First aid: A Critical Component of School Health Education

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Abstract

There exists a paucity of evidence pertaining to first aid education in Canadian schools. With personal safety being an important component of health education, first aid is positioned less prominently within provincial school health curricula or programming in Canada. Normally performed by laypeople, *first aid* refers to the urgent and initial assistance given to anyone suffering a sudden illness or injury in order to preserve life, prevent rapid health deterioration, and promote recovery (Canadian Red Cross, 2017a). This study examines first aid education (FAE) in Canada's provincial health education curricula. It also analyzes and discusses the taxonomy of first aid core content and outcomes within these curricula. Further, the study examines what FAE incorporates, while also analyzing why and how it is integral with health education. The findings in this study may provide scholars and practitioners with a deeper understanding of school-based FAE. Suggestions for future revisions in health education curriculum and future research directions are provided.

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CHAPTER ONE: INTRODUCTION TO THE STUDY

In Chapter One of this study, I discuss the context and terminology used within the research project. As my topic of study is first aid education (FAE), there are a number of terms which are scientific- or medical-based that require explanation. Prior to the terminology in Chapter One, I provide my personal story as the researcher of this study, sharing experiences that have motivated my interest for this project. In synthesis with my experiences, emergency first responder background, and academic writing, I write about the analysis of first aid in school health education across Canada.

Personal Background

The significance of this study stems from my passion for the role of being a first responder, wherein I have had many experiences, personal development opportunities, and tragic events transpire. Being a first responder for the Halton Conservation Authority in Ontario, I have assessed and treated countless injuries and illnesses over the course of several years. Despite having dealt with the majority of the incidents as part of my work responsibilities serving as a first responder and emergency medical responder, the most enduring experiences were derived out of unexpected life moments. Whether on vacation, a drive home from work, or enjoying a favourite venue, accidents and medical emergencies often occur in unexpected moments in time. As a certified emergency medical responder, I was constantly aware of the potential for injury and illness. This awareness, which was facilitated from my practice and reinforcement of injury prevention, assessment, and treatment, gave me a deeper understanding of safety for both the self and others.

During unexpected accidents, as a first responder – a responder to crisis trained in multi-rescuer cardio-pulmonary resuscitation (CPR) and the use of life-saving resources – I have

witnessed how a lack of first aid and CPR education or training can result in inadequate care for an individual in need. I offer a seminal moment that serves well as an example. While on a family vacation at a resort in Orlando, Florida in Winter 2016, a mother was in turmoil when her infant daughter fell, hit her head, and was without vitals. In that moment, it was evident that few around me were prepared to offer support. I stepped in to the immediate scene to assist. The distressed mother lunged her baby towards me in hopes that I may help. Upon starting my primary assessments, I evaluated in seconds that the infant had stopped breathing and her circulation had ceased. As a result, I knew to begin CPR in hopes of reviving the infant girl. After rigorously practicing similar scenarios and having done assessments like this before, I knew that to raise the probability of survival, the incapacitated infant would require an automated external defibrillator (AED), as well. Unfortunately, there was no AED to be found. Luckily, after a few cycles of CPR, working alongside another, the young girl regained vital signs. At this moment, I wondered, *What if we were not here to help? How are there so many people unsure of what to do?* – and finally – *What am I going to do to change this?*

Reflecting on the previously stated questions and my experiences, I decided to challenge my inquiries. I wanted to explore the potential for change in health education, while promoting the teaching and learning of first aid to Kindergarten to Grade 12 (K-12) students. During the final year of my teacher education degree, I applied to Brock University's graduate program for a Master of Education, focusing on a specialization in teaching, learning, and development (TLD). I was motivated to analyze literature focused on school first aid education implementation, while contrasting and comparing its placement within Canadian curriculum.

Terminology

Throughout this study, I will refer to a number of different terms, which are defined and explained in-depth in this section, including *first aid, first aid education (FAE), experiential learning theory (ELT),* and the *Comprehensive School Health (CSH) framework.*

First aid is a set of skills and knowledge used in a process that enhances safety awareness, reduces accidents, and saves lives (Canadian Red Cross, 2017a; Zideman et al., 2015). While providing first aid, individuals may use a set of skills or interventions (e.g., cardio-pulmonary resuscitation, recovery position, automated external defibrillators, and medications) in attempt to remedy some signs or symptoms of either an injured or ill person or to prolong life.

First aid education (FAE) refers to the educational process of which a teacher, instructor, or professional transfers first aid knowledge and skills to support related student learning outcomes. Through FAE, students should be able to understand the process, steps, and assessment criteria of first aid principles (Bollig, Myklebust, & Ostringen, 2011; Fleischhackl et al., 2009). First aid principles connect with curricular content in many domains, such as physical wellness and health education, science, biology, history, and social studies.

Experiential learning is an instructional strategy modeled by the *Experiential Learning Theory* (*ELT*), a model which supports teacher delivery of content through practical student experiences (Yeganeh & Kolb, 2009). The ELT model extends the learning process of students as a means of 'learning by doing.' ELT scaffolds content that can often be abstract, knowledge-based, or theoretical in nature, and the process demonstrates the practicality and applicability of the taught content.

Comprehensive school health is an internationally-recognized framework for supporting improvements in students' educational outcomes while addressing school health in an integrated

and holistic way (Joint Consortium for School Health, 2016). It includes four pillars: i) social and physical environment; ii) teaching and learning; iii) policy, and iv) partnerships and services (Veugelers & Schwartz, 2010).

Chapter Summary

This chapter presented the rationale for pursuing an exploration of first aid education in Canadian schools, stemming from my personal experience as a first responder. Within it, key terminology was also identified and defined for the readership.

CHAPTER TWO: RESULTS

Introduction

Although people deem first aid a life skill, most students in schools never learn adequate first aid knowledge or skills (Bakke, Bakke, & Schwebs, 2017; Reveruzzi, Buckley, & Sheehan, 2016). Evidence gleaned from a study of school-based first aid programs, for instance, offered that relevant training can be implemented successfully for all ages in schools (Fleischhackl et al., 2009). Serving as examples, students are required to learn basic first aid techniques in many countries such as Norway, Ireland, Wales, and most states in America.

In Canada specifically, education and curriculum are governed, delivered, and evaluated by each province or territory. In the following chapter, I will identify how and where FAE is situated within Canadian provincial health education curricula. The main discussion of this chapter is comprised of two sections: i) first, one that briefly summarizes, globally, the challenges that I see present in the placement and delivery of FAE across the provinces and territories; and ii) one that offers a surface analysis of FAE across provincial and territorial jurisdictions. Finally, to conclude this chapter, I describe the important role FAE can play as a component of school health education.

School Health Education Curricula in Canada

Incorporated with the specific content outlined in Appendix A, the subsequent section of this research study offers findings related to first aid associated content's placement in each provincial and territorial health education curriculum within Canada. The ten provinces use their own curriculum, while the three territories follow the curricula of two provinces: the Yukon Territory follows the provincial British Columbia curriculum, and the Northwest Territories and Nunavut follow the curriculum of Alberta (Lu & McLean, 2011). Each provincial and territorial

health education curriculum is analyzed based on its integration of FAE content. The provincial curricula are presented in alphabetical order, with each sub-section identifying the placement of FAE and a surface analysis related to such placement of FAE in the associated curricula.

Alberta

Beginning with Alberta, the current curriculum document entitled *Health and Life Skills: Kindergarten to Grade 9* (Alberta Education, 2002) offers minimal FAE content. The document explains that its vision is to enable students to develop behaviours that contribute to the well-being of self and others (Alberta Education, 2002; Barrett, Lu, & Janzen, 2018). However, the sole mention of FAE in the entire curricula is within a Grade 5 specific outcome, which expects students to, "describe and demonstrate ways to assist with injuries of others" (Alberta Education, 2002, p. 10).

British Columbia (B.C.)

In British Columbia, the health education curricula are grouped into a) a *Physical and Health Education* (2016) document for Kindergarten to Grade 9; b) a *Physical and Health Education for Active Living: Grade 10* document (2018a); c) a *Physical and Health Education for Active Living: Grade 11* document (2018b); and d) a *Physical and Health Education for Active Living: Grade 12* document (2018c). Though these documents are recently developed, they lack inclusion of FAE content embedded in health education. For instance, the physical and health education curriculum states that a goal for students is to demonstrate the knowledge, skills, and strategies needed to make informed decisions when supporting personal and community health and safety (British Columbia Ministry of Education, 2016); however, there is only one mention of FAE in the *Physical and Health Education curriculum for Active Living: Grade 11* (2018b) document – which is ironic, given that Grade 11 students in British Columbia

are, in fact, expected to apply principles of first aid (British Columbia Ministry of Education, 2018b).

