BUILDING RESILIENCE AND COMMUNITY CAPACITY: THE SACHIGO LAKE WILDERNESS EMERGENCY RESPONSE EDUCATION INITIATIVE

by

Jeffrey Curran

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The School of Graduate Studies
Laurentian University
Sudbury, Ontario, Canada

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APPROVED/APPROUVÉ

Thesis Examiners/Examinateurs de thèse:

Dr. Stephen Ritchie
(Co-supervisor/Co-directeur de thèse)

Dr. John Lewko
(Co-supervisor/Co-directeur de thèse)

Dr. Aaron Orkin
(Committee member/Membre du comité)

Dr. David VanderBurgh
(Committee member/Membre du comité)

Dr. Mary Lou Kelley
(External Examiner/Examinatrice externe)

Approved for the School of Graduate Studies
Approuvé pour l'École des études supérieures
Dr. David Lesbarrères
M. David Lesbarrères
Director, School of Graduate Studies
Directeur, École des études supérieures

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Abstract

The Sachigo Lake Wilderness Emergency Response Education Initiative represented a partnership between Sachigo Lake First Nation in northern Ontario Canada, and medical professionals and university researchers from outside the community. This study was one component of a larger community-based participatory research program to develop locally relevant first response training to address the isolation from emergency healthcare in Sachigo Lake. The aim of this qualitative study was to complete a formative evaluation to understand how a five-day comprehensive training course implemented in May 2012: (a) met the local needs of Sachigo Lake; and (b) fostered resilience and community capacity. The results of this study describe the unique features of delivering first aid training in a remote context and illustrate the intrapersonal and interpersonal impacts of the program. Health promotion through community-based first aid education is a model with potential to improve emergency care in the absence of formal emergency medical services.

Keywords: Community-based participatory research; rural and remote health; health promotion; Indigenous health; first aid; resilience; community capacity.

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Executive Summary

This study represented one component of the formative evaluation of the Sachigo Lake Wilderness Emergency Response Education Initiative (SLWEREI). The knowledge gained from this qualitative study has informed the development of a locally tailored five-day emergency training course for the remote First Nations community of Sachigo Lake. The aim of the study was twofold: (a) to examine how the development and delivery of the course met the needs of the community; and (b) to explore how the SLWEREI program fostered resilience and community capacity.

The community of Sachigo Lake First Nation is located in the far north of Ontario Canada. As a remote community, Sachigo Lake does not have permanent road access. Local residents rely on a gravel-strip airport for access to the community the majority of the year. The community also has no paramedical or 911 dispatch services, therefore community members must respond to all medical emergencies outside the local nursing station. Community members that require hospital care must travel a minimum of four hours, under optimal weather and logistical conditions. This lack of access to timely emergency medical services presents difficulties for people to receive adequate healthcare for acute medical conditions.

The SLWEREI is a community-based medical education program that operated through a consultation process with the community of Sachigo Lake to co-develop locally relevant emergency response training for community members. The program was created in 2009, and has since involved: a local needs assessment and curriculum development; the implementation of the first five-day training course in 2010; refinement of course content and curriculum; the

implementation of the second five-day training course in 2012; and dissemination of knowledge gained and future planning. All aspects of the program operated in conjunction with a formative evaluation and research component. Researchers worked with community members to uncover local health issues and develop best practices in addressing locally specific needs. The focus of this study was the development and delivery of the second five-day training course.

The principles of community-based participatory research were used as a methodological framework to conduct the formative evaluation and explore how local needs were met, as well as explore how the program affected individual resilience and community capacity. Community members and course instructors were involved as research partners throughout the research process. The course was adapted in real-time based on input from the community. The primary data collection period of this study was during the implementation of the five-day training course in May 2012. Qualitative data from interviews and observational notes were analyzed inductively to identify emergent themes, which were then discussed with research partners during follow-up interviews in February and April 2013. The follow-up data collection period served a dual purpose in directly involving research partners in the analysis, as well as further exploring potential outcomes of the program nine months after the conclusion of the course.

Thematic results were shared and reviewed with community members during a community presentation in February 2013. Knowledge generated from the study was also shared with the community in a plain-language knowledge translation video that was created based on feedback from the community.[1] Themes of *community partnership*, *engaged learning*, and *realistic*

[1] A personal letter based on this Executive Summary was also shared with Sachigo Lake First Nation to make the knowledge generated more accessible to community members who may be interested.

context emerged from the analysis related to meeting local needs. These themes were presented along with participants' recommendations for improvement of the course that emerged during interviews. Themes of *building knowledge*, *confidence*, *community strength*, and *informal response system* emerged from the analysis related to program outcomes.

The knowledge generated from this study demonstrated that community-based medical training is a viable health promotion strategy. The SLWEREI enhanced individual resilience among participants as well as community capacity. The findings of this study may be able to inform future community-based training programs in remote regions of Ontario and further abroad.

Chapter 1: Introduction

The Sachigo Lake Wilderness Emergency Response Education Initiative (SLWEREI) was a community-based participatory research program with the aim of improving the emergency response capacity of Sachigo Lake First Nation through the development of locally relevant medical training. The foci of the program was twofold: (a) developing a custom emergency first aid training course for community members to augment existing primary healthcare services; and (b) exploring the impact and outcomes of the program. In order to ensure that the local needs of Sachigo Lake were addressed; the program has involved a formative evaluation component since inception. This qualitative study represents the evaluation and research component of the SLWEREI during the implementation of the second five-day comprehensive training course. The aim of the research was to elucidate how the program met local needs and fostered resilience and community capacity. Sachigo Lake First Nation is one of many remote communities in Ontario Canada without permanent road access. Sachigo Lake is located in the far north of the province, approximately 425 kilometers north of Sioux Lookout, and is accessible by a temporary winter road and a year-round airport.

Northern Ontario is uncommon in terms of having a vast expanse of undeveloped land with a very diverse and distributed population. Northern Ontario covers over 800,000 km^2, representing nearly 90% of the province—more than twice the area of Germany (Ministry of Health and Long-Term Care, 2011). This vast expanse of land north of Parry Sound is home to 6% of the Ontario population, and a higher proportion of Francophone and Indigenous peoples compared to the province as a whole (Ministry of Finance, 2012; North East LHIN, 2012; North

West LHIN, 2012). The large distances between communities, along with differences in culture and language create barriers for people seeking medical care. Barriers to receiving medical care are coupled with poorer health outcomes. There are lower rates of contact with a physician among residents of northern Ontario, along with poorer reported health and higher mortality (Ministry of Health and Long-Term Care, 2011; North East LHIN, 2012; North West LHIN, 2012). This population also experiences higher rates of injury and suicide, as well as shorter life expectancy compared to the provincial average (North East LHIN, 2012; North West LHIN, 2012). Northern Ontario is an area with a distinct population, and unique barriers to improving health. The barriers to medical care in northern Ontario are heightened in the far north for remote communities like Sachigo Lake, where there is no formal paramedic service and community members are relied upon to assist in emergency situations.

1.1 Access to Healthcare in the Far North of Ontario

Access to medical care is a substantial barrier to improved health for many people living in rural and remote areas within northern Ontario. The Ministry of Health and Long-Term Care (2011) states that the challenges associated with providing adequate healthcare in these areas stem from: "geographic remoteness, long distances, low population densities, less availability of other providers and inclement weather conditions" (p. 6). These areas experience difficulties in recruiting and retaining health professionals (Minore, Boone, Katt, Kinch, & Birch, 2004), and face the highest rates of physician turnover in the province (Tepper, Schultz, Rothwell, & Chan, 2005). Frequent staff changes and a lack of cultural familiarity may lead to further barriers in establishing effective and trusting healthcare relationships and continuity of care (Minore et al., 2004). Isolated communities often rely on a regional system of services which places emphasis

on the management of acute problems—possibly at the expense of health promotion, surveillance, screening, and education (Minore et al., 2004). There are approximately 55 communities in northern Ontario that do not have access to an emergency department within 60 minutes of travel time, 27 of these communities are considered remote (Glazier, Gozdyra, & Yeritsyan, 2011). Sachigo Lake is one of these remote communities. The lack of access to emergency departments and health professionals presents a major challenge in providing adequate healthcare for people who suffer acute medical conditions.

Many of the remote communities in the far north of Ontario are First Nations reserves. First Nations refer to Status and Non-Status Indian peoples in Canada (Aboriginal Affairs and Northern Development Canada, 2010). The term Indigenous refers to the original peoples of North America and their descendants. First Nations people represent one of the three distinct Indigenous groups in Canada, and are a diverse population with varied cultural practices and beliefs. First Nations people represent approximately 65% of the Indigenous population in Ontario (Ontario Ministry of Aboriginal Affairs, 2012), and this population experiences a disproportionate lack of access to medical care compared to the rest of the province. Sixty-five percent of respondents to the Ontario First Nations Regional Health Survey reported having contact with a medical doctor in the previous 12 months, compared to approximately 79% for residents of northwestern Ontario and 81% for the province as a whole (MacMillan et al., 2003; North West LHIN, 2012).

Many First Nations people living in remote communities have access to small nursing stations staffed by nurses, community health representatives, and temporary visits from a family

physician; however, they must travel hours to reach definitive hospital care. Most remote communities have no access to 911 or paramedic services, and they rely on ORNGE (the provincial air ambulance service) to transport patients to a regional hospital for emergency care. The difficulty in accessing consistent, timely care compounds many of the health issues faced by First Nations people in the far north of Ontario. This warrants research that explores locally specific health needs of these communities and the best practices in addressing those needs.

1.2 The State of First Nations' Health in Ontario

Alarming trends have been documented regarding the health of Indigenous peoples in Canada. The age-standardized mortality rate for Indigenous men and women is double the rate experienced by the general Canadian population (Caron, 2005). Indigenous peoples face a fourfold greater risk of severe trauma, which accounts for one third of all deaths (Auer & Andersson, 2001; Caron, 2005; Karmali et al., 2005). Reading and Wien (2009) argued that the major barriers to improved health status of Indigenous peoples include the unavailability of medical transport, lack of health professionals and facilities, as well as culturally inappropriate health services. Addressing these barriers is a vital issue for many Indigenous peoples to find appropriate solutions to health problems and disparities. Despite considerable research related to Indigenous health issues in Canada, the majority of studies originate from a few centres in the country, leaving a lack of community-level health studies, especially concerning injury and prehospital care (Young, 2003).

Further research and targeted intervention is warranted based on trends documented in the health status of First Nations people in Ontario. According to the Ontario First Nations Regional

Health Survey, heart and breathing problem rates showed an approximately two-fold increase over rates that have been reported nationally (MacMillan et al., 2003). First Nations people residing on Ontario reserves also experience higher rates of other chronic health conditions, such as diabetes, compared to the general provincial population (MacMillan et al., 2003). Elevated rates of chronic conditions such as cardiovascular disease and diabetes result in more frequent medical emergencies requiring acute care (e.g. heart attack, stroke, insulin shock, and diabetic coma).

In addition to elevated rates of chronic conditions, the risk of injury on First Nations reserves has been found to be 2.5 times greater relative to communities in northern Ontario, and 3 times greater relative to those in southern Ontario (Fantus, Shah, Qiu, Hux, & Rochon, 2009). Fantus, Shah, Qiu, Hux, and Rochon (2009) found that the three most frequent categories of injury leading to hospitalization among First Nations communities in Ontario were accidental poisoning, accidental falls, and intentional self-harm. With respect to intentional self-harm, First Nations females had a relative risk of 12.5 compared to females in southern communities. Whitehead, Henning, Johnston, and Devlin (1996) found that the highest proportion (61%) of injury morbidity was unintentional in nature among the First Nations communities in the Sioux Lookout Zone of northwestern Ontario. Falls were the leading cause of unintentional injury among all ages (Whitehead & Johnston, 1997).

Whitehead et al. (1996) also found a 'youth suicide crisis' occurring among First Nations people in northwestern Ontario. Suicide was the leading cause (55%) of injury mortalities, of which, over 70% were between the ages of 10 and 19. Compounding the elevated rates of disease and

injury are difficulties in receiving treatment. It has been previously estimated that as many as 90% of deaths from accidents and violence among First Nations people in the Sioux Lookout zone occur before formal medical care is reached (Young, 1983). These trends illustrate the need to: (a) find locally appropriate practices for addressing health issues, and (b) address the inequity in access to medical services. The utilization of local paraprofessionals in interdisciplinary healthcare teams is a model that has been implicated as having great potential to fill service gaps in remote areas of northwestern Ontario (Minore & Boone, 2002).

1.3 Emergency Response Program Potential

Elevated rates of chronic health conditions and injury among First Nations people living in remote areas of northern Ontario necessitate the improvement of prehospital healthcare. Prehospital care is essential for the optimal outcome of people with medical emergencies, and it has been identified as the weak link within many trauma care systems (Hodgetts & Smith, 2000). First aid education and training programs for laypeople is a strategy with potential to improve emergency management and prehospital care. The development of existing informal emergency response and patient transport systems has the potential to improve prehospital care, even in the absence of formal emergency medical services (Mock, Tiska, Adu-Ampofo, & Boakye, 2002). The development of meaningful and lasting educational programs is warranted because many laypersons are insufficiently trained, and are unprepared to act in an emergency (Smith, Cameron, & McNeil, 2003).

Developing first aid skills, and the confidence for laypeople to respond when needed, is paramount to addressing emergency situations. Disaster evaluations have shown that the survivors themselves carry out most initial search and rescues, and most lives are actually saved

by the average citizen (Auf der Heide, 2006). Some reports have indicated that fewer than 30% of out-of-hospital resuscitation attempts are initiated by lay bystanders, often because of a perceived futility in helping (Eisenburger & Safar, 1999). The decision for people to act depends on their recognition of the emergency and confidence in their ability to handle the situation. Hussain and Redmond (1994) estimated that at least 39% of prehospital deaths from accidental injury are preventable. Thus, building emergency response capacity among laypeople has potential to improve prehospital care.

First aid training has been shown to improve helping behaviour, especially in programs that train participants to overcome inhibitors of helping (Van de Velde et al., 2009). Developing bystander first aid skills and motivation to act has substantial life-saving potential, as even the simplest manoeuvres that are applied rapidly can have considerable benefits (Mock, 2003). Mental health first aid training has also been shown to enhance the recognition of mental health illnesses, increase confidence in responders, improve the quality of assistance, and reduce stigmatizing attitudes among multinational and multicultural participants (Jorm, Kitchener, Kanowski, & Kelly, 2007; Kelly et al., 2011; Morawska et al., 2013). The development of informal emergency management systems through educating laypeople is essential to address the weak and often absent first link in the life-saving chain of survival (Sasser, Varghese, Kellermann, & Lormand, 2005).

Medical education and training programs are especially important in areas of low socioeconomic status, where lower rates of bystander cardio pulmonary resuscitation (CPR) have been reported (Mitchell, Stubbs, & Eisenberg, 2009). The benefits of first aid training mentioned thus far have

largely been based on studies from urban contexts, where emergency medical services are seldom more than minutes away and are easily activated. The impact that first aid training could have for people in remote contexts is expected to be even greater, as lay bystanders are depended on even more to provide initial treatment. Therefore, first aid and CPR training may have great potential in remote areas of northern Ontario, where formal paramedic services are practically non-existent, and there is a higher prevalence of economic hardship and unemployment (Statistics Canada, 2012).

First aid training programs have been effective in addressing local health needs in many low-income and resource-limited regions (Aboutanos et al., 2007; Husum, Gilbert, & Wisborg, 2003; Jayaraman et al., 2009a; Tiska, Adu-Ampofo, Boakye, Tuuli, & Mock, 2004). Emergency management by locally trained first responders has been shown to improve response time and decrease mortality rates (Arreola-Risa et al., 2000; Husum, Gilbert, Wisborg, Heng, & Murad, 2003; Larsson, Mártensson, & Alexanderson, 2002). The cost associated with these training programs has been modest, and participants have been able to effectively learn and retain knowledge of prehospital care, and confidently use their newly acquired skills for months after taking the course (Jayaraman et al., 2009b; Meaney et al., 2012). Furthermore, locally trained first responders have displayed an ability to self-replicate the program by teaching others, thus creating an efficient and sustainable rural rescue system (Husum, Gilbert, & Wisborg, 2003). Community members with minimal training who work in concert with health professionals can provide effective and sustainable prehospital care, regardless of the level of resources in the area (Sasser et al., 2005).

1.4 Locally Appropriate Health Promotion Challenges

According to the Ottawa Charter for Health Promotion, "health promotion is the process of enabling people to increase control over, and to improve, their health" (World Health Organization, Health and Welfare Canada, & Canadian Public Health Association, 1986, p.2). A central feature of health promotion activities is strengthening community action through empowerment and enhancing existing human and material resources to enhance self-help and social support (World Health Organization et al., 1986). The SLWEREI aimed to promote health within Sachigo Lake First Nation through developing locally specific emergency medical education and training, that enhanced the first aid skills of community members and addressed health issues of local importance.

Conventional health promotion and training programs often have not reflected the social, cultural, historical, and political environment, as well as the time needed to build effective working relationships with Indigenous communities (Chino & DeBruyn, 2006). Effectively implemented training programs should be locally devised, educationally appropriate, and focus on practical demonstrations (Jayaraman et al., 2009a; Tiska et al., 2004). Plani and Carson (2008) recommended that the development of trauma systems for Indigenous people should take into account the local context, such as geographical remoteness and cultural diversity, and make openness and commitment a priority. Chino and DeBruyn (2006) expressed the need for capacity-building projects that operate under a participatory process, in which mutual learning between researchers and the community promotes community ownership of the program.

Research initiatives that address health inequalities in Indigenous communities must overcome the history of paternalistic and often exploitive research relationships between Indigenous communities and both government and research institutions (LaVeaux & Christopher, 2009). Many Indigenous groups have been used as research subjects for decades with little benefit for the community members involved (Tri-Council, 2010). The long history of neglect and marginalization of Indigenous peoples has resulted in an ethical responsibility, on the part of researchers, to ensure that partnerships are developed with communities, and that research findings serve the communities (Canadian Institutes of Health Research, 2008). Indigenous research initiatives must be sensitive of the exploitive history of research and utilize methodologies that honour and respect participants, and thus work towards a common good.

Health promotion programs that have an integrated community-based evaluation and research component empower the local community to take ownership in making it locally devised and appropriate. Community-based participatory research (CBPR) programs are considered a best-practice in understanding health disparities and cultural differences among Indigenous peoples in isolated areas of northern Ontario (Minore et al., 2004). Research through a participatory process allows community members to be more involved and empowered in low-resource rural communities (Schmid, Kanenda, Ahluwalia, & Kouletio, 2001). A participatory capacity-building project that operates through mutual learning between the project team and community members is essential to address the gap in human health resource training, and the lack of primary healthcare in remote northern communities.

Integrated research and evaluation of health promotion programs also facilitates sensitivity towards diverse understandings of health. Having the community steer the research and program development ensures that they are able to act as the experts regarding their own ideology of health, and address issues of local importance. Despite the high prevalence of several chronic conditions and lower rates of contact with a physician, almost 78% of First Nations respondents described their health as generally good, very good, or excellent (MacMillan et al., 2003). This result highlights the importance of assessing the local health needs of communities based on community members' perceptions of health issues. Health promotion programs that aim to address issues that are not viewed as important within the community are not likely to generate community interest and sustainability. Health research and intervention efforts that are not in line with the community's culture and ideology of health propagate an ethnocentric view that is similar to historic colonization practices. Thus, it is essential to be sensitive and aware of diverse understandings of health to be locally appropriate. The principles of CBPR are aligned with concepts of building rapport, community presence, respect and collaboration, as well as flexible and adaptive methodologies—concepts which have been suggested by Indigenous peoples for health research practices (Maar et al., 2011).

1.5 The Multidimensional Concept of Health and Associated Factors

The concept of health is multidimensional and represents the dynamic interplay of many factors; from micro level factors such as one's genetic make-up, to macro level factors such as the social and political environment that one lives in. What it means to be healthy varies extensively between different groups of people and cultures around the world. Some perceive health to reflect a state of being free from sickness and disease. Conversely, according to the Constitution

of the World Health Organization (WHO), "health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" (World Health Organization, 2006, p.1). The WHO considers health to be a concept that emphasizes social and personal resources, as well as physical capacities (World Health Organization, 1986). Many Indigenous ideologies of health are also holistic—reflecting physical, spiritual, emotional and mental dimensions (Reading & Wien, 2009). Thus, the concept of health is diverse and has many dimensions. For health promotion programs to have a meaningful impact on people, they should be open and sensitive to different ideologies of health, and attend to the factors that are locally perceived as important.

The factors that are believed to determine health differ from place to place and between organizations. Reading and Wien (2009) identified 13 determinants of health that affect Indigenous peoples across Canada, which they organized into proximal (e.g. health behaviours, physical environment, and education), intermediate (e.g. healthcare systems, educational systems, and community infrastructure), and distal determinants of health (e.g. colonialism, social exclusion, and self-determination). There are other models and frameworks describing determinants of health, but the underlying concepts remain the same—living conditions and social inequities play a large part in determining a person's health. There is a wealth of evidence that links socio-historical factors to health outcomes such as cardiovascular disease, diabetes, mental illness, and suicide (Raphael, 2006). Programs that are aimed at improving community health must reflect the community's unique social context. For a health promotion program to be effective and meaningful, it must reflect the unique local needs of the group or community for which it is designed.

1.6 Sachigo Lake Wilderness Emergency Response Education Initiative

The Sachigo Lake Wilderness Emergency Response Education Initiative (SLWEREI) represented a partnership between Sachigo Lake First Nation, medical professionals, and university researchers with the aim of addressing local health needs through community-based medical education. The health services available in Sachigo Lake are through a local nursing station that is staffed by registered nurses, community health representatives, and visits from a family physician approximately two to three days per month. Physician support is also available over the phone 24 hours per day. Sachigo Lake has no paramedic or 911 services, and community members are the only people to respond to an emergency outside the nursing station. The provincial air ambulance service (ORNGE) provides emergency medical transport, however, the nearest base is more than 400 km south in Sioux Lookout (see map in Figure 1). Consequently, the minimum travel time required for people to reach hospital care under optimal weather and logistical conditions is seldom less than four hours (Orkin et al., 2012). The SLWEREI program sought to address the barriers in accessing timely emergency medical care by building community capacity through instructing community members in practical emergency management techniques and enhancing existing response resources. The SLWEREI received funding from the Institute of Aboriginal People's Health of the Canadian Institutes of Health Research, and the Northern Ontario Academic Medical Association.

Figure 1. Map of Ontario showing Sachigo Lake First Nation (Orkin et al., 2012).

The program took a CBPR approach through a collaborative knowledge transfer between Sachigo Lake First Nation and the team of people who implemented and evaluated the program. The SLWEREI represented a consultation process with the aim of co-developing a locally tailored first aid training course through an integrated formative evaluation and research component. The reciprocal knowledge transfer included, but was not limited to, the local community gaining knowledge in medical practices from the program instructors, while the program team gained knowledge on the best practices to address local health issues from community members. The program involved action-oriented inquiry, and has included

community partners in all aspects of the research and development process—the selection of locally-relevant issues, design of the course and evaluation, data collection and analysis, as well as knowledge translation and dissemination (Minkler & Wallerstein, 2008). Ongoing program development, through concurrent evaluation and modification, was an integral part of the process in order to identify best practices in meeting local needs. The program operated under three guiding principles: (a) excellence in life saving first aid education; (b) locally appropriate materials and methodology; and (c) emphasis on local geography and community health needs (Orkin et al., 2012). These three guiding principles were implemented through five phases as outlined in Table 1.

Table 1. Five-phase plan of the SLWEREI.

Phase	Description
I	Needs Assessment and Curriculum Development
II	First Course and Capacity Development – Nov. 2010
III	Curriculum Refinement
IV	Second Course and Capacity Development – May 2013
V	Knowledge Dissemination and Future Planning

In alignment with the principles of CBPR, the SLWEREI has involved community members, program facilitators, and researchers as equal partners throughout the evolution of the program. The inception of the SLWEREI occurred in 2009 with the collaborative generation of a research agreement and the five-phase plan (Table 1) to develop and implement a training program that reflected community needs. Each phase of the five-phase plan involved an integrated

participatory evaluation and research component to elucidate the specific needs of the community, and the best practices in meeting those needs. This study represents a component of that evaluation and has been informed by the knowledge generated from Phases I-III of the program, which have been discussed elsewhere (Born, Orkin, VanderBurgh, & Beardy, 2012; Orkin et al., 2012).

