The Learner Becomes the Teacher: A Community-Based Diabetes Prevention Training Programme for First Nations Health Workers in Northern Canada

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Aim

Diabetes prevention training for front-line health workers is a common priority in rural and remote communities in Northern Canada, however existing resources tend to assume a level of technical knowledge that often does not exist. Diabetes has been identified as a priority issue at the community level among Yukon First Nations (indigenous) health planners, who requested plain language educational resources be developed about diabetes prevention for their communities (1).

The epidemic of Type 2 diabetes among First Nations peoples in southern Canada has been well documented, and the importance of community-based approaches to diabetes prevention highlighted (2). Currently, diabetes is less prevalent among First Nations peoples in northern Canada (3), however focussed attention is required to quell the epidemic from moving northward.

In many Yukon First Nations communities, health workers without formal training in health are being called upon to provide information about diabetes to the community members they serve. In Yukon, one of Canada's 3 territories north of 60^{o} latitude, the extent of diabetes knowledge varies, yet there is considerable demand for information about healthy lifestyles to prevent diabetes. Frequent turnover of health worker staff, lack of local health professionals and heavy workloads are additional challenges to meeting community training and education needs in this vast territory. At the same time, Yukon First Nations communities that have settled their land claim agreements are now implementing self-government agreements, including ownership and control of many programmes in their communities.

The programme described in this chapter is a community-based intervention that was developed in response to both the strengths and challenges of preventing diabetes in Canada's North. The aim of the programme is to provide a basic level of evidence-based knowledge about diabetes and preventing diabetes to front-line health workers, along with the tools and resources needed to implement community-based education activities. Information is provided in a format that is also conducive to sharing knowledge with peers, thereby building capacity for others to participate in educating their community about diabetes. The experiential or 'hands-on' learning/teaching approach is intended to increase front-line health workers' confidence in communicating diabetes prevention facts to others over time, and to foster their facilitation skills and ability to teach a diabetes prevention topic to a small group. The 'see one, do one, teach one' model was used from the beginning of the development of the community-based approach that is embodied in the resource manual that constitutes the core of the programme, called *Do-It-Yourself: Diabetes Prevention Activities ~ A Manual For Everyone* (4), henceforth abbreviated as 'DIY Manual'. This approach has the potential to continue to be implemented in subsequent generations within communities, although there has not been sufficient time for this to develop consistently so far. An example that continued propagation is likely in at least some communities comes from the work of the Recreation and Parks Association of Yukon (RPAY). Staff from RPAY took the DIY training and then taught interested school teachers, who subsequently then taught their students.

The overarching aim of this programme, then, is to increase the capacity of Yukon First Nations communities to take ownership and control of preventing diabetes by and with their own community members.

Setting

The Yukon is the smallest of Canada's Northern territories, situated between the USA state of Alaska to the west and the Northwest Territories to the east at 63° 0' 0" N/ 135° 0' 0" W (Fig. 1). The Yukon is sparsely populated, with 34,000 people occupying an area of 483,000 km^2, nearly 75% of the total population located in the capital city of Whitehorse, and 22% of the total population being of First Nations/indigenous ancestry. There are 14 First Nations communities in Yukon, ranging in size from about 100 to 2000 people in June, 2009 (5) with 8 Aboriginal languages spoken (6). A land claim Umbrella Final Agreement (UFA) representing 7,000 members of the fourteen Yukon First Nations was signed with the federal government in 1992 (7). Each of the individual First Nations then has negotiated a specific land claim and self-government agreement using the UFA as a template. Currently, 11 of the 14 First Nations have a signed agreement. Self-government agreements give First Nations the right to enact legislation in a number of areas, and constitute another level of government in addition to territorial and federal. It is within this political framework that Yukon First Nations communities are developing capacity to identify and act on community health priorities, which includes diabetes prevention.

The diabetes prevention training was designed to be flexible and adaptable to any setting, especially where resources are limited. No special materials or facilities are required except tables for the materials for activities. The institutional setting was avoided because of the negative history for people who attended Indian Residential School and their families.