Manitoba

Next, Manitoba's current physical and health education program for Kindergarten to Grade 10 has suitably included FAE (Manitoba Education, 2010). Specifically, the *Kindergarten to Grade 10 Physical and Health Education Curriculum* (2010) details FAE content sufficiently within their Safety strands. The FAE content is positioned as being prescribed learning outcomes for both knowledge and skill, starting at Grade 6 and progressing to Senior 2 (the equivalent to Grade 10 in Ontario). The document also outlines teacher assessment examples, general content that should be covered, and resources that may help teachers educate their students.

New Brunswick

Moving forward, curriculum for New Brunswick's health education can be found in several documents. The *Health Education Curriculum: Kindergarten to Grade 5* (2017a) is the most current document, alongside the *Wellness Through Physical Education 110* (2017b) document. The remaining *Health Curriculum: Grade 6* (2005a), *Health Curriculum: Grade 7* (2005b), *Health Curriculum: Grade 8* (2005c)*, You and Your World Curriculum: Kindergarten-Grade 2* (2005d), and *Physical Education and Health: Grade 9/10* (2007) documents are still presently used to inform New Brunswick's current health curriculum. In the Grade 6 and Grade 8 health curriculum documents, in particular, there are vague mentions of FAE. In the documents, it is suggested to invite guest speakers for Healthy Lifestyle Day, which may include first aid services, organizations, or professionals – but this is a scarce reference relating to FAE amongst the other content.

Newfoundland & Labrador

Newfoundland and Labrador offer health education in sequential curriculum documents from Kindergarten to Grade 9. *Towards a Comprehensive School Health Program: An Elementary Curriculum Guide* (2007a) and *Adolescents: Healthy Lifestyles (Health and Personal Development Curriculum)* (2007b) are two documents which include a combination of both first aid-related, grade-level objectives and content for program implementation, as well as grade-level scope and sequence. The indicators for grade-level objectives are only available for Grades 4, 6, and 7 in the strands for Injury Prevention and Safety, Dental Health, and Safety and the Environment. These grade-level objectives are, however, viable opportunities for teachers to implement FAE content in the aim of building a comprehensive understanding of health education.

Nova Scotia

Nova Scotia's current curricula are segregated into three documents commencing at *Learning Outcome Framework: Primary (Kindergarten) to Grade 6* (2015a), *Learning Outcome Framework: Grade 7 to 9* (2014), and *Learning Outcome Framework: Grade 10 to 12* (2015b). The health education curricula are included in the primary to Grade 6 and Grade 7 to 9 documents; however, there is no mention of FAE content (Nova Scotia Department of Education, 2014; 2015a). In the Grade 10 to 12 document, health education becomes separate and focused into more specific courses (e.g. Grade 11 Fitness Leadership and Grade 12 Food Studies and Hospitality). Though this inclusion is important in other courses, there is also no mention of FAE specific to its placement within Grade 11 and 12 health education.

Ontario

The Ontario Curriculum – Grades 1-8: Health and Physical Education (2015a) and *The Ontario Curriculum – Grades 9-12: Health and Physical Education* (2015b) documents highlight general health topics for first aid related material under Personal Safety and Injury Prevention. Although the Grade 1 to 8 health education curriculum does not have any general or specific expectations directly relating to first aid, the document's vision statement explains that the curriculum provides students with the knowledge and skill acquisition that benefits their lives and enables them to thrive in an ever-changing world by helping them develop health and physical literacy – with the ultimate intention for students to lead healthy, active lives and promote healthy and active living (Ontario Ministry of Education [OME], 2015a).

Moreover, the health education curriculum for Grades 9 to 12 does include specific expectations and content on FAE; it highlights the same health topics as the earlier Grade 1-8 curriculum document, but in Grade 9, for instance, the specific expectations outline communication in the Living Skills strand, and suggests this can be done during situations involving CPR (OME, 2015b). In the same grade level, the Safety strand also details teacher and student prompts in each specific expectation, which indicate that students are expected to demonstrate their understanding of CPR and its relative techniques (OME, 2015b). The Grade 10 Safety strand also suggests that students are expected to assist in emergency situations with the use of CPR (OME, 2015b, p. 115). Likewise, Grade 11 and 12 specific expectations under the Promoting Healthy Living strand and Safety and Injury Prevention detail that students are expected to demonstrate various ways to aid or understand how to assist in emergency health situations (OME, 2015b, p. 140-158).

Prince Edward Island (P.E.I)

The P.E.I. Health curriculum has individual documents for each school grade level. Overall, the documents promote a consensus that the inclusion of FAE in schools is important. From Grade 3 to Grade 9 curriculum, except for the Grade 7 document, there is mention of first aid content or topics relevant to FAE. The health curriculum states, for instance, that the aim is to enable students to make well-informed, healthy choices, and to develop behaviours that contribute to the well-being of self and others (Prince Edward Island Department of Education, 2007). More specifically, the Grade 5 outcome under the Safety and Responsibility strand offers an opportunity for students to brainstorm some procedures regarding first aid. This, then, contributes to the overall development of healthy students and promotes their development of preventative attitudes towards saving the self and others.

Quebec

Moving forward, Quebec's current curriculum documents, including *Physical and Health Education in Grades 1-9*, has no mention of FAE content (Quebec Ministry of Education, 2001). This is an inadequate practice if students are to develop their understanding of health through FAE and gain preventative attitudes for safety. Quebec states as a goal in their education program document that physical education and health teachers must help students acquire a repertoire of knowledge regarding healthy lifestyle habits and general principles of human anatomy and physiology (Quebec Ministry of Education, Recreation and Sport, 2009). The Ministry highlights the importance of supporting students' development by providing activities that will enable them to take charge of their own health and well-being (Quebec Ministry of Education, Recreation and Sport, 2009) – but no mention of FAE specifically.

Saskatchewan

Lastly, health education in Saskatchewan is documented into individual grade level curricula. The three K-12 goals for health education are to i) develop the competencies necessary for action to improve health; ii) make informed decisions based on health-related knowledge; and iii) apply decisions that will improve personal health and/or health of others (Barrett et al., 2018). Specifically relating to FAE, in *Grade 7 Health Education Curriculum* (2009b), there are also outcomes and indicators expecting students to understand the fundamentals of first aid and its related principles.

Challenges Related to Placement within Provincial and Territorial Curricula

Conclusively, there appears to be inconsistent FAE opportunities offered across the provinces and territories through their elementary and secondary school curricula. Some overarching challenges that may affect the inclusion of school-based FAE may include teacher confidence levels in first aid, the availability of organizations providing first aid and CPR training, and the availability of resources for school-based FAE, such as CPR mannequins, training materials, AED trainers, EpiPens, or inhalers (Bakke, Bakke, & Schwebs, 2017; Campbell, 2012). Many organizations like the Canadian Red Cross, St. John Ambulance, and the Heart & Stroke Foundation offer instruction in first aid and CPR services for students, and could thus be a reliable solution for teachers with low confidence or limited space in their program planning to integrate FAE into their instruction. With support from first aid organizations, if schools are not equipped with resources or trained personnel themselves, such first aid instructors from external organizations may also offer opportunities to teach educators and students the lifelong skills of first aid and CPR.

Why is FAE Important in School Health Education?

It stands to reason that many of us will be challenged by unexpected injuries or illnesses during our lifetime. As a component of health education, then, it is important to understand, know, and assess how to provide appropriate treatment and intervention (Nolan, Ornato, Parr, Perkins, & Soar, 2017). Though there is placement of first aid and CPR within curricular documents in some provincial and territorial jurisdictions in Canada and other countries, there is a deficiency in confidence for both teachers and students that has been reported (Wilks & Pendergast, 2017; Zayapragassarazan, 2016; Zinckernagel et al., 2016). Presently, one in three (36%) households are comprised of members who have no first aid training in Canada (Ipsos, 2016). The remaining populous, although certified, do not know the steps or procedures in appropriately assessing or treating individuals who may need first aid (Ipsos, 2016).

The over-arching objective of FAE in school-based health education is to instruct first aid skills to as much of the Canadian population as possible (Fleischhackl et al., 2009; Lenson & Mills, 2016). Curricular reform, or the addition of policies in schools, should be a major consideration by provincial and territorial Ministries of Education in Canada in an effort to implement FAE through health education. The initial step should be the consideration of first aid certification for teachers (Barutcu, Cakmak, Koksoy, & Polat, 2017; Zayapragassarazan, 2016). In support of this notion, here in the province of Ontario, the Workplace Safety and Insurance Board (WSIB) (2012) mandates one first aid personnel per site or school. This could mean that a school's first aid team comprises of only one in-school staff member, as per the WSIB (2012) Regulation 1101. In addition, the WSIB (2012) policies only recognize the elementary or secondary staff populace, and effectively disregards the students from said regulatory ratio. The

lack of certified first aid teachers is common amongst schools all over Canada, but should be reconsidered due to safety implications for students and staff alike (Qureshi et al., 2018).

