The Design, Implementation and Piloting of the KT-MCC Strategy:
A Knowledge Translation Strategy Aimed at Improving the Quality of Decision Making for Ontario Multidisciplinary Cancer Conferences

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Outline

- What is an MCC?
- What is the evidence?
- Research problem and purpose
- What is progressive KT?
- Phase 1 – Measurement study
- Phase 2 – TDF interview study
- Phase 3 – COM-B and developing KT-MCC Strategy
- Phase 4 – Pilot Study
- Methodological considerations and lessons learned
What are MCCs?

Multidisciplinary meetings that bring together various specialists to prospectively discuss diagnoses and treatment plans for patients with cancer.
What is the evidence?

Systematic or Meta-analysis Studies

The impact of multidisciplinary team meetings on patient assessment, management and outcomes in oncology settings: A systematic review of the literature

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Surgical Oncology Program, Cancer Care Ontario, 620 University Avenue, Toronto, Ont., Canada M5G 2L7
What is the evidence?

• Benefits of MCCs
  • improved processes of care
  • increased collaboration
  • increased patient and physician satisfaction

• Challenges of MCCs
  • unorganized case discussion
  • gaps in teamwork
  • technological gaps
  • time barriers
  • subject to variability
Multidisciplinary Cancer Conferences (MCCs)

Transforming the delivery of cancer care
MCC Measurement Components

1. MCCs are held at least 5x’s per quarter (**if not, entire MCC = 0**)
2. Patient cases are prospectively reviewed
3. Assignment of a MCC Coordinator
4. Assignment of a Chair
5. Surgeon
6. Medical Oncologist
7. Pathologist
8. Radiation Oncologist
9. Radiologist
   - *Nursing attendance is preferred though not required*

Attendance 75% of the time

**NOTE:** Not every disease requires every discipline. E.g., No surgeon at hematology MCCs

= Each MCC receives a score out of 7-9
Although...

Access

Quality
To use progressive KT methods to design, implement and pilot an intervention to improve MCC decision making quality in Ontario.
Progressive KT?

Knowledge Translation

- Dynamic and iterative process that includes synthesis, exchange and ethically-sound application of knowledge to improve the health of Canadians, provide more effective health services and products and strengthen the health care system
KT vs QI vs IS?

Grimshaw et al, 2012
“across different healthcare systems, different terms describe these efforts including quality improvement, knowledge translation, knowledge utilisation..etc.”

Donabedian, 1982
“we have used these words in so many different ways that we no longer clearly understand each other when we say them”

Straus et al., 1982
“kt and qi have similarities but are not identical. Qi is by nature more local and less generalizable than kt.”
Lost in MCCs: time for a map?

- Part 1: Can we reliably measure MCC quality?
- Part 2: What barriers & facilitators influence optimal MCC decision making?
- Part 3: Designing an intervention to overcome barriers and leverage facilitators
- Part 4: Piloting the KT-MCC Strategy
## Part 1: Measurement study

<table>
<thead>
<tr>
<th><strong>Purpose</strong></th>
<th><strong>Methods</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Evaluate reliability of MTB-MODE</td>
<td>Generalizability Theory</td>
</tr>
<tr>
<td>Confirm b&amp;f to optimal MCC decision making</td>
<td>Field notes; Observations</td>
</tr>
</tbody>
</table>
**MTB-MODe**

### MDT Performance Assessment Tool

<table>
<thead>
<tr>
<th>Category</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Case History Information</td>
<td>No patient case history</td>
<td>Partial case history</td>
<td>Fluent, comprehensive case history</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Radiological Information</td>
<td>No provision of radiological information</td>
<td>Radiological information from a report/account</td>
<td>Review of radiological images</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pathological Information</td>
<td>No provision of pathological information</td>
<td>Pathological information from a report/account</td>
<td>Review of pathological images</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MDT Chair</td>
<td>Leadership impeding information presentation/discussion/decision making</td>
<td>Leadership neither enhancing or impeding information presentation/discussion/decision making</td>
<td>Leadership enhancing information presentation/discussion/decision making</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surgeons</td>
<td>Nil/ impedes contribution of others</td>
<td>Contribution insincere or vague</td>
<td>Articulate and precise specialty related contribution</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oncologists</td>
<td>Nil/ impedes contribution of others</td>
<td>Contribution insincere or vague</td>
<td>Articulate and precise specialty related contribution</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Radiologists</td>
<td>Nil/ impedes contribution of others</td>
<td>Contribution insincere or vague</td>
<td>Articulate and precise specialty related contribution</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Histopathologists</td>
<td>Nil/ impedes contribution of others</td>
<td>Contribution insincere or vague</td>
<td>Articulate and precise specialty related contribution</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clinical Nurse Specialist</td>
<td>Nil/ impedes contribution of others</td>
<td>Contribution insincere or vague</td>
<td>Articulate and precise specialty related contribution</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
findings

