

# Critique of a Community-Based Population Health Intervention in a First Nations Community: Public Health and Medical Anthropology Perspectives

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## Résumé :

(traduction)

Le projet de Sandy Lake sur la santé et le diabète est une initiative de partenariat communautaire qui a été lancée dans le but de prévenir le diabète dans une communauté de Premières Nations dans le Nord de l'Ontario. Grâce à l'engagement des intervenants clés, le projet a mené une série d'études qui traitaient des besoins et des priorités de la santé publique, selon les contextes. Celles-ci ont conduit à l'adoption de nombreuses interventions sanitaires conformes à la culture, tout en adressant plusieurs déterminants de la santé, tels que l'éducation sanitaire, l'environnement physique, la nutrition, l'hygiène de vie personnelle, les services de santé, et la culture des communautés de Premières Nations. Le projet de Sandy Lake, qui a développé des capacités réciproques pour les intervenants communautaires et les partenaires universitaires, a évolué comme modèle d'intervention en santé des populations. Les composantes scolaires sont appliquées à grande échelle dans d'autres communautés de Premières Nations au Canada. La présente critique est rédigée dans une perspective de santé publique et d'anthropologie médicale et formule des recommandations fondées sur des preuves pour améliorer ces programmes.

## Mots-clés :

Déterminants de la santé, intervention en santé des populations, santé publique, anthropologie médicale, prévention du diabète

## Abstract:

Launched as a community-based partnership endeavour, the Sandy Lake Health and Diabetes Project (SLHDP) aimed to prevent diabetes in a First Nations community (FNC) in Northern Ontario. With active engagement of the key stakeholders, SLHDP conducted a series of studies that explored public health needs, priorities, and the contexts. These led to the adoption of a variety of culturally appropriate health interventions, addressing several health determinants such as health education, physical environments, nutrition, personal health practices, health services, and FNC culture. SLHDP built reciprocal capacity for both the community stakeholders and academic partners, thus evolved as a model of population health intervention. The school components are being scaled-up in other parts of FNCs in Canada. This paper presents a critique from public health and medical anthropology perspectives and draws evidence-based recommendations on how such programs can do better.

## Keywords:

Health determinants, population health intervention, public health, medical anthropology, diabetes prevention

## Introduction

Launched in 1991 as a community-based partnership endeavour, the Sandy Lake Health and Diabetes Project (SLHDP; Table 1) primarily strived to determine the prevalence and risk factors of diabetes (Kakekagumick et al., 2013). The overarching objective was to prevent diabetes by improving personal health practices regarding diet and physical activity (Ho, Gittelsohn, Harris, & Ford, 2006). SLHDP addressed key health determinants such as health education, physical environments, nutrition, and health services. The intervention approaches like School Curriculum, Diabetes Radio Show, Northern Store Program, Community Walking Trail, and other community actions were tailored to fit into the Aboriginal cultural context and focused on enabling individuals with health knowledge and skills to fight diabetes (Ho et al., 2006). Taking a comprehensive overview of population health principles by addressing the social, physical, and cultural determinants of health, is a fundamental prerequisite to ensure overall health and wellbeing of the community (World Health Organization [WHO], 2016). This paper presents a critique of the SLHDP from two disciplinary perspectives: public health and medical anthropology.

### Figure 1:

*Sandy Lake First Nations (SLFN) Indian Reserve is an Oji-Cree Band with about 3,000 inhabitants located in the west part of Northern Ontario. The community gets service from a privately owned Northern Store. There are four local groceries. Education is maintained by the Sandy Lake Board of Education with one elementary and one high school. The five clans living there are governed by an elected Governance Council advised by an Elder Council. The following six boards carry out the council's operations: Community Development, Education, Health, Housing, Radio Station, and Recreation (Statistics Canada, 2011). The SLHDP was triggered by a report brought forward in 1991 by the Chief of SLFN community to the medical director of that zone to voice their concerns regarding an increased prevalence of diabetes (Kakekagumick et al., 2013). In a community-based participatory approach, SLHDP researchers conducted a range of surveys, assessments, ethnographic, and formative research, and designed interventions as mentioned above. Parts of the program continue up to now with support from the local government and community (J. Rae, Health Director, SLHDP, personal communication [email], May 9, 2016).*