The first SLWEREI five-day course occurred in November 2010 with 19 community members from groups such as Canadian Rangers, school staff, and First Responders. The content and pedagogy of the SLWEREI courses evolved since the early inception of the program. Medical experts[2] created the curriculum of the initial course based on a needs assessment completed with the community, which was subsequently adapted throughout its implementation through iterative feedback with the participants. The focus of the present study was to formatively evaluate the second course (Phase IV of the SLWEREI), and explore (a) how the development and delivery met local needs, and (b) how the program fostered resilience and community capacity. The second course was refined from the first course based on knowledge gained from Sachigo Lake First Nation. An overview of the second five-day course content and curriculum is shown in Figure 2.

[2] Course curriculum developed by Dr. Aaron Orkin, Dr. David VanderBurgh, Dr. Sarah Strickland, Mike Webster, Dr. Baijayanta Mukhopadhyay, and Rachel Jamieson.

<table>
<tr><td><u>Day 1</u>
• Introduction and Consent
• General Principles
• Small Group Skill Building
• Outdoor Scenarios
• Day Debrief and Reflection</td><td><u>Day 2</u>
• Review Period
• Small Group Skill Building
• The Circulatory System
• The Respiratory System
• Outdoor Scenarios
• Day Debrief and Reflection</td><td colspan="2" rowspan="2"><u>Day 3 In Detail</u>
• Review Period
• The Nervous System
• Small Group Scenarios
  • Suicidal Thoughts
  • Violent and Intoxicated Person
  • Opioid Overdose
• Mental Health
• Large Group Scenario
  • Simulated Truck Accident
  • Multiple Victims
• Video Debrief
• Day Debrief and Reflection
• Instructor/Researcher Meeting
  • Real-Time Program Development</td></tr>
<tr><td><u>Day 4</u>
• Review Period
• Muscles and Bones
• Small Group Skill Building
• Body Temperature
• Large Group Scenario
• Day Debrief and Reflection</td><td><u>Day 5</u>
• Video Debrief
• Small Group Skill Building
• Wounds and Burns
• Cold Injuries
• Allergic Reactions
• Final Reflection
• Community Dinner</td></tr>
<tr><td>TEACHING STYLES:</td><td>Classroom Teaching</td><td>Practical Skills Training</td><td>Simulation-Based Learning</td></tr>
<tr><td colspan="4">← Integrated Program Evaluation and Research →</td></tr>
</table>

Figure 2. Schematic of the five-day Phase IV course curriculum and pedagogy (adapted from Orkin et al., 2012).

The interdisciplinary team of people that have collaborated on the SLWEREI has included community partners from Sachigo Lake, physicians, paramedics, wilderness medicine consultants, medical learners, and university researchers. The Health Director of Sachigo Lake First Nation, Jackson Beardy, has been involved as a community partner since the inception of the program, along with Dr. Aaron Orkin and Dr. David VanderBurgh, who are physicians and the joint primary investigators of the program. The initial phases of the program also involved a paramedic and director of Wilderness Medical Associates International (Mike Webster), a medical resident (Dr. Sarah Strickland), and a university researcher (Karen Born). The program team has evolved since inception with a transition in researchers and inclusion of additional medical learners. During the implementation of the second course (Phase IV of the program), the instructors included Rachel Jamieson (paramedic), Dr. Baijayanta Mukkopadhyay (medical resident), Calen Sacevich (medical student), as well as Drs. Orkin and VanderBurgh (the joint primary investigators of the program). Two university researchers, Jeffrey Curran (the primary

researcher of the evaluation) and Stephen Ritchie (research coordinator of the overall program), accompanied the instructors in May 2012 for the implementation and evaluation of the second five-day course.

The five instructors of the second SLWEREI course, course participants, and members of Sachigo Lake First Nation who participated in this evaluation were all equal partners in the evaluation and are all referred to as *research partners* in this study. The term *researchers* will henceforth be used to refer to the two individuals whose main role was to facilitate the evaluation, as the researcher (Jeffrey Curran) and the research coordinator (Stephen Ritchie). Due to the subjective nature inherent in qualitative studies and the interwoven relationships among the people working on the program, it was essential to be reflexive regarding the views and background of the people involved in this study. A section in the subsequent Methods chapter (2.2) will attend to the philosophy of the researcher and dynamics of the team.

1.7 Resilience and Community Capacity

This study provided an opportunity to explore aspects of resilience and community capacity, which emerged as potential outcomes of the SLWEREI (Born et al., 2012). Within the last 20 years, community capacity building and community empowerment have arisen as key self-determination strategies to reduce health inequality (Chino & DeBruyn, 2006). The term *community* in this study refers to the people who share a common cultural, social, and geographic context as members of Sachigo Lake First Nation.

The concepts of resilience and community capacity are similar in relating to a propensity to overcome adversity, yet the definitions of these concepts vary between individuals and organizations. Resilience has been defined as:

> (a) the capacity of individuals to navigate their way to resources that sustain wellbeing, (b) the capacity of individuals' physical and social systems to provide these resources [and] (c) the capacity of individuals, their families and communities to negotiate culturally meaningful ways for resources to be shared (Ungar, 2009, p. 32).

Ungar's definition of resilience is appropriate for the SLWEREI because it was developed through a large-scale examination of resilience across cultures, including cultures from low-resource regions of the world (Ungar, 2011). This model of resilience emphasizes individual capacity as well as social and ecological factors. Similar to resilience, community capacity has been defined as "the actual knowledge, skill sets, participation, leadership and resources required by community groups to effectively address local issues and concerns" (Ontario Prevention Clearinghouse, 2002, p. 1). These concepts share a common theme in that they emerge in the presence of adversity and relate to individual and community ability to address such hardship.

There are a diversity of characteristics associated with resilience and community capacity. For example, Ungar (2008) found that there are 32 domains related to resilience studies that are associated with culture, community, relationships, and the individual. Goodman and colleagues (1998) argued that there are 10 main dimensions of community capacity: citizen participation, leadership, skills, resources, social and inter-organizational networks, sense of community, understanding of community history, community power, community values, and critical reflection. Similarly, Kirmayer and colleagues found that historical identity narratives build the resilience of Indigenous peoples in Canada through emotional regulation, problem solving, social

positioning, and collective solidarity (Kirmayer, Dandeneau, Marshall, Phillips, & Williamson, 2011). Bottom-up processes of building community capacity, which have been shown to sustain health improvement programs and solve ongoing health issues (Ontario Prevention Clearinghouse, 2002), must build individual resilience of community members through developing skills and improving access to resources. The resources that sustain well-being range from psychological (i.e. self-esteem and sense of attachment) to access to healthcare and education (Ungar, 2009). These concepts were explored further throughout this study as they related to the local context of Sachigo Lake and the SLWEREI.

1.8 Purpose

The purpose of this study was to seek to understand how the SLWEREI can best meet the local needs of Sachigo Lake First Nation. The study was aimed at improving how the second SLWEREI course (refer to Table 1 for an overview of the five phases of the program) was implemented to reflect the community's perceived needs, while exploring (a) how the development and delivery met local needs, and (b) how the program fostered resilience and community capacity. The main research question was: **How does the development and delivery of the SLWEREI meet locally specific needs of the community?** Researchers and research partners in this study explored the collaborative relationship through which the course content and delivery evolved to suit the needs of the community. Furthermore, the researchers and research partners explored how such an educational training program influenced the perceived health and well-being of Sachigo Lake First Nation. The second research question was: **How does the SLWEREI affect the community's capacity to respond to emergency situations?** The focus of this question was on exploring the potential of the program in

developing resilience among course participants and improving overall community capacity, as it relates to emergency response and overall health and well-being. These research questions were developed through collaboration with the joint primary investigators of the program and with community members of Sachigo Lake First Nation.

The main data collection period of this study was during the implementation of the second five-day training course in Sachigo Lake in May 2012. Due to the vast distance between researchers and the community, much of the collaboration in this study occurred via telephone and Internet. Distant collaboration presented challenges in building the partnership necessary for community-based research. The researchers of this study had to rely on the positive relationship created by the joint primary investigators of the program and leaders of Sachigo Lake First Nation. The challenges associated with this distant collaboration will be discussed further in Chapter 4.5, and have also been discussed elsewhere (Ritchie et al., 2013). The present study features the perceptions of Sachigo Lake community members. Community members were best suited to evaluate the course as they had an intimate understanding of both the local context, and course processes and effectiveness.

This study constitutes a formative evaluation of the second SLWEREI course including an examination of program outcomes. The ultimate goal of this study was to improve the overall program, while empowering everyone involved through critical reflexivity and collaboration in the evaluation and program development. The course instructors, researchers, and members of Sachigo Lake First Nation engaged in ongoing feedback in order to improve how the course met the local needs of the participants and the entire community. Through this evaluation,

researchers sought to understand the unique features of teaching first aid in remote First Nations communities, where there are no 911 or paramedical services, and explore how community-based medical education programs such as this can address the gap in emergency response services in isolated communities with limited resources. There is very little literature available on prehospital care in communities where there are no emergency medical services. The focus of this study presented an opportunity to generate more knowledge regarding prehospital care and avenues for improving remote response systems in northwestern Ontario. The results of this study may also apply to other similar low-resource remote contexts.

Chapter 2: Methods

A qualitative approach was utilized in this study to evaluate the second SLWEREI course and explore the research questions. A qualitative approach was chosen for a number of reasons. Members of Sachigo Lake First Nation requested that qualitative methods be used during Phase I of the program, and expressed a desire for the continuation of such methods in this study. Qualitative evaluations have been considered better suited than quantitative measures for assessing capacity building in bottom-up organizational approaches (Crisp, Swerissen, & Duckett, 2000), as well as in the highly contextual nature of Indigenous studies (LaFrance, 2004). Qualitative methods were also considered ideally suited to address individual perspectives of culturally embedded pathways to resilience (Ungar, 2004). Specifically, there are five aspects of qualitative research that make it ideally suited to studies of health and resilience: (a) ability to discover unnamed processes, (b) ability to attend to context-specific health issues, (c) ability to increase volume of marginalized voices, (d) ability to produce rich descriptions of lives lived, and (e) challenge researcher bias (Ungar, 2004).

2. 1 Methodological Framework

Researchers in this study adhered to an advocacy/participatory worldview (Creswell, 2009). This epistemology challenges dominant post-positivist assumptions as not applicable for marginalized people and issues of social justice (Creswell, 2009). A hallmark of this lens is that research must be intertwined with contextual factors, as programs do not operate within a social vacuum. In alignment with the participatory epistemology, this study continued to follow principles of CBPR initiated from program inception. Hence, the research orientation reflected

mutual respect and co-learning between partners, individual and community capacity building, systems change, and balancing research and action (Israel, Schulz, Parker, & Becker, 1998). CBPR in health has been defined as a:

> collaborative approach to research that equitably involves all partners in the research process and recognizes the unique strengths that each brings. CBPR begins with a research topic of importance to the community and has the aim of combining knowledge with action and achieving social change to improve health outcomes and eliminate health disparities (W.K. Kellogg Foundation Community Health Scholars Program, 2001, p.2).

The methodological framework of this study was based upon the nine principles outlined by Israel et al. (2008, p. 49-52) that identify the key elements of CBPR (Table 2). The researchers, community members, and instructors were thus partners in contributing their unique strengths and sharing responsibility to improve understanding of the program-community integration, and utilizing the knowledge gained through actions that would improve the health and well-being of community members (Israel et al., 2008).

Table 2. Nine principles of CBPR outlined by Israel et al., 2008 (p. 49-52).

Principle	Description
One	Recognizes the community as a unit of identity
Two	Builds on strengths and resources within the community
Three	Facilitates collaborative, equitable partnership in all research phases and involves an empowering and power-sharing process that attends to social inequalities
Four	Promotes co-learning and capacity building among all partners
Five	Integrates and achieves a balance between research and action for the mutual benefit of all partners
Six	Emphasizes public health problems of local relevance and also ecological perspectives that recognize and attend to the multiple determinants of health and disease
Seven	Involves systems development through a cyclical and iterative process
Eight	Disseminates findings and knowledge gained to all partners and involves all partners in the dissemination process
Nine	Requires a long-term process and commitment to sustainability

The participatory research and evaluation framework required power sharing between researchers and research partners. The researchers, community members, course instructors, and program developers co-created the research process. In this process, the researchers acted as facilitators for the community members to engage in reflections for their own development and empowerment, in addition to the development of the course and overall program. Course instructors and local professionals also engaged in reflections of the program and were instrumental in providing contextual information on course dynamics and local health issues. It

was assumed that keeping the participants active and engaged would help minimize power differences (both perceived and real) inherent in the study, and would also increase the likelihood that participants would express interest and take ownership of the inquiry process.

The community members had a leadership role in the collaborative partnership. The course instructors and researchers were guests in the community and relied on community partners to facilitate transportation, accommodation, and participant recruitment. The community members were experts regarding the locally specific health needs and context of the community, and were therefore the best suited to evaluate and provide feedback on the relevance and effectiveness of the SLWEREI. This approach recognized, honoured, and valued the participants' perspectives and expertise in determining how the program met their needs.

The CBPR framework used in this study was also informed by complimentary principles of *realist evaluation* and its view of what constitutes a program. Realist evaluation (RE) views a program as its personnel, its place, its past, and its prospects (Pawson & Tilley, 1997). Programs are complex social systems that involve the interplay of individuals and context. An RE approach places emphasis on the program mechanisms and social conditions in order to understand how a program works. RE posits two questions that must be answered by research: (a) what are the mechanisms for social change triggered by a program, and (b) what are the social and cultural conditions necessary for the change mechanism to operate (Pawson & Tilley, 1997). Thus, the CBPR methodological framework of the study was informed by complementary principles of RE, through placing an emphasis on program mechanisms and social context.

The methodological approach of this study also drew upon an interview technique used in means-end theory (Gutman, 1982). This technique, referred to as *laddering*, has been used to develop an understanding of how consumers translate the attributes of products into meaningful associations with respect to self (Gutman, 1982). The laddering technique involved tailoring interviews to use a series of direct probes, typified by the "Why is that important to you?" question (Reynolds & Gutman, 1988). Although this technique was originally used for consumer research, it has been adapted for use in studies designed to understand participant experiences related to involvement in short-term outdoor education programs (Goldenberg, Bussell, & Soule, 2011; Goldenberg, McAvoy, & Klenosky, 2005). The laddering technique was used as an interviewing strategy in this study to understand the underlying consequences of program attributes as they related to participants' emotional and attitudinal response. This interviewing strategy positioned the interviewee as the expert and the interviewer as a trained facilitator of the discovery process (Reynolds & Gutman, 1988). This technique also complemented the principles of RE that informed this study, since the laddering technique helped discover contextual factors and mechanisms of change that occurred through each interviewee's participation in the course.

The research questions aligned with the CBPR methodological framework, and complimentary principles of RE, through valuing local perceptions of program mechanisms and how they interacted within the local context. The study was positioned to understand the local perceptions of what the local needs were, and what factors were important in addressing health issues. Exploratory questions of *how* the program met local needs and affected emergency response

capacity positioned community members as experts regarding local needs and health issues, and thus enabled them to share their views without imposing assumptions from an outsider's perspective. The research questions enabled research partners to reflect on what program mechanisms were best suited to address the health issues within the context of Sachigo Lake First Nation. Emphasising social context and program mechanisms in the research questions aligned the focus of the study with the participatory framework and complimentary principles of RE.

2.2 Reflexivity

Due to the highly contextual nature of this study and the sensitivity inherent in programs that address Indigenous health issues, it was necessary to reflect on the philosophy and perspective of the primary researcher. As the researcher, I believe my advocacy lens of community-specific health research is the product of an interdisciplinary education, as well as cross-cultural and multinational lived experiences. I feel that the natural world cannot be fully explained through empirical observation. Health and well-being represent complex and multi-dimensional concepts, which are greatly influenced by physical and social context. Stringent objectivity and scientific deduction are often not appropriate when seeking to understand contextual factors and quality of life. In order to understand social context and examine the effectiveness of program mechanisms within that context, I believe it is necessary to facilitate the introspection of the people that live within it, and express their voice in the explanation.

The facilitation of an emergency response training program evaluation also drew upon my vocational experience as a forest firefighter[3]. As a firefighter, I have received training in first aid and emergency response, as well as led multiple training sessions for fire-response crews and participated in search and rescue incidents. This experience has fostered an appreciation for first aid training, and an understanding of the value it can have when dealing with an emergency. Having participated in multiple Canadian Red Cross first aid courses, as well as having participated and led many first aid simulations and exercises, enabled me to recognize novel features in the pedagogy of the SLWEREI course, and facilitate discussions with participants. This vocational experience, along with being embedded and engaged in the program development, facilitated an insider perspective of the SLWEREI (Patton, 2002).

Conversely, as a non-Indigenous person entering a First Nations community for one week during the main data collection period, I was restricted to an outsider perspective of the local context. The limited span of time in the community did not adequately enable me to *feel* what it was like to be a part of the community and context. However, there was inherent value in my outsider perspective with respect to the community. I was in a position to be receptive towards patterns and relationships that may not have been obvious to those immersed in the local context. My goal as the researcher was to be balanced and fair through empathic neutrality (the capacity to listen without judgement), and facilitate the introspection and inquiry of community members regarding their perception of course processes and its impact (Patton, 2002).

Many of the people who contributed to the development of the SLWEREI had multiple roles within the program and community. The course instructors were also research partners and

[3] Fire Crew Leader and Incident Commander with the Ontario Aviation, Forest Fire and Emergency Services.

learners themselves in solidifying their understanding of emergency medicine and adapting and developing their teaching ability. Many of the research partners from Sachigo Lake also had multiple overlapping roles within the program and local community (e.g. course participant and evaluator, Health Director, Health representative, teacher, Canadian Ranger, First Responder, and member of the Band Council). Furthermore, the university researchers facilitating the evaluation also assisted in course simulations and participated in various aspects of the courses. Everyone had something to learn from one another, and learning was enhanced through frequent introspection and critical appraisal of personal abilities. Muting the distinction between those being studied and those doing the studying, has ultimately enabled the formation of a mutually reinforcing relationship that integrated the researchers' theoretical and methodological expertise, with community members' real-world knowledge and experiences, and medical personnel's expertise (Cargo & Mercer, 2008).

The blurred distinctions between individuals doing the research and those being researched required disclosure and reflection on the interwoven relationships among researchers and research partners. The joint primary investigators were involved in developing the curriculum, instructing the courses, and were members of my supervisory committee, along with the research coordinator. This presented a complex challenge of conducting research on individuals who were supervising the research process. This required openness, transparency, and adherence to the methodological framework in allowing research partners to lead the discovery process. Reflexivity was utilized as a method for the personal development of everyone involved the program. These overlapping roles and blurred distinctions among the people involved in the

SLWEREI were by-products of the horizontal knowledge transfer that is central to the CBPR approach.

Objectivity in a qualitative program review such as this was not possible given that, as the primary researcher, I was embedded within the program and was the main tool for data collection and analysis. Thus, it was essential to be introspective and open during the research process. A bracketing interview was conducted with the research coordinator prior to travelling to Sachigo Lake (Creswell, 2007). The purpose of the interview was to explore the interplay of my personal and professional experiences as they may interface with data collection and analysis. The focus of the interview was to explore my spiritual beliefs, worldview, and past experiences in education and work, with the aim of generating a greater awareness of my personal views, and how those views may carry over into interviews and interpretation. In addition to the bracketing interview, I reflected on daily experiences in a journal throughout the primary data collection period. In this way initial interpretations of daily activities could be recoded and challenged throughout the data collection and analysis period. Reflexive journaling helped ensure that my daily perceptions were collected concurrently with research data. This enabled a more reflexive analysis process since both data sets were documented and available long after the immersive experience ended. This also facilitated personal growth in my research abilities through critical appraisal of the research process and daily reflection on how it could be improved.

2.3 Ethics

The researchers in this study adhered to the ethical conduct for research involving humans as outlined by the Tri-Council Policy Statement, particularly chapter nine on research involving

First Nations, Inuit, and Métis peoples of Canada (2010). Researchers involved in this study have completed the Tri-Council Policy Statement Introductory Tutorial. Researchers were also guided by the principles of ownership, control, access, and possession (OCAP), which are themes long advocated by First Nations groups in Canada (Schnarch, 2004). The community members of Sachigo Lake First Nation involved in this study retained ownership over the perceptions and stories that were presented as data during the evaluation process. The researchers acted as stewards of this data; however, the Sachigo Lake community retained ultimate control of how the data was used. Furthermore, all results and knowledge generated from the study have been shared with the community first in a form that was appropriate and acceptable to the community members. A collaborative research agreement was developed with the community of Sachigo Lake (see Appendix A), and the study was supported by Sachigo Lake Chief and Council; the Nishnawbe Aski Nation; and the Sioux Lookout First Nations Health Authority. The program received ethical approval from the Lakehead University and Laurentian University Research Ethics Boards.

The SLWEREI course began with a multi-media informed consent process and discussion. This discussion involved plain-language consent texts and a PowerPoint presentation outlining essential aspects of the program and research. This process was documented through a signed and witnessed acknowledgement that the participants of the course understood and accepted the research process. It was fully explained that participation in the research aspect of the program was voluntary, and that participants could opt out of any interview without repercussion to their standing in the course or the community. All community members not directly involved in the course, who participated in interviews, also completed a written consent form and had the

consent process described by a researcher. Appendices B and C contain samples of these consent forms. During the consent process, there was discussion related to ensuring proper storage and handling of the qualitative data generated, ensuring that the information collected remained confidential, and whether or not the participants would be willing to be contacted in the future for follow-up interviews. All participants consented to the use of audio, video, and image recording devices.

2.4 Population and Sample

This study focused on people that have a vested interest in the health and well-being of Sachigo Lake First Nation. According to the 2006 census, Sachigo Lake First Nation is home to 450 people (230 males and 220 females), and the median age is 19.6 years (Aboriginal Affairs and Northern Development Canada, 2011). The community Health Director had a leadership role in selecting course participants. Participants were selected from target groups that were more likely to be involved in first aid situations, as well as community members who resided at dispersed locations throughout the area to create a network of responders in the community. Community members were also invited to participate in the course via posters placed at the local Northern store, nursing station, and band office. Other methods of recruitment included radio broadcasts from the local radio station, word of mouth or referral, and by direct personal invitation from the Health Director. The course was offered at no cost to members of the community.

CBPR recognizes community as a unit of identity, and does not strictly refer to a community in the traditional sense of a town or city; rather, a shared set of values, interests, and a sense of connection to other members of a group of people (Israel et al., 2008). The community that

formed the basis of this study included the course instructors, course participants, as well as people external to the course such as a local Elder, nurses, and police officers. The involvement of people from both inside and outside Sachigo Lake First Nation were essential to enhance the understanding of the program-community integration. The course instructors were included because they possessed the medical knowledge and pedagogical experience necessary to develop and implement the course, as well as insight regarding program dynamics. Local residents external to the course were also included in order to fully understand the health issues among people in the area, and the impact of the program within the local context. Thus, the population that formed the basis of this community-based study was not limited to Sachigo Lake First Nation, but rather all the people who were devoted to the improvement of health in the area. The term community, however, will henceforth only refer to the members of Sachigo Lake First Nation.

Participants of the second SLWEREI course, course instructors, and members of the community who had insight into local health issues were invited to become research partners in the evaluation of the course. In total, there were two university researchers and 22 research partners involved in this study (see Table 3). The sampling technique used in this study was purposive (Patton, 2002), consisting of course participants, course instructors, as well as a second sample of community members external to the course. Twelve community members attended the course in May 2012, and 10 completed the full five days of training. These 12 participants had a relatively wide age range (age was not gathered, however, participants ranged from young adult to senior) and had various roles in the community. Five members of the community who were particularly

knowledgeable about health issues in the community were also invited to participate in the evaluation as research partners along with the five instructors and course participants.

Table 3. Research partners.

Sample	# Males	# Females	Roles*
Course participants (n=12)	6	6	Band staff (3), teacher (2), First Responder (3), Canadian Ranger (3), layperson (2)
Course instructors (n=5)	4	1	Physician (2), medical resident (1), medical student (1), paramedic (1)
Community members external to course (n=5)	2	3	Registered nurse (2), Nishnawbe-Aski Police Service officer (2), Elder (1)
Total: 22	12	10	

* some research partners had multiple roles within the community

The participants of the second SLWEREI course had varied experience with first aid and emergency response prior to taking the course. Some participants had received no previous training, whereas participants from groups such as the Canadian Rangers and First Responders received basic training as part of their role within the community. The Canadian Rangers are a sub-component of the Canadian Armed Forces Reserve, and train biannually in basic first aid as well as search and rescue techniques. The First Responders are a local volunteer group that receive annual basic first aid training from the Ministry of Health and Long-Term Care. The First Response group from Sachigo Lake is one of only a few active First Response Teams in the Nishnawbe Aski Nation. Three course participants were Canadian Rangers, and three were First Responders. Furthermore, three participants of the course had also participated in the first SLWEREI course (Phase II of the program).

