Developing The First Pan-Canadian Survey on Patient Engagement in Patient Safety

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Abstract

Background: Patient safety is a worldwide problem, and the patient contribution to mitigate the risk of patient harm is now recognized as a cornerstone to its solution. In order to understand the nature of integrating patients into patient safety and healthcare organizations and to monitor their integration, a Canadian survey tool has been co-constructed by patients, researchers and the Canadian Patient Safety Institute (CPSI). This questionnaire has been adapted from the French version of the patient engagement (PE) in patient safety (PS) questionnaire created for the province of Quebec, Canada.

Methodology: The pan-Canadian PE in PS survey tool was developed in a five-step process: (1) a literature review and revision of the initial tool developed in the province of Quebec; (2) translation of the French questionnaire into English; (3) creation of a Canadian expert advisory group; (4) adaptation of the tool based on feedback from the expert advisory group (assessment and development of the construct's dimensions, wording assessment and adaptation for pan-Canadian use, technical testing of the online platform for the survey); and (5) pilot testing and pre-validation of the tool before pan-Canadian use.

Results and Conclusion: The pan-Canadian PE in PS survey tool comprises 5 sections: (1) demographic identification of the participants (Q1 to Q5); (2) general questions (Q6 to Q17); (3) the patient engagement process (experience level of participants and organizational incentives for PE in general) (Q18 to Q33); (4) PE in PS processes, such as current activities, strategies, structures, resources and factors (Q34 to Q67); and (5) the context and impact of PE in PS initiatives in Canadian healthcare organizations (CHOs) (Q68 to Q75), including outcome identification, improvement mechanisms and strategies, evaluation mechanisms, and indicators.

Background

Patient safety is a worldwide problem. Among the countries in the Organisation of Economic Cooperation and Development (OECD), one in 10 patients are harmed while receiving hospital care [1, 2, 3, 4], and nearly 50% of such cases are considered preventable [5]. Worldwide, four out of 10 patients are harmed while receiving health care in a hospital setting, and 80% of such cases could have been prevented [5].

Today, it is widely recognized that patient engagement (PE) can help improve outcomes and reduce the burden on health services and on patient safety [11, 12, 13, 14, 15, 16, 17, 18, 19, 20]. Indeed, partnering with patients for the sake of their own health and care is known to be a key component for developing the highest quality of healthcare [17, 18, 19, 21, 22, 23, 24, 25]. This is why implementing PE strategies offers undeniable value to health care systems by helping reduce by up to 15% the burden of patient harm in hospital care, offering potential savings of billions of dollars each year [4]. One out of every seven Canadian dollars spent on health care is spent treating the effects of patient harm in hospital care [10]. Therefore, it should come as no surprise that investing in the cost of prevention is much lower than the cost of care required due to harm [4].

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Patient engagement (PE) has grown in importance as a priority for ensuring quality of care and patient safety (PS) in many Canadian and provincial organizations [27, 28, 29, 30]. The knowledge on the best strategies for building a safer health care system grounded in collaboration between patients and healthcare institutions for PS has not yet been properly synthesized [11, 31, 22]. Such strategies address all parts of the system holistically rather than as silos. There is emerging evidence and leading practices on how to implement PE by involving patients in PS [22, 32, 30, 31, 22, 23, 24, 25]. This is why implementing PE strategies offers undeniable value to health care systems by helping reduce by up to 15% the burden of patient harm in hospital care, offering potential savings of billions of dollars each year [4]. So it is imperative for healthcare organizations to be able to assess their PE strategy and implementation status in their organisations to gain a better understanding of their PE performance, specifically regarding risk management (RM), for patient safety (PS) [26].

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In this context, the province of Quebec, Canada created a PE in PS questionnaire in 2017. The questionnaire was designed to assess strategies implemented at the level of the health system to integrate PE in PS practices in healthcare organizations [30, 33]. This tool was validated and used from 2017 to 2019 in all healthcare organizations (n=24) in Quebec [34]. Knowing that the context of Quebec is different from the other Canadian provinces in term of healthcare organizations, CPSI was asked to adapt the tool to help healthcare managers assess a system-wide integration of PE in PS practices across the country. The tool incorporated concepts of “Safety I” (situations that can go wrong) and “Safety II” (what goes right and the system’s ability to succeed despite conflicts, uncertainties and risks) [B3]. It tracks changes over time based on organizational best practices of PE in PS.