• Overall reliability: 0.72-0.74
  ✓ Reliable in our context
• IRR: 0.56-0.58; r variance: >1%
  ✓ Used by 1 rater
• Internal consistency: 0.15-0.19; i:d variance: 50.1%
  ✓ Each item can generate specific feedback
<table>
<thead>
<tr>
<th>Purpose</th>
<th>Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identify barriers and facilitators to optimal MCC decision making…</td>
<td>Key Informant Interviews (n=21)</td>
</tr>
<tr>
<td>…using a theoretical framework</td>
<td>Theoretical Domains Framework</td>
</tr>
</tbody>
</table>
Theoretical Domains Framework

- 14 domains within
  - Capability
  - Opportunity
  - Motivation
- These may be barriers or facilitators to desired practice
- Identifies areas to change in designing interventions
<table>
<thead>
<tr>
<th>TDF Domain</th>
<th>Barrier</th>
<th>Facilitator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Memory, Attention &amp; Decision Processes</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Environment</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Social Influences</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Social, Professional Role and Identity</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Emotion</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Beliefs about Capabilities</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Beliefs about Consequences</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Reinforcement</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Optimism</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Skills</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Intentions</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Goals</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Behavioural regulation (see ‘beliefs about consequences’)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Findings

• **Barriers**
  • Gaps in leadership
  • Gaps in soft skills
  • Unorganized case presentation
  • Technological barriers
  • Lack of time to prepare for/participate in MCCs
  • Differences by specialist group

• **Facilitators**
  • Increased collaboration, skills, learning
  • Patient preference
  • Intrinsic motivation
  • No differences by specialist group
Application

✓ MCC decision making complex, multi-dimensional
✓ Multi-pronged intervention likely required
✓ Some differences by specialty group (barriers)
× Unable to rank strength of identified b&f
## Part 3: TDF to COM-B

<table>
<thead>
<tr>
<th>Purpose</th>
<th>Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Validate key informant data</td>
<td>Focus groups (n=3)</td>
</tr>
<tr>
<td></td>
<td>Likert surveys</td>
</tr>
<tr>
<td>Develop KT-MCC Strategy</td>
<td>COM-B to TDF mapping process</td>
</tr>
<tr>
<td>Confirm face validity of KT-MCC Strategy</td>
<td>Focus groups</td>
</tr>
</tbody>
</table>
COM-B

- **Capability**: the individual’s psychological and physical capacity to engage in the activity concerned
  - Physical
  - Psychological

- **Motivation**: the brain processes that energize and direct behaviour, not just goals and conscious decision-making
  - Reflective processes (evaluations and plans)
  - Automatic processes (emotions and impulses)

- **Opportunity**: all the factors that lie outside the individual that make the behaviour possible or prompt it
  - Physical
  - Social

*Definitions taken from Michie et al., IS, 2011, 6:42*
TDF to COM-B
KT-MCC Strategy

- Workshops to develop local consensus processes
- Chair Training
- Team Training
- Standard Intake Form and Synoptic Discussion Tool
- Audit and Feedback
Application

✓ Confirmed b&f to optimal decision making
✓ Barriers vary by specialists
✓ KT-MCC Strategy developed
✓ Confirmed face validity of KT-MCC Strategy …but anticipated modification of Strategy at team/chair level
## Part 4: Pilot Study

<table>
<thead>
<tr>
<th>Purpose</th>
<th>Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pilot KT-MCC Strategy to determine feasibility of implementation and</td>
<td>Before and After Prospective Trial</td>
</tr>
<tr>
<td>potential impact of intervention on MCC decision making quality</td>
<td></td>
</tr>
</tbody>
</table>
Methods

Baseline
Feedback to chairs
Presentation to teams
Intervention selection
Evaluation
Outcomes

• Feasibility of Implementation
  • Data collection
  • Participation by MCC teams and chairs
  • Compliance with synoptic reporting form and standard intake form

