RESEARCH

Physician insights on strategies for leading quality improvement

Pamela Mathura, PhD, Sandra Marini, MAL, Elaine Yacyshyn, MD, MScHQ, Yvonne Suranyi, BSc, RN, and Narmin Kassam, MD, MHPE

Background: The Strategic Clinical Improvement Committee (SCIC) was established in 2015 to foster physician leadership in quality improvement (QI). In this study, we examined the experiences of physician committee members to determine leadership strategies perceived to support their involvement in QI.

Methods: A voluntary online self-assessment questionnaire was developed and sent to physician SCIC members. Descriptive statistics and thematic analysis were conducted, and identified themes were organized into two groups: strategies that support physician QI leadership and participation and strategies to improve their QI involvement.

Results: Twelve physicians (out of 35) completed the survey, revealing 17 strategy themes. Physicians joined the SCIC because of shared leadership goals, prior QI/research experience, or personal interest. Hands-on QI project experience, QI-personnel support, and sharing completed QI activities were perceived as beneficial for personal and professional growth. The coalitional leadership approach facilitated physician QI learning, involvement, mentorship, and interaction with medical trainees. Additional strategies for promoting physician QI involvement included: clarifying the project selection process, optimizing meeting frequency/duration, and involving medical divisions in establishing QI priorities. Requirements for physician QI participation and leadership included: formalizing QI roles and responsibilities, providing hands-on QI opportunities, sharing past project protocols, providing access to QI and data personnel, funding, peer mentorship, and communication and collaboration among physicians for broader intervention dissemination and implementation.

Conclusion: Evaluation of physicians' experience revealed that the coalitional leadership approach and enabling strategies can provide others with a practical method for supporting physician QI leadership and participation. The SCIC's next steps include development, trial, and evaluation of the additional strategies identified.

KEYWORDS: health care, quality improvement, physician, leadership, committee, Alberta

Mathura P, Marini S, Yacychyn E, Suranyi Y, Kassam N. Physician insights on strategies for leading quality improvement. *Can J Physician Leadersh* 2024;10(1):13-23
https://doi.org/10.37964/cr24778

Physician leadership is increasingly regarded as essential for enhancing the quality of care and sustainability of the health care system.[1] Physicians must take on leadership roles in quality improvement (QI) that they have not previously pursued.[1] The lack of physician leadership and involvement in QI is a result of numerous factors: high clinical workload, limited time, lack of trained practising physicians to teach and mentor QI skills,[2-4] lack of data, scarce assistance with QI-related activities, limited support from hospital or health organization administration, and no financial reimbursement or promotion for participation in QI projects.[1,5-8]

Innovative approaches to overcome participation barriers have integrated QI education with a QI leadership project, such as the physician quality-officer program, a physician-mentored implementation model, and a clinician-directed program.[5,7,9-11] These approaches and the effectiveness of the incorporated strategies have lacked evaluation from participating physicians, making it difficult to determine which were impactful. This study asked physician members of an innovative physician-led QI committee to self-assess their experience, identifying the strategies they believe were effective in enhancing their QI knowledge, participation, and leadership, and identifying future strategies to sustain their involvement.

The Strategic Clinical Improvement Committee in action

In 2015, the Strategic Clinical Improvement

Committee (SCIC) was established to develop physician QI leaders in the Edmonton health zone in Alberta, Canada. This physician-led committee strategically joined three health system partners – the University of Alberta (UA) Department of Medicine (DoM), Alberta Health Services (AHS), and Covenant Health (CH) DoM programs.[12] The goal was to advance physician QI knowledge, participation, and leadership while assisting the DoM and local health organizations in making strategic clinical improvements at all levels of the Alberta health care system.[13] The committee physician members, AHS, and CH executive directors and quality management partners collaborated to establish six key approaches and [14] enabler strategies to reduce barriers to physician QI involvement in addressing clinical issues as change leaders.[9] The SCIC used the LEADS framework to identify four priority areas – QI education, QI leadership, mentorship, and QI recognition – to guide members in leading self, developing hands-on QI skills, building QI interdisciplinary teams that mobilize knowledge, and leading frontline clinicians toward a culture of health system improvement.[13]

Since its inception, this approach[14] has successfully increased the number of physician-led and physician-involved QI projects in the Edmonton zone. Leveraging improvement and implementation science to develop and test interventions aimed at improving clinical outcomes and the health care system. The SCIC has evolved into a platform for QI leadership development, mentorship, sharing QI projects, highlighting results, and, most important, fostering an improvement culture among physicians that encourages them to co-create interventions and identify health system improvement opportunities. However, sustaining and advancing this QI leadership approach requires evaluation of physician participation experience to determine enabler strategies.

Methods

A mixed-methods design was used to create a questionnaire.[15] Closed and open-ended questions were complementary, where open-ended questions provided additional understanding. All SCIC physician members (n = 35) from the January 2020 membership list were eligible to participate.

LEADS capabilities framework

The LEADS framework, which was developed by practising leaders,[16-18] includes 20 capabilities, organized into one outcome domain (Achieve results) and four process domains (Lead self, Engage others, Develop coalitions, and Systems transformation).[19] Lead self involves awareness of one's assumptions, values, principles, strengths, limitations.[20] Engage others involves the people challenges of effective interpersonal relationships.[21] Develop coalitions establishes relationships and develops support across departments/programs/organizations and with patients and the public.[22] Systems transformation is strategic leadership, exercised through policy, procedure, structure, and culture.[23] Achieve results represents future outcomes from the processes of leadership, both personal and strategic.[23]

Survey instrument development and recruitment

A 57-question self-assessment questionnaire was adapted from validated tools and anonymously administered.[24,25] It consisted of 47 scaled and 10 open-ended questions covering eight topics related to the SCIC: goals and collaboration, governance, decision-making process, members, leadership, capacity and capability, effectiveness, and institutionalization. An equal number of questions fell into each of the LEADS capabilities framework domains.[21] A review of the draft questions by a non-committee physician researcher resulted in minor changes in sentence structure. The final questionnaire was entered into an organizational enterprise platform (see Appendix).

