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EXECUTIVE SUMMARY

The BC Ministry of Health’s Clinical Care Management (CCM) initiative provides a case study for how to achieve large-scale change within the complexity of BC’s health system. A study by the InSource Research Group used a systems perspective to look at factors that help or hinder province-wide implementation of clinical guidelines in varying contexts, with a broader goal of understanding how to better manage large system change.

The study used focus group sessions and interviews with a wide range of individuals with CCM implementation experience – including clinicians, administrators, senior executives and board members – from every health authority in the province. Initial findings were validated through an online survey distributed to a large group of people with CCM implementation experience.

Informed by the results of this process, two sets of considerations were developed. The first set is focused on CCM implementation and provides action-oriented strategies for improving the success of future CCM initiatives. The second outlines a series of six broad guidelines and supporting strategies for managing large-scale transformation within BC’s health system.

CCM Strategies

InSource developed seven strategies for improving the success of future CCM initiatives. These strategies are informed by the findings of our research into CCM implementation efforts to date and aligned with our related guidelines for large system change. A condensed outline of the CCM strategies is presented below.

i. What: Ensure local champions are involved to spearhead the initiative.
How: Identify clinically respected local leaders who believe in the initiative and agree to help promote it among their colleagues.

ii. What: Allow for local adaptation of guidelines to gain progress with CCM initiatives.
How: Explore the possibility of setting broad provincial goals and allowing sites to set local goals.

iii. What: Enable local teams to guide local adaptation/implementation of CCM.
How: Promote informal CCM networks involving teams of clinicians, front-line staff and managers.

iv. What: Avoid change fatigue among local managers, clinicians, and front-line staff
How: Reduce the number of active focus areas for the CCM initiative.

v. What: Ensure the health authorities have the resources required to support CCM.
How: Share information and coordinate efforts with health authorities to streamline CCM implementation and manage resource requirements.

vi. What: Ensure consistent messaging in all CCM-related communication. Make CCM easy to understand and accept for front-line care providers.
How: Develop a communication strategy and consult/partner with HA communication teams for regional/local implementation. Frame CCM communication in an engaging way, using personalized “story-telling” and real-life examples.

vii. What: Provide a means for local teams to chart their progress with CCM implementation. Also provide a means for demonstrating the clinical value of CCM implementation to clinical teams.
How: Ensure timely, locally-relevant CCM data is available for front line staff and clinicians.
Establish outcome-based metrics for CCM initiatives that can be reliably captured and are accepted as valid.

**Guidelines for Large System Change**
InSource also developed a set of guidelines for managing large system change (LSC) within BC’s health system. The table below offers a condensed version of these guidelines and their supporting strategies.

**Table 1. Condensed guidelines for large system change**

| I. Prepare for health system transformation initiatives to evolve. |
| Set broad goals provincially and allow participating sites to choose areas to focus on. |
| Identify local champions and connect the initiative to issues relevant to local clinicians and managers. |
| Use change management methods to prepare people for the unexpected difficulties and successes that will occur. |
| Abandon low-yield change initiatives and wrap up/celebrate the winners. Then: |
| • Get local teams to assess “lessons learned” from the initiative and to identify new priorities. |

| II. Clear a path through the complexity. |
| Leaders should develop simple goals to help focus system change efforts. |
| • Executives (within MoH and HAs) should frame LSC initiatives in relation to organizational strategies. |
| • Front-line staff should be good at identifying clinical priorities. |
| • Administrators/middle managers must work closely with front-line staff and demonstrate support for change by providing resources, addressing capacity issues, helping with guideline development, and providing useful/timely measurement of progress. |

| III. Promote shared clinical leadership. |
| Ensure physician engagement in LSC by presenting the supporting evidence. |
| Support inter-professional team practice. |

| IV. Strengthen knowledge management. |
| Develop valid key indicators of change that can be reliably captured. |
| • Use key indicators to generate discussion and as basis for comparing progress across teams, sites and regions. |
| Provide local outcomes data on a timely and regular basis. |
| Help front-line clinicians understand their role and the effects of their actions related to LSC. |

| V. Develop an ongoing communication strategy to support change initiatives. |
| Engage with HA communication teams for local/regional implementation of strategy. |
| Frame communication about LSC in a way that people find personally engaging, using stories and conversation based on local/personal experience. |

| VI. Recognize the effectiveness of networks. |
| Encourage local managers, clinicians and front-line staff to form teams that work and learn together. |
| • Use these teams to handle emerging issues and to help guide/implement change initiatives. |
The vision for BC’s health system is articulated in the BC Ministry of Health’s (MoH) Innovation and Change Agenda. Focusing on health system transformation, one of the key result areas in this agenda is clinical care management (CCM). The goal of CCM is to implement a guideline-driven, evidence-informed approach to delivering care so as to improve the quality, safety and consistency of key clinical services and to improve patient experiences of care. CCM provides a provincial forum to identify, establish and promote best practice clinical guidelines toward achieving continuous quality improvement in the day-to-day delivery of care. Stakeholders in this initiative include MoH, health authorities, specialist and primary care physicians, and the BC Patient Safety & Quality Council (BCPSQC).

CCM has identified 11 clinical care areas for guideline implementation: hospital care for seniors (48/6), antimicrobial stewardship, stroke, sepsis, surgical site infection, surgery, hand hygiene, heart failure, venous thromboembolisms, medication reconciliation, and critical care related to glycemic control. A clinical expert group (CEG) or an existing committee provided a mechanism for oversight of CEG activities for each area, and each topic area has a clinical and quality lead from BCPSQC who provide linkage between the CEGs and CCM steering committee. The approach to CCM implementation varies within each health authority, depending on local context.

In November 2013 the InSource Research Group was contracted to use implementation of the CCM initiative as a case study to better understand the requirements for achieving large-scale change within BC’s health system.

InSource used a complex system framework to identify and assess the mechanisms that enable and constrain implementation of clinical guidelines in BC’s health authorities, and to examine how these mechanisms operate across clinical care areas and in various local contexts. For this project CCM guidelines in three areas of care were chosen for study: Sepsis; Surgical Checklist and Surgical Site Infection; and Venous Thromboembolism (VTE). These areas were selected in consultation with BCPSQC as representative examples of the CCM initiative overall.
OBJECTIVES

Five objectives guided the development of this work:

1. Engaging a range of key CCM implementation stakeholders in collaborative study to better understand the enablers, constraints, barriers and cultural/contextual factors that influence implementation of clinical guidelines to improve care;

2. Developing standardized protocols for qualitative data collection and analysis to capture and review the various methods used by health authorities to implement guidelines;

3. Analyzing the factors influencing implementation and the interactions amongst them using thematic analysis methodology;

4. Applying a complex adaptive systems lens to findings to develop a systems mapping framework displaying interactions among enabling, constraining and contextual factors, to show how these mechanisms play out in various contexts, and the impacts this has on implementation, adoption and adaptation efforts at the micro, meso and macro levels; and

5. Making suggestions for how the framework and new understandings can address (1) barriers in varying contexts, and (2) enablers of CCM implementation across system levels that could be used to:
   • improve implementation of clinical guidelines in ways that promote system transformation and improved patient experience and outcomes, and
   • scale-up and apply implementation strategies to other health system issues.
There is growing recognition that many of the challenges facing health care today are truly complex problems (cf. Best et al, 2012; deSavigny & Adam, 2009; Meadows, 2008; NCI, 2007). Rittel and Weber (2005) describe them as “wicked” problems, inasmuch as each is unique, difficult to define, and allows no ultimate test confirming its solution.

Complex systems like our health system also challenge efforts at implementing change, making such efforts difficult and unpredictable in their results. Strategies that are effective in one setting may not work in another. And despite the best efforts and intentions, it is highly likely that some parts of a strategy will be less successful than expected.

As summarized in Table 1 below, the properties of complex systems include: the nonlinear and random nature of many relationships within the system; the number and nature of feedback loops within the system; the interconnectedness of risk factors, environmental conditions and policy/practice interventions; the heterogeneity of individuals; and the capacity of the system for adaptation and self-organization (Finegood, 2011).

Addressing complex problems requires identifying key leverage points on which to focus coordinated interventions and creative efforts. These will occur at numerous jurisdictional levels (e.g., regional, provincial, national, international) (Meadows, 2008) and system levels (e.g., paradigm, goals, organizational structures) (Green et al., 2009; Lavis et al., 2006).

Within the health system, these focused efforts require engagement of people and organizations from both...
research and policy/practice, as well as from health and non-health sectors. They must also be tailored to specific contexts and open to ongoing adaptation (Meadows, 2008). Building learning into these efforts by monitoring performance indicators and feedback from patients and care providers enables changes in direction along the way and, if necessary, the abandonment and replacement of approaches that prove ineffective.

The InSource team recently reviewed the literature on large scale change and identified five fundamental strategies supporting successful interventions (Best et al, 2012): (1) blend designated leadership with distributed leadership, to balance bottom-up innovation with top-down support and guidance; (2) establish feedback loops; (3) attend to local context and history; (4) engage physicians; and (5) include input from patients and families.

To sum up: complex adaptive systems are self-organizing and constantly adapt to change; they are driven by interactions between system components and governed by feedback; change is mediated by the actions of multiple independent actors; and they are nonlinear and often unpredictable, with changes in one part of the system producing unexpected changes elsewhere (Holmes, Finegood, Riley, & Best, 2012). A consequence of these features is that they are typically resistant to policy-based approaches to achieving change (Golden & Martin, 2004; Sterman, 2006; Meadows, 2008).
METHODS

For a high-level understanding of enablers and constraints related to CCM implementation, a general model of complex adaptive systems and two specific conceptual frameworks (realist evaluation and system dynamics mapping) were used. Contextual factors affecting outcomes of the CCM initiative were also considered.

Dynamics mapping offers a disciplined approach to understanding interactions among key elements of a system that influence system performance. Realist evaluation goes one step further, providing a framework for understanding these interactions in terms of what works for whom and in what circumstances.