## Reasons for Selecting Two Disciplinary Perspectives

Public health was chosen to appraise how SLHDP has reflected the values of this discipline, realized its core functions, and delivered essential services. As per the fundamental values of public health, SLHDP recognized the importance of the health of a community, made efforts to reduce the predominant health inequity, ensured community participation, and demonstrated respect for Aboriginal culture. Reflecting the core functions of public health, SLHDP assessed community health needs, and developed appropriate policies and programs, thus, assuring delivery of essential services (Public Health Agency of Canada [PHAC], 2007). Hence, the criteria for appraisal of this program are based on the realization of these values, public health core functions, and services.

Medical anthropology was chosen as the second discipline for this critique because it has distinct sociocultural, biological, and etymological approaches to study chronic health conditions in human populations (Armelagos, Leatherman, Ryan, & Sibley, 1992). The traditional ecological perspective implicit in SLHDP has not gained general acceptance in medical anthropology, as it deals with the homeostatic systems (Landy, 1983). The ecological view is driven by biomedical theory in its procedures (Hahn & Kleinman, 1983) and does not consider the exact role of social relations in the development of health and illness (Singer, 1989). Medical anthropology explains sociocultural, biological, and etymological factors and how they affected the evolution and distribution of diabetes in an Aboriginal community (Schoenberg, Drew, Stoller, & Kart, 2005).

## Public Health Perspectives

Public health is a combination of sciences and arts, encompassing skills and values dedicated to maintaining and improving the overall health and wellbeing of people through collective social actions (Sheps, 1976; Department of Health [DH], 1988). The core functions of public health include assessment, policy development, and assurance of the required services (Centre for Disease Control and Prevention [CDC], 2014). To accomplish these basic functions, the discipline advocates for the delivery of ten essential services: assess; inform, educate, and empower; mobilize partnerships; develop policies; enforce laws; link to services; assure competent workforce; evaluate; monitor health; and research (CDC, 2014). SLHDP realized all three core functions and delivered most of these essential services with their inherent strengths and weaknesses as described below.

## Strengths in Public Health Perspective

*Assess, Develop, and Implement Health Policy.* SLHDP adopted a thorough approach to conducting a series of assessments. The initial surveys documented a very high age-standardized rate (26.1%) of type 2 diabetes mellitus (T2DM) in the community (Kakekagumick et al., 2013) that was substantially higher than the overall prevalence (8.7%) in a non-Aboriginal population (Statistics Canada, 2011). The researchers rigorously advocated with this alarming finding and were able to draw national attention, including from politicians and the media (Kakekagumick et al., 2013). Thereby, the importance of intervention was recognized and funding secured. These early initiatives laid a solid foundation for developing effective policies and delivering essential health services (Ho et al., 2006).

*Link to Services and Create Supportive Environments.* SLHDP not only established basic health facilities but also linked them with other relevant services that promoted synergies in the program. The organization of Northern Store Program, to ensure availability of healthy foods, was a mid-stream intervention. SLHDP linked a downstream component to it by organizing a store visit where lifestyle counseling was provided, encouraging the consumption of nutritious foods and discouraging unhealthy choices (Lytle & Fulkerson, 2002). Likewise, building a Community Walking Trail by engaging volunteers with funds from an NGO partner created opportunities for physical and other recreational activities. Similarly, banning the sales of high-fat and high-sugar snacks in and around the schools was another example of policy coherence that contributed to the creation of a supportive environment (Ho et al., 2006).

*Inform, Educate, and Empower People.* SLHDP implemented its health education policy through a local radio show that provided an opportunity for listeners to call in and ask questions with any health-related issues. A diabetes curriculum was administered at schools targeting students to equip them with essential health knowledge. A family component of the curriculum linked parents through the radio program and an information booth showed them how to prepare healthy foods. Thus, the agento-structural types of interventions that addressed both the structural determinants and individual agencies, informed, educated, and enabled community people to make healthier choices regarding diet and physical activities (Backholer et al., 2014).

