



BMJ Open Informing the implementation and use of person-centred quality indicators: a mixed methods study on the readiness, barriers and facilitators to implementation in Canada

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To cite: Manalili K, Scott CM, O'Beirne M, *et al*. Informing the implementation and use of person-centred quality indicators: a mixed methods study on the readiness, barriers and facilitators to implementation in Canada. *BMJ Open* 2022;**12**:e060441. doi:10.1136/bmjopen-2021-060441

► Prepublication history and additional supplemental material for this paper are available online. To view these files, please visit the journal online (<http://dx.doi.org/10.1136/bmjopen-2021-060441>).

Received 22 December 2021
Accepted 08 August 2022



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ABSTRACT

Objectives To ensure optimal implementation of person-centred quality indicators (PC-QIs), we assessed the readiness of Canadian healthcare organisations and explored their perceived barriers and facilitators to implementing and using PC-QIs.

Design Mixed methods.

Setting and participants Representatives of Canadian healthcare delivery and coordinating organisations that guide the development and/or implementation of person-centred care (PCC) measurement. Representatives from primary care clinics and organisations from the province of Alberta, Canada also participated.

Methods We conducted a survey with representatives of Canadian healthcare organisations. The survey comprised two sections that: (1) assessed readiness for using PC-QIs, and (2) were based on the Organizational Readiness for Change Assessment tool. We summarised the survey results using descriptive statistics. We then conducted follow-up interviews with organisations representing system and clinical-level perspectives to further explore barriers and facilitators to implementing PC-QIs. The interviews were informed by and analysed using the Consolidated Framework for Implementation Research.

Results Thirty-three Canadian regional healthcare organisations across all 13 provinces/territories participated in the survey. Only 5 of 26 PC-QIs were considered highly feasible to implement for 75% of organisations and included: coordination of care, communication, structures to report performance, engaging patients and caregivers and overall experience. A representative sample of 10 system-level organisations and 11 primary care organisations/clinics participated in the interviews. Key barriers identified were: resources and staff capacity for quality improvement, a shift in focus to COVID-19 and health provider motivation. Facilitators included: prioritisation of PCC measurement, leadership and champion engagement, alignment with ongoing provincial strategic direction and measurement efforts, and the use of technology for data collection, management and reporting.

Conclusions Despite high interest and policy alignment to use PC-QI 'readiness' to implement them effectively

STRENGTHS AND LIMITATIONS OF THIS STUDY

- ⇒ This study uses a rigorous, theory and evidence-informed implementation science approach to assess readiness, barriers and facilitators to person-centred quality indicator (PC-QI) implementation from both a system-level perspective and clinical perspective.
- ⇒ Our mixed methods study design enabled us to enhance the generalisability of our findings by surveying healthcare organisations across Canada, while obtaining a more in-depth understanding of the barriers and facilitators of PC-QI implementation.
- ⇒ Study participants may be those interested in using the PC-QIs or have greater capacity to implement them, which may impact our overall assessment of readiness for implementation.

remains a challenge. Organisations need to be supported to collect, use and report PCC data to make the needed improvements that matter to patients.

BACKGROUND

Person-centred care (PCC) is a key component of high-quality healthcare, which actively engages patients and their caregivers in care decisions and considers patient needs, preferences and values.^{1 2} A focus on 'person-centredness' as opposed to 'patient-centredness' promotes a more holistic perspective on care, which is not limited to a person's disease or illness, but also acknowledges the factors that influence a person's well-being.¹ PCC is a model of care that remains aspirational for many healthcare jurisdictions and sectors of care. However, in practice it has been challenging to implement as it requires changes in healthcare structures and processes.^{3 4}

Person-centred quality indicators (PC-QIs) offer an opportunity to drive changes needed

to improve the delivery of PCC.⁵ Developed by Santana *et al* and based on the Donabedian model for quality of care, these generic indicators (non-sector specific) are classified based on their evaluation of healthcare ‘structures’ (eg, policies or programmes, physical structures for providing care), ‘processes’ (interactions between patients, caregivers, healthcare providers and the healthcare system) and ‘outcomes’ (eg, patient and health system outcomes).⁶ Examples of PC-QIs that assess healthcare structures include whether organisations have a policy for PCC or health information technology to support PCC. Processes PC-QIs include indicators that measure patient experiences related to compassionate care, communication with their healthcare providers and patient involvement in decisions about their care. PC-QIs that evaluate outcomes of PCC include patient perceptions around the affordability of care and their overall experience with their care.

Quality indicators are used to help national and provincial/regional organisations and health facilities monitor and evaluate the quality of care provided. They provide a quantitative measure that identifies gaps in care to guide healthcare providers and quality improvement (QI) staff in making targeted improvements.^{7,8} While indicators are routinely implemented to enhance healthcare system performance, little research has been done to understand the readiness of organisations to use them and other factors that influence implementation.⁹ This has important implications for adoption of the indicators, effective use for QI, as well as patient care and outcomes.

Although factors that influence quality indicator implementation have been studied in intensive care,¹⁰ dementia¹¹ and palliative care settings,¹² the use of generic quality indicators intended for use by diverse organisations (eg, national/regional governments, QI organisations), and across various care settings, has not been explored. The use of PC-QIs also introduces another layer of complexity as it requires the engagement of patients to collect their experiences with care (mainly through patient-reported experience measures (PREMs)). As such, with increasing interest to measure and improve PCC, there is a need to identify and evaluate effective strategies that will promote uptake and use of PC-QIs for wide application.

