organizational members ideally become increasingly skilled, consistent, and committed in their use of an innovation”\(^3\)

• Relatively little research on innovation implementation in healthcare\(^4\)

\(^1\)Glasgow & Emmons 2007
\(^2\)Green et al 2009
\(^3\)Klein & Sorra 1996
\(^4\)Alexander 2008
Objective

• To examine the key interpersonal-, organizational-, and system-level factors that influence the implementation and use of synoptic reporting tools (SRTs) in three cases of cancer care
## TREATMENTS FOR BREAST CANCER

**Was surgery delayed for any reason:**
No delay (<30 days)

### PREOPERATIVE ASSESSMENT

- **Current pregnancy:** No
- **Past Personal History:** None
- **Genetic Testing:** None
- **Contraindications to radiotherapy:** No
- **Patient candidate for breast conservation:** Yes

### PALPABLE LESION

- **Distance from Nipple:** Peripheral

### PREOP TREATMENT

- **Preop Treatment:** No

### METASTATIC WORKUP

- **Metastatic work up:** Negative

### BREAST SURGERY

- **Specify surgery:** Unilateral
- **Specify side:** Right
- **Current diagnosis:** Invasive
- **Nipple removed:** No

- **Breast surgery performed:** Breast Conservation
- **Indications:** Primary excision
- **Specify breast:** Right

### LYMPH NODE SURGERY

- **Unilateral lymph node surgery:** right breast
- **Lymph node surgery:** axillary node & sentinel node dissection
- **Preop lymphoscintigraphy:** Yes
- **Number of nodes seen:** 1
- **Site of nodes:** Axilla
- **Localization Technique used:** Technetium
- **Sentinel nodes:** Clinically negative
- **Node 1:** Radioactive
- **Counts excised:** 300

### BMI

- **Normal (18.5-24.9)**

### Size of breast

- **Medium (B)**

### Method of detection

- **Patient/family**

### Palpable

- **Yes**

### Can be seen on

- **Mammogram, U/S, MRI**

### Preop Biopsy

- **Core Mammmotome**

### Clinical Axillary Node Status

- **Negative**

### Other nodes

- **None**

### Clock Position

- **9**

### Tests Done

- **Bloodwork, CXR**

### Invasive TNM

- **Unifocal**
- **Size of Tumor:** 2.0-2.9
- **Clinical Stage:** IIA

### Skin excision with specimen

- **Yes**

### Depth of resection

- **To fascia**

### Margins checked by pathologist

- **Gross assessment**
- **If checked:** negative
- **Centimeters clinically negative margin:** 0.5-1

### Needle localization

- **No**

### Clips in segmental site

- **No**

### Axillary dissection performed using

- **Same incision as breast surgery**

### Axillary vein seen

- **Yes**

### Latissimus dorsi identified

- **Yes**

### Latissimus cleared

- **Yes**

### Medial limits of axillary dissection identified

- **Lateral border of pectoralis minor (level 1), medial border of pectoralis minor (level 2)**

### Serratus anterior identified

- **Yes**

### Serratus anterior cleared

- **Cleared**
Methods
Study design

• Case study methodology\textsuperscript{5,6}

• Explanatory
  – Focus on ‘how’ and ‘why’

• Multiple cases
  – 3 cases of SRT implementation in Nova Scotia

\textsuperscript{5}Yin 2009
\textsuperscript{6}Stake 2006
Three cases

1. Synoptic reporting in the Nova Scotia Breast Screening Program (NSBSP)

2. Synoptic reporting in the Colon Cancer Prevention Program (CCPP)

3. Surgical Synoptic Reporting Tools Project (SSRTP)
Data sources

• In-depth interviews with key informants

• Documents
  – Project plans, project evaluations, communication materials
  – Legislation, health system/service evaluations

• Non-participant observation
  – 6 training sessions (SSRTP case only)

• Physical artifacts
## Key informants

<table>
<thead>
<tr>
<th></th>
<th>NSBSP</th>
<th>CCPP</th>
<th>SSRTP</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Implementation team</strong></td>
<td>3</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td><strong>Clinician users</strong></td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>1 tertiary, 3 community</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 community</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Organization</strong></td>
<td>5</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>2 tertiary, 3 community</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 community</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>System</strong></td>
<td>3</td>
<td>5</td>
<td>5</td>
</tr>
</tbody>
</table>

|       | 15 | 19 | 21 |

*Methods*
Analysis

1. Case history/description

2. Separate analysis for each case
   a) Thematic analysis
   b) Explanation building
      - Iterative, flexible process of moving between prior and case-specific knowledge
   c) Presentation of findings