*Mobilize Partnerships and Strengthen Community Action.* Based on the principles and values of a participatory approach, the researchers established and maintained strategic partnerships with the local Band government, community leaders, businesses, and NGOs. They were involved with

due respect and trusteeship, enabling them to become fruitful partners and owners of the program. They jointly arranged periodic stakeholders' meetings, youth diabetes summer camps, sports and recreational events, and a variety of community events during the local fair with the NGO partners and community leaders (Kakekagumick et al., 2013). These efforts mobilized the partners and strengthened community supports for the program.

*Ensure Competent Workforce, Community Strength, and Coping Skills.* The program recruited and trained staff from the community who acquired skills to counsel and demonstrate healthy food preparation. Sports and recreational activities enhanced physical fitness and built confidence among the youth. Overall, these enhanced people's coping skills and contributed to community resilience; thereby, enabling them to learn how to face prevailing health challenges, including diabetes (Gunderson & Folke, 2005). After the termination of funding in 2007, teachers sustained the school curriculum with incentives from the community (Saksvig et al., 2005). This is an example of successful institutionalization of the program by a resilient community.

*System Management, Research, and Reorientation of Health Services.* The program was able to engage with five out of six councils of the Band government (except housing) that facilitated the research agenda by exploring systems-level perceptions and expectations and weighing the adaptation needs of the programs (Ho et al., 2006). Thus, the researchers integrated the program with existing health services and also reoriented them to better address the identified health needs that improved the responsiveness and uptake of the program (WHO, 2016).

## Weaknesses in Public Health Perspectives

*Missing Broader Determinants of Health.* The roots of the epidemic lie in the denigration of traditional foods habits and commendation of dominant society's idealized dietary practices (Howard, 2014). Therefore, Benyshek, Martin, and Johnston (2001) rightly named it a "political disease" (p. 52) whereby historical records of deprivation, social, and economic disruptions are all consistent with findings showing that chronic protein energy malnutrition underlies the cause of diabetes (p. 41). A systematic review shows that similar programs in Australia aiming to improve nutrition typically target a range of structural determinants including food supply, food policy, and family (Johnston et al., 2013). Although SLHDP achieved a change in the food supply by establishing the Northern Store Program, it relied on foods shipped from long distances by air cargo and sold at high

prices. Rather, a more efficient alternative could be to grow healthy foods locally, during the summer months. This approach could encourage family gardening, traditional food habits, and also support local economy, ensuring availability of fresh fruits and vegetables.

*Lacking Aboriginal and Holistic Concept of Health.* Highlighting the notion of intergenerational impacts of historical trauma (Brave-Heart & DeBruyn, 1998), medical anthropologist Howard (2014) argued that mental, spiritual, and emotional shocks sustained by the residential school survivors could not be separated from strain inflicted on their bodies. Coined “boarding school syndrome” by Robertson (2006), the condition which manifested itself as the current diabetes epidemic.

Interventions aimed to address Aboriginal health must keep in mind this evolution pathway and endeavour to foster the Aboriginal concept of health that embraces emotional, intellectual, spiritual, cultural, and social aspects of wellbeing (Johnston et al., 2013). SLHDP attempted to address the physical, cultural, and some social aspects of health, but no efforts were made in dealing with the spiritual and emotional aspects. Adopting a medical anthropology perspective could better reflect this holistic concept of health as is highlighted below.