The purpose of this article is to present the development of a pan-Canadian survey tool to be used by subject matter experts in PE and PS (PE managers, risk managers or a task group, and patient partners) in order to self-assess the nature of PE in PS structures, strategies and factors at the system level in Canadian healthcare organizations (CHOs) and follow up on improvements in these PE in PS strategies over time. A five-step process was used (see Figure 1 for more information):
Methodology

Step 1: Literature review and revision of the initial tool

Methods: We performed a literature review to complement the work performed developing the French questionnaire and to capture publications published from 2017 to 2019 regarding best practices in PS and PE and/or evaluation tools to survey PE on PS. Health and social sciences databases (PubMed, Medline, Cochrane, CINAHL, EMBASE) were consulted using the keywords “tool” OR “assessment” OR “measurement” OR “questionnaire” AND “patient engagement” OR “patient participation” OR “patient involvement” OR “patient safety.” We also integrated comments and suggested modifications collected during the final validation phase of the French tool, conducted in the province of Quebec, Canada [33] and from a study conducted in France [36] (see Appendix A for more information).

Findings: The literature review highlighted four tools for evaluating PE and/or PS at different system levels (see Appendix A). Among the four tools identified, none tackled both PE and PS at the organizational or system level. The first tool focused on PE in PS at the clinical level, the second tool focused on PE only at the organizational level. The third and fourth tools focused on PE in research methods and its evaluation.

Suggested modifications from previous studies conducted in Quebec and France were also analyzed and integrated into the assessment of the creation of the pan-Canadian PE in PS survey tool (see Appendix B for detailed information). In summary, participants in the Quebec and French studies reported that they generally had a good understanding of the tool and its questions as well as the instructions. At the end of the evaluation of the Quebec and French studies, nine questions were deleted to avoid repetition and the rewording of certain items, and some questions were scaled to improve understanding (see Appendix B for detailed information on the type of questions that were deleted and rephrased).

Step 2: Translation of the French questionnaire into an English version

Methods: The French tool was translated into English and validated following the methodology proposed by the Agency for Healthcare Research and Quality [37] and the methodology recommended by the United States Bureau of the Census [38].

Findings: The tool was translated from the French version used in the Quebec study [33] into an English version, and the English version was translated back into French to confirm the terms used. During the translation and the back-translation, we made sure not to change or modify the meaning or depth of the items in order to not affect the validity of the content.

Step 3: Creation of a Canadian expert advisory group

Methods: To adapt the French version, a Canadian expert advisory group was created to adapt the tool to suit a pan-Canadian context, considering the specific features of Canadian health systems. The criteria used to select members were: their knowledge of and expertise in the Canadian health system, patient engagement and patient safety; having already collaborated with CPSI, and their province of origin (for purposes of representation). An initial list of experts was established by CPSI and the research team, emails were sent to the identified individuals, and a final selection was made by the researchers and CPSI using the selection criteria.

Findings: In total, eight members from five Canadian provinces were recruited: 1 academic, 1 patient representative, 4 quality improvement and patient safety specialists, and 2 experts from Accreditation Canada. The research team in charge of developing the study objectives and methodology had five members (three PhD students, one researcher expert in PE, and one advisor from CPSI as a PS and PE projects expert) (see Table 4). In total the working group had 13 members, met 16 times (the research group met with the expert advisory group 4 times and 12 times alone), and on average the meetings lasted 2-3 hours.