In-school FAE has the potential to help people prepare for sudden life-threatening injuries, illnesses, or debilitations throughout their lifetime (Nolan et al., 2017). A number of countries including France, Norway, Denmark, Finland, Ireland, and Australia, and over 20 states in America offer their students basic first aid competencies in schools (Bakke, Bakke, & Schwebs, 2017; Bandyopadhyay, Manjula, Paul, & Dasgupta, 2017). Relevant literature supports the feasibility of such implementation (Zideman et al., 2015), and even the possibility of FAE at the primary school level (Ammirati, Gaygnare, Ansallem, Némitz, & Gignon, 2014; Bollig, Wahl, & Svendsen, 2009; Bollig et al., 2011; Uray et al., 2003). It has been suggested that first aid skills are an important life skill; therefore, its taught content should be compulsory in schools worldwide (Başer, Çoban, Taşci, Sungur, & Bayat, 2007). Knowledge of first aid establishes skills in providing life-saving treatments for injuries or interventions for illnesses. Being the key delivery of knowledge to understanding safety for self and others, in-school health education is the best fit for FAE (Başer et al., 2007; Nolan et al., 2017). Having FAE taught in health education offers concise first aid development for students, as well as teachers.

What Should be Taught in School FAE?

FAE can be divided into two major components: first aid *knowledge* and first aid *skills*. The first component stems from first aid *knowledge*, which allows first-aiders to assess, process, and manage accordingly the signs and symptoms that an ill or injured person may show. This component is a content related approach, where the evaluation is focused on the fundamentals of signs and symptoms in relation to the ‘what, where, when, who, why, and how’ for the onset of injuries and illnesses (St. John Ambulance, 2000). The second component consists of first aid

skills in providing treatment to signs and symptoms that are found when assessing persons with sudden illness or injury. The skills associated with first aid branch off into two interdisciplinary components of first aid taxonomy: firstly, skills associated with *medical intervention treatments*; and secondly, skills associated with *trauma* (Canadian Red Cross Society, 2017b).

During the education of first aid content, it has been suggested that both the knowledge and skill components required to save self and others be taught together (Bandyopadhyay, Manjula, Paul, & Dasgupta, 2017). First-aiders use a combination of knowing and understanding the basic pathophysiological and etiological factors that certain signs and symptoms may derive from. By understanding the source of the ailment, injury, or illness, a first-aider can quickly and concisely intervene to preserve, assist, or prolong life until more advanced medical care is available. The following content outlines the preliminary steps and the primary and secondary assessment processes fundamental to providing first aid (Canadian Red Cross, 2017a). The summaries which follow below are adapted from the information provided by the Canadian Red Cross (2017a), and are summarized in Appendix B.

Preliminary Steps to First Aid

Within FAE content, knowing the signs and symptoms of both medical and traumatic occurrences is crucial. Here, this comprises a basic assessment of the vital signs that an individual may display, which helps in the decision-making process regarding next steps for care. For a first-aider to provide care, their first step is always to ensure that the possibility of further injury does not occur and that the first-aider(s) themselves are safe. To maintain the safety of self and others, a quick scene survey should be done, which involves scanning the environment to ensure no additional hazards. Then, the first-aider will introduce themselves to the victim and ask if they can provide assistance; if the victim is unconscious, then the first-aider

will contact Emergency Medical Services (EMS) and proceed without the introduction. As the victim may be unresponsive, this entails that consent is given implicitly. Consent ensures that the victim is, indeed, in need of assistance, and ensures the liability of the first-aider.

Prior to the next step, the first-aider will apply personal protective equipment (PPE). The use of PPE is critical and aids in protecting the first-aider, as well as the victim. Many forms of PPE can include nitrile or medical gloves, medical or filter masks, goggles or eyewear, insulated clothing, and anything else that may protect the first-aider from environmental- or illness-related hazards. Upon assessment of the injured or ill person, the first-aider will then assess any mechanisms of injury causing severity to vital obstructions that are debilitating, progressive, or fatal. This next assessment of any life-threatening illness, injury, or condition is referred to as the *primary assessment*.

Primary Assessment

The next stage in the first aid process is commonly referred to as the primary assessment, which should be done in a concise, yet rapid, manner. The first step is to check the airway, breathing, and circulation (ABC's) of the victim. These ABC's help identify illnesses or injuries that may obstruct the cardio-pulmonary, respiratory, nervous, and even musculoskeletal systems of the body. The most deteriorating injuries or illnesses cause obstruction to the vital organs and systems, making it essential to check and assess the signs and symptoms that may lead to any compromise. If there are signs of compromised ABC's, the first-aider is to contact EMS and use resources or skills that will sustain vitality, as deterioration may lead to a life-threatening situation. By calling or activating EMS, this step is key in providing advanced care for a victim with severe injuries or illness, ultimately providing healthcare that will lead to medical attention.

Any time EMS is contacted, the first-aider should obtain an adequate first aid kit and an automated external defibrillator (AED), if available. Until EMS or more advanced care arrives on-scene, the first-aider will continue to assess the victim, providing any first aid skills or interventions to prolong life. These skills include the recovery position, cardio-pulmonary resuscitation (CPR), the use of an AED, an epinephrine auto-injector (EpiPen), aerosol-based inhalers (bronchodilators, cortisol-steroid, or any combination of the two), or any other medication and intervention that may be present. First-aiders may also provide support and stabilization for severe traumatic injuries to the head or neck when suspected mechanisms of injury are apparent. If there are signs of major bleeding, the first-aider must apply bandaging and pressure on the wound directly. Depending upon the severity of the victim's case, immediate care by the first-aider is of the highest priority, and may even correct and improve the person's condition.

Secondary Assessment

The next step in the first aid process is referred to as the *secondary assessment*. This assessment identifies any additional or underlying conditions or injuries that may require care. If conditions or injuries did not impair the ABC's in a life-threatening manner, then they should be assessed during the secondary assessment. Three major steps during a secondary assessment consist of i) communicating and asking questions; ii) checking and re-assessing the quality of vital signs; and iii) 3) doing a more detailed injury check.

It is also important to interview the ill or injured person and any bystanders at the scene to gain information. The interview questions are commonly abbreviated as SAMPLE, referring to questions which detail information on i) signs and symptoms; ii) allergies, iii) medications, iv) past medical history; v) last meal/oral intake; and vi) events leading up to the emergency.

If the illness, injury or condition continues to debilitate the person, the first-aider must ensure that the individual receives appropriate healthcare. Depending on the situation, they should repeat both primary and secondary assessments every 5 to 15 minutes while waiting for more advanced care. If EMS is contacted, the first-aider will continue first aid assessments, treatments, and interventions until another first-aider or more advanced care takes over, the scene becomes unsafe, or the first-aider is too exhausted and can no longer provide adequate care. It is important to relay the victim's information by writing it down, ensuring this information can be passed on to further care professionals.

How to Implement FAE in Schools

Through the education of first aid principles, knowledge, and skills, there are obvious challenges that present themselves. However, to alleviate certain challenges, teachers may use suggested solutions summarized below and represented visually in Appendix C. Specifically, there are many local organizations and associations available to help in the certification process for educators to obtain instructor status to provide certifiable in-school training or education (Jorm, Kitchener, Sawyer, Scales, & Cvetkovski, 2010). In-school first aid teams can be formed by the proper implementation of professional development (PD) or teacher's education courses to certify school administration, teachers, and staff. These programs are also available to students at typically low or no cost. This can be done through non-profit organizations and local fundraising.

For teacher instruction of first aid, the section that follows will provide meaningful approaches to implementing FAE seamlessly and effectively in the classroom. Connecting FAE to three approaches to learning, students will be able to progress their critical thinking, problem-solving and experiential learning in line with the CSH framework. Each of the following three

approaches includes important teaching strategies and the critical components informing student first aid and health education development, while holistically supporting the four CSH pillars (Veugelers & Schwartz, 2010).

Critical Thinking and First Aid Skills

By using a synthesis of first aid knowledge and critical thinking skills, an individual may confidently and swiftly act on what is necessary in an emergency situation. Likewise, regarding first aid skills, it is vital to know and understand procedures of first aid assessments, skills, and protocols to save oneself and others. This means that critical thinking is an opportune skill to develop within FAE teaching. By offering students the tools to use during an emergency situation, they must act on their critical thinking skills in order to appropriately conduct themselves in any situation, for instance. In alignment with the CSH model, students can be taught by connecting issues to important health and safety topics through the pillar of *teaching and learning* (Veugelers & Schwartz, 2010). This aids in the development of preventative attitudes, while also scaffolding literacies in health education.