The assessment of barriers and facilitators to implementation is critical to identifying implementation strategies.^{13,14} While barriers and facilitators have typically been assessed at the individual level, there is growing recognition that for large-scale organisational change efforts, it is critical to understand factors that influence the *collective* behaviour change that results in systems redesign.¹⁵ This is particularly relevant to QI initiatives, which involve multiple interdisciplinary team members, such as physicians, nurses, administrative staff and data managers. Understanding aspects of readiness allows one to determine an organisation’s capacity and willingness to implement evidence-based interventions, such as PC-QIs, into practice.¹⁶ Moreover, an exploration of the

implementation context is also important for identifying barriers and facilitators to change.¹⁷

As part of a programme of research developing and implementing PC-QIs for system-level use in Canada, our study aimed to assess readiness of organisations to implement PC-QIs and explore barriers and facilitators to implementation from the perspective of Canadian provincial/regional/territorial QI leads (representing a ‘system-level’ perspective) and healthcare providers (clinical perspective). The specific objectives included: (1) assessing readiness of system-level organisations to implement PC-QIs, and (2) exploring potential barriers and facilitators to implementing PC-QIs for use at both system and clinical levels.

METHODS

Study design

To optimise the implementation of PC-QIs using a theory and evidence-based approach, we chose a mixed methods design to attain more generalisable findings regarding system-level readiness for implementation as well as obtain an in-depth understanding of the readiness, barriers and facilitators to implementing PC-QIs. We conducted an explanatory sequential priorities mixed methods design, where the findings from our first quantitative objective assessing readiness of organisations informed our second qualitative objective to explore the potential barriers and facilitators to implementing these indicators.¹⁸ The ‘Guidelines for conducting and reporting mixed research in the field of counseling and beyond’ were used to guide the design and reporting of this study.¹⁹

Patient and public involvement

Patient and community partners are involved as part of the study team for this programme of research on developing and implementing PC-QIs.⁵ For this particular study, a patient partner was involved in the development of the interview guide to ensure that the patient perspective is reflected in the questions asked. Patient and community partners will also be involved in the cocreation of knowledge dissemination materials and in stakeholder meetings regarding the application of this study’s findings into practice.

Organisational readiness survey for implementing and using PC-QIs

Study design and setting

We conducted a web-based survey to assess system-level readiness for implementing and using PC-QIs. Representatives of healthcare delivery and coordinating organisations that guide the development and/or implementation of PCC measurement in Canada completed the survey.

Survey development

Guided by organisational readiness theory,¹⁶ we codeveloped and piloted a web-based survey with study collaborators to ensure face validity. The survey included two

components. The first assessed: (1) motivation—organisational interest in implementing PC-QIs; (2) content and construct validity—perceived ‘measurability’; and (3) intervention-specific capacity—whether the data could be interpreted and used as part of their organisation’s QI processes to improve PCC.

The second component of the survey included an assessment of general capacity for implementation, measuring domains such as: general availability of resources and needed infrastructure, organisational climate and staff capacity. We used an adapted version of the validated Organizational Readiness for Change Assessment tool,²⁰ whereby the tool was shortened to minimised respondent fatigue. Questions under each domain were prioritised based on relevancy to the context of QI. Participants were asked to provide qualitative feedback regarding their readiness to implement the PC-QIs and to confirm their willingness to be contacted for a future interview. Survey development and data collection was supported via a web-based platform called ‘Qualtrics’.²¹ A copy of the survey is available (see online supplemental file 1).

Participant recruitment

We identified representatives from Canadian health-care organisations that lead QI and/or PCC measurement initiatives from a previous environmental scan we conducted.²² We also identified potential contacts through our collaborator, the Canadian Institute for Health Information. A sample frame of 55 eligible organisations across Canada was compiled. Participant details are included in the Results section.

Data collection

Potential participants were invited to participate via email invitation. Once participants confirmed their ability to respond to questions regarding their organisation’s readiness to use PC-QIs and consented, they received a monograph with the technical specifications and evidence supporting the PC-QIs, and a link to the survey. Participants who consented received reminders in 2-week intervals until survey completion or until at least a 60% response rate was achieved (determined by the study team to be acceptable) and representation was obtained from all 13 Canadian provinces and territories.

Data analysis

We analysed the survey data using STATA V.15 to obtain a descriptive summary of all organisations that participated, including:

- ▶ Organisation type (health service delivery organisation, regional coordinating organisation, both health service delivery organisation and regional coordinating organisation, and other—provincial or territorial government/Ministry of Health).
- ▶ Whether the organisation has or could obtain data for the needed PC-QI (already have/could obtain).

- ▶ Whether the organisation was interested in implementing the PC-QI (somewhat/interested/very interested).
- ▶ Whether the organisation has processes in place to make changes to improve the indicator (yes).
- ▶ Whether the indicator measured what it is supposed to measure (yes).

We calculated the respondents’ assessment of organisational readiness for each section and compared differences in responses between groups for organisation type and region of Canada. The regions of Canada were defined as: Atlantic, comprising the provinces of Nova Scotia, Prince Edward Island, New Brunswick, Newfoundland and Labrador; Central, including the provinces of Ontario and Quebec; Northern territories, including Yukon, Northwest Territories and Nunavut; Pacific, comprising the province of British Columbia; and Prairies, including the provinces of Alberta, Saskatchewan and Manitoba. We conducted content analysis for the qualitative feedback to identify emerging themes as well as patterns across organisation types or regions.²³ The survey findings were summarised and sent to participants for their review and feedback.