Step 4: Assessment, adaptation and editing

Step 4.1: Assessment and adaptation of the tool content

Methods: The Canadian expert advisory group reviewed the initial tool for assessment and adaptation purposes (see Table 1 for more information on the questions asked of the expert advisory group for their review the initial tool). The goal of the initial tool review and assessment by the expert advisory group was to work as a group using a consensus-building approach to evaluate every single dimension of the initial questionnaire, in order to arrive at a consensus on the content validity of the entire tool (i.e. so that all the dimensions used in the Canadian survey would be as relevant, reliable, and exhaustive as possible to fully explore PE in PS in Canada). Note that McDowell and Newell (1987) suggested this method as a way of confirming the content validity of a questionnaire when studying an unknown or new phenomenon in a large organizational or geographic context, such as in our case. McDowell and Newell (1987) suggest that questionnaire dimensions are better developed if they are defined and set up on the basis of the consensus, representativeness, relevance, and exhaustiveness of the constituent items of the concept or the topic to be studied [38, 39].
Based on their knowledge of and expertise in Canadian PE in PS, the expert advisory group assessed all the dimensions of the entire initial tool, item by item. When certain items were unclear, incomplete, or inconsistent, the expert advisory group proposed how they could be corrected or further developed. In addition, the information collected from the research team's literature review was used to support the advisory group members' assessment and adaptation process. Through the assessment and adaptation process, the expert advisory group was able to create, modify, and adjust certain items to reinforce the initial tool's validity and consider the latest trends in PE in PS as practised by CHOs. For example, the initial tools did not have questions covering the leaders' own perceptions of change, the methods, and the techniques used by organizations to measure and assess the PE in PS outcomes and change. The initial tool review sometimes led to minor changes to items or simply adaptations, and at other times it led to the creation of new items based on new trends in PE in PS. For instance, a new item was created on the CHOs' managers' perspectives on the impacts of PE in PS and which factors most influence PE in PS, whether by enhancing or limiting PE in PS. Other new items were created in the section on demographic characteristics and information on the respondents' organizations, such as level of experience with the PE approach, competencies in the field, and level of PE understanding.

**Findings:** The assessment and review was the key stage in the entire tool development process. This resulted in the creation of a complete adapted version of the tool consisting of 75 items in 5 sections on the following 10 dimensions: (1) demographic characteristics, (2) experience level, (3) incentives, (4) strategies, (5) level of intervention, (6) structure and resources, (7) activities, (8) factors, (9) impacts, and (10) improvements (see Figure 2).

### Step 4.2: Assessment and adaptation of the wording of the tool for pan-Canadian use:

**Methods:** In this step, all the members of the expert advisory group carefully examined the wording of every aspect of the tool and suggested improvements when they found inconsistent expressions and vague vocabulary. In addition, two members of Accreditation Canada (AC) performed a careful reading and a deep examination of the tool's wording, based on their knowledge of and expertise in Canadian healthcare evaluation standards. Here again, a consensus-building approach was adopted to integrate the feedback and the suggestions provided by all the expert advisory group members on the tool's wording and language.

**Findings:** At the end of this step, our tool was formally defined as pan-Canadian. This step allowed us to adjust its wording to ensure that it would be understood by all CHOs. The expert advisory group's comments on the adjustments made to the tool's wording are found in Appendix D. Please refer to Figure 2 and Table 3 for more information on the changes made to obtain the final version of the pan-Canadian PE in PS survey.

### Step 4.3: Editing and assessment of technical aspects

**Methods:**

This stage was focused on placing the questionnaire on the online platform, testing the technical aspects, and revising the questionnaire before the pilot test. The research team received specific training from the IT staff at CPSI on how to manage and edit on the online platform. Then the online tool was internally tested by the members of the research team.

**Findings:** At the end of this stage, the questionnaire was set up online, approved by the working group, and considered ready for use in the pilot test. Please refer to Table 3 to see how the questionnaire was developed and adapted from the initial version (French version) to the final version (pan-Canadian version). In addition, please refer to the following link for the pan-Canadian survey, available on the CPSI online platform: [https://survey.patientsafetyinstitute.ca/n/zz16p.aspx](https://survey.patientsafetyinstitute.ca/n/zz16p.aspx)

### Step 5: Pilot testing and pre-validation of the tool

**Method:** In this final phase, we tested and validated the tool among real CHOs. To this end we asked members of the National Health Engagement Network (NHEN), a community of practice, to participate in our pilot test. Once some members had agreed to participate and had given their consent to help test the survey, an email was sent to them explaining the instructions for completing the questionnaire along with the link to the online survey.

