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Community-Based First Aid:

A Program Report on the Intersection of Community-Based Participatory Research and First Aid Education in a Remote Canadian Aboriginal Community

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1 **Abstract**

2 *Context.* Community-based first aid training is the collaborative development of locally
3 relevant emergency response training. The Sachigo Lake Wilderness Emergency
4 Response Education Initiative was developed, delivered, and evaluated through two
5 intensive five-day first aid courses. Sachigo Lake First Nation is a remote aboriginal
6 community of 450 people in northern Ontario, Canada with no local paramedical
7 services. These courses were developed in collaboration with the community, with a
8 goal of building community capacity to respond to medical emergencies.

9 *Issue.* Most first aid training programs rely on standardized curriculum developed for
10 urban & rural contexts with established emergency response systems. Delivering
11 effective community-based first aid training in remote aboriginal communities required
12 specific adaptations to conventional first aid educational content and pedagogy.

13 *Lessons Learned.* Three key lessons emerged during this program that used
14 collaborative principles to adapt conventional first aid concepts and curriculum. (1)
15 Standard algorithmic approaches may not be relevant nor appropriate. (2) Relationships
16 between course participants and the people they help are relevant and important. (3)
17 Curriculum must be attentive to existing informal and formal emergency response
18 systems. These lessons may be instructive for the development of other programs in
19 similar settings.

21
22 **Context**

23
24 This paper considers the intersection of conventional first aid education and the remote
25 fly-in aboriginal community of Sachigo Lake First Nation in sub-Arctic Canada (see Box
26 1). This intersection highlighted incompatibilities between standard first aid and local
27 community needs. These were addressed through a community-based collaboration
28 and the development of a unique, community-specific first aid program.

29
30 Over the past three years, through a process of community consultation and
31 collaboration, the Sachigo Lake Wilderness Emergency Response Education Initiative
32 (SLWEREI) was developed, delivered and evaluated. This unique community-based
33 first aid program involved two intensive five-day first aid training courses for lay
34 community members held in 2010 and 2012. Through two courses, the program has
35 trained 26 adults, approximately 5 percent of the community population.

36
37 Training centred on providing essential life-support in emergency situations, with a focus
38 on patient transport and the provision of adaptive care in low-resource and wilderness
39 settings. Course curriculum and pedagogy were based on community priorities, needs
40 and feedback received through community consultation.

41

1 Community consultation was both formal and informal involving an initial 3 day site visit
2 and needs assessment, formal interviews with key stakeholders focused on curriculum
3 and pedagogy, survey feedback from course participants, and conversations with
4 community members over the telephone and during the weeks we have spent in
5 Sachigo Lake First Nation over the last three years.

6

7 Curriculum covered topics ranging from basic trauma care and cardiopulmonary
8 resuscitation to mental health first aid, diabetic emergencies, and safe patient transport.

9 The courses spent little time in a classroom setting with the majority of learning focused
10 on practical skills training and simulation with debrief. The SLWEREI was based on a
11 simple premise, buttressed by World Health Organization and American Heart
12 Association guidelines: in underserved settings, first response education may enhance
13 community resilience and capacity to manage emergencies and save lives[1,2].

14

15 The purpose of this paper is not to present the research details or outcomes of this
16 initiative; these have been described elsewhere[3,4]. Rather, this paper reports on
17 curricular and pedagogical lessons learned as our team developed a unique first aid
18 training program. The specific adaptations to first aid educational content and
19 methodology required to deliver effective community-based training in remote aboriginal
20 communities has not been described elsewhere.

Box 1. Sachigo Lake First Nation

Sachigo Lake First Nation is a remote aboriginal community of 450 people in northern Ontario, Canada with no local paramedical services. The community is accessible by plane throughout the year, and by seasonal ice road for several weeks during the winter. Full-time nursing staff provides services at a local nursing station. A family physician visits the community for 2–3 days per month. To get to the Nursing Station, patients may be transported by snow machine, ATV, boat or truck. Hospital care is provided hundreds of kilometres away in Sioux Lookout, with transport times rarely less than 4 hours. Patients are transported to hospital by air ambulance.