2.5 Primary Data Collection

The primary data collection period for this study was 5-12 May 2012, during the implementation of the second SLWEREI course (Phase IV of the program). This evaluation is one component of the overall evaluation of the program, and was thus informed by the previous evaluation conducted during the early phases of the program (Born et al., 2012). The formative evaluation of the five-day course involved six data collection techniques, which are summarized in Table 4. The main form of data utilized was verbatim quotations from interviews and focus groups with research partners. The primary data was supported by supplementary data in the form of observations, course documents, photographs, and videos. Primary data was collected through multiple techniques including small focus group interviews, large focus group interviews, individual interviews, and a concluding survey. The instructors and researchers arrived in the community during the afternoon of 5 May 2012; the five-day course was conducted 7-11 May 2012. The course instructors and researchers departed the community on 12 May 2012.

Table 4. Summary of data collection procedures.

Data Collection Technique	Type of Data	Sample Size	Purposive Sampling Technique	Data Collection Period
Small Focus Group	• Verbatim quotations	• Rotating groups of 5-6 course participants (total of n=12)	• Convenience sampling of all course participants	• 7, 8, and 10 May 2012
Large Focus Group	• Verbatim quotations	• n=11 course participants	• Convenience sampling of all course participants	• 9 and 11 May 2012
Individual Interview	• Verbatim quotations	• n= 7 course participants • n=5 community members external to the course • n=5 course instructors	• Intensity sampling of information rich course participants • Critical case sampling of health care professionals, community Elders, and course instructors	• 6-12 May 2012 • Feb.-April 2013
Concluding Survey	• Verbatim quotations	• n=9 course participants	• Convenience sampling of all course participants	• 11 May 2012
Observational Analysis	• Descriptions of activities, behaviours, and actions • Verbatim quotations recorded during course processes • Video and photographs as supplemental data	• All interactions and activities during Phase IV of the program	• Convenience sampling of all course processes and interactions	• 7-11 May 2012
Document Review	• Course curriculum as supplemental data • Recorded notes and focus group interviews from Phase II course	• All curriculum material from Phases II and IV of the program • Notes recorded during Phase II of the program	• Analysis of available documents	• May 2012

The initial period of time from the arrival in Sachigo Lake to the beginning of the course was used primarily for meetings with the course instructors and researchers (5-6 May 2012). The meetings represented one of the first instances the instructors and researchers were able to meet in-person. Having an interdisciplinary program team dispersed across Canada required extensive use of telephone and Internet to facilitate programmatic planning. Upon arrival in Sachigo Lake,

instructors and researchers were able to meet and finalize the lesson and research plan for the beginning of the course. In addition to meeting, instructors and researchers also made a concerted effort to walk throughout the community and interact with community members. This allowed people to get to know the instructors and researchers, and allowed the new members of the SLWEREI team (three of the five instructors and both researchers) to familiarize themselves with the area. This provided a further opportunity to raise awareness about the program beyond previous advertising of the free course. This also enabled people to ask questions they may have had about the program and personnel involved.

Interviews with community members were conducted throughout the 6-11 May 2012 period in Sachigo Lake. The interview process was flexible and allowed community members to discuss experiences and perceptions that were not included in the line of questioning, thus permitting them to lead the inquiry process. Interviews were conversational in nature and evolved throughout the week based on insights from community members, however, they loosely followed the semi-structured interview guide shown in Appendix D. Consistent with the CBPR framework, interviews retained emergent design flexibility through adapting the questions and techniques in response to the interviewees' comments as the study progressed. The laddering technique from means-end theory was used as a probe during interviews to elucidate participants underlying emotional and attitudinal responses to course processes. This technique also aligned with the principles of RE, which informed this evaluation, through uncovering mechanisms of change within the community and personal interpretations of contextual factors. Interviews were conducted in a setting and time of the participants' preference. The interview settings included private residences, offices, as well as along roadways and in yards. The involvement of two

researchers permitted interviews to be conducted with research partners external to the course while the course was underway. This ensured that all course processes could continue without interruption. In total, 12 interviews were conducted with 11 individuals (three research partners were interviewed twice, and two interviews were conducted with two interviewees) who were knowledgeable about the health of the community and program outcomes, during the primary data collection period.

Small focus group interviews were conducted with course participants on three of the five days the course was running (7,8, and 10 May 2012). These small focus groups were conducted during skill-building portions of the course, at which time the participants were split into two groups (four to six individuals in each group) with one group conducting simulation and problem-based learning, and the other group conducting the research focus group. During the small focus groups, course participants were encouraged to participate as research partners in the evaluation and development of the course. The focus group consisted of participants and researchers taking turns sharing thoughts and perceptions before rotating with the skill-building group. Although participation was encouraged, course participants were able to opt out of this station without missing any course-related material, and they were also given the option of 'passing' when it came time to share thoughts. In total, six small focus groups were conducted during the five-day course.

The goal of the focus groups conducted on the first day of the course (7 May 2012) was to build relationships between researchers and course participants. The objective of the initial focus groups was to introduce the researchers, discuss the purpose of the research aspect of the

program, answer any questions the participants had, as well as for the course participants to share what role they had in the community and what they expect from the course. The purpose of the remaining focus groups was to reflect on the course content, relating it to the course participants' past first aid experiences, and address any component of the content and delivery of the course that they liked or disliked. Small focus groups followed the semi-structured Small Group Interview Guide in Appendix E. Laddering was used as a probing technique during interviews in order to elucidate personal emotional and attitudinal responses with respect to various aspects of the course delivery and curriculum.

Two large focus groups were conducted with all course participants on 9 and 11 May 2012. The aim of the first large focus group was for the course participants to reflect on the features that make an educational program positive or negative. For this brainstorming exercise, the course participants were asked to recall what they liked and disliked from any courses they had taken in the past (e.g. other first aid programs, job training, school, etc.). Ideas were written on flip charts and discussed as a group. The purpose of this exercise was to have the course participants think of a perfect-world and worst-case scenario in order to generate community-led perspective and criteria for their critical evaluation of the course. The aim of the second large focus group near the end of the course was for the group to reflect on the strengths and weaknesses of the program as a whole, and discuss how it affected them and the entire community. All course participants were encouraged to participate in the focus groups in order to obtain an accurate assessment of how the program did or did not meet the local needs of the community. The second large focus group followed the semi-structured Large Group Interview Guide in Appendix F.

A concluding survey was developed collaboratively with course participants and administered after the final large focus group. During earlier interviews, course participants had suggested that a survey would be a valuable addition to interviews to gather individual perceptions of the course. Participants of the course designed the length and scope of the survey, and felt that it would provide people with a means to provide input anonymously on issues that they did not feel comfortable speaking about in front of researchers and other community members. The survey consisted of four general questions with space for course participants to fill-in responses (see Appendix G). Nine course participants completed the voluntary survey.

Observational notes were taken throughout the time in Sachigo Lake First Nation. The researchers from outside the community acted as both spectator and participant observers in the course, and recorded field note descriptions of interpersonal interactions and program processes (Patton, 2002). Observational data was recorded in a field notebook according to a protocol adapted from Creswell (2009): descriptive notes (participants, dialogue, physical setting, and particular events or activities) and reflective notes (the researchers' personal thoughts) separated by a line, along with corresponding demographic information (time, place, and date of the field setting where the observation took place). The goal of acting as participant observers in presentations and scenarios was to further mute the distinction between the researchers and the research partners participating in the course. Some course activities were also videotaped, photographed, and audio recorded for further analysis after the course was complete, in addition to observational notes taken in real-time. The video and photo data were used as supplementary supportive information to the quotations gathered during interviews. This enabled supportive visual data to be presented along with the themes generated from the analysis. The visual data

was also used during the course as part of video debriefings of course simulations. The audio data provided reference material for researchers to ensure accurate observational notes were recorded.

A document review of all available program-related material was conducted. All written material related to the program was collected and reviewed to provide supplementary material for contextual analysis and for validating themes generated during interviews. The program-related material included curriculum from the first and second courses (Phase II and IV of the program), recorded notes and focus group interviews from the first course, as well as related reports and publications (Born et al., 2012; Orkin et al., 2012). The SLWEREI has incorporated a formative research component from the inception of the program, thus a researcher has always been a part of the team and has collected observational notes of course processes and focus group meetings. In order to achieve a full understanding of how the course developed and evolved to meet local needs, an examination of this material was essential. All curriculum and program material was collected by the conclusion of the course in May 2012.

2.6 Follow-Up Data Collection

Follow-up data collection occurred between February and April 2013. Follow-up data collection included phone interviews with course participants from Sachigo Lake, as well as with the course instructors from outside the community. Follow-up interviews were conducted over the phone with four course participants in February 2013. Interviewees were selected based on information-rich cases and willingness to participate. The purpose of the follow-up interviews was twofold: (a) member check emergent themes from the analysis, and (b) explore the impact of

the course nine months after it concluded. Participants were asked to reflect on any incidents that had occurred in the community since the course, and their perception of the impact the program had on themselves and the community. Laddering was utilized as a probe in an attempt to elucidate personal attributes that were influenced by the program.

Individual interviews were conducted via Skype with the five course instructors in April 2013. These interviewees were selected based on their involvement in the program and presence in the community during the course in May 2012. The purpose of the interviews with course instructors was to gather their perception of how the program developed to meet the local needs of the Sachigo Lake community, as well as how they perceived the program to have affected the community's ability to respond to emergency situations. Course instructors were also research partners in the evaluation, and were instrumental in encouraging the critical introspection of course participants, as well as informing the study regarding course pedagogy and overall program dynamics. The follow-up interviews with course instructors also served as member checks to assist in the analysis and provide validity for the themes generated.

2.7 Data Analysis

Data analysis was iterative and concurrent with data collection. Researchers utilized an inductive approach, in which interview and focus group questions were further developed and refined based on concurrent data analysis. Observational notes were initially coded as CC (material pertaining to a possible *curriculum change*) and PE (material pertaining to a *personal experience* or local health incident). This coding technique was important in order to facilitate review and discussion in meetings with instructors, which were conducted at the end of each day

of the course. Coding observational notes during the primary data collection period enabled researchers to provide feedback from community members to the course instructors for real-time program development. Any suggestions on how to improve the program, or perceptions of what was enjoyed or disliked by participants, was coded CC and reviewed with instructors to develop curriculum and refine teaching style. Participants' first-hand health experiences in the community were coded PE, and reviewed with the instructors to plan scenarios and simulations for the following day of the course.

The qualitative data, that was subsequently analyzed thematically, consisted of verbatim quotations from observational notes, responses to the concluding survey, and interview[4] transcripts.[5] Sections of course teaching segments, as well as meetings between researchers and course instructors, were also audio-recorded to serve as a resource for the researcher to review to ensure accurate notes were taken. These audio recordings[6] were omitted from transcription and further content analysis. The primary focus of these meetings was to discuss material that was collected in interviews, which were separately recorded and analyzed after the course was complete. In total, 67,549 words from 12 interviews and eight focus groups, along with the survey responses and notes were analyzed[7] to produce the preliminary results.

[4] Interviews were recorded with an Olympus WS-801 Digital Voice Recorder then edited using NCH WavePad Sound Editor Masters Edition V 5.13 software. Audio editing involved removing sections of silence, background noise, and unintelligible conversations, as well as altering pitch and playback speed to assist in transcription. In total, 8 hours and 41 minutes of edited audio files from primary data collection, and 2 hours and 12 minutes of audio files recorded during follow-up data collection were transcribed verbatim into Microsoft Word 2011.

[5] A professional transcription service was utilized for the audio files from individual interviews conducted during the primary data collection period. The primary researcher transcribed the audio files from focus groups as well as audio files from follow-up data collection.

[6] In total, 9 hours and 42 minutes of audio files were excluded.

[7] QSR NVIVO 10 software was used during the analysis.

Thematic analysis of the qualitative data was conducted in two phases: open coding and classification, and axial coding into themes (Creswell, 2009). The first phase involved analyzing the verbatim transcripts inductively using open coding. The information was read through multiple times until patterns and categories began to emerge, which were then assigned a label. These labels were then analyzed for convergence, in which patterns and categories were assessed for recurring regularities that fit together (Patton, 2002). The second phase of the analysis involved axial coding, in which the coding framework was assessed for divergence—emerging patterns between categories were illuminated by bridging between categories and extending known patterns to form themes. The over-arching relationships in the data that emerged through divergence were subsequently assessed for completeness. The research coordinator reviewed the preliminary results to assess face validity of the emerging themes, the general 'fit' of the categories in the data, and the inclusivity of the data within the themes.

Results were reviewed and supported during nine follow-up interviews with research partners, as well as during a community presentation in Sachigo Lake. These follow-up phone interviews functioned as reflexive member checks with the five course instructors and four of the course participants. These research partners participated in the analysis of the collected data following a short conversational interview related to their perception of program outcomes. The analysis process and preliminary themes were described and explained to research partners, who were then asked if the emerging themes appropriately reflected how the course met community needs. These research partners were also asked to reflect on the accuracy of preliminary themes related to how the course has affected the community's capacity to respond to emergency situations. These research partners provided input into: the validity of the themes; internal and external

plausibility (Patton, 2002); theme names; as well as how the themes should be presented to the community of Sachigo Lake and academic community. Once research partners and research facilitators were in agreement on the emerging themes, the preliminary results were brought to the community for review in February 2013. The function of the community review was twofold: (a) to present an opportunity for member checking and further analysis; and (b) to function as locally meaningful method for knowledge translation.

The review involved a community presentation that consisted of a plain-language PowerPoint presentation and discussion of the program and emerging themes from the evaluation. The presentation also contained pictures that were taken as supplementary data (based on input from community members), which enhanced the discussion of emergent themes. The goal of the presentation and discussion was to share and discuss what had been accomplished to date with the program, as well as to present knowledge gained from the evaluation, and to seek further input from the community. Community members that attended were presented with preliminary themes and relevant quotations from data analysis to discuss how accurately the themes matched the intended meaning. This aspect of the study also served to keep the community involved as research partners in all aspects of the research process. Following the presentation there was an open discussion among all attendees regarding the impact of the program on the community, and the direction the program should take in the future.

Based on feedback at the community presentation, a program video[8] was created that shared the findings in a meaningful way to a wider audience. The video provided an overview of the course

[8] The video was created using an adapted PowerPoint presentation from the community presentation with voice-over, recorded using QuickTime software.

and the knowledge gained. The video was created in collaboration with community research partners and the joint primary investigators, and then reviewed and approved by Sachigo Lake Chief and Council. The video has been left with research partners in Sachigo Lake and can also be viewed on the Internet at http://www.youtube.com/watch?v=8gtztn-BLxA&feature=em-upload_owner#action= share. The video presented an overview of the program, including who was involved, the curriculum that was developed with the community, as well as the themes that emerged from the evaluation. Themes were presented using representative quotations from research partners and pictures taken during the course. The knowledge translation strategy is described further in a subsequent section of this thesis (Chapter 4.4).

2.8 Research Rigour

The validation strategy utilized in this study was transformational. The transformational approach is considered to be a progressive process that leads toward social change through the process of the research itself (Cho & Trent, 2006). This approach depended upon the self-reflexivity of the researcher as well as multiple dimensions of inquiry. The purpose of the transformational validity approach used in this study was praxis/social change. A central theme of this approach was the collaborative relationship between the researchers and researched, which was consistent with the CBPR framework of the study. Validity in this approach was dependent on the extent to which the participants became partners in the research process.

Cho and Trent (2006) suggested three criteria that should be adopted in this approach: (a) reflexive member checks; (b) critical reflexivity of self; and (c) redefinition of the status quo. Reflexive member checks were performed in every interview and focus group discussion, as well

as during the final community presentation. These member checks involved collaborative, open-ended discussions of what was said, the research partners' intended meaning, and opportunities to clarify any uncertainties. The accuracy of preliminary findings was assessed through iterative collaboration with research partners. Critical reflexivity of self was utilized as a tool for personal development through openly expressing how personal subjectivity had been challenged and transformed throughout the collaborative process in the reflexive journal. Furthermore, research partners in the community were empowered through participation in the research, and they differentially perceived and impacted their environment by developing and evaluating the program, and thus redefined the status quo.

In addition to the validation strategies recommended by Cho and Trent (2006) for social change, triangulation of data sources and methods were undertaken. Triangulation of data sources was considered essential for data verification and validation (Auer & Andersson, 2001). Methodological triangulation was accomplished through combining various data collection procedures to answer the research questions, as well as using different types of purposive sampling techniques. Through utilizing a variety of data collection techniques in this study, the researchers were able to build on the strengths of each technique while minimizing the weakness of any single approach (Patton, 2002). Researchers also incorporated additional validity strategies recommended by Creswell (2009) such as: using rich descriptions to convey the findings; clarifying any potential bias; and having an auditor review the entire data set and analysis process.

Chapter 3: Results

The results are grouped into two categories based on the research questions that the community and joint primary investigators sought to answer. The first was related to how the development and delivery of the program met the needs of the community, and the second was related to programmatic outcomes regarding resilience and community capacity. Each quotation is representative of the theme described in each section and is marked with a reference code. The reference code refers to the day the quote was recorded (D 1-6 in Sachigo Lake for the second course in May 2012), the source of the quote (I—interview; SFG—small focus group; LFG—large focus group; O—observational notes; CS—concluding survey; FI—follow-up interview), and a number referring to the research partner (RP) who articulated it.

The community members that participated in the course were best suited to evaluate how the program met local needs. These people had intimate knowledge of the well-being of the community from living there, as well as first-hand experiences with past emergency situations. They also participated directly in the course and received training that they could relate directly to their local context. Given that the participants of the course were experts regarding the locally specific needs of the community and impact of the course, their voice is featured in the results. The themes and supportive quotations are presented in two broad sections according to how they addressed the research questions: (a) Meeting Local Needs; and (b) Program Outcomes.

3.1 Meeting Local Needs

The SLWEREI program received strong support from all research partners throughout the research process. Responses to a concluding survey indicated that all course participants felt that this program was better suited to the community than other first aid courses that had been delivered locally. This section of the findings describes themes related to *how* this program was able to meet community needs and appeal to the participants. The findings of this section are organized into three themes that emerged from the inductive analysis of the data: *community partnership*, *engaged learning*, and *realistic context*. Refer to Table 5 for a general overview of the results related to how the program met local needs. Participants' recommendations for improvement of the course that emerged during interviews are also presented. These recommendations were not considered themes, as they were not referenced to the same degree as the three themes that emerged, and were not shared among all research partners.

Table 5. Themes related to how the program met local needs.

Theme	Characteristics	Description
Community partnership	• Co-development and evaluation of course	• Enhanced interest and ownership
	• Enabled the course to be tailored to the community	• Content and delivery adapted in situ based on local preference
Engaged learning	• Adaptive pedagogy	• Attended to multiple learning modalities
	• Plain language curriculum supplemented with visual aids and relevant analogies	• Participants felt the material was explained in a way that was easy to understand
	• Passionate experienced instructors	• Flexible and inviting atmosphere was created
	• Frequent reflection periods	• Solidified material learned
Realistic context	• Language and treatment algorithms tailored to local context	• Course curriculum matched conditions of the community
	• Utilized locally available materials	• Skill-building exercises and simulations used material that was commonly available
	• Utilized the outdoor environment	• Simulated the environment where most incidents occurred
	• Created emotional fidelity	• Simulated involvement of loved ones and life-like staged scenes

Community partnership. The SLWEREI program was built with the community, for the community. The nature of the community partnership was a key feature in the success of the program. All respondents to the concluding survey reported that they enjoyed the course, and eight of the nine respondents indicated that they felt they were able to provide input into the course (one participant indicated that they chose not to provide input), which subsequently improved the program. Community members' experiences and preferences from focus groups and interviews were built into the program during nightly meetings with instructors. What was taught and how it was taught was based on what the community members wanted. Through this community partnership, participants were able to create a program that benefited themselves and

their community. There was also a perceived future benefit for partnerships involving other communities in the region.

Through community partnership, participants of the program took an interest in adapting the course to local needs and taking an active role in improving the health of their community, and other communities facing similar challenges. “I know it’s a lot of work to prepare it and all that, and I’m here trying to help with the program to be successful and I think we’ve done that to both the courses being taught” (D4; I3; RP9).

> The goal was to try and expand the knowledge of emergency response like when I found out the nurses are unable to run to the accident, it’s us that has to deal with that and the more we learn, the better responses there will be, the better results there will be with an incident. (D1; I2; RP9)

> Well you know, what you’re doing, you can take this course the way it was set up this way, take it to another community, but then you would have to be there to get them to change it to the way they want it. Yes. So you don’t have to do all that work again. Like I said, guinea pigs. If it benefits them. You would have to ask them because you know, different communities, different mind-sets. (D6; LFG; RP2)

The community members of Sachigo Lake had leadership in the community partnership. The instructors and researchers were guests in the community, and relied on community partners to facilitate transportation, accommodation, and participant recruitment. Community members commented on the importance of having adequate representation with respect to training in the community, and the importance of diversifying the people that received training.

> I don’t know if you noticed but I’m trying to get participants from all different directions in the community, from different organizations…. It’s not targeted to a specific group like we have three First Responders, three Rangers on this course and there’s a few community

> members and then there's local health staff that are involved in case something happens at the school. (D4; I3; RP9)
>
> I think that a program like this is good. Yeah. Because I think there's only certain people that can go into the Rangers right? And then only certain people would go for the First Response so if you get different other members of the community involved, I think that's good and that's the course. (D6; I1; RP13)

Community research partners were asked for their input throughout the course in order to improve how the program met both individual and community needs, as well as to increase local ownership of the program. Community partnership involved community members throughout the research and evaluation process, which resulted in a sense of ownership of the program that was developed to meet the needs of the local environment and context. "The fact that we were asked our opinions frequently along with our input ensures this [program is better suited to the community]. The course was based in our environment; this is what the improvement will be" (CS).

> But I'd like to hear how they see things. That will only give me more knowledge and more (pause) a wider view of how they see things, what should be done from a different perspective, not just my perspective. But I'd like to hear from the people that you don't hear from. I'd like to hear more what they have to say. (D3; SFG2; RP8)
>
> I mean, we want to learn things and we want to learn from the whole community. This is built on our community so to get that information to teach what we lack…. Somebody else may know about it and we want to bring all that together. (D4; I3; RP9)

Community partnership enabled simulations to be based on real-world events with curriculum that was relevant for the community. Community research partners shared stories of local health issues and past medical emergencies they had experienced in order to ensure that what was being

taught reflected what was relevant for the community. Community partnership in co-developing curriculum produced four curriculum-related categories that emerged related to health adversity experienced by community members: *lack of access to care*, *chronic health conditions*, *mental health conditions*, and *trauma*. Community partnership through co-creating simulations and tailoring curriculum enabled course development in situ during the delivery of the five-day training course. Thus, in addition to locally-relevant simulations, emphasis was placed on curriculum that addressed the concerns of community members such as cold-weather injuries, remote wilderness locations, patient transport methods, automated external defibrillator (AED) supported cardio pulmonary resuscitation (CPR)—all within a resource-limited environment.

Community members spoke about the challenges of living in a remote context, and having a course that prepares them for dealing with medical emergencies in a remote area. "Yeah, in the winter especially at least two or three times someone will possibly be stranded, broke down, or out of gas between here and Muskrat [Dam First Nation]" (D5; I1; RP17).

> Well, that's traditional. They have their hunting grounds, people have different hunting grounds. Like people have it on the left side, there's lakes on the left and there's some on the right. There are portages, there are dangerous scenarios, anything could happen. (D5; I3; RP10)

> Like if there's a boating accident, somebody got hurt falling off the boat, how do we treat that at the scene? Somebody having a heart attack, how do we treat the person? Do we wait for the medical professional to come in and treat it? We don't have that advantage in this area. So we need, from what I see we need to train ourselves to have this knowledge to perform these, to help people that need help. (D4; I3; RP9)

Community research partners also reflected on the challenges of finding assistance in the event of an emergency and accessing timely care. "People who are in the Rangers are often gone all

summer long and let's face it, that's when most of the accidents happen in the bush. Because that's when people are out hunting and trapping and what-not, fishing" (D2; I2; RP16).

> Yeah, I mean often times it can be even worse then that, if you can imagine being brought in on an ATV [all-terrain vehicle] from the middle of the bush that doesn't even have a road, albeit a holey road, you know the kinds of bangs and bumps and what not that occur for these people just to get here, let alone you know, anything else. And I've seen so often where people are brought in un-splinted with often limbs dangling loose and you know what the bumps are like, you know, there's an immense amount of post-injury damage that's being done just in the moving, like the getting them here. (D6; I1; RP16)

Participants of the course felt the AED supported CPR material of the course was particularly important in their remote context. "And it's very important I think, you know, to get the CPR. Wherever you are you can help somebody" (D5; I2; RP6). "Yeah but we need all of us to go through how to use them [AEDs]. No, I know how to use them but that would always make people more comfortable with using one of those things" (D6; LFG; RP2).

