Using Outcome Harvesting as a Program Evaluation Tool for CBME Implementation at Queen’s University

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Introduction

• In 2017, Queen’s University successfully transitioned all 29 specialty programs from time-based to competency-based.

• The purpose of this study was to identify outcomes to assist with the understanding of how CBME implementation was achieved.

• Outcome Harvesting (Wilson-Grau) was selected as one of the methods of evaluating the efficacy of the implementation.
Methods

Why Outcome Harvesting?

- Outcome Harvesting (Wilson-Grau) was used to evaluate the implementation process by identifying the intended and unintended outcomes of the CBME implementation.
- Outcome Harvesting does not measure progress towards predetermined goals or objectives, but rather collects evidence on what has been achieved and works backwards to determine whether, and how, the intervention contributed to the change.
Method
Outcome Harvesting Process:

Six steps

1. Design the harvest
2. Review documentation (N=448) and draft outcomes (N=38)
3. Engage with informants
4. Substantiate
5. Analyse, interpret
6. Support use of findings

Document Analysis:

- N=448 Documents analyzed
- N=58 Outcomes identified
- N=38 Outcomes substantiated
Results

Number of outcomes per implementation area

![Bar chart showing the number of outcomes per implementation area. Governance has the highest number, followed by Assessment, Communications, Scholarship, Resident Leadership, Technology, Curriculum, and Faculty Development.]
## Results
### Sample outcomes

<table>
<thead>
<tr>
<th>Outcome Area</th>
<th>Short Outcome Description</th>
<th>Intended/Unintended</th>
<th>Significance</th>
<th>Contribution</th>
<th>Artifacts</th>
</tr>
</thead>
</table>
| Governance    | Creation of departmental CBME Lead Role         | Intended            | In 2015, the governance team, along with the SEAMO Accountability Board, adjusted the FTE requirements for Program Directors and added the role of CBME Lead for each department                                                                                   | Demonstrates Executive Team’s support of the project by way of changing structure, adding resources and funding to ensure the change is implemented. Also important as CBME Leads developed their own community of practice                                                                 | *CBME Lead Role description  
*CBME Ed Consultant role description  
*CBME Executive Team Meeting Notes |
| Assessment    | Establishing technology-driven assessment        | Intended            | To enable more frequent assessments, and more point of care assessments.                                                                                                                                                                                                 | The contribution of technology-driven curriculum meant that residents were able to reap the benefits of real-time, point-of-care technology enabled assessment.                                                                 | *Elentra system requirements doc  
*Notes from PL workshops  
*Executive Team Notes |
| Communication | No implementation of the MSF form for AHPs to contribute to resident progression | Unintended          | It is significant as the voice of relevant assessors would not be easily captured for this particular group of residents. Residents were unable to trigger assessments for this group. A communication strategy was planned for this group, however not executed properly. | Program Directors, CBME Leads and MEdTech did not establish this stakeholder group and their assessment as priority under time constraints. It was also difficult for AHPs to get access to form and login credentials. Not enough information/communications were supplied resulting in poor or non-point-of-observation, manually completed forms | *MSF forms done manually  
*Notes from PL workshops  
*Notes from Executive meetings  
*Notes from Assessment Committee meetings  
*MSF communications poster  
*Cart circulation with MSF sign-up |
## Results