## Medical Anthropology Perspectives

Medical anthropology is a subfield of anthropology that studies “how health and illness is shaped, experienced, and understood in light of global, historical, and political forces” (Stanford University, 2015, p. 1). As mentioned above, diabetes in Indigenous communities is a consequence of the history of colonization, policies of systematic assimilation, and bearings of residential schools (Mendenhall, Seligman, Fernandez, & Jacobs, 2010). The “social suffering” and “psychological stress” that sprung from these influences are medical anthropology concepts which explain why in the contemporary world, diabetes has emerged as an epidemic and disproportionately affected Indigenous society (Rose, 1985). Integrating anthropological terms such as “distress” and “duress” with the biomedical term “high blood sugar” makes the definition of diabetes clearer (Rock, 2003, p.153) and clarifies the profound impact sweetened blood (diabetes) has on Aboriginal people’s lived experience (p. 163). Thereby, anthropological engagement is crucial in exploring the relations between mind and body as well as individuals and society, and designing a connected program to address diabetes in the Aboriginal community (Benyshek, Martin, & Johnston, 2001; Scheper-Hughes & Lock, 1987).

## Strengths in Medical Anthropological Perspective

*Respecting Aboriginal Voice and Concern.* The voice and concerns of the FNC were paid due regard as manifested by the signing of an agreement between the two parties that initiated the SLHDP. The investigators and community leaders met regularly to plan all aspects of the project jointly on the ground (Macaulay et al., 2003). The researchers noted inputs from community elders and continually incorporated them to refine the intervention elements as necessary, demonstrating their respect for traditional views and accountability to FNC (Gittelsohn et al., 2003).

*Integrating Indigenous Knowledge.* A year-long ethnographic study collected information on health beliefs, attitude, body image, perceptions of food and physical activities, notions about disease causation and determinants of health, and the Aboriginal concept of disease prevention (Saksvig et al., 2005). This qualitative study delved down the root causes of how colonial policies affected traditional livelihoods and pushed the community members to adopt sedentary lifestyles that predisposed the risk factors for diabetes. This in-depth indigenous knowledge base helped to design a culturally sensitive program.

*Adapting the Program.* Because the historical context played a significant role in developing the current epidemic, it was crucial to address it by adapting the program accordingly (Edwards & Di Ruggiero, 2011). To that end, SLHDP researchers applied insights garnered from the ethnographic study. For instance, a Ph.D. student jointly developed the school curriculum with a local schoolteacher, integrating inputs from community elders. Thus, they were able to incorporate Aboriginal intergenerational learning styles with an emphasis on tradition, while using humour. The key adaptation was to use storytelling as a way to introduce the main concepts of health education lessons. The stories followed the activities of imaginary but familiar Indigenous characters (Missy and Buddy) as they learned about the importance of a healthy lifestyle to prevent diabetes (Saksvig et al., 2005).

*Delivering Culturally Sensitive Programs.* The peer component of the school program created opportunities for students to act as role models. The activities included a video cooking club for children that demonstrated the preparation of healthy snacks by children. Another activity was a Diabetes Kids show that aired three times a week on a youth radio program (Ho et al., 2006). The traditional community rituals and practices were given due consideration by immersing the program with local fairs. A mascot appropriate to the Aboriginal culture was introduced that often showed up

to the community events. SLHDP added some sports tournaments like baseball, hockey, and broomball that not only fulfilled physical activity requirements but also provided recreation to the community (Ho et al., 2006; Saksvig et al., 2005). These are all examples of culturally sensitive programs that respect Aboriginal traditions.

## Weaknesses in Medical Anthropological Perspectives

As per Howard (2014), a population health program grounded in medical anthropological theories and collective community resilience can regenerate the balance among mind, body, heart, and soul of individuals, families, communities, and nations; thus, it is able to successfully restore health and wellbeing. SLHDP had some notable deficiencies in this regard.

*Underutilization of Community Resources and Social Capital.* As SLHDP was not based on any anthropological theoretical framework, the program faced multiple challenges. For example, it faced difficulties in continuing the home visit component, as it was human resource-intensive. But with adequate community engagement, training, and empowering, volunteers could undertake this task. Providing sample food items for cooking demonstrations consumed most of the program budget but could be overcome by relying on local products as there were four other running stores (Kakekagumick et al., 2013). By following social capital theory (Moore, Salsberg, & Leroux, 2013), social networks could be motivated to provide these items, which might encourage farming and self-sustenance. Moreover, the community had traditional healers and an elder council with skills and experience in which community members had full trust. Strategic alliances to mobilize this “network embedded” social capital could also reinforce the population health equity perspective (Moore et al., 2013, p. 3).

