

# COMMUNITY-BASED PARTICIPATORY RESEARCH TO ADDRESS CHILDHOOD OBESITY; EXPERIENCES FROM ALEXANDER FIRST NATION IN CANADA

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## ABSTRACT

Community-based participatory research (CBPR) is an evidence-based approach that can guide the development, implementation, and evaluation of childhood obesity prevention initiatives at the community level. The goal of this paper is to describe the CBPR process and resulting experiences from a childhood obesity prevention study in Alexander First Nation, Alberta, Canada. University-based researchers and an Elder from the Alexander First Nation co-created the study aims and objectives. A research steering committee (including community members, professionals who worked in the community, Elders, and university researchers and trainees) and a research agreement were established to guide research and dissemination activities. From 2006 on, the CBPR partnership between community-based stakeholders and university-based researchers facilitated: (1) capacity building, which promoted community protection, increased research capacity, and created an opportunity for long-term engagement; (2) knowledge transfer and exchange, which facilitated dissemination within the community, improved access to culturally bound knowledge, and created external opportunities to positively portray the community and share experiences; (3) novel research findings; and (4) unexpected consequences including new projects. Our experiences highlight the advantages of CBPR and are relevant for stakeholders (e.g., community members, health professionals, and researchers) considering a community-based solution for community-based health challenges such as preventing childhood obesity.

**Key Words:** community-based participatory research; First Nations; research agreement; steering committee; needs assessment; capacity building; knowledge transfer; children; obesity; Canada

## INTRODUCTION

First Nations are one of three groups of Aboriginal peoples recognized by the Canadian *Constitution Act*, 1982, section 35 (Indian and Northern Affairs, 2002). First Nations peoples in Canada have a disproportionate burden of chronic diseases associated with obesity including cardiovascular disease and type 2 diabetes (Heart and Stroke Foundation, 2010; Liu et al., 2006; Shields, 2006). The prevalence of obesity is more than double among First Nations than non-First Nations children in Canada (Pigford and Willows, 2010), and many First Nations communities are grappling with the challenges of this health issue. A key component for communities to meet this challenge relates to obesity prevention. Communities must address the current health of children and families to prevent future generations from developing obesity and obesity-related chronic diseases (Willows et al., 2012).

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**Acknowledgements:** This study was made possible through the guidance and mentorship of the Alexander First Nation Wisdom Committee. This committee included University of Alberta researchers and community Elders, educators, health workers, and individuals representing community departments. Community members of the Wisdom Committee reviewed and contributed to this manuscript. Funding to support this research was provided by an operating grant from the Alberta Centre for Child, Family, and Community Research. Geoff Ball and Noreen Willow, the project's principal investigators, were supported by Population Health Investigator Awards from Alberta Innovates-Health Solutions. Geoff Ball was also supported by a New Investigator Award from the Canadian Institutes of Health Research. The authors wish to acknowledge the intellectual contributions made to this research by Dr. Mandi Newton (Assistant Professor, University of Alberta).

Culturally appropriate research approaches are required when working with First Nations communities to prevent obesity (Wallerstein and Duran 2006), yet historically communities were seldom consulted about the type of research that would be the most benefit to them. Rather, *helicopter research* has been the predominant research approach in Aboriginal communities: academic researchers visit a community, collect data, and leave without returning meaningful results to the community (Brant Castellano, 2004; Korsmo and Graham, 2002). Criticisms that this style of research is oppressive, paternalistic, unethical, and insufficient have resulted in the development of alternative research approaches for conducting research (Fletcher, 2003; Schnarch, 2004). Aboriginal communities are more supportive of academic research that is collaborative, includes their own voices, and is meaningful to their communities (Bennet, 2004; Chino and Debruyne, 2006). Community-based participatory research (CBPR) exemplifies this type of progressive and collaborative research. CBPR is based on inclusivity and partnership, tends to reflect the social and cultural norms of a community, and is relevant to a community's needs and wants (LaVeaux and Christopher, 2009).

CBPR has gained momentum in Canada because it actively engages Aboriginal communities in the research process (Holland et al., 2003). To conduct CBPR in an effective manner, researchers and community members recognize that each party brings skills, knowledge, and experience (e.g., scientific and technical knowledge, cultural knowledge) to make a research project successful. As others have described, CBPR is a dynamic process characterized by interdisciplinary methods, collaboration, community participation, and community capacity building (Cargo and Mercer, 2008; Castleden et al., 2008; Reason and Bradbury, 2001; Wallerstein and Duran, 2006). This approach often merges multiple research methodologies (e.g., Indigenous, qualitative, quantitative) to match or triangulate findings generated from the complexity of interconnected factors (e.g., gender, age, traditions, religion, attitudes, beliefs, and values) that influence health (Adams, 2005; Bisset et al., 2004; O'Neill and Stirling, 2007; Paradis

et al., 2005; Swinburn et al., 1999). In Canada, CBPR is recommended (and, in some cases, required) by government and nongovernmental agencies, funding bodies, and academic institutions that support health research in Aboriginal communities (Canadian Institutes of Health Research, 2007; King et al., 2009; Schnarch, 2004; Wilson and Young, 2008). Although the theoretical value of CBPR in Aboriginal communities has often been discussed (Edwards et al., 2008; LaVeaux and Christopher, 2009), few data have been reported on how CBPR theory and principles have been operationalized in "real-world" settings.