**Findings:** The questionnaire was completed in September 2020 by six organizations: 2 in British Columbia, 2 in Ontario, and 2 in Newfoundland. Among these 6 organizations, 3 have a mandate to provide acute care, 2 provide long term care, and 1 is specialized in mental health care. For each organization, the tool was completed simultaneously by a team of three members (one manager in charge of quality and risk management, one person in charge of PE, and one patient advisor). The average time to complete the questionnaire was 52 min, with a maximum of 67 minutes and a minimum of 27 minutes.

Once all the responses had been received, the research team exported and analyzed the results on CPSI's online platform dedicated to the collection and processing of survey data. Based on the pilot test results and participants' comments, the research team made the necessary adjustments and amendments directly in the tool and emailed it along with the pilot test results to the members of the expert advisory group for final review and approval. Then, all expert advisory group members reviewed the pilot test results, revised the entire tool, approved the changes and adjustments, and gave their final approval. Following the pilot test, the tool was considered ready to be used officially in the final validation step: “research at the pan-Canadian level.” Table 2 presents the tool items that were modified, adjusted, or adapted based on the pilot test results.

Table 3 shows the final sections (layout) of the pan-Canadian PE in PS tool.

### Discussion

The Pan-Canadian PE in PS survey is an innovative tool to help self-assess the nature of PE in PS structures in CHOs and to monitor changes over time. To our knowledge, no similar tool exists in Canada or elsewhere in the world to identify strategies and initiatives related to PE in PS at a system level. To test its
validity, the pan-Canadian PE in PS survey tool was reviewed by an expert advisory group and tested in a pilot test (see Step 5 of the methodology development process).

This article presents a description of the five-step process used to adapt, develop, translate and validate an existing tool on patient engagement (PE) in patient safety (PS), which was co-constructed with patients in the CHOs. The pan-Canadian PE in PS survey tool, intended as a self-assessment tool to be used by subject matter experts in PE and PS who integrate patients, was developed in five steps: (1) a literature review and revision of the French tool; (2) translation of the French questionnaire to English; (3) creation of a working group; (4) assessment, adaptation and editing; and (5) pilot testing and pre-validation of the tool. A preliminary step was also conducted to validate the tool's content validity (Step 0).

The final version of the PE in PS pan-Canadian survey tool comprises of 75 questions divided into four sections with ten dimensions: Section 0 contains questions for demographic identification of the participants (Q1 to Q5); Section 1 (Q6 to Q17) has general questions to establish participants’ level of experience and organizational incentives for PE in PS; Section 2 (Q18 to Q33) contains questions related to PE processes, such as strategies, activities, structures, resources and factors; Section 3 (Q34 to Q67) has questions on PE in PS processes, such as activities, strategies, structures, resources and factors in place; and Section 4 (Q68 to Q75) contains questions on the context and impact of PE in PS initiatives in the CHOs. More specifically, these questions are focused on outcome identification, improvement mechanisms and strategies, evaluation mechanisms, and indicators.

The added value of the pan-Canadian PE in PS survey tool

The research team identified six forms of added value provided by the pan-Canadian PE in PS survey tool. First, this is the only self-assessing tool that identifies PE in PS at a system level in healthcare organizations. Based on our research and to our knowledge, no such tool exists at a system level, either in Canada or elsewhere in the world. Second, the tool informs policy and strategic decisions at a national level. At that level, leaders are able to understand the spread and depth of PE in PS across Canada in order to demonstrate what works, which in turn will strengthen the commitment to safe care (by offering evidence-based programs, thereby contributing to one of the five goals of an exceptional healthcare system, as set out in the Canadian Quality and Patient Safety (CQPS) framework [40]). At the provincial level, the tool allows leaders to understand PE in PS in their jurisdictions and how it compares with that of other provinces in order to focus and coordinate their efforts. At the organizational/operational level, the tool allows leaders to understand what works and to implement the practices that can most effectively improve safety. Third, the tool informs practice, identifying the factors, mechanisms, and strategies that effectively improve patient safety through engagement (reduce and prevent harm, reduce the economic burden of patient safety incidents). Fourth, the tool promotes partnering with patients to improve patient safety at the organizational level, and but also to improve care safety at all system levels in Canada. Fifth, the tool and process can be transferred for use in different contexts around the world. Sixth, the tool helps in the CHO accreditation preparation process (e.g. as a survey instrument, a component of the Qmentum[1] program of Accreditation Canada).