The organizational email addresses of committee members were provided to SM, who sent each participant an individually addressed email describing the study and the survey link. The questionnaire remained open for six weeks, during which two reminder emails were sent. The only mandatory question was the one seeking written consent. If consent was not obtained, the questionnaire would exit/close, and no results were included.

Data collection and analysis

For the scaled questions, descriptive statistics were used and Excel v. 2016 (Microsoft, Redmond, Washington) facilitated the analysis. For the open-ended questions, a thematic analysis was

completed.[25] Two researchers (PM and SM) independently read and grouped the textual responses to generate themes. The researchers discussed and refined themes based on consensus. Themes were divided into two groups: strategies promoting physician QI leadership and participation and strategies to improve QI involvement. Both data sources were integrated into a joint table to determine further insights.[26-28]

Ethics approval

The University of Alberta Research Ethics board provided an ethical waiver on 12 March 2021.

Results

Twelve (out of 35, 34%) physician SCIC members responded to the survey. Closed questions received a range of 10–12 responses, open-ended questions 5–10 responses. From the textual data, 17 themes emerged: eight identified physician strategies promoting their QI leadership and participation and nine determined strategies to improve their involvement (Table 1).

Lead self

Physician members initially engaged with the SCIC because it aligned with their personal goals (10/12, 87%), advanced QI/research experience or interest professionally (8/12, 67%), and was beneficial to their personal and professional growth. Most (10/11, 91%) viewed leading a QI project as organizational leadership development; 50% felt comfortable assuming a QI role. Respondents said the SCIC improved their awareness and understanding of improvement science (10/12, 84%) and increased their capability to participate in and lead QI projects (8/12, 67%). Almost half (5/12,42%) attended all or some meetings and many (9/12,75%) felt that they influenced SCIC priorities/projects.

Three themes influenced physicians to Lead self regarding QI: **Previous QI or research experience, Personal interest in QI/innovation**, and the fact that **QI knowledge and application promotes personal and professional development**. Respondents said: "[I did] previous work at different institutions in QI" and "[I joined] based on my previous research experience." Others mentioned "innovation is important for the present and future, for our [physician] legacy" and "I have an interest in QI." Another said, "It has spurred me to look into taking QI courses to improve my knowledge, taking on a formal QI leadership role."

Two themes were identified in the area of improving physicians' ability to lead themselves: **QI project/ protocol repository** and **Physician QI role and responsibility clarity**. Respondents mentioned "sharing a database of QI project/protocols, to help physicians less experienced" and "A repository of information would be beneficial." Another stated, "Knowing the [formal] physician QI role and expectations [is necessary]."

Engage others

SCIC chairs were recognized as dedicated to the committee's ideals (11/12, 92%), and as collaborative (10/12, 83%) and credible leaders (9/12, 75%). All respondents felt valued and most thought their voices were encouraged (11/12, 92%). Half (6/12, 50%) were unsure of membership expectations, and many suggested developing documented roles and responsibilities (8/12, 67%). SCIC meetings were viewed as efficient (11/12, 93%) and a good use of one's time (7/12, 58%).

To support physician QI involvement, three themes were identified: **Strengthen communication and collaboration between physicians, Optimize committee meetings**, and**.** Communication and collaboration could be improved: "Knowing roles and hospital sites of each member could allow for collaboration or advice/mentoring" and "better communication of projects [interventions] between members" was also suggested. Respondents indicated that shortening meetings, but increasing the frequency could promote collaboration. One mentioned that the "reduced frequency of meetings has made it more challenging for collaboration." Respondents indicated that each medicine division they represent should "have clear divisional QI priorities beyond just representation," while recognizing the "challenge to engage others in the division [regarding QI]."

Achieve results

The SCIC defined key development strategies and goals and communicated them to its members. Many

Table 1. Summary of responses (n = 12) to self-assessment questionnaire to determine the strengths and challenges of the Strategic Clinical Improvement Committee (SCIC) in increasing physician involvement in quality improvement (QI).