In this paper we specifically detail our "real-world" experiences in the application of a CBPR framework to the study of children's weight status in this First Nations community. The childhood obesity data garnered by this research partnership provided valuable information for the design of effective strategies to prevent the development of obesity and chronic disease among First Nations children in the community. For example, children in the community were asked to identify how the community environment shaped their food and activity choices. This information was then shared with adult community members who had been brought together to prioritize obesity prevention initiatives (Dyck-Fehderau et al., 2013). To prevent stigmatizing both community members and study participants, publications on children's weight status and other aspects of the research are not identified in this manuscript unless the community was named in the publications. The research findings indicate a need to pay attention to children's weight status.

## PROCESSES AND METHODS: BUILDING ON STRENGTHS AND EXPLORING ECOLOGICAL INFLUENCES

### CONCEPTUALIZING THE ALEXANDER MEYO PEMATCHIHWIN (HEALTHY LIVING) PROJECT

In 2006, a mixed-methods, community-based research project to explore specific child health indicators (e.g., weight status) and community/environmental issues associated with risk for developing type 2 diabetes mellitus (T2DM) was conceptualized by a First Nations community leader, Ella Arcand, in

collaboration with university researchers from the University of Alberta. The research focused on preventing childhood obesity as a way to reduce T2DM. Quantitative and novel qualitative data were collected, the latter using research methods such as photovoice, asset-mapping, and interviews with young children. All research related to this study was approved by a University of Alberta Health Research Ethics Board (Health Panel B) as well as an advisory board (i.e., Wisdom Committee) that included First Nations community members. From the outset, the research was governed by CBPR values, which were emphasized by researching a topic that was highly relevant to the community, integrating the knowledge and skills of community members into the research process, building community capacity in research, and transferring knowledge to the community as it became available. In addition to adhering to CBPR, the research approach was strengths-based, viewing the community not as a place with deficits to be fixed, but as a positive place with assets to be preserved and enhanced (Kretzmann and McKnight, 1993; Guy et al., 2002; Berkowitz and Wadud, 2003). Strengths-based approaches effectively foster resiliency and improve health outcomes because they address a range of circumstances and events that are usually not part of a deficit-oriented perspective (Maton et al., 2004). Importantly, strengths-based research creates an asset inventory allowing a community to more effectively leverage their resources for future community initiatives (Beaulieu, 2002).

We adopted the ecological framework, which extends beyond merely describing individual behaviours to examine how broader social and environmental determinants influence behaviours, to help understand the complexity of childhood obesity (Willows et al., 2012). This approach was appropriate because the determinants of health for First Nations families include cross-cultural barriers, jurisdictional issues, environmental conditions, access to health services, education, and community self-determination (Canadian Population Health Initiative, 2004). The ecological framework attempts to account for the reciprocal interactions between individuals' behaviours and their environments, and recognizes that changes at multiple levels (e.g.,

interpersonal, community, policy) are required to build healthier communities (Fisher et al., 2002). By adopting an ecological approach, we sought to look beyond the traditional determinants of obesity (e.g., high caloric intake resulting from unhealthy dietary practices and low energy expenditure through low levels of physical activity) and explore interactions among underlying social, cultural, and economic factors related to health risks (Raphael et al., 2003; Travers, 1995, 1998).

From a practical standpoint, the initial research team consisting of one community leader and university researchers received funding in 2006 from the Alberta Centre for Child, Family and Community Research for a two-year study focused on childhood obesity prevention in the First Nations community. However, the time required to establish relationships within the community extended the project four years from the initial funding date, rather than two. Funding was not used only to conduct research in the traditional model (i.e., collect, analyze, interpret, and disseminate quantitative and qualitative research data), but to also establish relationships with key community members and departments, and form a research steering committee that included community members (later named by those community members as the Wisdom Committee) (see Table 1 for project timeline and activities). To highlight the integration of a CBPR framework in our study, we detail our experiences in establishing the Wisdom Committee and developing a research agreement.