4.1 Algorithm of data collection, analysis and validation process
The process used for acquiring and analyzing data for this project is outlined below in a schematic format. A more complete description of the process and some of the results obtained is provided following the schematic outline.
4.2 Data Collection
The data collection methods used for this project involved an iterative process. Each stage was informed by and built upon the results of previous data collection activity. The data collection tools used for the project are included in the appendix to this report.

4.2.1 Preliminary data collection
At the outset of the project an email survey was sent to the CCM Measurement and Coordination Working Group, with questions about enablers and constraints for CCM implementation. Responses were received from representatives of every health authority. The survey results informed the questions developed for the initial round of interviews. The survey also aided in the selection of three CCM initiatives for the case study: surgery (checklist and surgical site infection), sepsis and venous thromboembolism (VTE).

Initial interviews were conducted by telephone with four cross-cutting CCM leads and four clinical leads from the three chosen initiatives. The results fed into the first iteration of framework diagrams and helped refine the questions for the key informant interviews.

4.2.2 Key informant interviews (KII)
This set of interviews included questions about enablers and constraints and explored the impact of context and culture on the implementation of CCM guidelines. Thirty-eight key informants were interviewed by phone, including seventeen clinicians (RN, MD, pharmacists, etc.), and twenty-one managers/administrators. A similar number of key informants were interviewed from every health authority as well as Providence Health Care.

4.2.3 Focus groups
The purpose of the focus group sessions was to test key themes derived from the KII and to learn about the impact of local context on large-scale change, and in particular on guideline implementation. Enrolling focus group participants from the HAs was a challenge. Three sessions attracted only two or three participants and three others had five to eight participants. Two of the six sessions were held via teleconference due to travel issues for attendees. Of twenty-nine participants in total, nine were frontline clinicians, fourteen were directors or managers, and six were “other” (e.g. analyst, quality lead, Lean lead).

The focus group discussions provided good insight into contextual impacts and issues pertaining to guideline implementation and large-scale change. The high level themes from the KII were discussed in each session and in general, resonated with participants at the sessions.

4.2.4 Scoping literature review
The scoping review was designed to support primary data collection for this project, and provided a focused rather than exhaustive or systematic search of the literature. Medline was used to search for published articles, with a focus on the Health Administration subset. Grey literature sources included McMaster Health Systems Evidence, CIHI, Veterans Affairs, NHS and Google. The search terms selected were based on project team meetings and five key articles provided by BCPSQC staff. The preliminary searches were reviewed by the project team to streamline analysis. Twenty-nine articles and twenty-eight links to grey literature were identified as most promising. These articles were reviewed to produce a subset of documents most relevant to the project. It appears that evidence on best methods for implementing clinical guidelines is very limited and complicated by the degree of variability among organizations and their implementation processes (Evans-Lacko et al 2010; Perla et al. 2011). Nonetheless, novel approaches and key insights were identified and have been discussed and used through the course of this project.
4.2.5 Validation of findings
There were two opportunities for validating the findings from our research for this project. The findings were first presented at the 2014 Quality Forum in Vancouver. The Forum offered a natural opportunity to test out evolving ideas and get feedback. The feedback provided support for the findings and informed development of an online validation survey.

The online validation survey was used to confirm the study’s findings and to get broader buy-in and understanding of the work being done. The survey was piloted by members of the Research Oversight Group and the Large Scale Change Committee before going live for two weeks. Sampling for the survey involved a snowballing process. An initial email was sent to everyone previously invited to participate in a key informant interview and/or focus group. In turn, they were asked to forward the link to colleagues also engaged in CCM initiatives. A note about the survey was also included in the BCPSQC newsletter, and the survey link was posted on the MSFHR website.

The survey generated a total of 132 responses. Among respondents, 118 had involvement with CCM.

4.3 Data Analysis

4.3.1 Qualitative data
All key informant interviews and focus groups were recorded, transcribed and uploaded to NVivo, along with the open-ended responses from the validation survey. Although some thematic categories emerged from the planning meetings, an inductive approach was taken with the data to reduce the risk of pre-determined assumptions influencing data interpretation. The data were coded and sorted into high-level themes and corresponding /representative quotes were selected. The data were reviewed for a second time with emergent themes in mind. This process reduced the potential for overlooking relevance in some of the data, and provided an opportunity for refining and further elaborating on the themes. The document in Appendix 9.5 details the process used to generate the results and strategic considerations for this report.

4.3.2 Quantitative data
Quantitative data from the validation survey were analyzed using Fluid Survey and Excel. All the themes were agreed with strongly, although a couple of themes showed a wider spread of results than others. See Appendix 9.6 for detailed results of the online survey.

4.3.3 Causal loop diagram tool
Causal loop diagrams [CLD], like system dynamics models, are useful tools for “understanding system change” (Willis et al 2011). CLDs use feedback loops to show interactions among the component variables of complex systems; they are simpler and less mathematically-based than system dynamics models, and illustrate how different variables are interrelated. In this case study, CLDs were used to illustrate health care system relationships. Arrows in the diagram indicate a relationship connecting variables, such as "patient concerns" or "competing priorities."

Using CLDs for this study served two purposes:
1. To explore how participants view causative factors related to broader themes such as “culture”, “leadership” and “organizational capacity”; and
2. To illustrate how clinical care topics (e.g. untreated urinary tract infection) relate to broader system goals (e.g. better throughput in the emergency department).
Figure 1. Example of a causal loop diagram illustrating impacts of untreated urinary tract infections.
1. Large scale change initiatives (such as CCM) are seen as worthwhile as long as people understand why they are being implemented and believe they provide improved patient care. The CCM initiative is viewed positively by many stakeholders in the province based on its providing an evidence-based structure for standardizing care.

2. Organizational culture is key to the success of guideline implementation and large scale change initiatives.
Large scale change is more readily embraced by organizations that foster positive inter-professional relationships and support open communication and transparency, that encourage the opinions and engagement of all staff, and that offer opportunities for continuous learning.

3. IT support is critical for clinical decision-making, data collection and analysis.
Most frontline care providers would like improved IT support for data collection and guideline implementation. This is more of an issue for smaller, rural areas; however, data coordination issues were noted in urban and larger centres as well.

4. As clinicians and sites grapple with competing priorities, multiple initiatives and change fatigue, bundling initiatives has proven an enabler.
Connecting data people with clinicians facilitates integration of initiatives. However, competing priorities and multiple initiatives mean that those doing the change often wear ‘multiple hats’; which strains implementation efforts.

5. Metrics and measurement are critical, powerful enablers.
An agreement to share and compare data on key measures between sites and among health authorities offers a powerful mechanism for enabling change and the implementation of new guidelines (assuming data collection and metrics are standardized).

6. Engaged leadership at all levels is an important enabler for large-scale system change.
Leaders and champions who convey a real commitment to the initiative and who proactively listen to involved providers will increase the chance of buy-in, even if the providers do not agree with the initiative.
- Provincial: An initiative that is supported by the Ministry of Health, and seen as a MoH priority, will have greater success with implementation. Ministry leadership is most likely to be successful if it allows for some level of local flexibility and honours existing expertise and practice.
- HA level: Of particular importance is strong authentic senior leadership that is visible to the front line. If senior leadership doesn’t demonstrate support for the change, it won’t go far.
- Physician level: Although most physicians accept CCM guidelines in principle, some see them as ‘invading’ the area of clinical decision-making. If local physician leadership chooses not to engage, the engagement of the entire local clinical team is challenged.
- Clinical champions: There is much reliance on clinical champions to advance CCM, but they can best influence other clinicians if system-level initiatives are aligned with local priorities.
7. Open, transparent communication about organizational priorities (e.g. CCM), is essential to building effective frontline team engagement and capacity.
Clinicians need to know ‘why’ an initiative is being implemented and how it is aligned with their personal and organizational objectives and values. Allowing for a degree of local adaptation was identified as an enabler for engaging clinicians in implementing change.

8. Weak commitment to large-scale system change efforts by care providers with no formal accountability to managers of those efforts can undermine local implementation.
Consideration should be given to what this means for physicians and other individuals who are not paid employees of the health authorities/hospitals.

5.2 Guiding Principles for Large Scale Change
A first step in assessing the implications of the thematic data was to establish a framework of “guiding principles” aligned with the data and linked to the literature. The full set of guiding principles is provided in Appendix 9.1. Below is a simplified set of the principles used to help interpret the findings for this project and to provide orientation for the final recommendations.

   a. Address conflicting priorities at the outset
   b. Provide a clear mandate and realistic resources for guideline implementation.
   c. Senior/ middle managers provide support and remove barriers, but stay out of the way.
   d. Start with easier situations (i.e. readiness, established evidence and good measures).
   e. Align incentives with performance objectives.

2. At provincial and HA levels, build a strong communication strategy early and stick with it. (Rangachari et al 2013).
   a. Paint a compelling vision, but with realistic expectations about the challenges.
   b. Share lessons learned and local examples of success.
   c. Tailor strategy to the specific needs of different groups.
   d. Address tough issues like fears over impact of change.

   a. Communicate and support adaptation of guidelines to local context.
   b. Provide necessary data and support systems for tailoring.

4. Promote and empower clinical teams as the heart and soul of change. Walk the talk. (Hines S et al. 2008; Baathe, F and Norback L.E., 2013).

5. Integrate guideline implementation with existing guidelines in place and with larger operational systems and changes. (Braithwaite J, Runciman WB, Merry, AF 2009; Chapman et al. 2011; Benn J. et al.2012).
5.3 Causal Loop Diagrams

Causal Loop Diagrams were developed to illustrate such major themes related to LSC as culture, leadership and organizational capacity (Appendix 9.6). The diagrams were derived from interview data and were developed as a "systems-thinking" tool, depicting group thinking about the barriers and facilitators to large-scale change.

The trial application of these diagrams occurred at the Quality Forum held March 2014. Feedback was mixed. Some forum attendees felt the relationships were too simplistic, others that the complexity was over-emphasized. However, the diagrams did achieve the broader purpose of stimulating participants to discuss causative factors, complex relationships and strategies. Refinement of this methodology is beyond the scope of the current project, however tools such as this can be helpful for introducing new learning through "patterns of conversation between interdependent individuals" (Baathe, F and Norback LE, 2013).
CONSIDERATIONS

Two sets of considerations have been developed based on the findings from this project. The first set below is specifically focused on CCM and provides a list of action-oriented strategies for improving the effectiveness of future CCM initiatives. The second set of considerations consists of general guidelines for achieving success with health system transformation more generally, based on the results of our study of the CCM initiative.