• Impact
  • Quality per case (MTB-MODe)
  • Quality per round (MTOT)
  • Time per case
  • Rate of Change
Findings

• Feasibility
  • Site selection
  • Data collection
## Participation

<table>
<thead>
<tr>
<th>KT-MCC Strategy Component</th>
<th>MCC Team 1</th>
<th>MCC Team 2</th>
<th>MCC Team 3</th>
<th>MCC Team 4</th>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local consensus processes</td>
<td>4.07</td>
<td>4.38</td>
<td>3.60</td>
<td>3.56</td>
<td>3.90</td>
</tr>
<tr>
<td>Team Training</td>
<td>2.76</td>
<td>3.00</td>
<td>2.80</td>
<td>2.67</td>
<td>2.81</td>
</tr>
<tr>
<td>Chair Training</td>
<td>3.54</td>
<td>3.25</td>
<td>4.07</td>
<td>3.45</td>
<td>3.58</td>
</tr>
<tr>
<td>Audit and Feedback</td>
<td>3.92</td>
<td>4.13</td>
<td>4.00</td>
<td>4.22</td>
<td>4.07</td>
</tr>
<tr>
<td>Standard intake form &amp; Synoptic Reporting Form</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>N/A: intervention selected by chairs at baseline</td>
</tr>
</tbody>
</table>
## Compliance

<table>
<thead>
<tr>
<th>MCC</th>
<th>Range</th>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>48-100%</td>
<td>88.3%</td>
</tr>
<tr>
<td>2</td>
<td>20-74%</td>
<td>71.6%</td>
</tr>
<tr>
<td>3</td>
<td>82-100%</td>
<td>91.1%</td>
</tr>
<tr>
<td>4</td>
<td>60-95%</td>
<td>80%</td>
</tr>
</tbody>
</table>
## Impact – per case

<table>
<thead>
<tr>
<th></th>
<th>Pre</th>
<th>Post</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Overall</strong></td>
<td>32.3</td>
<td>31.2</td>
<td>0.42</td>
</tr>
<tr>
<td><strong>Quality of Information</strong></td>
<td>17.1</td>
<td>16.6</td>
<td>0.42</td>
</tr>
<tr>
<td><strong>Quality of Teamworking</strong></td>
<td>15.2</td>
<td>14.8</td>
<td>0.49</td>
</tr>
</tbody>
</table>
**Impact – per round**

- Attendance
- Leadership
- Team sociability
- Mutual respect
- Meeting venue
- Technology and equipment

- Agenda
- Prioritization of case presentation
- Clarity of treatment plans
- Personal development
- Availability of patient notes

<table>
<thead>
<tr>
<th>Pre</th>
<th>Post</th>
<th>p-value</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>41.59</td>
<td>47.66</td>
<td>0.013</td>
<td>11%</td>
</tr>
</tbody>
</table>
Other Findings

• MTB-MODe scores positively correlated with:
  • Presentation of a case by the MRP
  • Provision of original treatment plan by MRP
  • Submission of case by MCC deadline
Other Findings

• No change in time per case (359s to 350s, p=0.70)

• Rate of treatment change: 48%
  • Independent of physician confidence
Summary of Findings

• Feasible, but some gaps in compliance
• No effect of KT-MCC Strategy on per case quality
• Marginal effect on per round quality
• Chairs as gatekeepers to MCC quality
• Need for iterative testing
• Progressive KT methods feasible, additional research needed for impact
Methodological Observations and Lessons Learned

• Weighted analysis of TDF findings
• Operationalization of COM-B
• Unrealized promise of iKT on engagement
• Need for iterative testing
• Re-thinking MCCs
## Weighted analysis of TDF findings

- ✓ TDF Feasible
- ✓ Few Resources
- ✓ Can be used iteratively to further tailor intervention
- X Cannot weight barriers and facilitators
Operationalization of the COM-B

- Link to intervention functions needed

- Michie interactive tool (BCCT v1 and v2)
Unrealized promise of iKT on engagement

• Does iKT = improved clinical/ systems outcomes?

• iKT evidence
  • Gagliardi et al.
    • iKT not clearly described, reported, evaluated
    • Not clear how theory used to develop iKT
    • Participant engagement often unknown
need for iterative testing

- Resource constraints a limitation
- Expect improved compliance and potential intervention effect with additional iterations
re-thinking mccs

- Oxenberg et al.
  - 36% change in treatment plan
- Physicians unable to predict cases leading to change
- Should increase efficiency while improving quality
Thank you