Applying a Rural Lens to Physician Leadership in Quality Improvement: A Scoping Review

Nicholas Lloyd-Kuzik, MPPGA; Christine Carthew, MPH; Harsh Hundal, MD; and Jude Kornelsen, PhD

Looking at physician engagement in quality improvement through a rural lens highlights both the increased need for and challenges to the involvement of physician leaders in rural settings. There is accentuated need for a "rural voice" in quality improvement leadership. This review considers best available evidence on the impact of physician leadership on QI and health system transformation and examines this evidence through a rural lens.

There has been growing recognition of the importance of physician leadership in improved healthcare quality[1] based on the observed relationship between leadership skills and improved patient and system-level outcomes.[2] The competencies involved in such leadership remain vaguely defined and are often attributed to a wide variety of characteristics.[3]

There is an increasing consensus on a typology of leadership *roles*, broadly divided between more formal leadership positions that physicians are hired, elected, or appointed to, and less formal roles typically integrated within the context of clinical responsibilities. The latter is often based on advocacy for improved systems and structures arising from lived experience.

Regardless of the nature of leadership roles, challenges to physicians' active leadership in quality improvement (QI) remain,[3] including lack of remunerated release time from clinical responsibilities and leadership skill development.

Within the broader healthcare system, administrative leadership roles often can be broken down into regional, local, and hospital levels. Though these roles may vary across jurisdictions, the general structure remains consistent.

Within the Canadian context, regional leadership focus is on equity between and across sites in the effort to ensure justice in medical care and health system delivery. Local leadership is focused on specific site advocacy and what resources and services are needed to maintain local function.

Finally, within the hospital, physician leaders are tasked with responsibility toward medical staff and with optimizing role functions within the team. In other contexts, such as the United States, these roles may be fulfilled by stakeholders under titles such as hospital CEO, hospital board member, medical group administrator, or physician governance network leader.[4]

At a systems level, many jurisdictions have issued strategic policy responses to embed physician participation in health system transformation. For example, in British Columbia, the Ministry of Health released the *Innovation and Change Agenda* (2012) which presented the strategic priorities for health system improvement, underscored by the recognized need for comprehensive engagement of healthcare practitioners at all levels of system change, particularly of physicians.[5]

Concomitantly, they partnered with the provincial health authorities and doctors of BC to launch the BC Physician Leadership Institute to provide QI and leadership training for physicians. Similar initiatives have been implemented in jurisdictions across Canada and internationally.[6–8]

Looking at physician engagement in QI through a *rural* lens highlights both the increased need for and challenges to their involvement. There is accentuated need for a "rural voice" due to the propensity of decisions to be made in an urban setting with varying degrees of rural sensitivity and awareness, despite the accrued, contextually based understanding of issues arising from practice in low-volume, lower-resourced settings.

This review considers best available evidence on the impact of physician leadership on QI and health system transformation and examines this evidence through a rural lens.

We also had a pragmatic intent to understand enablers of successful leadership in maximizing the impact of physicians' contributions. Although there is a dearth of evidence on the nuances of rural physician leadership, we endeavored to consider the evidence in this context to suggest ways in which to enhance rural physician participation in QI.

RESEARCH QUESTION AND OBJECTIVE

The objective of this scoping review was to better understand the impact physician leaders have on QI and systems transformation, the factors that affect physicians' abilities to lead QI, and how these insights may inform strategies to bolster rural physician leadership in QI.

The following two questions formed the basis of our literature search: What is the value of physician leadership to health system transformation and/or quality improvement? What are important considerations for successful leadership by physicians in health system transformation and/or quality improvement?

A preliminary feasibility analysis revealed a dearth of rural-focused articles, a finding later confirmed with the database search detailed below. Given this gap, insights gained from this scoping review were combined with the authors' pre-existing knowledge of the rural British Columbian context to present a suite of contextually relevant policy recommendations that may also constitute directions for future research.

METHODS

A scoping review methodology was used to answer our research questions, based on Arksey and O'Malley's[9] methodological framework and the Joanna Briggs Institute Reviewers' Manual[10] for the conduct of scoping studies.