#### *Establishing the Wisdom Committee*

As an initial step of the research, a number of community members were invited to participate in the research to ensure the project attended to community needs and to build on existing local strengths. A small team of community members and university researchers networked within the community for approximately one year to recruit people for a steering committee to guide the research. This team connected with community members at large as well as with those who worked in various local departments or were from Chief and Council (the community's governing body). This process was conducted to foster a sense of community through

<b>Table 1. Timeline and History of Project Activities Related to the Prevention of Childhood Obesity in a First Nations Community in Alberta Canada</b>				
<i>Year</i>	<i>Winter</i>	<i>Spring</i>	<i>Summer</i>	<i>Fall</i>
2006			<ul style="list-style-type: none"> <li>• Aboriginal Elder met with two university researchers to explore community-based research interests and opportunities for the prevention of diabetes in a First Nations community.</li> <li>• Research funding proposal developed and submitted to a funding agency.</li> </ul>	
2007	<ul style="list-style-type: none"> <li>• Community relationship building initiated following receipt of 2 years funding.</li> </ul>	<ul style="list-style-type: none"> <li>• Temporary project coordinator hired.</li> <li>• Recruitment of Wisdom Committee members began.</li> </ul>		
2008		<ul style="list-style-type: none"> <li>• Project staff recruited.               <ul style="list-style-type: none"> <li>– Permanent project coordinator position advertised and filled.</li> <li>– 2 postdoctoral fellows and 1 graduate student recruited.</li> </ul> </li> <li>• First official Wisdom Committee meeting occurred.</li> <li>• First draft of the Guiding Principles prepared.</li> </ul>	<ul style="list-style-type: none"> <li>• Data collection initiated.               <ul style="list-style-type: none"> <li>– Grocery Shopping Survey to assess which communities to include in the Nutritious Food Basket (NFB), baby food survey, and food availability survey conducted with youth.</li> <li>– Asset mapping with teens.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Guiding Principles approved.</li> <li>• Data collection:               <ul style="list-style-type: none"> <li>– Child weight status and physical activity measurements;</li> <li>– NFB survey partnering with Alberta Agriculture and Rural Development.</li> </ul> </li> </ul>
2009	<ul style="list-style-type: none"> <li>• NFB quarterly survey.</li> </ul>	<ul style="list-style-type: none"> <li>• Data collection:               <ul style="list-style-type: none"> <li>– Children's perceptions of healthy foods and physical activities.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Data collection:               <ul style="list-style-type: none"> <li>– Photovoice with adults.</li> <li>– Asset mapping with children.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Funding proposal submitted</li> </ul>
2010		<ul style="list-style-type: none"> <li>• Community consensus building workshop to develop an action plan based on project data</li> <li>• Funding proposals submitted</li> </ul>	<ul style="list-style-type: none"> <li>• Information exchange symposium with a Quebec First Nations community</li> </ul>	

collective engagement and to ensure project sustainability (Israel et al., 1998). A project coordinator was hired by researchers at the University of Alberta as a liaison between university researchers and community members. This person spent considerable time in the community, building the rapport and trust necessary to create what the community committee members eventually called the Wisdom Committee. The commitment of both university researchers and community members to build relational capital resulted in a Wisdom Committee that included community Elders; directors, managers, and staff from various local community departments (e.g., health, social development, education, industry relations, and employment); professionals who worked in (but lived outside of) the community; university researchers; a project coordinator; and a number of

university trainees (i.e., undergraduate and graduate students, and postdoctoral fellows).

The composition of the Wisdom Committee reflects the interrelated ecological factors influencing the prevention of childhood obesity. Of note, the department directors played key roles in developing policies in the community in their respective departments, and the managers were charged with implementing policies in order to achieve departmental goals. The directors gave permission for their staff to attend Wisdom Committee meetings and, in some cases, made attendance a requirement of their staff. First Nations Elders play an esteemed role within families and communities, and can hold influential leadership roles in enacting changes that influence the broader community. Having their active participation on the Wisdom Committee was considered very important for community-wide changes to develop from the research.

Beginning in 2008, the Wisdom Committee met monthly in the community, which encouraged community members to take ownership of the research and participate fully in the decision-making process. Consistent with a CBPR approach, the community members of the Wisdom Committee helped to identify existing and emerging opportunities to integrate the project into the greater community as well as develop specific strategies related to obesity prevention (Blackburn, 2000; Hesketh et al., 2005; Paradis et al., 2005; Ritchie et al., 2004). One of the Wisdom Committee's first networking activities was to meet with the community's Chief and Council about the research project and the establishment of the Wisdom Committee. This meeting led to a band council resolution that formally acknowledged and expressed community support at the leadership level for this research. Chief and Council also granted the community members of the Wisdom Committee power to make decisions on behalf of the community with respect to the planning, implementation, and outcomes of the research project. These formative steps ensured the project had community assent as well as ownership and responsibility regarding the research findings and their dissemination (Glass and Kaufert, 2007).