21

22 **Issue: Standard First Aid and Community-Based First Aid**

23

24 First Aid is ‘the assessment and interventions that can be performed by a bystander (or
25 by the victim) with minimal or no medical equipment[2].’ First aid emerged from a
26 paramilitary tradition, rooted in the International Red Cross[5]. In North America,
27 organizations such as the American Heart Association (AHA), National Life Saving

1 Society, and the Red Cross outline the scope and principles of conventional first aid
2 education.

3
4 As a field of clinical practice, First Aid arises from a tradition of algorithmic guidelines,
5 universal practice standards, strictly delineated levels of certification and scopes of
6 practice, and a normative and a fundamentally positivistic approach to health and
7 physiology. The notion that health emergencies are adequately similar across cultures
8 and geographies forms a central premise of “standard first aid”, permitting a universal
9 and algorithmic bystander response and educational model. Clinical protocols and first
10 aid practice have been rooted in the simplification of diagnostic, therapeutic, and
11 transport decisions for sick patients, coupled with a drive to provide simple and universal
12 approaches to emergencies through basic training for non-clinicians. This model for
13 immediate and on-scene clinical care and transportation has proven tremendously
14 successful across a variety of settings from the battlefield to shopping centers, and first
15 aid training programs have been recognized internationally as an essential form of
16 health protection and promotion[6]. Non-conventional first aid programs have been
17 successful at improving outcomes in low-resource contexts with minimal paramedical
18 services in places such Ghana, Northern Iraq, Cambodia and Uganda[7,8,9,10].

19
20 Over a period of years, our team has worked with Sachigo Lake First Nation to analyze
21 the pedagogy and curricula of conventional courses. Through this partnership, we
22 customized a first aid training curriculum specifically suited to Sachigo Lake First Nation.
23 Our collaborative approach revealed incompatibilities between standard first aid and the
24 lived experience and needs of the Sachigo Lake community. Our customized first aid
25 program and experience captures several lessons learned that we now identify as
26 central to first response capacity-building and first aid programs in remote settings.
27 Together, these core concepts describe what we call “community-based first aid”
28 (CBFA), a community-oriented approach to first aid education.

29 30 **Lessons Learned**

31 We distilled several concepts into three lessons that are described in detail in each of
32 the following sections.

Box 2. Lessons Learned

- ① Standard algorithmic approaches may not be relevant nor appropriate.
- ② Relationships between course participants and the people they help are relevant and important.
- ③ Curriculum must be attentive to existing informal and formal emergency response systems.

1

2 ***First Aid Education Pedagogy in a Unique Context***

3 In a community-based first aid program, standard first aid approaches may be neither
4 relevant nor appropriate. Our experience taught us that standard first aid curricula face
5 limitations in a remote, aboriginal community such as Sachigo Lake. To build a first
6 response curriculum for this program, we drew on basic life support and first aid
7 resources from the Heart & Stroke Foundation, American Heart Association and the
8 European Resuscitation Council; wilderness medicine programs from Wilderness
9 Medical Associates International; and emerging mental health first aid materials from the
10 Mental Health Commission of Canada. We discovered quickly, that these conventional
11 first aid resources face two serious limitations for effective capacity building in a remote
12 setting like Sachigo Lake.