Eligibility Criteria: Articles were included if they substantively addressed the impact of physician leaders and/or important considerations for successful physician leadership in QI in high-income jurisdictions as defined by the World Bank.[11] All articles regardless of research design or publication type published in English between January 2011 and January 2021 were considered eligible.

The multiplicity of definitions surrounding the concept of "rural" meant that there was not always the opportunity to focus on papers with identical criteria for the term. To reduce the rigidity of formal definitions, a functional definition of "rural" was used, based on contexts at hand in each individual paper. Where authors self-identified their articles as examining a rural context, the articles were eligible in the review.

Search Strategy: The search strategy development and execution were led by one reviewer (NLK) in consultation with the principal investigator (JK) and other authors (LAW, CC), along with the University of British Columbia's medical liaison librarian (VK). The strategy consisted of three primary concept areas: leadership, quality improvement, and physicians. Appropriate keyword and MeSH terms for each concept were iteratively determined with assistance from the medical liaison librarian (VK).

The search strategy was executed on MEDLINE (Ovid), which was searched from its inception to January 15, 2021. The initial search was not limited by date; however, articles published prior to 2011 were ultimately excluded due to time and resource constraints. Although rurality was conceptualized as a key interest, its inclusion as a search concept yielded too few results and was therefore excluded.

Screening and Selection Process: The search strategy yielded 1,185 records, which were then exported to Covidence systematic review management software for screening. Two reviewers (NLK, LAW) conducted a primary screening of titles and abstracts for eligibility and subsequently screened the full texts of articles deemed to have potential relevance to the research question (n = 125) against inclusion and exclusion criteria.

Uncertainty regarding eligibility during the title and abstract and full-text screenings were addressed through discussion among the reviewers (NLK, LAW) and in consultation with the principal investigator (JK). There were 47 articles selected for inclusion (see Figure 1).

Data Extraction Process and Data Analysis: Two reviewers (NLK, LAW) extracted data from eligible studies using the NVivo 12 qualitative analysis software for Mac. A data extraction template was designed to capture relevant data and was subsequently translated into a NVivo codebook. The extracted data was thematically analyzed by two reviewers (NLK, LAW), guided by the research questions using NVivo 12 qualitative data analysis software for Mac.

The near absence of literature discussing physician leadership for QI in rural and remote contexts made it necessary for the authors to rely on pre-existing knowledge to translate insights gained from the review into contextually relevant recommendations. The existence of rural-focused literature would improve the strength of these recommendations.

Although the MEDLINE database was searched for records published between its inception and January 2021, ultimately only articles published after 2011 were included due to time constraints and consensus amongst the review team that saturation had been reached. Only articles published in English were included, and it is possible that including non-English articles may have yielded additional relevant results.

FINDINGS

Key themes emerging from the literature include the impact and value of physician leadership in QI, roles and functions of physician leaders in QI, mechanisms of involvement, and individual, organizational, and system-level factors

