ORIGINAL ARTICLE

Physician engagement in quality improvement: A cross-sectional study

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ABSTRACT

Objective: The positive impact of quality improvement (QI) on organizational and system outcomes has the potential to contribute to a high-performing health system. Physician engagement in QI has been linked to the success and sustainability of improvement initiatives. An informed overview of physicians' interests in QI, opportunities to be involved in QI efforts, and insights into physicians' experiences of participation, both in hospital and general practice is critical to understanding the challenges and opportunities for physician engagement in QI. The purpose of this study was to gain insight into both the number of physicians currently trained and participating in QI and identify key barriers preventing physicians from being trained and participating in QI.

Methods: A cross-sectional online survey was used to evaluate physician engagement in QI. A total of 231 physicians across Ontario, Canada, participated in the study.

Results: Results indicate that leadership should continue to make Quality Improvement (QI) training opportunities available to physicians.

Conclusions: If more physicians are to be engaged in QI, there is a need to clearly identify and communicate opportunities for QI projects.

Key Words: Quality improvement, Survey, Cross-sectional studies, Pilot study, Physician engagement

1. INTRODUCTION

Quality improvement (QI) is defined as, "the combined and unceasing efforts of everyone — health care professionals, patients and their families, researchers, payers, planners and educators — to make the changes that will lead to better patient outcomes (health), better system performance (care) and better professional development".[1] The positive impact of QI on organizational and system outcomes has potential to contribute to a high-performing health system.[2] Consistent delivery of high-quality care remains a never-ending challenge in the face of continuous technical and clinical innovations, rising costs, and an ever-changing system.[3] The quality of care delivered by the health care system rests on the smooth running of a complex network of processes and pathways that must be delivered by people working together harmoniously.[4] When health care processes and pathways

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do not function optimally, quality improvement (QI) methods and tools used systematically results in tangible, measurable improvements.[4]

Physician engagement in QI has been linked to the success and sustainability of improvement initiatives[5–7] despite a variety of challenges to physician engagement in QI work. Challenges include countering traditional expectations regarding physician roles that emphasize a focus on care at the patient-level rather than the system-level,[8] a long-standing culture of autonomy[9] and a lack of physician inclusion in the development of organizational policies, processes and systems despite physicians feeling that their inclusion would improve the quality of patient care and their own professional fulfillment.[10] This research indicates that it is necessary to engage physicians in health care system improvement. Understanding physician interest in QI and reasons for non-participation is critical for leaders who wish to enhance physician engagement in QI.

There are many ways physicians can be involved in QI. In short, any effort to make changes that will lead to improved patient outcomes, system performance, and professional development.[1] Examples include participation in patient safety initiative, clinical process improvement, quality assurance programs, or simply even monitoring one's performance. In 2020, the Ontario Hospital Association (OHA) developed a short survey to evaluate the level of physician engagement in QI. Initial reliability proved promising; however, the sample was quite small.[11] The purpose of this study was to gain insight into both the number of physicians currently trained and participating in QI and identify key barriers preventing physicians from being trained and participating in QI. This was an exploratory study conducted to provide valuable insight and serve as a starting point for future research in this area.

2. METHODS

2.1 Study design, sample, and survey administration

A cross-sectional survey was used to evaluate physician engagement in QI. The OHA Physician Engagement in Quality Improvement Survey was used; development has been described in a previous publication.[11] In brief, the survey was developed by first conducting a series of focused literature searches. We then assembled a group of QI experts to participate in a modified Delphi panel using a convenience sample of physicians. Cognitive debriefing was conducted, and we confirmed the reliability of the questions.[11]

All physicians in Ontario, Canada (estimated to be 31, 500) were eligible to participate in the survey.[12] Physicians were recruited through the Ontario Medical Association (OMA) and the OHA. In December 2021, each organization posted in their newsletters an invitation to participate and a link to the online survey. The OMA newsletter was sent directly to physician members. The OHA newsletter was disseminated using existing distribution lists of senior hospital leaders who were then asked to distribute directly to their physicians. A reminder was provided two weeks later.

2.2 Data collection

Participants accessed the online survey with a link. The survey was administered through Checkbox (Checkbox Survey Solutions Inc, USA) in November 2021. No personal identifiers were collected. The study was approved by the University of Toronto Research Ethics Board (RIS Human Protocol Number 40771), and consent was obtained from each participant. Data were imported into Excel (Microsoft, USA) from the online survey tool.

