

A partnership for Indigenous knowledge translation: Implementation of a First Nations community COPD screening day

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ABSTRACT

This article suggests a method for integrating the principles of Aboriginal knowledge translation (KT) in the implementation of a pilot for chronic obstructive pulmonary disease (COPD) screening to improve current practice and provide health programming that is culturally sensitive and relevant. The elements of the Consolidated Framework for Implementation Research model guided a community informed design for the Lung Health Day that was planned with two communities of the Secwepemc Nation in British Columbia. By integrating the principles of Aboriginal KT, program implementation design can address the current disparities in respiratory care and management of COPD and improve the health status of First Nations patients.

Key Words: *Aboriginal health; First Nations; knowledge translation; knowledge exchange; implementation; chronic obstructive pulmonary disease*

Terms used to describe the Indigenous people of Canada

In this research, the terms “Aboriginal” or “Indigenous” have been used to refer inclusively to all three Indigenous populations in Canada: First Nations, Métis, and Inuit. The use of terminology is evolving. The term “Aboriginal” has less favor due to its historical imposition by colonizing governments. To be consistent with citations from previously published literature the term “Aboriginal” has been repeated only in the context that refers to the original reference [1].

INTRODUCTION

Smoking is the primary cause of chronic obstructive pulmonary disease (COPD) in Canada [2]. The prevalence of smoking in the Aboriginal population is almost twice as high as the non-Aboriginal population (39% vs. 20.5%, respectively) [3]. As a result, Aboriginal Canadians shoulder a large burden of health-related illness due to the effects of smoking [2, 4–6]. Ospina et al. [2] recently reported a higher incidence of new cases of COPD among a First Nations cohort compared to a non-First Nations comparison group (incidence rate ratio of 2.1; 95% CI; 1.97, 2.27). Correspondingly, in their study the prevalence of COPD in the First Nations population was approximately 2.4 times higher than the non-First Nations cohort [2]. There is an increased need for COPD-related health services in First Nations communities; however, services are either not available or are not accessed by this population [6]. Therefore, more effective programming is required to address the lung health needs of First Nations communities in Canada.

Many Aboriginal people have experienced, and continue to experience, cultural alienation and multi-generational trauma from residential school incarceration [7]. Economic and political marginalization and racism also erode resiliency and the ability to maintain health and well-being [7]. Thus the residual aspects of colonization magnify the impact of key social determinants of health. Financial need, food insecurity, reduced

educational opportunities, social isolation, and poor housing conditions potentiate the COPD risk factors of tobacco use and childhood exposure to second-hand smoke in the Aboriginal population [2]. Research completed by the Wellesley Institute [8] details systemic racism in the Canadian health system. This is supported by the findings of the Truth and Reconciliation Commission where all levels of government are asked “... to acknowledge that the current state of Aboriginal health in Canada is a direct result of previous Canadian government policies including residential schools...” [9, p. 2]. The Indigenous population has current and historical health care experiences that mirror the previous trauma and neglect of institutional care (including residential schools and child welfare practices) [9]. These experiences reduce individual confidence in the care they receive and may create reluctance to seek treatment [9].

Aboriginal people in Canada may also experience inconsistent care and management once faced with a diagnosis of COPD when compared with non-Aboriginal patients with COPD [5, 6, 10]. Sin et al. [6] reported a differential use of health care services for COPD between Aboriginal and non-Aboriginal patients that was not explained by socioeconomic status or living location. They reported that Aboriginal patients experienced gaps in COPD care and treatment, and were 55% (95% CI; 52%–58%) less likely to see a specialist and 66% (95% CI; 63%–70%) less likely to undergo spirometry than non-Aboriginals [6]. These results highlight the need for an assessment of how health care providers (HCPs) approach care, including how stereotyping and bias may unconsciously limit the care and treatment options for Aboriginal respiratory patients [8].