Interviews to explore barriers and facilitators to implementing and using PC-QIs

Study design and setting

For our second objective, we used a qualitative descriptive approach to describe the experiences and perceptions regarding PC-QI implementation and to contrast and compare differences between participant groups. Groups compared included those that provided a system-level perspective, a clinical primary care perspective, different types of organisations, including health service delivery organisations, regional coordinating organisations, provincial or territorial governments, as well as different types of primary care clinics and organisations, such as academic centres and those serving primarily rural populations.²⁴ We conducted both individual and group interviews with survey respondents to obtain a system-level perspective, as well as primary care providers and primary care network staff who provided a clinic-level perspective. Primary care providers who were interviewed included physicians, clinic administrators, QI managers and nursing staff. Primary care networks were interviewed as they offer QI support to primary care clinics, such as helping to facilitate discussions with physicians and clinic staff to make improvements in processes of care. Primary care networks also support data management, analysis and reporting back to the clinics. The clinical perspective was limited to primary care in the province of Alberta for feasibility, as the University of Calgary is situated within Alberta. Furthermore, future research is focused on piloting and studying the implementation of the PC-QIs in primary care in Alberta.

While individual interviews would allow for more in-depth exploration of perceived barriers and facilitators, group interviews with multiple participants from one

organisation or clinic provide ‘a greater sense of shared social meanings, or norms, and how these are enacted²⁵’ and contribute to enhanced understanding of context.²⁶

Interview guide development

Interview guide development was informed by the survey findings and the Consolidated Framework for Implementation Research (CFIR).²⁷ The CFIR provides a comprehensive perspective on the factors that influence implementation, particularly regarding implementation context and from an organisational perspective, consistent with the organisational readiness lens that guides our study.²⁷ The survey findings allowed us to identify specific constructs from the CFIR that would be important to further explore through our interviews. The interview guide was developed by the study authors in consultation with a patient partner and pretested with study collaborators (see online supplemental file 2).

Participant recruitment and inclusion criteria

We strived to conduct 10 system-level interviews and 10 clinical primary care interviews. Purposive sampling was used to obtain a variety of perspectives, striving for maximum variation with regard to participant’s role/position in the organisation or clinic, type of organisation or clinic, geographical region represented and self-identified gender.¹⁸ For primary care participants, we aimed for representation from all five health service zones in the province of Alberta defined as North, Edmonton, Central, Calgary and South zones. We identified system-level participants from the organisational readiness survey and recruited primary care participants through referral by our study primary care collaborators and previous interview participants, and a review of primary care network websites with public contact information listed for QI staff. Participants were invited via email. Participant details are included in the Results section.

Data collection

All interviews took place through videoconference (Zoom) or by telephone, based on the preference of the participant(s) and in consideration of safety during the COVID-19 pandemic. Interviews were audio recorded and field notes collected. Interviews lasted between 30 and 60 min, whereby individual interviews were 38 min on average and group interviews 45 min on average. Members of the study team met monthly to review data collected to date, discuss prominent themes, and data saturation.

Data transcription and analysis

An external transcription service transcribed all audio recordings verbatim. The transcripts were reviewed, corrected as needed and anonymised by the study team. Transcripts were also sent to all interview participants for their review and feedback.

KM conducted the qualitative data analysis, which included a reading of each transcript and the field notes to become familiarised with the data.²⁵ We used a deductive

qualitative content analysis approach to code the data in NVivo V.12, with the CFIR as the guiding framework to categorise data according to factors (constructs) influencing implementation.^{23 27} The CFIR was used with the intention of mapping the identified barriers and facilitators to evidence-based implementation strategies using the Expert Recommendations for Implementing Change tool following this study.²⁸ To enhance trustworthiness,²⁹ three other members of the study team (M-JS, CMS, MO’B) collectively analysed 25% of the transcripts, along with KM, to compare coding and discuss potential discrepancies in the interpretation of the CFIR constructs and codebook. The codes/CFIR constructs were summarised and organised as ‘facilitators’ or ‘barriers’ to PC-QI implementation. The study team discussed the codes and grouped them into larger categories, where they could be distilled into broader themes and subthemes of facilitators and barriers until data saturation was reached and no new themes were observed in the data.²⁵

Data interpretation and integration

To enhance the value of the integration between our qualitative and quantitative methods, we developed a joint display to support the interpretation and reporting of this mixed methods study.³⁰ Key survey findings were integrated with the themes and subthemes identified from the interviews to facilitate the interpretation of the data and refine our themes. The integrated findings from the survey and the interviews were summarised and sent to all survey and interview participants for their review and feedback. Additional details regarding the methods can be found in online supplemental file 3.

RESULTS

Organisational readiness survey

The organisational readiness survey was conducted between November 2019 and March 2020. A total of 33 of 55 Canadian ‘system-level’ organisations that were contacted participated. We attained representation from all 13 provinces and territories across Canada, with a total response rate for 60% (33/55 organisations). Over one-quarter (27.3% (15/55)) of organisations were lost to follow-up after initial contact and/or consent to participate and 12.7% (7/55) of organisations declined to participate due to transitions within the provincial healthcare system that resulted in challenges in available staff time and staff attrition, shifting responsibilities due to COVID-19, or use of PC-QIs not being a focus of their organisation.

Most representation came from the provinces of Ontario and British Columbia who have the greatest number of eligible organisations, each representing 21% of responses. About half of organisations were regional coordinating organisations (51.6%), followed by health service delivery organisations (29.0%). See [table 1](#) for a summary of the survey participant organisations.