Based on feedback from participants of the first SLWEREI course, mental health material was also integrated into the curriculum. This module became a central feature of what the community requested to be included in this program. "Well, it's pretty good but the mental health side is probably a big one, signs and symptoms of suicide, unfortunately. There's quite a few, it comes up quite a bit" (D5; I1; RP12). The community members reflected on the importance of receiving mental health training in isolated northern communities in the region. "But that's what's all over northern Ontario, that's what they want eh? Because it's a suicide epidemic happening" (D5; SFG2; RP4). "What do you do if you find someone hanging? It's happened to lots of people I know" (D4; O; RP17). One participant later reflected that he had lost 10 friends to suicide. This single comment illustrates the compelling need to address mental

health issues in northern Ontario.

> Yeah, that's actually probably one of the more important things because I think a lot of people suffer from different forms of mental health issues, especially with substance abuse as far as that goes. Like a lot of people try and numb, numb the pain there with different substances. (D5; I1; RP17)

> We need mental health training. That's what we need. This is what all the communities need. If you look at the big picture, they're not going to go to, you know, communities members that are just going to talk, eh? Some other, they'll go to family or to a total stranger. That's the main difference there. I think that intervention or prevention would have to come from the community. Like even the Chief and Council themselves. Or even Health. You know. They could train their staff. The signs like that. Prevention I guess…. I think it has affected everyone at some point. (D5; SFG2; RP3)

> I think it's a dark issue to talk about it, especially in a tight-knit community like this. Oh, I feel, well, definitely it's hard to talk about but I think information like that is crucial and it could be used. Well, I know a lot of people have experienced a loss, a suicide. I've experienced it a few times; I've lost some friends... (D5; I3; RP10)

The mental health module of the course provided participants with additional resources to deal with crises within the community, and reduce stigmatizing attitudes. The material facilitated discussions among participants regarding a sensitive issue in the region, and how it can be addressed. The instructor and creator of the module, Dr. Baijayanta Mukhopadhyay (a Northern Ontario School of Medicine family practice resident), later reflected that although the module was very well received, more was needed in terms of primary care and prevention.

> …a lot of the feedback I got was how do I know if something bad is going to happen, like how do I prevent it, and that is really more of a preventative approach than an emergency response approach. That struck me as quite important…. For some people I'm sure it was exactly what they needed, but I don't think it answered everyone's questions. (FI 9; RP22)

Community partnership enhanced local ownership and pride in the program. Extensive community involvement in the formative evaluation ensured participant's concerns were addressed through selecting locally appropriate curriculum. The material taught in the second SLWEREI course overlapped with the categories of health adversity faced by community members of Sachigo Lake First Nation—lack of access to care, chronic health, mental health, and trauma. Community partnership also enabled teaching styles to be tailored to meet community needs.

Community partnership was facilitated through extensive collaboration and ensuring Sachigo Lake community members co-led the course development and research. Course instructors and researchers conducted daily meetings while in Sachigo Lake. During these meetings, researchers and instructors reflected on the events of the day, and discussed how the course could be further tailored to meet community needs. Researchers reviewed feedback from course participants (from interviews and observational notes) with the course instructors to ensure that participant feedback was addressed. This facilitated a discussion related to further developing course material and teaching style day-to-day throughout the course. Course curriculum was adapted daily and was added to participants' binders in the morning before the course began. Feedback from participants was also used to develop locally relevant scenarios based on incidents that occurred in the community. Examples of this scenario development included the incorporation of a fire-related incident as well as a simulated ATV accident on the first day of the course. These health issues emerged during interviews with community members the previous day (D2; O). In other words, community members influenced the course even before the course began.

Community partnership was also illustrated at the opening of the course, at which time a local Elder led the course participants through an opening prayer based on the request of a participant.

Course instructors also started each module of the course with questions of local health issues related to the module and potential ways of addressing such issues in the community using local resources. Course instructors reflected on the partnership involved in teaching the course and adapting the course to local preference.

> It wasn't sort of us going in with a first aid course and saying: "this is first aid, you should learn from us." It was sort of "this is what we know, this is what you know, how do we put it together." (FI 5; RP21)

> On this course, I really felt like we had open doors to the community and anybody could show up, and we were present and around during non-course hours, and we were, you know, exploring and welcoming and learning as much about the community as they were learning about us…. There really was a focus on hearing people's voices and about gaining feedback in the moment about whether they were happy with the direction the course was taking, or the knowledge was meeting their needs, or there was areas for improvements, or there were things they liked or they didn't like. (FI 8; RP20)

Course delivery drew upon local experiences and expertise in finding locally relevant ways of addressing health issues. Course instructors, participants and researchers were partners in finding the best practices in addressing local health issues through medical education and training.

Engaged learning. A feature of this course that seemed to set it apart from other emergency response training courses was that participants felt engaged throughout the learning process. The instructors utilized various learning modalities (visual, auditory, tactile, and simulation) within

the course pedagogy to create a format that was adaptive, flexible, and effective for the course participants. The course pedagogy was structured into in-class learning, hands-on skill-building exercises, and simulation-based problem solving. Participants reflected on the importance of hands-on skill-building exercises and simulations to reinforce what was introduced during in-class presentations and discussions. "The hands-on delivery of the course is what makes it successful. Hands-on scenarios make it seem real and is applicable to the community" (CS). "It is better for this community because of the outdoor and plays we do. I had a great time learning this way. And I feel that this is the best way to teach someone like me how to help others" (CS).

> Like if somebody is just talking to you, this is what you do and you don't get to practice. You ask is this the way. But when we do it, we're doing our best to try and do it the way we're taught. (D5; I2; RP6)

> If this was just all PowerPoint, I mentioned yesterday that I believe we have ADD. My mind goes somewhere else. I think the instructors help with that. I can concentrate on it. Like to complete a session with PowerPoint, we're doing it. It really helps with the hands-on; we actually want to try to resolve the situation…. Instead of just listening to it, I'd rather be hands-on. (D6; LFG; RP9)

Participants also reflected on past first aid training courses they had received in relation to the present course. "And I like this approach better. The other programs were just like in class and we didn't do any hands-on. So we don't really see what we are learning" (D6; LFG; RP1). "The course was different from other first aid courses and this was due to the numerous scenes that were set up to provide a hands-on approach" (CS). "The way the course ran, the class demonstrations and scenarios did a lot. Kept interest with the people that were there and also they learned more than they did with the first aid CPR training courses" (D1; I2; RP9). "I think this course is most beneficial, haven't seen any other course that I've participated in include

scenarios" (CS).

Course curriculum and teaching was tailored to remove technical medical jargon to enhance understanding for laypeople. "You touched on everything. Just make it simple and everyone will understand. You know. Sometimes people come to the community to teach and they use these big long words and we don't understand. Just make it simple" (D5; I2; RP6).

> Just being an informant in what it is that we need to see as First Nations. You could put it at learning. Not many of us are highly educated so like there's quite a bit of people here, even those first ones that took the course they're not really as educated to know more stuff that some people know. I mean like I went to high school, completed it and the other ones went to Grade 9, that's as far as the education went. The level of knowledge with emergency response that we have is basically the same I guess. (D1;I2; RP9)

Instructors also utilized visual aids and analogies to supplement what was being taught through presentations and discussions. When discussing a spinal injury and constructing an improvised litter, one instructor explained the alignment of a spine using a chain as a visual example to illustrate the importance of immobilizing the injured person. "That was perfect! I could see it" (D5; O; RP2). When describing the pumping action of the heart and circulatory system, an instructor made the analogy of oil in a vehicle engine (D3; O). When explaining how to properly wrap an injured person for transport in cold weather, an instructor explained the effect of layering insulation through an analogy of building a house—foundation as insulation, roof as vapour barrier (D5; O).

> The way they explain I guess. The first course had something to do with a language barrier that we didn't discuss that this time. Like with their knowledge from the first course. There is more structures to see in this course from the first course. This one was more flexible than the first one. (D6; LFG; RP9)

Relating course material to concepts understood among community members enabled knowledge to be translated in a meaningful way.

Participants were actively engaged in open discussion with passionate experienced instructors[9] in small groups. Participants were taught by an extremely experienced group of medical experts that included three medical doctors, a paramedic, and a medical student. Participants valued this level of medical expertise and knowledge among the instructors. The level of experience among instructors was very rare for an emergency-response training program. The instructors and researchers were able to create an inviting atmosphere in which participants felt comfortable to provide input and ask questions. "You guys do a pretty good job making sure we don't drift off by asking us questions while you're talking" (D3; SFG1; RP2).

> It was more constructive. Like for us. They quickly pointed out if I was going in the wrong direction at first. And knowing that there are more people watching us, we have to learn. It's better. All these people here have a lot of experience; you get a lot more answers and questions. Normally we just have one instructor that comes in and two or three days. How much can you find out from her in two or three days. One person. So knowing that all these people here with all their knowledge are here for five days with us. Of course it's going to benefit us. (D6; LFG; RP2)

> You know, we think of, some of us think of you as resources that we could actually get a lot of information from, yeah, okay. Yeah, yeah. Knowing that these people have a background, extensive background on first aid was great. (D4; I1; RP2)

> So far, so good. I just like the way it's delivered. I don't know, these people know how to teach. Yeah, they seem to know quite a bit of stuff that they're talking about, yeah. Like I'm confident that they are teaching me the right stuff, yeah. It's just I don't feel intimidated here, you know. (D4; I1; RP2)

[9] Instructors were also architects of the curriculum. Refer to Chapter 2.2 Reflexivity for more on the overlapping roles of the people involved in the program.

There were also frequent reflection periods to discuss and solidify what was learned. "It's good to have a group that you can kind of put more information in. And kind of recap the whole situation" (D3; SFG2; RP10). Participants and instructors engaged in discussion periods at the beginning and conclusion of each day of the course to summarize what was covered and to clarify any uncertainties. "Yes I think this course is better, more being said and I understood more. Like I see more than just sitting and listen[ing]" (CS). After the first few days of the course, this routine became accepted and expected as an important part of the course delivery model. "I like the big group here, there [are] more questions, more answers…" (D3; SFG2; RP10). Participants felt that they gained a higher level of understanding through their active involvement in the course. Hands-on exercises enabled participants to practice what they learned, and frequent debriefings and review periods helped to solidify the knowledge. Participants were engaged using a mixture of multimedia presentations, hands-on demonstrations, open discussion with instructors, and reflection periods.

An example of the engaging learning method utilized in the course was the group simulation conducted on the third day of the course (D4; O). Course participants were asked to respond to a simulated emergency after completing in-class presentations and discussions related to musculoskeletal injuries and AED supported CPR. When course participants arrived at the edge of the community, they found what appeared to be an ATV that was struck by a truck. Course instructors utilized props and make-up to simulate injuries among multiple casualties. Participants responded as a team and fashioned improvised splints and stretchers using tree limbs to stabilize the injured persons. While participants were responding to the simulation, another

course instructor video-recorded the exercise and asked participants to reflect on what their concerns were and how they could address the situation.

Upon completion of the simulation, the participants and instructors returned to the classroom to review the video. During the video-debrief, instructors would pause the video and discuss the strengths and strategies to improve on how the participants responded. Participants felt the interactive video debriefings were a valuable learning resource; however, there was mixed perceptions about being on camera. "I don't like seeing myself. I know some people didn't like seeing themselves. I think it would be good for mistakes, like what she said. So you can re-cap everything" (D5; SFG2; RP10). Video debriefings of simulations provided a valuable tool for participants to see how they handled the situation and developed their capabilities, however, this teaching method required substantial trust and comfort on the part of participants with the instructors. Therefore, it would likely not be as successful in courses where there was less trust due to less time devoted to relationship development.

Realistic context. Another feature of the program that set it apart from conventional emergency response training programs was that it was realistic and context-driven. Research partners wanted the course to match the environment in which the participants lived, and match the emergency situations they faced. Conventional emergency response programs are often designed for urban residents and they do not apply to the local conditions of remote northern Ontario (Orkin, 2013). Conventional first aid training courses are based on the assumption that an emergency response system can be deployed through 911. Therefore, first aiders are trained to

follow a treatment algorithm for a short duration until paramedics arrive. Sachigo Lake has neither 911 nor paramedical services.

Wilderness medicine courses are based on the remote wilderness context; however, the underlying assumptions are still not applicable for residents of remote settings. Wilderness medicine courses have language and treatment curriculum based upon evacuating someone back to a safe environment—a notion that is not appropriate for someone that lives in the remote setting. The architects of the program curriculum (Dr. Aaron Orkin, Dr. David VanderBurgh, Dr. Sarah Strickland, Michael Webster, Dr. Baijayanta Mukhopadhyay, and Rachel Jamieson) modified and adapted wilderness medicine and first aid curriculum to the northern and remote context of living in Sachigo Lake. These architects of the curriculum took a *community first aid* approach through adapting the language and underlying assumptions of the curriculum to the local context, and emphasising the involvement of loved ones when responding to emergency events.

In addition to utilizing language that was appropriate for people who were responding to friends and family in distress (with no professional emergency medical assistance available), treatment algorithms were also adapted to reflect the local context based on available evidence. A comparison of conventional basic life support algorithms with adapted material from the SLWEREI course is shown Figure 3. In the context of Sachigo Lake, a person following the 2010 American Heart Association basic life support algorithm would first be met with the instructions “activate emergency response,” followed by a perpetual cycle of CPR in anticipation for emergency responders to arrive. However, Sachigo Lake has neither 911 services nor

professional emergency medical services. The basic life support algorithm utilized in the 2012 SLWEREI course simplified the process through eliminating medical jargon, as well as stipulating that CPR efforts should cease after 30 minutes has elapsed with no pulse.

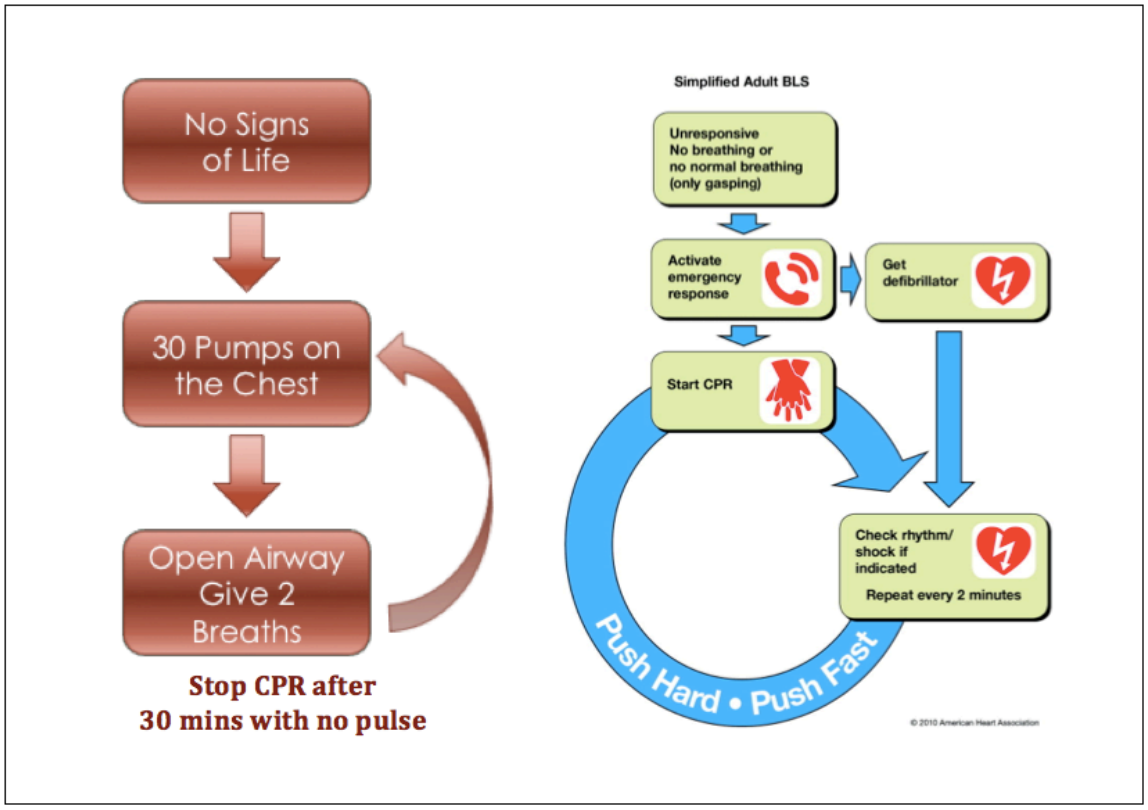

Figure 3. 2012 SLWEREI and 2010 American Heart Association basic life support algorithms.

The theme of realistic context also reflected the utilization of locally available materials in a regional environmental that included rugged topography, frequent backcountry travel expeditions, and alternative modes of transportation such as snowmobiles and all terrain vehicles. "Well yeah, there's a lot of boats around here, a lot of ATVs you know, anything could happen" (D3; SFG2; RP10). "Yes [this course is better for the community than other courses] because this course was made for our environment." (CS)

> Let's use what's in our vehicles. That way it's more realistic. Then maybe later we'll select a vehicle that's like a medical van. We can't send that one because we don't have an

> ambulance—a vehicle that has a defibrillator and that, proper supplies. But in the meantime, what we have in the vehicles, we'll do it with whatever we have on us. What's around in the environment. Because we don't always have these things piled up. (D5; SFG1; RP9)

> With the CPR training we get, we get these packages that we're given to train them right? With this course that we have, we don't have like I was saying when we were riding, we don't have the packages available when an incident happens. What you get from the environment is what we use and that's what we learn with this course, ropes, tarps, they're our tools, we don't have sleeping bags available, straps and all that to put them in a stretcher to bring an individual in. All we have during the winter is sleds, tarps, rope to keep the victim immobilized. As to what an ambulance carries, they have a stretcher, straps and that, sleeping bags or blankets to immobilize the patient; there's a big difference. (D1; I2; RP9)

Another feature of matching realistic course conditions to the local context was utilizing the outdoor environment for skill-building exercises, emergency simulations, as well as during debriefings. The outdoor environment was utilized to simulate the location where many local incidents occur, and this enabled participants to practice improvising with material from the forest. "I like these scenarios outside; it actually makes you remember more. Ok. Almost all our accidents here in Sachigo Lake occur outside, so we're better suited off doing this outside" (D3; SFG1; RP2).

> But just in case one day it may happen. Like sometimes in the wintertime young people take off on Ski-Doos on cold days and sometimes the Ski-Doo breaks along the way, you know, out of the community…. How to use the stuff from the bush, you know. (D1; I1; RP14)

Utilizing the outdoor environment addressed the health concerns of community members related to being injured in a remote location, and past emergencies that have occurred.

Matching the learning context to the conditions community members would likely see in a real

emergency also created emotional fidelity—a sense of panic that occurred in the simulation that prepared people for the emotional hardships of a real emergency. There are no strangers in Sachigo Lake; everyone in the community knows everyone else. Many first aid programs make the implication during scenarios that the victim is a stranger found laying on the street. In Sachigo Lake, the victim would likely be a friend or family member. Creating this emotional fidelity also involved having people simulate emergencies among family members and loved ones. There was also an emphasis placed on using make-up, imitation blood, and staged scenes that made the learning environment more life-like. "In the scenario when you're doing it. Like what she said. You're kind of panicked even though you're just faking it.... I don't think it could get any better. The setting was just right, where it could happen" (D5; SFG1; RP9). "Like today in our simulation, I froze. Like, I literally froze. I forgot everything and it took me a couple minutes to get into it again" (D5; I3; RP10). "The hands-on and simulations gets you to act out and actually have the feelings of panic and thinking of how to approach the situation" (CS). "Yes, more realistic. Something that I'll be able to remember compared to in-class instructions" (CS).

> All the scenarios give an insight to something. I mean, on the other hand too, you got to try and remember, when you're, when you're dealing with (pause) the some of these scenarios, its not only that person sometimes. When when when families come onto the scene (pause) that's, that's another one. So I mean, it kind of gives you an insight to a lot of the kind of things that can happen around these scenarios. Sometimes it might be yourself that's working on the scene, you don't know. But if these things happen, you got to try and keep that in mind. (D5; SFG1; RP8)

> Yeah, but then when you actually see the blood, when you actually see the body, it's like oh. I've had enough. And it's very different if it's a total stranger or your relative or your neighbour that's lying there banged up and broken. That is a huge, it's a huge thing. (D6; I1; RP13)

Participants of the course highlighted a course context that reflected the local environment and circumstances in remote northwestern Ontario. Scenarios were tailored to include locally available material, the outdoor environment, and emotional fidelity.

Participants' recommendations for improvement. The SLWEREI met community needs through creating a course with community members that emphasized community partnership, engaged learning, and realistic context; however, this does not imply that there were no areas of potential improvement. The second SLWEREI course received strong support from all research partners, yet there were negative aspects that emerged during the research process. An overview of the areas of improvement that emerged is shown in Table 6.

Table 6. Participants' recommendations for improvement.

Area of Improvement	Description
• Varied experience among participants	• Some participants would have benefitted from more complex training
• English only	• Some community members spoke Oji-Cree
• No certification	• Some participants wanted certification
• No traditional medicine	• Some participants wanted traditional practices incorporated despite it being counter to the aim of the program and the agreement with Band Council
• Collaboration on curriculum limited to themes	• Some participants wanted memory aids that were counter to the teaching principles of the instructors
• Sustainability	• No plan for sustainability within the community

The participants of the course had a varied level of first aid skills and knowledge before taking the course. Participants from community groups such as the Canadian Rangers and First Responders received limited first aid training annually through the Canadian Armed Forces and Ministry of Health and Long-Term Care, whereas other participants of the course had no

previous first aid training. Some participants of the course would have thus benefitted from a higher level of complexity in scenarios and skill-building exercises. "But like different scenarios, more severe, a lot harder" (D6; LFG; RP4). The challenge for instructors was to find an appropriate level of complexity that suited the majority of participants and progressively develop skills through increasingly difficult simulations. Simulations conducted throughout the five-day course did increase in complexity, however, the skill set of some participants could have been challenged and developed further. Future capacity-building initiatives may benefit from having a stepwise approach through increasing the complexity in successive courses.

Residents of Sachigo Lake and surrounding communities also have varied comprehension of the English language, with some people speaking Oji-Cree as their first language. One course participant offered to collaborate as a translator for future initiatives during the community presentation. Despite the course only being offered in English, there did not appear to be a language barrier that prevented understanding among course participants in the May 2012 course. All participants seemed to have a strong understanding of the English language. It was not clear if the lack of Oji-Cree instruction prevented some community members from expressing interest in joining the course and participating in the formative evaluation.

The course was concluded with a community dinner and presentation of a certificate to each participant that completed the course. Course instructors and community leaders collaborated on the format of the concluding ceremony. Some participants of the SLWEREI courses indicated a desire for the training to include certification. The participants were not certified in completing a conventional first aid program, since the course material was adapted from other medical training

programs and created based on available evidence. "Well, I was actually hoping to get a valid CPR certification last year when I took it" (D5; I1; RP12). "It's the first time I've ever taken it. I thought about it a few times because I know it comes up like when you're taking like a job application" (D5; I3; RP10). One of the instructors later reflected that although the students were not able to receive certification without challenging the certification test of established courses, the material taught and skills gained were not of a lower quality, and that certification and testing are not the best representation of knowledge gained.

> In my opinion, I don't believe that every first aid course should end in a test. I really, truly think that it should be a progression of evaluation, and it should be based on practical assessments. The students should have plenty of opportunities to show that they can think critically and that they can provide treatments based on what they have learned from the course. And I think that, even though we weren't going to certify our students, as somebody that has taught many courses, there is not one person on our course that wouldn't have met the requirements to receive a certificate. (FI 8; RP20)

The format of the course was meant to be sensitive towards differences in culture, rather than be culturally appropriate through adopting specific elements of the local culture into the curriculum. Community leaders expressed a desire for the program to avoid teaching what might be considered traditional medicine. The joint primary investigators of the program strove to be sensitive towards diverse ideologies of health and traditional practices, while being clear on their expertise, as was requested from the Band Council upon program inception.

> I have said from the outset, and been very clear, is we're Western medical people, we live in that world, we are happy to share our expertise in that field, but we are not experts in Aboriginal ways of knowing, and we are not experts in Aboriginal culture, and for us to try to pretend that we are, I think, is disingenuous and more problematic. That's our opinion...

> I think we have been explicit with folks about that and, from my understanding, people have been happy with that and feel that is a more authentic way for us to behave. (FI 6; RP19)

The program was intended to complement local practices in bringing in medical expertise from outside the community to build on local knowledge, rather than replace or assimilate traditional concepts of healthcare.