LEADS domain	Responses to scaled questions by topic	Responses to open-ended questions*
Lead self (process)	SCIC goals and collaboration · 87% believe that their QI goals align with those of the SCIC. · 67% felt that their talents were used as members of the SCIC; 33% were unsure.	**Previous QI or research experience** "Previous work at different institution in QI." "I wanted to initiate QI projects and [could] receive mentorship from the committee." "Was asked to join based on my previous research." "I volunteered in quality improvement [project] before."
	SCIC goals and collaboration · 87% believe that their QI goals align with those of the SCIC. · 67% felt that their talents were used as members of the SCIC; 33% were unsure.	**Personal interest in QI/innovation** "Innovation is important for the present and future, for our [physician] legacy." "I have an interest in Quality Improvement."
	Governance · 70% felt that a clearly written committee purpose was present; 20% felt that information was limited. · 58% were unsure about their role as a division QI leader on the SCIC.	**QI knowledge and application promotes personal and professional development** "It has spurred me to look into taking courses in QI to improve my knowledge, taking a formal QI lead role for the department at my hospital." "Improved my knowledge by me leading QI projects." "Fostered my QI involvement." "Increased awareness that QI is a priority." "Greater interest in QI and mentoring residents in QI." "Greater value placed on QI." "The benefits of QI work are seen a greater."
	Decision-making · 75% felt they had some influence in SCIC-selected projects or education priorities and selection. · 58% were comfortable with how the SCIC makes decisions and prioritizes projects or education; 25% were unsure.	**QI project/protocol repository** "Sharing a database of QI project protocols, to help junior faculty less experienced in QI methodology." "A repository of information including past projects [protocols], goals, etc. in a place that can be easily accessed."
	Membership · 33% attended all meetings; 42% only attended some. · 100% agreed that they are recognized for their SCIC contributions. · 92% felt comfortable asking for help to carry out a QI task.	
	Leadership · 67% shared a reason for involvement with the SCIC.	
	Capacity and capability · 91% viewed completing QI projects as a form of organizational leadership and 50% felt comfortable in a QI leadership role. · 84% noted that their improvement science knowledge has improved. · 100% agreed that participation in the SCIC has been beneficial both personally and professionally. · 67% are confident with participating and leading QI projects.	**Physician QI role and responsibility clarity** "Knowing what the physician QI role and expectation are."
Systems transform-ation (process	SCIC goals and collaboration · 83% agreed that SCIC provided QI support and shared resources among different members. · 100% agreed that SCIC actively promotes QI planning, implementation, and evaluation.	**Physician peer mentorship with hands-on experience** "Opportunities for members who are new to QI to assist [colleague physicians] or even observe through the process of a project from beginning to end." "Starting a project from scratch with no real hands-on experience is not realistic." "Teach how to do QI in a practical way, with more hands-on help such as involving interested people [physicians] in active projects just for learning and experience sake." "Assistance for members who are not confident in QI to become more comfortable."
	Capacity and capability · 91% noted that their awareness and understanding of both local health organizations' (AHS and Covenant Health) quality frameworks has improved. · 84% noted that they have become more capable of participating in and leading QI projects. · 75% felt that participation supported their formal physician leadership role; 25% were unsure. · 58% were comfortable to confident mentoring others in a QI project; 33% were not confident.	**Funding QI** "Funding for QI projects is needed." "Fund QI work."
	Effectiveness · 92% believed they would recommend joining SCIC to others.	
Engage others (process)	SCIC goals and collaboration · 100% agreed that the SCIC values members' input. · 92% felt that the committee chairs were committed to the committee ideals and worked collaboratively with the members (86%) and were seen as local credible leaders for the members (72%).	**Strengthen communication and collaboration between physicians** "Knowing roles and hospital sites of each member could allow for collaboration or advice/mentoring." "Better communication of projects between members." "More collaboration between divisions and hospitals."
	Governance · 36% saw documented roles and responsibilities for all members.	**Optimize committee meetings** "Shorten the meetings length." "Reduced frequency of meetings has made it more challenging for collaboration."
	Membership · 83% share the SCIC's mission and QI objectives; 92% agreed that differing points of view are encouraged and can be voiced openly. · 50% were unsure of the expectations for their membership.	**Engage each specialty division in the DoM to establish QI priorities** "Having clear divisional QI priorities beyond just representation." "Challenging to engage others in the division [regarding QI]."
	Effectiveness · 93% felt that meetings were efficient. · 58% felt that the SCIC made good to excellent use of their time; 100% felt the SCIC was effective at managing meetings.	
Develop coalitions (process)	Governance · 84% felt the SCIC made good attempts at collaboration with different DoM divisions. · 50% felt that the current structure was fair to good. · 75% saw an established communication process. · 67% felt that SCIC had permanent staff designated, had broad-based membership and a designated meeting space. · 33% noted that the SCIC structure was reviewed annually for relevance; 50% were unaware or unsure. · 33% felt that committee structures were in place; 50% were unaware or unsure. · 75% agreed that the SCIC uses resources skillfully.	**Committee leadership approach for QI** "Increases awareness, sharing QI ideas and the approach taken to address the issue." "Brings multiple members from different hospital sites together to share their projects and findings to allow collaboration and possible spread to other hospitals." "Diversity of members across the department. Breaks down silos of [QI] interested people." "Focus on building physician leaders in this space, building collaboration across divisions." "Greater value placed on QI." "The benefits of QI work are seen a greater."
	Membership · 100% agreed that the SCIC encourages collaboration and partnership among members.	
	Capacity and capability · 67% noted that their involvement in QI has improved as a result of being a member of SCIC.	

Achieve results (outcome)	SCIC goals and collaboration · 67% agreed that the SCIC-defined roles and responsibilities for all members were easy to understand.	**Hands-on QI experience** "Assisting [involvement] with QI projects." "Opportunity to do a project with support."
	Governance · 75% recognized the presence of documented goals and objectives for the SCIC. · 96% recognized that meetings were regular and well structured.	**Formalized dissemination of physician involvement in QI** "Sharing QI projects [during committee meetings] and having peer feedback and comments." "It is good to hear about other projects that are being done." "QI Day allows one to see the full scope of QI occurring."
	Decision-making · 58% were unsure whether the SCIC follows a standard decision-making process.	**Dedicated committee QI personnel** "Personal consultation and availability of [the committee dedicated] QI consultant to assist members with project design, analysis, and presentation.
	Membership · 50% were unsure whether the SCIC communicated member expectations.	**QI education for medicine trainees** "The training component of the committee has been possibly the most effective as it ensures medicine trainees [residents, fellows] have a good understanding of the principles of QI." "An opportunity for trainees and staff to work in QI together." "Availability of summer [medical] students to engage [and assist] in QI projects."
	Leadership · 100% felt that the SCIC co-chairs valued members' input.	**Clarify priorities for improvement/project selection** "It is not clear to me how projects are chosen and supported and what the criteria is - this would be helpful." "How can we try to find the common [priority] areas and build the [approach] together?"
	Capacity and capability · 100% agreed that the QI consultant demonstrated knowledge of and skill in improvement science.	**Improve access to QI and data personnel** "More QI support for each division." "A clear and easily accessible access to a [QI and Data/statistician personnel] for help with the QI project and data analysis."
	Effectiveness · 75% felt that the SCIC is able to carry out comprehensive QI activities to accomplish its objectives.	