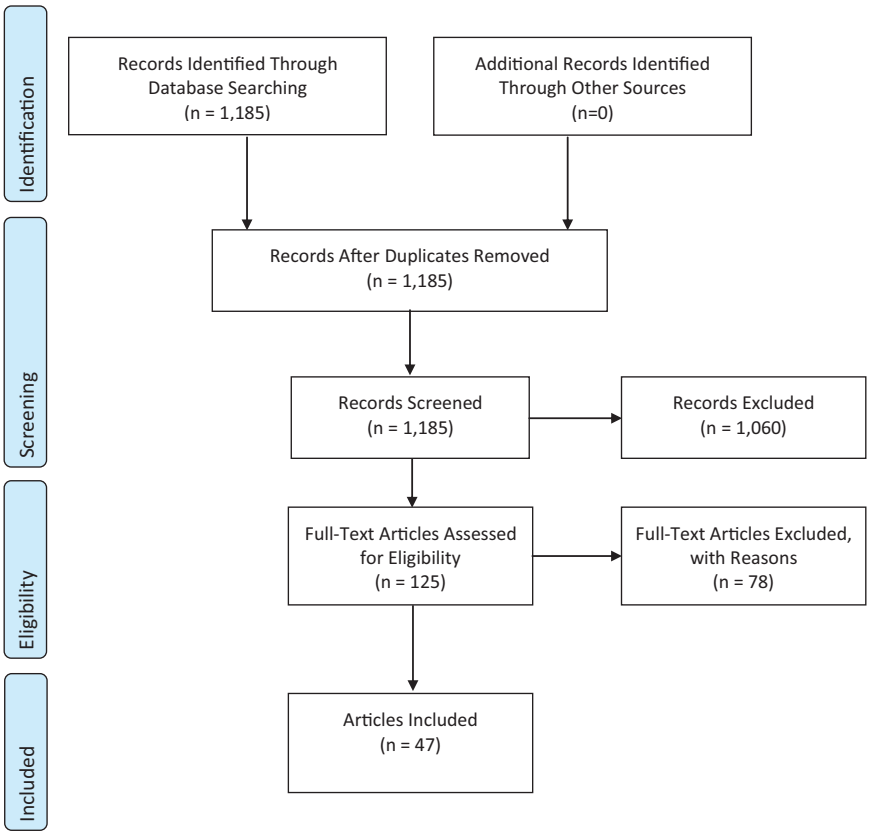

Figure 1. PRISMA Flow Diagram for the Scoping Review Process. (From Moher D, Liberati A, Tetzlaff J, Altman DG, Altman D, Antes G, *et al*. Preferred Reporting Items for Systematic Reviews and Meta-analyses: The PRISMA Statement. *PLoS Medicine*. 2009.)

affecting leadership capacity. These five key themes are summarized in Table 1, and each is explicated below.

Impact and Value of Physician Leadership in QI

Physicians have a unique combination of expert technical and clinical knowledge, credibility, and status within health systems, and a growing body of evidence suggests that physician leadership and engagement in the design, implementation, and advocacy for QI initiatives significantly impacts success.[12–16] Fitzgerald, *et al.*,[17] cited research findings[18] showing that of the top performing hospitals in the United States, those led by physician CEOs reported 25% higher quality scores, and the best-performing hospitals in a similar study conducted by Bloom and colleagues[19] in the United Kingdom were found to have the highest proportions of clinician managers.

The expert clinical knowledge that physicians bring to leadership roles has also been identified as beneficial for organizational strategising and decision-making.[12,20] In a literature review on physician leadership by Berghout, *et al.*,[3] several studies were found to identify clinical knowledge as particularly important for senior clinical[21] and institutional leaders.[22]

Table 1. Key Findings

Key Themes	Areas of Discussion
Impact and Value of Physician Leadership in QI	• *Clinical Insight* • *Credibility as QI Leaders* • *Peer to Peer Engagement*
Roles and Functions of Physician Leaders in QI	• *Management and Leadership* • *QI Advocacy and Catalysts for Change*
Mechanisms of Involvement	• *Approaches to Engage Physicians in QI* • *Models of Involvement* • *Importance of Role Clarity*
Individual Factors Affecting Leadership Capacity	• *Physician Leadership Skills* • *Character and Professional Attributes* • *Leadership Development*
Organizational and Systems Level Factors Affecting Leadership Capacity	• *Compensation and Protected Time* • *Human Resources to Support QI* • *Data Collection and Management* • *Health System Culture of QI Support*

The relationships between physician experience, skillset, leadership, engagement in quality improvement, and care quality outcomes appear to be complex; however, several mechanisms have been identified in the reviewed literature.

Physicians have clinical insight: Physicians are well-situated to understand and respond to patient needs, communicate patient priorities to other medical and non-medical professionals, and target frontline challenges in care delivery and patient experience as leaders in QI. Physicians also have a depth of insight into the priorities, practical challenges, and constraints faced by care providers not shared by non-medical managers and leaders.[15]

Physicians are better able to understand optimal work environments for other physicians and care providers and are better able to provide appropriate support, goal setting, and evaluation than non-physician managers and leaders.[20] This degree of understanding is associated with greater worker wellbeing and satisfaction and an improved ability to represent and engage with other care providers around QI.[20]

Physicians have credibility as leaders in QI: Healthcare systems operate as professional bureaucracies in that legitimacy and seniority are derived from professional competency and experience, and often the most highly qualified frontline practitioners hold significant positional power stemming in part from the credibility that their skills and experience denote.[3,20]