> There's been a couple situations in the courses where my medical opinion differs with the traditional knowledge…. Our approach was to say "I don't know much about that." I think that there is value in traditional knowledge beyond what I know. And I don't think my role there is to say what you're doing is wrong. (FI 6; RP19)

When traditional concepts emerged from participants, course instructors would admit a lack of understanding and would refer to local Elders for more information. Program curriculum was meant to increase the available resources and avenues of handling an emergency situation. Local Elders in the community do teach traditional healing practices to community members. "…sometimes we have that Elder's workshop here and we talk about the traditional medicines…" (D1; I1; RP14). However, some course participants expressed a desire for the SLWEREI to also cover traditional practices, through partnering with a local Elder to teach traditional material. "I'd like an Elder to teach in it. Because we don't know what to do with the (pause) when they put on their traditional medicines from the bush. There should be one in this course" (D6; LFG; RP5). Despite requests from course participants, it was important for the program to complement, rather than combine, traditional practices and honour the request of community leaders, in the spirit of building trust and rapport.

Collaboration on what material should be covered was aimed at themes and health issues, rather than specific curriculum. The goal was to balance the expertise of the community members and

the medical instructors. Community members provided expertise on what was locally available and feasible in the remote context of northwestern Ontario, and medical experts provided their insight on issues that community members deemed relevant. One instructor reflected on the tension that emerged from altering evidence-based life-saving curriculum.

> There's two tensions, the one is what do you teach and [the second is] how do you teach…. We decided that we were going to teach content that we were asked to teach, while remaining firm on saying: "here are some things that if you want us to teach a life-saving first response course, these are non-negotiable." (FI 7; RP18)

Instructors aimed to have participants think critically in emergency situations and teach principles rather than specific content. Two participants expressed a desire for the creation of a guidebook regarding improvisation strategies on how to create inaccessible medical equipment using locally available materials. "Maybe we need to develop a manual so we can remember what we learned…. How to improvise without these medical supplies…" (D1; I2; RP9). However, course instructors cautioned against such an approach, as it may become a 'crutch' in an emergency situation, and focused their teaching on fostering the critical thinking ability to deliver excellence in care regardless of the material available. An instructor later reflected on the importance of knowing the function of a litter in moving an injured person, rather than knowing specifically how a litter can be made.

> We want people to learn principles, so we've tried to teach that the packaging needs to be comfortable, complete, and compact. We've taught them that complete means that it stabilizes the person and it keeps them in a position of comfort. (FI 7; RP18)

In this sense, collaboration with community members regarding the content of the course was focused towards finding locally relevant topics and teaching in a locally meaningful way, rather than altering established best practices in medical treatments.

Participants wanted the course to be repeated in the community. "When are you guys coming back again?" (D6; LFG; RP4). The SLWEREI course was effective in meeting the short-term needs of the Sachigo Lake community based on positive feedback from research partners; however, it was not certain how long-term needs were to be met regarding the sustainability and longevity of the program.

> The afterwards part there. All I can say is continue the role of what took place, the training and bringing it to the community…. This is something that the community learned and used and to redo it over and over would be essential. (D1; I2; RP9)

> A five-day program does give them lots of time but it's something that you would almost have to do yearly…. In this community there are people here that I think would be able to rise to that, they would be able to pass that information on. (Local nurse; D2; I2; RP16)

The sustainability of the program became a feature of many conversations during meetings with the instructors and researchers, as well as during interviews with research partners and during the community presentation. Instructors later reflected during follow-up interviews regarding the impact of the program in meeting the emergency response capacity-building needs of the community. "I think that you need a lot more repetition, and that it's a much slower process than two courses, for a community's ability to respond to emergencies to change in a profound way" (FI 7; RP18).

> I think that the program has been valuable for the community. I think that for it to truly make an impact means expanding, repeating, continually changing how things are. I don't think two courses are going to change everything in Sachigo [Lake]. (FI 6; RP19)

The longevity and future of the program was a concern among many research partners. It remains to be seen whether the effect of the program can be sustained from within the community. During the community presentation, a community member commented that many

people come out to watch when an emergency occurred and learned from the actions of the responders, which generated further interest to learn and develop first response skills and knowledge. Instructors of the course reflected during a meeting that an ideal solution to keep the program self-sustaining in the community would be to have a community member trained as a paramedic who could act as a liaison in emergencies, as well as teach and lead scenarios for community members. This trained community member could also be dispatched to search and rescues, along with the Canadian Rangers, in situations in which transport times are likely to be greater than a few hours. Despite these areas of improvement discussed by research partners, there was overwhelming support for the program. The SLWEREI course seemed to meet community needs through community partnership, engaged learning, and realistic context.

3.2 Program Outcomes

In addition to matching the course to the locally specific needs of the community, researchers and research partners explored potential outcomes in terms of how the program affected the community. The second research question was related to how the SLWEREI affected the community's capacity to respond to emergency situations. The focus of this question was on exploring the potential of the program in developing resilience among course participants, and improving overall community capacity in relation to emergency response and overall health and well-being. The timing of this formative evaluation allowed researchers to explore the perceptions of community members one year after the first SLWEREI course was conducted. Course participants also reflected on their own abilities throughout the week. Themes that emerged were supported by follow-up interviews conducted with course participants nine months after the conclusion of the second course. The findings of this section are organized into

four themes: *building knowledge, confidence, community strength,* and *informal response system*. Refer to Table 7 for a general overview of the results related to programmatic outcomes.

Table 7. Themes related to outcomes of the program.

Theme	Characteristics	Description
Building knowledge	• Perceived need to improve emergency response capacity	• Community members recognized that emergency response training was important
	• Improved comprehension of first aid and skillset	• Participants felt they gained a higher understanding of ways of addressing health issues
Confidence	• More comfortable working under pressure	• Trust in one's ability to utilize the newly acquired skills and knowledge
	• Increased propensity to respond in an emergency	• Felt prepared to help during a medical emergency
Community strength	• Sense of connectedness to community and shared reliance	• Strong sense of community was present in Sachigo Lake First Nation
	• Trust in others through confidence in their ability	• Community members felt less isolated from emergency medical assistance
	• Generated interest in helping	• Generated interest within the community and the region
	• Improved social network	• Participants opened up and spoke to one another more
Informal response system	• Enhanced the existing informal response system	• Created a network of trained responders throughout community
		• Facilitated intergroup collaboration and training

Building knowledge. The first theme that emerged as an outcome of the program that affected the community's ability to respond to an emergency was building knowledge. The first aspect of building knowledge was the recognition of the importance of emergency response capacity, and a perceived need to improve response capacity in the isolated environment of Sachigo Lake. "I think it's important that we learn more. I've been in situations where I had to respond to any crisis we have. A lot of them are difficult; well all of them are difficult" (D5; SFG1; RP9). "I think here we may be lacking a little bit with [assistance for] people that ask for help. I find like

they were kind of trying to pass the buck" (D5; I1; RP17).

> I do believe that this type of program is absolutely necessary in communities like this because of the remoteness of it, often where accidents are happening are hours away from any kind of treatment and so I believe that that pre-care, that pre- even nursing station care, that first initial splint or pressure dressing is vital because when you're moving people vast distances over probably not so smooth roads and terrain.… And so the more people that are trained to take that five minutes and put a splint on. Is saved so much pain and suffering and extra damage to that patient so that, you know, it helps not just the nurses at the nursing station but community members at large because I believe they want better outcomes... (D6; I1; RP16)

> Starting this program is something that I believe each First Nations community, or any isolated community, needs and I think it's very beneficial. We don't have paramedics, we don't have nurses that are allowed to leave the nursing facility for most cases that we normally end up having. The knowledge that we are learning from here, we will adapt confidence in it. What you have taught. (D6; LFG; RP9)

Many of the course participants had received emergency response training in the past, yet they felt this course offered them a higher level of understanding from the engaging format and locally relevant material and context. Participants of the course were able to build knowledge related to conditions and issues that were relevant for the community. "Anybody can be certified with anything but that wouldn't hold as much knowledge as people are learning from this one. This goes beyond the CPR training that we get" (D1;I2; RP9). "It broadens the views of the situations that may occur. Knowing and reacting how to approach the scene" (CS). "I learned a lot now, and even if I can't remember what, what I learned when I'm out there, when something happens real reality you know. Things come back to you what you're learning" (D3; SFG1; RP6).

> In this case we don't have a chopper available, what do we do? We splint the ankle, try and get that person in a mobility position and we learn how to do that here. We learned to cope. They taught us the better way I guess from the way we would respond to it. (D1; I2; RP9)
>
> And like I said even if they only two months down the road remember half of what they learned. It's still twice as much as they had before. Like even if down the road they forget some of the smaller details, then some of it is going to stick around and it will be there with them forever so, yeah. (D6; I1; RP16)
>
> They taught us what to do. We don't have wraps. When you bring somebody in on a sled we have tarps, we have ropes. They gave us those tools and these are things we can utilize... Yeah, and these are the kinds of things we were looking at and that's what we learned from the first course. (D1; I2; RP9)

There was a perceived need to improve the existing health resources of the community, and people achieved a greater awareness of what resources were available. Participants felt they were able to retain the knowledge better from this program based on how it was taught. Participants spoke about having more knowledge and a deeper understanding at the conclusion of the course pertaining to conditions and issues that were relevant for the community.

Confidence. The most notable outcome of the program, with respect to frequency of references from course participants, was increased confidence. When participants reflected on how the course had impacted them, confidence was consistently mentioned first and most often. Participants became more comfortable working under pressure and being able to utilize the skills that they were being taught. Participants began to appreciate their knowledge and put trust in their ability to react and handle different situations. "Yeah I think it builds up confidence. I think that I have skills already from participating in the scenarios" (D6; LFG; RP1). "Yeah, a lot

of times, when there's emergencies we call the nurse and this helps me not to panic, you know" (D2; SFG1; RP6).

Participants reflected on feeling able to help and having an increased propensity to help in an emergency situation. "I would just like walk away, me. Right? But being able to go through those things there, I don't think I would walk away now" (D6; LFG; RP2). "I didn't freeze this time. Usually I just stand there and wait for somebody that tells me to do something" (D6; LFG; RP1). "I would try to get in there and help if somebody was down and nobody else was doing anything. Yeah, I would certainly be right in there" (D3; SFG2; RP10).

> We went out for the weekend, just this past weekend. We were travelling on the river dealing with rapids and all that, anything could have happened… going on there we were sure of ourselves if anything happened we could handle it. (D1; I2; RP9)

> The participants didn't have that confidence in themselves. Some of them were afraid to see the sight of blood. By the end of the course, their confidence is way high. They said that it opened up something for them that their confidence level went higher than before. Some of them didn't have confidence at all and by the end of the course, their confidence was there and strong…. But the confidence that they had they were able to go over to the situation where it was actually happening instead of being scared that they might make a mistake doing something. They had the confidence being at the scene. And they take. I mean, they're glad they took the course to have been on the scenarios we did related to a real life situation. There is a big difference they said but it helped, their confidence was there for them to remain calm and know what to do. (D1; I2; RP9)

> I would [be] more of like of the guy that points. Somebody that would take control of the situation. I think normally if there's a situation that arises you need someone to take charge, that way everybody will have a job to do. (D3; SFG2; RP11)

Participants became more confident working under pressure and being able to use the skills that

were being taught. Participants felt that after completing the course, they could do more to help in an emergency. They felt they were better prepared to react in stressful situations and not avoid helping, if help was required.

Community strength. Community strength referred to the strength of interpersonal networks and sense of connectedness that community members shared. The term emerged during a discussion related to the shared reliance and trust that people have in Sachigo Lake First Nation. "*Community strength* is one of the things that probably exist in every community [in the north]" (D4; O; RP9). There seemed to be a strong sense of community connectedness amongst the people of Sachigo Lake. It became evident that this strong connection among community members was characterized by shared dependence and reliance on one another, and a shared responsibility for the health of others. Interpersonal relationships, citizen participation, and sense of community are central factors in community capacity (Goodman et al., 1998). Interpersonal relationships are also a key feature of individual resilience (Ungar, 2009). "Well, everybody helps in different ways. And the community is very close together. You know and everybody helps" (D5; I2; RP6). "Yeah, we can't get really comfortable with that. With communication with the nurses, because they change. So these are the people we mostly depend on" (D6; LFG; RP2). "We all work as a team, the First Responders and the Rangers" (D2; O).

> When something comes up nobody leads in a role, it's usually a team. I might know some things and the other guy might know something else, so if we put it together it would be more like helpful…. Yeah. It's just how people always respond…. In any way, once something occurs in the community, the whole community shows up…. The community comes together as one in anything like that. (D1; I2; RP9)

An example of this sense of community and shared reliance emerged on the fourth day of the course in Sachigo Lake when a participant reflected on searching for two young adults who had gone out fishing the previous night and became stranded. The participant started searching for the missing people after two hours had past from the time they said they would return. The participant eventually found the two young adults in their boat, which had run out of gas while returning to the community. The participant reflected that it was standard practice within the community to tell one another where they are going and when they would return (D4; O).

This program seemed to enhance community strength through generating interest in first aid and how people can help one another in emergency situations, and enhancing trust in other community members' ability to help. The interactive and engaging format of the course spurred enthusiasm among participants and generated interest throughout the community. "Some people talk about it those that were attending there. One lady was talking about it, yeah and what she learned. Yeah. You know, we learn from what we hear and just teach it" (D1; I1; RP14). "Because this course here, when I tell the other community's health directors, they're interested to talk about it. Finding out more about it" (D1;I2; RP9). "Yeah. I think they like it, they were talking about it" (D1; I1; RP14).

> They were all into it. They knew what it was but their expectancy on the course wasn't what they expected…. With this one they wanted a repeat, a lot of those ones that took the first course wanted to redo it again…. And then there were other community members that wanted to join because they wanted to see how it would be so when we did that course, a lot of people were questioning the way the course was and they wanted to know if they could participate during midway. (D1; I2; RP9)

> When we didn't have it last year, some of the participants asked when can we do it again and I was glad to hear when Aaron called and said we got the funding, that you were able to

> come up and do it again…. Everything worked out and a lot of them are really happy. (D1; I2; RP9)

This program also enhanced the connectedness of the community through generating more trust in one another's ability to help during emergencies, and improving social support. Community members spoke about being more comfortable knowing there were people that could help if they needed it. "Well I know there's more people. If there is something I need, I know there are people that can help in the community. People that I can call on that would help" (D6; LFG; RP6). Community members developed trust in one another through enhanced confidence in others' ability to help. "I'm more confident with the people that are participating they'll know what to do when I see their confidence building up, I can actually see that" (D4; I3; RP9).

> Well, the community knows that this course is being done here. I think they feel more comfortable. They know that we have people in our community that are able to help with whatever happens. You know, we know all the people, you hear about it, this is what they're doing. There are people that come in from out of town. They know that they can call, call somebody. Yeah, after those courses. It's really going to help the community. (D5; I2; RP6)

There also seemed to be more open discussion between participants with people beginning to open up and talk to one another. "I have never heard some of the people [taking the course] talk before now" (D6; O). "…they're not shy anymore. [name] is kind of a shy person but you see her, she's out there participating" (D4; I3; RP9).

> You know the difference I noticed in some of these people here? Her especially. I've taken courses with her before, right? But the last one we did here this morning, you know, she had confidence in her voice, she was asking all the right questions. Like she wasn't like giggly or putting her head down, no blanking out. She just asked the questions. So if anything

> happens to me, I'm not going to cringe if she comes to me. Yeah. And [name]! [name], he's been up here for several years and he only answers me in one word answers, but now he asked me a lot of questions this morning. Yeah. (D6; LFG; RP2)
>
> One of the participants I remember on the first two days of the course wouldn't enter the teaching room, just sort of hovered by the door. That same individual then slowly came into the room and didn't participate but was in with the group. Then as the week went on, this individual was one of the most animated during our exercises. (Instructor; FI 5; RP21)

The community of Sachigo Lake seemed to have a strong sense of community connectedness and shared reliance; this was described as community strength. The program was able to build on this strength through generating interest throughout the course on how people can learn to help one another, as well as enhancing trust and social networks through encouraging people to open up and interact. Community members developed confidence in other's ability to respond to medical emergencies, which led to a sense of comfort and decreased isolation from emergency medical care.

Informal response system. The existing informal response system of the community was enhanced through augmenting individual's roles within the community, and creating a network of people who had the training and skills to assist in the event of an emergency. Professionals in the community, including the police officers and nurses, were understaffed and ill equipped to handle major emergencies and they relied on community members for assistance. Police and nurses reflected on the collaboration with community members, and the essential role they have in emergencies. "… that time we were working on somebody in the clinic, we have a lot of people coming in to help with CPR and stuff" (D2; I1; RP13).

> Yeah, we don't actually have 911 but if we were called…. So we're not really equipped to deal with that kind of stuff. Especially really early or late in the season when you can't drive, just snowmobile only, so definitely use the Rangers, or even someone out stranded in a boat or something, we don't have a boat so utilize locals or the Rangers again. (D5; I1; RP17)

> Well, in a scenario like that where you have four patients and two nurses, you need all that help. You need eyes, you need people to do chest compression, people to just even watch and let you know if something has changed while you're doing. And crowd control so when you have people that you know what's going on and you know they have a basic understanding of level of consciousness is changing too, maybe, maybe somebody should know about this and so now they become actually in a big emergency like that in a small nursing station, they become actually a very vital and viable part of the team because, you know, two nurses can't look after four critical people. Because there is two hands on each nurse, that's four hands, and there's you know you're trying to talk to the doctor, you're trying to do patient care and patient assessments and do treatments or medications or, you know. And how do you do that when you're two people? So you do, you need those extra hands and eyes... (D6; I1; RP16)

Participants of the course reflected on this collaboration with professionals and an increased ability and propensity to help if needed. Thus, when the informal response system was activated, any willing, capable, and trained community member was implicated in the response.

> If I had called up any of us, they would rush there and you know. And see what's going on. But we have to let that person, whoever is working on this person has to do what they're supposed to do, but if they need help we help. The nursing station will call the Band Council you know. The Band Council will know what to do, what person to call, First Responders or Rangers or they'll call me. (D5; I2; RP6)

> Then sometimes the nurses call us for assistance too in the nursing station so we go in there. The last call we got they almost lost that patient so we went in there to help them. Because there's only three nurses there and they needed more hands, so we assisted them but we lost

> the patient later on, there was too much stuff already happening. But we were there for that, for the nurses. (D5; I4; RP3)
>
> Yeah, it helped them. Well, if you didn't take a course you wouldn't know anything about the CPR, they wouldn't have done it, you know. But now. You know it really helps the whole community or the nurses at the nursing station it helps, you can go down there and help. (D5; I2; RP6)

Local professionals reflected on the essential role that community members played in assisting during emergencies. The local police officers and nurses were not equipped to handle serious emergencies and relied on community members to assist. Participants from the course reflected on how they feel more comfortable with their ability to assist the professionals, and would not hesitate to help in the future.

The SLWEREI encouraged and facilitated collaboration among the various groups within the community that may be involved or implicated in response activities. Participants of the courses included members of diverse groups such as the Canadian Rangers, First Responders, community Health representatives, school staff, members of the Band Council, and laypeople. Members of these diverse groups were encouraged to work together as a team in responding to simulated emergencies. One of the final scenarios that occurred during the course was a simulated plane crash in the lake adjacent to the community (D5; O). The simulation was based on participant feedback regarding a plane crash that had previously occurred in the community. The simulation involved four casualties with varied injuries (facial burn, unconscious in water, in shock, and leg fracture with perfuse bleeding) using synthetic wounds and makeup. The participants of the course were challenged to respond to the scene as a team in their own vehicles, and manage the scene using only what they had available, then transport the casualties

to the nursing station if their condition warranted further medical assistance. Participants had to triage the situation, stabilize injuries, and then transfer care to the nurses. This simulation, in addition to being engaging and realistic, served to foster collaboration between many different groups and professionals, and enhance the existing response system of the community.

The SLWEREI has increased the proportion of the community who have the knowledge and skills to respond to medical emergencies. Having a network of trained responders in the community will likely increase the probability that there will be someone in the area who can respond if an emergency occurs.

> It would take some of the emergency out of the emergency. It would take some of the emergency, the acute emergency out of the emergency and that laceration may very well require that they go out but if they're not in shock because of blood loss, it is much safer for them to be here waiting for two or three hours until we can get a plane here to get them out. (D2; I2; RP16)

> We need our people now to be skilled, not just Canadian Rangers, not just nursing station staff. We need community members with the skill to (pause) like I said the community shows up when something happens and not just specific people, the whole community shows up and then at these parties, maybe four or five of them will have this knowledge to perform as a team. (D1; I2; RP9)

Local professionals such as the Nishnawbe-Aski Police Service officers and nurses require assistance during major emergencies. Thus, this program extended beyond the confines of a training program to involve simulations and facilitated discussions about the entire emergency response system through to the transition of care at the nursing station.

> Having expertise coming in here to teach us that, we carry that knowledge to the field like I was saying nurses aren't allowed to leave the health facilities. Right? So who do we have?

> Anybody with the knowledge, that learned, would carry that to the field and bring it back. All they would have to do is give the system to the nurse and the nurse would take over. What actions were taken for the victim? (D1; I2; RP9)

This built knowledge and confidence, gave people the skills to assist in emergency response, and encouraged collaboration between the various professionals and groups within the community. Having a large number of community members trained increased the network of people who can help when needed.

The SLWEREI increased the proportion of the community that has received first aid training. The SLWEREI courses have trained more than 5% (n=26) of the community through Phases I-IV (19 people completed the first course, 10 people completed the second course, and 3 people completed both courses). This increased the likelihood that there would be someone in the community that has the knowledge and confidence to assist if needed.

> That's the thing, the more people who have that, better the chances because as I'm sure you have found out, the people aren't always here so the more people you can actually train a little bit the better the chance at least one trained person is in the area when something happens. (D6; I1; RP16)

The response system of the community was thus improved through increasing the response resources available to assist. Furthermore, there was an element of strategic recruitment of participants from the community. The Health Director invited participants from dispersed locations within the community, as well as from community groups that were more likely to be involved in incidents. Sachigo Lake First Nation now has a wide network of community members trained in emergency response to minimize the response time required for people to reach the scene of an incident. There are also members of community groups such as teachers,

Council members, Health Authority workers, First Responders, and the Canadian Rangers that have received training through this program.

Community members reflected on having two types of emergencies in Sachigo Lake: those within the community, and those out on the land. When a medical emergency occurs within the community there are normally friends and family nearby who respond and transport the person to the nursing station. For more serious incidents, the responding bystanders call upon additional community members and members of the First Response Team, as well as call the nursing station to send a sport utility vehicle with a basic stretcher. The patient is then stabilized by the First Responders and transported to the nursing station.

When a medical emergency occurs in isolated areas of the wilderness, such as a heart attack or broken limb during a hunting expedition, the people who are on the expedition are relied upon to perform first aid as well as contact people from the community. Community members travelling into the wilderness routinely travel in small groups and carry the basic supplies required to make a shelter (e.g. tarps, rope, garbage bags, etc.) along with food and hunting supplies. If those on the expedition were in possession of a satellite phone and made contact with the community, a search and rescue group would be organized. Typically the Chief and Council members act as liaisons and organize the involvement of the Canadian Rangers and other able-bodied community members to gather supplies and begin the search for the expedition party. Once the expedition party has been located, the injured person is immobilized (if required) and transported back to the community. Transporting patients in this context is difficult as community members frequently utilize boats, ATVs, and Skidoos when going on an expedition, and travel times can range from hours to days. Once the injured person is back in the community, they are taken to

the nursing station where they are treated, or transported by ORNGE to a regional hospital for further medical care.

The SLWEREI program has impacted this informal response system in a number of ways. For emergencies within the community, there are now more community members who have first aid training, increasing the probability that there is a trained individual within the immediate area of an incident. These trained individuals have been taught to recognize the importance of proper initial treatment and immobilization, so that injured persons are not further injured during transport to the nursing station. These trained community members also have an improved sense of what medical conditions warrant assessment and treatment from registered nurses, and what conditions can be treated on-site and monitored. The ability to recognize the severity of medical conditions may limit the frequency of unnecessary visits to the nursing station (decreasing the workload on the nurses), and may also ensure that professionals will assess people that do require further treatment, in a timely manner.

Community members reflected that everyone in the community was aware of the program and who received training.[10]

> If people know you have, if people understand that you have skill of first aid or anything like that, you'll be one of these people that is involved in the scene. And the rest will ask you how you do what you do, the system, what do you want done… (D1; I2; RP9)

Ideally, this will make finding a trained person easier, if there was none at the scene of an incident. These individuals may also be better prepared to transfer patient care to the nurses. During the course, emergency simulations brought different community groups together along

[10] Refer to Chapter 4.5 for more on the power dynamics.

with the nurse, in order to collaborate with them in transferring patients and providing information on the mechanism of injury and vital signs.