3. Cross-case analysis

7Braun & Clarke 2006
Key results
Cases

**Nova Scotia Breast Screening Program**
- 2 SRTs
- Mid 1980s
- Slow expansion
- All use screening SRT (*policy*)

**Colon Cancer Prevention Program**
- 1 SRT
- 2009-2010
- Rapid expansion
- All using for screening (*policy*)

**Surgical Synoptic Reporting Tools Project**
- 1 SRT
- 2010-2011
- Pilot project, 2 tertiary & 1 community hospitals
- Voluntary use

*Nova Scotia healthcare system*
<table>
<thead>
<tr>
<th></th>
<th>NSBSP</th>
<th>CCPP</th>
<th>SSRTP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stakeholder involvement&lt;sup&gt;a&lt;/sup&gt;</td>
<td>+/-</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>Managing the change process&lt;sup&gt;a&lt;/sup&gt;</td>
<td>-</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>Champions &amp; respected colleagues&lt;sup&gt;b&lt;/sup&gt;</td>
<td>+/-</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Administrative &amp; managerial support&lt;sup&gt;b,c&lt;/sup&gt;</td>
<td>+/-</td>
<td>+/-</td>
<td>+</td>
</tr>
<tr>
<td>Innovation attributes&lt;sup&gt;d&lt;/sup&gt;</td>
<td>+/-</td>
<td>+/-</td>
<td>+/-</td>
</tr>
<tr>
<td>Implementation approach&lt;sup&gt;a&lt;/sup&gt;</td>
<td>+</td>
<td>+/-</td>
<td></td>
</tr>
<tr>
<td>Project management&lt;sup&gt;a&lt;/sup&gt;</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resources&lt;sup&gt;b&lt;/sup&gt;</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Culture&lt;sup&gt;b&lt;/sup&gt;</td>
<td>+</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leadership&lt;sup&gt;b&lt;/sup&gt;</td>
<td>+</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monitoring &amp; feedback&lt;sup&gt;b&lt;/sup&gt;</td>
<td>+</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Socio-political context&lt;sup&gt;c&lt;/sup&gt;</td>
<td></td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

<sup>a</sup> Interpersonal level; <sup>b</sup> Organizational level; <sup>c</sup> System level; <sup>d</sup> Innovation level
Complexity of implementation

• Deviations from planned paths
  – Timelines and resource requirements changed
  – SRT not implemented as planned
  – SRT implemented, used, and abandoned

• Did not occur in clearly delineated stages

• Many discussed frustrations and setbacks
Discussion
Seeing the ‘forest’

1. Relationships are incredible enablers
   – Stakeholder involvement, clinical champions

2. A top-down, policy-driven approach works –
   ▶ Resistance
   ▶ Effective implementation?

3. The “macro” level needs to be considered before/during implementation
### Extending our understanding

<table>
<thead>
<tr>
<th>Issue</th>
<th>What this study adds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organizational management</td>
<td>• Middle managers can have large effects on implementation</td>
</tr>
<tr>
<td></td>
<td>• Reasons for low support of middle managers</td>
</tr>
<tr>
<td>Interpersonal aspects of implementation</td>
<td>• More developed, nuanced picture of how stakeholder involvement and relationships may impact implementation</td>
</tr>
<tr>
<td>Healthcare system components</td>
<td>• More developed, nuanced picture of numerous system components that may impact implementation</td>
</tr>
<tr>
<td>Nature of facilitation</td>
<td>• Facilitation may be defined as a set of activities deliberately employed to ease implementation</td>
</tr>
<tr>
<td></td>
<td>• Facilitation may be viewed as a team or organizational capacity</td>
</tr>
<tr>
<td>Complexities of implementation</td>
<td>• Description of the complex, non-linear <em>reality</em> of implementation processes in three cases</td>
</tr>
</tbody>
</table>
Acknowledgments

• Margaret Jorgensen, Cynthia Kendell
• Dr. Mark Dobrow
• CIHR/CCNS Team in Access to Colorectal Cancer Services in Nova Scotia
• Nova Scotia Health Research Foundation
Extra slides
### Implications for *practice*

<table>
<thead>
<tr>
<th>Implication</th>
<th>Potential impact(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Establish collaborative relationships with stakeholders at all levels</td>
<td>Administrative, managerial, and clinical buy-in; sense of ownership</td>
</tr>
<tr>
<td>Communicate about the project and what it means for those affected</td>
<td>Those affected understand the reason for change and how it impacts them</td>
</tr>
<tr>
<td>Provide training and ongoing (easily accessed) support</td>
<td>Increase skill level for use, remove barriers to use</td>
</tr>
<tr>
<td>Acquire high level <em>and</em> mid level support for project</td>
<td>Acquisition and leveraging of resources; influence policy</td>
</tr>
<tr>
<td>Identify, engage, and support provincial and local clinical champions</td>
<td>Leverage relationships; influence policy</td>
</tr>
<tr>
<td>Be willing to work with stakeholders to adapt the innovation to local conditions</td>
<td>Innovation a better “fit” and more likely to be accepted; local ownership</td>
</tr>
</tbody>
</table>