***In each section, quotes are from different respondents. Green indicates strategies promoting physician leadership and participation in QI; red indicates strategies to improve physician QI involvement.**

respondents (9/12, 75%) felt that the SCIC did well in terms of completing QI activities. All agreed that the SCIC QI personnel demonstrated improvement science expertise and provided support to members. The SCIC created experiential opportunities and mentorship while carrying out successful QI projects (7/10, 70%).

Four themes support members to achieve results: **Hands-on QI experience**, **Formalized dissemination of physician involvement in QI**, **Dedicated committee QI personnel**, and **QI education for medicine trainees**. One respondent remarked, [the SCIC provided an] "opportunity to do a project with support." Three respondents highlighted the importance of "learning together," "sharing QI projects [during committee meetings]," "having peer feedback and comments," and "hearing about other projects being done." One said, "annual QI day allows one to see the full scope of QI occurring." Respondents recognized the need for dedicated support personnel, commenting "personal consultation and availability of QI personnel to assist members with project design, analysis, and presentation aided in QI completion." They acknowledged that physician QI education is a learning continuum. A physician stated, "the training component has been possibly the most effective as it ensures medicine trainees have a good understanding of the principles of QI." Another emphasized the importance of "[medical] students to engage [and assist] in QI projects." Further, a respondent mentioned that this approach provides "an opportunity for trainees and staff to work in QI together."

Two strategic themes would support achieving results: **Clarify priorities for improvement/project selection** and **Improve access to QI and data personnel**. One respondent suggested, "it is not clear how projects are chosen and supported by the committee" and another stated, "knowing what criteria are used would be helpful." They mentioned the need for "access to QI and statistician personnel" to improve physician involvement.

Develop coalitions

This leadership approach encouraged collaboration and partnership among SCIC members, departments, divisions, and the larger health care community (10/12, 83%). Respondents indicated that the committee structure was good (6/12, 50%); however, 50% were unsure what processes could improve the approach. Many recognized established communication processes (9/12, 75%) and acknowledged that dedicated staff (8/12, 67%) and skillful resource stewardship (9/12, 75%) existed.

Respondents viewed the **Committee leadership approach for QI** as important because it "brings multiple members from different hospital sites together to share their projects and findings to allow

collaboration and possible spread to other hospitals." Another stated, "increases awareness, sharing QI ideas and the approach taken to address the issue." In addition, a physician noted that this approach encouraged "diversity of members across the department. Breaking down silos of [QI] interested people." Another mentioned the "focus is on building physician leaders in this space, building collaboration across divisions." One respondent stated that the coalition provided a formal platform for "the benefits of QI work to be seen and [shared]."

Systems transformation

Respondents agreed that the SCIC promoted QI planning, implementation, and evaluation, provided support, and shared resources (10/12, 83%) through clearly defined roles, responsibilities, governance, and accountability (10/11, 91%). Participation was integral to their organizational leadership role (9/12, 75%), increasing their ability to participate in QI (10/12, 84%), and building confidence in mentoring colleagues (7/12, 58%). Most (11/12, 92%) said that they would encourage colleagues to join the SCIC because it is "a strong functional organizational structure, efficiently using our time, making available mentorship, and adding the presence of QI support."

In terms of enhancing physician QI, two themes aligned with this LEADS domain: **Physician peer mentorship with hands-on experience** and **Funding for QI projects**. A respondent stated, "Teach how to do QI in a practical way, with more hands-on help and involve interested [physicians] in active projects just for learning and experience sake." There should be "opportunities for members who are new to QI to assist or even an opportunity to observe." Three respondents indicated the need for funding to support involvement.

Integrating the findings into a table identified the LEADS domains and strategic themes promoting physician QI involvement, revealing the need for a multistrategy approach. The domains of System transformation and Engage others lacked QI development strategies, suggesting associated challenges. Although strategies were aligned with Leads self and Achieve results, further strategies are needed to enhance physician QI involvement.

Discussion

The SCIC is an innovative approach to fostering physician QI leadership and participation.[13] This study gathered physician members' experiences and perspectives about the coalitional leadership approach and identified enabler strategies for QI leadership and participation. Seventeen strategic themes were identified and aligned with the LEADS framework,[21] eight themes were effective in promoting physician QI leadership and participation, and nine themes needed development. These findings corroborate evidence that multiple strategies are necessary to enable physician QI leadership,[5,29] thereby mitigating barriers to participation.[2-4]

Similar to other studies, SCIC member physicians felt that the coalitional approach facilitated physician QI leadership and participation.[30-33] By engaging individuals with expertise or interest in QI, the SCIC established a physician-to-physician QI community, cultivating QI leaders and leveraging formal and informal physician networks to expand influence and provide mentoring.[15,34] Physicians believed that receiving QI education – integrated with hands-on project application, mentoring medical trainees, and QI personnel support – contributed to their personal and professional growth.[5,33-35] Having a platform to share completed QI activities encouraged physician QI role modeling, mentoring, and involvement.[5,35]

To improve and sustain the SCIC, development of internal processes for clarifying QI project selection and prioritization, optimizing meeting frequency and duration, engagement across DoM divisions, and improved communication and collaboration among physicians are needed for continued participation and committee sustainability.[33] Physicians believed that funding QI initiatives, providing physician peer mentorship with practical experience, ensuring access to QI and data personnel,[5,35] and developing a formalized physician QI role[33,35] are all necessary to establish physician QI leadership and participation. An interesting finding was the desire for a repository of QI project protocols to bridge the knowledge-to-practice gap, implying the need to understand how to complete a QI project from start to finish.