Strengths of the tool development process

First of all, the tool was adapted from an existing tool tested in a very interesting study conducted in the province of Quebec [33]. This helped create a solid foundation for our tool development process. Second, the creation of the expert advisory group was a tremendous strength in the process used to develop the survey tool. The remarkable expertise and knowledge in PE and PS among the members of the expert advisory group, and the fact that they came from different provinces and worked at different management levels and strategic positions in the CHOs, helped us by enhancing the content validity but also by reinforcing the overall methodology (see Table 4 for more information). And lastly, the involvement of Accreditation Canada (AC) was a great asset, especially in terms of structuring our methodology, defining and selecting the right wording, and connecting with CHOs for the pilot project.

Limitations:

Four limitations of this study were identified during the development of the pan-Canadian PE in PS survey. The first is the fact that an expert translator was not used to translate the initial tool from French to English. However, the research team and the expert advisory group were able to use a back translation method to interpret and adapt the wording to the survey’s pan-Canadian context and review the terms frequently employed by the CHOs in their work environments. The second limitation, which is related to the first, concerns understandings of certain terms. Even though we worked closely with many Canadian experts active in different Canadian health systems, we believe that this added value resulted in different meanings being ascribed to certain wordings and definitions. For this reason, we incorporated common definitions of certain words that we found differed from one province or CHO to another. We also believe that such discrepancies were few in number. The third limitation concerns the fact that only one patient partner was involved as a member of the expert advisory group. However, the patient partner belongs to a patient organization where the individual has access to an extensive patient partner network. The fourth limitation concerns the requirement of having a group of three people (patient safety participant, patient engagement participant, and a resource patient or patient partner) complete the survey together. This could be a major issue for the survey as it becomes more widely used across Canada. While this may add value, it also reduces the chances that the survey will be completed, resulting in a potentially lower response rate. We nevertheless kept this requirement of a group of three people completing the PE in PS survey tool, because of the importance of receiving feedback from the various departments of CHOs.

[1] Qmentum is a globally developed, locally tailored accreditation program supported by staff and survey experts who have extensive experience in health care at all levels, all around the world. It is designed specifically to help organizations to build resources and capacity, strengthen basic structures and processes related to quality and safety, and help them take part in an accreditation program (https://accreditation.ca/accreditation/qmentum/).

Conclusion

The task of developing a new tool by adapting or translating an existing tool into another language and broader context might seem overwhelming. Perhaps the greatest challenge was to produce a tool that is linguistically comprehensible, psychometrically sound, and efficient and effective for use in organizational
research settings. This article provides a description of the process used to develop, translate and validate an existing tool for investigating how to engage patients (PE) in patient safety (PS) within Canadian healthcare organizations (CHOs).

The tool is currently being used by healthcare organizations in Quebec and France [36]. A version in Portuguese is currently being prepared to assist healthcare managers in monitoring changes in PE in PS at the system level.

Above all, it must be said that such a tool can meet the WHO's need to identify and compare PE in PS initiatives around the world. The PE in PS tool that we have created therefore has the potential to help health care organizations identify gaps in their PE in PS as a way to reduce incidents and accidents related to errors by integrating PE into their safety practices. It will also give health care organizations access to a database of recognized international PE in PS practices and strategies, so that they can improve their practices and monitor improvements over time.

The next step in the pan-Canadian PE in PS tool will be use in an official pan-Canadian final validation study in CHOs.

Declarations

- **Ethics approval and consent to participate:** The research protocol has been approved by the Centre de Recherche du Centre Hospitalier de l'Université de Montréal: Nº CÉR CHUM: 20.009. The study was also carried out in accordance with relevant guidelines and regulations. In addition, informed consent was obtained from all participants.

- **Consent for publication:** We receive a written consent from all the six participants from our pilot study project which are also included in ongoing study project research. All the authors also approved the publication of the article.