6.1 Strategies for CCM

These strategies are consistent with the findings from an extensive consultation process about the CCM initiative involving interviews and discussions with health care providers and leaders from every health authority in BC. They are also aligned with the Guidelines for Large System Change presented subsequently in this report.

i. **What:** Ensure local champions are involved to spearhead the initiative. CCM and other large scale change initiatives have a much higher chance of success if front line staff and clinicians are engaged by a local champion.

   **How:** Identify credible (clinically respected) local leaders who believe in the initiative and support them in their efforts to promote the initiative and to influence colleagues to engage in it.

   "I don’t think you can go to people with a set agenda ... and then ask for their buy-in. You need to get them involved - the departmental champions - from the very beginning. They have to be part of the discussion from the very beginning and they have to own the project from the start..."

   *Interview 14*

ii. **What:** Allow for local adaptation and interpretation of guidelines to achieve progress with the CCM initiative.

   **How:** Explore the possibility of setting broad provincial goals and allowing sites to set local goals aligned with provincial goals.

   "You have to be principled the same across the program but you have to allow sites to determine what their priority is and support them in running what their priority is.”

   *Survey respondent*

iii. **What:** Allow teams to guide local adaptation/implementation of CCM as necessary.

   **How:** Promote informal networks related to CCM involving teams of clinicians, front-line staff and managers.

   "We started this working group within our department... Now we probably meet quarterly after the data becomes available, yet, we all work with each other on a regular basis so we might not have a formal meeting, but we’re constantly in communication about it.”

   *Interview 12*

iv. **What:** Avoid change fatigue. Too many competing priorities lead to clinicians and staff losing focus and becoming fatigued. Sustained improvement in CCM requires considerable time for changes to become embedded in local practice.

   **How:** Reduce the number of focus areas for the CCM initiative.

   "I think people appreciated having selected things that we need to do, otherwise we are torn in so many different..."
“directions with so many demands from the Ministry. It is hard to keep a focus.”

HA board member

v. **What:** Ensure health authorities can provide the resources (personnel, financial, time) required to support CCM.

**How:** Carefully consider the HA resource requirements for supporting CCM. Expand information sharing and coordination of CCM efforts across the health authorities to align priorities and incentives, to help manage competing resource requirements, and to make most efficient use of available resources.

“We could have done something together rather than apart and conserved energy. There is duplicated work occurring at a bunch of different health authorities...”

Survey respondent

vi. **What:** Ensure consistent messaging in all CCM-related communication. Make the rationale for CCM easier to understand and accept for clinicians and front-line staff.

**How:** Develop an ongoing (long-term) communication strategy to promote shared understanding, engagement and broad-based ownership of change initiatives. Frame communication about CCM in a way that people find personally engaging. One mechanism for cutting through the complexity is to engage front-line staff and clinicians in meaningful conversations and personalized “story-telling” about the initiative. In all communication about CCM, it is important to stress its fundamental objective: improving patient care. Ensure communication strategy is shared with and accepted by HA communication departments who will play a key role in implementing it regionally and locally.

“At the front line, the same story needs to be told. We need to have the front line staff hear it not just from the health authority people that are implementing the program, but as well from the higher administration. It has to be the same story at both ends in order to get success”.

Interview 26

“(We need to use) the power of ‘story’ in allowing people to understand why you would want to do a major system change, because when your interface with a clinical management guideline is... a five-page guideline, it’s pretty sterile... in CCM we haven’t taken enough time talking about the ‘why’ and making it personal for everybody.”

HA board member

vii. **What:** Provide a means for local teams to chart their progress with CCM implementation. A responsive and reliable data management system is a key enabler for system transformation initiatives. Also provide a reliable means for demonstrating the clinical value of CCM implementation to clinical staff.

**How:** Ensure timely, locally-relevant data concerning local CCM implementation efforts are available for discussion by front line staff and clinicians. Establish outcome-based metrics for CCM initiatives that can be reliably captured by all health authorities and that are accepted as valid by all participants.

“(Getting) unit-level CCM data back to front-line staff is a powerful enabler for change and... will dramatically enhance the effectiveness of CCM.”

Survey respondent

“We were basically comparing apples to oranges unfortunately and so what came of that was trying to streamline who our auditors are, what we audit, finding an algorithm, some sort of process to really streamline our audit process... that’s when we’ll have a cohesive way to audit across all the health authorities which is great because then we can actually compare apples to apples.”

Interview 27
## 6.2 Guidelines for Large System Change

**Prepare for health system transformation initiatives to evolve.**

- Set broad goals provincially and allow participating sites to choose areas on which to focus.
- Initiatives are more likely to succeed if they have local champions and are connected to local issues that clinicians and managers identify as important.
- Build on CCM as a “proof of concept” or foundational learning for introducing a new approach to large system change (LSC) in BC’s health care system. Use change management methods to prepare people for the difficulties and unexpected successes that occur with disruptive technology. To promote further system change, abandon low-yield change initiatives and wrap up/celebrate the winners. Then:
  - Direct local teams to assess their “lessons learned” from the LSC initiative and to identify new priorities. Mandate a limited number of new province-wide initiatives.
  - Resource some site- or region-specific projects focused on local priorities.

  *“This is going to be a long journey of standardization, optimization, striving for best outcomes and getting some consistency.”*  
  *HA board member*

  *“I don’t think you can go to people with a set agenda. You need to get them involved - the departmental champions - from the very beginning. They have to be part of the discussion from the very beginning and they have to own the project from the start...”*  
  *Interview 14*

  *“You have to be principled the same across the program but you have to allow sites to determine what their priority is and support them in running what their priority is.”*  
  *Survey respondent*

  *“We need to value our front line staff and our clinicians... put the resources into allowing those folks to have the time they need to step back and to look at what those issues are for them and come up with their own ways of going forward and improving the practice in that area.”*  
  *Focus group participant*

**Clear a path through the complexity.**

- Leaders at all levels should develop simple goals to help focus system change efforts, but must also understand there is nothing simple about revising clinical processes.
  - *Executives (within MoH and HAs)* should frame LSC initiatives in relation to organizational strategies. Being pragmatic about goals rather than adhering to a strict plan for CCM-type initiatives will support the ability of managers to identify and develop local opportunities.
  - *Front-line staff* are good at identifying clinical priorities.
  - *Administrators/middle managers* must balance resources to address priorities across the system. To make necessary changes at the local level they must work closely with front-line staff and demonstrate support for change by providing resources, addressing capacity issues, helping with guideline development, and providing useful/timely measurement of progress.

  *“There are so many competing projects all the time, it’s challenging for frontline managers and staff to understand what’s the priority and which project has the highest priority for the executive director or the other directors. We have to help them with that prioritization and that’s not easy to do.”*  
  *Interview 41*

  *“I think people appreciated having selected things that we need to do, otherwise we are torn in so many different directions with so many demands from the Ministry. It is hard to keep a focus.”*  
  *HA board member*

  *“We have to implement (guidelines) and at times that takes away from the true creativity that occurs from the folks on the ground ...when possibly it’s better looking at something else that could give better patient care.”*  
  *Focus group participant*

  *“Front line staff need access to resources, and to be supported and listened to for their innovative strategies that*
**Promote shared clinical leadership.**

- Ensure physician engagement in LSC by presenting the evidence for improved outcomes through standardized care. Physicians respond best to such evidence when it is provided by respected clinicians.

  *“The big question is how do we engage physicians who are not employees, who are independent business operators, to buy into this and participate and see the value in it?”*
  
  **Interview 26**

- Provide support for inter-professional team practice. Encourage and support nurses, pharmacists, rehab therapists and other non-physician care team members to be active participants within their clinical teams.

  *“...physicians typically listen to physicians and that’s the best success we’ve had is when a physician will come out and talk to physicians, unless the person is so clinically competent that they are seen as more than just a front-line nurse.”*
  
  **Interview 26**

  *“It would have been nice if... this was a team approach... from the anesthetic group, the surgical group and the nursing group. It has to be the whole team involved and also take the ownership. We felt that we (nursing) were kind of just doing it (surgical checklist) in the OR.”*
  
  **Interview 34**

  *“Nurses on the front line ...what they see is that they are acting as the police in the room. They are tired of being the cop. They just give up, check the box..., good enough, let’s move on.”*
  
  **Focus group participant**

  *“Nurses not feeling comfortable to speak up to surgeons and at some facilities they really don’t, and that’s culture... If nurses or anybody feels comfortable speaking up, then things can change..., you really see how different things can be, and how different cultures can prevent things from getting done.”*
  
  **Interview 17**

**Strengthen knowledge management.**

- Develop key indicators of change that can be reliably measured and that are accepted as valid by participants.
  - Where possible, indicators should be captured as part of the care process to avoid added work.

  *“A lot of work went into how to pull the charts and automate the data collection... we did find that we’re not as good as we ought to be and if not, why not... so that we can go back and put things in place to help ensure we’re able to follow the protocol...”*
  
  **Interview 20**

- Managers must raise awareness of performance differences across the system and use data to stimulate
“learning conversations” and to focus attention on issues.

- Use outcomes data as the basis for peer review of performance between teams, sites and regions.
- Offer QI training for clinicians to support better understanding and acceptance of outcomes data.

- Provide local outcomes data on a timely and regular basis to motivate improvement efforts by front-line staff and clinicians.

- Recognize different learning styles and provide both sequential explanations and “system maps” to help front-line clinicians understand that health care is a complex adaptive system and to recognize their role and the ramification of their actions within such a system.

| Physician lead and programming director and asked for their commitment that when the results come back they will review and if they’re seeing less than optimal performance they will then open up the conversations with their staff and co-workers in regards to why are we suboptimal.” | Interview 23 |
| "Measurement of process is not helpful to front line staff... Clinicians care about patient outcomes and would like measurement to be outcome based." | Survey respondent |
| "I hope a...key recommendation will focus on how to get unit-level CCM data back to frontline staff. This is a powerful enabler for change and... will dramatically enhance the effectiveness of CCM.” | Survey respondent |

**Develop an ongoing (long-term) communication strategy to promote shared understanding, engagement and broad-based ownership of change initiatives**

- Share communication strategy with health authority communication teams. Implement strategy regionally/locally in collaboration with HA communications.