Figure 1.
Location of Yukon Territory

Target Population

The target population for this programme are Yukon First Nations (YFN) front-line health resource workers, who serve the YFN people of the Yukon. Rates of diabetes among First Nations in Canada have been reported as being as being as much as five times higher than the non-First Nation population (8). The Canadian Diabetes Association lists simply being of Aboriginal ancestry as one of the heritable factors that contributes to risk for the development of diabetes (9). Additional risk factors include decreasing consumption of traditional foods such as caribou, moose and salmon due in part to changes in availability in relation to climate change (10), and availability and affordability in relation to a 'westernized' diet higher in carbohydrates and fats (11).

One main goal for recruitment of the target population is to have an equitable representation of health workers from all First Nations communities trained to implement the community-based diabetes prevention training. These people are employees of the First Nations governments with designated roles in health, and are, for the most part, of First Nations ancestry. They are sometimes referred to community health representatives or more generally, front-line health workers. They provide various services to their citizens including providing health education, support and advice. They liaise between the community and other health care services provided by territorial and federal health agencies, and in some communities coordinate health promotion activities. They practice in small, rural communities spread across Yukon. They sometimes work by themselves even in their own community, perhaps being the only person in their community with a specific mandate to maintain or improve community health.

Contacting potential participants

Given the nature of the community-based approach in this intervention, 'participants' includes both those delivering the intervention, as well as those receiving it. Initially, the focus has been on training front-line health workers because they have a clearly defined role in community health. Some of these health workers are themselves at high risk for diabetes, and so benefit from the information in a similar way to those they are teaching. Those receiving the training then become potential co-providers of diabetes prevention information to others in their communities.

The small population in the Yukon and the relatively few health professionals and front line health workers means that most people know each other, and likely have worked together, or at least met, at a health-related event at some time. These factors contribute to the ready identification and contact of potential participants.

Of particular importance in contacting potential participants is the Yukon First Nations' Health and Social Development Commission. This Commission is made up of the Directors of Health and Social Development from each of the 14 Yukon First Nation communities, and is chaired by the Director of Health and Social from the Council of Yukon First Nations. The Commission meets every two months, usually in Whitehorse, and provides a unique opportunity to share ideas and information and build on them, working together as First Nations communities with others. It is at these meetings where the Directors provided guidance to all stages of the development of the DIY Manual, and also where potential participants from communities were identified. Initial contacts were followed up by phone and email to the front-line health workers who were identified as potential participants.

Recruitment of participants

The programme was designed to train front-line health workers with roles in promoting health within communities or agencies. No recruitment *per se* was necessary because the participants were either known to the organizers of the training or were identified by their Director of Health and Social. An advantage to delivering this training in such a sparsely populated region as the Yukon is that word of mouth and knowledge of existing social and community networks is sufficient to accomplish recruitment of participants.

As well, opportunities were sought to link the training with other events with the same intended participants. For example, the training was successfully delivered to participants at the annual Yukon First Nations' Home and Community Care Conference by requesting time on their 3 day agenda. This saved participants another trip to Whitehorse, and provided an opportunity for peer teaching as participants worked through the material together.

Once the front-line health workers become trainers, they can use the materials in a number of different ways in their day-to-day work, with a variety of options for implementation. These options include hosting small group discussions, hosting a Health Fair about preventing diabetes and communicating basic key messages about diabetes prevention to individuals at risk in their community. As well, trained front-line workers prepare an 'action plan' on the last day, where they think about, and commit to, how they will use the training in their own community over the next 6 months.

Intervention Motivation

The motivation to produce the DIY Manual and implement the training was in response to requests from Yukon First Nations communities who identified diabetes education as one of their health priorities (1). As such, the motivation to use the intervention is firmly based in the communities, and is therefore intended to be self-generating. In reality, there are several factors that can limit the extent of the intervention's implementation, such as the heavy workloads, high risk caseload, diverse job responsibilities and lack of capacity at the community level. One idea that is currently being developed is to create 'regional mentors' to offer support to frontline health workers in communities, thereby building lateral support for implementing the education and problem solving aspects of the training. The regional mentors would provide stability and continuity over time, thereby contributing to an increase in the capacity of communities to sustain the momentum and information exchange resulting from the DIY training.

Given the need for this intervention was identified by communities, there was support from the First Nation employers for time for front line health workers to attend the training, and for subsequent delivery of the programme. As well, the funding covered travel and accommodation expenses, thereby reducing what might otherwise have been an obstacle to acting on the communities' motivation.