Though this may prove difficult for students without fundamental knowledge on first aid principles, primary and secondary assessments can often lead to opportunities for critical thinking. Through demonstration and discussion of primary and secondary assessments, medical symptoms may be dormant if the proper questions are not asked and no medical information proves vital to the situation. This means, then, that assessments should be done quickly, yet concisely. Additionally, a first-aider may use CPR as an intervention if the cardio-pulmonary system shuts down and no longer persists. But, if there are preventative interventions available prior to CPR, such as an inhaler, an EpiPen, or any additional medication interventions, then this process can improve or prolong life in a preventative nature. Both primary and secondary

assessments thus prove essential in providing the first-aider with information for life-saving treatment. The deconstruction of processes, experiences, and training may also allow students and teachers to think critically about their choices during first aid scenarios (Almeida & Franco, 2011). Prevention and risk-reducing strategies are often discussed during the deconstruction of cases as a means to build attitudes of prevention and safety, for instance. Accompanied by critical thinking opportunities, students can act swiftly with use of first aid procedures, skills, and knowledge, and may potentially save someone from a life-threatening situation.

Problem-Solving Through Experience

For students to achieve learning outcomes for first aid content, it is important to use inquiry and problem-based learning (PBL) to hone their assessment, procedural, and treatment knowledge. As an important skill and instructional strategy, the *problem-solving skill* is defined in two types of models by van Merriënboer (2013); yet, the present paper will only explore the importance of the System 1/System 2 model. Specifically, it is indicated in the literature that the scaling of expertise is dependent on what system types you use: *System 1* is an automatic process of thinking, being fast, unconscious, and intuitive, whereas *System 2* is an analytical process, that is controlled, conscious, and effortful (van Merriënboer, 2013). It is key to note that for emergency situations – either before or during – the System 1 type is a tool necessary for intuitive prevention, actions, and handling. This system helps to prevent further harm and uses time efficiently. The System 2 type is a vital reflective component that often helps with the consolidation of what occurred, what challenges were faced, and what can be improved on.

In addition to the system types, van Merriënboer (2013) also suggests the use of simulated scenarios in connection to real-life occurrences. Often, first aid programs offer a theatrical scenario where the student must rehearse, practice, and critically think about their

repertoire of first aid skills. These can be quite creative, referring to the realism of the scenario in-mind, which rehearses the use of transferable skills to invoke problem-solving Systems 1 and 2. With these problem-solving system types at the fore, and by teaching first aid content through practical perspectives and simulated scenarios, the use of PBL should be effective in enacting FAE in the classroom. The importance of experiential education is imperative for the consolidation of first aid skills and content.

Experiential Learning During Mock Scenarios

To scaffold skills and first aid content, the experiential learning theory (ELT) model created by Yeganeh and Kolb (2009) can be a useful foundation when planning creative curriculum design. In ELT, students will actively learn through the role-play of experiential activities, simulations, and mock scenarios relative to FAE. This component encourages a focus on the 'here-and-now' relative to experiential learning, and intentionally guides learning processes through phases of the learning cycle (Yeganeh & Kolb, 2009). By balancing the theoretical elements from student learning processes, the experiences of determining when first aid is necessary can be consolidated and scaffolded. Role-play offers both an important applicability to FAE and allows students to communicate, interact, and learn together. This is imperative to FAE, as many emergency situations require the skills learnt in mock and simulated scenarios provided by multiple real-life experiences. Incorporation of mock scenarios encourages teachers to conceptualize real-life experiences into assessment pieces to better teach first aid. By acting as either a first-aider, bystander, or victim, students may learn experientially and empathize in real-life simulations of injury and illness, while also providing teachable moments to peers (Carruth et al., 2010). The assessment of mock scenarios aligns strongly with the CSH pillar of *partnerships and services*, as students must demonstrate communication with available

resources, witnesses, first-aiders, and EMS personnel to provide the most adequate first aid care (Veugelers & Schwartz, 2010). An activity like role-play thereby provides a consolidation for students, while also demonstrating practical knowledge and skills of FAE.

Conclusion

In an emergency situation, it is essential to know how to prevent and treat wounds or ailments in order to stay safe and help others. As a critical component to health education, the three approaches to teaching first aid content in schools may yield greater development in health literacies for students. By reviewing curricula documents for first aid standards both across Canada and within the global context, this study outlines the most effective ways to implement first aid within school-based health education – situating this practice within the CSH framework for K-12 students. This can be done through instructional strategies that align with teachable FAE placement within provincial health education curricula.

Implications for Practice

This paper provides an approach to implementing FAE into school-based teaching. In particular, this study may help practitioners to consider FAE as an important component of school-based health education. I would suggest the following be considered in any reform effort.

Firstly, the practice and rehearsal of first aid usually leads to elevated levels in assessment and treatment confidence (Zinckernagel et al., 2016). Due to low confidence levels in Canadians and the age-suggested learning of first aid, the fit for FAE within reformed curriculum would be beneficial and could increase international standards of care of children and adolescents (Ipsos, 2016). Moreover, the implementation of FAE should also be considered for use in First-Nations and Indigenous communities with extra care. Many Indigenous populations are affected by debilitating illnesses, such as diabetes and earlier onset of cardiac diseases; FAE

can often lessen the severity of such life-threatening outcomes if populations are properly educated. Moreover, first aid can help support and sustain life in dire emergency medical situations. With Ontarian, Canadian, or global populations being educated on first aid skills, effective approaches to counteracting individuals' declining health in out-of-hospital settings may, potentially save multiple lives (Wilks & Pendergast, 2017). Therefore, FAE offers an essential set of skills that are applicable to real-life situations. Although perceived as a set of skills, preventative attitudes established by educational praxis support the developmental outcomes of FAE, which help students to reach deeper understandings of safety for the self and others as a component to health education.

Further Research

With important competencies and skills that can be learned via practical first aid content, areas of further research should be aimed at studying and analysing more effective ways to infuse and teach FAE across curricula. Other research directions might explore the following questions:

- How can FAE be integrated across health education topics such as mental health, healthy eating, substance abuse, sex education, human growth and development, human relationship, and physical activity, rather than teaching it independently?
- What are specific topics of FAE that should be taught and focused on in each grade of the K-12 spectrum?
- How can FAE be integrated into other school subjects like biology, chemistry, or history?
- What is the minimal FAE that should be offered at each grade level, both for review and new topics – for instance, 1 hour, 1 lesson, or 1 unit?

- What strategies can help enhance the awareness and understanding of school FAE?

Final Word

Through the analysis of provincial and territorial health curricula across Canada, I have found a lack of placement and integration of FAE in national health education programs. Ultimately, there is a gap in provision for appropriate first aid skills and knowledge taught by educators within Canadian health curricula. This study outlines the implementation and instructional strategies of first aid content, and offers recommendations for future research.

CHAPTER 3: PERSONAL REFLECTION

As an educator, I have consulted with non-profit organizations, researchers, practitioners, and medical professionals to confirm and explore new research in the field. Through this investigation, I have learned that early integration of FAE reinforces first aid skills and knowledge, and supports students' comprehension of health education. Through content outlining the importance of health and safety, preventative attitudes can offer students a way to use first aid as a lifelong skill to save oneself and others.

I started training, re-certifying, and using first aid at a young age. First aid certification was always compulsory for many of my part-time occupations before and during post-secondary school, but I always inquired as to why I never learned first aid in primary, elementary, or secondary schooling. I believe that students should be offered the opportunity to learn these life-saving competencies as a means to help themselves and others, as a critical part for their health education development. Everyone succumbs to sudden injuries or illness, so it is essential to know and act accordingly in the situation if, and when, they arise.

As a crucial lifelong skill, it is my belief that first aid should be common knowledge to the public. I conducted this research to analyze the adequacy of provincial health curricula across Canada, comparing the curricula with international literature relevant to FAE. By connecting first aid principles with effective instructional approaches, I hope that practitioners may use this study to improve their health education programs because first aid offers applicable and practical knowledge to understanding health and how it functions in the human body. When health abnormalities are present, a person with first aid knowledge may use their skills to help themselves and others, and may often save lives. I understand that teachers tend to stray away from inclusion of FAE across grade levels as their own confidence levels on the topic may be

low. This should not deter practitioners, as there are many programs and services available for instruction of first aid and CPR aside from the teachers themselves. Organizations that provide valuable services, such as the Canadian Red Cross (2017a; 2017b) and St. John Ambulance (2000), are all national and international non-profit organizations that wish to work with educators in providing adequate first aid programs for students. In my personal experience with the District School Board of Niagara (DSBN) in Niagara, Ontario, an additional local non-profit organization called Heart Niagara works rigorously at delivering first aid and CPR programs to students within DSBN. Heart Niagara has dedicated its time to educating students via first aid and CPR courses, while also providing AED units to every school in the DSBN at no cost.

To me, communities like this encompass the pillars of the CSH framework through means of *partnerships and services* (Veugelers & Schwartz, 2010). Teachers, administrators, and school boards should work at connecting their schools with organizations, like Heart Niagara, to develop a stronger sense of community and a collaborative approach to education. Teachers should also challenge the minimal school requirements for in-school first-aiders and re-certify or update to current first aid and CPR certification. Not only is it practical knowledge that often needs refreshing, but it is in the best interest for the well-being of others. In addition, if teachers re-certify annually, or when necessary, there will be smaller gaps in knowledge and increased levels in instructional confidence of first aid instruction for students. There will also be a higher populous of first-aiders during school hours, offering a higher standard of care for students and staff.