2.3 Statistical analyses

Descriptive analyses were conducted using *R* (*R* Core Team, Austria) and descriptive analyses were conducted. Frequency distributions were generated for each variable. The exact sample size was not estimated, and power calculations were not conducted due to the diverse number of recruitment channels and inability of both organizations (OHA and OMA) to verify distribution list numbers and click-to-open rates.

3. RESULTS

Findings are reported in the following order: participant characteristics, training, interest, and participation levels in QI. This is followed by participant perception of allocated resources and QI focus area.

A total of 231 Ontario licensed physicians completed the study (see Table 1). Fifty-three percent of participants (121 out of 231) practiced outside of hospitals. More than half of the group (52%) averaged 22 clinical days or more per month, and 43% had been practicing for 20 years or more. Just over half the group was male (52%). Physician specialty is reported in Appendix A. The largest group of respondents (27%) selected Family or General Practice as their specialty.

3.1 Physician quality improvement training

3.1.1 *Physicians with training*

Thirty-one percent of physicians (72 out of 231) received formal training in QI. Within this group of 72 participants, just over half (44 out of 72) identified themselves as having introductory or intermediate level training (see Table 2). Of the 72 individuals trained in QI, 61% (44 out of 72) of respondents "agree" or "strongly agree" that the training prepared them to participate effectively in QI projects. A 5-point Likert scale was used that ranged from "strongly agree" to "strongly disagree" ($M = 2.68$, $SD = 1$).

Table 1. Participant characteristics

Characteristics	Participants, No. (%*) (n = 231)
Sex	
Male	120 (52)
Female	105 (45)
Prefer Not to Say	6 (3)
Setting	
Hospital	107 (46)
Independent Practice	70 (30)
Family Health Team/Organization/Network	29 (13)
Community Health Centre, Walk-in Clinic, Group Practice	11 (5)
Not working in clinical setting	5 (2)
Rural-Northern Physician Group Agreement	3 (1)
Hospital plus (community, group, hospice)	3 (1)
Aboriginal Health Access Centre	1 (0.4)
Retirement Home	1 (0.4)
Not Reported	1 (0.4)
Years in Practice	
Not reported	1 (0.4)
0 to 2 years	14 (6)
3 to 5 years	19 (8)
6 to 10 years	25 (11)
11 to 20 years	72 (31)
21+ years	100 (43)
Average Clinical Days Per Month	
Not reported	1 (0.4)
I do not work in a clinical setting	5 (2)
Less than 1 day	3 (1)
1 to 7 days	7 (3)
8 to 14 days	20 (9)
15 to 21 days	75 (32)
22+ days	120 (52)

Note. *Percent numbers may not equal 100 due to rounding

3.1.2 *Physicians without training*

Of the 159 respondents that did not receive QI training, 60% (96 out of 159) were interested in receiving formal QI training. Respondents were then asked to identify why they were interested in receiving QI training and were able to select multiple responses (see Table 3). The top responses were patient-focused, with 88% (84 out of 96) interested in QI training to improve patient care and 86% (83 out of 96) interested in improving patient outcomes. The most frequent responses focused on system and process improvement, with 65% (62 out of 96) interested in improving the efficiency of managerial and clinical processes and 63% (60 out of 96) interested in improving the health system. More than half of respondents who identified an interest in QI training, 53% (51 out of 96), are interested in advancing their clinical skills, and 49% (47 out of 96) would use their training to avoid costs associated with process failures/errors/and poor outcomes.

Physicians who had no QI training and indicated they were not interested in training were asked why they had no interest. More than one response could be selected. Not having the time to participate in training was the top response selected at 49% (31 out of 63). This was cited almost two times as frequently as the second reason, too many initiatives underway at the same time at 25% (16 out of 63).

Table 2. Quality improvement training

Quality Improvement Training	**Participants, No. (%*) (n = 231)**
Yes	72 (31)
No	159 (69)
Level of Training	**Participants, No. (%*) (n = 72)**
Fundamental awareness /Introductory (e.g., understand basic concepts and tools)	16 (22)
Novice (e.g., apply basic tools in small projects)	28 (39)
Intermediate (e.g., certificate program)	21 (29)
Advanced (e.g., formal graduate level training)	7 (10)