Collaboration

From the outset, this project has been a collaborative effort which all agree could not have been done without common values and identified community concerns. The collaboration was between Yukon First Nations health workers, Whitehorse-based health professionals, aboriginal organizations and the Yukon's community-based health research centre.

More specifically, collaborators included: Registered Dietitians and a Dietetic Intern from the First Nations Health Program (12); a Certified Diabetes Educator (13); the Council of Yukon First Nations' Health & Social Department (14); the Yukon First Nations Health & Social

Commission; Skookum Jim Friendship Centre (15); and the Arctic Health Research Network-Yukon (16). Some of these partnerships have developed over the past few years working on various projects together, and others took shape during the two years of the present project. Through these partnerships, we have developed trust, a shared commitment to community-based practice, and opportunities to build on successes and strengthen our networks. The rural and remote environment in the Yukon and the limited number of health workers and health professionals interested in diabetes prevention provides unique opportunities for collaboration that would otherwise likely not occur.

Figure 2. Trainee delivering material to peers

Intervention Structure

The intervention is group-based and group driven. The training of the front-line health workers is delivered in groups to facilitate peer teaching and peer mentoring (Fig. 2).

The teaching events are also primarily delivered in groups to facilitate information sharing and sustainable capacity building, however can also be delivered on an individual basis if a one-on-one approach is more appropriate. As well, training in groups helps to build information sharing and problem solving amongst frontline workers, which in turn builds support for them to go back to their communities and move forward. An unanticipated outcome has been the 'bonding' between people doing similar work in isolated communities.

Theoretical underpinning of Intervention

Theoretically, the work of Paulo Freire informs all aspects of the development and implementation of this intervention. Very briefly, according to Freire, the emancipation of people disempowered by oppressive or marginalizing forces takes place via cycles of action and reflection, where, through critical thinking and engaging with others as equals, they become empowered as subjects or agents in their transformation as they understand and act on their world with critical consciousness. Knowledge is power, and with power, social change becomes a new reality (17).

Critical to the ability to develop liberating or problem-posing education is the need to reconcile the roles of teachers and students. This does not specifically refer to the roles of teachers and learners as we think of them in relation to traditional school/education systems; it can and does refer to facilitators/informers and those within community.

According to Freire, through dialogue, the teacher-of-the-students and the students-of-the-teacher cease to exist and a new term emerges: teacher-student with students-teacher. The teacher is no longer merely the one-who-teaches, but one who is himself taught in dialogue with the students, who in turn while being taught also teach (18).

Friere described the meaning of the term 'community-based' as originating by, with and from community. This is quite different from the use of the term when it refers to a project that originates from outside a community but takes place within a community, which is more accurately termed 'community-placed' (19).

Intervention Programme

The training programme consists of a practical teaching tool combined with a training workshop. Both were designed to give participants a basic understanding of diabetes prevention. Practical information appropriate for use at the community level focuses on the established risk factors and ways of minimizing risk through healthy lifestyle changes. The training was developed as a train-the-trainer education system with a peer mentoring philosophy. That is, the learner is trained to become the teacher with skills and take-home tools to fulfill their role in promoting and preserving health. A familiar adage that is reflected in this approach is 'give a person a fish and they'll eat for a day; teach a person to fish and they'll eat for a lifetime'. Peer mentoring promotes sustainability, personal development, independence and capacity building. Continuity of the course content is maintained through the use of coloured script in the DIY Manual, as well the stated 'Key Messages' for each activity, which helps to summarize the content into a standardized take home message. At the same time, the front-line health workers are encouraged to include local knowledge that will help the information be more meaningful and relevant to their own people. In addition, social networks are established and a system of support is created among participants. In community-based health programmes, the use of laypersons as alternatives to professionals is a necessary and worthy endeavour. The local health workers understand the cultural and social context of their own communities and have access and exposure to the at-risk population.