#### *Developing a research agreement*

To ensure respectful partnerships and to protect themselves (and their community's data), some First Nations communities have developed research agreements that outline how their community will engage with academic researchers in the context of community-based research (Bennett, 2004; Blumenthal, 2006). Although a formal research agreement was not required by the study funders or the university research ethics board, *Guiding Principles* related to the conduct of this research were developed by and for the Wisdom Committee, which then functioned as a *de facto* research agreement. The first draft of the *Guiding Principles* was prepared by the university Wisdom Committee members as a launching point for discussion based on 3 examples drawn from the literature. Specifically, university researchers customized the document from *Guidelines for Health Research Involving Aboriginal Peoples* of the Canadian Institutes

of Health Research's (CIHR, 2007) *Ownership, Control, Access, and Possession* (OCAP) research principles proposed by the National Aboriginal Health Organization (Schnarch, 2004), and the Kahnawake School Diabetes Prevention Project's (2007) *Code of Research Ethics*. Over 8 months, the *Guiding Principles* went through three iterations of line-by-line reviewing at Wisdom Committee meetings before a final version was adopted in November 2008, 2 years after research funding was received. The *Guiding Principles* set the tone of the relationship between members, described research intent and goals, detailed ethical procedures and processes for conducting the research, specified obligations and responsibilities of different stakeholders working on the project, and delineated Wisdom Committee member roles. To ensure the document was easy to read and understand, legal and contractual jargon was avoided. In addition, the document was written to clarify Wisdom Committee member relationships. It was stated that all members, regardless of their affiliation, had a shared concern in addressing the health of children, youth, and families within the community. Further, given the democratic nature of CBPR, the document stated that

Each member is equally respected for the technical skills, wisdom, leadership, and/or cultural knowledge she/he brings to this committee for the purpose of ensuring the success of the project.

On the issue of Wisdom Committee members' roles and responsibilities, the *Guiding Principles* focused on the key expectations for community and university members. For example, community members were charged with providing university researchers with guidance on the best approaches to conducting research in the community, helping to recruit participants for research activities, providing advice on data interpretation, reviewing academic manuscripts and presentations to ensure cultural sensitivity and appropriate use of language, and aiding in knowledge transfer and exchange activities for Chief and Council and the community. University members were responsible for organizing and chairing Wisdom Committee meetings, ensuring that the research adhered to university regulations and ethical guidelines, storing research data securely,

drafting plain language reports for community dissemination, and presenting research findings to the Wisdom Committee (for consultation and interpretation) and the scientific community (in the form of research abstracts, manuscripts, and/or presentations). As the research project progressed, community members took on some of the roles that had been assigned to university researchers such as co-chairing meetings and presenting the research at conferences.

The *Guiding Principles* influenced how the research was conducted by identifying roles and responsibilities and outlining processes and procedures. The Wisdom Committee members used the *Guiding Principles* as a means to agree upon process and ensure that process was followed in a way that was acceptable to all involved. For example, it is noteworthy that this document included an explicit statement recommending that the principles should be reviewed and revised regularly to ensure that they remained relevant to the research. This was important in the context of CBPR since the research scope, focus, and membership were likely to evolve over time. Finally, once they were concluded, the Wisdom Committee members decided to leave the *Guiding Principles* document unsigned. Wisdom Committee members felt that requiring individual signatures would be exclusionary to those who joined in the future and overly formal, conflicting with the committee's desire to conduct the research in a spirit of collaboration and friendship.

## RESULTS

By presenting our experiences with operationalizing CBPR, we offer a real-life example of how CBPR can function as an approach for building community and researcher capacity to address childhood obesity. Specifically, applying a CBPR approach to the research facilitated a number of outcomes that are described below in detail.

### CAPACITY BUILDING

The United Nations Development Program (2006) defines capacity building as

The process by which individuals, organizations, institutions and societies develop abilities to

perform functions, solve problems, and set and achieve objectives.

For First Nations communities, community capacity building may also include attributes that empower a community to effect social change (Fletcher et al., 2007). For university researchers, capacity building has traditionally been viewed as human resource development (e.g., skilled employees, graduate students). In the present example, the Wisdom Committee acquired multidimensional capacity building founded in CBPR described below.