Alongside the completion of this study, I gained invaluable insights and a deeper understanding of my personal potential. Through this journey, I was challenged with balancing my life, timelines, work, teaching, studying, family, socializing, and so on. My time management

and organizational skills have flourished since the commencement of this study. The independence in studying a relatively new field in education has complimented my growth as a recent scholar. This journey has also improved my research and writing skills, but more importantly, has broadened my new perspectives as a practicing teacher. Through conferencing with fellow educators, professionals, and researchers alike, their consultation of my research has continued to motivate me.

I believe that in-school health curriculum – on a global scale – should shift towards the inclusion of FAE. Policy-makers, curriculum developers, provincial and territorial ministries, and teachers should put emphasis on the integration of first aid as a critical component of student health education. Curriculum should contain and specify first aid measures in unison with outlining the fundamental first aid skills. In doing so, I have hope that teachers can offer lifelong skills in health education to their students and can thus shape students into capable first-aiders who are able to deliver life-saving and humanitarian efforts.

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Appendix A

First Aid Content Profiles in Provincial Health Education Curricula in Canada

Province	Health (and Physical) Education Curriculum Documents	Mentions of 'First aid', 'First aid' and/or 'Cardio-Pulmonary Resuscitation (CPR)' in Provincial Outcomes, Objectives, Expectations, Competencies, Standards, and General Content
Alberta	*Health and Life Skills: Kindergarten to Grade 9 (2002)*	**Grade 5** Safety and Responsibility: - W–5.10: Describe and demonstrate ways to assist with injuries of others; e.g., basic first aid (p. 10)
British Columbia	*Physical and Health Education: Kindergarten to Grade 9 (2016)*	
	Physical and Health Education: Grade 10 (2018)	
	Physical and Health Education: Grade11 – Active Living (2018)	**Grade 11** Injury Prevention and Management: - Applying principles of first aid (e.g., knowing how to access first aid and other emergency assistance, taking first aid training) (p. 3)
	Physical and Health Education: Grade 12 – Active Living (2018)	

Manitoba	*Kindergarten to Grade 4 Manitoba Physical Education/Health Education Curriculum: A Foundation for Implementation (2001)*	
	Grade 5 to Grade 8 Manitoba Physical Education/Health Education Curriculum: A Foundation for Implementation (2002)	**Appendices – Unit Planner: Example 2** Learning Resource: - First aid resources (p. 24-25) **Grade 6: Safety – Knowledge** Paper and Pencil Task: Bike Safety Program: - Use the information on first aid and bike safety to create a written test on bike safety rules, hazards, and first aid practices. (p. 69) **Grade 6** Prescribed Learning Outcomes: - K.3.6.B.3: Show an understanding of basic injuries/conditions (i.e., bleeding, heat exhaustion, heatstroke, frostbite, hyperthermia, hypothermia) and basic first aid procedures (i.e., seek adult help, rest, apply compression, avoid touching/handling body fluids). (p. 72) First Response: - Display the basic first aid procedures on an overhead projector and discuss the purpose of each. Be sure to discuss the importance of avoiding touching/handling body fluids. Ask students to list a variety of injuries, including bleeding, heat exhaustion, heatstroke, frostbite, hyperthermia, and hypothermia. Select specific injuries and write them on index cards. Have students form groups and give an index card to

		each group, asking students to research the first aid procedures for the particular injury or condition. Remind students to follow the general first aid procedures. Ask groups to present their research to the class. (p. 72) - General First aid Procedures (p. 72) - Examples of Situations Requiring First Aid (p. 72) First Response Quiz: - Have students complete a quiz on general injuries/conditions and first aid procedures. (p. 73) - 7. What is the first aid for bleeding? (rest, elevation, direct pressure) (p. 73) Teacher Notes: - First Aid for Bleeding (RED) (p. 73) Victims, Rescuers, and Bystanders: - Write various scenarios requiring first aid procedures on index cards. Have students form groups of four to act out the scenes. One person is the victim, one is the rescuer, and two are bystanders. (p. 74) Teacher Notes: - First Aid for Frostbite (p. 75) - First Aid for Heat Exhaustion (p. 75) - First Aid for Heatstroke/ Hyperthermia (p. 75) - First Aid for Hypothermia (p. 75) - For more information, read a current edition of a first aid manual. (p. 75) Prescribed Learning Outcomes: Responding to Accidents (Chart) *How They Could Help* - Perform general first aid (p. 76) - Perform basic first aid (p. 76)

		- Perform first aid (p. 76) - Perform first aid (p. 76) - Perform basic first aid (p. 76) Prescribed Learning Outcomes: - S.3.6.A.2: Demonstrate basic first aid procedures (e.g., seek adult help, get ice, locate first aid kit, avoid contact with body fluids...) for common injuries/conditions (e.g., nosebleeds, cuts, bumps, asthma attacks...). (p. 80) Role-Play: - Discuss with students the basic first aid procedures. Write various scenarios of common injuries/conditions on pieces of paper. Have students work in pairs, assigning one person to be the victim. The victim takes a piece of paper that has a scenario on it, goes back to the partner, and the pair acts out the scenario. The partner tries to treat the patient with the proper first aid. (p.80) Get Help, Don't Give Help: - Discuss situations in which the student should not try to administer first aid, when it would be better just to get help. (p. 80) Research First Aid: - Have students make appropriate inquiries to determine basic first aid procedures. They could compare information available from different sources. (p. 80) **Grade 6: Safety – Skills** Teacher Notes: - Contact the Manitoba Safety Council for more information on first aid and a babysitter's course. (p. 81) Example:

		- First aid Treatments (Chart) (p. 81) **Safety Outcomes: Grade 6** - K.3.6.A.5b: Outline the emergency steps (e.g., stay clear of traffic, seek help, apply basic first aid...) related to bicycle incidents or accidents. (p. 82) - K.3.6.B.3: Show an understanding of basic injuries/conditions (i.e., bleeding, heat exhaustion, heatstroke, frostbite, hyperthermia, hypothermia) and basic first aid procedures (i.e., seek adult help, rest, apply compression, avoid touching/handling body fluids). (p. 82) - S.3.6.A.2: Demonstrate basic first aid procedures (e.g., seek adult help, get ice, locate first aid kit, avoid contact with body fluids...) for common injuries/conditions (e.g., nosebleeds, cuts, bumps, asthma attacks...). (p. 82) **Grade 7** Prescribed Learning Outcomes: - K.3.7.A.5b: Role-Play – Have students, working in groups of three or four, act out a water-related incident such as slipping/falling on a wet deck around a pool or drowning. Have students role-play or act out the emergency steps for seeking help or first aid. (p. 78) - K.3.7.A.5b: Outline the emergency steps (e.g., seeking help, administering basic first aid...) related to water incidents or accidents (e.g., hypothermia, drowning...). (p. 78) K.3.6.B.4 to K.3.7.B.4: Seeking Help (Chart) – Choking: Police, fire department, first responder, certified first aid provider (p. 82) **Grade 7: Safety – Knowledge** Teacher Notes – How to Call for Help: - For more information on first aid, consult the Canadian Red Cross Society or St. John Ambulance. (p. 83) **Safety Outcomes: Grade 7**

		Knowledge: - K.3.7.A.5b: Outline the emergency steps (e.g., seeking help, administering basic first aid...) related to water incidents or accidents (e.g., hypothermia, drowning...). (p. 94) **Grade 8** Prescribed Learning Outcomes: - K.3.8.B.3: Identify common injuries/conditions (i.e., sprains, strains, fractures, bleeding, cramps, shock) and basic first aid procedures (i.e., seek adult help, rest, apply ice, compression, elevation, avoid touching/handling body fluids). (p. 84) Better to Be Safe Than Sorry: - Have students choose a partner and list basic first aid procedures for common injuries/conditions (e.g., strain, sprain, fracture, dislocation, bleeding, cramps, shock), sharing their results with the class (using the REWARD, RICE, or RED model—see teacher notes). Use student results as a stimulus for class discussion on what to do and what not to do for particular injuries/conditions. (p. 84) On-the-Spot First Aid: - Be Prepared: Discuss what items should be included in a first aid kit. Ask each student to bring to class one item to put in the kit. Have students identify what each item would be used for. Assemble and organize a first aid kit that could be taken on field trips, used for sporting events, or kept in the classroom in the event of an injury. (p.84) **Grade 8: Safety – Knowledge** Teacher Notes: - REWARD: First Aid for Shock (p.85) Suggestions for Assessment:

		- Performance Task: Better to Be Safe Than Sorry; On-the-Spot First Aid (p. 85) - Use the following rating scale to assess students' ability to identify common injuries/conditions and basic first aid procedures. (p. 85) Paper and Pencil Task – Be Prepared - Have each student make a first aid kit for use at home. Use a checklist to ensure that all necessary items are included. Have students indicate the basic first aid procedure for which each item would be used. (p. 85) Teacher Notes (continued): - RED: First Aid for Bleeding (p. 85) - Invite representatives from organizations involved in first aid training, such as the Canadian Red Cross Society and St. John Ambulance, to talk to the class about basic first aid. (p.85) **Safety Outcomes: Grade 8** - K.3.8.B.3 Identify common injuries/conditions (i.e., sprains, strains, fractures, bleeding, cramps, shock) and basic first aid procedures (i.e., seek adult help, rest, apply ice, compression, elevation, avoid touching/handling body fluids). (p. 90)
	Grade 9 & Grade 10 (Senior 1 & Senior 2) Manitoba Physical Education/Health Education Curriculum: A Foundation for Implementation	**Senior 1: Safety – Knowledge** Teacher Notes – Checklist for Bicycle Road Trip - Does someone in the group have a first aid kit? (p. 77) Senior 1 (Grade 9): - K.3.S1.B.3: Demonstrate an understanding of basic first aid (e.g., emergency scene management; check airway, breathing, circulation...) and precautions for handling body fluids (e.g., wear latex gloves, face shield, mask; handle sharp objects with extra care...). (p. 84)

		Researching Basic First Aid: - After a general class discussion of what basic first aid is (refer to Glossary), divide students into three groups to research one of the following topics (p. 84) - Principles of basic first aid for injuries, indicating PRICES (see Teacher Notes) (p. 84) - Safety principles for administrating first aid, including use, care, and disposal of latex gloves, and use of masks for mouth-to-mouth or mouth-to-nose ventilation (p. 84) Learning Basic First Aid: - Purchase first aid posters (or have students make them) and display them around the classroom or gym. Give students some time to study the posters, and then cover them. Arrange students in pairs and have them review basic first aid, as follows: (p. 84) **Senior 1: Safety – Knowledge** Teacher Notes – Glossary: - First aid (p. 85) Tip: - There are many recognized principles of basic first aid for injuries, including the following. (p. 85) ABC's: - Steps followed when administering first aid to an unresponsive person: (p. 85) Resources – Publications: - Manitoba Physical Education Teachers Association (MPETA), *et al. Safety Guidelines for Physical Activity in Manitoba Schools*. Winnipeg, MB: MPETA, 2000. (See Appendix B, Athletic Activities: First Aid Kit Contents, page 170.) (p.85)

		- St. John Ambulance. *First Aid: First on the Scene—Instructor's Guide*. Ottawa, ON: St. John Ambulance, 2000. (p. 85) Professional: - Certified instructor in basic first aid (p. 85) Paper and Pencil Task: Researching Basic First Aid: - Using the questions submitted by the various groups, create a written quiz to determine students' understanding of basic first aid. (p. 85) Prescribed Learning Outcomes: - S.3.S1.A.2: demonstrate the skills required to administer basic first aid (e.g., emergency scene management, seeking help, treating minor injuries, applying precautions for handling body fluids...). (p. 98) Basic First Aid Skills - Groups discuss their selected scenario, determine what skills are required to administer basic first aid, and create a list of assessment criteria to be used by the class. Groups role-play their scenario, demonstrating basic first aid skills, while the rest of the class observes, using pre-established criteria. (See Suggestions for Assessment for an example of emergency scene management skills.) (p. 98) **Senior 1: Safety – Knowledge** Teacher Notes – Tip: - To avoid contact with body fluids, students should always use latex (or equivalent) gloves when practising all first aid techniques. (p. 99) Publication: - St. John Ambulance. First Aid: First on the Scene—Instructor's Guide. Ottawa, ON: St. John Ambulance, 2000. (p. 99)

		Professional: - Certified basic first aid instructor (p. 99) Performance Task: Basic First Aid Skills (p. 99) **Safety Outcomes: Senior 1** - K.3.S1.b.3: Demonstrate an understanding of basic first aid (e.g., emergency scene management: check airway, breathing, circulation...) and precautions for handling body fluids (e.g., wear latex gloves, face shield/mask; handle sharp objects with extra care...). (p. 100) - S.3.S1.A.2: Demonstrate the skills required to administer basic first aid (e.g., emergency scene management, seeking help, treating minor injuries, applying precautions for handling body fluids...). (p. 100) **Senior 2** Prescribed Learning Outcomes: - K.3.S2.A.5a: Determine the safety considerations in selected alternative pursuits (e.g., wear protective equipment, use reflective tape for nighttime visibility, have first aid kit available, watch for extreme weather conditions...). (p. 70) - K.3.S2.b.3: Demonstrate an understanding of cardiopulmonary resuscitation (CPR) as specified in the national/provincial certification program. (p. 76) Suggestions for Instruction: - Getting Started on CPR (p. 76) - CPR Training (p. 76) - Arrange for students to receive CPR instruction, as specified in national or provincial certification programs (whether or not for certification). Certified instructors can be booked from agencies such as the Heart and Stroke Foundation of Manitoba and St. John Ambulance. Assess students' knowledge of CPR and related topics. (p. 76)

		- Refer to RM S2–3: Adult CPR: Skill-Performance Checklist (One Rescuer). (p. 76) **Senior 2 (Grade 10): Safety – Knowledge** Teacher Notes – Glossary: - Cardiopulmonary resuscitation (CPR) (p. 77) - First aid (p. 77) Tips: - Schools could arrange for a qualified CPR instructor to offer the national or provincial certification course for staff and students. Note that there are costs associated with certifying individuals. (p. 77) - Emphasize that cardiovascular disease is a major cause of death, disability, and illness in Canada. If someone experiences symptoms of heart attack or stroke and becomes unresponsive, CPR can be a life-saving treatment. (p. 77) Suggestions for Assessment: - Refer to the certified examinations (e.g., Heart and Stroke Foundation of Canada, *Basic Rescuer*) or create questions to assess student knowledge of CPR. (p. 77) Sample Questions: - What is the CPR ratio for an adult? (p. 77) - What is the CPR ratio for a child? (p. 77) - What is the CPR ratio for an infant? (p. 77) **Resources** Publications: - St. John Ambulance. *Heartstart: CPR and AED—Activity Book*. Ottawa, ON: St. John Ambulance, 2001. (p. 77)

		Resource Master: - RM S2–3: Adult CPR: Skill-Performance Checklist (One Rescuer) (p. 77) **Senior 2** Prescribed Learning Outcomes: - S.3.S2.A.2 demonstrate the skills (e.g., sequential steps of emergency scene management, artificial resuscitation...) required to administer cardiopulmonary resuscitation (CPR). (p. 82) Demonstration of CPR Skills: - Arrange the class in groups of three and have students role-play a scenario in which they administer CPR, as identified in guidelines of national and/or provincial certification programs. In each group, (p. 82) - another acts as the first aid responder (p. 82) - the third analyzes and assesses the skill performance of the first aid responder (p. 82) - The three students rotate roles so that everyone has an opportunity to practise and assess the skills required to administer CPR. (p. 82) - Refer to RM S2–3: Adult CPR: Skill-Performance Checklist (One Rescuer). (p. 82) **Senior 2: Safety – Skills** Teacher Notes: - Schools could arrange for a qualified CPR instructor to offer the certification course for staff and students. Note that there is usually a cost involved to certify individuals. (p. 83) - For information on organizing a CPR training program for Senior Years students, contact The Advanced Coronary Treatment (ACT) Foundation of Canada. (p. 83) **Resources** Publications:

		- St. John Ambulance. Heartstart: CPR and AED—Activity Book. Ottawa, ON: St. John Ambulance, 2001. (p. 83) Resource Master: - RM S2–3: Adult CPR: Skill-Performance Checklist (One Rescuer) (p. 83) Suggestions for Assessment: - Performance Task: Demonstration of CPR Skills (p. 83) - Consult national and provincial program guidelines for assessment of students' skill in administering CPR. (p. 83) **Safety Outcomes: Senior 2** - K.3.S2.A.5a: Determine the safety considerations in selected alternative pursuits (e.g., wear protective equipment, use reflective tape for nighttime visibility, have first aid kit available, watch for extreme weather conditions...). (p. 84) - K.3.S2.b.3: Demonstrate an understanding of cardiopulmonary resuscitation (CPR) as specified in the national/provincial certification program. (p. 84) - S.3.S2.A.2: Demonstrate the skills (e.g., sequential steps of emergency scene management, artificial resuscitation...) required to administer cardiopulmonary resuscitation (CPR). (p. 84) Senior 2 – Resource Masters: - RM S2–3: Adult CPR: Skill-Performance Checklist (One Rescuer) Adult CPR: Skill-Performance Checklist (One Rescuer) - RM S2-3 **Senior 2 – Blackline Masters** Safety Inspection Report (BLM S2-6):