13

14 First, these sources often assume an advanced literacy and the cultural and cognitive
15 dominance of the written word among learners. Our participants had a wide range of
16 literacy levels, but few participants learned primarily from text. We identified that these
17 first aid curricula place heavy emphasis on flow charts and acronyms — both of which
18 led to significant challenges for our participants. For example, some conventional first
19 aid curricula use the acronym “AVPU” when assessing a patient’s level of consciousness
20 to represent **A**wake, responds to **V**oice, responds to **P**ain, or **U**nresponsive. We found
21 through early course simulations that prompting learners to use this acronym as a
22 memory tool was leading to confusion and flustering students. This issue was not
23 specific to one or two students, but a challenge expressed by all students. Assessment
24 of the patient’s level of consciousness was altered to an intuitive approach, requiring
25 participants to identify if the patient was behaving normally, abnormally, or unresponsive,
26 and to identify if the level of consciousness was improving or worsening. Through
27 consultation, we focused on similar assessment principles but phased acronyms out of

1 the curriculum as they were found to be a stumbling block, rather than a helpful cognitive
2 aid.

3

4 Second, conventional curricula also emphasize pathophysiology, requiring trainees to
5 develop health and physiology literacy in order to understand and provide emergency
6 care. For example, Heart & Stroke Foundation resources on stroke and myocardial
7 infarction are laden with graphics about atherosclerosis and thrombosis. While these
8 pathophysiological teachings serve some learners well, we also observed how this
9 approach could distract participants from the essential steps involved in responding to a
10 family member with signs of stroke or chest pain. Our program did not treat
11 pathophysiological knowledge as a pre-requisite for problem solving and decision-
12 making. Pathophysiology was addressed in our curriculum when questions arose from
13 participants. Participants were not taught to identify symptoms of a myocardial infarction
14 in order to make first response decisions because this would require an unnecessary
15 cognitive link between symptoms, pathophysiology, and first response decision-making.
16 Instead, participants were taught a generalized approach to patients complaining of
17 chest pain, requiring only a link between observed symptoms and behaviours, and first
18 response actions. Our approach focused on symptom recognition, critical decision-
19 making, safety, and treatment.

20

21 Third, we found both conventional and wilderness first response algorithms contextually
22 and geographically inappropriate. Seemingly universal instructions like ‘call 911’, ‘wait
23 for the ambulance’ or ‘go to your nearest emergency department’ appear throughout
24 commonly available first aid programs. This provides incomplete or inappropriate
25 training to first responders who provide care over extended periods in settings without
26 ambulances or formalized dispatch services.

27

28 In Sachigo Lake, where there is no paramedical nor 911 services, using conventional
29 urban first aid materials re-emphasized service inequities without providing meaningful
30 training alternatives. Our program focused not on when to call for help, nor on protocols,
31 but on relying on oneself and each other to identify a problem, think critically about the
32 situation, and to initiate an appropriate treatment based on the situation. A significant
33 amount of time was spent discussing which patients needed to be transported to the
34 nursing station, how, how quickly, and by whom. While similar principles are taught in

1 conventional first aid courses, the emphasis is on the fact that there is a professional
2 coming to help in an emergency. This is not the case in remote communities such as
3 Sachigo Lake.

4
5 Conversely, wilderness medicine curricula offer an emphasis on remote settings and
6 delays in accessing professional care, but this approach implies a specific notion of
7 'wilderness' that may alienate an indigenous community from their traditional
8 environment and way of life. Further, wilderness medicine curricula often are designed
9 for the person who occasionally travels in a remote context. Our program participants
10 articulated a sense of home, safety, and comfort in remote parts of the boreal forest,
11 which was incongruous with discourses and imagery of intrepid adventurers and rescue
12 helicopters that dominate wilderness medicine approaches. Helicopters do not have the
13 range to reach Sachigo Lake First Nation. As such, to reach the Nursing Station or an
14 aircraft, patients are transported by a combination of snow machine, ATV, boat or truck,
15 depending on location and season.