- Frame communication about LSC in a way that people find personally engaging.
  - Large system change is complex and involves clinical and organizational/cultural challenges. One mechanism for cutting through this complexity is to engage front line staff and clinicians in conversations and “story-telling” based on real examples.

- Encourage communication across cultural/hierarchical divisions.
  - Although their patient care goals are similar, managers and clinicians often talk at cross-purposes. Managers need to listen and respond to insights of the front-line staff, who know how clinical processes work. Clinicians need to commit to the management processes necessary for implementing change (by attending meetings, respecting group decisions, respecting larger system priorities, etc.).

- "...all the sites are receiving the same messages...about what the quality agenda is, what results are, that we have comparable results across sites...that visibility across multiple sites, that common language towards management, is a strength." | Survey respondent |

- "(We need to use) the power of 'story' in allowing people to understand why you would want to do a major system change, because when your interface with a clinical management guideline is... a five-page guideline, it's pretty sterile... in CCM we haven’t taken enough time talking about the 'why' and making it personal for everybody.” | HA board member |

- "At the front line, the same story needs to be told. We need to have the front line staff hear it not just from the health authority people that are implementing the program, but as well from the higher administration. It has to be the same story at both ends in order to get success” | Interview 26 |

- "They (front-line staff) would bring (CCM issues) to the meetings, they would discuss, they would talk to their colleagues, they were the ones who were bringing the updates, it was not always coming from me as a department head. When there were changes, they were the ones who were communicating and liaising back and forth.” | Focus group participant |
**Recognize the effectiveness of networks.**

- Encourage local managers, clinicians and front-line staff to form natural “hubs” - teams that work and learn together.
  - Help staff in these hubs to develop simple structures for regular meetings.
  - Use these teams to handle emerging issues and to help guide/implement change initiatives.
- Use lessons learned from CCM to realign formal networks to better support future front-line change efforts.

  *(Whatever) is developed has to be done at the front line, so it would be (someone like me) who oversees and works with the managers, educators and physicians in all the emergency departments... to help develop what works on the front line and then starting from there, it needs to be that bottom up approach. The top down approach just does not work.*

  **Interview 35**

  “Where... you had ongoing daily relationships with them (front-line staff) it was much easier to cobble together initiatives because everybody was under the same roof and has working experience together.”

  **Interview 10**

  “We started this working group within our department... Now we probably meet quarterly after the data becomes available, yet, we all work with each other on a regular basis so we might not have a formal meeting, but we’re constantly in communication about it.”

  **Interview 12**

  “Implementation is only one aspect...actually embedding the change takes much more time and effort...months to years... We rarely (in health care) plan for the embedding of change.”

  **Survey respondent**
CONCLUSION

Achieving large-scale change within a system as complex as our provincial health system is an extremely difficult undertaking. Complex systems are resistant to direct control and, due to their dynamic and adaptive properties, respond to such attempts in unpredictable ways. The mixed experience of the CCM initiative to date may largely be due to an under-appreciation of these factors.

Although perfectly laudable in its intent, the mandating of clinical guidelines for system-wide adoption was certain to encounter some “insurmountable opportunities” (attributed to Walt Kelly, author of the “Pogo” cartoon). Among the factors critical for its success, CCM required the broad cooperation of stakeholder groups with different agendas and organizational units with competing priorities – a tall order for any system change initiative.

Bringing a complex systems perspective to the experience of CCM has resulted in a better understanding of the challenges involved in large-scale health system reform. It also suggests some general guidelines and supporting strategies for improving the effectiveness of future CCM initiatives.

But perhaps the most pertinent consideration from complex systems thinking for any effort to achieve sustainable large-scale health system change is that the change process will not be linear. As this review of the CCM experience has shown, there can be pockets of success, but there will also be areas of struggle. The unpredictability factor of complex systems means we must expect the unexpected. This factor alone may test the resolve of the most determined health system leader. However, by staying mindful of the core system property of interdependence and by encouraging diverse stakeholders to engage in necessary conversations, health system leaders can create the conditions for a shared journey toward the goal of productive system reform.
REFERENCES


Appendix 9.1 Guiding Principles by System Level

Provincial Level

General
1. Commit to and invest in distributed leadership with effective clinical champions representing key stakeholders. Engage Health Authority leaders (clinical and executive) BEFORE setting strategic priorities.
2. Build a strong communication strategy to support high-level understanding and acceptance of CCM.
   a. Paint a compelling vision, but with realistic expectations about the challenges.
   b. Share lessons learned and local examples of success.
3. Align incentives with performance objectives.

Context Dependent
4. Encourage local ownership
   a. Communicate and support adaptation of guidelines to local context
   b. Provide necessary data and support systems for tailoring.
5. Explicitly anchor the provincial communication strategy in stakeholder views about guidelines and organizational change.

Health Authority Level

General
1. Demonstrate regional commitment and leadership.
   a. Address conflicting priorities at the outset.
   b. Provide a clear mandate and realistic resources for guideline implementation.
   c. Senior and middle managers provide support and remove barriers, but stay out of the way.
   d. Start with easier situations (i.e. readiness, established evidence and good measures).
   e. Align incentives with performance objectives.
2. Build a strong communication strategy and engage health authority communication teams for regional and local implementation.
   a. Paint a compelling vision, but with realistic expectations about the challenges.
   b. Share lessons learned and local examples of success.
   c. Tailor strategy to the specific needs of different groups.
   d. Address tough issues like fears over impact of change.
   e. Focus on fostering a culture of improvement not reward/punishment.
   f. Ensure a broad understanding and acceptance of QI process early and continuously.
3. Design data systems for two-way feedback and continuous learning. Develop and resource information systems.
   a. This should happen early on.
   b. Make it easy to integrate clinical information into record systems.
   c. Involve managers and clinicians in designing feedback systems.

Context Dependent
4. Communicate how culture change is central to organizational success, but anchor this in practitioner attitudes and concerns.
5. Coach clinical teams for success.
   a. Support local adaptation of guidelines to fit context.
   b. Help clinical teams to work out professional role and practice issues.
   c. Sort workload and resource issues at the outset and on regular basis.
Hospital / Facility Management Level

General
1. Demonstrate hospital commitment and leadership.
   a. Address conflicting priorities at the outset.
   b. Provide a clear mandate and realistic resources for guideline implementation.
   c. Senior and middle managers provide support and remove barriers, but stay out of the way.
   d. Start with easier situations (i.e. readiness, established evidence and good measures).
   e. Align incentives with performance objectives.
2. Build a strong communication strategy.
   a. Focus on fostering a culture of improvement not reward/punishment.
   b. Ensure a broad understanding and acceptance of QI process early and continuously.
3. Implement data systems for two-way feedback and continuous learning and information systems.
   a. This should happen early on.
   b. Make it easy to integrate clinical information into record systems.
   c. Provide adequate resources.
   d. Involve managers, clinicians and front-line teams in designing feedback systems.
4. Communicate how culture change is central to organizational success, but anchor this in practitioner attitudes and concerns.
5. Coach clinical teams for success.
   a. Support local adaptation of guidelines to fit context.
   b. Help clinical teams develop positive inter-professional relationships and to work out professional role and practice issues.
   c. Sort workload and resource issues at the outset and on regular basis.

Clinical Level

General
1. Promote and empower clinical teams as the heart and soul of change. Walk the talk.
2. Respect local reality with respect to limited personnel who may hold multiple portfolios and need to set priorities.
3. Promote two-way communication between local and regional staff about implementation issues and priorities.
4. Provide knowledge resources to clinical champions.
5. Reward participation in the spirit of QI to counter perception that those who complain get the resources.
6. Ensure that clinicians are engaged early in the process so that they feel some control.

Context Dependent
7. Integrate guideline implementation with existing guidelines in place.
8. Integrate guideline implementation with larger operational systems and changes. Explain this.

Patient Level
1. Consider how to engage patients in guideline implementation.
Appendix 9.2  Enablers and Constraints for Large-system Change

- Blue text in the chart indicates enablers chosen for the validation survey.
- Rankings for items in the chart were determined through the qualitative coding and analysis process and reflect frequency of occurrence in the dataset and quality of mention, e.g. mention of an item as “critical” would raise its ranking.