In adult education, learning comes from experiencing, reflecting, thinking and doing. The foundation of the training is, therefore, to go beyond lecture or presentation-style lessons which include mostly watching, listening and observing; to learning by performing. Participants are trained to create Health Fair displays and to become familiar with the subject or topic. This scene for learning is familiar and safe since Health Fairs are a common means of conducting health promotion activities. Participants are divided into pairs and are provided with directions to create a display addressing different aspects of diabetes risk awareness, prevention, nutrition, or lifestyle management. This hands-on activity consolidates knowledge because the display contains the key messages that the participant pairs are meant to transmit to the peer audience. For example, foam tubing and play-dough are arranged to illustrate macro-vascular complications. They "study" what these props mean and learn various lessons such as: high blood sugar can lead to blocked arteries; and if this happens in your heart, it is a heart attack. Empty prescription bottles, meant to symbolize the "best medicine" (physical activity) are labelled with the "side effects" of exercise or benefits to health (weight management, reduced stress, etc). They have their peers anonymously add their ideas for being physically active by dropping paper pills into the bottles. They conclude by providing the daily "dose" and facilitating a consensus on whether they would take a medication like this. Approximately 20 minutes are spent using materials provided to create interactive displays while reviewing and discussing the topic. Each pair is then given about ten minutes to share the key messages illustrated in their display to their peers. Following the steps outlined for the teaching

component builds facilitation skills and increases confidence of the participant, many of whom do not have much experience making presentations. This short lesson provides an opportunity for coaching and discussion on the process afterward.

Two key design features were considered to highlight the transportability of this training to any community. First, material chosen is readily available in all communities such as household items or basic stationary supplies. Second, the resources such as pamphlets or handouts chosen are already developed and available to everyone. Resources that could be useful to the participants in the future are identified and their uses modelled. Generally this is not part of the display but as a resource for them to do teaching in their community. One group activity is incorporated where participants navigated the internet in a website "scavenger hunt" to practice accessing and ordering resources available on-line—a necessary skill for rural citizens. A strong point of the training is to ensure cultural-relevance in a Yukon setting. For example, one activity highlights the recent and drastic lifestyle change among Yukon indigenous people and its impact on health. Another activity based on the Wellness Wheel helps learners put diabetes prevention in a holistic perspective by enabling the sharing of cultural practices (foods, medicines, healing) along with contemporary self-care strategies. Participants' traditional knowledge is acknowledged and respected as a valid means to achieve better health. The value of these wellness strategies coming from their own people include cultural appropriateness and furthering the common goal of strengthening traditions whenever possible.

It is gratifying to see a health worker, with little experience in instructing others, facilitating a short education session in front of their peers. Their pride is evident and they are confident and ready to take on the next challenge.

Personnel necessary

There was a range of personnel necessary to develop and implement this training programme. These included: the community expertise from Yukon First Nations Health and Social Directors and the Council of Yukon First Nations; front-line health workers' skills and experience; coordination, administration and technical expertise to develop the content and presentation of the training manual; diabetes educators to deliver training and respond to diabetes-related questions; peer teaching and mentorship, and proposal writing and financial management of project funds.

Intervention Support Materials

The most significant part of the project was to create the resource: ***Do-It-Yourself: Diabetes Prevention Activities—A Manual for Everyone*** (4). The "DIY" manual, as it has come to be called, accompanies the Train-the Trainer approach by providing the participant with all the necessary ingredients to facilitate a mini-education session. The manual is a collection of 20 hands-on diabetes prevention activities produced in a culturally relevant, professionally designed and printed booklet. As described on page 2 of the DIY Manual, titled 'A Manual for Everyone', there are suggestions for different ways to deliver the information in peoples communities. This variety allows people to do what works best for their community and to include the education within their current work plans/jobs. Each activity is intended to convey a key message about diabetes prevention while being interactive, understandable, and fun. The intervention can be implemented to include all 20 activities in one session, or modified to suit the needs of the community. Suggestions for different ways to deliver the information are included at the beginning of the DY Manual to allow people to work with the material in a way that is responsive to community circumstances.