- **Data availability statement:** All data generated or analysed during this study are included in this article, and the end result is the PE in PS Pan-Canadian survey tool which is available in English: https://survey.patientsafetyinstitute.ca/n/zz16p.aspx

- **Conflict of interest:** None

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- **Authors’ contributions:** Both of the first authors (Ursulla Aho-Glele and Khayreddine Bouabida) have worked and closely collaborated on developing this article starting from designing the study methodology, data collection, and analysis, to the discussion. The third author, Allison Kooijman (part of the expert advisory group), brought a patient's partner's voice to the article and to the tool. She was able to give her overall comments for the article. The fourth and the fifth authors, Marie-Pascale Pomey and Ioana Cristina Popescu, contributed to reviewing the different sections and quality aspects of the article, but also helped to develop the discussion and the conclusion of this paper. The rest of the authors in this article (Lisa Hawthornthwaite, Jodi Ploquin, Susan Dunn, Patricia Trbovich, Benoit Tétrault, Maiana Regina Gomes de Sousa, Louise Clément, and Nelea Lungu) were part of the expert advisory group and contributed through the revision and assessment of the tool and by giving their comments on the final version of the article.

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Tables

Table 1 - Step 4: Questions asked of the expert advisory group

| Instructions given to the expert advisory group in their completion and review of the questionnaire: |
|---------------------------------------------------|
| Focus on each question and on a more general aspect of the questionnaire |
| 1. Wording of the questionnaire |
| 2. Themes covered |
| 3. What is missing or redundant |
| 4. Relevance of the questions |
| 5. Target population (who can answer the questionnaire) |
| 6. Can the questionnaire be used to assess the reality of patient safety in Canada (so that CPSI and the provinces can use the findings to make better decisions and update the PE in PS guide)? |

Table 2: Aspects of the tool that have been modified, adjusted, or adapted based on the pilot test results (Step 5)
| Questions / sections modified | Examples of comments | Action taken to adapt the questionnaire |
|-------------------------------|----------------------|----------------------------------------|
| **Questions modified**        |                      |                                        |
| (1/A) - General Questions:    |                      |                                        |
| Q1                            | Only one person answered this question (5/6 respondents did not answer)  
"The first question is important, however it seems to be the weakest and toughest part of the questionnaire (too long and too demanding at the very beginning of the questionnaire). It should be simplified as much as possible!" | The table was deleted and a "yes or no" question was added, with an opportunity to give an example:  
1. Do you have programs, initiatives, activities related to patient engagement in patient safety?  
Yes No  
If yes, could you please specify one example: |
| Q4                            |                      |                                        |
| Q7                            | "Too many to quote them here" |                                        |
| Q9                            |                      |                                        |
| Q12                           | "This is not a clear scale. It could be simplified to check boxes" | We modified Questions 12 & 14 to make it easier to answer by adding check boxes |
| Q68                           | "This section could be modified into check boxes." | In Question 68, we modified the "Comments" section to check boxes and added a "yes or no" question. |
| Other general comments made by respondents | § The questionnaire could be shortened to 40 min max.  
§ Favouring the check box type of questions rather than the spaces for entering text.  
§ "If yes, please specify" and "please explain your choice" to see if they need to be maintained. | Time to fill out the questionnaire was shortened because questions 1, 12, 14 and 7 were shortened  
We have deleted the "if yes, please specify" from questions.... |