<table>
<thead>
<tr>
<th>LEADERSHIP</th>
<th>Description</th>
<th>Enablers</th>
<th>Rank</th>
<th>Description</th>
<th>Constraints</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Many or most team members take on various leadership roles</td>
<td>Distributed leadership</td>
<td>2</td>
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<tr>
<td>Physician leader who supports the change, and listens and connects with frontline clinicians</td>
<td>Physician support</td>
<td>1</td>
<td>Physicians that oppose or do not support changes.</td>
<td>Lack of Physician support</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Senior leaders that are committed to the change, back up champions, and undertake the accountability measures necessary for full implementation</td>
<td>Senior level leader support</td>
<td>1</td>
<td>Leadership that opposes or does not support the CCM; or changes in leadership over time</td>
<td>Lack of senior level support</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Champions get behind the CCM (early in the process), influence others and are particularly adept at navigating competing priorities/multiple initiatives</td>
<td>Champion support</td>
<td>1</td>
<td>Focus on clinical champions detracts from other key enablers, or champions disproportionately focus on their area of interest, which in turn, decreases focus in other areas.</td>
<td>Over-reliance on clinical champions</td>
<td>2</td>
<td></td>
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<tr>
<td>Presence of clear hierarchy of priorities from clinical leadership and/or organization</td>
<td>Clear, well supported hierarchy of priorities</td>
<td>2</td>
<td>Lack of clear hierarchy of priorities from clinical leadership and/or organization</td>
<td>Unclear hierarchy of priorities</td>
<td>2</td>
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<tr>
<th>CAPACITY:</th>
<th>Description</th>
<th>Enablers</th>
<th>Rank</th>
<th>Description</th>
<th>Constraints</th>
<th>Rank</th>
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</thead>
<tbody>
<tr>
<td>There are opportunities for professional development in the workplace</td>
<td>Capacity building opportunities</td>
<td>3</td>
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<tr>
<td>Implementation plan includes specific allocation of resources (funding, time, and/or staff) to initiative</td>
<td>Adequate resources allocated</td>
<td>2</td>
<td>Ever-increasing numbers of initiatives with inadequate increases in resourcing (funding, time, and/or staff)</td>
<td>Inadequate resourcing</td>
<td>2</td>
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<tr>
<td>Specific staff charged with oversight of CCM planning, implementation, auditing and measurement</td>
<td>Dedicated staff</td>
<td>2</td>
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<tr>
<td>Description</td>
<td>Enablers</td>
<td>Rank</td>
<td>Description</td>
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<tr>
<td>Champions facilitate frontline and physician engagement; they are either local opinion leaders or may be in senior positions. These people are ideally involved early in the process.</td>
<td>Early identification and involvement of champions</td>
<td>1</td>
<td>If champions are not credible to the frontline clinicians they are trying to influence, the result is poor engagement</td>
<td>Lack of strong, credible frontline champions</td>
<td>1</td>
<td></td>
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<tr>
<td>Bringing together and involving frontline and interprofessional teams early in the process to instill a sense of ownership.</td>
<td>Early frontline engagement</td>
<td>2</td>
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<tr>
<td>Provincial scope and mandate adds weight, credibility, and ultimately priority of initiative in comparison to others; supports large-scale change.</td>
<td>Provincial mandate of initiative</td>
<td>2</td>
<td>Perceived lack of ministry understanding of clinical context and/or resistance to provincial directives or “top down” approaches</td>
<td>Provincial mandate of initiative</td>
<td>1</td>
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<tr>
<td>Providing regular feedback on process and emerging results</td>
<td>Regular feedback to frontline including using audit data</td>
<td>2</td>
<td>Not enough capacity to collect and analyze data at a granular level that will be meaningful to clinicians (but less meaningful at the facility level).</td>
<td>Limited capacity to collect clinically relevant data along with required audit data</td>
<td>3</td>
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<tr>
<td>Incentives and disincentives that are aligned with quality improvement and focused on patient outcomes, including accreditation and non-compliance fines for external service providers (e.g. physicians)</td>
<td>Alignment of Incentives/disincentives</td>
<td>2</td>
<td>Incentives or disincentives that counteract or distract from a focus on quality improvement and patient outcomes (e.g., performance compensation structures, unanticipated effects of check-box approaches)</td>
<td>Misalignment of Incentives/disincentives</td>
<td>2</td>
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<tr>
<td>Organizational-level and/or regional health authority-level policies are in place and enforced, and frontline clinicians are aware of repercussions of non-compliance with guidelines.</td>
<td>Accountability measures in place</td>
<td>2</td>
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<tr>
<td>Patient feedback is regularly sought, incorporated, and used to improve care.</td>
<td>Patient involvement</td>
<td>2</td>
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<tr>
<td>A health authority administrator with a clinical background who connects with frontline clinicians inspires engagement.</td>
<td>Health authority leadership with clinical experience</td>
<td>2</td>
<td>A health authority administrator without a clinical background, who is more policy-oriented and whose communication doesn't connect well with frontline clinicians can deter engagement.</td>
<td>Health authority leadership lacking clinical experience</td>
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### ORGANIZATIONAL CULTURE:

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<tr>
<th>Description</th>
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<tbody>
<tr>
<td>“Can do” approach to changes in existing habits and processes are taken on</td>
<td>Positive attitudes about change</td>
<td>2</td>
<td>Includes clinicians who don’t believe in the initiative or the rational and/or</td>
<td>Negative attitudes about change</td>
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<td>as possible improvements to patient care</td>
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<td>evidence behind it, or don’t see how the initiative fits in their area. Also</td>
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<td>includes those who don’t like change.</td>
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<td>A group of clinicians that collaborates and effectively comes together</td>
<td>Excellent interprofessional collaboration</td>
<td>3</td>
<td>Collaboration is lacking, or hierarchy between professions negatively impacts</td>
<td>Poor interprofessional collaboration</td>
<td>3</td>
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<td>around the CCM.</td>
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<td>implementation.</td>
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<td>Where changes to established habits and processes are hard to sustain over</td>
<td>Sustaining clinical changes</td>
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<td>time without slippage (‘old habits die hard’)</td>
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<td>Clinical sites that are open to innovation and trying new things.</td>
<td>Open and innovative organizational culture</td>
<td>2</td>
<td>Clinical sites with entrenched practices that are resistant to change.</td>
<td>Change-resistant organizational culture</td>
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<td>Processes that either no longer serve their intended purpose or which could</td>
<td>Processes or initiatives which are no longer efficient or effective</td>
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<td>be improved are left as is rather than being repurposed or removed to make</td>
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<td>way for new initiatives</td>
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### COMMUNICATIONS:

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<th>Description</th>
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<tbody>
<tr>
<td>Leaders at all levels are communicating the same key messages, evidence,</td>
<td>Consistent communication from HA to clinical</td>
<td>3</td>
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<tr>
<td>and rationale for the CCM.</td>
<td>site</td>
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<tr>
<td>Using several methods including online, social media (twitter, facebook etc),</td>
<td>Multiple methods of communication</td>
<td>3</td>
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<td>print, and in-person</td>
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<tr>
<td>Presenting the CCM as something that is evidence-based, will reduce</td>
<td>Evidenced based framing</td>
<td>2</td>
<td>Resistance or disbelief from leaders and/or physicians in evidence-based</td>
<td>Resistance to evidence-based information</td>
<td>3</td>
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<td>variability and improve patient care (rather than saying it’s a ministry</td>
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<td>information, making the change difficult to agree with</td>
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<td>initiative)</td>
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</table>
Lack of communication between decision makers who develop the CCM and frontline providers who ultimately implement it.

<table>
<thead>
<tr>
<th>EDUCAATION:</th>
<th>Description</th>
<th>Enablers</th>
<th>Rank</th>
<th>Description</th>
<th>Constraints</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Providing clear summaries of evidence-based guidelines (including the ‘why’) and opportunities for discussion with frontline and specialist groups.</td>
<td>Education about the evidence-base behind change</td>
<td>2</td>
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<tr>
<td>Education ‘levels the playing field’ so that frontline clinicians have a common understanding of the CCM</td>
<td>Shared frontline understanding</td>
<td>3</td>
<td>Inherent challenges with the need to tailor education to a large range of clinicians and specialists, and reach geographically spread sites with unique cultures.</td>
<td>Geographic spread and specialty siloes</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Educators role in supporting the change process and mitigating change management fatigue</td>
<td>Educator support in change management</td>
<td>3</td>
<td>Burn-out associated with high number of initiatives and/or competing priorities that may lack coordination</td>
<td>“Change Fatigue”</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Online and hardcopy toolkits and resources related to the CCM</td>
<td>Continuing education tools and resources</td>
<td>2</td>
<td>Limited time and resources, and gaps in systems and processes for continuing and re-education of clinicians.</td>
<td>CCM education gap</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Integrating CCM and other guideline initiative education into accreditation or other mandatory education</td>
<td>Mandated education</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tbody>
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<table>
<thead>
<tr>
<th>INTEGRATION:</th>
<th>Description</th>
<th>Enablers</th>
<th>Rank</th>
<th>Description</th>
<th>Constraints</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coordinating and standardizing provincially and regionally and clearly identifying areas where flexibility is permitted locally across sites.</td>
<td>Balance of allowing local variation yet still implementing standardization</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Understanding how healthcare is delivered and identifying where and how initiatives can fit with existing work and processes.</td>
<td>Healthcare delivery mapping</td>
<td>2</td>
<td>CCM is implemented in clinical sites with little to no consideration of existing work and processes.</td>
<td>Lack of coordinated healthcare delivery mapping</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>
Identifying and working within local working groups, team structures and existing initiatives and processes.

Leveraging existing infrastructure and experience

Overcoming the various, often divergent, positions across teams and specialist groups.

<table>
<thead>
<tr>
<th>SYSTEM / APPROACHES:</th>
<th>Description</th>
<th>Enablers</th>
<th>Rank</th>
<th>Description</th>
<th>Constraints</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>A framework that engages people from across all levels of implementation, and includes a structured approach including reporting and data collection</td>
<td>Development and use of an implementation framework</td>
<td></td>
<td>3</td>
<td>Multiple/competing priorities lead to project fatigue and hinder success because CCM is done ‘off the side of the desk’ or is displaced by other initiatives.</td>
<td>Competing priorities</td>
<td>1</td>
</tr>
<tr>
<td>Developing and then consistently using evidence-based professional change strategies that work.</td>
<td>Using professional change strategies</td>
<td></td>
<td>3</td>
<td></td>
<td></td>
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DATA & INFORMATION SYSTEMS

<table>
<thead>
<tr>
<th>Description</th>
<th>Enablers</th>
<th>Rank</th>
<th>Description</th>
<th>Constraints</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Each clinical site audits using the same methods and metrics for optimum data quality and consistency.</td>
<td>Standardized auditing</td>
<td>2</td>
<td>Different data collection methods and metrics used across clinical sites health authorities, resulting in non-comparable data.</td>
<td>Variability in data auditing</td>
<td>2</td>
</tr>
<tr>
<td>Availability of electronic health record technology that facilitates implementation as well as audit data collection</td>
<td>Access to Electronic health records</td>
<td>1</td>
<td>Electronic health record technology is not in place, or is inadequate to implement change initiatives along with their required data collection needs.</td>
<td>Inadequate electronic health records technology</td>
<td>1</td>
</tr>
<tr>
<td>Data analysts work directly with clinicians to ensure meaningful, safe data.</td>
<td>Collaboration between clinicians and data collectors/analysts</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feedback of audit data results across sites and regions to stimulate engagement through healthy competition</td>
<td>Presenting audit results to sites and regions</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
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Appendix 9.3  Interview Schedules

Email Survey
Dear xx,

Following the email below you recently received from [our BCPSQC contact], we are contacting you to request your input in framing our work over the next few months.