Limitations

The scope of the inquiry was cross-sectional, limiting

the study to current SCIC members as of 2020, the low survey response rate could be attributed to the on-going increase in clinical service duties brought on by a COVID-19 outbreak wave. Although representation was broad across the DoM speciality divisions, it may not have captured the views of the larger physician population. The results do provide insights from physician QI experience and identify effective strategies that others can adopt. Respondents had the freedom to choose which questions to answer, leading to variations in response rates. The data collected relied on self-reported information, which could introduce social desirability bias.[36] To address this limitation and enhance the study, an additional method, such as semi-structured interviews, could have provided opportunities to validate and expand on the results. Because of the COVID-19 pandemic, this option was not available.

Conclusion and future direction

Evaluation of physician experience revealed that the coalition leadership approach and enabling strategies have the potential to provide others with a practical method to consider for supporting physician QI involvement. The SCIC's next step includes development, trial, and evaluation of the additional strategies identified.

Appendix: survey questionnaire

The Strategic Clinical Improvement Committee (SCIC) was established in 2015 in the Edmonton zone (EZ). The primary mandate of the SCIC is to build organizational capacity for clinical quality improvement within the Department of Medicine (DoM) at the University of Alberta. The objective of this physician QI leadership coalition is to support:

- Physician QI capability and capacity
  - Knowledge: Physician and resident QI education
  - Leadership: Increase physician led QI projects
  - Participation: Hospital/unit councils and QI projects
- Alignment of DoM and AHS QI priorities through partnerships
- Increase scholarly QI activities (manuscripts and posters)

By providing your feedback, you will assist the SCIC learn about its strengths and challenges and identify actions that can be taken to improve and sustain successes achieved. The data generated from this survey questionnaire will be shared as summaries (graphics), quotes, and themes.

We invite you to participate in this voluntary survey that seeks to understand different aspects of the SCIC. It will take about 15 minutes to complete and the survey is designed to allow you to express your opinions and provide information regarding your experiences anonymously (no personal identifiable questions). It is your choice whether to complete this survey or not and it is your choice to decide which questions you complete. Further, you can exit the survey at any time for any reason, without pressure or consequence of any kind. There are no right or wrong responses; thoughtful and honest responses will provide the SCIC the most valuable information.

Thank you for sharing your insights regarding the SCIC.

Do you consent to completing this survey questionnaire?
Yes, please proceed to the next section
No, thank you and please exit the survey

All questions have been adapted from Butterfoss, 2007 Coalition Effectiveness Inventory (CEI). All questions have been linked to the LEADS framework (Vilches 2016) reflecting L – Lead self; E – Engage others; A – Achieve results; D – Develop coalitions; and S – System transformation.

The SCIC's goals and collaboration

L	1. The SCIC and I share the same QI goals 1) Strongly disagree 2) Disagree 3) Unsure 4) Agree 5) Strongly agree
S	2. The SCIC provides QI support, shares the resources amongst different members 1) Strongly disagree 2) Disagree 3) Unsure 4) Agree 5) Strongly agree
S	3. The SCIC actively promotes QI planning, implementing, and evaluating of QI activities 1) Strongly disagree 2) Disagree 3) Unsure 4) Agree 5) Strongly agree
A	4. The SCIC defines roles and responsibilities for all members that are easy to understand 1) Strongly disagree 2) Disagree 3) Unsure 4) Agree 5) Strongly agree
E	5. The SCIC values members' input 1) Strongly disagree 2) Disagree 3) Unsure 4) Agree 5) Strongly agree
L	6. I feel my talents are fully utilized as a member of the SCIC 1) Strongly disagree 2) Disagree 3) Unsure 4) Agree 5) Strongly agree
E	7. What would you change about the SCIC goals and collaboration?

The SCIC's governance

8. For each of the items in the table below please place an (X) in the corresponding column for each

E	Absent	Present but limited	Present	Not applicable	Do not know
Clearly written purpose					
Documented goals and objectives					
Provides regular meetings					
Provides structured meetings					
Established communication mechanisms					
Effective communication					
Documented roles and responsibilities for all members					
SCIC structure reviewed annually for relevancy					

D	9. Collaboration with different DoM divisions is: 1) Excellent 2) Very good 3) Good 4) Fair 5) Poor
D	10. Collaboration with different EZ hospitals is: 1) Excellent 2) Very good 3) Good 4) Fair 5) Poor
L	11. I understand my role in the SCIC as a division QI physician leader 1) Strongly disagree 2) Disagree 3) Unsure 4) Agree 5) Strongly agree
D	12. SCIC resources are used skillfully 1) Strongly disagree 2) Disagree 3) Unsure 4) Agree 5) Strongly agree
D	13. The current structure of the SCIC is: 1) Excellent 2) Very good

	3) Good 4) Fair 5) Poor
E	14. What do you think would improve the overall structure of the SCIC?