Table 3: Before and after tool's adaptation: Layout of the tool
| Description of Quebec questionnaire sections & dimensions category | Description of PE in PS pan-Canadian survey tool sections & dimensions category | Description of the adaptation (please refer to Appendix C for more information on comments from the expert advisory group) |
|---|---|---|
| People working in PE in PS | Type of organization and services provided | Identify the general characteristics of the participants and organizations: Switching from focused and specific dimensions (Quebec health system), to more integrated and typical dimensions (Canadian health systems). |
| Number of years employed | Type of location (urban, rural) and postal code |  |
| Type of training received | Job title and department |  |
| Structure of PE in PS: e.g. department responsible for PE in PS | Years of experience in the position within the organization |  |
| People working in PE in PS | Type of organization and services provided |  |
| Number of years employed | Type of location (urban, rural) and postal code |  |
| Type of training received | Job title and department |  |
| Structure of PE in PS: e.g. department responsible for PE in PS | Years of experience in the position within the organization |  |
| PE activities | Existing directorates and departments for implementing and managing PE programs | Integration and/or modification of additional PE organizational dimensions: development of new fundamental dimensions for organizing and implementing the PE process (structural, strategic, resources, well-being) as well as new symbolic and complementary dimensions (cultural, communication, etc.). |
| Structure and strategies used to engage patients | Mechanisms for collaborating with various departments, committees and community organizations |  |
| Organization and committees | Budgets and financial investments used to sustain PE integration and incentive factors |  |
| Training and simulations | Structures, material, and human resources used to engage patients |  |
| Collaboration with various departments or community organizations | Existing user and patient committees |  |
| Indicators: implementation, planning and performance | Existing tools and mechanisms for promoting a PE culture |  |
| Transparency and current policies |  |  |
| PE process and activities | PE general strategic plan and PE initiatives and programs | Integration of additional and/or modification of PE operational and process dimensions: development of technical dimensions specific to PE processes (training, collaboration, evaluations, incentives, awards, grants, recruitment process, research, conferences, patients as presenters, etc.) necessary to maintaining and monitoring the activities of the PE process. |
| Structures used to engage patients | PE training and simulations plans or programs |  |
| Organization and committee | PE operational planning and process organization |
|----------------------------|--------------------------------------------------|
| Training and simulation    | PE indicators and performance measurement (implementation, planning and performance evaluation) |
| Collaboration with various departments or community organizations | PE collaboration mechanisms with various departments, committees or community organizations |
| Indicators (implementation, planning and performance) | Development and implementation of PE promotion, transparency and culture policies |
| Transparency and current policies | |

**Section 3. Questions related patient safety process (activities, strategies, structure and resources at the organizational and clinical level)**

*Participation of management on PS committees (N = 34)*

**Section 4. Context and impact of PE in PS**

*Integration of additional and/or modification of organizational and clinical dimensions specific to the PS process: developing technical dimensions specific to the PS process (training, collaboration, evaluation, monitoring of disclosure, how PE improves PS, etc.) necessary to maintaining and monitoring the activities of the PS process. Developing symbolic and cultural dimensions (transparency and culture policies).*

*Reformulation of questions pertaining to the PS process in order to make a direct link with PE in PS*

| Participation of management on PS committees | PS general strategic plan and PS initiatives and programs |
|---------------------------------------------|--------------------------------------------------------|
| PS operational planning and process organization | |
| PS indicators and performance measurement (implementation, planning and performance evaluation) | |
| Additional comments | PS training and simulations plans or programs |
| PS collaboration mechanisms with various departments, committees or community organizations | |
| PE promotion, transparency and culture policy development and implementation | |

**Integration of additional and/or modification of contextual dimensions and dimensions of impact and change:**

| Investment in and improvement of PE in PS in the organization | Indicators of |
|------------------------------------------------------------|--------------|
| Integration of additional and/or modification of contextual dimensions and dimensions of impact and change: developing dimensions of contributing factors and monitoring and impact evaluation indicators, developing dimensions of improvements in PE in PS, and integrating participants' and the organizations' perspectives on the changes. |
change and impact of PE on PS
Factors influencing PE in PS
Documents, guides, processes, and framework that support PE in PS in the organization
Additional comments and suggestions

Table 4: Composition of the research team & the expert advisory group for the PE in PS pan-Canadian survey tool

| Objective of the research team | - Develop the study objectives and methodology to adapt the pan-Canadian PE in PS tool |
|-------------------------------|----------------------------------------------------------------------------------------|
| Number of meetings            | 12                                                                                     |
| How were meetings conducted   | Online meetings through Zoom, in person, and several messages through emails           |
| Average meeting length        | 2-3 hours                                                                              |
| Member name                   | Why the individual was chosen for the working group                                    |
| Ioana Popescu                 | Advisor as a PS and PE expert (CPSI commissioned the adaptation, pilot test and first pan-Canadian survey) |
| Marie-Pascale Pomey           | Researcher in PE (created the original Quebec survey)                                  |
| Khayreddine Bouabida          | Student researcher in PE in PS for Canada                                               |
| Ursulla Aho-Glele             | Student researcher in PE in PS in Quebec (created the original Quebec survey)           |
| Maiana R. G. Sousa            | Student researcher in PE in PS in Brazil (mainly focused on the literature review to identify PE in PS tools) |