Engaging physicians in leadership and change management as collaborators and champions for QI is critical within the context of a professional bureaucracy.[23] The influence exerted by supportive physician "champions" is essential for securing further support and buy-in from the broad range of providers and non-medical healthcare system professionals required for successful QI efforts.[3,20]

Physicians engage other physicians in quality improvement: Physician champions help to engage other physicians by raising awareness,[15,24–26] overcoming resistance from colleagues, promoting innovation, supporting implementation and decision-making, creating a collaborative environment around change,[15] and supporting other local physician champions to build capacity for QI.[24] The appointment of physician champions to lead other physicians through change is a critical strategy for success for any QI initiative.[15,27]

Roles and Functions of Physician Leaders in QI

Physicians play varied roles in QI, including managing and leading initiatives and acting as advocates or catalysts for change. These are discussed below.

Managing and leading: Management and leadership refer to two related but distinct skillsets, however the specific functions and impact of each for physicians in QI is not always well-understood or appreciated.[12] Physician management roles are typically oriented to the support of day-to-day operations, whereas leadership is less tied to specific job titles and more focused on strategic change-making at clinical, organizational, or system-wide levels.[12]

There is considerable variability in how physician leaders are defined in the literature, but leadership roles generally can be divided into formal and informal types.[3,28] Formal physician leaders tend to be physicians working at the managerial or executive level and may split time between clinical and leadership duties or cease clinical duties in some cases.[3,28] Informal leadership positions tend to exercise leadership in line with daily clinical responsibilities and have less clearly defined responsibilities.[3,28] They often emerge in response to situations where change is necessary.

There is often a difference in how these roles are defined and compensated. Management roles tend to be clearly identified, contain discrete mandatory responsibilities, and are compensated for accordingly, whereas informal leadership responsibilities are viewed as "extra," implied rather than required, and are consequently often not adequately compensated for.[12]

Physicians as QI advocates and catalysts for change: Inspiring, motivating, and supporting colleagues to advocate for or adopt change were identified as critical functions for physician leaders in QI.[3,14,29]

Physicians may perform a wide range of functions to support change, including liaising with other QI experts and senior administrative leaders, providing ad hoc support for team members and other stakeholders,[3,27] as well as resolving conflict and performing critical administrative and communication functions such as attending meetings, networking with stakeholders, and negotiating contracts.[3]

Mechanisms of Involvement

Findings from the literature conveying strategies and enablers for physician involvement in leadership and QI are discussed below.

Involving physicians in quality improvement: Approaches identified to engage physicians in QI varied across contexts but often involved physician focus group-type discussions of emergent quality issues and potential solutions.

Cancer Care Ontario developed a physician engagement model based on "Communities of Practice," in which physicians and other clinicians convene to identify and address quality gaps through informal collaborative conversations and make recommendations for external peer review.[30] This process is marshalled in part by appointed clinical leaders with clearly defined roles and accountability relationships

who manage the groups and maintain engagement with fellow clinicians.[30]

The structure provided for these clinical lead positions was found to aid in recruitment to leadership positions, goal setting, performance review, and ensuring that the relatively expensive clinical leads are only deployed on the tasks where most needed, reducing costs and minimizing distraction from clinical duties.[30]

Elsewhere, the "physician cabinet" has been identified as a tool for physician engagement in QI decision-making.[31] In this model, chiefs of staff for each medical department gather to discuss emergent care issues and interface with non-medical senior leadership to address QI priorities. Members of this cabinet are selected by other physicians, contributing to a sense of trust and transparency that may be difficult to achieve if representatives were selected by non-physician leaders.[31]

Leadership dyads: Close collaboration of physicians and non-medical professional managers has been suggested as one of the most effective approaches to leading QI in modern healthcare systems.[31,32] In this relationship, sometimes called a "leadership dyad," medical and non-medical leaders combine their respective specialized skills and knowledge areas, enhancing both sets of relative strengths as a result.[31–33]

Physicians are naturally positioned to offer patient-focused and clinically informed perspectives while engaging with other clinicians, while the administrators bring critical institutional knowledge and the ability to navigate complex healthcare systems.[31,33]