16 In Sachigo Lake, presenting wilderness medicine materials might inappropriately
17 convey that our participants' traditional way of life is inherently or unacceptably
18 dangerous. For example, it is common for members of Sachigo Lake to travel alone or
19 in small groups to hunt and fish in the region surrounding the community. While this
20 might represent a health or safety risk to outsiders, locals in Sachigo Lake understand
21 traveling in their local region and wilderness surroundings as a safe and normal activity.
22 As part of the program curriculum, simulations were based on this context. During
23 simulations, participants had only the materials and resources that they would have with
24 them while traveling by snow machine or boat, such as a tarpaulin, a gun, an axe, a
25 sleeping bag, rope, tape, food, water, and an extra set of clothes. To manage mock
26 patients, they were instructed to use the materials and equipment they would carry
27 routinely to stabilize, treat, and transport patients to the nursing station in their
28 community. Significant periods of time were spent debriefing simulations, discussing
29 ways to improvise splints, bandages, or transportation packages. Our curriculum offered
30 approaches to emergency management suited for extended patient care in remote
31 settings.

32
33 Developing a community-based first aid program with a remote First Nations community
34 highlights subtle conflicts between the culture of first aid and the context in which it was

1 being taught. Neither conventional urban programs nor alternative wilderness first
2 response curricula offer training that is particularly well suited to an isolated, aboriginal
3 community like Sachigo Lake First Nation. Delivering community-based first response
4 curricula may reveal similar geographical or cultural themes in other unique settings.
5

6 ***First Aid Delivery in a Small Close-Knit Community***

7 Community-based first aid programs must consider the relationships between course
8 participants and the people they may help. Conventional structured approaches to
9 teaching first response, whether designed for the general public or for professional
10 rescuers, are developed under the assumption that the majority of responses involve
11 patients who are strangers. ‘You are walking along the street and you suddenly come
12 across an elderly man who has collapsed....’, and so the scenario plays out. This
13 “stranger assumption” in standard first aid education, where the victim is identified as an
14 anonymous individual identifiable only by their pathology or clinical problem is
15 incongruous in a tightly-knit community such as Sachigo Lake, where everyone is a
16 friend or a family member.
17

18 The stranger assumption in standard first aid creates barriers in a remote community by
19 disregarding existing well-developed relationships. Course participants in Sachigo Lake
20 approached first aid role-play scenarios not as an individual within a community of
21 strangers, but within a network of existing interwoven relationships. Our community-
22 based first aid education program adapted to meet the needs in a community where
23 everyone is a friend or family member. Patients had names, rescuers were related, first
24 response necessarily involved close friends. These relationships were important
25 community resources. For example, during training exercises, relationships and
26 personal connections to the patient were mentioned frequently and were treated as an
27 asset in the provision of personalized, appropriate, and holistic care. Conventional
28 medical and professional models might identify these relationships as a liability, conflict,
29 or problematic barrier to dispassionate decision-making. In Sachigo Lake, we sought to
30 use these relationships as an asset, to involve close family members from within the
31 community as a health resource, and to build community resilience by strengthening the
32 health capacity of families rather than addressing community needs exclusively through
33 access to health professionals.
34

1 As part of the 2012 course, we added a module on mental health curriculum that
2 focused on three key areas: thoughts of suicide or self-harm, substance misuse and
3 intoxication, and disorganized behaviour. These themes were identified by the
4 community as priority topics based on their shared experience and previous incidents.
5 Mental health and substance abuse issues disproportionately impact aboriginal
6 population compared to the rest of Canadian population. Suicide is one of the largest
7 contributors to premature death on reserve in Canada, with aboriginal populations
8 suffering three times the potential life years lost due to intentional injury compared to the
9 general population [11]. There were several suicide attempts in 2011 in Sachigo Lake,
10 all among young people. All were non-fatal. Similarly, substance abuse is a major issue
11 in the region, with some remote communities reporting a narcotic addiction rate of 70%
12 among their adult population [12]. In a survey investigating the severity of substance
13 misuse problems as reported by Aboriginal Canadians, 83% of locally elected leaders
14 reported alcohol and illegal drugs as problems in their community [13]. When a
15 layperson provides first aid to a stranger, one would rarely encounter someone who
16 would disclose their suicidal thoughts. Our needs assessment and evaluation identified
17 that although mental health first aid is rarely considered part of a conventional life-saving
18 first response program, mental health emergency skills were as important to local
19 responders as trauma management or cardiopulmonary resuscitation. In this small,
20 remote aboriginal community, where everyone is a family member or close friend, the
21 mental health curriculum was central to meeting community needs and building local
22 capacity to manage emergencies in a holistic and realistic fashion.