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| Resident Leadership | Residents as national leaders in co-creating CBME.             | Unintended |            | Residents being recognized as national leaders help establish Queen's as a national leader, and in turn, inspired other Universities to take our lead and develop a similar approach to implementation.                                                                                                                                                                                                                       | Contributions that lead to this outcome include resident subcommittee meeting discussions, the creation of the CBME Resident Lead role as formal member of Exec team, resident publications and resident scholarship                                                                                             | *Resident Scholarship*  
*Resident leadership at RC  
*Blog Publications (CanadiEM) *Dean’s Blog, PARO, Scholarship                                                                                                     |
| Scholarship        | Faculty and resident participation in CBME scholarship         | Intended |            | Increase in scholarship demonstrates stakeholder buy-in and commitment to continuous improvement of CBME by way of studying CBME. This was significant as it also established Queen’s as a credible leader in competency-based medical education through research and results.                                                                                                    | Contributions from CBME scholarship day, scholarship sessions at CBME workshops and scholarship consults assisted in encouraging and coaching those interested in studying CBME to move forward with research studies. Also, a fund was established to financially support CBME related scholarship.                                                   | *List of numbers of conference *presentation and FHS *publications since 2014 |
| Faculty Development | Engagement of non-faculty through faculty development sessions. | Unintended |            | The significance of this behaviour from this stakeholder group meant that we had now extended our reach, had additional collaborators and partners in the co-creation of CBME.                                                                                                                                                                                                                   | Contributions that lead to this outcome include attendance at workshops, feedback on workshop evaluations. The development of the educational consultant role also contributed to the engagement of non-PDs and CBME lead roles as they have a holistic view of each department’s transition and were able to identify that program administrators and residents would also benefit in attending faculty development sessions. | *Attendance at workshops  
*PL workshop evaluations  
*Content of workshops                                                                                                                            |
# Results

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</thead>
</table>
| Technology   | Increased proficiency in the utilization of technology from CBME stakeholders | Intended | This is significant as obtaining technical proficiency in CBME systems is crucial to the success of assessment of residents | Contributions leading to increased proficiency with Elentra include training sessions, CBME Central, handouts, hiring of CBME Training lead, | *CBME Central*  
*Training handouts*  
*number of assessments in Elentra*  
*AA/CC use of aggregated reports* |
| Curriculum   | Collaborative creation of EPAs for transition to discipline and foundation of disciplines stage of training. | Intended | The development of a CBME curriculum was dependent on the actions of the program leaders to initiate curricular change in their departments by way of creating EPAs. | Contributions the collaborative creation of the curriculum include iterations of EPAs, Delphi surveys and the pre-conditioning of participant and expectations laid out by the Exec committee and the Royal College | *EPA dashboards*  
*EPA drafts*  
*Delphi surveys* |
Discussion

Outcome Harvesting helped us answer the following questions, which created a statement report which will be used to inform program improvement and sustainability:

*In which way did social actors involved with CBME influence the change to CBME curriculum?*

*How do the outcomes represent progress towards the shift to a CBME curriculum?*

*What were the intended and untended consequences of implementing CBME in postgraduate medical education at Queen’s?*
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Logic Model

CBME Program Evaluation

Outcome Harvesting

Harvest Questions

1. In which way did social actors involved with CBME influence the change to CBME curriculum?

2. How do the outcomes represent progress toward the intended outcome of changing to a CBME curriculum?

3. What were the intended and unintended consequences of implementing CBME in PGME at Queen’s University?

<table>
<thead>
<tr>
<th>Focus</th>
<th>Input</th>
<th>Output</th>
<th>Outcomes—Intended</th>
<th>Outcomes—Unintended</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stakeholder</td>
<td>Harvest Design Staff Time</td>
<td>Data collection</td>
<td>CBME stakeholders</td>
<td>Identify intended and unintended</td>
</tr>
<tr>
<td>experience</td>
<td></td>
<td>Data analysis</td>
<td>CBME Executive Team</td>
<td>outcomes</td>
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<tr>
<td>8 project areas</td>
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<td>Statement Report and</td>
<td>CBME research associates</td>
<td>Thematic categorization</td>
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<td>Recommendations</td>
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<td>Identify changes in</td>
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<td>relationships, policy, documents,</td>
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<td>attitudes, behaviors.</td>
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<td>Assess how the program can</td>
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<td>contribute to the process of</td>
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<td>change</td>
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<td>Recommendations for future</td>
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<td>implementations</td>
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<td>Determine how/if any unintended</td>
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<td>outcomes contributed either</td>
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<td>positively, or negatively, to</td>
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<td>CBME implementation.</td>
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<td>Determine any unrelated</td>
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<td>consequences of CBME and define</td>
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<td>outcome.</td>
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