Table 1 Survey participant organisations, by % (n)

Organisation demographics	% (n)	Response rate % (N=55)
Provinces/territories represented (N=13)	100 (13/13)	
Organisations surveyed by province/territory (N=33)		60 (33/55)
Alberta	6.1 (2)	100 (2/2)
British Columbia	21.2 (7)	63.6 (7/11)
Manitoba	15.2 (5)	62.5 (5/8)
New Brunswick	6.1 (2)	66.7 (2/3)
Newfoundland and Labrador	6.1 (2)	50.0 (2/4)
Northwest Territories	3.0 (1)	100 (1/1)
Nova Scotia	6.1 (2)	100 (2/2)
Nunavut	3.0 (1)	100 (1/1)
Ontario	21.2 (7)	36.8 (7/19)
Prince Edward Island	3.0 (1)	100 (1/1)
Quebec	3.0 (1)	100 (1/1)
Saskatchewan	3.0 (1)	50.0 (1/2)
Yukon	3.0 (1)	100 (1/1)
Type of organisation (N=33)		
Health service delivery organisation	29.0 (9)	
Regional coordinating organisation	51.6 (16)	
Both	6.1 (2)	
Other (provincial government/Ministry of Health)	12.1 (4)	

Box 1 provides a summary of the key survey findings for each PC-QI assessed by the organisations and their reported readiness to implement the PC-QIs. These results are also integrated with the interview findings below. The survey identified a further need to explore specific facilitators and barriers to implementation through interviews, particularly with regard to organisational readiness and the perspective of clinical staff, who would be collecting and using the data for QI. These factors for implementation further explored through the interviews included: the importance of aligning with provincial directions for PCC measurement as well as other motivations for implementation, whether organisations and clinics had the capacity to collect and use the data, what resources are needed to support PC-QI implementation and what organisational cultures or environments support PC-QI implementation. The detailed descriptive survey results are also available in online supplemental file 4.

Box 1 Key survey findings
Motivation—‘Interest in implementing the PC-QIs’

- ⇒ 85%+ organisations were interested in implementing most indicators.
- ⇒ Interest was lower for PC-QIs related to ‘Timely access to a primary care provider’ as it was not seen as valuable for some organisations to aim for same-day access, and the ‘Friends and Family test’ (whether health facility would be recommended to friends and family), where participants did not see that the data would result in meaningful changes.
- ⇒ Interest depended on alignment with province directions, particularly in the province of Ontario where there have been major transitions.

Feasibility—‘Have or could obtain info’

- ⇒ Provincial/territorial organisations had highest capacity to obtain data for structure indicators relative to other types of organisations.
- ⇒ 100% of organisations could get data for the following PC-QIs: ‘Policy on PCC’; ‘Educational programs for PCC’; ‘Healthcare information system to support PCC’; and ‘Structures to report PCC performance’.
- ⇒ 100% of regional coordinating organisations, provincial/territorial organisations and organisations that were both health service delivery/coordinating could get data for PC-QI on ‘Overall experience’.
- ⇒ Organisations reported partial measurement of PC-QIs—either different terminology was used, or all components of the PC-QI were not measured.

Actionability—‘Have the processes to make changes’

- ⇒ More than 75% of organisations agreed for these PC-QIs:
 - ⇒ ‘Structures to report PCC performance’; ‘Communication between patient and nurse’; ‘Coordination of care’; ‘Patient and caregiver involvement in decisions about care’; and ‘Overall experience’.
 - ⇒ Most organisations also report having the data or could obtain the data for these indicators, indicating they may be the most feasible to implement.
- ⇒ Provincial/territorial organisations were most likely to have processes to make changes relative to other types of organisations for ‘structure’ PC-QIs.

Validity—‘Measures what it is supposed to measure’

- ⇒ Four PC-QIs received a relatively high proportion of ‘no’ responses (9%–12%) and could be further refined:
 - ⇒ ‘Policy on PCC’; ‘Culturally competent care’; ‘Use of Patient Reported Outcome Measures’; ‘Equitable care’.
- ⇒ Comments indicate that a more clear definition or other refinements to how the data would be collected would improve the PC-QIs.

Readiness of organisations to implement PC-QIs

- ⇒ Motivation for change:
 - ⇒ 65.5% of organisations agree that more training is needed for new methods/developments in measurement/QI.
 - ⇒ Current pressures to change come from patients (69% agree) and accreditation bodies (83.2%).
- ⇒ Resources:
 - ⇒ 0% of provinces/territories agreed that staff usually have enough time to complete assigned duties.
 - ⇒ 74.1% of organisations reported that workload and pressures keep motivation for new training low.
 - ⇒ 70.4% of organisations disagreed that staff were satisfied with the health data/information systems.
- ⇒ Organisational climate:

Continued

Box 1 Continued

- ⇒ 75% of organisations indicated that their staff are qualified.
- ⇒ 63.0% of organisations reported heavy workload reduces staff effectiveness.

PCC, person-centred care; PC-QI, person-centred quality indicator; QI, quality improvement.

Interviews to explore barriers and facilitators to implementing and using PC-QIs

Interview participants

We conducted interviews between September 2020 and April 2021. Twenty-one individual and group interviews were conducted (N=42 participants). Ten interviews were conducted with system-level healthcare organisations across Canada (n=13 participants) and 11 with primary care clinics/health centres and primary care networks in Alberta (n=29 participants). While 85.7% (36/42) of interview participants identified as women, 100% of participants providing a system-level perspective identified as women. No men had consented to a follow-up interview. Positions held by system-level interview participants included: leads, coordinators, or (executive) directors of patient/client experience or engagement (n=9), directors of departments related to quality, safety and clinical metrics (n=4), and epidemiologist (n=1), and a practice consultant (n=1).