		- Are first aid equipment and facilities available? Senior 1 and Senior 2 Physical Education/Health Education – Glossary: - ABCs—the abbreviation for the steps followed when administering first aid to an unresponsive person: (p. 3) - Also see cardiopulmonary resuscitation (CPR). (p. 3) - cardiopulmonary resuscitation (CPR)—a life-saving procedure designed to revive an individual in cardiovascular failure; it involves opening the airway, providing artificial breathing by forcing the victim's heart to pump blood, and applying pressure or chest compressions to restart blood circulation. (p. 5) - first aid—the immediate assistance provided for an individual who has incurred physical distress or injury for the purpose of maintaining the body's vital functions until further medical aid can be obtained. (p. 7) Senior 1 and Senior 2 Physical Education/Health Education – Bibliography: - St. John Ambulance. First Aid: *First on the Scene—Instructor's Guide*. Ottawa, ON: St. John Ambulance, 2000. (p. 10) - ---. *Heartstart: CPR and AED—Activity Book*. Ottawa, ON: St. John Ambulance, 2001. (p. 10) - Senior 1 and Senior 2 Physical Education/Health Education – Appendices: - Example of Health Promotion Calendar: CPR Awareness Month (p. 6)
	Grade 11 Active Healthy Lifestyles – Manitoba Physical Education/Health Education Curriculum: A Foundation for Implementation (2008)	**Grade 11 – Active Healthy Lifestyles** Planning for Implementation (100% IN – Active Healthy Lifestyles): Flexible Delivery Component (25%) - Teacher-Developed Module (e.g., Leadership, Sport Science, Cardiopulmonary Resuscitation [CPR] Certification, Health Research Projects) (p. 27) **Suggestions for Instruction** References:

		- Mental Health First Aid. (p. 231) Bibliography: - Mental Health First Aid (MHFA). *About Mental Health First Aid Canada*. (19 Sept. 2007). (p. 426)
	Grade 12 Active Healthy Lifestyles – Manitoba Physical Education/Health Education Curriculum: A Foundation for Implementation (2009)	**Grade 12 – Active Healthy Lifestyles** Planning for Implementation (100% IN – Active Healthy Lifestyles): - Flexible Delivery Component (25%): Teacher-Developed Module (e.g., Leadership, Sport Science, Cardiopulmonary Resuscitation [CPR] Certification, Health Research Projects) (p. 27) Safety and Risk Management Considerations: - What equipment or supplies (e.g., phone, first aid kit) will be required? (p. 79)
New Brunswick	*K-2 You and Your World Curriculum (2005)*	
	K-5 Physical Education Curriculum (2017)	
	Grade 6 Health Education Curriculum (2005)	**Grade 6** Wellness Activities: - Healthy Lifestyle Day - Invite guest speakers to the school to discuss with students various topics which promote a healthy lifestyle: nutritionist, nurse, dietitian, personal trainer, acupuncturist, massage therapist, CPR first aid. (p. 32)
	Grade 7 Health Education Curriculum (2005)	
	Grade 8 Health Education Curriculum (2005)	**Grade 8** Wellness Activities: - Healthy Lifestyle Day - Invite guest speakers to the school to discuss with students various topics which promote a healthy lifestyle:

		nutritionist, nurse, dietitian, personal trainer, acupuncturist, massage therapist, CPR first aid. (p. 33)
	Grade 9 & 10 Physical Education and Health Curriculum (2007)	
	Grade 11/12 Wellness Through Physical Education and Health Curriculum (2017)	
Nova Scotia	*Primary to Grade 6 Learning Outcomes Framework – Health Education (2015)*	
	Grade 7 to Grade 9 Learning Outcomes Framework – Health Education (2014)	
	Grade 10 to Grade 12 Learning Outcomes Framework – Health Education (2015)	*NOTE:* There was mention of 'first aid' in Grade 12 Food Studies and Hospitality (p. 240) and mention of 'CPR' in Grade 11 Fitness Leadership (p. 127); however, there is an absence of any relation in regard to Health Education.
Ontario	*Grade 1-8 Health and Physical Education Curriculum (2015)*	**Grades 1-8** Health Topics: *Personal Safety & Injury Prevention* - "…Injury prevention topics focus on areas such as road safety (including pedestrian, bicycle, and vehicle safety); concussion prevention, identification, and management; seasonal safety rules; sun and UV protection; home safety; fire safety; safety when volunteering and working; and first aid." (p. 37)

	Grade 9-12 Health and Physical Education Curriculum (2015)	**Grades 9-12** Health Topics: *Personal Safety & Injury Prevention* - "…Injury prevention topics focus on areas such as road safety (including pedestrian, bicycle, and vehicle safety); concussion prevention, identification, and management; seasonal safety rules; sun and UV protection; home safety; fire safety; safety when volunteering and working; and first aid." (p. 41) **Grade 9** 1. Living Skills *Interpersonal Skills* - 1.3: Communicate effectively, using verbal or non-verbal means, as appropriate, and interpret information accurately as they participate in physical activities, develop movement competence, and acquire knowledge and skills related to healthy living (e.g., Active Living: describe how to communicate information clearly and concisely before starting cardiopulmonary resuscitation (CPR) (p. 91) **Grade 9** A3. Safety: - A3.3: Demonstrate an understanding of cardiopulmonary resuscitation (CPR) techniques and when and how to use them (e.g., know and rehearse the response sequence; demonstrate techniques on a mannequin; explain what an automated external defibrillator (AED) is used for, and identify where they are located in local community facilities) [CT] (p. 96) o Teacher prompt: "What are some ways you could practise CPR without a mannequin?" o Student: "You could practise compressions on a pillow, stacked gym mats, or bathroom weight scales, or by using simulated equipment like toilet paper rolls wrapped together or a ball tied

		between two flutter boards. You could work with a partner, with their consent, to practise identifying the spot where you apply the compressions. You and your partner could also say the CPR sequence to each other – compression, airway, breathing – and explain what you do at each stage, but it is important not to do actual compressions or breaths on your partner." (p. 96) **Grade 10** A3. Safety: - A3.2: Identify resources that can be of assistance in emergency situations related to physical activity *(e.g., automated external defibrillator [AED] to restart the heart; first aid kit for minor injuries; communication devices such as intercoms, walkie-talkies, and cell phones; GPS device for determining location; bailer [one per craft] for use when canoeing, kayaking, or boating; flotation device or reaching pole for assisting a person struggling in the water; epinephrine autoinjector for someone with a severe allergic reaction or inhaler for someone with asthma)* [PS, CT] (p. 115) **Grade 11** C3. Promoting Healthy Living: - A3.2: Demonstrate an understanding of basic procedures for ensuring safety at physical activity sites and events *(e.g., preparing an emergency action plan, ensuring that a working communication device is readily accessible, checking to see that activity areas are free of hazards and that equipment is in safe working condition, ensuring that everyone involved is familiar with relevant school board protocols for dealing with events such as concussions and lightning strikes)*, and describe resources, community agencies, and services that can be accessed in emergency situations *(e.g., on-site emergency equipment such as a first aid kit or an automated external defibrillator (AED), on-site medical team made up of certified personnel, community and*

		commercial medical emergency response teams, nearby hospitals or community health centres) [CT] (p. 134) o *Mentioned below in 'Student' response to 'Teacher Prompt' - C3.4 demonstrate an understanding of resources and skills that can help others in health emergencies (e.g., emergency first aid skills, including cardiopulmonary resuscitation [CPR], the use of automated external defibrillators [AEDs], and the use of epinephrine autoinjectors) (p. 174) **Grade 12** B3. Safety and Injury Prevention: - *Mentioned in the B3.2 Specific Expectation 'Student' response to 'Teacher Prompt' (p. 196) - B3.3: Demonstrate an understanding of skills needed by first responders (e.g., qualified first aid personnel, including those with cardiopulmonary resuscitation [CPR], emergency first aid, or aquatics certification and individuals trained in the use of an automated external defibrillator [AED]) to respond to medical emergencies in a variety of physical activities (p. 196)
Prince Edward Island (P.E.I.)	*Grade 1 Prince Edward Island Health Curriculum (2006)*	
	Grade 2 Prince Edward Island Health Curriculum (2006)	
	Grade 3 Prince Edward Island Health Curriculum (2006)	**Grade 3** Elaborations-Strategies for Learning and Teaching Safety and Responsibility Get Ready: - Discuss situations in which you might use basic first aid and write them on chart paper. - Brainstorm basic first aid techniques that a child your age might need to use. Getting help is the most important thing.