### *Promoting community protection*

CBPR has the capacity to balance existing power differentials, promote social justice, and ensure community protection (Castleden et al., 2008; Reason and Bradbury, 2001). Aboriginal communities can build capacity by developing skills that allow them to select and elicit research that is relevant and beneficial for them; in addition, they can exert control over how research results are reported and even whether their community will be named publicly. For example, the Wisdom Committee initially chose to omit the name of the community in any external knowledge transfer and exchange activities, but later, because so little published Aboriginal health research is positive in its tone, decided to include the name of the community if the information highlighted positive community attributes or community successes. In the absence of CBPR, data collected from Aboriginal communities on issues such as drug use, fetal alcohol spectrum disorder, family violence, and suicide often results in a negative public image and stigmatization of communities (Edwards et al., 2008). In contrast, our CBPR facilitated a shift in how the community viewed research — from threatening to empowering. Much of the knowledge, insight, and awareness of CBPR were generated through the creation of the *Guiding Principles* and participation on the Wisdom Committee. Wisdom Committee members contributed to knowledge transfer about their positive experience with CBPR by participating in a symposium related to ethical research among First Nations communities including discussions of the necessity of CBPR. A central issue that emerged through these discussions was

how First Nations communities can protect themselves from unscrupulous and “helicopter” research.

#### *Improving research capacity*

Research, especially when conducted in the spirit of CBPR, can offer advantages for communities. For instance, communities can negotiate employment for community members, encourage involvement of youth and Elders, as well as participate in (and often lead) knowledge generation and translation (Weber-Pillwax, 1999; Wallerstein and Duran, 2006). For this project, community members of the Wisdom Committee sought opportunities for other community members to be engaged in and learn about the research process. For example, as part of the strengths-based approach, the committee engaged two youths from the local school to map the community’s nutrition and physical activity assets, thus chronicling community resources. They also conducted a survey of the costs of baby food, which met the needs of the research agenda as well as the goals of the community’s health department. These experiences provided youth with employment and an opportunity to explore research as a potential career. Although many First Nations communities have neither funding nor local expertise to generate a research agenda (Bennett, 2004) the First Nations members of the Wisdom Committee benefited from new collaborative opportunities outside the community as a result of the ongoing CBPR. University members of the Wisdom Committee were able to connect community members of the Wisdom Committee with other university researchers who trained them in conducting qualitative research. This increased community capacity to participate in and conduct quality research (Castleden et al., 2008). The qualitative research training allowed community members of the Wisdom Committee to conduct photovoice interviews. These members were then involved in the interpretation of the transcripts. The acquisition of trained interviewers in the community facilitates self-determination, enabling the community to negotiate future research projects that utilize community resources and rely less on outside support and expertise. As well, all community members of the Wisdom Committee

had the opportunity to read and comment upon the manuscripts written for publication, thus learning about how research is conveyed to the scientific community. These examples show how the research increased the number of people in the community with research knowledge.

For the university researchers involved in this project (faculty members, project coordinators, trainees), the experience of participating in CBPR within a First Nations community enhanced their skill set to undertake research. University Wisdom Committee members improved their research capacity by publishing manuscripts on the research results, garnering new research grants, and presenting the research at conferences and other forums (details below). Community members of the Wisdom Committee opened up new opportunities for university researchers to engage with other First Nations communities that might otherwise have been reluctant. From a trainee perspective, developing a cadre of university educated students with knowledge of respectful research practices prior to entering the workforce benefits both First Nations communities and the trainees who have enhanced cultural competency.

#### *Creating long term engagement*

The project brought together a committed group of individuals who worked together in a spirit of collaboration and respect, and were intent on securing broad community participation. These factors increase the likelihood of sustainability and long-term engagement in the community (Ritchie et al., 2004). Establishing the Wisdom Committee brought a diverse group of community members together, providing a forum to create a common language of understanding among community members on the issues that were important to the community. As an indirect and unplanned outcome of its development, the Wisdom Committee served as a meeting place for community departments that had previously worked independently. In this way, capacity building occurred as the result of the creation of institutional and political relationships with the potential for long-term sustainability (Bond et al., 2001; Paradis et al., 2005; O’Connor, 1995).

## KNOWLEDGE TRANSLATION AND EXCHANGE (KTE)

The process of transferring knowledge is known as knowledge translation and exchange (KTE). The current project built on existing definitions of KTE. At CIHR, KTE is defined as

a dynamic and iterative process that includes synthesis, dissemination, exchange and ethically sound application of knowledge to improve the health of Canadians, provide more effective health services and products and strengthen the health care system. (Canadian Institutes of Health Research, 2010)

KTE in First Nations contexts as well as for university researchers engaged in CBPR can be conceptualized as “sharing what we know about living a good life” (Kaplan-Myrth and Smylie, 2006). The following examples highlight how KTE developed in the context of our project:

### *Facilitating community dissemination*

It is widely accepted that KTE of research results in a First Nations context should be developed and communicated by community members, by First Nations community-based organizations, and/or by First Nations leaders (Kaplan-Myrth and Smylie, 2006). At a very practical level, the project was named in Cree by the community Wisdom Committee members as the *Alexander Meyo Pematchehiwin* (Healthy Living) Project and represented in communications and posters by pictures drawn by children in the community. This situated the project in the community, making it accessible to community members. In addition Wisdom Committee community members co-presented research findings with their university counterparts at Chief and Council meetings and community meetings. These activities, along with informal discussions with community members in general, enabled information sharing related to the project. Broad community membership in the Wisdom Committee provided immediate access to a diverse group of family and friends of members in the community, which facilitated the dissemination of the project and its findings.

University committee members also played an instrumental part in community awareness of the re-

search, research process, results, and KTE. University researchers, their trainees, and the project coordinator engaged with the community by participating in many community events (e.g., at the school, culture camps, treaty days, and health fairs), which not only fostered community interest in the project, aided participant recruitment, and helped disseminate research outcomes within the natural rhythm of community activities, but also developed good will, trust, and rapport between partners. These interactions helped university members to better understand community issues and perspectives, which subsequently informed the interpretation of findings and guided the development of future research objectives that were relevant to the community.

### *Improving access to culturally bound knowledge*

Improved access to culturally bound knowledge ensures that decisions are based on culturally appropriate methods to make interventions more relevant (Wallerstein and Duran, 2006). CBPR improves access to First Nations knowledge because people are more willing to share information when research is socially and culturally appropriate (Schnarch, 2004). Having community representation in the project increased the likelihood of community members consenting to share their knowledge and participate as research volunteers. For example, using a series of focus group interviews with children from the community school, access to cultural knowledge and contextual information regarding factors that influenced children’s food and activity choices was obtained.\* Access to traditional knowledge was also generated through research with adults that employed photovoice methodology, which encouraged adults to discuss community assets using photographs (unpublished manuscript). By encouraging community members to discuss traditional foods, activities, and practices, First Nations groups can revitalize their culture and ensure that traditional practices are captured in the research process (Wallerstein and Duran, 2006). This is especially important for First Nations peoples in Canada who have had their cultural beliefs and practices undermined and maligned via residential schools and assimilation policies (King et al., 2009).

\* Publication information withheld to preserve community anonymity.



*Providing positive community exposure and sharing experiences*

A variety of KTE activities outside of the community provided opportunities for positive community exposure. Wisdom Committee members from the community shared their experiences with the project and the knowledge gained about research and children’s health at several meetings outside the community. For example, in February 2009 Wisdom Committee members shared an overview of the project at a Community-University Partnership (CUP) workshop held by the Faculty of Extension (University of Alberta). From this powerful presentation and the pride conveyed by community members about their participation in the research process, a CUP-sponsored exchange of ideas was organized between First Nations community members from this project in Alberta and a First Nations community participating in a similar child obesity project, in the province of Quebec. After funding ended for the original project, in 2011, the Wisdom Committee was invited to give two workshops at an Alberta First Nations Food Security Training Session funded by First Nations and Inuit Health of Health Canada (Aboriginal Diabetes Initiative) administered and organized by the Yellowhead Tribal Council. In these workshops, Wisdom Committee members described the CBPR approach to address child health and subsequent food security research to other First Nations throughout the province of Alberta.

Local media also provided opportunities to positively showcase the project. Media contacted Wisdom Committee members from the university wanting to write an article about the research, and a Wisdom Committee community member designate was nominated to negotiate terms with the media representative to ensure that the community was not portrayed negatively. Through this designate, the community was able to exercise some control over how the media described the project, which ensured some degree of community protection and positive exposure.

**NOVEL RESEARCH FINDINGS**

This formative research led to the publication of three academic manuscripts,\* three scientific pres-

\* Publication information withheld to preserve community anonymity.

entations regarding the research,\* and subsequent research funding to continue CBPR in the community (Table 2). From an academic perspective, this project generated novel research data shedding light on health issues related to obesity in First Nations children in Canada. This was the first research to examine childhood abdominal obesity in relation to weight status and physical activity among on-reserve First Nations children in Alberta.\* It was also the first research the authors are aware of to elicit the perceptions of young First Nations children about the foods and activities that they prefer and subsequently develop policies around their preferences.\* Adult community members conducted and participated in a qualitative group interview using photovoice to discuss community assets (unpublished manuscript). Community members also participated in a community consensus building workshop that used the ANGELO framework (Swinburn et al., 1999) to develop an action plan based on the timely return of research results.