Among primary care interview participants, all five zones were represented across Alberta, close to half representing urban areas (45%) and most affiliated with academic centres (63.6%). The majority of participants represented primary care clinics or organisations that served diverse populations (eg, Indigenous populations, newcomers, homeless populations and both adults and children). Participants held a variety of roles (some more than one), including physicians (n=8), primary care network staff (n=12, comprising QI/evaluation leads or managers, practice facilitators, data quality leads), clinic nurses (n=3), clinic QI staff (n=6), a medical director (n=1) and clinic support assistant (n=1). See [box 2](#) for a summary of the participant and organisation/clinic demographics.

Integrated survey and interview findings

The findings are presented as four main themes and subthemes. These include: the organisations' interest in implementation of the PC-QIs, motivation to implement PC-QIs, resources and capacity needed to collect and use data for improvements and the organisational climate for implementation of the PC-QIs. See [table 2](#) displaying integrated key survey and interview themes, subthemes and illustrative quotes, as well as online supplemental file 5 for detailed findings.

Theme 1: interest in implementation of the PC-QIs

Facilitators

Survey respondents agreed that most PC-QIs 'measure what they are supposed to measure'. Most system-level organisations and primary care organisations saw *value*

Box 2 Summary of interview participant and organisation demographics, by % (n)

Participants (N=42)

- ⇒ System-level perspective: 31% (13).
- ⇒ Primary care perspective (Alberta): 69% (29).
- ⇒ Identify as a woman: 85.7% (36).
- ⇒ Length of time with organisation/clinic:
 - <1–5 years: 35.7% (15).
 - 5+ years: 57.1% (24).
 - No answer: 7.1% (3).

Canadian regional/provincial/territorial organisations (10 interviews; 13 participants)

- ⇒ Alberta: 10% (1).
- ⇒ British Columbia: 20% (2).
- ⇒ Manitoba: 10% (1).
- ⇒ New Brunswick: 10% (1).
- ⇒ Nova Scotia: 10% (1).
- ⇒ Ontario: 20% (2).
- ⇒ Saskatchewan: 10% (1).
- ⇒ Yukon: 10% (1).

Primary care networks and clinics in Alberta (11 interviews; 29 participants)

- ⇒ Primary care network: 36.4% (4).
- ⇒ Primary care clinic/health centre: 63.6% (7).
- ⇒ Teaching site/affiliated with academic institutions: 63.6% (7).
- ⇒ Main populations served:
 - Urban: 45.5% (5).
 - Rural: 36.45% (4).
 - Mixed: 27.3% (3).

in using the PC-QIs to improve PCC, the patient experience and quality of care. Eighty-five per cent of organisations surveyed were interested in implementing most PC-QIs. Provincial and territorial *alignment* was an important factor for interest in using the PC-QIs among survey respondents. Both system-level and primary care organisations/clinics would like to see that it is feasible to address the indicator and make meaningful changes.

Barriers

Some participants were less interested in implementing in the PC-QIs as they perceived the PC-QIs to have *limitations for understanding context*, particularly considering the measurement of cultural competency. Patient stories were seen as a potentially more compelling way to promote improvements and should complement quantitative measures. Organisations/clinics also saw a need to *prioritise and tailor the PC-QIs* as the generic (non-sector-specific) nature of the PC-QIs may not be appropriate for their context. Not all PC-QIs were of interest to organisations, especially if there were not seen as actionable. For example, interest was lower for the PC-QIs related to 'Timely access to a primary care provider' as it was not seen as valuable for some organisations to aim for same-day access.