As we understand you are aware, the clinical care management (CCM) initiative is being used as a case study toward better understanding large-scale change within BC’s health system. Using a complex system framework, we will identify and assess the mechanisms that enable and constrain the implementation of guidelines in a few selected clinical care areas in each health authority, and examine how these mechanisms operate across clinical care areas and in various local contexts.

To initiate this work we would like to hear from you on the following questions:

1. What do you consider the most salient enablers in the health system and in your health authority for the implementation of the CCM initiative?
2. What do you consider the most salient constraints in the health system to the implementation of the CCM initiative?
3. To get a comprehensive picture of enablers and constraints, we will be focusing on clinical care areas that vary with respect to success (i.e. successful, partly successful, not successful). With that in mind, please nominate 2 clinical care initiatives that have been successfully implemented in your health authority, and 2 that have not been as successful and tell us why you chose them. We will choose 2 areas total from each authority to include as case examples.

Please respond to these questions by mid-day on Monday, December 9th. If you are unable to respond by then, please provide a more feasible time for you. Because of the short timeline for this project we must move forward that week and want to consider your opinions.

Note, we will not retain data gathered from this email survey past the end of the project in May 2014. Furthermore, no names will be linked directly to the data in any public reporting.

We really appreciate you taking the time to provide your input and assist us in this work. Please let us know if you have any questions or concerns.
Preliminary Interviews

PRELIMINARY INTERVIEWS (December 2013)
Enablers, Constraints, and Contextual Factors Affecting Guideline Implementation, Adoption, and Adaptation

Start time Finish time

1. What did you understand to be the purpose of the CCM Project when you first became involved?

2. Has your understanding changed over time? If so, what changed your perception?
   Probe if needed: Do you think guideline implementation contributes to changing the system in a major way to improve patient care (what some call large scale change)

3. What do you think are the most important factors that enable guideline implementation at the local level?
   3.1. How are the factors different for different clinical areas?
   3.2. How are they different at the clinical versus health authority levels?

4. What factors operate as constraints?
   4.1. Are any of these factors particularly critical – i.e. effective implementation and large scale change cannot happen until they are addressed? (e.g. electronic health record, incentives to change physician practices)

5. What is it about local context that affect how these enablers and constraints operate (e.g. different health authorities, urban versus rural settings)?

6. How does the larger, provincial context affect your work? In other words does the CCM activity in other health authorities or in the health ministry affect how your project has evolved?

FOR CLINICAL LEADS ONLY

7. Overlapping with the key informant interviews, we will be conducting one focus group in each health authority, plus Providence Health Care. Do you have recommendations for the best time of day to do this?

8. We would like to request your help in determining who to invite to the focus groups. Request they send you a list by health authority including occupation, primary clinical area, and contact information as soon as possible (we need to schedule them quickly).
**Key Informant Interviews**

KEY INFORMANT INTERVIEWS (January 2014)
Enablers, Constraints, and Contextual Factors Affecting Guideline Implementation, Adoption, and Adaptation

Start time Finish time

9. What do you think are the most important factors that enable guideline implementation at the local level?
   9.1. How are the factors different for different clinical areas?
   9.2. How are they different at the clinical versus health authority levels?

10. What factors operate as constraints?
    10.1. Are any of these factors particularly critical – i.e. effective implementation and large scale change cannot happen until they are addressed? (e.g. electronic health record, incentives to change physician practices)

11. What is it about local context that affect how these enablers and constraints operate (e.g. different health authorities, urban versus rural settings)?

12. How does the larger, provincial context affect your work? In other words does the CCM activity in other health authorities or in the health ministry affect how your project has evolved?

13. What did you understand to be the purpose of the CCM Project when you first became involved?

14. Has your understanding changed over time? If so, what changed your perception?
   Probe if needed: Do you think guideline implementation contributes to changing the system in a major way to improve patient care (what some call large scale change)
Health Authority Board (Quality committee chair)

Interview questions

1. What do you understand is the objective of the Clinical Care Management (CCM) Initiative?

2. What level of reporting has your board received on CCM? (e.g. frequency of reports / level of detail)

3. On your board’s Quality Committee agenda, what priority is given to CCM? (e.g. how much attention is given to it? Is it considered to be important)

4. What is your assessment of the progress on the CCM topics? (i.e are some areas doing better than others? Any idea why this might be?)

5. How might the CCM initiative improve its effectiveness?

6. What role should the health authority board play in supporting the CCM initiative? [Probe questions: Has it fulfilled that role? What specific direction has your board given to health authority staff to support the CCM initiative?]

7. Regarding large scale change in general, does your board’s work on CCM inform/influence its other work on large scale change at your HA? If so how?
Appendix 9.4  Focus Group Guidelines

Understanding Health System Transformation:
Clinical Care Management as a Case Study

Project Purpose
The MoH’s clinical care management (CCM) initiative is to be used as a case study toward better understanding large-scale change within BC’s health system. Using a complex system framework, this project is intended to identify and assess the mechanisms that enable and constrain the implementation of guidelines in two clinical care areas in each health authority (VTE and surgery), and to examine how these mechanisms operate across clinical care areas and in various local contexts.

Data Collection Overview
• Preliminary data collection of CCM leads through an email survey and interviews to inform the next phases of broad data collection (November-December, 2013)
• Key Informant interviews (KII) of people from each health authority working with CCM from the frontline to directorship roles (January 2014)
• Focus groups in each participating health authority to test themes from the KIIs and to learn about impact of local context on large-scale change and in particular on guideline implementation (February 2014)
• Presentation and small group discussion at the Quality Forum (February 27, 2014)
• Validation survey to test and validate findings from the previous data collection activities (March-April 2014)
• Final project deliverables submitted, including various recommendations and practical tools for moving forward with local discussion (May/June 2014)

Focus Group Participation
• You are free to withdraw from the session at anytime
• The session will be recorded, transcribed and analysed. No names will be transcribed, nor used in any public reporting of the project
• Whatever is discussed during the session, should remain there. Please do not discuss the conversation with anyone not participating, nor identify anyone else within the session

Focus Group Questions

LEADERSHIP
1. We’d like to learn more about the impact of leadership on improving quality and safety. Tell us about what’s working well in your setting, and how this type of leadership might be improved.
   a. What does good leadership look like to you? Who are the recognized leaders, how do they lead, whom do they lead and how is this leadership affected by local context?
   b. Do you think “distributed leadership” (greater leadership by front-line clinicians) is needed to strengthen quality initiatives at your workplace? What would this look like in your context?
   (e.g. what are the key issues for physician leadership, administrator leadership, nurse leadership etc.?)
   c. In what ways is teamwork contributing to quality initiatives, and how could it be strengthened?
   d. How does one best engage front line physicians?

SUPPORT AND RESOURCES
2. Tell us more about how (local) resource issues affect implementation of quality initiatives. Are there ways in which the overall quality improvement process can be improved?
   a. How might the improvement process be streamlined to reduce disruptive effects?
b. In what ways does local context inform guideline implementation? How does local adaptation impact the goal of standardization by using guidelines?
c. While local metrics are critical, what are the challenges to reporting these metrics back to the care teams so they can use them to improve?
d. We understand that EHRs often are a major challenge for implementation. Do you have ideas for useful and creative workarounds?

LARGE SCALE CHANGE
3. In what ways do the various quality improvement initiatives improve the way other aspects of care are provided? (i.e. do these initiatives help develop an overall culture of continuous improvement and large scale change?)
   a. Did your quality initiative lead you and/or your colleagues to do anything differently in other aspects of your work?
   b. What do you think is most important in fostering this large scale change?
   c. What kinds of culture change would be most helpful?
   d. What might be done to ease the fatigue effect of constant change and multiple change initiatives?

CULTURE
4. In what ways does organizational culture affect the quality improvement initiatives that you are familiar with?
   a. It seems to us that there are different cultures depending on where you work in the health system. If so, how do these differences affect implementation of quality initiatives?
   b. How do you see your own personal role in creating a culture of improvement?
Appendix 9.5 Detailed Themes From Data

I. Large scale change initiatives (such as CCM) are seen as worthwhile as long as people understand why they are being implemented and believe they provide improved patient care. The CCM initiative is viewed positively by many in the province based on its providing an evidence-based structure for standardizing care. However, where implementation was deemed overly ‘prescriptive’, where leadership was not supportive, or where there was a lack of transparency and feedback with data collection, CCM may have had negative impacts on organizational culture (e.g. increasing frustration and negative attitudes toward change).

- Transparency and accountability regarding collection and use of data was a critical factor for continued engagement, “…there has to be an open communication back to the health authorities and how these are being reported and what the data is being used for. There is nothing worse than collecting data and doing nothing with it.” (IH FG) Or: “To facilitate and sustain engagement at the front line ...(we need) data capture and reporting on unit-level performance. Reports need to be timely, meaningful and actionable.”
- Data on CCM performance can stimulate healthy competition among clinicians, improve the focus on standardized care, and motivate clinicians to engage.
- Guidelines supported by strong evidence are easier to implement. “Certain guidelines get implemented easily and quickly, especially ones related to trauma, where there is a strong evidence base and it is a dramatic intervention...” (VCH FG) Guidelines without the same level of well-established support are more difficult to implement (e.g., VTE). “…every time I go audit the physicians, they come back and say well there’s not a lot of evidence to prove how many patients in our hospitals actually die of hospital acquired VTE. So it’s hard for us to get them to buy into the process.” (#27) Or: “If I look solely at VTE, we did not have any data that told us how many patients we had that were developing VTEs and we still do not have that data.” (#38)
- Evidence is especially critical when attempting to engage physicians (i.e., to gain their understanding/acceptance of why a change in practice is required). “Unless you have the data, you may as well not even go and speak to a physician. The data is what has moved both of these [CCMs] forward.” (#26) Physicians are also much more inclined to accept evidence for new clinical guidelines that is presented by another physician.