*Deficient Social Connection.* “The social dynamics surrounding the meanings attributed to food, the relationships people have with food, and how these are contextualized in family and kinship relationships, are paramount considerations in diabetes prevention and management for Indigenous peoples” (Howard, 2014, p. 535). Traditionally Aboriginal people learn by observation and participation in daily living activities, following the example of their social circle (Negan, 2005). Likewise, programs that seek to increase physical activity target a range of determinants involving social connections and community setups. Interventions with similar purposes incorporate sporting events with national, traditional, and religious festivals (Cargo et al.,

2011), establish regular walking groups (Reilly et al., 2011), and facilitate hunting trips (Rowley et al., 2000). In addition to contributing to health, these initiatives help to consolidate social connections (Lehmann et al., 2003). SLHDP could integrate social connections that provide social networks to create a safe and comfortable environment for people to share information on practicing healthy choices regarding foods and physical activities. Besides, adopting such translational strategies beyond the school could put the program objectives into public practice and add up to better gains (Tabak et al., 2015).

*Deficient Cultural Adaptation.* A systematic review of 21 different health programs targeting Australian Aboriginal people found interventions like returning to the traditional lands, hunting and gathering, family harvesting, establishing a community footy league, sponsoring sports carnivals, and constructing traditional houses promoted indigenous knowledge and practices (Johnston et al., 2013). Another example of deep cultural adaptation could be to organize some healthy lifestyle festivals that build and support inter-organizational and community linkages; and thereby, stimulate a healthy social environment where behavioural changes become easier and rewarding (Haikimi, 2010). Such innovations could increase the dose, intensity, and widen trajectories for SLHDP with concomitant program gains (Ilott et al., 2013).

*Lacking a Decolonizing and Reconciliation Agenda.* Community-based decolonizing theory offers a convincing standpoint that could help explore Indigenous peoples’ social suffering and potential ways to alleviate it (Howard, 2014). Decolonization entails liberating the mind from the idea that colonized people are inferior to others (Darity, 2008). Adopting a convivial approach in all policy, research, and program initiatives can address the issues of racism and exclusion at the interpersonal, community, and societal levels (Browne, Smye, & Varcoe, 2005). With this in mind, more reflective discussions with community elders might reveal the impression that past trauma has had on them, helping to promote relational processes (Final Report, 2015) for the alleviation of chronic suffering.

## Recommendations on How the Program Could Do Better

*Having a Well-Defined Theoretical Framework.* Systematic reviews showed that the failure of many community-based interventions to demonstrate significant impacts was, in part, due to the lack of a well-fitted theoretical framework (Frohlich, Ross, & Richmond, 2006; Merzel & D’Afflitti,

2003). A suitable framework helps to tailor the interventions to the local context to maximize the outcomes. Although a combined social cognitive theory and an ecological model were applied in the school program, the broader application of an ecosocial framework or any medical anthropological theory was not explicit in SLHDP. The ecosocial theory of “disease distribution” that focuses on how people factually and biologically embody their societal and ecological contexts at across the life course and across generations, could be a good fit to explore the population patterns of disease (Krieger, 2011). Integration of medical anthropological theories could further help with the creative understanding of sociocultural phenomena and designing of interventions where people can make informed choices about healthy behaviors (Howard, 2014).

*Nurturing Aboriginal Concept of Health.* Population health interventions must pay due regard and nurture the Aboriginal concept of health to ensure greater overall wellbeing by achieving a balance between the physical, emotional, cognitive, and spiritual aspects of health. As per the United Nations Declaration on the Rights of Indigenous People (UNDRIP, 2008), all research projects, program activities, public health policies, and implementation strategies must be fully collaborative through broad-based partnerships with the Aboriginal communities to ensure their full enjoyment of human rights related to health.