15. For each of the items in the table below please place an (X) in the corresponding column for each

E	Absent	Present but limited	Present	Not applicable	Do not know
Permanent staff is designated					
Membership is broad based (includes AHS and CH leaders, QI staff, various hospital who represent QI)					
There is designated meeting space					
There is designated meeting time					
Coalition structures are in place (see questions above)					

SCICs decision-making process

L	16. In your opinion, how much influence do you believe you personally have in SCIC QI project or education priority or selection decisions? 1) A lot of influence 2) Some influence 3) No influence
L	17. I am comfortable with how the SCIC makes QI project or education priority or selection decisions. 1) Strongly disagree 2) Disagree 3) Unsure 4) Agree 5) Strongly agree
A	18. The decision-making process used by the SCIC follows standard process 1) Strongly disagree 2) Disagree 3) Unsure 4) Agree 5) Strongly agree

SCIC members

L	19. Choose the option that best describes you 1) I attend **all** SCIC meetings 2) I attend **most** SCIC meetings 3) I attend **some** SCIC meetings 4) I **rarely** attend SCIC meetings
E	20. The members share the coalition's mission and objectives regarding QI 1) Strongly disagree 2) Disagree 3) Unsure 4) Agree 5) Strongly agree
E	21. The SCIC encourages collaboration and partnership amongst members. 1) Strongly disagree 2) Disagree 3) Unsure 4) Agree 5) Strongly agree
E	22. The SCIC recognizes members for their contributions. 1) Strongly disagree 2) Disagree 3) Unsure 4) Agree 5) Strongly agree
A	23. The SCIC effectively communicates expectations of members. 1) Strongly disagree 2) Disagree 3) Unsure 4) Agree 5) Strongly agree
L	24. In instances where I do not understand how to carry out a QI task, I am comfortable asking for help 1) Strongly disagree 2) Disagree 3) Unsure 4) Agree 5) Strongly agree
D	25. Different points of view are encouraged and can be voiced openly, i.e., in meetings 1) Strongly disagree 2) Disagree 3) Unsure 4) Agree 5) Strongly agree

SCIC leaders

D	Strongly disagree	Disagree	Unsure	Agree	Strongly agree
26. The co-chairs are committed to the coalition mission and objectives					
27. The co-chairs of the SCIC work collaboratively with SCIC members					
28. The SCIC leader provides leadership and guidance in the maintenance of the SCIC					
29. The SCIC leader facilitates and supports team building, and capitalizes upon diversity and individual, group and organizational strengths					

E	30. The SCIC co-chairs value members' input 1) Strongly disagree 2) Disagree 3) Unsure 4) Agree 5) Strongly agree
L	31. What led you to become involved in the SCIC?

SCIC QI capacity and capability (knowledge, participation, and leadership)

L	32. Completing QI projects is a form of organizational leadership 1) Strongly disagree 2) Disagree 3) Unsure 4) Agree 5) Strongly agree
L	33. I am comfortable being put in a position of QI leadership in the SCIC 1) Strongly disagree 2) Disagree 3) Unsure 4) Agree 5) Strongly agree
A	34. The SCIC QI consultant demonstrates knowledge and skill of improvement science and QI projects 1) Strongly disagree 2) Disagree 3) Unsure 4) Agree 5) Strongly agree

		Strongly disagree	Disagree	Unsure	Agree	Strongly agree
A	35. Joining the SCIC, my science knowledge has improved					
S	36. Joining the SCIC, my awareness and understanding of both AHS Quality Management Framework and Covenant Health Quality partners has improved					
D	37. By participating in the SCIC, my involvement in quality improvement projects has increased					
S	38. By participating in the SCIC, I have become more capable (knowledge and ability) to participate and lead QI projects					
L	39. Participating in the SCIC has been beneficial for my own personal and/or professional growth					
S	40. Participating in the SCIC has been beneficial in supporting my formal DoM/organizational physician leadership role					

A	41. I am confident with both participating and leading QI projects on my own 1) Strongly disagree 2) Disagree 3) Unsure 4) Agree 5) Strongly agree
S	42. Please select the statement that best describes your QI mentorship 1) I am **confident** with mentoring others how to carry out QI projects 2) I am **comfortable** with mentoring others how to carry out QI projects 3) I **can but rather not mentor** others for how to carry out QI projects 4) I am **not confident** enough in my own QI abilities to show others how to carry out QI projects

Please rate the *effectiveness* of the SCIC

The SCIC objectives are:

- Physician QI capability and capacity
  - Knowledge: Physician and resident QI education
  - Leadership: Increase physician led QI projects
  - Participation: Hospital/unit councils and QI projects
- Alignment of DoM and AHS QI priorities through partnerships
- Increase scholarly QI activities (manuscripts and QI posters)

A	43. How well was the SCIC able to carry out comprehensive QI activities to accomplish the objectives of the SCIC? 1) Not well at all 2) Not so well 3) Somewhat well 4) Very well 5) Extremely well
E	44. Organization of SCIC meetings are efficient: 1) Strongly disagree 2) Disagree 3) Unsure 4) Agree 5) Strongly agree
E	45. Please choose the statement that best describes how well the SCIC uses your time. 1) The SCIC makes *excellent* use of my time 2) The SCIC makes *very good* use of my time 3) The SCIC makes *good* use of my time 4) The SCIC makes *fair* use of my time 5) The SCIC makes *poor* use of my time
E	46. The SCIC is effective in managing meetings 1) Strongly disagree 2) Disagree 3) Unsure 4) Agree 5) Strongly agree
S	47. Based on my own experience, I would recommend others to join the SCIC 1) Strongly disagree 2) Disagree 3) Unsure 4) Agree 5) Strongly agree