Table 2 Summary of factors to consider for implementing PC-QIs

Facilitators	Barriers
Theme 1: interest in implementation of the PC-QIs	
<p>Stakeholders perceive value in using PC-QIs. <i>'The one thing that they do that we haven't been able to do, and that's why I'm really interested in what you have, is looking at patient satisfaction and looking at sort of quality indicator that shows a patient is better today than they were 12 months ago... That's the kind of piece that we have been missing and that I've been hunting for the best sort of way to do it, because we haven't done that very well yet.'</i> (Primary care organisation 2)</p> <p>There is provincial/territorial alignment for PCC measurement. <i>'And I think that would be a good indication for you on which ones have been identified as a priority within [organisation name]... if we are collecting it, I would say that that has been prioritized within the organization.'</i> (System-level organisation 4)</p> <p>Actionability and effectiveness of the PC-QIs to stimulate change. <i>'So if there's an area that was really a lot lower than the others then that kind of just would help to guide the work that we're doing... And it also then opens up that communication with the providers as far as what they're offering in the clinics and maybe what areas again could be improved...'</i> (Primary care organisation 10)</p>	<p>PC-QIs have limitations for understanding context. <i>'I think we have to be careful with all of these that we don't try to quantify the human context. So somehow that needs to be considered.'</i> (System-level organisation 6)</p> <p>There is a need for tailoring and prioritisation of the PC-QIs. <i>'Where I get nervous and where we've experienced some challenges in the past with those bodies [national organizations] being involved is there needs to be a certain level of flexibility in what is being dictated around the measurement pieces. The information that is most interesting at that national level, or that is feasible at that national level is sometimes not meaningful at all at the unit level.'</i> (System-level organisation 4)</p>
Theme 2: motivation to implement PC-QIs	
<p>Organisations respond to patients and policies. <i>'If Primary Care Networks get a hold of this in itself, and they consider very valuable measures, they can then start to demand... this is a requirement... that's one of the very beneficial roles of the Primary Care Networks is to lead clinics down that path to say look these are some measures that you should be doing to provide optimal care.'</i> (Primary care organisation 5)</p> <p>Standardisation and alignment of measurement efforts are important. <i>'I think if you're able to build a power in a Pan Canadian process, it will make it easier for each jurisdiction independently to get buy-in.'</i> (System-level organisation 7)</p> <p>Engagement of provincial/territorial leadership and champions is critical. <i>'It comes down to the leadership and their vision for the organisation and how Patient and Family-Centred Care indicators fit into that vision. And there are a lot of competing priorities in healthcare... And leadership has to make that a priority.'</i> (System-level organisation 9)</p>	<p>Strength of the evidence for PC-QIs is unclear. <i>'So, patient experience, yes, it's important. But should it rule? I'm not convinced about the clinical outcomes and the downstream savings for costs in healthcare, [or] reduced morbidity for that patient—as long as they get the right clinical care, even if they're bitching and complaining the whole way.'</i> (Primary care organisation 4)</p> <p>The need for training keeps motivation low. <i>'It's not something that a lot of clinics are comfortable with or know what to do about, and so I think we personally still have a lot of growth to do in terms of how we capture this information, and act on it, and engage with patients and design person-centred processes.'</i> (Primary care organisation 6)</p> <p>Surveys can be a potential patient burden. <i>'I guess one of the challenges is just overburdening patients with surveys. And when we are serving patients wanting to keep those surveys quite brief.'</i> (Primary care organisation 9)</p>
Theme 3: resources and capacity needed to collect and use data for improvements	
<p>There is strong capacity for QI for most system-level or higher resourced primary care organisations. <i>'... We have a fairly robust framework of measurement that we've had implemented for quite some time... but our next our next step forward is expanding to measures of greatest significance directly to patients.'</i> (Primary care organisation 2)</p> <p>Technology supports implementation and use of PC-QIs. <i>'It's not quite as slick as I would like it to be but what it does allow is for you to use your cell phone, scan the QR code, do the survey, send it in and you're done and it's real-time. So for example, if you're laying in your hospital bed, you scan the poster on the wall in the hallway and send in your feedback.'</i> (System-level organisation 2)</p>	<p>Staff are time and resource constrained. <i>'I think in addition to that just the current environment that we're in in Ontario we are resource constrained... actually having people to be able to do the work is certainly a challenge...'</i> (System-level organisation 7)</p> <p>PC-QIs can conflict with priorities for patient care and other measurement. <i>'... Given the stuff resources we have, it's hard to start collecting something new that isn't already collected without dropping something else off... what can we actually drop?'</i> (System-level organisation 4)</p> <p>COVID-19 has impacted PCC measurement. <i>'But you have frontline staff who are exhausted, overwhelmed, have COVID-19 fatigue, and it's like, "Don't ask me to, like, now collect this data on top of everything else I'm doing".'</i> (System-level organisation 1)</p>
Theme 4: organisational climate for implementation of PC-QIs	
<p>PCC is part of the culture in most organisations/clinics. <i>'There's going to be an engagement with the community to understand what matters to them, and what they think we should focus measuring, and also an engagement strategy with patient family advisors.'</i> (System-level organisation 5)</p> <p>PC-QI implementation should fit with the workflow. <i>'I think just getting everybody's buy in, like all the stakeholders, especially the ones that will be doing the work. Just make sure that it's... impactful, but just that doesn't take over their daily operations...'</i> (Primary care organisation 3)</p> <p>Most organisations have a culture of learning. <i>'It's a no-blame culture. So, if somebody does something that may be not the right thing, we certainly have a no blame culture. And I think people feel comfortable bringing forward concerns... There's no repercussions to them.'</i> (System-level organisation 10)</p>	<p>Primary care funding models do not support PC-QI implementation. <i>'It's difficult to schedule time with them because they have to meet their quotas, right. And they have to be available to their patients too... I think the biggest hurdle is just finding time that the physicians are able to give towards that.'</i> (Primary care organisation 8)</p> <p>Variability among health provider and leadership readiness in terms of PCC. <i>'I guess it's the dismissing this data as not being legitimate because it's only people who want to complain that fill these surveys out... the quality department has done a lot of work to really focus on the science and the evidence that this is a validated survey...'</i> (System-level organisation 9)</p>
PCC, person-centred care; PC-QI, person-centred quality indicator; QI, quality improvement.	

Theme 2: motivation to implement PC-QIs

Facilitators

Stakeholders were motivated implement PC-QIs if they perceived a *need from patients* (69% of survey respondents) and *pressures from accreditation bodies* (83.2% of survey respondents). For most provinces or organisations,

they saw PC-QIs as *aligning with existing policy and measurement priorities*, including their provincial/territorial health strategic plans. *Standardisation of measurement efforts* was also a facilitator in motivating organisations/clinics to use PC-QIs. Among system-level organisations, some expressed a need for a Pan-Canadian effort, while primary

care stakeholders would like to see alignment of measurement efforts provincially to avoid duplication or siloed efforts across stakeholders. *Engagement of leadership* at all levels was seen as an important facilitator for buy-in and for motivating staff to measure PCC. Furthermore, having champions at the local level (unit or clinic) was seen as a key facilitator for uptake and use; physicians value the experience and recommendations of their peers.

Barriers

Other factor that influenced motivation to use PC-QIs was the *lack of clarity around the strength of the evidence*. Among survey respondents, while most PC-QIs were considered valid, four PC-QIs in particular could be further refined. These included: 'Policy on PCC'; 'Culturally competent care'; 'Use of Patient Reported Outcome Measures (PROMs)'; and 'Equitable care'. These PC-QIs received a high proportion of 'no' responses (9%–12%) to the question about PC-QI validity. Additionally, some interview participants *questioned whether the PC-QIs would lead to improved outcomes*; previous experience among primary care stakeholders indicates that they did not find using PREMs to be helpful in facilitating improvements. System-level organisations (65.5% of survey respondents) and interview participants indicated more training is needed for new methods/developments in measurement/QI. Finally, some participants noted that *surveys may be too long for patients* to complete.