II. Organizational culture is key to the success of guideline implementation and large scale change initiatives.
Large scale change is more readily embraced by organizations that support open communication and transparency, that encourage the opinions and engagement of all staff, and that offer opportunities for continuous learning.

- Older front-line staff are seen as harder to engage with change initiatives, “…we have a couple of older physicians they just do not want to be told that there is a specific way to manage a patient.” (IH FG) Not surprisingly, younger staff appear more willing to accept change: “We have a lot of really awesome, new, young OR nurses. They have pretty strong personalities... they speak up and they don’t hesitate to voice their concerns. So I think that (our) culture is changing...” (#17) “What we are seeing is that the older doctors are little bit more pushing back saying - you know we have been doing this a long time and we know how to practice, let us do our thing and kind of leave us alone, whereas I see our younger doctors are much more engaged.” (IH FG)
- If an initiative is mandated without input from front-line staff (i.e., those who will be implementing the guideline) it can have a negative impact on organizational culture. “Some of the individuals that report to me actually pull together the information that the Ministry requires, which is totally disconnected from what the front line is actually doing.” (NH FG)
• Education as a mechanism for changing culture: “This is the guideline, but again, it’s the education that has changed the culture, which helps accept the change theory, which helps implement what you got to do.” (#22)

• Culture variations between sites and regions were noted as influencing the ability to implement change: “Definitely we have culture issues… south island is viewed one way … and the people that work in centre and north do not necessarily have a positive view of the people who work in the south.” (#36)

III. IT support is critical for clinical decision-making, data collection and analysis.

Most frontline care providers would like improved IT support for data collection and guideline implementation. This is more of an issue for smaller, rural areas; however, data coordination issues were noted in urban and larger centres as well. Access to and use of electronic health records is varied. People become frustrated when they are expected to support change by incorporating more into their workload with no additional resources and/or when they think resources are being used less efficiently elsewhere in the organization.

• “If you do something well and efficiently and it is just taken care of... you do not get any resources.” (VIHA FG)

• “It is...about having the tools and resources necessary to be able to do the work, and also having a solid plan for doing the work and moving forward.” (#16)

IV. As clinicians and sites grapple with competing priorities, multiple initiatives and change fatigue, bundling initiatives has proven an enabler.

Connecting data people with clinicians facilitates integration of initiatives. However, competing priorities and multiple initiatives mean that those doing the change often wear ‘multiple hats’, which strains implementation efforts.

• “They still speak as if everything is a new thing... and when a new thing comes onto your plate you have to find a way to incorporate that into your work and drop something. What we tend to do is drop nothing and just keep adding.” (NH FG)

• “There are so many competing things. Every day there is another change. Every day there is something that is more important than the (last) thing.” (VIHA FG)

• Many sites are not well-resourced enough to have dedicated staff for key functions: “You have to realize that in our jobs, everything like this that is a quality improvement thing is a side of your desk thing, you are not doing this as your main job.” (#40)

• Some spoke of a tipping point where some clinical priorities might get abandoned: ”There are so many changes occurring at the unit level, organizationally and provincially that staff are feeling overwhelmed. As a result, while it may appear that we are making improvements in some areas, the care is deteriorating in others. Changes are often not solidified in practice before another comes along and the improvement is lost.” (Survey Respondent)

V. Metrics and measurement are critical, powerful enablers.

An agreement to share and compare data on key measures between sites and among health authorities offers a powerful mechanism for enabling change and the implementation of new guidelines (assuming data collection and metrics are standardized).

• There is considerable variability in how data are captured and how metrics are used – as a result, some sites may be doing much worse than reported (because they have not done a comprehensive audit) and comparisons between sites or HAs are inaccurate. Lack of confidence in the data and metrics contributes to staff disengagement.

• For example: “…what was happening was our data was being compared to other health authorities but
we are all on different metrics..." (FH FG) "I think we have had a bit of a tough time in terms of engaging staff with meaningful data (on VTE) and so, if they (staff) are seeing those numbers and they are not liking what the actual number is saying, because it does not actually indicate the quality of patient care, they are not going to care at the end of the day..." (FH FG)

- “This is obviously problematic, and unfair to health authorities that are outstanding in terms of methodological rigour as compared to others who may not design or follow high standards for data collection and reporting. Moreover, thorough rigour requires significant resource allocation - which also greatly varies across the Health Authorities - resulting in further inequities.” (Survey Respondent)

VI. Engaged leadership at all levels is an important enabler for large-scale system change.
Leaders and champions who convey a real commitment to the initiative and who proactively listen to involved providers will increase the chance of buy-in, even if the providers do not agree with the initiative. “I think that for me good leadership is leadership that is visible and involved in the actual improvement work.” (#32)

- Provincial level:
An initiative that is supported by the Ministry of Health, and seen as an MoH priority, will have greater success with implementation. Ministry leadership that allows for a reasonable level of local flexibility and that honours existing expertise and practice is key. The more prescriptive the leadership around an initiative, the less likely broad-based engagement will be achieved.

- HA level:
- Of particular importance is strong authentic senior leadership that is visible to the front line. If senior leadership doesn’t demonstrate support for change, it won’t go far. Effective HA leaders will respond when implementation is not going well (e.g. with issues involving resource allocation, supporting clinician leaders)
- For senior leadership, individuals with a clinical background are seen as having the most legitimacy and as a result, garner more respect from the frontline. The more involved senior leaders are, the more effective their leadership is. “We’re the ones who are delivering the care (and) trying to get these guidelines done or obey these new guidelines... there’s people at the health authority who are health administrators... But a lot of them are really far removed and maybe have never worked in a clinical setting.” (#17) “Anything top-down, ministry-driven will be very challenging to sustain, especially when often these CCM projects are led by quality improvement specialists with no knowledge or understanding of clinical practice.” (Survey Respondent)

- Clinical (physician) level:
- Although most physicians accept CCM guidelines in principle - if they are supported by clinical evidence – some see them as ‘invading’ the area of clinical decision-making by forcing standardized processes (e.g. pre-printed/clinical orders) or raising the conflict between evidence-based and patient-centric practice. If local physician leadership chooses not to engage, the engagement of the entire local clinical team is challenged. Similarly, strong physician leadership resonates with the frontline and provides strong support for change of practice and of cultural norms (especially in the OR). “(There is an) inherent conflict between evidence-based care exemplified by guidelines and patient centred care which privileges the patient perspective...these are very different approaches that are in deep theoretical conflict.” (Survey Respondent)
- Respected clinical champions are able to influence their professional groups, especially if they have formal authority to implement CCM. Effective local champions are particularly good at navigating competing priorities.
- However, there is increasing resistance among clinicians to taking on a leadership/clinical champion
role as it is seen as leading to 'fatigue and frustration'  

- **Clinical champions.**  
  - There is much reliance on clinical champions to advance CCM, but they can only influence other clinicians if system-level initiatives can be aligned with local priorities

VII. Open, transparent communication about organizational priorities (e.g. CCM), is essential to building effective frontline team engagement and capacity.  
Clinicians need to know ‘why’ an initiative is being implemented and how it is aligned with their personal and organizational objectives and values. They also like ongoing opportunities for discussion of questions or concerns. Bottom-up approaches, or allowing for a certain degree of local adaptation was identified as an enabler for engaging clinicians in implementing change.

- However, in some cases it was advantageous that CCM was provincially mandated, as the top-down, non-voluntary components created an incentive to quickly adopt/accept a guideline. “Having CCM incorporated as a KRA [key results area] makes it much easier to encourage different units to invest in the work and to monitor the results. Without this type of support/accountability, I doubt our senior leaders would have paid much attention. The same is true of our regional councils. In this sense, the Ministry’s support has been critical” (VCH FG)
- On engaging the frontline: “…it’s the voice of the individuals that are involved in the work on a daily basis; that is the most powerful.” (#16)
- On consistency of messaging: “Another strength is that all the sites are receiving the same messages. The surgical program overall is receiving the same messages about what the quality agenda is, what results are, we have comparable results across sites…”(FH FG)
- On local adaptation: “You have to be principled the same across the program, but you have to allow sites to determine what their priority is and run those and support them in running what their priority is.” (FH FG)

VIII. Weak commitment to large-scale system change efforts by care providers with no formal accountability to managers of those efforts can undermine local implementation.  
Consideration should be given to what this means for physicians and other individuals who are not paid employees of the Health Authorities/hospitals. Effective engagement makes accountability more likely, need good communication and leadership.

- On accountability and non-compliance: “In the US physicians can be fired for not following QI guidelines.” (#17)
- Existing pay structures and external contractors may create constraints to engagement or successful implementation. For example, “When you have people who have an external office or external practice... that is a different animal than someone who is a full-time (staff member).” (PHSA FG) “As a health authority, we have a little bit easier way (with) nursing because, for the most part, nurses are health authority employees, where many physicians are contract and in a lot of ways they are independent.” (IH FG)

IX. Frontline clinicians hold the view that CCM is an ‘add on’, not a carefully considered initiative supporting broader health system changes. They have a hard time seeing ‘transformational’ change linked to changes in the clinical work they do. Upper management and administrators connect more directly with the idea of guideline implementation leading to system transformation.
Rural/smaller sites:

- Leaders at smaller sites find it easier to be effective and influential given their more direct connection and closer working relationship with frontline staff.
- Distance from major centres inhibits participation in HA events/presentations related to change initiatives. Technology (e.g., videoconferencing), is helpful but is less effective than in-person communication.
- There is less capacity to implement initiatives in smaller rural settings because the same people are responsible for implementing many or all initiatives, and access to necessary resources (e.g., lab testing) is more limited. “...there is very little economy of scale and so the people on the front line are doing everything.”
- Data collection and auditing is more difficult at rural sites. Without dedicated staff for these roles, resources are stretched – negatively impacting data quality.
- Some evidence that top-down approaches and standardization procedures are better received by rural sites as staff at such sites tend to be 'generalists'.
- Local organizational culture at small sites can be easily influenced (negatively or positively) by a single individual. For example, a local physician in a small hospital who disagrees with a change of guidelines for care can significantly undermine implementation efforts.
Appendix 9.6 Causal Loop Diagrams

The following Causal Loop Diagram (CLD) is presented as an example of a tool for promoting team discussion about factors affecting large system change. It is important to note that the process is the product here. The end-result may not be meaningful to non-participants: the diagrams may even appear confusing. However, teams involved in constructing a CLD often report that they developed new insights about wider-system implications of local change.