The SLWEREI program has also impacted the informal response system for emergencies that occur during expeditions on the land. Having participants from dispersed locations across the community may facilitate faster response times. "If an incident happens on the west end, we have people in the west end that will be at the scene immediately, as for somebody coming from the east take some amount of time before they arrive" (D4; I3; RP9). Search and rescue groups can be organized with trained community members who reside in the area. Participants of the course may also be more prepared to communicate with health professionals from collaborating with them during emergency simulations. This may assist if search and rescuers need to communicate by phone with the nurses at the nursing station or Telehealth Ontario (public phone access to registered nurse support) regarding patient information. Participants of the course trained using the materials that they frequently have available, as well as improvising with material from the forest, such as creating improvised stretchers using tree limbs, rope, and tarps. In addition to patient transport techniques, the course also had an increased emphasis on cold-weather emergencies, such as creating a properly insulated patient package and monitoring vital signs, which are invaluable skills for transporting people over prolonged periods as is expected in the remote context of Sachigo Lake.

Chapter 4: Discussion

The purpose of this formative evaluation was to seek to understand how the development and delivery of the second SLWEREI course met the local needs of Sachigo Lake First Nation, and explore how the program fostered resilience and community capacity. The study was also aimed at improving how the second SLWEREI course was implemented to reflect the local community's perceived needs, and to aid in the development of future collaborative medical education programs. An innovative feature of this study was that it enabled the investigation of potential outcomes of the SLWEREI Phase II course, as well as allowed the real-time development and evaluation of the Phase IV course based on participant feedback. Interviews enabled research partners to reflect on health issues present in the community, the impact of the first course, as well as impressions and suggestions on the second course.

4.1 Development and Delivery

Integrated research and teaching. Chino and DeBruyn (2006) expressed the need for capacity-building projects that operate under a participatory process, in which mutual learning between researchers and the community promotes community ownership of the program. The integrated research and teaching approach of this program reflected mutual respect and co-learning between partners, balancing research and action, individual and community capacity building, and systems change (Israel, Schulz, Parker, & Becker, 1998). The CBPR framework of the program aimed to facilitate equitable partnership in all phases of the development and evaluation of the program (Israel et al., 2008). Through partnership, this program established a strong connection between the course and the community, in contrast to conventional first aid courses that are isolated from the local context and social dynamic.

The open and engaged interaction with course participants, which emerged as a theme related to how local needs were met, was also reflective of the embedded research component of the program. The CBPR approach achieved a balance between research and action (Israel et al., 2008). As the distinction between researcher and those being researched was muted, participants seemed to feel that the reflection and introspection were features of the course itself. In other words, the dual role that the course participants had as researcher and trainee actually seemed to enhance the pedagogical process, since the participants seemed to be more engaged and involved throughout the entire five-day process. Community members shared stories of local health issues and past medical emergencies they had experienced in order to ensure that what was being taught reflected what was relevant for the community. Involving the community as partners in every aspect of the development of the course, through formative evaluation, enhanced local ownership and enthusiasm towards the program. This process also ensured that course material was related to concepts that were familiar to community members, which enabled knowledge to be translated in a meaningful way.

The daily meetings of instructors and researchers provided a platform for co-creation of course content and co-development of course pedagogy through ensuring that community members' feedback was built into the course. Following the meeting, course presentations, curriculum handouts, and lessons plans were adapted and printed out for the next day. The meetings also provided a platform of co-learning. The instructors and researchers reflected on knowledge gained from the community, and how that impacted each individual's personal development. The CBRP approach used in the study promoted co-learning and capacity building among all

partners (Israel et al., 2008). Reflexivity was utilized as a tool for personal development through critically introspecting personal perceptions and abilities, and challenging them throughout the research process. Co-creation, co-development, and co-learning were a central part of the CBPR approach of the program and research.

Program mechanism and social conditions. The CBPR methodological framework of this study was informed by complimentary principles of realist evaluation (RE). This study did not constitute a true realist evaluation, as the full spectrum of context-mechanism-outcome relationships, which underscores the realist approach, was not explored. However, reflecting on social conditions and the people involved in the program was an important feature in understanding and evaluating the program. A program is not merely a set of curriculum, but also the context it is introduced into. This includes the people involved, the past, and prospects for the future (Pawson & Tilley, 1997).

Pawson and Tilley (1997) posited two questions that must be answered by research in their description of RE. The first was: what are the mechanisms for social change triggered by a program? In relation to the SLWEREI, the program facilitated the introspection of community members, and the means to take action on issues and conditions of community importance. The program enabled community members to reflect on the health status of the community, and their ability to address barriers in improving their health. They were then able to influence change to address these barriers and minimize the isolation from emergency medical care. Community members co-created power, along with the instructors and researchers of the program, in taking action towards improving the lack of emergency response services available in the community.

Community members co-developed a training course that provided the knowledge and skills to deal with prospective emergency situations. Thus, one of the change mechanisms was the creation of a platform for community members to create a sense of empowerment by selecting issues of local importance, and building the resources and capacity to address the issues.

The second question posited by Pawson and Tilley (1997) was: what are the social and cultural conditions necessary for the change mechanism to operate? Based on how the SLWEREI addressed local needs, the conditions that were necessary for the community to self-analyze and address issues of local importance were simply reflected in the community's willingness and drive to do so. In other words, there was an underlying need for appropriate emergency response training, and this need was the most compelling contextual condition addressed by the SLWEREI. For the program to be successful, the participants had to have an interest in making their community a healthier place and improving emergency response capacity. Without this determination and dedication, no program would be able to make a lasting difference within the community.

It was also imperative for the program to engage the people within the community who were best suited to be community partners in the development of the program. For the program to be successful, it was essential that community partners and leaders shared the devotion towards the aim of the program, and the willingness to collaborate extensively. They also had to have the social positioning within the community to facilitate local recruitment, logistics, and ultimately, local ownership of the program. Equally as important, was the dedication and determination of the instructors and architects of the curriculum. All partners had to be passionate about the goal

of improving the community's ability to handle emergency situations for the program to be successful.

The success of a program is intrinsically linked to the personnel involved. This highlights the importance for health promotion initiatives to build strong partnerships with communities, and be inviting of engagement, in order for motivated and passionate members of the community to become involved and lead the development process. This concept was reflected upon by one of the course instructors during a follow-up interview.

> This program, as you know as a participant, is incredibly unique. But I think it is that way because of the work put in by our team leaders, so I think their passion for this project and these issues is really what has created the success in this project…. And when I say team leaders, I don't just mean the medical professionals, I mean the community leaders as well who reached out and sort of bridged with the medical experts to create this project, so I think there is a lot to be modelled after these individuals…. I think that it's important as well, to have the right learners, the right team leaders, and the right community members for things to run as they did while we were on the ground. (FI 5; RP21)

The social and cultural conditions necessary were thus an openness and determination among people, both within and external to the community, to commit to building a partnership and sharing knowledge.

4.2 Program Outcomes

Intrapersonal and interpersonal impacts. Ultimately, the themes that emerged from the study illustrate that the program has had intrapersonal, as well as interpersonal impacts on members of the Sachigo Lake community. Intrapersonal influences of the program were mainly illustrated by the themes of building knowledge and confidence among participants. Participants developed

confidence in their ability to react under pressure, and utilize the skills and knowledge they gained to improve outcomes of medical emergencies. This sense of confidence in one's ability to manage the situation can also be related to *self-efficacy*—"judgments of how well one can execute a course of action required to deal with prospective situations" (Bandura, 1982, p.122). The level of perceived self-efficacy has been shown to have an effect on one's decision to act in a challenging situation and how long to persevere in the face of adversity (Bandura, 2001). "A strong sense of coping efficacy reduces vulnerability to stress and depression in taxing situations and strengthens resiliency to adversity" (Bandura, 2001, p.10). Improving confidence and self-efficacy may lead to a greater propensity to assist in emergencies and overcome physical and emotional hardship.

Individuals that participated in the courses developed a greater understanding of medical issues and techniques that had personal relevance, and fostered self-efficacy to handle prospective emergency situations. Course participants prepared for the emotional hardships of a real emergency through responding to realistic simulations that emphasized the involvement of loved-ones, which generated a sense of emotional fidelity. The intrapersonal outcomes of improved knowledge and self-efficacy together represent an overall improved competency in responding to medical emergencies.

Interpersonal influences of the program were illustrated by the themes of community strength and informal response system. These themes pertain to improved trust, enhanced interpersonal networks, and heightened ability to respond to emergencies. Community members generated more interest in helping one another, and they developed trust through enhanced confidence in

others' ability to help if needed. There seemed to be more open discussion between participants with people opening up and communicating, thus creating and fostering social bonds. Increasing participants' web of socially supportive interactions gave people a sense of comfort in knowing that there were people in the community whom they can rely on for help in an emergency. This resulted in sense of decreased isolation from healthcare.

The program encouraged diverse groups to collaborate and provided an opportunity for the different response and healthcare groups to practice working together. This enhanced collaboration was coupled with additional resources to improve the existing informal response system of the community. Building on existing resources within the community was a guiding principle of the CBPR methodological framework used in this program (Israel et al., 2008). The strategic recruitment of participants may facilitate faster response times and easier access to trained responders in the event of an emergency.

Resilience and community capacity. The themes that emerged as program outcomes overlap in many ways with the literature on resilience and community capacity. Betterment of person and community, access to learning resources, perceived social support, self-efficacy, and sense of duty are characteristics of resilience that have been found to be relevant between cultures and places (Ungar, 2008). Ungar (2009) found seven tensions associated with resilience across cultures: access to material resources, relationships, identity, power and control, cultural adherence, social justice, and cohesion. The SLWEREI enhanced access to medical knowledge, interpersonal relationships, sense of purpose and self-appraisal, and ability to effect change and access health resources. The program was sensitive to local cultures and customs, fostered

individual roles within the community, and enhanced community connectedness. Thus, the findings from the SLWEREI seemed to address most of the seven tensions of resilience identified by Ungar (2009).

It is not clear if the incorporation of traditional healing customs into course content would substantially alter acute medical emergency morbidity and mortality outcomes. The factors that have been implicated as having considerable benefits towards improving prehospital care in low-resource contexts are simple first aid manoeuvres that are applied rapidly (C. Mock, 2003). The scope of the program was focused on evidence-based life-supporting and life-saving medical practices and techniques. The Chief and Council requested from the outset of the program that the curriculum should focus on life-supporting material and avoid the inclusion of traditional practices. Perhaps in the future, based on longstanding relationships and trust, the program partnership could be expanded to include curriculum taught by local Elders and experts on traditional practices.

The program was intended to complement local practices in bringing in medical expertise from outside the community to build on local knowledge, rather than replace or assimilate traditional concepts of healthcare. However, the incorporation of traditional practices may translate into further improved resilience through cultural adherence (Ungar, 2009). Despite the potential incongruity of incorporating traditional practices into a training program focused on life-saving first aid curriculum, this hybridization is worthy of consideration for future initiatives. There are also no apparent barriers to the community conducting additional traditional health courses without the outside support of the SLWEREI course instructors. Some Elders in the community

discuss traditional practices in an annual workshop, which could potentially be expanded to include additional community members and operate more frequently. This alternative would be much more feasible compared to the substantial cost of having the SLWEREI course instructors and researchers present in the community.

Ungar's model of resilience is not limited to an individual's capacity to overcome adversity. Rather, it also considers social and ecological factors that relate to an individual's propensity to overcome adversity. The survey of health issues among community members undertaken in this study found medical adversity related to a lack of access to care, chronic health conditions, mental health conditions, and trauma. The SLWEREI enhanced individual capacity through increased access to educational resources, as well as through heightened understanding, improved skills, and enriched self-efficacy to handle this adversity. The SLWEREI also seemed to improve the social and ecological factors in the community members' ability to overcome adversity, through enhancing trust in one another and increasing comfort in emergency situations, despite isolation from formal healthcare (Ungar, 2009). Interpersonal social networks were developed amongst participants, and the program also fostered improved collaboration between different groups and professionals. Thus, the SLWEREI has enhanced resilience among Sachigo Lake First Nation community members to overcome adversity.

Similar to the domains of improved resilience as described by Ungar (2008), the dimensions of community capacity outlined by Goodman et al. (1998) also overlap with the outcomes of the SLWEREI. Goodman and colleagues (1998) identified multiple dimensions and sub-dimensions of community capacity that confirm and support the outcomes of the SLWEREI. They suggest

that citizen participation, skills, resources, social and inter-organizational networks, sense of community, and critical reflection are central to community capacity. Goodman et al. (1998) characterized the resources related to community capacity as: access and sharing between communities, social capital, and communication channels. The SLWEREI developed these resources through creating a partnership between the community and medical professionals, and fostering knowledge, self-efficacy, interpersonal connections, and enhancing the existing informal response system. Program outcome themes of community strength and informal response system illustrate the effect on inter-organizational networks in the community, through developing community connectedness and supportive interactions. The integrated research component supported the community in critically reflecting on the needs of the community and methods of addressing those needs.

4.3 Health Promotion

According to the Ottawa Charter for Health Promotion, there are five principles and three approaches for health promotion initiatives (World Health Organization et al., 1986). The five principles are: (a) strengthen community action, (b) develop personal skills, (c) create supportive environments, (d) reorient health services, and (e) build healthy public policy. The SLWEREI strengthened community action through co-creating power within the community of Sachigo Lake in addressing locally important health issues, and taking concrete action in the co-development of the program—setting priorities, making decisions, planning strategies (Phases I and III), and implementing the courses (Phases II and IV) to improve community health. The SLWEREI supported personal and social development through providing medical education and enhancing community members' response skills and medical knowledge. A supportive

environment was fostered in Sachigo Lake through building trust and a sense of community, encouraging people to look after one another, and creating a local environment that is safer and more accessible to emergency care.

The final phase of the program (Phase V—Knowledge Dissemination and Future Planning; refer to Table 1 for an overview of the five-phase plan) captures the plan to address the final two principles of health promotion as per the Ottawa Charter: reorient health services, and build healthy public policy (World Health Organization et al., 1986). This phase of the program involved meeting with First Nations' organizations, the Provincial and Federal governments, medical services, and non-governmental organizations to share understandings and develop a vision for the future of emergency medical care in the remote communities of northern Ontario (Orkin, VanderBurgh, Ritchie, & Fortune, 2014). This meeting platform opened a channel between community groups, the health sector, and governmental organizations to work together to enact change, and put remote and First Nations health on the agenda of policymakers. Ideally, this phase of the program will reorient health services and public policy to address the lack of emergency care in the far north of Ontario.

The three approaches of health promotion, as outlined by the Ottawa charter are: enable, mediate, and advocate (World Health Organization et al., 1986). "Health promotion action aims at reducing differences in current health status and ensuring equal opportunities and resources to enable all people to achieve their fullest health potential" (World Health Organization et al., 1986, p.2). The SLWEREI addressed the disproportionate burden of chronic disease, injury, and mental health conditions (Fantus et al., 2009; MacMillan et al., 2003; Whitehead et al., 1996),

coupled with inequity in access to healthcare, through taking action to build resilience and emergency response capacity within the community of Sachigo Lake. The program mediated the various organizations and groups within the community to encourage cooperation and collaboration in responding to emergencies. The program also mediated between the different organizations in Phase V, mentioned previously, with the aim of enacting systems change and advocating for the health of First Nations people and residents of remote communities in the far north of Ontario.

Through capturing all five principles and three approaches of health promotion outlined by the Ottawa Charter, the SLWEREI demonstrated that community-based emergency medical training is a viable health promotion strategy. The outcomes of the program also illustrate the potential that community-based medical education programs have in addressing barriers to emergency healthcare in the far north of Ontario. Through training local laypeople in emergency response techniques and methods of addressing health issues of local relevance, there was improved availability and quality of medical care within the community. The SLWEREI improved the emergency response capacity of Sachigo Lake First Nation through enhancing knowledge and self-efficacy among participants. The program also had an unanticipated positive affect on improving overall health and well-being through fostering trust, social support, and sense of community.

Emphasizing public health problems of local relevance, and ecological perspectives that attend to the multiple determinants of health is a central feature of the CBPR approach used in the program (Israel et al., 2008). In addition to capturing the features of health promotion, the

SLWEREI also reflected the multiple determinants of health. Reading and Wien (2009) identified 13 determinants of health that affect Indigenous peoples in Canada, which they organized into proximal (e.g. health behaviours, physical environment, and education), intermediate (e.g. healthcare systems, educational systems, and community infrastructure), and distal determinants of health (e.g. colonialism, social exclusion, and self-determination). The program reflected this model of health determinants though attending to proximal, intermediate, and distal determinants of health. Proximal determinants were attended to through providing access to skills and medical education; intermediate determinants through improving the emergency response system of Sachigo Lake; and distal determinants through co-creating power with community members to be agents of change in addressing health issues of local importance.

4.4 Knowledge Translation

Knowledge translation is a critical component of CBPR approaches (Israel et al., 2008), and it is particularly relevant in the context of Indigenous health research (Ranford & Warry, 2007; Smylie et al., 2003). The dissemination of findings and knowledge gained in a meaningful way to all partners of the research was a central principle of the CBPR approach utilized in this study (Israel et al., 2008). Furthermore, the history of neglect and marginalization of Indigenous peoples has resulted in an ethical responsibility on the part of researchers to ensure that research findings serve the communities from which they arose (Canadian Institutes of Health Research, Natural Sciences and Engineering Research Council of Canada, & Social Sciences and Humanities Research Council of Canada, 2010). Throughout the research process, knowledge translation was coupled with data collection and analysis. Gaining and sharing information was iterative and cyclical in all phases of the study, which was consistent with the principles of

CBPR and the transformational validity approach (Cho & Trent, 2006; Israel et al., 2008). Knowledge translation was a feature of data collection and analysis, as well as the focus of a community presentation, knowledge translation video, and presentations at academic conferences.

Knowledge translation operated concurrently with data collection and analysis during the SLWEREI course, as well as during subsequent follow-up interviews. The CBPR approach involved integrating and achieving a balance between research and translating the knowledge into action for the mutual benefit of all partners (Israel et al., 2008). Reflexive member checks were performed in every interview and focus group discussion, as well as during the final community presentation. These member checks involved an open discussion of what was said and learned, and also presented an opportunity for research partners to clarify or confirm their intended meaning. Focus group discussions involved reflection on course processes and content, as the course was adapted in situ throughout the week based on knowledge gained. As data analysis was concurrent with data collection, the knowledge gained was discussed and reflected upon with community research partners and course instructors throughout the primary data collection period. The follow-up data collection period also served as a forum to discuss the preliminary themes that emerged with course participants and instructors. The iterative and cyclical presentation and discussion of knowledge gained with community research partners ensured that themes accurately reflected the intended meaning, and that knowledge was shared throughout the research process.

In February 2013, a community presentation was conducted in Sachigo Lake First Nation. The presentation was coordinated with community partners and coincided with the community's annual fishing derby. The timing of the presentation ensured that as many community members as possible would be present in the community. It also enabled members of surrounding communities to join in the presentation if interested. Posters were created collaboratively with community partners and placed up around the community to advertise the presentation. The content and format of the presentation was developed collaboratively with course participants and instructors during follow-up interviews. The presentation consisted of a plain-language discussion of the program and the knowledge gained throughout the development of the SLWEREI. Pictures taken during the second course were presented, at the request of community members, along with participant quotations and preliminary themes that emerged from the data analysis. In total, 13 community members (roughly 3% of the community) attended the presentation at the local resource center. These community members consisted of course participants, teachers, Band Council members, and interested persons. Following the presentation, there was a group discussion with attendees regarding the themes generated and the future directions of the program.

The program video that was created based on feedback received at the community presentation represented an innovative knowledge translation project, which would not have been possible without the active involvement of the Sachigo Lake community throughout the research process. The material from the community presentation was further refined based on community feedback, then recorded into a plain-language video that described the program and knowledge gained. The video file was distributed within the community, as well as posted on the Internet

with the permission of the local Health Director (http://www.youtube.com/watch?v=8gtztn-BLxA&feature=em-upload_owner# action=share). The video enabled findings to be shared with members of the community that were unable to attend the community presentation, and it ensured that the knowledge was available to be shared community-wide.

The knowledge generated from this study has also been presented at multiple academic conferences. The CBPR approach of the study involved community research partners in the dissemination process (Israel et al., 2008). The content of the conference presentations matched what was presented with the community and refined based on community input. Each presentation was co-authored by the Health Director of Sachigo Lake First Nation, who was also a research partner involved in the study. Presentations were conducted in poster format, as well as orally. The aim of these presentations was to disseminate the knowledge generated regarding the value that community-based medical education programs can have in addressing the needs of remote communities, and to engage multi-disciplinary members of the academic and medical communities. Through knowledge dissemination, the researchers sought to raise awareness of the lack of emergency response services in northwestern Ontario, and encourage further health promotion projects that seek to find locally appropriate solutions to health issues in the region.

4.5 Limitations

There were several limitations inherent in this study. Most of the limitations stemmed from socio-historical factors, as well as the isolated context of Sachigo Lake and the inherent difficulties this created. The limitations are organized into the following sections: potential bias,

power dynamics, generalizability, proximity paradox, partnership development, sustainability, language, and lack of a reference for course development.

Potential bias. The researcher's outsider perspective as a non-Indigenous person presented potential for bias in the understanding of the information collected, as well as the interplay of socio-historical factors as they related to the research process. This potential bias was mitigated through clearly disclosing the philosophy and perspective of the researcher from the onset of the study, as well as through critical reflexivity of self. As the primary researcher, I participated in a bracketing interview with the research coordinator[11] of the program before data collection, to explore how my philosophy and perspective[12] could interplay with data collection and analysis. I reflected on this bracketing interview, as well as the daily events of the second SLWEREI course, in a journal. The potential for bias was also minimized through acting as a trained facilitator in co-creating the research process with members of Sachigo Lake First Nation. Community research partners were involved in every phase of the research from the selection of the research questions and methodology, to data collection procedures, analysis process, and knowledge translation. Multiple member checks were conducted with research partners during data collection and analysis.

There was also a potential for bias based on a limited understanding of the complexity of socio-historical factors of First Nations people in the region. Research initiatives must overcome the history of paternalistic and often exploitive research relationships between Indigenous communities and both government and research institutions (LaVeaux & Christopher, 2009).

[11] The research coordinator of the program was also a supervisor of the researcher.
[12] Refer to section 2.2 for additional information on reflexivity.

My perspective as a non-First Nations person may have limited my understanding of the complexities that the history of colonialism and negative past experiences with research in the region, may have interplayed with the research. People may have been apprehensive to talk to me as an outsider of the community, which may have prevented some community members from sharing their perspective of the program. Conversely, historical marginalization and neglect may have influenced community members to provide information they felt would be beneficial to the future of the program, and improve the likelihood of additional funding and training opportunities, and ultimately, improved resources for the community. Additionally, the research coordinator met with the Chief and Council in May 2012 and learned that the community had very little previous history of research, and the experiences they did have were favourable. This likely influenced how supportive and engaged community members were in the SLWEREI research initiatives.

There was also inherent value in having an outsider perspective for health program development. An outside perspective can simultaneously be a source of strength, as well as a potential source of bias. As the researcher, I was in a position to be receptive towards patterns and relationships that may not have been obvious to those immersed in the context. People may become accustomed to local health issues through prolonged exposure. What may not seem like a pervasive issue or trend to those who live in the community may be starkly apparent to those from outside the local context. Thus, once the discussion begins regarding local health issues, more may come into focus through an outsider's facilitation of the discovery process. People may not be aware that there are remedies to adverse situations that arise customarily, or that situations that may be common locally are uncommon elsewhere.

Power dynamics. Another potential limitation inherent in the study was the possibility of perceived power differential between researchers, instructors, and the community members. Having a group of individuals who may be perceived to be experts in research and health may have impacted interactions among research partners, and influenced the feedback received in the evaluation. This power differential may have led to overly positive feedback regarding the program. Community research partners may have provided information that they felt the researchers and instructors wanted to hear. This power differential may have also prevented some individuals from collaborating in the program due to a sense of mistrust.

In addition to power differentials that may have resulted from being perceived to be a part of a group of medical and research experts (power structure in relation to specialized knowledge and capacity), there were a number of other sources of potential power differences, both perceived and real. The group of instructors and researchers from outside the Sachigo Lake community were predominantly male (six males and one female), and ranged from young adult to middle aged. Issues of gender and age, along with differentials in economic, political, and linguistic power structure among community research partners and the group of instructors and researchers, may have created further power dynamics that influenced partnership development and the information discussed with researchers. These issues were active during data collection and not unnoticed.