Theme 3: resources and capacity needed to collect and use data for improvements

Facilitators

Most system-level and some primary care organisations described having *strong capacity for QI*. They have dedicated staff or partners to support QI by providing training, help to manage, analyse, report and interpret data. For primary care organisations, those with the strongest capacity tended to be urban and academic/teaching clinics. Among survey respondents, five PC-QIs were considered highly feasible to implement by system-level organisations, where 75% of organisations could get information for the PC-QI and have processes to make changes. These included: 'Structures to report PCC performance'; 'Communication between patient and nurse'; 'Coordination of care'; 'Patient and caregiver involvement in decisions about care'; and 'Overall experience'. *Technology* was also considered an important facilitator for helping with data collection and real-time reporting to use for QI. This includes the use of tablets, QR codes, emailing patient surveys and electronic medical/health records.

Barriers

Many participants described *time and resource constraints*, which may impact PC-QI implementation. Among survey respondents, 0% of provinces/territories agreed that staff usually have enough time to complete assigned duties. Additionally, 74.1% of organisations reported that workload pressures keep motivation for training low, indicating

potential challenges with training for the collection and use of PC-QIs. Some lower resourced organisations/clinics do not have strong capacity for QI due to a lack of funding and dedicated staff to support QI. In particular, the organisations in the Northern Territories of Canada and smaller and rural clinics reported having less capacity for QI. Additionally, participants were challenged by *competing priorities*. COVID-19 has also had an impact on PCC measurement, as it has diverted resources away from patient experience measurement. Staff described feeling like they had no additional capacity to undertake more measurement efforts. Some system-level organisation staff were seconded to COVID-19 surveillance and measurement, while clinic staff incorporated additional processes and policies related to infection control as well as staffing shortages due to school closures and isolation requirements.

Theme 4: organisational climate for implementation of PC-QIs

Facilitators

PCC is part of the culture in most organisations/clinics, where the patient perspective in healthcare quality is valued. Most system-level organisations, some primary care organisations (mainly primary care networks) and larger clinics had well-established programmes around patient engagement and obtaining patient feedback. Some system-level organisations and primary care clinics also spoke about having a positive *culture of learning*. Among primary care stakeholders, another important factor to consider was designing PC-QI implementation to *fit with the existing clinic workflow* and processes as much as possible to minimise disruption to patient care.

Barriers

One of the key barriers in primary care is that *primary care funding models do not support PC-QI implementation*. Additional data collection is especially challenging for physicians due to time constraints. In the province of Alberta, the fee-for-service model of funding, where physicians bill for each service provided, was seen as a barrier to providing dedicated time for QI as physicians may want to prioritise patient visits over QI initiatives. Participants also described *variability among health providers and leadership readiness in terms of PCC*, where not all health providers and leadership see PCC as a priority and there is variability in understanding what PCC means. For example, some may see PCC as giving patients what they want and ensuring they are satisfied versus engaging patients as partners in their care.

DISCUSSION

We conducted a mixed methods study to assess the readiness of organisations in Canada to implement and use PC-QIs, and to identify specific barriers and facilitators to implementation. Our survey findings highlighted variability in system-level readiness for implementation. While most organisations were interested in using the

PC-QIs, some were more ready to implement, given the organisation's capacity to collect the data and to use the data to stimulate improvements in PCC. Notably, only 5 of 26 PC-QIs were considered highly feasible to implement. These PC-QIs included: 'Structures to report PCC performance'; 'Communication between patient and nurse'; 'Coordination of care'; 'Patient and caregiver involvement in decisions about care'; and 'Overall experience'. Regarding general capacity for implementation, survey respondents indicated staff time to be a major constraint, a need for training in new methods/QI and dissatisfaction with electronic data systems.

Our interviews allowed us to further explore these aspects of readiness, corroborate our survey findings around readiness and provide a more enhanced understanding of the barriers and facilitators. Facilitators identified included: a culture of PCC and patient engagement exists in most organisations, PC-QIs are aligned with national and provincial measurement efforts, and that leadership engagement, and the use of technology, such as electronic medical records, QR codes, dashboards and email are important for implementation. Barriers identified were: challenges with resources and workload, limited QI capacity in lower resourced settings, especially family practices and rural clinics, and the COVID-19 pandemic, which has diverted resources, disrupted processes for collecting patient experiences and impacted patient flow.

Our previous research found that while many organisations across Canada and in many other countries, including England, Sweden, Australia and New Zealand, measure PCC using patient experience measures, few organisations use quality indicators to monitor and evaluate PCC.²² Furthermore, in a 2019 scoping review of the literature, we also found scarce evidence on the implementation of PC-QIs and evaluation of their use, highlighting a significant gap in the literature.³¹ However, some studies have explored the factors that influence the implementation and use of quality indicators, although not specifically focused on measuring PCC. Our findings are consistent with previous research on quality indicator implementation in various care settings and studies on the implementation of PREMs and PROMs.^{10–12 32–34} Challenges associated with knowledge, skills (need for training), time constraints and motivation around measurement have been widely reported. Important facilitators to support quality indicator implementation that have also been reported include the need for administrative support for clinicians,¹⁰ the importance of electronic data systems,^{12 32} and alignment with national and regional priorities,¹¹ the need to integrate measurement within established workflows to minimise patient care disruptions, as well as the uncertainty around the benefits of using patient-reported data.³²