SCIC institutionalization

S	Strongly disagree	Disagree	Unsure	Agree	Strongly agree
Do you believe that...					
48. SCIC is aligned and included in the AHS and CH QI frameworks					
49. Long term funding is needed for sustainability of the SCIC					

50. SCIC strategies are updated as required					

Open-ended questions

E	51. What are the key SCIC-coalition strengths?
A	52. Of all the activities of the SCIC, please list which you think have been most effective?
A	53. What are the areas that the SCIC needs to improve?
L	54. What things could have improved your coalition experience?
A	55. Think about what the SCIC is trying to do, are there groups not being reached? **YES or NO** a. If yes, what are some of these groups?
S	56. What impact has the SCIC had on a. Your personal QI leadership and involvement? b. Organizational clinical improvements? c. UA DoM physician QI culture?
A	57. What suggestions do you have for sustaining the SCIC work long term?

Acknowledgements

The authors are grateful to all the physicians who participated in the study survey and shared their coalition participation experience in pursuit of improving physician involvement in QI.

References

1.Berghout MA, Fabbricotti IN, Buljac-Samardžić M, Hilders CGJM. Medical leaders or masters? A systematic review of medical leadership in hospital settings. *PLoS ONE* 2017;12(9):1-24. **https://doi.org/10.1371/journal.pone.0184522**

2.Amin R, Servey J. Lessons of leading organizational change in quality and process improvement training. *Mil Med* 2018;183(11-12):249-51. **https://doi.org/10.1093/milmed/usy204**

3.Coleman DL, Wardrop RM III, Levinson WS, Zeidel ML, Parsons PE. Strategies for developing and recognizing faculty working in quality improvement and patient safety. *Acad Med* 2017;92(1):52-7. **https://doi.org/10.1097/ACM.0000000000001230**

4.McGonigal M, Bauer M, Post C. Physician engagement: a key concept in the journey for quality improvement. *Crit Care Nurs Q* 2019;42:215-9. **https://doi.org/10.1097/CNQ.0000000000000258**

5.Goitein L. Clinician-directed performance improvement: moving beyond externally mandated metrics. *Health Aff (Millwood)* 2020;39(2):264-72. **https://doi.org/10.1377/hlthaff.2019.00505**

6.McIntosh T. From autonomous gatekeepers to system stewards: can the Alberta agreement change the role of physicians in Canadian medicare? *Healthc Pap* 2018:17(4):56-62. **https://doi.org/10.12927/hcpap.2018.25575**

7.Walsh KE, Ettinger WH, Klugman RA. Physician quality officer: a new model for engaging physicians in quality improvement. *Am J Med Quality* 2009;24(4):295-301. **https://doi.org/10.1177/1062860609336219**

8.Yousefi V, Asghari-Roodsari A, Evans S, Chan C. Determinants of hospital-based physician participation in quality improvement: A survey of hospitalists in British Columbia, Canada. *Glob J Qual Saf Healthc* 2020;3(1):6-13. **https://doi.org/10.4103/JQSH.JQSH_17_19**

9.Li J, Hinami K, Hansen LO, Maynard G, Budnitz T, Williams MV. The physician mentored implementation model: a promising quality improvement framework for health care change. *Acad Med* 2015;90(3):303-10.

10.Massagli TL, Zumsteg JM, Osorio MB. Quality improvement education in residency training. *Am J Phys Med Rehabil* 2018;97(9):673-8. **https://doi.org/10.1097/phm.0000000000000947**

11.Wentlandt K, Degendorfer N, Clarke C, Panet H, Worthington J, McLean RF, Chan CKN. The physician quality improvement initiative: engaging physicians in quality improvement, patient safety, accountability and their provision of high-quality patient care. *Healthc Q* 2016;18(4):36-41. **https://doi.org/10.12927/hcq.2016.24552**

12.Calder Bateman. University of Alberta Department of Medicine strategic plan. Internal document. Edmonton: University of Alberta; 2020.

13.Mathura P, Marini S, Spalding K, Duhn L, McMurtry N, Kassam N. Physician-led quality improvement: a blueprint for building capacity. *Can J Physician Leadersh* 2022;8(2):51-8. Available: **https://cjpl.ca/blueprnt.html**

14.Sebenius JK, Friedman S. Organizational transformation: the quiet role of coalitional leadership. *Ivey Bus J* 2009;73(1). Available: **https://tinyurl.com/atddhmzm**

15.Creswell JW, Hirose M. Mixed methods and survey research in family medicine and community health. *Fam Med Community Health* 2019;7(2):e000086. **https://doi.org/10.1136/fmch-2018-000086**

16.Dickson G. Genesis of the Leaders for Life framework. Victoria, BC: Leaders for Life; 2008.

17.Dickson GS, Briscoe D, Fenwick S, Romilly L, MacLeod Z. The pan-Canadian health leadership capability framework project: a collaborative research initiative to develop a leadership capability framework for healthcare in Canada. Final report. Ottawa: Canadian Health Services Research Foundation; 2007.