The dyad leadership model, if not well-managed, does pose a risk of creating parallel streams of accountability that may lead to dysfunctional governance and inefficiency.[33] One study exploring experiences of leaders who have participated in a medical/non-medical dyad reported that the majority of respondents did not support a complete separation of responsibilities between two dyad leaders, but rather that both leaders benefitted from sharing a certain amount of overlap in responsibilities to increase leadership cohesion.[33]

Respondents said a fairly broad range of responsibility domains should be shared between dyad leaders, including quality improvement, financial and resource management, academic roles, and system transformation.[33] Respondents also said it was crucial for both dyad leaders to be held jointly accountable for overall performance and reporting.[33]

Saxena, *et al.,*[33] suggest a hybrid model of dyad leadership that lies between parallel (co-leaders maintain entirely separate portfolios) and integrated (all responsibilities are shared) models, in which discrete responsibilities are shared or delegated according to individual strengths and experiences while joint accountability to global performance is maintained. Physicians must therefore have well-developed management and leadership skills to divide responsibilities effectively and work closely with non-medical leaders in this type of relationship.[32,33]

Role clarity: The lack of consistent and clear role expectations for physician leaders was reported as a challenge to optimal performance,[3,34] and standardization of roles, expectations, support, opportunities for development, and compensation were suggested to improve physician engagement in Canada.[28] But while low clarity around expectations and responsibilities was a source of stress and frustration for some physician leaders, a lack of clearly defined duties was experienced as flexibility and an ability to exercise professional judgment by others.[3]

Loosely defined roles may also present opportunities for physician leaders to develop their positions into roles that reflect their own skillsets and strengths through flexible task delegation and the freedom to set their own expectations.[3]

Factors Affecting Leadership Capacity at the Individual Level

It has been suggested that the style of leadership needed for modern health system reform is not the conventional top-down approach to decision-making and agenda-setting, but rather a collaborative network-based style of leadership with active engagement across professions and stakeholder groups.[35]

This paradigm is based on participation from stakeholders at all levels and relies on front-line service providers to amplify priorities from the coalface and provide leadership in promoting, implementing, and sustaining QI initiatives.[12,13,16]

Physicians must possess the right blend of skills in management, leadership, and QI methods to reach their full potential as leaders and collaborators within this paradigm.[3,12,36]

Skills for physician leadership in QI: A wide range of non-medical skills were identified as beneficial or critical for physician leaders in QI (see Table 2). Cultivating a broad array of these non-clinical skills among physicians has been identified as a critical priority for Canadian healthcare transformation through physician leadership.[36]

Communication was one of the most widely identified essential skill domains for physician leaders in the reviewed literature. Excellent communication skills are a prerequisite to practice what is known as participatory or inclusive leadership.[35] In participatory leadership, input from team members is proactively solicited, considered, and engaged meaningfully, creating a culture of collaboration that supports the sustainability and effectiveness of QI initiatives.[35]

Facilitating group engagement is often complex due to a diversity of perspectives and levels of support for

Table 2. Skills for Physician Leadership in QI

Skills and supporting studies
Communication[3,12,14,16,24,28,36]
Leading and managing change[3,16,36]
Conflict resolution[3,36]
Negotiation[3,37]
Strategic planning[3,36]
Administrative and business skills[3,36]
Working in and leading teams[3,36]
Ability to carry out a vision[3,16]
Networking[3]
Project management[36]
Information technology, data analysis, and systems theory and analysis skills[14]

change. If physician leaders lack strong facilitation and communication skills, they risk mismanaging engagement with colleagues and other stakeholders, increasing the likelihood of conflict and making further engagement more difficult.[35]

Physician leaders must also be prepared to adjust their communication behaviors to account for the diversity of communication styles among team members and other stakeholders that may not share their experiences, perspectives, or cultural expectations.[38]

"Business skills" were identified by physician leaders as a critical area in which they were lacking but felt would be directly beneficial to their work.[36] These skills included financial management and analysis (e.g., creating budgets, securing funding, allocating resources, managing contracts), project management, and administrative and organizational skills.[36,37]

Since leadership duties must often be performed "on top" of clinical responsibilities, it was widely observed that physicians must be intrinsically motivated to lead and assume all of the associated responsibilities and time commitments in order to be successful in this role.[3,31,39]

In a review of the medical leadership literature, Berghout, *et al,*.[3] report several character traits identified in successful physician leaders, including: motivation to lead, assertiveness, cooperativeness, patient-centredness, integrity, mission and results driven focus, affability, openness and honesty, visibility, quality focus, innovation, self-confidence, empathy, forward focus, and intelligence.