Note. *Percent numbers may not equal 100 due to rounding

Table 3. Physician interest in QI training

QI Training	
Reasons for Interest in QI Training†	**Participants, No. (%*) (n = 96)**
Improve care for my patients	84 (88)
Improve patient outcomes	83 (86)
Improve efficiency of managerial and clinical processes	62 (65)
Improve health system	60 (63)
Advance my clinical skills	51 (53)
Avoid costs associated with process failures/errors/and poor outcomes	47 (49)
Advance my career	33 (34)
Meet Ministry of Health accountabilities	19 (20)
Advance my personal knowledge of the topic	1 (1)
Other	1 (1)
Top Reasons for No Interest in QI Training†	**Participants, No. (%*) (n = 63)**
Not enough time	31 (49)
Too many initiatives going on	16 (25)
Other	14 (22)
Near retirement	13 (20)
Quality is not effectively measured	12 (19)
I am not interested	11 (17)
Too much bureaucracy	11 (17)

Note. *Percent numbers may not equal 100 due to rounding; †Multiple responses could be chosen by participants

3.2 Quality improvement project participation

Of the total 231 respondents, 96 had participated in QI projects in the year leading up to the survey. Within this group of 96 participants, 84% (81 out of 96) of the QI projects were at the patient level, 67% (64 out of 96), were at the organization level, and 23% (22 out of 96) were at the system level. Participants were able to select multiple responses. All information related to participation in quality improvement projects is presented in Table 4.

Participants were able to choose more than one response when giving the reasons for why they took part in QI projects. The top reasons selected were to improve the quality of care patients received (76%), the belief that QI was important (71%), part of their role/responsibility (56%), and they had personal interest in QI (51%).

Physicians were asked about their perception of the QI projects' impact on practice in their organizations. Forty-two percent (40 out of 96) thought they had a moderate impact on practice across the organization, however only three percent (3 out of 96) felt they had major impact. Four percent (4 out of 96) thought they had a negative impact with unintended consequences, 9% (9 out of 96) felt they had no impact, 26% (25 out of 96) selected minor impact, and 16% (15 out of 96) indicated a neutral response.

Table 4. Participation in QI projects in past year

Participation in QI Projects	Participants, No. (%*) (n = 231)
Yes	96 (42)
No	105 (45)
Not sure	30 (13)
For Physicians Answering "Yes" to Participation in QI Projects	**Participants, No. (%*) (n = 96)**
Number of Projects	
1	38 (40)
2	25 (26)
3 or more	33 (34)
QI project level†	
Patient level (Helped to improve care primarily for my patients)	81 (84)
Organization level (Helped to improve care for patients across a specialty or service in my organization or practice group)	64 (67)
System level (Helped to improve care beyond my clinical setting)	22 (23)
Reason for Involvement in QI Projects†	
I want to improve the quality of care patients receive	73 (76)
I believe QI is important	69 (72)
QI is part of my role/responsibility	54 (56)
I am interested in QI	49 (51)
I am expected to participate	27 (28)
Other	12 (13)
It will help with my career advancement	11 (11)
Others participate (solidarity/shared purpose)	8 (8)
I have protected time	5 (5)
Non-participation is frowned upon	4 (4)
Perception of Project Impact	
Major impact	3 (3)
Moderate impact	40 (42)
Neutral	15 (16)
Minor impact	25 (26)
No impact	9 (9)
Negative impact (unintended consequences)	4 (4)
For Physicians Answering "No" to Participation in QI Projects	**Participants, No. (%) (n = 105)**
Top Reasons Why NOT interested in QI Projects?†	
Not enough time	49 (47)
I was never asked to participate	40 (38)
No opportunities	30 (29)
Not invited to participate in design	23 (22)
Too many initiatives going on	22 (21)
Too much bureaucracy	20 (19)
No support (changing practice)	19 (18)
Lack communication/teamwork	16 (15)
No access (to data)	14 13)
Leadership not committed	14 (13)
Quality is not effectively measured	13 (12)
I am not interested	13 (12)
Others don't participate	12 (11)
Colleagues resistant to change	12 (11)

Note. *Percent numbers may not equal 100 due to rounding; †Multiple responses could be chosen by participants

Table 5. Perceived resources dedicated to quality improvement

Perceived Resources Dedicated to Quality Improvement (at physician's organization)†	Participants, No. (%*) (n = 53)
Personnel	45 (84)
Funding	14 (26)
Materials/Equipment	14 (26)
Facilities/Space	9 (17)
Protected Time	8 (15)
Other	7 (13)

Note. *Percent numbers may not equal 100 due to rounding; †Multiple responses could be chosen by participants

Table 6. Focus of quality improvement projects

Focus of QI Projects	Participants, No. (%*) (n = 231)
Physician Response To: In my workplace, QI projects focus on making services:†	
Not sure	116 (50)
Safe	91 (39)
Patient-centered	76 (33)
Effective	71 (31)
Efficient	65 (28)
Timely	45 (19)
Equitable	27 (12)

Note. *Percent numbers may not equal 100 due to rounding; †Multiple responses could be chosen by participants

3.3 Perceived resources dedicated to quality improvement projects

A small portion of respondents (53 out of 231) indicated they had dedicated support for QI projects at their workplace. This included personnel (84%), funding (26%), materials/equipment (26%), facilities/space (26%), protected time (15%), and other (13%). Respondents were able to select multiple responses (see Table 5).