18.Vilches S, Fenwick S, Harris B, Lammi B, Racette R. Changing health organization with the LEADS leadership framework: report of the 2014–2016 LEADS impact study. Ottawa: Canadian College of Health Leaders; 2016. Available: **https://cchl-ccls.ca/resource/leads-research-papers/**

19.Cole C, Thiessen H, Andreas B. The LEADS in a caring environment framework: putting LEADS to work in people-centred care. In Dickson G, Tholl B (editors). *Bringing leadership to life in health: LEADS in a caring environment*. London: Springer; 2020 **https://doi.org/10.1007/978-3-030-38536-1_13**

20.Dickson G, Van Aerde J. Enabling physicians to lead: Canada's LEADS framework. *Leadersh Health Serv* (Bradf Engl) 2018;31(2):183-94. **https://doi.org/10.1108/LHS-12-2017-0077**

21.Dickson G, Tholl B (editors). *Bringing leadership to life in health: LEADS in a caring environment: a new perspective*. London: Springer; 2020.

22.Pittman B, Idzelis M, Dillon K, Wagner M. ATOD prevention coalition member interview results: summary of key findings. Saint Paul, Minn.: Wilder Research; 2011. Available: **https://tinyurl.com/znx34msa**

23.Van Aerde J, Dickson G. Accepting our responsibility: a blueprint for physician leadership in transforming Canada's health care system. White paper. Ottawa: Canadian Society of Physician Leaders; 2017. Available: **https://physicianleaders.ca/assets/whitepapercspl0210.pdf**

24.Andrews ML, Sánchez V, Carrillo C, Allen-Ananins B & Cruz YB. Using a participatory evaluation design to create an online data collection and monitoring system for New Mexico's Community Health Councils. *Eval Program Plann* 2014;42(2014):32-42. **https://doi.org/10.1016/j.evalprogplan.2013.09.003**

25.Clarke V, Braun V. Thematic analysis. *J Posit Psychol* 2017;12(3):297-8. **https://doi.org/10.1080/17439760.2016.1262613**

26.Plano Clark VL. Meaningful integration within mixed methods studies: identifying why, what, when, and how. *Contemp Educ Psychol* 2019;57:106-11. **https://doi.org/10.1016/j.cedpsych.2019.01.007**

27.Creswell JW, Creswell JD. *Research design: qualitative, quantitative, and mixed methods approaches* (5th ed.). Thousand Oaks, Calif.: SAGE Publications; 2018.

28.Mathura P, Turk T, Dennett L, Spalding K, Duhn L, Kassam N, Medves J. Strategies for enabling physician leadership and involvement in quality improvement: a scoping review. *Can J Physician Leadersh* 2022;8(4):133-41. **https://doi.org/10.37964/cr24761**

29.Callahan C. The future role of geriatrics: building local coalitions to demonstrate value. *J Am Geriatr Soc* 2017;65(4): 863-5. https://doi.org/10.1111/jgs.14700

30.Cohen L, Baer N, Satterwhite P. Developing effective coalitions: an eight-step guide. In Wurzbach M (editor). Community health education and promotion: a guide to program design and evaluation (2nd ed.). Boston: Aspen Publishers; 2002.

pp. 144-61.
31.Kelly CS, Meurer JR, Lachance LL, Taylor-Fishwick JC, Geng X, Arabía C. Engaging health care providers in coalition activities. *Health Promot Pract* 2006;7(2):66-75s. **https://doi.org/10.1177/1524839906287056**
32.Li L, Black WE, Cheung EH, Fisher WS, Wells KB. Building psychiatric quality programs and defining quality leadership roles at four academic medical centers. *Acad Psychiatry* 2020;44(6):795-801. **https://doi.org/10.1007/s40596-020-01317-7**
33.D'Aunno T, Alexander JA, Jiang L. Creating value for participants in multistakeholder alliances: the shifting importance of leadership and collaborative decision-making over time. *Health Care Manage Rev* 2017;42(2):100-11. **https://doi.org/10.1097/HMR.0000000000000098**
34.Ahmed Z, Amin J. A peer-led quality improvement committee for foundation doctors. *Clinical Teach* 2019;16(5):536-8. **https://doi.org/10.1111/tct.12964**
35.Hoag G. The physician quality improvement initiative: improving BC's health care system one project at a time. *BC Med J* 2019;61(7):291. Available: **https://tinyurl.com/y7ydadhr**
36.Latkin CA, Edwards C, Davey-Rothwell MA, Tobin KE. The relationship between social desirability bias and self-reports of health, substance use, and social network factors among urban substance users in Baltimore, Maryland. *Addict Behav* 2017;73:133-6. **https://doi.org/10.1016/j.addbeh.2017.05.005**

Authors

Pamela Mathura, PhD Health Quality, is a QI scientist and an assistant clinical professor at the University of Alberta's Department of Medicine and Alberta Health Services.

Sandra Marini, MAL, is a research coordinator at the University of Alberta's Department of Medicine and team lead, Medical Affairs Corporate Projects, with Covenant Health.

Elaine Yacyshyn, MD, MScHQ, FRCPC, is a professor and deputy zone clinical department chair of the Department of Medicine, University of Alberta.

Yvonne Suranyi, BSc, RN, is executive director for the health zone medicine program and the University of Alberta emergency program.

Narmin Kassam, MD, MHPE, FRCPC, is chair of the Department of Medicine at the University of Alberta and head of the Clinical Department of Medicine.

Competing interests: None.

Disclosure: The authors declare that there is no conflict of interest.

Funding: None.

Ethics approval: A waiver to proceed was obtained from the University of Alberta Research Ethics Board on 12 March 2021.

Author contributions: PM led project design, analysis, wrote and reviewed the manuscript. SM assisted with analysis, writing, and editing the manuscript. EY, YS, and NK critically reviewed and edited the manuscript. All authors approve the final manuscript.

Correspondence to: **pam.mathura@ahs.ca** or **mathura@ualberta.ca**