Conventional gender identities and norms may also play a significant role in the selection of physician leaders.[38] It has been suggested that some attributes associated with leadership capacity may be disproportionately associated with conventionally male gender identities regardless of any real impact on leadership ability, potentially placing pressure on women to artificially emulate or suppress certain behaviors.[38] This risk emphasizes the importance of flexibility and inclusivity of varying personality and leadership styles in assessing and building leadership capacity to ensure diversity in healthcare leadership.[38]

Need for leadership skill development: It has been widely observed in the literature that physicians often lack formal training in leadership, management, or QI skills.[3,12,28,30,32,36,37,39,40] Leadership, administrative, and managerial training for most physicians tends to be sporadic — if offered at all — beyond on-the-job learning.[32]

Physician leaders often report believing they lack sufficient management skills and experience,[37] which can lead to insecurity in their roles, partially due to a sense of vulnerability as their leadership performance is tied to their credibility as physicians, and performance feedback is rare.[3]

In a survey of 209 Canadian physician leaders, Comber, *et al,*.[36] found that physicians tended to focus more on developing inward-focused and micro-level leadership skills and competencies (e.g., self-development and engaging with peers) versus systems-level thought and forming coalitions to improve quality in the Canadian healthcare system.[36] This may indicate a critical gap in the current leadership capacity that limits the effectiveness of Canadian physician leaders in broader healthcare system-transformation and QI.[36]

Physician leader identities: Physician leaders and managers reported feeling conflict between their dual roles as medical practitioners and managers, often needing to balance care quality and efficiency, managerial and medical responsibilities, and the drive to protect practitioner autonomy versus exercising control and authority in pursuit of broader group or organizational goals.[3,12]

Many physicians identify primarily as champions for patients, quality care, and for professional and clinical excellence.[13] These aspects of physician professional identity are clear strengths in leadership and quality improvement, however they may be held in exclusion to important non-medical considerations for QI and conflict with collaborative and interdisciplinary approaches to leadership.[13]

Organization and System-Level Factors Impacting Physician Leadership in QI

Several system-level and contextual factors, including availability of funding and compensation for time spent on leadership activities, human resource availability, critical data and analysis capacity, and organizational environments that support QI, were identified as important for maximising physician leader impact and QI outcomes.

Compensation and time scarcity: Effective QI and change management require considerable time and effort on the part of physician leaders. However, it was widely

reported that physicians were poorly, if at all, compensated for their time spent on leadership and QI activities.[26,34,39,41] Physicians reported they were compelled to volunteer their time to lead QI and thought they couldn't give as much time as was needed.[27] This under-resourcing is extended to capacity development, where physicians reported limited compensation for participation in leadership and QI professional development in addition to low availability of educational opportunities.[26]

This poor compensation contributes to many physicians tending to perform leadership responsibilities "on top" of all other duties, increasing risk of burnout and job dissatisfaction.[3] Significant evidence suggests that compensating physicians for the time they invest in leadership and QI activities has a direct positive effect on QI engagement and leadership development.[26,34,39,41]

Availability of human resources to support QI: Leading QI requires specialized knowledge and skills across multiple domains. Engaging a wide variety of professionals in QI initiatives can improve the diversity of skillsets available and decrease the burden on any one individual. For example, in one Canadian QI initiative, physicians and other healthcare staff expressed that regular consultations with QI experts greatly improved their ability to implement and sustain a hand-hygiene initiative.[25]

Respondents in this evaluation cited the importance of the partnership between clinical champions, who did not report being knowledgeable about quality improvement, and QI specialists, who worked with clinical staff as guidance coaches rather than as directive managers.[25] Accessing such specialized support resources may not be practical for all physicians, however. Independent physicians or those practicing in small-group settings (especially those in rural settings) face particular challenges in engaging with and leading QI in the broader health system, especially poor availability of *locum* services to cover time away from clinical duties (for which they may be the sole provider), insufficient information systems to track performance and interact with collaborators, insufficient reimbursement for time spent on QI, lack of local QI resources, and continual system wide reorganization.[42]