There are also complex power relationships inherent in the development of health promotion and community-based training initiatives with remote First Nations communities. These complex

power relationships stem from the history of paternalistic and often exploitive relationships between Indigenous communities and both government and research institutions (LaVeaux & Christopher, 2009). Castellano (2004) suggested that this imbalance in power may influence participation in research by some Indigenous peoples simply because they would fear the loss of a service or benefit if they didn't participate. Cho and Trent have highlighted authority, power and privilege as a potential threat to validity (Cho & Trent, 2006), and other researchers have described the influence of this power dynamic in similar Indigenous health research contexts (de Leeuw, Cameron, & Greenwood, 2012; Koster, Baccar, & Lemelin, 2012). Nonetheless, the SLWEREI team was aware of the potential power differential throughout the project and adhered to a CBPR approach through respecting and valuing community members as experts regarding their local context and sharing power in the research process. It was assumed that developing a research relationship based on equal partnership would minimize the influence of power imbalances. Despite being aware of issues stemming from power imbalances, a detailed analysis of these issues was outside the scope of this study.

The incorporation of learners as instructors as well as the researcher may have also lessened the perceived power differential, and aided in the development of trust. Two of the instructors were new to being in a teaching role and were actively trying to improve their ability to convey information in a meaningful way. As a novice researcher, I was developing my research skillset throughout the data collection period. I reflected on this personal development with research partners and sought feedback to improve my interview and evaluation ability. This genuine interest, humility, and drive towards co-learning alongside community research partners may have decreased perceived power differences, and encouraged the development of trust.

Additionally, it remains unclear what, if any, the affect the program had on power differentials between community members. The participants of the course had varied experience with emergency response prior to taking the course. Individuals with more first aid experience played a leadership role (particularly through providing an example to follow, but also vocally) while responding to simulated emergencies during the course. It remains unclear what affect the difference in skill-level between participants had on power and social dynamics within the community following the course. This difference in experience may have also prevented some people from participating and asking questions, due to a fear of embarrassment in admitting a lack of understanding. Issues stemming from gender, age, economic standing, and linguistic ability may have also impacted the dynamic among participants of the course and their collaboration in the evaluation of the program. Again, these issues were not unnoticed, however, a detailed analysis of these issues was outside the scope of this study.

Furthermore, it remains unclear what the underlying social dynamics were within the community and what impact the program had on individual social standing. Many of the course participants were invited to attend by the Health Director of the community. It is not clear what effect this recruitment had on perceptions shared by research partners, or if this precluded some community members from collaborating in the program. As Sachigo Lake is self-governing through elected representatives, participation in health promotion programs and enhanced emergency response capacity may translate into altered political standing within the community. Conversely, individuals' political standing in the community may have precluded some people from participating in the program and research.

Generalizability. The present study is limited in scope and generalizability. The results of this study are context-specific and are limited to the community of Sachigo Lake First Nation. Each community has a unique context including socio-historical factors and a diversity of beliefs. Each community may have different barriers to program development and perceptions of course processes, and thus the success and outcomes of the SLWEREI may not translate to other communities. These barriers may include fear of outside influence and mistrust towards research; different perceived value of the initiative among community members, leaders, and gatekeepers; different cultural beliefs and attitudes towards, so called, Western medical professionals; and lack of a willingness to participate. Nonetheless, it is likely that some of the knowledge generated may apply to other remote communities, and this needs to be investigated in future studies.

Furthermore, since many of the course participants were invited to attend the course based on their likelihood of encountering a medical emergency, due to their place of residence or employment, there is the possibility that their perceptions concerning the program and local health issues are not uniform throughout the community. The selected individuals may have been more knowledgeable about aspects of health and wellness than the community at large, and they may have had different perceptions of how local needs were met, and what content should have been included in the SLWEREI. The community research partners may also have had different perceptions of the outcomes of the program and its influence on emergency care capacity and health, than members of the community that did not participate.

Proximity paradox. The present study was limited based on the difficulties inherent in community-based health research conducted over vast distances with isolated communities. There is a somewhat paradoxical relationship with community-based projects and health services in remote northern communities such as Sachigo Lake. The communities that would likely benefit the most from community-based health promotion initiatives are also the communities that are most difficult to partner with through a CBPR approach (Ritchie et al., 2013). The CBPR approach is considered a best-practice in understanding health disparities and cultural differences among Indigenous peoples in isolated and underserviced communities in northern Ontario (Minore et al., 2004). However, the principles of CBPR are more challenging to follow with increasing remoteness of the partnered community. This paradoxical relationship is also evident in the health services available. Remote communities in northwestern Ontario experience elevated rates of chronic disease, traumatic injuries, and mental health conditions compared to the provincial average (Fantus et al., 2009; MacMillan et al., 2003; Whitehead et al., 1996), and they would therefore likely benefit most from health services. Yet, these remote communities have much fewer services available to them.

The vast distance involved in the collaborative partnership limited the data collection period in the community of Sachigo Lake. The primary data collection period was constrained by the available funding and substantial cost associated with flying five instructors and two researchers into the community. This study was not designed or equipped to execute a cost-benefit or cost-effectiveness analysis. The cost associated with developing a relationship with the community, including the pilot program and the development of curriculum, is very complex and likely would not be an accurate estimation of what an expanded program would cost.

As a result of limited time in the community, much of the collaboration involved in this study occurred through telephone and email. This distant communication presented challenges in building and maintaining the close collaboration that was necessary for a community-based evaluation. The collaboration amongst instructors, researchers, and community members had to be channelled through key research partners, and there were few opportunities for face-to-face meetings. This presented a challenge in developing partnerships and conducting iterative feedback. Having narrow communication channels also presented the possibility that individuals' intended meanings could be misrepresented when relayed through different people.

Partnership development. The present study largely drew on the positive relationship that had been built previously between the joint primary investigators of the SLWEREI and the community of Sachigo Lake First Nation during Phases I-III of the program. A central principle of CBPR is a longstanding commitment between researchers and the community involved with the research (Israel et al., 2008). The three years spent conducting the present study does not adequately represent the time required to build the relationship that has produced the knowledge gained. Rather, this study and the success of SLWEREI, were a reflection of the drive and commitment of the architects of the program over the past six years. Drawing upon the pre-existing relationship meant that all features of past collaboration, which could have been positive or negative, were incorporated into the present research relationship. Thus, drawing on pre-existing relationships of others may have had an impact on the perceptions that community research partners shared.

Despite the constraints on partnership development, researchers were confident that data saturation was achieved, and that constraints were minimized though the involvement of research partners throughout the research process. The CBPR approach used in this study involved cyclical and iterative development of knowledge and best practices in meeting local needs (Israel et al., 2008). Trust development remained a central feature in this study. Once in the community, initial focus group interviews with course participants were dedicated to developing trust and rapport. Initial focus groups had much lower participation from community research partners than focus groups later in the week. Much of the feedback gained from initial focus groups was from people who were perceived to be community leaders in the group (e.g. Elders and respected figures). As the course progressed, and trust was developed between researchers and research partners, there was much greater participation from everyone during focus groups.

The high degree of commitment from all involved in the program was apparent on many occasions. Members of Sachigo Lake First Nation faced a community crisis mid-way through the course, with the death of a friend and relative in a neighbouring community. Many of the course participants were mourning and consoling one another throughout the night. However, despite this incident, there was still strong participation in the course the following day. Attending and participating in the course after such a loss, coupled with sleep deprivation, was a testament to what the program meant for the community. Furthermore, while in Sachigo Lake for the community presentation, the joint primary investigators conducted an ad hoc automated external defibrillator supported cardio pulmonary resuscitation course for the employees of the Northern Store. This was at the request of community members. This unexpected course further

demonstrated commitment from the physician instructors, as well as genuine enthusiasm for first aid capacity building within the community.

Sustainability. Additional potential limitations arose from the lack of a plan for sustainability inherent in the nature of the SLWEREI as a pilot project. CBPR approaches require a commitment to sustainability (Israel et al., 2008). The SLWEREI was designed as a pilot project to explore the unique features of developing and implementing emergency first aid training in a remote First Nations community, and assess the potential of the program. This trial of community-based emergency medical training inherently lacked a plan for sustainability within the community. The lack of a sustainability plan and uncertainties in funding may have also constrained partnership development within the evaluation and research component of the program. This also created uncertainties regarding the longevity of program outcomes and how long-term needs were to be met.

Language. Another potential limitation of the program and research was that the course was only offered in English and the researchers did not speak Oji-Cree. As discussed previously, some residents of the area speak Oji-Cree as their first language and have varied comprehension of English. It remains uncertain whether having the course offered only in English prevented some community members from attending who were willing and interested. Precluding members of the community who do not speak English further limited the generalizability of the knowledge gained, as the voice of these people may have been missed. Broadening the partnership to include community members as translators would likely enhance local understanding, ownership, and inclusivity for future courses. Alternatively, different language

versions of the course could be developed and delivered at different times, providing residents the option of taking the course in English or Oji-Cree. However, trust and partnership development channelled through a translator would likely be challenging and present additional limitations of its own.

Despite the limitation inherent in not offering the course in Oji-Cree, instructors and the primary researcher partnered with a local Elder to promote awareness of the program while in the community. On two occasions during the course, radio segments were broadcast from the local radio station. During these radio segments, features of the course and evaluation were discussed by the instructors and the researcher, and subsequently translated by the Elder. Community members were invited to come join the free course and were also given the opportunity to call into the radio station to ask questions.

Lack of a reference for course development. The ability of community members to critically evaluate and develop a medical training program was limited by the lack of experience with other health promotion programs operating in the region. This was likely the first opportunity for many community members to critically reflect on health issues in the community and what was needed to address these issues. The ability to critically reflect on health issues and course processes was developed through participation in the formative evaluation of the program, however, further opportunities for introspection would be necessary to foster and further develop evaluation capacity. It was inherently difficult to guide the development of a medical education program when there was not a high degree of familiarity with medical training. An instructor of the course and lead investigator of the program reflected on this during a follow-up interview.

> It's hard for a community to truly navigate what it is they want if they don't know the field. They can point to some situations that they have had like mental health crises, or a plane crash, or a fire, you know; "can you teach us what to do in those situations?" But I can imagine it's hard to come up with situations that they haven't experienced and say 'we need to learn this even though we haven't come across it.' (FI 6; RP19)

In addition to the difficulty in selecting the content required to address health issues with limited familiarity with medical training programs, it may have also been difficult for community research partners to critically evaluate a medical training program without an adequate comparison for reference. This translated into a suspicion amongst the instructors and researchers regarding the lack of negative feedback received from the community research partners.

> I still have some concerns that when you are dealing with a community within a region that has so little by way of first response training, especially even remotely successful or effective first response training, I'm still very suspicious that the positive reinforcement that we were getting, and enthusiastic responses that we were getting, is just the fact that we're not in a very competitive playing field, and people feel somewhat desperate to get something good. We offered something free. We offered something that had some modicum of community engagement even if that wasn't perfect. I just felt that it was very unlikely with those elements that we would get intensely critical feedback. (FI 7; RP18)

The health service inequities, along with inequalities in health stemming from a history of colonialism and marginalization, may have limited course participants' ability to critically reflect on specific features of the program. Community research partners were, perhaps, overly supportive and enthusiastic about the program, which may be the reflection of a lack of services and training programs offered in the region. The ability to reflect on health issues and determine

the best practices in addressing those issues will increase as more programs are implemented and people get a sense of what works well and what does not.

4.6 Implications

The SLWEREI resulted in many implications for the community of Sachigo Lake First Nation, the program and the people involved, as well as the academic community. The growth and development of the community members involved in the program was apparent and went beyond the emergency management skills and knowledge directly taught in the course. The evaluation and research process was aimed at keeping community members engaged in every aspect of the study, thus providing them with the opportunity to openly reflect on the health of the community and the effects of the educational program. The course participants were research partners and teachers in this process, educating the researchers in the best practices to address the health issues within their community. This process co-created power with the community research partners through their active role in improving the program and influencing the health and well-being of the community.

The community members taught researchers about the health issues in the community, and the best practices in structuring a medical education program to address those issues. Community members also co-created the research method and critically appraised program processes in relation to community health and well-being. Once a trusting partnership was established, research partners led the inquiry process, which generated novel lines of knowledge generation and sharing. Community partnership facilitated a greater understanding of local health issues,

programmatic processes, and best practices in creating a community-based medical education program.

The co-creation of the research method and co-development of the course resulted in participants developing capacity in research in addition to emergency response. The embedded evaluation and CBPR process developed a research/evaluation perspective amongst community research partners. An example of this development of research interests and skills emerged during a conversation with the community Health Director,[13] while in Sachigo Lake for the community presentation. He described an incident that had occurred recently at a youth hockey game, in which a player fell into the boards awkwardly. Instead of responding as he normally would, he put trust in two community members who had also participated in the SLWEREI course who were responding to the youth at the time. He observed the response, then conducted a debrief with the two community members. He asked them how they felt after taking the course, how the course had impacted them, and if it helped them when they responded to the youth hockey player. Thankfully, there were no serious injuries involved, and the community members felt comfortable in utilizing the skills they had acquired, and would not hesitate to respond to future incidents. There is an important nuance in this example. The Health Director demonstrated more than the emergency response skills directly taught in the program. His actions also suggest that based on his active involvement in the evaluation, he was inspired to initiate a debrief with the responders and assess the effectiveness of their training. This example illustrates the horizontal knowledge transfer that occurred between the different roles of partners in the program (instructors, participants, and researchers). Through the CBPR approach of the

[13] The Health Director had many overlapping roles such as course participant, and community partner of the SLWEREI since program inception.

evaluation, all people involved contributed their knowledge and skills to teach one another, and the distinction between those doing the research and those being researched was muted.

Just as the community research partners developed research experience in addition to response capabilities, the instructors and researchers also developed skills and knowledge in addition to the knowledge generated regarding the research questions. The CBPR approach of the study emphasized co-learning and capacity building among all partners (Israel et al., 2008). Co-learning has been an important feature of the program. The people involved in the program were expanded to include a medical resident and a medical student as instructors. While participants were developing their response capacity and co-developing the evaluation process, the instructors and researchers were developing their abilities as well. One instructor reflected on learning from the experience after being placed in a teaching role for the first time in his medical career.

> If I'm in more of a teaching position I actually learn more because I have to brush up on my knowledge. Conveying information to someone else requires me to understand it in many different ways…. I feel that it is enriching my own knowledge. (FI 9; RP22)

Another instructor reflected on the value of learning from the participants through the formative evaluation component of the program. "As an instructor, it allowed me to adjust, and to plan, and to adapt right on the fly and make sure that people were getting what they needed out of it" (FI 8; RP20). Another instructor reflected on the value of having learners involved in teaching the course.

> For me, as a learner, it was a fantastic experience. It's something that has shaped a lot of my opinions and ways of interacting with people, and it's been a great learning experience for me…. I would like to think it's useful to have a variety of training levels and walks of lives. I think, especially when you're dealing with something that can be complicated like a

> medical emergency, it might be interesting to have people of varying expertise present during those courses, so its not a bunch of medical experts teaching and showing a bunch of laypeople. There was a lot of things that I learned throughout that week as well, and a lot of questions that I asked that I was curious of. I think by having someone like myself, or you, or [name], who is actively learning as well with the community members, it helps to sort of close that circle so its not just teachers and learners, it's a whole group, through a whole spectrum. And I think that was reflected throughout the week, even how the community members would teach us things." (FI 5; RP21)

As the primary researcher conducting my first study, I developed my research abilities through interacting with research partners. I reflected after my initial interviews that I became aware of a propensity to lead the interviewees rather than provide adequate time for the interviewees to reflect on the questions for themselves. Reflexivity of my own limitations and development facilitated my growth as a researcher. Everyone involved in the SLWEREI learned and developed from one another throughout the research and course processes. The horizontal knowledge transfer amongst everyone was the result of the CBPR approach and relationship building, in recognizing that everyone was both a learner and an expert in their own way. Thus, the CBPR approach integrated and achieved a balance between research and action for the benefit of all partners involved (Israel et al., 2008).

In addition to the impact that the program had on the participants, instructors, and researchers, the program also affected the Sachigo Lake community in unexpected ways. After the initial Phase II SLWEREI course, members of the community were inspired to purchase automated external defibrillators (AEDs) to have accessible for community members. After the first course, the owner of the local Northern store purchased an AED to be kept accessible at the store, which

is also a common meeting place for community members. The Band Council also approved the purchase of two AEDs; one was placed at the Band Office and the other was kept with the vehicle that is used in medical transport. This unintended outcome of the first course illustrates that local leaders were recognizing the need for emergency care and taking steps to improve the capacity of the community to handle emergency situations.

One of the instructors and lead investigators of the program reflected on this key step towards building community capacity. "You cannot increase capacity around an issue if it is not yet an issue. And at least in Sachigo Lake, first response is now an issue" (FI 7; RP18). It was clear that interest in emergency response capacity building had increased, however, the sustainability of such outcomes is not well understood. Upon returning to the community for the presentation in February 2013, two of the three newly purchased AEDs were not working—batteries had not been checked or replaced. The unexpected outcome of the program in newly allocated emergency response resources may not be sustainable without clear maintenance training, and assignment of duties to ensure maintenance is followed through.

Through the formative evaluation and research component of the SLWEREI, further knowledge was generated in multiple areas. A greater understanding was generated regarding the health issues faced in remote communities of northwestern Ontario, where there is no formal paramedic service and community members are relied upon to provide emergency care. Knowledge was generated related to the challenges and potential of implementing a community-based medical training program as a health promotion strategy in a remote First Nations community.

Furthermore, individual and community attributes related to resilience were also explored within the context of Sachigo Lake.

4.7 Future Research and Action

This study has generated an increased understanding of the outcomes and unique features of developing and implementing a community-based emergency medical education program. Future evaluations are needed to assess the long-term morbidity and mortality trends to determine if such a program can make a measurable impact on the health status of Sachigo Lake or similar communities in the region. A quantitative assessment of morbidity and mortality trends before and after the implementation of the SLWEREI was considered as part of this study. However, a morbidity and mortality assessment was not feasible in this study due to the relatively small population of Sachigo Lake First Nation, the substantial financial burden, and the length of time that would be required to observe statistically significant effects. Further, there was no clear documentation system for prehospital emergencies in this region, which would make the collection of data difficult. It was also deemed that a quantitative assessment would not provide a detailed description of the factors related to resilience that emerged as possible outcomes of the program. Thus, a qualitative evaluation of the course and exploratory examination of programmatic outcomes was prioritized at this stage of program development. Further research is also required to assess the long-term effect that this program has had on the capacity and resilience of the Sachigo Lake community.

This study has generated a greater understanding of the local context of remote communities in northwestern Ontario and the hardships faced by people who have no access to paramedic or 911

services. It is clear that additional research is required to explore the health status of people in the region in order to find locally appropriate ways of addressing health inequities. Additional research is also warranted to better understand the status of pre-nursing station care in the regional context of the remote communities of northwestern Ontario. This type of research is particularly important because of the dearth of information available, contrasted with the importance of acute care in an area that has elevated rates of traumatic injury and chronic disease. Mental health conditions also emerged as an important health issue facing communities in the region. Further research is also needed to address the youth suicide crisis in the area, and explore solutions and support options to address this issue for Sachigo Lake and other communities in the region. Future research should also assess whether the program has had any impact on prevention and health promotion through encouraging the development of a safe and healthy community.

Future evaluation initiatives should also consider the social conditions and context that programs are placed into when assessing how to be effective at addressing local needs. It remains unclear what the unintended impact of such a capacity building program had on the local power structure and social dynamics within the community. Additional research is required to understand what, if any, the effect of training has been on the social standing of community members, as well as each individual's sense of duty and purpose. Further research is also needed to determine the cost-effectiveness of community-based emergency care training in order to fully understand the impact of such programs.

As mentioned previously, the final phase of the SLWEREI has begun, which has involved disseminating the knowledge gained to key players responsible for health services in the region, and developing a plan for the future (Orkin et al., 2014). The aim of this phase of the program was to facilitate a multi-jurisdictional roundtable meeting in order to develop a vision, set of recommendations, and guiding principles to improve emergency care for injured and ill people in remote communities in Nishnawbe Aski Nation. Implementation of future community-based emergency care training should begin with a consultation process to present and discuss the current knowledge regarding such programs, and how the community would like the program individually tailored to meet local needs. Community-based emergency care training is a viable way of addressing the inequity in emergency medical services in remote contexts of northern Ontario, and was effective in building resilience and community capacity to address adversity.

Chapter 5: Conclusion

The SLWEREI represented a partnership between Sachigo Lake First Nation, medical professionals, and university researchers with the aim of addressing local emergency healthcare needs through community-based medical education. The SLWEREI aimed to promote health within Sachigo Lake First Nation through enhancing first aid skills among community members, and address health issues of local importance. The SLWEREI operated through a consultation process to develop a locally tailored first aid training course through an integrated formative evaluation and research process. Ongoing program development, through evaluation and iterative modification, was an integral part of the process in order to identify best practices in meeting local needs. This study represented one part of the overall evaluation of the program, and it was limited in scope to Phase IV—the development and implementation of the second comprehensive training course.

The SLWEREI course development and delivery met the local needs of Sachigo Lake through community partnership, engaged learning, and realistic context. Community members were involved in every stage of the course development and evaluation process, which enhanced local ownership of the course and the tailoring of content to local conditions. Participants felt engaged throughout the course based on adaptive and flexible pedagogy and open discussion. The curriculum and simulations were adapted to reflect the context of Sachigo Lake. Critical features that may have limited the potential effectiveness included: varied experience among participants, language barrier, lack of certification, and tensions regarding traditional medicine. Additionally, the scope was limited to established life-supporting practices, and there was no plan for sustainability of the program within the community.

The outcomes of the program were described in the themes of building knowledge, confidence, community strength, and informal response system. Local knowledge was improved regarding health issues of local relevance. Self-efficacy was enhanced among participants of the course who felt better prepared to handle an emergency and more likely to respond. Participants' sense of community was enhanced through generating trust in others and strengthening social support. The existing informal response system of Sachigo Lake was improved through creating an informal network of trained responders, and facilitating collaboration and training among the various community groups and professionals.

Disparities in the health status of First Nations people in Ontario are compounded by a lack of access to emergency medical care. The SLWEREI addressed this gap in services with the development of an effective model of education for laypeople to improve prehospital healthcare. Health promotion through community-based first aid education is a model with potential to address local health issues, and improve prehospital care in the absence of formal medical services. Having the community steer the research and program development helped to ensure that they were able to act as the experts regarding their own ideology of health, and address issues of local importance.

The knowledge generated in this study illustrates that the program has had intrapersonal, as well as interpersonal impacts on members of the Sachigo Lake community. More local health knowledge was generated among participants of the course. This improved knowledge, along with enhanced self-efficacy, may translate into increased propensity to help and improved

quality of pre-nursing station care. The outcomes of the SLWEREI course went beyond the emergency response capacity that was directly taught. The SLWEREI created a safer, more resilient community through enhancing the existing informal response system. It is likely that the SLWEREI may lead to a reduction in morbidity and mortality from injury as well as a variety of diseases, however this was not assessed in this study.

These findings illustrate that the development of a community-based medical training program for laypeople was a viable method to enhance resilience and community capacity, and indirectly promote health and well-being, in one remote First Nation community in northwestern Ontario. The impact of the SLWEREI went beyond the skills and knowledge taught in the courses. Community members developed interest and ownership of the program, and research partners became empowered to reflect on health issues within the community and devise the best practices in addressing those issues. The knowledge generated from this study may be able to inform future community-based medical training programs, as well as inform studies related to capacity building and First Nations concepts of resilience.

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Appendix A: Sachigo Lake Wilderness Emergency Response Education Initiative Research Agreement: Revised January 2012.

1. Purposes of the Research Project

The purpose of this research project is to investigate local emergency first response capacity in Sachigo Lake. With the knowledge acquired by this investigation, the program will develop a course, in collaboration with the community, to enrich community members' practical and hands on emergency management techniques.

The results of this research may be used to explore how first response capacity and training can address specific challenges in pre-hospital care for remote First Nations communities.

2. Scope of the Project

- *What are some critical incidents that have occurred in the community and how were they dealt with? What first response resources currently exist in the community?*
- *What are the desired learning objectives of community members for the course?*
- *Did a course in wilderness first response meet community expectations? Does it add to their feelings of preparedness in dealing with emergency incidents?*

3. Methods and Procedures

Data will be gathered using the following methods:

- *Interviews with self-selected course participants and community members*
- *Focus groups with course participants*
- *Observation of course delivery*
- *Audio and video recording*

Photographs, audio and video recordings will be used throughout the program as learning tools for the course, as material for future dissemination, and as a research data. Consent will be sought for photographs and video. Where video and photographic material captures identifiable participants, community consent will be obtained for future use.

This project will collect qualitative data from focus groups, participant observation and interviews, and through informal meetings that occur over the site visit and duration of the course. Focus groups and interviews will be recorded using an audio recorder.