Gaps in care hinder respiratory health. There are numerous knowledge translation (KT) strategies that aim to increase uptake of research-based clinical practice to ultimately improve the health outcomes for patients [10, 11]. However, to facilitate uptake into practice in a First Nations context, an optimal KT strategy should incorporate principles of Indigenous knowledge sharing, which includes a community-developed approach, experiential knowledge, and an emphasis on oral traditions [7, 11, 12]. Strategies to improve respiratory care that integrate the principles of Indigenous KT may have the greatest potential to address existing health status

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inequities and disparities in COPD treatment. This paper describes how a KT strategy that incorporated the principles of Indigenous KT was used to implement a First Nations community-based screening day in partnership with the Adams Lake and Neskonlith First Nations of the Secwepemc Nation in British Columbia, Canada.

INTEGRATED KNOWLEDGE TRANSLATION

It has been estimated that it takes an average of 17 years for 14% of research findings to be adopted into clinical practice [13]. KT uses different strategies to encourage and support clinicians to embed evidence-based research into clinical best practice to improve patient outcomes. The Canadian Institutes of Health Research define western-medicine based KT as an "...iterative process that includes synthesis, dissemination, exchange and ethically sound application of knowledge" [11]. However, a western-based approach to KT may not be relevant in Indigenous health care. The scientific method for gathering and disseminating evidence is largely unidirectional from researcher to clinician to patient. In contrast, Aboriginal KT fosters an approach where the researcher, clinician, and the community are seen as resources for each other [11, 14]. There is a mutual sharing of knowledge that is inclusive of a variety of perspectives. Table 1 indicates the components of western-medicine based KT and applies them in an Aboriginal context. Aboriginal knowledge structures include community voices that illustrate "different ways of knowing" [11, 12, 14-16]. Dr. Jeanette Armstrong, an adjunct professor at the University of British Columbia Okanagan and a member of the Syilx Nation, noted in a recent keynote presentation at the 2nd Okanagan Cultural Safety symposium that:

Just as written grammar systems have rules that establish preciseness of meaning, Indigenous languages develop preciseness from the understanding that has been established by the people... who have created information packages that are represented by characters in nature (plants and animals) developed over 12 thousand years of oral tradition. [12]

Thus, in a First Nations context, local understanding is often shared through linguistic constructs such as story, song, or ceremony. This method for intergenerational knowledge sharing has supported the health and wellness of Aboriginal people for centuries [11]. While western-medicine based KT gains academic rigor through iterative scientific method, levels of evidence, and established research methodologies, Indigenous KT shares best societal practices and social instruction through a system of oral documentation practiced over thousands of years [11, 12].

It is critical that health interventions integrate the principles of Aboriginal KT and align with the community's geographical, social, cultural, and political history [11, 15, 16]. For example, often the four quadrants of the medicine wheel (physical, emotional, mental, and spiritual) guide the content and context of health interventions considered by

TABLE 1
The process of non-Indigenous and Indigenous knowledge translation of research results

Non-Indigenous	Indigenous
Identify the problem	Establish community trust and partnership to identify a problem of significance to the people
Analyze the context	Recruit culturally competent field workers and community members to inform context and guide all stages of research
Select the knowledge	Create ongoing opportunities for knowledge sharing to facilitate collaborative decision making
Select the intervention	Commit to return results to communities for verification and validation before wider dissemination, implement the intervention in the most appropriate mode of delivery for the community context
Support the use in practice	Communicate results to inform policy and practice

Adapted from Jardine and Furgal [16] and Hoens et al [19].

the community when promoting wellness as part of their unique oral history [12]. The final synthesis of the information takes into account the priorities of the people involved and asks for their contribution to implementation in order to sustain the knowledge and practices within the community. The design and implementation of Indigenous health programs that integrate the principles of Indigenous KT may be more relevant, have more emphasis on an equity-focused approach to health care, and ultimately may be more successful at improving Indigenous health outcomes.