Data for QI: The availability of reliable and relevant data at regular intervals is a critical component for effective QI.[14,30,39] The provision of this performance data must also be accompanied by appropriate QI tools, processes, and resources, providing resource-limited physicians with a clear and achievable path for QI.[39,43]

Health system structure: Accountability to QI and high performance is improved when physicians are part of formal networks of care providers with defined roles and responsibilities.[30] Formal association with larger systems of care, such as hospitals, enables more flexible systems of accountability where risk and reward are shared by many.[30] A culture that encourages QI through senior leader sponsorship of QI efforts along with QI leadership of actors at all levels were significant organizational enablers of successful QI work.[40]

DISCUSSION

Given available evidence confirming the importance of physician participation in QI within the healthcare system, the task at hand is to create mechanisms to encourage and support meaningful involvement without jeopardizing their contribution to clinical care. This is particularly challenging in rural settings due to the multiple roles held by many physicians extending from work in daytime clinics, in emergency rooms, as hospitalists and, for some generalist physicians with enhanced skills training, in procedural care. The small size of many rural communities also creates considerable overlap in professional and social roles for physician leaders, adding nuance to their role as figures of authority.

The lack of anonymity in rural contexts and the social-professional role overlap is a fundamental difference between urban and rural communities where crossover in professional/social realms is less common. This, combined with the lack of health human resource redundancy or, in many instances, recruitment shortages or physician scarcity, demands an enhanced strategy to facilitate rural physician involvement. At a national level, regulatory and professional bodies have begun to actualize these values through expectations of members' involvement in such activities.[44–47]

It is usually the responsibility of regional authorities to implement policy directions; however, many jurisdictions have actualized resources to support this. For example, in British Columbia, the Joint Clinical Committees financially support physician leadership involvement through funding for sessional fees to compensate physicians' loss of clinical earnings when they take part in leadership training and activities. Although this enables full participation from a financial compensation perspective, it does not address the challenge presented by low-resource environments, especially the loss of time for direct clinical care that is often not backfilled.

This tension is endemic across rural healthcare and can only be addressed by building staffing models that account for such time away from clinical work not only for department heads or those in formal senior health leadership roles, but also physician staff. Ideally, CQI responsibilities are formally articulated and clearly integrated physicians' work portfolios; some innovative programs fund a CQI nurse to lead CQI initiatives at a local level.

Where funding or staffing is not possible, the CQI role is often taken on informally or simply goes without attention. In these instances, responsibilities and tasks related to the CQI role can be assigned to other members of the interprofessional team.

Further practical challenges for rural physicians in leadership and QI activities include lack of geographic proximity

to centralized, in-person activities and time commitments to travel. This has somewhat abated in the context of COVID-19 and the societal shift to virtual activities, which presents another option for leadership activities.

Although providing financial support and resolving the tension between clinical and administrative responsibilities in healthcare sets the foundation for ongoing physician leadership in improvement and reform, these activities must be augmented by more personal outreach by those currently in administrative and leadership roles to make opportunities attractive, effective, and rewarding for the physicians they target.

The most effective way to achieve this is to involve physicians as co-creators of leadership and QI opportunities with a clear role in developing, implementing and sustaining initiatives. All these activities are necessarily underscored by available and accessible leadership training, tailored specifically to the needs of the clinician learner and situationally responsive to health system realities. This has become part of standard professional development practices in many jurisdictions as evidenced by offerings such as Canada's Physician Leadership Institute,[48] Harvard's International Leadership Development Program for Physicians,[49] and American Association for Physician Leadership[50] alongside university-level public health programs.