Community members will assist or participate with the data-gathering phase in the following ways:

- *Review qualitative notes to ensure that they are accurate, and reflect focus group contents*
- *Discuss qualitative data with members of the research team*

Individual consent to participate in the project will be obtained in the following ways:

- *Written: A plain-language consent form will be described to course participants via Powerpoint slides; they will also have a written version of the plain-language consent form to review and sign.*
- *Verbal: Participants may choose to express their understanding of the consent presentation and express their consent verbally if they prefer.*
- *Iterative: Throughout the program, core principles of the informed consent process will be reiterated and participants will have the opportunity to renew or alter their involvement.*

Participants have the right to withdraw from the project at any time for any reason. In this case, that participant's qualitative data will be destroyed if requested.

Research data will be stored in the following ways:

- *In a computer which is password protected*
- *In a secure space within the university campuses of Lakehead or Laurentian, including the Northern Ontario School of Medicine*
- *Data will be stored until the end of the project if requested by community leaders or as deemed appropriate by researchers and community leaders*

The following persons will have access to research data:

- *Sachigo Lake community leaders and course participants, Jackson Beardy, David VanderBurgh, Aaron Orkin, Stephen Ritchie, Jeff Curran, Calen Sacevich, Baijayanta Mukhopadhyay, Karen Born and research assistants or partners*

Confidentiality of research data (if desired) will be ensured in the following ways:

- *Participant names and roles that would identify participants will be removed from the qualitative data unless participants would like to be identified*

Data will be analyzed or interpreted through the following methods:

- *Use of qualitative critical analysis where data will be coded based upon thematic areas*
- *This is an iterative approach which will be revisited based on input from community research partners*

Community research partners will participate in data analysis, or the verification of results, in the following ways:

- *In-person discussion during the course with identified community research partners*
- *Email communication with Jackson Beardy, Medical Director of the Sachigo Lake Health Center*
- *Telephone and/or email communication with identified community research partners*

The final research report will be submitted to the community for review and written and/or verbal approval by Jackson Beardy, Sachigo Lake Medical Director and other community leaders.

Research findings will be presented to the community in a language and format that is clear and comprehensible to community members.

Research findings will be presented to the community in the following formats:

- *Plain language (English) summary*
- *Oji-Cree summary if community and/or research partners identify a need for this*
- *Poster summary with images*

Research findings will be presented to the general public and/or any other audience in the following formats:

- *Papers published in related journals or media*
- *Presentations in print and other media*
- *Oral and poster presentations at related conferences*
- *Material on relevant websites*

4. Expected Outcomes, Benefits and Risks

The expected outcomes of this research project are:

- *The development of a course and curriculum for wilderness first response, tailored to the Sachigo Lake community*

The project will benefit the principal (external) researchers in the following ways:

- *Increase knowledge of wilderness first response and education*
- *Professional development for team members*

The project will benefit the community (individually or collectively) in the following ways:

- *Increase local first response capacity*
- *Increase community capacity to manage pre-hospital incidents*
- *Increase course participants' confidence in managing emergency incidents*
- *Empower community members through participation in evaluation*

The project poses the following risks to the community:

- *May increase community fear about the risks of going out on the land given discussions of these same risks*
- *May increase course participants' confidence in managing critical incidents, which may lead participants to respond to emergencies in ways for which they may not be adequately skilled or equipped*

Measures that will be taken to minimize these risks are:

- *Declare all conflicts of interest at the outset*

- *Ensure that course is developed and conducted collaboratively with course participants. Course participants and community informants identified areas for course focus and there are opportunities to adjust the course throughout development and delivery to reflect community needs.*

5. Obligations and Responsibilities

External Research Partner

• To do no harm to the community.
• To involve the community in active participation of the research process and to promote it as a community-owned activity.
• To ensure the research's design, implementation, analysis, interpretation, reporting, publication and distribution of its results are culturally relevant and in compliance with the standards of competent research.
• To undertake research that will contribute value to the community.
• To ensure that community members identified as research partners have opportunities to participate and inform the design and planning of the course and research, as well as the data collection and analysis, data interpretation, storage and so on.
• To be stewards of the data until the end of the project if requested by community leaders or if deemed appropriate by researchers and community leaders.
• To promote the dissemination of information to stakeholders identified by Sachigo Lake research partners and community leaders. The research team may also present dissemination opportunities (e.g. medical and academic conferences, medical and academic journals etc.) to community leaders and partners and request approval to present to these audiences.
• To be involved in any future analysis of the data after the data is returned to the community, if requested.
• To abide by any local laws, regulations and protocols in effect in the community or region, and to become familiar with the culture and traditions of the community.
• Within their respective roles as researchers and community representatives, to advocate and address health, social or other issues that may emerge as a result of the research.
• To ensure that the community is fully informed in all parts of the research process, including its outcomes through publications and presentations, and to promptly answer questions that may emerge regarding the project and its findings.

• To communicate openly with the other partners (which include Sachigo Lake First Nation, Nishnawbe Aski Nation, Sioux Lookout First Nations Health Authority, Northern Ontario School of Medicine, and the Canadian Institutes of Health Research) in all issues arising in the project.
• To ensure that research carried out is done in accordance with the highest standards, both from a methodological research and First Nations cultural perspective.
• To support the community by providing resources as a matter of priority (e.g., course materials and tools to conduct a first response course).
• To abide by their own professional standards, their institution's guidelines for ethical research and general standards of ethical research.

Community-based research liaison
In addition to the obligations listed for the external research partners, the community-based liaison, Jackson Beardy, is obligated:
• To provide a link between the research project team and other community members, and provide relevant, timely information on the project.
• To place the needs of the community as a first priority in any decision where the community researcher's dual roles of community member and researcher may be in conflict.
• In situations where a research project is promoting healthy lifestyles or practices, to promote the intervention objectives of the project by working closely with community health, social and/or education professionals.
• To be stewards of the data until the end of the project if requested or appropriate.

Community Partners
• First and foremost, to represent the interests, perspectives and concerns of community members and of the community as a whole.
• To ensure that research carried out is done in accordance with the highest standards, both methodologically and from a First Nations cultural perspective.
• To communicate the results of the research to other communities, and to share ideas as well as program and service development for mutual benefit and involvement.
• To serve as the steward of the research data during and/or after completion of the project.
• To offer the external and community researchers the opportunity to continue data analyses before the data are offered to new researchers.

6. Funding
The principal researchers have acquired funding and other forms of support for this research project from the Canadian Institutes of Health Research and Northern Ontario Academic Medical Association

7. Dissemination of Results

Research results will be disseminated to the following stakeholders:
- *Nishnawbe Aski Nation communities*
- *Sioux Lookout First Nation Health Authority*
- *Other communities or stakeholders as identified by community leaders and partners*
- *Canadian medical communities: emergency medicine, family medicine, rural/remote medicine*
- *Canadian nursing communities: primary care nursing, rural/remote nursing*
- *Canadian health services and policy research community, Aboriginal health services research communities*
- *Northern Ontario School of Medicine research community*

Research results may be disseminated in the following manner:
- *Publications in journal or other print media*
- *Oral and poster presentations at meetings and conferences*
- *Radio presentations*

- *Newsletters*
- *Websites*

Any future publication or dissemination of research results, beyond what is described in this agreement, shall not be undertaken without consultation with the Sachigo Lake First Nation.

8. Data Ownership and Intellectual Property Rights

The individual owns his or her personal information, while the Sachigo Lake First Nation owns the collective data.

The Sachigo Lake First Nation retains all intellectual property rights (including copyright), as applicable, to the data offered under this agreement. Access and stewardship of the collective data are negotiated and determined by the First Nation.

9. Communication

Communication on all aspects of the research, including progress reports to the community, will be ensured in the following ways:

- *Ongoing email and telephone communication with Jackson Beardy and other Sachigo Lake First Nation stakeholders*
- *Sharing of data for review and comment with community research partners*

In the case of media inquiries during or after the project, designated spokespersons are:

- *Dr. Aaron Orkin*

The community will be the first to receive research results and the first invited to provide input and feedback on the results. The results should be presented in a format that is language appropriate and accessible to the community. Results will not be released without the approval of the community.

At the end of the study, the research partners agree to participate (via telephone and/or email) in community meetings to discuss the results and their implications.

10. Dispute Resolution

In the event that a dispute arises out of or relates to this research project, both parties agree first to try in good faith to settle the dispute by mediation administered by an agreed upon neutral party before resorting to arbitration, litigation or some other dispute resolution procedure. A mediator will assist the parties in finding a resolution that is mutually acceptable.

If a dispute cannot be resolved to the satisfaction of both parties, the research project may be terminated according to the terms described below.

11. Term and Termination

This agreement shall have an effective date of _____ and shall terminate on _____.

This agreement may be terminated by the written notification by the research team or the Sachigo Lake community leadership.

Appendix B: Consent Acknowledgement Form.

The Sachigo Lake Wilderness Emergency Response Education Initiative

Primary Investigator: Dr. Aaron Orkin, Dr. David VanderBurgh
Co-Investigators: Jeff Curran, Stephen Ritchie
Sponsor: Canadian Institutes for Health Research, Northern Ontario Academic Medical Association
Coordinating Organization: Northern Ontario School of Medicine

Dear Program Participant,

Thank you for your time and experience. You have been identified by community leaders and the Director of the Health Authority as having emergency first response capacity in Sachigo Lake and are being invited to participate in the Sachigo Lake Wilderness Emergency Response Education Initiative. In your role as a Ranger, First Response Team, Crisis Team, Nursing Unit staff, and other relevant role you may encounter emergency response situations and scenarios. The Sachigo Lake Wilderness Emergency Response Education Initiative will provide you with practical emergency management techniques. Training and skills for individuals with first response capacity has been designated as a priority by the Nishnawbe Aski Nation.

About the Sachigo Lake Wilderness Emergency Response Education Initiative:

The Sachigo Lake Wilderness Emergency Response Education Initiative is an education and capacity building program designed to improve local emergency first response in Sachigo Lake. This program's goal is to increase local capacity in the management of common emergencies.
The program has five distinct phases of (1) needs assessment and course development, (2) course and capacity building, (3) course refinement, (4) second course and capacity building, and finally (5) evaluation and reflection.

The Sachigo Lake Wilderness Emergency Response Education Initiative is being funded by the Canadian Institutes of Health Research and the Northern Ontario Academic Medical Association. The education initiative has thus far consisted of a planning meeting, which took place in May 2010 and a 5-day training course from November 1 to 5, 2010. At the planning meeting we learned more about your needs for the course, your experiences in emergency first response and also how you would like the course to be evaluated. A second 5-day training course will take place from May 7 to 11, 2012 to expand and reinforce the skills learned in the first course.

To ensure that the course meets community needs, and to improve on any future courses, a researcher will be present at all course sessions to do an evaluation. Evaluation methods will include observation of course sessions, conversations with groups of course participants, and interviews with people who would like to reflect on the course and the health of the community.

Photos and videos will be taken of the activities during this course. You may be identifiable through the pictures and video. All information provided to the researcher will be kept strictly confidential, and your names, photos, and video will only be used in the research with your consent.

All materials for publication or presentation coming from the Sachigo Lake Wilderness Emergence Response Education Initiative will be reviewed by a community member from Sachigo Lake prior to release.

Participation:

Participation in the course is voluntary, and if you choose to not participate in the course it will not affect your standing in your role in the community either as a Ranger, First Response Team, Crisis Team, Nursing Unit staff, or some other position or area of responsibility.

Participation in the research aspect of the course is voluntary. You may take the course and not participate in the research component. You may choose, at any time, to withdraw, though we hope you will participate in the research and be willing to help us improve the course. You may also choose to not answer any questions provided by the research team. There is no expected harm associated with participation in the course.

Confidentiality and anonymity:

For the purpose of our research, we will record all conversations during the focus group using a sound and/or video recorder. For our research, we will use information from interviews and group discussions as well as observational notes taken during the course. All of the information you share with us will be held in confidence, and will only be reviewed by members of the collaborative research team.

All data and information will be stored on a password protected computer in a secure location and all printed data will be stored in a locked cabinet. Data will be stored until the end of the project if requested by community leaders or as deemed appropriate by researchers and community leaders.

A Research Agreement developed in collaboration with the research team, research partners and community leaders will outline rights and responsibilities of the research team and community members, with plans to share and disseminate any material around the process and outcomes of the program and research.

The research team intends, with approval from the community and participants, to share material about the program through conferences, presentations, publications and other means of knowledge exchange. This material may include photographs and video of the course, and the course participants who have consented to the use of photos and video.

If you have questions or concerns, please contact:

Aaron Orkin , Primary Investigator
Phone: (647) 932 7551

Jackson Beardy, Research Partner Lead
Phone: (807) 595-2527

Stephen Ritchie, Research Director
Phone: (705) 675-1151 ext 1046

Sue Wright, Lakehead University Research Ethics Board
Phone: (807) 343-8283

Jean Dragon, Laurentian University Research Ethics Board
Phone: (705) 675-1151 ext 3213

Important Note

This consent was reviewed prior to participants taking the course. Project title, names and contact information were written on a flip chart or white board prior at the start of the session, and copies of the research information and consent form (Page 1, 2 and 3) were made available for those from the session who wanted one. This form simply acknowledges that the consent was completed as planned.

Verbal Consent Acknowledgement

I have participated in this course and acknowledge that this consent was reviewed with participants and it seemed to be understood and accepted by the course participants listed below.

Witness Name (PLEASE PRINT)	Date
Witness Signature	Date
Research Facilitator Name(s)	Date
Research Facilitator Signature(s)	Date

Names of Course Participants

Note: Please use reverse side of this page to include the names of additional participants

The Sachigo Lake Wilderness Emergency Response Education Initiative

RESEARCH

The Sachigo Lake Wilderness Education Response Initiative is a program that wants to teach community members first aid skills that meet community needs.

We have money from the Canadian government and Northern Ontario Academic Medical Association to do this course.

We want to make sure that the course is right for your community. We want to learn from you how we can make this course better. A researcher is here who will ask you questions about what you liked and disliked about this course, what you think could be made better, and your first aid experiences.

Photos and videos will be taken of the activities during this course. You may be identifiable through the pictures and video. But, we will not use your name anywhere and the things you say during the course and research focus groups are confidential.

- You are participating in the research as a volunteer.
    - You can decide at any time to stop participating in the research.

- You do not have to participate in the research part of the course.
    - You can decide at any time to stop participating in the research.

- The researcher is going to ask you questions.
    - You do not have to answer questions if you don't want to.

- We want to keep a record of your thoughts and feelings about the course through the researcher writing down notes and also through recording conversations on a voice recorder.
    - We won't take down your name, or who said what unless you would like us to.
    - Your comments will be confidential.

- The information that you share with us will be safe.
    - We will not share it with anyone unless we have permission from the Chief and Band Council.
    - We will keep the information secure and locked.

Are you willing to speak with a researcher by phone several months after the course?

Please circle one: YES NO

I have read and understood this form.

_____ _____

NAME (Printed) **SIGNATURE**

_____

DATE

PHOTO & VIDEO CONSENT:

For the course we are going to use videos and pictures to help us learn.

We may use these videos and pictures for research in the future. We may also show them to other people to tell them more about this course. However we will seek permission from a community leader before showing any pictures or video publicly. It is okay if you don't want your image shown in the videos and pictures taken.

Are you okay with us taking picture and videos of you while you are in the course?

Please circle one: Pictures YES NO

Please circle one: Videos YES NO

_____ _____

NAME (Printed) **SIGNATURE**

_____

DATE

If you have questions or concerns, please contact:

Aaron Orkin , Primary Investigator
Phone: (647) 932 7551

Jackson Beardy, Research Partner Lead
Phone: (807) 595-2527

Stephen Ritchie, Research Director
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Sue Wright, Lakehead University Research Ethics Board
Phone: (807) 343- 8283

Jean Dragon, Laurentian University Research Ethics Board
Phone: (705) 675-1151 ext 3213

Appendix C: Community Research Description and Consent Form.

The Sachigo Lake Wilderness Emergency Response Education Initiative

Primary Investigators: Dr. Aaron Orkin, Dr. David VanderBurgh
Co-Investigators: Jeff Curran, Stephen Ritchie
Sponsor: Canadian Institutes for Health Research, Northern Ontario Academic Medical Association
Coordinating Organization: Northern Ontario School of Medicine

Dear Community Member or Sachigo Lake Professional,

Thank you for your time and experience. You have been identified as being knowledgeable about the health and wellbeing of the community and are being invited to participate in the Sachigo Lake Wilderness Emergency Response Education Initiative. You will act as a local expert in the program and a researcher will ask you questions related to the health of the community.

About the Sachigo Lake Wilderness Emergency Response Education Initiative:

The Sachigo Lake Wilderness Emergency Response Education Initiative is an education and capacity building program designed to improve local emergency first response in Sachigo Lake. This program's goal is to increase local capacity in the management of common emergencies.
The program has five distinct phases of (1) needs assessment and course development, (2) course and capacity building, (3) course refinement, (4) second course and capacity building, and finally (5) evaluation and reflection.

The Sachigo Lake Wilderness Emergency Response Education Initiative is being funded by the Canadian Institutes of Health Research and the Northern Ontario Academic Medical Association. The education initiative has thus far consisted of a planning meeting, which took place in May 2010 and a 5-day training course from November 1 to 5, 2010. At the planning meeting we learned more about the community, your experiences in emergency first response and also how the course should be evaluated. A second 5-day training course will take place from May 7 to 11, 2012 to expand and reinforce the skills learned in the first course.

To ensure that the course meets community needs, and to improve on any future courses, a researcher will be present at all course sessions to do an evaluation. Evaluation methods will include observation of course sessions, conversations with groups of course participants, and interviews with people who would like to reflect on the course and the health of the community.

We want to make sure that the course is right for your community. We want to learn from you what you think about the course and how it affects the community. A researcher is here who will ask you questions about what you think about the course, what you think could be made better, and your first aid experiences.

All information provided to the researcher will be kept strictly confidential, and your names and photos will only be used in the research with your consent.

All materials for publication or presentation coming from the Sachigo Lake Wilderness Emergence Response Education Initiative will be reviewed by a community member from Sachigo Lake prior to release.

Participation:

Participation in the research is voluntary, and if you choose to not participate in the research it will not affect your standing in the community.

You may choose, at any time, to withdraw, though we hope you will participate in the research and be willing to help us improve the course so it will benefit your community. You may also choose to not answer any questions provided by the research team. There is no expected harm associated with participation in the research.

Confidentiality and anonymity:

For the purpose of our research, we will record all conversations during the focus group and interviews using a sound recorder. For our research, we will use information from interviews and group discussions as well as observational notes taken during the course. All of the information you share with us will be held in confidence, and will only be reviewed by members of the collaborative research team.

All data and information will be stored on a password protected, secure location and all printed data will be stored in a locked cabinet. Data will be stored until the end of the project if requested by community leaders or as deemed appropriate by researchers and community leaders.

A Research Agreement developed in collaboration with the research team, research partners and community leaders will outline rights and responsibilities of the research team and community with plans to share and disseminate any material around the process and outcomes of the program and research.

The research team intends, with approval from the community and participants, to share material about the program through conferences, presentations, publications and other means of knowledge exchange. This material may include photographs and video of the course, and the course participants who have consented to the use of photos and video.

If you have questions or concerns, please contact:

Aaron Orkin , Primary Investigator
Phone: (647) 932 7551

Jackson Beardy, Research Partner Lead
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Phone: (705) 675-1151 ext 1046

Sue Wright, Lakehead University Research Ethics Board
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Jean Dragon, Laurentian University Research Ethics Board
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The Sachigo Lake Wilderness Emergency Response Education Initiative

RESEARCH CONSENT FORM

The Sachigo Lake Wilderness Education Response Initiative is a program that wants to teach community members first aid skills that meet community needs.

We have money from the Canadian government and Northern Ontario Academic Medical Association to do this course.

We want to make sure that the course is right for the community. We want to learn from you how we can make this course better for the community. A researcher is here who will ask you questions about how the course has affected the community, what you think could be made better, and your first aid experiences.

Photos and videos will be taken of certain activities in the community and in the course. You may be identifiable through the pictures and video. But, we will not use your name anywhere and the things you say during the course and research focus groups are confidential.

- You are participating in the research as a volunteer. You do not have to participate in the research, however your participation would be very helpful for the research and for your community.
    - You can decide at any time to stop participating in the research.

- The researcher is going to ask you questions.
    - You do not have to answer questions if you don't want to.

- We want to keep a record of your thoughts and feelings about the course through the researcher writing down notes and also through recording conversations on a voice recorder.
    - We won't take down your name, or who said what unless you would like us to.
    - Your comments will be confidential.

- The information that you share with us will be safe.
    - We will not share it with anyone unless we have permission from the Chief and Band Council.
    - We will keep the information secure and locked.

Are you willing to speak with a researcher again by phone several months after the course?

Please circle one: YES NO

I have read and understood this form and the description of the community research as described by the researcher.

_____ _____

NAME (Printed) **SIGNATURE**

_____

DATE

PHOTO & VIDEO CONSENT:

For the course we are going to use videos and pictures to help us learn.

We may use these videos and pictures for research in the future. We may also show them to other people to tell them more about this course. However, we will seek permission from a community leader before showing any pictures or video publicly. It is okay if you don't want your image shown in the videos and pictures taken.

Are you okay with us taking picture and videos of you while you are in the course?

Please circle one: Pictures YES NO

Please circle one: Videos YES NO

_____ _____

NAME (Printed) **SIGNATURE**

_____

DATE

If you have questions or concerns, please contact:

Aaron Orkin , Primary Investigator
Phone: (647) 932 7551

Jackson Beardy, Research Partner Lead
Phone: (807) 595-2527

Stephen Ritchie, Research Director
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Appendix D: Community Interview Guide.

1. What do you think the community needs to improve health?
    a. How do you think that can be accomplished?
    b. Why is that important?
2. Have you been involved in a first aid situation?
    a. What happened?
    b. Was there someone there that was trained in first aid?
    c. Did they use anything learned from the SLWEREI course?
3. Do you know of any other first aid situations in the community?
    a. Do you feel that the course affected what happened?
        i. How?
        ii. Why is this important?
4. How did the emergency response course affect the community?
    a. Has the course affected the health of the community?
    b. What do you consider as health and wellness?
    c. Do you feel that the course improves how the community can manage health?
5. Have the participants shared their knowledge and skills with others?
    a. Do you feel that this is important?
    b. Why?
6. Do you think that the course is effective?
    a. Can you give some examples of why or why not?
    b. How does the program fit with overall community approaches to health?
7. How does the development and delivery of the SLWEREI meet locally specific needs of the community?
8. How does the SLWEREI affect the community's capacity to respond to emergency situations?

Close: Thank you for answering all our questions about your community and your experiences today. Maybe you have thought of something that we have left out in this discussion. Is there anything else that you'd like to share about your experience? Are there any questions you'd like to ask?

THANK YOU VERY MUCH FOR TAKING THE TIME TO SHARE WITH US.

Appendix E: Small Group Interview Guide.

1. Can you share any past experiences that you have had with the topics you have learned about today? (i.e. CPR on Day One)
    a. Can you share any other situations when this happened in the community?
    b. Do you think what you have learned today is valuable?
2. How would what you have learned influence that situation?
    a. Why is this important?
    b. Would you like to have learned anything else?
3. What did you like/dislike about this section of the course?
    a. Why did you enjoy it?
    b. Why did you dislike it?
    c. Why is that important?

Close: Thank you for answering all our questions about your community and your experiences today. Maybe you have thought of something that we have left out in this discussion. Is there anything else that you'd like to share with the group about your experience? Are there any questions you'd like to ask?

THANK YOU VERY MUCH FOR TAKING THE TIME TO SHARE WITH US.

Appendix F: Large Group Interview Guide.

1. What did you like/dislike about the course and what was discussed?
    a. Why did you enjoy it?
    b. Why did you dislike it?
    c. Why is that important?
2. How has the course affected you?
    a. What difference has what you are learning made in your lives?
    b. Would you feel more confident in an emergency situation after taking the course?
        i. Why?
    c. How does the course affect how you see the community?
    d. Do you feel more in control?
3. How has the course affected the community?
    a. How has the course affected relationships in the community?
    b. How has the course affected how you are viewed in the community?
        i. Has the course changed how you and others get alone and communicate in the community?

Close: Thank you for answering all our questions about your community and your experiences today. Maybe you have thought of something that we have left out in this discussion. Is there anything else that you'd like to share with the group about your experience? Are there any questions you'd like to ask?

THANK YOU VERY MUCH FOR TAKING THE TIME TO SHARE WITH US.

Appendix G: Concluding Survey.

Did you like this course? Why or why not?

Do you feel that you have been able to provide input into the course? Did that improve it?

Was this course different from other courses? How?

Do you think that this course is better for the community than other course?