*Addressing Social and Structural Determinants of Health.* A systematic review recapitulates that the increase in chronic illnesses among FNCs is associated with changes in lifestyles related to loss of hunting practices, less intake of traditional foods, and more intake of processed foods (Johnston et al., 2013). Additionally, they face high emotional stress from communal living and the breakdown of traditional family structures that have occurred over the past 50 years (Ho et al., 2006). These underpin the need to address relevant social and structural determinants of health such as Aboriginal status, income, and place (Frohlich et al., 2006). Poverty, food security, and environmental influences should also be considered at the macro-, meso- and micro-levels (Swinburn et al., 2011) with advocacy efforts based on empirical evidence (Potvin, Cargo, McComber, & Delormier, 2003). Similarly, improving a community requires addressing the upstream social determinants of health by paying attention to the historical as well as contemporary dynamic influences, incorporating them across all policies and programs.

*Engaging the Community Authentically.* Authentic engagement is an empowerment approach leading to autonomous decision-making by community members, ensuring accountability between communities and corresponding key

stakeholders (Wallerstein, 2006). Adopting such a transparent decision-making process allows the partners to have equal inputs in the program, thereby closing the intersectoral gaps (Edwards & Di Ruggiero, 2011). Close partnerships across community groups demonstrates respect for local leadership and esteem for their self-governance, which underlies authentic community engagement.

*Targeting Health Inequities.* Keeping in view the most flagrant health inequities between Aboriginal and non-Aboriginal Canadians, any population health intervention must address this issue explicitly. As per Edwards and Di Ruggiero (2011), tackling the structural influences perpetuating health inequities requires approaches that join forces from different disciplines and bridge traditionally distinct research paradigms. There is a need to integrate medical anthropology with public health, social science, and other disciplines for a holistic analysis of historical, global, and dynamic contexts. This transdisciplinary approach allows multilevel quantification of intersecting influences, thus addressing structural determinants to reduce health inequalities (Edwards & Di Ruggiero, 2011).

*Adopting Multilevel Interventions.* A multilevel approach that maintains congruence among intervention components can create momentum in a population health program. Thrasher et al. (2004) illustrated the importance of social incorporation of programs targeting diet and physical activity rather than delivering it from an institution. Similar studies provided evidence that parental involvement in child-targeted health programs creates synergy and strengthens positive behaviours not only in children but also in parents (Rasanen et al., 2003). Pragmatic evidence indicates that targeting at-risk people in multiple settings and at various levels increase the odds to meet the program objectives (Merzel & D’Afflitti, 2003).

## Conclusion

The SLHDP addressed some key determinants of population health. It realized the fundamental values of public health, accomplished core functions, and delivered most of the essential services in a culturally appropriate manner. Long-term, this community-based intervention allowed the consolidation of partnership, the building of momentum, and the emergence of a policy window (Merzel & D’Afflitti, 2003). Integrating the community as an equal partner helped develop mutual trust and respect that expedited community buy-in and resulted in smooth rolling out of the program. These features strengthened contextual adaptation and uptake of the intervention elements, and in the

long run, allowed reciprocal capacity building for both the key community stakeholders and program organizers. Eventually, these competencies added up to the program success and sustainability (Chambers, Glasgow, & Stange, 2013).

The notable success of SLHDP was manifested by a gradual reduction in the prevalence diabetes from the baseline rate of 26.1% down to 17.5% (Kakekagumick et al., 2013). Similarly, there was a significant improvement in knowledge, awareness, and psychosocial behaviors related to healthy eating among students (Saksvig et al., 2005). The culturally-sensitive school curriculum proved useful, thus, it was adopted and scaled up in many FNC schools across Canada (Saksvig et al., 2005).

These successes could be augmented by integrating medical anthropological theories with public health theories that would help integrate intervention elements both vertically and horizontally across sectors and systems to make it a comprehensive population health program (MacLean et al., 2010). Hence, we conclude that a multilevel systems approach using an integrated conceptual framework based on both public health and medical anthropology could better address key health determinants. Such a strategy would produce improved health outcomes and contribute more towards health equality; thus, it would be able to address the goal of population health programs which is to ensure overall community health and wellbeing (Shaw, Holland, Pattison, & Cooke, 2016).

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