Topics in the DIY Manual include diabetes basics, healthy eating, traditional and active

lifestyles, and diabetes risk information. All activities follow a consistent format including four sections: "show it", "tell it", "what you will need" and "key message" (www. "Show It" contains clearly worded instructions on creating a visual display). This is consistent with a familiar health fair format and it incorporates a visual element for learners. One display requires drawing a highway with road signs each labelled with a different symptom that could indicate high blood sugar. "Tell it" provides a readable script and facilitator notes to guide the user through the activity and to relay key messages about diabetes prevention. The plain-language script was developed in response to requests during the product testing conducted with a sample stakeholder group. It allows the participant to facilitate with confidence without the worry of interpreting what to do or say. "What you will need" provides a list of materials used to create a display and props required for interactive activities (markers, tape, scissors, etc). Finally, participants are encouraged to read verbatim the "Key message" highlighted at the end of each lesson. It recaps important evidence-based information such as the suggested lifestyle changes to reduce risk. It also provides the rationale for the topic, i.e., how it relates to diabetes prevention. For example, in the Get Tested for Diabetes lesson the key message reads: "people over 40 years old, with risk factors and/or warning signs for diabetes should be tested. If the test is negative they should check again in one year". This is the recommendation of the Canadian Diabetes Association's Clinical Practice Guidelines (20).

The manual described here is support material for training workshops. As the title suggests, however, the intent and design of the manual actually goes beyond that purpose to target the needs of a wider audience. It is meant to be an adaptable tool that can be used by community health workers, health professionals and educators alike. An introductory chapter outlines its various uses in story format so that readers can identify with its application to schools, workplaces or health centres. These stories describe characters in various roles that use it in different ways. An activity can be used alone, several can be used in combination or all of them can be used together to create a unique learning experience. Also included in the DIY Manual are tips for success and how to include traditional medicine in a culturally appropriate way. This flexibility and self-sufficiency of the DIY Manual allows for the messages it contains to have a wider reach for community members at risk.

Accompanying the Manual is a resource box or 'toolkit' that was put together to minimize the preparation time for front line health workers, and ensure that all needed materials would be available. The contents of the toolbox are summarized in Appendix 1. The toolbox physically exists as a clear plastic box with a firm fitting lid to keep the contents together and readily available, in each community. The cover of the DIY Manual is taped to the top of each box to visually link it with the Manual.

Quality management in your programme:

Quality in the development of the DIY training manual was managed through several means. These included: frequent use of peer-reviewed journals to ensure a current evidence base to inform content development and key messages; ensure adherence to clinical practice guidelines; regular meetings between the Yukon First Nations' Health and Social Development Commission and the health professionals to ensure cultural relevancy and appropriate language; and frequent contact with the graphic designer and printer of the DIY Manual. Quality in the development and implementation of the training programme was managed through ongoing evaluations of both the pilot testing and subsequent training events. There is a 2 page evaluation form included at the back Manual, which both standardizes ongoing evaluation and provides direction for recommended revisions to subsequent print runs.

Costs of the programme (in Canadian Dollars, 2008 ($1 Can ~ $1.2 USD):

Funding from several partnerships over two years (2007-2008, 2008-2009) totalled $76,000, with $72,500 resulting from proposals written by the Arctic Health Research Network-Yukon. Funding included: $30,000 from the Aboriginal Diabetes Initiative of the federal government (Health Canada); $18,000 from an aboriginal health knowledge translation and capacity building initiative (NEARBC); $15,000 from the Canadian Institutes of Health Research (CIHR) Team Grant called *Preventing Chronic Diseases in Northern Populations* to Dr. Kue Young; $9500 from the Tri-Territorial Health Access Fund; and $3500 from the RCMP from their Diabetes Education Fund for Yukon First Nations. The implementation of the training in all Yukon First Nations communities during 2009/2010 was funded in the by the Aboriginal Diabetes Initiative to the Council of Yukon First Nations, and included $45,000 for travel throughout the Yukon. There were also in-kind contributions from several agencies, including the First Nations Health Program and the Diabetes Education Centre at Whitehorse General Hospital, the Council of Yukon First Nations and the Yukon First Nations Health and Social Development Commission.

Results of the programme and evaluation:

Over the past two years, 15 Yukon First Nations front-line health workers piloted the programme, and then 35 front line workers were trained as trainers to deliver the community-based diabetes prevention programme. Additionally, there were 23 youth (13-16 years old) in one community (Old Crow) who received the diabetes prevention programme as part of a climate change conference to assist them in making healthy food choices as their caribou and fish populations are declining. All 14 First Nations communities have received the DIY manual and toolbox.