Our findings also suggest inequitable uptake of person-centred QI, where organisations that are least resourced may also be in most need of improved quality of care that is person-centred. This includes organisations in Canada's Northern Territories, which are home to a larger

proportion of Indigenous communities, relative to other areas of Canada, as well as rural primary care clinics, where people experience challenges with remote access to services. Rolnitsky *et al* conducted a 2018 mapping review of the literature to measure the representation of vulnerable populations in QI studies.³⁵ They found that while one-third of QI research is focused on vulnerable populations, some populations are under-represented (less than 2%), including rural residents, the poor, visible minorities, the terminally ill, adolescents and prisoners.³⁵ Moreover, in Canada, as well as Australia, New Zealand and the USA, inequities related to the quality of care for Indigenous people are well documented.³⁶ These gaps that have been identified in research, including this study, suggest a need for increased attention to more equitable implementation of QI, especially focused on promoting PCC.

Our study identified some unique factors perceived to influence implementation by including both system and clinical-level perspectives, such as the role of external organisations and partners in supporting implementation to enhance capacity for QI, the variability in provider and leadership readiness around PCC and measurement, organisational culture in terms of patient engagement and QI and specific implementation challenges in Canadian primary care contexts (fee-for-service models). Furthermore, our study identified barriers associated with planning for PC-QI implementation during COVID-19, where the pandemic negatively affected the ability for organisations and clinics to continue collecting patient-reported data.

This study is the first to assess the readiness of Canadian organisations and explore barriers and facilitators to implementing PC-QIs. Our mixed methods study design enabled us to enhance the generalisability of our findings by surveying healthcare organisations across Canada, while obtaining a more in-depth understanding of the barriers and facilitators of PC-QI implementation. Moreover, this research contributes to the limited body of evidence regarding quality indicator implementation by using an evidence and theory-informed approach (organisational readiness lens, CFIR) and obtaining diverse perspectives at the local clinical level as well as a regional/provincial/territorial system level. With increased interest in measuring PCC globally and leveraging ongoing measurement efforts in Canada, this research can provide guidance for PCC measurement moving forward.

Several limitations of this research should be acknowledged. First, there is a risk of selection bias, where those potentially most interested in the PC-QI implementation and have resources available to support implementation were most likely to participate in the survey and interviews. This was the case for most of our interview participants in primary care, who tended to be 'early adopters' with respect to PCC measurement and QI. In addition, we attained a relatively low response rate for the provinces of Ontario and British Columbia in our survey. We were also limited in sampling participants from the province



of Quebec as we did not sample regionally due to French language limitations. These limitations may influence the generalisability of our findings. Despite this, efforts were made to ensure a diversity of perspectives through purposive sampling to attain greater representativeness.

Future research includes mapping these barriers and facilitators to evidence-based implementation strategies and engaging key stakeholders in PCC measurement in Canada and in primary care in Alberta to inform future implementation efforts.

CONCLUSIONS

The findings of this study suggest that PC-QI implementation can leverage the high level of interest in their use, alignment with existing policy and initiatives in PCC measurement, and opportunities to integrate technology to support implementation. Despite this, organisational readiness to implement is variable across contexts; it will require resource investment, capacity development and sustained leadership engagement at all levels to support organisations to collect, use and report data on PCC. This study provides a foundational basis for identifying implementation strategies that will optimise PC-QI implementation and facilitate the incorporation of the patient perspective in improving their quality of care.

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Acknowledgements The authors are thankful for the contributions and support to this project by the Person-Centred Quality Indicators study team, especially Dr Paul Fairie, who provided advice on the development of the organisational readiness survey; Brian Steele, who supported the development of the survey on the Qualtrics platform; Farwa Naqvi, who provided support in confirming and identifying potential study participants through a web search of publicly available contact information; and Sandra Zelinsky, who we consulted on the development of our interview guide. We would also like to thank our collaborators who pretested the survey and interview guides for us (Canadian Institute for Health Information, Health Quality Council of Alberta and the Grey Nuns Family Medical Centre). The authors would also like to extend their gratitude to the quality improvement and person-centred care measurement staff and healthcare providers who participated in this study.

Contributors KM, M-JS, BRH, CMS and MO'B contributed to the study concept, study design and interpretation of data, and provided critical review and revision of the manuscript for intellectual content. MO'B provided support in identifying and contacting potential interview participants in primary care. KM collected the survey and interview data. KM, CMS, MO'B and M-JS conducted data analysis. KM, M-JS, BRH, CMS and MO'B also provided their final approval of this publication and agree to be accountable for all aspects of the work to ensure both accuracy and integrity of this research. M-JS is the guarantor of this study, who accepts full responsibility for the work, had access to the data and controlled the decision to publish.

Funding M-JS and KM secured funding from the Canadian Institutes for Health Research (CIHR) for this study (grant number: 201709PJT). KM is supported by the Vanier Canada Graduate Scholarship through the CIHR (award number: 201810CGV).

Disclaimer CIHR played no role in the project.

Competing interests None declared.

Patient and public involvement Patients and/or the public were involved in the design, or conduct, or reporting, or dissemination plans of this research. Refer to the Methods section for further details.

Patient consent for publication Not applicable.

Ethics approval This study involves human participants and was approved by the University Health Research Ethics Boards (REB15-2846) at the University of Calgary. Participants gave informed consent to participate in the study before taking part.

Provenance and peer review Not commissioned; externally peer reviewed.

Data availability statement Data are available upon reasonable request. Some materials and documentation may be available to other researchers. Please contact the corresponding author with a detailed request.

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