23

24 Language and curricula need to embrace established relationships for a community-
25 based course to connect with community priorities and to reflect the community in which
26 they live. We believe that community-based first aid programs can enhance community
27 capacity by adapting curriculum to recognize these existing and important relationships.

28

29 ***Formal and Informal Systems***

30 Community-based first aid education must be attentive to existing informal and formal
31 emergency response systems. Conventional first aid training is intrinsically reliant on the
32 existence of an identifiable transition point between bystander first aid providers and a
33 formal health care system. Red Cross or American Heart Association Guidelines, for
34 example, assume that first aid providers will intersect with a formal system of

1 professional providers outside the hospital. In many Canadian communities, informal
2 emergency response involves a bystander performing a varying level of first aid, and
3 using a telephone to dial 911 dispatch services. Once dispatch services are contacted,
4 a formal system is activated, and a patient's care will flow from paramedical to hospital
5 care. In settings where emergencies are not addressed in this manner, developing local
6 capacity requires that planners understand how a community responds to an emergency
7 to be able to enhance systems without supplanting, bypassing, or ignoring them.

8
9 In Sachigo Lake, there is no formal dispatch or paramedical services. The activation of
10 formal emergency services begins when the patient arrives at the nursing station. All
11 pre-nursing station care is provided through an informal system. Trying to understand
12 this informal system has been part of the collaboration. In Sachigo Lake, this informal
13 system is complex, situational, seasonal, adaptive, and well understood by community
14 leaders. Our observation is that, in many cases, it is also extremely effective. Patients
15 requiring urgent care often receive treatment and transport to the nursing station within
16 minutes. In many cases, nearly the entire community responds to an emergency.
17 Hence, nearly all available resources are present.

18
19 During course development and delivery in Sachigo Lake, curriculum and simulations
20 allowed participants to activate and enhance both formal and informal response
21 systems. Just as course delivery was unique because everyone on course was a friend
22 or family member, so too has it was also distinct because of a shared experience of an
23 informal emergency response system.

24
25 In a final large simulation on course, community members responded to a mock plane
26 crash where four patients had been critically injured. This simulation was based on a
27 previous aircraft crash in the community, and other similar incidents in the region.
28 Participants responded to the incident, stabilized, packaged, and transported the four
29 patients to the Nursing Station where two nurses on-duty received the patients. This
30 simulation integrated an informal pre-nursing station response system with professional
31 nursing care, and it was seen as a success by course participants, local government,
32 nursing staff, and course instructors. This simulation represented a unique intersection
33 of community-based methods and first aid education where the conventional interface
34 between layperson and professional emergency systems were modified to meet the

1 needs in this remote community. Understanding how individuals in a community
2 respond informally to an emergency, is a latent strength in the community that can be
3 reinforced through adaptive curricula. Other communities may have similar informal
4 response systems that can be enhanced through a similar approach to community-
5 based first aid. Community-based first response training initiatives must be mindful of
6 these informal systems, and find ways to enhance, rather than supplant or undermine
7 them.

9 **Conclusions**

10 Conventional first aid education relies on the notion that protocols and approaches to
11 managing emergencies are universal across all settings. In a remote aboriginal
12 community in northern Canada with no paramedical services, such algorithmic
13 approaches to first response were inappropriate. Our collaborative approach to
14 community-based first aid, revealed three lessons that we hold central to building
15 capacity in a remote community through the development of an education program.
16 They stand in contrast to principles of “standard” and “universal” first aid that have
17 previously dominated this field. Our observations may be instructive for the
18 development of other programs in similar settings.

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