There has been considerable positive feedback from the participants of this training and a lot of interest in the manual. It was described as the "best resource he's seen in 20 years" by the Health Director from the Kluane First Nation (21). The training has also shown improvements in participant confidence before and after training according to a self-reported confidence scale from 1-10 recorded before and after the training. A large proportion of front-line health workers have now been trained, representing all regions of Yukon.

As well, the manual was well received at the International Congress of Circumpolar Health 14 (Yellowknife, Canada, July 2009), the Canadian Institutes of Health Research Institute for Aboriginal People's Health National Student Gathering in August, 2009 and the National Aboriginal Health Organization's conference in November, 2009. Two provinces in Canada have also incorporated the Yukon's DIY Manual into their diabetes resource materials.

Barriers:

The main barrier to the success of the training programme is likely the many demands on the time of front-line health workers, which may limit their opportunities to hold community workshops and/or health fairs. The literacy level of the manual was monitored closely during its development and implementation; however there still may be some literacy barriers in some circumstances. The scope of the training is limited to diabetes prevention, and is not intended to include specific diabetes management information.

Lastly, there is no expectation that the front-line health workers would be able to elaborate on content or answer questions on diabetes, however they are able to provide prevention basics with opportunities to reinforce learning as necessary or requested by their community.

Further plan:

To date, community health workers throughout the Yukon have been trained on the use of this manual. Two full-day training sessions were held in Whitehorse in the spring of 2009 and three more sessions will be held in the fall and winter of 2009. Manuals and toolkits have been sent to all Yukon communities and to various destinations across Canada. In 2010/2011 the Yukon First Nations Health and Social Development Commission have directed that Health Canada's Aboriginal Diabetes Initiative funding be used to support diabetes prevention training and education in all 14 communities. As well, the manual will continue to be available by request (see contact details for authors) on a cost recovery basis for those outside the Yukon, which will support their continued availability to residents within the Yukon. The DIY Manual can also be downloaded at no cost at www.yukondiabetes.ca (13), a website that has other diabetes resource materials the reader may find of interest.

Comments:

As health professionals, this project has turned the frustrating situation of a lack of information within the rural communities into a satisfying capacity building initiative where motivated, caring local workers broaden their knowledge and share it with their own community. In terms of the manual development, it was a time-consuming process to write each of the topics in a readable and consistent format. The writing required finding the right balance of using proper terminology and avoiding medical jargon, while writing instructions that are free from ambiguity. Even with the point-by-point guidance, it was surprising the amount of creativity and diversity that the participants bring to their displays and presentations. The surprise finding is that there is room for different interpretations in the instructions allowing for individuality and creativity.

As the Arctic Health Research Network-Yukon, this project has provided an opportunity to support the development and implementation of a resource in response to a health priority identified through extensive community consultations with Yukon First Nations, and building on existing territorial diabetes expertise. Support has included successfully seeking funding from multiple sources over the two year period, and facilitating partnership development between various agencies.

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Publications about your programme:
www.yukondiabetes.ca
www.arctichealthyukon.ca

Appendix 1:

The Resource Toolkits consisted of:

- Two dice
- Two empty bread bags (1 from white bread, 1 from brown bread)
- Two straws
- Two yogurt containers (one low fat type and one regular fat type)
- Three hats
- Three jars with lids (two small, one large)
- One nine-volt battery
- Blank labels (medium and large)
- One tuna can
- One calculator
- One roll of clear tape
- One cloth
- One set of colour markers
- One computer mouse
- Construction paper
- Containers (empty) of chocolate milk, milk, pop, diet pop, sports drink, iced tea, fruit punch and 100% fruit juice
- Cotton balls
- Deck of cards
- Five copies of "Eating Well with Canada's Food Guide: First Nations, Inuit and Metis"
- Flexible Tape
- One Measure
- Three pieces of foam tubing
- One golf ball
- One glue
- One Ketchup
- One Lard
- One Light bulb
- One masking tape
- One measuring spoon
- Paper plates
- One pen
- One permanent marker
- Pictures for Activities 1, 2 and 6
- Play dough
- Post-it notes (small and large)
- Protective eyeglasses
- Recipe cards
- Scissors
- Spaghetti, dried pasta
- Styrofoam cups
- Sugar cubes
- Tomato juice
- Tennis ball
- Vegetable cooking oil
- Work gloves