The leadership CLD shown below as an example, was initially produced using data from the study (key informant interviews, focus groups and survey). That first iteration is shown in yellow bubbles and blue arrows. Subsequently, the CLD was modified (pink bubbles) by participants at the February 2014 Quality Forum. For this reason, neither version should be considered “complete”. The two versions of the CLD are presented here to show how such models can evolve over time as local teams analyze their own situation, exploring opportunities and challenges.
Appendix 9.7  Validation Survey and Results

Do you agree with our preliminary findings on “Understanding Health System Transformation through BC’s Clinical Care Management Initiative”?

*We need your thoughts!*
We ask for 10-15 minutes of your time to complete a brief survey and give us your thoughts on the findings of our work so far. Please forward the survey to any colleagues who have also been involved in Clinical Care Management (CCM) implementation, using the following link: http://fluidsurveys.com/s/LSC-CCM/. The survey is anonymous; your identity cannot be associated with your responses.

*Project background*
The Ministry of Health’s CCM Initiative is being used as a case study to better understand the dynamics of large-scale change in BC’s health system. InSource is working with the BC Patient Safety & Quality Council and the Michael Smith Foundation for Health Research to identify and assess mechanisms that enable or constrain the implementation of clinical guidelines in various contexts.

*Survey context and purpose*
This survey is the latest phase of a data collection process that started with an email survey and interviews with CCM leads in December 2013, and continued with key informant interviews and focus groups. Throughout this data collection process all participants have been people working with CCM, from frontline clinical care providers to senior administrators. The final deliverables for this project will include recommendations and practical discussion tools for improving the implementation of change initiatives in our health system.

If you have any questions or concerns about the survey, please contact the project team via Jen Bitz (jen.bitz@in-source.ca)

Thank you for taking part! The survey will close on April 9th.
Demographics

1. Clinical Care Area you have been engaged in (select all that apply)

- Hospital care for seniors
- Antimicrobial stewardship
- Stroke
- Sepsis
- Surgical site infection
- Surgical checklist
- Hand Hygiene
- Heart Failure
- Venous thromboembolisms (VTE)
- Medication reconciliation
- Critical care


2. Primary Affiliations

- Interior Health
- Island Health
- Fraser Health
- Northern Health
- Providence Health Care
- Provincial Health Care
- Vancouver Coastal Health
- Ministry of Health
- BC Patient Safety & Quality
- Other, please specify


3. Primary Role in the Health System

- Frontline Clinician
- Physician
- Manager/administrator
- Director
- Data Analyst
- Other, please specify


4. Primary Discipline

- Nursing
- Medicine
- Pharmacy
- Allied Health
- Business/finance
- Line management
- Quality improvement
- Other, please specify
Emerging Themes

Focusing on health system transformation, one of the key result areas in the Ministry of Health’s Innovation and Change Agenda is CCM. The goal of CCM is to implement a guideline-driven, evidence-informed clinical care management system to improve the quality, safety and consistency of key clinical services and to improve patient experiences of care.

5. Before reading this, did you have a clear idea about what CCM is intended to achieve?

![Bar chart showing responses to the question about understanding CCM.]

- 77% Strongly Agree
- 18% Agree
- 5% Neutral

Enablers and barriers to the implementation of CCM have been identified – what do you think about the following themes and what is your experience?

6. Leadership at all levels can be both an enabler and a constraint. Leaders and champions who convey a real commitment to the initiative and who proactively listen to involved providers will increase the chance of buy-in, even if the providers do not agree with the initiative.

![Bar chart showing responses to the question about leadership.

- 58% Strongly Agree
- 37% Agree
- 1% Neutral
- 2% Disagree
- 1% Strongly Disagree

Health Authority Level Leadership

6.1 Of particular importance is strong authentic senior leadership that is visible to the front line. If senior leadership doesn’t demonstrate support for change, then the initiative won’t go far.

![Bar chart showing responses to the question about senior leadership.

- 71% Strongly Agree
- 28% Agree
- 1% Neutral
- 0% Disagree
- 0% Strongly Disagree
**Clinical Level Leadership**

6.2 Although most physicians might accept CCM guidelines in principle, some see it as ‘invading’ the area of clinical decision-making by forcing standardized processes (e.g. preprinted or clinical orders). If local physician leadership chooses not to engage, the engagement of the entire clinical team is challenged.

6.3 Clinical champions are most effective if well respected and able to influence their professional groups, especially if they have formal authority to implement CCM.

**Provincial Level Leadership**

6.4 An initiative which is supported and seen as a priority by Ministry of Health leadership will have greater success with implementation.

7. **There is much reliance on clinical champions to advance CCM**, but they can only influence other clinicians if systemic initiatives are also coordinated with local priorities.
8. **Accountability structures** (incentives/disincentives for compliance/non-compliance with CCM initiatives) either do not exist or are not effectively understood, enforced or adhered to.

![Bar chart showing survey results](chart1.png)

9. **Metrics and measurement are critical, powerful enablers.** An agreement to share and compare data on key measures between sites and among health authorities offers a powerful motivator for implementing guidelines and changing practice (given that data collection is standardized).

![Bar chart showing survey results](chart2.png)

10. **Frontline clinicians hold the view that CCM is an ‘add on’, not a carefully considered initiative supporting broader health system change.**

![Bar chart showing survey results](chart3.png)

11. **A general lack of resourcing and support exists;** especially for clinical decision-making, data collection and analysis. Most frontline care providers would like to see improved IT support for 26 guideline implementation.

![Bar chart showing survey results](chart4.png)
12. **Open, transparent communication about organizational priorities**, in this case CCM, is essential to build effective frontline team engagement and capacity

![Bar chart with percentages: Strongly Agree 49%, Agree 46%, Neutral 5%, Disagree 0%, Strongly Disagree 0%]

13. **There is less capacity to implement initiatives in smaller rural settings** because the same group of people are responsible for implementing many or all initiatives and external resources are more limited than in urban centres

![Bar chart with percentages: Strongly Agree 27%, Agree 28%, Neutral 21%, Disagree 17%, Strongly Disagree 4%, Not Applicable 3%]

14. **Local organizational culture at small sites may be easily influenced** (negatively or positively) by a single individual

![Bar chart with percentages: Strongly Agree 30%, Agree 52%, Neutral 9%, Disagree 6%, Strongly Disagree 1%, Not Applicable 3%]


**Enablers / Leverage Points**

The following list of enabling factors for implementing CCM as a large scale change initiative were drawn from a longer list identified by participants in the project thus far. Analysis of the data indicates these factors to be the most significant (the full list will be included in our reporting). Understanding that change in one factor of a system will impact many other factors, choose 5 key enablers you think should be used as leverage points to impact large scale change in the health system.

<table>
<thead>
<tr>
<th>Response</th>
<th>Percentage</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adequate resources allocated: Implementation plan considers other local priorities and includes specific allocation of resources (funding, time, and/or staff) to initiative</td>
<td>72.6%</td>
<td>61</td>
</tr>
<tr>
<td>Physician support: Physician leader who supports the change and listens and connects with frontline clinicians</td>
<td>60.7%</td>
<td>51</td>
</tr>
<tr>
<td>Early frontline engagement: Bringing together and involving frontline and interprofessional teams early in the process to instill a sense of ownership</td>
<td>53.6%</td>
<td>45</td>
</tr>
<tr>
<td>Senior-level leader support: Senior leaders who are committed to the change, back up champions, and undertake the accountability measures necessary for full implementation</td>
<td>44.0%</td>
<td>37</td>
</tr>
<tr>
<td>Champion support at the frontline: Champions get behind CCM (early in the process), influence others and are particularly adept at navigating competing priorities/multiple initiatives</td>
<td>41.7%</td>
<td>35</td>
</tr>
<tr>
<td>Evidence-based framing: Presenting the CCM as something that is evidence-based and that will reduce variability and improve patient care (rather than saying it’s a ministry initiative)</td>
<td>34.5%</td>
<td>29</td>
</tr>
<tr>
<td>Balance of allowing local variation yet still implementing standardization: Coordinating and standardizing provincially and regionally and clearly identifying areas where flexibility is permitted locally across sites</td>
<td>34.5%</td>
<td>29</td>
</tr>
<tr>
<td>Leadership is evident at all/many levels: Many or most team members take on various leadership roles</td>
<td>27.4%</td>
<td>23</td>
</tr>
<tr>
<td>Alignment of incentives/ disincentives: Incentives and disincentives that are aligned with quality improvement and focused on patient outcomes, including accreditation and non-compliance penalties for external service providers (e.g. physicians)</td>
<td>23.8%</td>
<td>20</td>
</tr>
<tr>
<td>Open and innovative organizational culture: Clinical sites that are open to innovation and trying new things</td>
<td>22.6%</td>
<td>19</td>
</tr>
<tr>
<td>Access to electronic health records: Availability of electronic health record technology that facilitates implementation as well as audit data collection</td>
<td>22.6%</td>
<td>19</td>
</tr>
<tr>
<td>Standardized auditing: Each clinical site audits using the same methods and metrics for optimum data quality and consistency</td>
<td>19.0%</td>
<td>16</td>
</tr>
<tr>
<td>Positive attitudes about change: “Can do” approach to changes in existing habits and processes toward supporting improvements to patient care</td>
<td>14.3%</td>
<td>12</td>
</tr>
<tr>
<td>Leveraging existing infrastructure and experience Identifying and working within local working groups, team structures and existing initiatives and processes</td>
<td>13.1%</td>
<td>11</td>
</tr>
<tr>
<td>Provincial mandate of initiative: Provincial scope and mandate adds weight, credibility, and ultimately priority of initiative in comparison to others; supports large-scale change</td>
<td>9.5%</td>
<td>8</td>
</tr>
<tr>
<td>Continuing education tools and resources: Online and hardcopy toolkits and resources related to the CCM</td>
<td>3.6%</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Responses: 84