Although in general western-based approaches to KT may not be a good match with Indigenous health and learning values, there are some existing KT strategies or frameworks with components that do align with Indigenous health and learning values. The Consolidated Framework for Implementation Research (CFIR) is a model that combines several implementation theories to create a standardized method for applying knowledge across diverse contexts [17]. Developed in 2009 by Damschroder et al. [17], it outlines implementation strategies based on five fundamental components: (i) individual characteristics, (ii) intervention characteristics, (iii) inner setting, (iv) outer setting, and (v) the process of implementation. One component of the CFIR model details five implementation actions to guide KT planning [17] (Table 2). Two strengths of this model are that it utilizes an approach that focuses on knowledge sharing among all participants and the model components can be tailored to the principles of Indigenous KT. The following sections of this article describe how the CFIR was used as the theoretical foundation for the Secwepemc Lung Health Day held approximately three hours north of Kelowna B.C. in the Adams Lake and Neskonlith traditional territory.

ACTIONING INDIGENEOUS KNOWLEDGE TRANSLATION—SECWPEPMC LUNG HEALTH DAY

The Secwepemc community hosted this opportunity for knowledge sharing and actively promoted attendance by all community members. Table 3 describes the agenda for the event. The day began with an Elders teaching circle for the HCPs and included chronic disease learning sessions. The Chief and her council presented on the community traditions for promoting wellness and preventative care such as the traditional diet that is sourced from the land and how seasonal activities maintain the Nation's health through this connection with their land. Lunch was provided by the Elders and all participants continued to share knowledge and network during the meal. The afternoon contained COPD screening and follow up of the results with the HCPs. The day finished with a participant evaluation and a small gift exchange between the Elders and the HCPs.

Intervention characteristics—inclusive of multiple perspectives
Damschroder et al. [17] described the first CFIR domain "Intervention" as the characteristics of the intervention being implemented in the organization, and they stressed that it is necessary to adapt the intervention to meet the needs of the organization, without losing the core components of the intervention that are necessary for its success. This approach is well-matched with the Aboriginal health emphasis on "Being Inclusive

TABLE 2
Five implementation actions that support community-established meaning

Actions
Identify stakeholders, prioritize content, and integrate methods for knowledge translation
Create a shared vision and recruit internal and external change agents that have gained community respect
Remain faithful to implementation plan created by consensus
Create a safe atmosphere for information sharing, debriefing, and further adaptation
Identify formative goals that are S.M.A.R.T. (specific, measurable, attainable, relevant, and timely) from the community's perspective

Adapted from Jardine and Furgal [16] and Damschroder [17].

TABLE 3
Event schedule

Time	Component	Description
08:30–10:30	Community teach-back to HCPs	Session opened by drum song and prayer Elders held discussion circle for HCPs on respectful approach to care, healing traditions, building relationships, and end-of-life traditions Permission was received to record the session to create online cultural safety resource
10:30–11:00	Break	Reflect on what was shared Introduce HCPs to community members who were now arriving
11:00–12:00	Chronic disease learning sessions (15 minute presentations)	Traditional tobacco use and the importance of community in health—IH Aboriginal Tobacco Coordinator COPD management, physiology overview, signs, symptoms, and breathing techniques—IH Knowledge Coordinator Chronic co-morbid disease associated with COPD—Family Practice Resident Anxiety and depression and community contacts—IH Mental Health Services
12:00–1:00	Chief and Council presentation and lunch	Community traditions of preventative care and seeking information to support wellness Prayer of thanks Lunch of traditional food prepared by the Elders Sharing food as part of knowledge transfer
1:00–3:00	COPD screening	COPD-6 device used to screen all participants Abnormal screening results follow-up with screening Spirometry stations with Family Practice resident and RRT consultations Resources set up for smoking cessation and COPD management including mental health and substance use issues
3:00–4:00	Wrap-up and gifts	Band RN spoke with all participants and reviewed recommendations and plan for follow up IH Aboriginal Practice lead initiated short evaluation of the day with participants before they left Food to take home offered to all Small gifts exchanged between Elders and HCPs

Note: HCP, health care provider; IH, interior health; COPD, chronic obstructive pulmonary disease; RRT, Registered Respiratory Therapist; RN, Registered Nurse.