**Table 2. Internal and External Initiatives That Have Developed Based on our Formative CBPR Project with a First Nations Community in Alberta Canada**

<i>Internal Projects Conducted within the Community</i>	<i>External Projects Conducted outside the Community</i>
Partnering with industry to provide water bottles for children in the school <ul style="list-style-type: none"> <li>• Summer 2010-ongoing</li> <li>• Result of consensus workshop</li> </ul>	Community-University Partnership Presentation <ul style="list-style-type: none"> <li>• Winter 2009</li> </ul> Ethics Symposium and discussions with Quebec Cree <ul style="list-style-type: none"> <li>• Spring 2010</li> </ul>
Earthboxes in the school and at the Elder lodge <ul style="list-style-type: none"> <li>• Summer 2010-Spring 2012</li> </ul>	External Media Exposure <ul style="list-style-type: none"> <li>• Winter 2010-ongoing</li> </ul>
Cultivating Food Security Project <ul style="list-style-type: none"> <li>• Fall 2010-Fall 2012</li> <li>• Funded by: ACCFCR</li> </ul>	Undergraduate students research practicum <ul style="list-style-type: none"> <li>• Fall 2010</li> </ul>

**OTHER UNEXPECTED CONSEQUENCES INCLUDING NEW RESEARCH**

Bringing together community and university members to work within the Wisdom Committee enabled research grounded in CBPR practices; it also allowed a transition to new research projects, none of which were planned at the onset of the original project (for an overview of the subsequent projects, see Table 2). New projects benefited from having an established *in situ* Wisdom Committee. Starting in

2010 and building on the research results from the current project, the Wisdom Committee embarked on new research to explore community members' meanings of food security and to enhance food security through container vegetable gardening at the school and community Elder lodge. This research was again funded by the Alberta Centre for Child, Family and Community Research as well as operating grant funding from CIHR, and a contribution agreement from First Nations and Inuit Health of Health Canada (a branch of the federal government). Funding proposals were strengthened by the inclusion of research results from the CBPR project and by having a Wisdom Committee and guiding principles already in place. Additionally, university ethics review board approval was received in a timely fashion for the new research projects, because the research agreement could be easily updated to accommodate new research objectives and the Wisdom Committee was accustomed to and readily provided community letters of support for the new projects.

## OPERATIONALIZING CBPR: OPPORTUNITIES AND CHALLENGES

We have provided a real-world example of anticipated and unanticipated outcomes from a community-based study that now continues as multiple ongoing complementary research projects following the same principles of CBPR as the initial study. As highlighted throughout this paper, CBPR is not only a time-intensive process, but requires conscious attention to partnership development and dissemination strategies from the conception of the research project (Estey et al., 2009). The project was challenged by both time and financial constraints since building relational capital required patience and extensive face-to-face capacity building. Developing the Wisdom Committee and the *Guiding Principles* were not linear activities that could be achieved by following a "cookbook" of steps. Though time intensive the focus and emphasis on relationship building laid the foundation for the cooperative work the Wisdom Committee continues to do in 2013 as the Alexander Research Committee (ARC).

We were fortunate that the funding agency (ACCFRC) was flexible with the timeline, recognized

that CBPR can take longer than expected, and provided a funding extension. However, given the extended time period and ongoing project costs (e.g., the project coordinator's salary), additional funding was required to sustain the project. For example, trainees were supported through a variety of independent scholarships and research grants. The length of time from data collection to the submission of manuscripts for peer review was lengthened by using CBPR. As part of our process for knowledge translation, informed by the *Guiding Principles*, all research abstracts and manuscripts prepared by university researchers were first reviewed and critiqued by the Wisdom Committee. Additional training and mentorship from university Wisdom Committee members was required to ensure that community members of the committee understood the academic processes involved in presenting data analysis and interpretation. Based on these experiences to date, funding agencies that support Aboriginal health research should also offer KTE grants to support the process of publishing research data resulting from projects that apply CBPR.

Although the research engendered a high level of community engagement, challenges emerged in maintaining momentum. While community representatives from Health and Education Departments were most consistently engaged in the project, there was difficulty sustaining interest from other departments. Opportunities are being explored to enhance engagement within the community, especially for those previously engaged individuals and departments who have not participated in project-related activities in the recent past. Some difficulty was encountered with knowledge transfer and exchange within the Wisdom Committee, which included disseminating study-related documents to all Wisdom Committee members and receiving timely feedback from members. Some community Wisdom Committee members explained that cultural differences regarding timeliness and expectations around communication (e.g., email, phone messaging, in-person meetings) explain some of these challenges. These experiences highlight the importance of customizing communication strategies to the needs of the community. They also reinforce the value of face-

to-face interactions within First Nations communities, which require that designated resources and time are factored into project planning and implementation for these types of meetings.