3.4 Focus of quality improvement projects

When asked what the focus was of QI initiatives in their own organizations, half of the physicians (50%) indicated they were unsure. For those that were able to identify the focus of QI projects, safety ranked first (39%), followed by patient-centred (33%), effectiveness (31%), efficiency (28%), timeliness (19%), and equity (12%) (see Table 6). Respondents were able to select multiple responses.

4. Discussion

The purpose of this study was to gain insight into both the number of physicians currently trained and participating in QI and identify key barriers preventing physicians from being trained and participating in QI. This was an exploratory study conducted to provide valuable insight and serve as a starting point for future research in this area.

Overall, and as expected, participation in our study was low given our recruitment was 231 respondents, and there are 31,500 practicing physicians in Ontario.[12] Although we were not able to obtain a large sample that would be generalizable, our findings were able to provide insight about QI training, participation, and barriers.

Low response rates are characteristic of studies recruiting physicians for participation.[13] The most important reasons for non-response are lack of time, perceived salience of the study, and concerns about confidentiality.[13] In addition to including an explanation of the value of the research and a clear description of how much time is needed to complete the survey, additional methods such as offering incentives and sending more than one repeated reminder should also be considered. Employing strategies outside of professional association newsletters must be considered to recruit large sample sizes. In hospitals, leadership engagement with active monitoring of response rates might prove helpful.

4.1 QI training and participation

This study identified a need for robust and applied QI training at the point of care among physicians in this sample. Although two-thirds of our sample reported some QI training, most characterized it as introductory or novice level, with

less than half describing their training as adequate. Despite the literature suggesting that physicians feel QI participation at the organization and system levels would improve the quality of patient care and their own professional fulfillment,[10] we identified the least amount of physician participation in QI training at the organization and system levels. Over half of those with no training indicated an interest in receiving training.

4.2 Barriers to participating in QI work

Physicians were asked to complete the phrase, "In my workplace, QI projects focus on making services [fill in the blank]" by selecting one of the National Academy of Medicine's (formerly the Institute of Medicine) six domains of quality[14] which were listed as: safe, patient-centred, effective, efficient, timely, and equitable. Half of the respondents answered they were "not sure", indicating the need for unambiguous objectives, active engagement of relevant stakeholders, and clear and regular communication about QI initiatives. "Equitable" was chosen least often by our respondents and suggests that organizations may want to devote time and resources to raising awareness of the relevance and importance of this quality domain in delivering high quality care.

A small group of physicians indicated they had some support for QI work, with protected time reported least often. Lack of protected time impacts QI work in organizations. A recent study by Deilkås and colleagues[5] reported physicians wanted to participate in QI work, but few had designated time for this activity. As well, physicians with designated time participated significantly more.[5]

4.3 Limitations

The low response rate plus the sample size meant it is likely not all groups are represented with regard to demographics. The newsletters of the Ontario Medical Association (OMA) and the Ontario Hospital Association (OHA) were used to contact physicians for recruitment and between the two, they have the potential to provide a connection to all practicing physicians in Ontario. However, the current policies of both organizations prevent research surveys from being sent directly to physicians from a research team. These findings emphasize the importance of using direct dedicated emails to potential participants. Also, the study was conducted during the COVID pandemic, and there is a high potential that the overall physician burden may have impacted response rates.

5. Conclusions

Physician engagement in QI has been identified as critical to the success and sustainability of a high-performing health system. If more physicians are to be engaged in QI, there is a need to clearly identify and communicate QI training opportunities and projects. Since protected time is not always possible, leaders will need to consider alternatives such as incentives or Continuing Medical Education credits. When surveying physicians, regardless of topic, leadership may want to consider dedicated emails sent directly to potential participants, as solely embedding a survey link in a newsletter is not sufficient. In the hospital setting, leadership engagement with active monitoring of response rates might prove helpful.

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Authors contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

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The authors declare they have no conflicts of interest.

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Obtained.

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Data availability statement

The data that support the findings of this study are not publicly available due to privacy or ethical restrictions.

Data sharing statement

No additional data are available.

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