of Multiple Perspectives.” In 2009, Estey et al. [11] emphasized that the “large gaps in our knowledge about all Aboriginal health” would only be addressed if health interventions incorporated a “multiplicity of perspectives”. Interventions characteristics should be legitimate, valid, and adaptable [17]. Legitimacy and validity are related to the community and the HCPs’ perception of who created the intervention and design for implementation. For the Lung Health Day it was essential to have the Secwepemc Elders, First Nation employed HCPs, health authority HCPs, and the University of British Columbia Family Practice Residents’ Supervisor form a planning team to ensure respectful representation of all stakeholders and to reinforce the legitimacy and validity of the event [16]. Feedback from the community members highlighted the importance of bringing new physicians out into the community to witness, experience, and learn about local First Nation culture and health practices. Adaptability of program components was essential as the stakeholders planned to bring the model for the Lung Health Day to many of the Secwepemc communities as well as other First Nations communities that are part of the health authority. The Lung Health Day pilot was evaluated by the participants and the HCPs to improve future events. Success of the event was determined by a participant survey which indicated that 100% of participants would recommend participation in a repeat of the community event to friends and family. Evaluations of the day were also shared with the planning stakeholders and Secwepemc leadership, who suggested further improvements to the implementation to support sustainability of the KT by creating an online learning module.

Inner setting—different sources of knowledge and outer setting—intergenerational knowledge sharing

The second CFIR domain is “Inner Setting,” which relates to the within-organization “structural, political, and cultural contexts through which the implementation process will proceed” [17]. It acknowledges that to be successful, the intervention must acknowledge and incorporate the tangible and intangible networks and lines of communication that exist within an organization. The CFIR “Outer Setting” domain refers to “the economic, political and social context within which the organization resides” [17]. In practice, there is overlap between inner and outer settings, and these domains closely aligned with the Aboriginal KT concept

of “Different Sources of Knowledge” and of “Intergenerational Knowledge Sharing” (8, 12).

Different sources of knowledge can facilitate an optimal climate for implementation by contributing to the social architecture, methods of communication, and opportunity for cultural recognition [17]. The foundation of the Lung Health Day’s inner setting were the health authority HCPs who were comfortable with their established divisions of labour and professional scope of practice, but who also looked for opportunities for coalitions of service with this First Nations community [14]. The inner setting for the Lung Health Day also relied on existing receptivity to health learning within the Adams Lake and Neskonlith First Nations their role in adjusting the day’s content to improve community engagement; and the link of the event with the community priorities for addiction awareness, prevention, and treatment.

The planning team also felt that the lung health day could create a setting for intergenerational knowledge sharing and cultivate learning about smoking and the risk of developing COPD. However, this component was difficult to implement. Although the health authority team participated in a recent student health fair to promote lung health with the community youth, it became apparent that more emphasis on this younger population would be required to address the community priorities and reflect a service partnership that was truly patient and community centred [11]. As the Lung Health Day was targeted to coincide with the Secwepemc Addiction Awareness week and World COPD Day 2014, there was only a small window of time for relationship building related to lung health for the community’s youth [16], and would require added resources to increase the scope of the lung health day to include prevention.

Individual characteristics—mutual sharing of knowledge

The fourth domain of the CFIR framework is the “Individual”, which refers to the unique characteristics of the people involved in the implementation. It recognizes that individuals make choices, experiment with interventions, and influence others [17]. This domain aligns with the Indigenous KT principle of “mutual sharing of knowledge”, which also emphasizes the importance of including the perspectives of the multiple stakeholders of the event. To formalize the importance of the mutual sharing of knowledge, the Secwepemc Lung Health Day relied on the

relationship that had been established between the Adams Lake and Neskonlith First Nations and the Government of British Columbia's Interior Health (IH) Authority via a letter of understanding. This letter described the collaborative relationship between the First Nation and the IH employees to inform the components of the day and clearly described how the mutual sharing of knowledge would be facilitated. One key feature of the sharing of knowledge was the use of a talking circle with the community Elders. The talking circle gave the HCPs time with the Elders who shared their knowledge of culturally appropriate approaches to building care relationships such as mutual sharing of family history. This approach strengthened the credibility of the day as the Neskonlith chief and council members presented on the importance of prevention and appropriate care in sustaining the health of the people, and how seeking and sharing knowledge has ensured the well-being of the community [12].