We are aware that not every CBPR project will be able to solicit the high level of engagement described in this paper. The success of the research was due, in part, to having sufficient funds to pay for a full-time project coordinator who served as a liaison between the community and the university. The project also required an extensive amount of time from university and community members to attend community meetings and events (including travel to and from the community) and assist with research administration, a high level of commitment from department managers and directors in the community, and a high monetary cost for car rentals, catering, and community engagement. Most Wisdom Committee members living or working in the community were highly educated and very literate in English and could contribute substantially to the research process in a timely fashion; this might not be the case in all Aboriginal communities where work with translators and more emphasis on plain language reporting and knowledge translation would be required. Further, it was possible for university researchers to frequently be in the community which was within 100 km of the university. A longer commute to and from the community would have presented a greater challenge to conduct CBPR, and increased both expenses and time.

The CBPR project described helped this First Nations community to reclaim ownership over its health knowledge, capture control of the research process, and bring together community institutions (Kaplan-Myrth and Smylie, 2006). The project was designed to foster self-determination by substantially involving community members in all aspects of the research process. As noted by Marlene Brant Castellano (2004), an Indigenous scholar,

Fundamental to the exercise of self-determination is the right of peoples to construct knowledge in accordance with self-determined definitions of what is real and what is valuable.

We also feel that the CBPR strategies employed secured recognition for Indigenous knowledge and

healing practices within a western health research approach. The construction of the research allowed First Nations approaches to health and healing to be maintained and supported in parallel with findings from health research embedded in a western way of knowing (Kaplan-Myrth and Smylie, 2006). The CBPR approach further built capacity for the community to decide how to share traditional knowledge under conditions of cultural safety.

## CONCLUSION

It has been said that Indigenous people are chronically at the margins of research and often researched to death (Kaplan-Myrth and Smylie, 2006). In contrast, we describe our research experiences in using CBPR to “research a community to life” by having community and university researchers come together as partners in the research process to address community concerns and build community capacity while generating new scientific knowledge. Our research example offers insight into how CBPR can facilitate community agency, build community capacity (Ritchie et al., 2004), and facilitate social change (Mertens, 2007), in addition to generating novel academic findings as a foundation of knowledge on which to build effective, community-based strategies to prevent childhood obesity in a First Nations community.

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**Paul J. Veugelers**, PhD, received training in human nutrition (MSc from the University of Wageningen, the Netherlands), epidemiology (PhD from the University of Amsterdam, the Netherlands), and biostatistical modeling (postdoctoral fellowship at the University of British Columbia). He is currently a Professor in the School of Public Health at the University of Alberta. Dr. Veugelers received a CIHR New Investigator Award and currently holds a Canada Research Chair in Population Health and an AI-HS Scholar Award. He studies the importance of nutrition, healthy lifestyle, socioeconomic factors, intervention programs and policies in relation to overweight and chronic diseases. Dr. Veugelers was a co-investigator on this project and contributed expertise to project set-up, study design, and knowledge translation and exchange activities.

**Ella Arcand** is a Cree Elder from Alexander First Nation in Alberta. Mrs. Arcand has served as the Health Director

for Yellowhead Tribal Council, which services many First Nations communities in central and northern Alberta. This project was initiated by a conversation about children's health and well-being that was held between Mrs. Arcand, Dr. Ball, and Dr. Willows. Based on this conversation, it was evident that there was interest from the community (Mrs. Arcand) and from the University of Alberta (Drs. Ball, Willows) to apply for external funding in order to conduct a community-based research project, which would help us to gain a better understanding of children's health in Alexander. Mrs. Arcand was a collaborator on this project and contributed her expertise in project set-up, networking with First Nations stakeholders within and beyond the community, and assisted with knowledge translation and exchange activities.

**Alexander First Nation:** The community where the research occurred in Alberta, Canada.

**Noreen D. Willows**, PhD, is an Associate Professor of Community Nutrition at the University of Alberta. At the time of the research she was a Population Health Investigator with AI-HS and considers herself to be a nutritional anthropologist. Her research program explores the relationships between food and health; cultural meanings of food and health; how food beliefs and dietary practices affect the well-being of communities; and how sociocultural factors affect food intake and food selection. Currently, she is examining obesity from an ecological perspective in Cree communities in Alberta and Quebec as well as ways to conceptualize Aboriginal food security. Dr. Willows was a co-principal investigator on this project (with GDCB) and participated in project set-up, research design, steering committee meetings, data analysis, community workshops, knowledge translation and exchange activities, and trainee supervision. Building on this formative research, she has worked with the community to expand the scope of research to (1) gain information about food security to develop a tailored, community-based intervention, and (2) build community capacity in order to alleviate food insecurity.

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