CONCLUSION AND RECOMMENDATIONS

The following overarching recommendations, built on the evidence reviewed, will contribute to a robust structure for rural physician involvement in leadership and quality improvement. They include:

1. The concept of *proportionate universalism,* a strategy for "...resourcing and delivering...universal services at a scale and intensity proportionate to the degree of need," guides participation and resource allocation for rural physician involvement in leadership and quality improvement.[51]
2. Supports to mitigate the geographic challenges faced by rural practitioners seeking to engage in leadership and QI activities such as professional development training, collaborating with peers on QI initiatives, participating in regional or provincial governance activities, etc., are available.
3. Rural physicians are engaged to co-develop compensation structures that fully account for the significant time and effort required beyond their day-to-day clinical duties to develop and practice QI leadership.
4. Healthcare administrators continue to invest in technologies that allow physicians to participate remotely in

Table 3. Recommendations Through a Rural Lens

	Recommendation	Description/Rationale
1	*Proportionate universalism* should guide targets for participation and resource allocation for rural physician involvement in leadership and quality improvement.[51]	While rural populations comprise a relatively small percentage of most industrialized populations, the social obligation of healthcare systems is to deliver high quality and continuously improving healthcare regardless of location. Due in part to distance to specialist services and systemic vulnerabilities, rural communities often face increased health service difficulties and demands, as well as higher differential pronouncement of adverse health outcomes, and resources should be allocated proportionately. Rurality presents unique challenges to providers' participation and requires well-resourced and coordinated support.
2	Supports to mitigate the geographic challenges faced by rural practitioners seeking to engage in leadership and QI activities such as professional development training, collaborating with peers on QI initiatives, participating in regional or provincial governance activities, etc., should be made available.	These supports should target the increased financial costs faced by rural practitioners who would need to pay out-of-pocket for transportation and accommodation while away, forgo wages due to time away from their practices, incur care costs for dependents, and cover any other associated expenses.
3	Rural physicians are engaged to co-develop compensation structures.	This ensures that the significant time and effort required beyond their day-to-day clinical duties to develop and practice QI leadership, are compensated appropriately.
4	Healthcare administrators continue investing in technologies that allow physicians to remotely participate in regional leadership roles, expand leadership capacity, receive, and provide support on leadership, management, and QI skills.	The global response to COVID-19 has dramatically shifted norms of communication to be much more inclusive of remote participation in virtually all contexts. This trend has enabled many people, rural physicians included, to participate in professional and educational activities more easily and fully than before. Rather than be rolled back, these technologies and norms should instead be reinforced to persist in the post-pandemic era as tools to minimize the amount of travel necessary on the part of rural physicians to receive the training and support required for leading QI initiatives. The time spent virtually engaging with leading QI must also be included in compensation schedules.

regional leadership roles, expand leadership capacity, receive and provide support on leadership, management, and QI skills (see Table 3 for a more detailed description of these recommendations).

Another strategy to improve physician leadership in QI is providing regional networks to coordinate QI initiatives, share information, best practices, tools, and resources, and to avoid duplication of efforts.[52] While each rural site has unique QI needs, a networked approach can nevertheless provide a QI structure and support to individual sites.

The relatively nascent study of how to support physician leadership in health system improvement has yielded promising directions to enhance involvement. Less attention has been paid to the issue "through a rural lens," however, rural physician leadership at provincial or national tables is crucial to adequately represent the lived experience of clinical practice in a rural context. This review has provided an evidence-based framework from micro- to system-level activities that can enhance such involvement. ■

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Nicholas Lloyd-Kuzik, MPPGA, is a research analyst with Ontario Health in Toronto, Ontario, Canada. He was previously a research analyst with the Centre for Rural Health Research within the Department of Family Practice at the University of British Columbia.

Christine Carthew, MPH, is pursuing a Juris Doctor degree at Osgoode Hall Law School in Toronto, Ontario, Canada. She previously held the position of research manager at the Centre for Rural Health Research at the University of British Columbia in Vancouver.

Harsh Hundal, MD, MPA, is the executive medical director for physician engagement and resource planning at Interior Health, a rural and indigenous health authority in British Columbia, Canada. In 2021, he was the recipient of the BC Patient Safety and Quality Council's Leadership in Quality Award.

Jude Kornelsen, PhD, is an associate professor in the Department of Family Practice at the University of British Columbia and co-director of the Centre for Rural Health Research. Her research focuses on creating rigorous evidence to inform rural health planning in the area of access to health services, specifically maternity care, low-volume surgical care, and high acuity patient transport.
jude.kornelsen@familymed.ubc.ca