Objective of the expert advisory group - Review the tool (dimensions, items, wording, etc.) and support its adaptation and development

| Number of meetings            | 4                                                                                     |
| How were meetings conducted   | Online meetings through Zoom and email messages                                        |
| Average meeting length        | 2-3 hours                                                                              |
| Organization                  | Why the individual was chosen for the working group                                    |
| Bluewater Health              | Representative for the Ontario region (quality improvement and patient safety specialist) |
| Alberta Health Services       | Representative for the Western region (quality improvement and patient safety specialist) |
| Nova Scotia Health Authority  | Representative for the Eastern region (quality improvement and patient safety specialist) |
| Patients for Patient Safety Canada (PFPSC) | Patient representative |
| CISSS Laval                   | Representative for the Quebec and Eastern region (quality improvement and patient safety specialist) |
| University of Toronto, Ontario | Representative for academia                                                              |
| Accreditation Canada          | Accreditation body                                                                     |

Figures
Figure 1
Pan-Canadian survey tool development processes

| Dimension Category                  | Content Description                                                                 | Questionnaire Sections       |
|------------------------------------|--------------------------------------------------------------------------------------|------------------------------|
| Demographic characteristics       | Identify characteristics, e.g. geographic location, facility size, type of care provided, etc. to determine participant profiles (leaders, managers, organizations), using identification characteristics for analysis, interpretation, description purposes. | Section 1 - Demographic Identification questions (organizations and respondents) |
| Level of experience                | Determine the level of experience in setting up PE in PS programs (e.g. beginner, in the middle of the process, advanced, etc.) to determine organizational maturity, professional competencies and level of understanding of the PE approach. | Section 2 - General Questions  |
| Incentives                         | Determine the incentive factors for patient engagement (e.g. regulation, existence of concern, financial incentives, motivational image, legitimacy, etc.) to determine the motivations of leaders and managers and understand their goals, assess, and perceptions of the patient engagement approach. | Section 3 - Patient Engagement Process (Activities, strategies, structure and resources) |
| Strategies (models)                | Identify adopted PE in PS strategies and describe the main practices (intervention models), e.g. co-design, collaboration, consultation, operational, etc. | Section 4 - Patient Safety Process (Activities, strategies, structure and resources) |
| Level of intervention              | Determine the level of PE in PS and the targeted services and components of the organization’s system (e.g., clinical, organizational, governance, etc. or any other specific subcategory). | Section 4 - Patient Safety Process (Activities, strategies, structure and resources) |
| Structure and Resources            | Determine the resources involved in the innovation and implementation of the PE in PS program (e.g. financial, information, structure, material, knowledge, etc.) | Section 4 - Patient Safety Process (Activities, strategies, structure and resources) |
| Activities (Process)               | Identify the practices to better understand PE in PS process, implementation dynamic and action mechanisms developed by the organizations (e.g. training, monitoring, communication, etc.) | Section 4 - Patient Safety Process (Activities, strategies, structure and resources) |
| Factors                            | Identify implementation influences factors, i.e. facilitating and limiting factors (e.g., institutional context, support, culture, budget, resistance, etc.) in order to understand the values and issues in the implementation process | Section 4 - Patient Safety Process (Activities, strategies, structure and resources) |
| Outcomes (Impacts)                 | Identify outcomes evaluation and indicator monitoring methods, and explore the perceptions of leaders and managers of the change and the outcomes obtained (e.g. the level of change, the scope, quality, and acceptance of change, avoided costs, etc.) | Section 5 - Content and Impact |
| Improvement                         | Identify leaders’ and managers’ perspectives on the improvement (e.g. path of progress, changes, and developments with respect to PE in PS programs for continuous improvement purposes) | Section 5 - Content and Impact |

Figure 2
Presentation of the dimensions developed in the questionnaire

Supplementary Files
This is a list of supplementary files associated with this preprint. Click to download.

- Article1APPENDIXESFeb.26h202026final.docx