Process of implementation—community established meaning

The final domain of the CFIR focuses on the "Process of Implementation" [17]. Process is recognized as having many components which may be happening simultaneously or in a non-linear fashion. This domain is reflected in the Indigenous KT concept of "community-established meaning," which emphasized that the creation of the lung health day was transparent and included multiple stakeholders from the health authority, the community health workers, and the Elders. There was also an emphasis on discussing the event, revisiting the main objectives of the day, and revising as new suggestions arose.

Evaluation and knowledge dissemination

Evaluation of the day was completed using participant and provider surveys that were collaboratively developed by the community-based planning team. Fifty-five of 800 First Nation community members came to the event (7%). Forty-four individuals were screened for COPD using the COPD-6™ (Vitalograph, Hamburg, Germany) device which measures forced expiratory volume in one second (FEV1), forced expiratory volume in 6 seconds (FEV6), the FEV1/FEV6 ratio, and the percent of predicted values, as well as a calculated obstructive index or lung age. Twenty-six participants completed an evaluation at the end of the day. As well, an online HCP survey completed one week after the event allowed the event organizers to gain insight as to how the program design could be improved and possibly adapted for other chronic diseases. A summary of the survey results was presented to the Secwepemc Nation Leadership Council in January of 2015, and the HCP surveys were shared with the Neskonlith and Adams Lake First Nation health directors for future use.

The screening day identified 10 individuals who required spirometry testing and follow-up with their family physicians. All the testing results were submitted for IH respirologist interpretation, and the results and interpretations were sent to patients' family physician or community nurse practitioner. The screening day exposure has helped increase awareness of chronic lung disease in the community and the HCPs have been asked to repeat the screening day with different communities within the Secwepemc Nation.

DISCUSSION

Indigenous health care principles use a community-focused approach to ensure that care is based on building relationships and fostering trust within the health system as well as addressing the reasons behind a reluctance to seek care [8, 18]. This social approach to care may not be well suited to western-based KT strategies that tend to target a specific medical audience without necessarily understanding of the context within which health care takes place. The integration of the principles of Indigenous KT with those of western-medicine based KT creates an opportunity to contextualize health care and, in so doing, may address racial inequalities as they relate to COPD management [18].

The high prevalence of Indigenous tobacco use often results in an increased need for healthcare services over time. This burden may be further amplified in the Indigenous populations if there is a lack of diagnostic services or reluctance to seek care because of structural racism in the

health system. To combat this, a COPD screening day that was developed for and by First Nation peoples relied on approaching the community as equals and used a knowledge translation framework that incorporated Indigenous KT principles. This model for implementation created processes that were adaptable and balanced standardized evidence-based care with community informed priorities for health.

Specifically, the community members were acknowledged as experts in their knowledge of the people, culture, wellness, and health traditions; instead of a unidirectional approach, there were opportunities to develop a day that was based on the knowledge held by all the stakeholders.

LIMITATIONS

This paper describes the pilot COPD screening day held in one First Nations community in British Columbia. In general, Aboriginal knowledge is developed by the community over time. This increases community engagement and uptake into practice. Different First Nations may have different approaches to learning, collaboration and health care so the approach we used may not be transferable to other communities [14]. Sustainability relies on maintaining collaborative relationships where all stakeholders can inform further health initiatives based on evolving community priorities. However, health system pressures challenge sustainability. As local health authorities are funded based on changing system priorities, it is not clear if future screening days will be funded, and community partners may see this as a lack of commitment to advance Aboriginal health, reduce treatment disparities, and apply Indigenous KT.

CONCLUSION

Quantifying the current respiratory health status of Canada's Indigenous population is limited due to sparse data compared to the Non-Indigenous population. Further research is required to address community identified barriers to effective, appropriate, accepted, accessible services that promote improved culturally safe, health outcomes for Indigenous people. Integrating Indigenous KT into program implementation is one way to effect change in the health system, and amend the approach to care for Indigenous patients. Our experience suggests that by integrating the principles of Indigenous KT, program implementation can begin to address racial and ethnic disparities in current respiratory care and management of COPD. Ultimately, we believe that incorporating the principles of Indigenous KT as part of health programming design and implementation will improve evidence informed practice for Indigenous patients with chronic respiratory illness.

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