		- Review Student Information Master: Basic First Aid Apply: - Working in small groups, choose a situation from the chart and use the Student Information Master to identify a first aid technique to use in this situation.
	Grade 4 Prince Edward Island Health Curriculum (2009)	**Grade 4** Parents can: - Keep an emergency kit in the basement, vehicle, or another safe place. Include extra keys; cash; non-perishable foods; water; one change of clothing and footwear per person; blankets; pillows; first aid kit, including prescription medication, emergency tools including battery powered radio, flashlight, and extra batteries; and special items for infants, elderly family members, or individuals who are disabled
	Grade 5 Prince Edward Island Health Curriculum (2009)	**Grade 5** Outcome – (W-5.9): - *Safety and Responsibility*: Brainstorm a list of basic first aid procedures a Grade 5 student needs to know. This list might include the following: (p. 32) Presentation: - In small groups, research a first aid procedure and design a poster to teach others about the technique. Prepare a three-five minute demonstration to share with the class. (p. 33) Resources/Notes: - Appendix "Basic First Aid for Students" "Ideas for Promoting and Enhancing Basic First aid Skills" (p. 33) Basic First Aid for Students (W-5.9): *Ideas for Promoting and Enhancing Basic First Aid Skills (W-5.9)*

		- Learn basic first aid treatments at home or school and use them if a friend or family member has a minor injury; (p. 89) - Keep a first aid kit in the home and car, and take it on family outings and vacations; (p. 89) - Teach and practise with children first aid treatments for minor injuries (p. 89) - Provide basic first aid and baby-sitting courses for children in the community; (p. 89) - Ensure that proper first aid kits are available at local community and recreational centres. (p. 89)
	Grade 6 Prince Edward Island Health Curriculum (2009)	**Grade 6** Safety and Responsibility: *Resources/Notes* - Invite a first aid instructor to teach the Heimlich manoeuvre to the class. - Encourage students to take advantage of opportunities in their community for baby-sitting and first aid courses. *Ideas for Promoting Responsibility for the Safety of Self and Others* Students can: - Take a first aid course… Communities can: - Provide youth first aid courses through local agencies…
	Grade 7 Prince Edward Island Health Curriculum (2007)	
	Grade 8 Prince Edward Island Health Curriculum (2007)	**Grade 8** Elaborations-Strategies for Learning and Teaching Safety and Responsibility: *Ten questions to ask your employer before starting work:* - 6. Where are fire extinguishers, first aid kits, and other emergency equipment located? - 10. What do I do if I get hurt? Who is the first aid person?

		Handout (L-8.8): *Your Skills and Volunteering* - First there are the technical skills that allow you to do special jobs not everyone can do (e.g., play a guitar, speak Spanish, or give First Aid). What special skills do you have that make you unique?
	Grade 9 Prince Edward Island Health Curriculum (2007)	Grade 9: *Student Handout (W-9.4)* Case Studies: Case 1: - The SIS, known as Insite, is a clean, safe environment where users can inject their own drugs under the supervision of clinical staff. Nurses and counsellors provide on-site access and referral to addictions treatment services, primary health care, and mental health providers, as well as first aid and wound care. *Handout (L-9.7)* Your Skills and Volunteering: - First there are the technical skills that allow you to do special jobs not everyone can do (e.g., play a guitar, speak Spanish, or give First Aid). What special skills do you have that make you unique?
	PED401A Wellness Prince Edward Island Physical Education Curriculum (2014)	**PED401A** Physical Education – Wellness: *Overview for Key Stage Physical Education Curriculum Outcomes for Grade 9* - Safety and First Aid
Quebec	*Quebec Education Program – Preschool and Elementary Education (2001)*	

	Quebec Education Program – Secondary School Education, Cycle One (2004)	
	Quebec Education Program – Secondary School Education, Cycle Two (2007)	
Saskatchewan	*Saskatchewan Curriculum – Health Education Grade 1 (2010)*	
	Saskatchewan Curriculum – Health Education Grade 2 (2010)	
	Saskatchewan Curriculum – Health Education Grade 3 (2010)	
	Saskatchewan Curriculum – Health Education Grade 4 (2010)	
	Saskatchewan Curriculum – Health Education Grade 5 (2010)	
	Saskatchewan Curriculum – Health Education Grade 6 (2009)	
	Saskatchewan Curriculum – Health Education Grade 7 (2009)	**Grade 7** Outcomes: - USC 7.3 Commit to personal safety practices while acquiring basic first aid knowledge and skills. Indicators:

		- a. Locate sources and evaluate information, according to specific criteria, about safety practices and first aid skills. - c. Examine possible situations at home and at school that may require basic first aid. - g. Prioritize basic first aid skills to acquire (according to needs and interests of self and of community). - h. Examine the roles of a variety of first aid experts within the community and the kinds of available first aid supports. - i. Develop and apply basic first aid strategies. **Teaching and Learning the Grade Perspective** Perspective: Commit Self: - Assessing and committing to individual safety and first aid skills (7.3, 7.8, 7.9, 7.10)
	Saskatchewan Curriculum – Health Education 8 (2009)	
	Saskatchewan Curriculum – Health Education 9 (2009)	
	Saskatchewan Curriculum – Wellness Education 10 (2012)	**Grade 10 (level 10)** *Wellness* W6 Outcomes – Indicators: - h. Demonstrate respect, responsibility, and caring for own wellness by applying understandings related to the identification, prevention (e.g., investigate facts, prepare basic first aid kit, take time outs), and management of common safety risks (e.g., wearing personal protective equipment, following recommended guidelines and instruction for use of equipment).

Newfoundland & Labrador	*Kindergarten Newfoundland & Labrador Health Curriculum Guide*	
	Grade 1 Newfoundland & Labrador Health Curriculum Guide (2010)	
	Grade 2 Newfoundland & Labrador Health Curriculum Guide (2011)	
	Grade 3 Newfoundland & Labrador Health Curriculum Guide (2015)	
	Towards a Comprehensive School Health Program Elementary Health Curriculum Guide	**Grade 4** *Grade Level Objectives* Injury Prevention and Safety: - 1. Know first aid procedures for minor cuts, bruises, burns, choking and nosebleeds, - 2. Demonstrate some basic first aid procedures, **Grade 6** *Grade Level Objectives* Dental Health: - 4. Describe first aid procedures for dental accidents. Injury Prevention and Safety: - 3. Demonstrate some basic first aid procedures, *Scope and Sequence* Grade 6 – Active Living: - First aid for dental accidents Grade 4 – Injury Prevention and Safety: - First aid procedures

		Grade 6 – Injury Prevention and Safety: - Basic first aid procedures **Program** *Implementation* - Make a slide-tape presentation on topics such as Brushing and Flossing Teeth, Physical Growth and Development, Effective Communication or First Aid Techniques.
	Adolescence Healthy Lifestyles Health and Personal Development Curriculum Guide	**Grade 7** *Grade Level Objectives* Safety and Environmental Health: - 5. To know individual capabilities and limitations with respect to safety practices and first aid - NOTE: First Aid and Babysitting courses involving community expertise could supplement this unit… **Grade 7** *Scope and Sequence* Safety and Environmental Health: - 5. To know individual capabilities and limitations with respect to safety practices and first aid - NOTE: First Aid and Babysitting courses involving community expertise could supplement this unit
	Grade 9 Newfoundland & Labrador Health Education Curriculum Guide (2008)	

Appendix B

Procedural Assessments Outlining the Processes, Steps, and Criteria of First Aid

Process	First Aid Step	Assessment Criteria
Preliminary Steps	Scene Safety	- This assessment ensures that the scene is safe for the first-aider and that there are no more hazards. - If hazards are apparent, do not risk your own life, or move the victim to a safe distance if possible.
	First-Aider Introduction	- This ensures the liability of the first-aider. - A victim, or person in need, must accept via consent that they are in need of help to continue. - If a victim or person is non-responsive, this implies consent and the first-aider may move forward to the next step after contacting EMS.
	Personal Protective Equipment (PPE)	- Apply any item that may protect the first-aider from bodily harm (e.g.: nitrile gloves, medical mask…)
Primary Assessment (ABC's)	Airway Assessment	- The first-aider must check the airway to assess if it is clear or obstructed. - When the obstruction is visible, the first-aider may attempt to remove - If the obstruction is not visible, contact EMS and move to the next step.
	Breathing Assessment	- Then, the breathing should be assessed. It is important to note the adequacy of the breathing (e.g.; shallow, deep, agonal, painful…) - If there is difficulty breathing or it is not apparent, contact EMS and then move to the next step.
	Circulation Assessment	- The first-aider should check the circulation via the skin on the body. - The first-aider should also check to see if there is a pulse: if pulse is absent, contact EMS and request/retrieve an AED and/or begin CPR.

		- Assessing for discolouration of skin, signs of bleeding, contusions, bruising… - If there is major bleeding, contact EMS and treat the wound.
Secondary Assessment (SAMPLE)	Signs and Symptoms	- This step identifies any obvious signs or symptoms that the victim may portray through interview questions and visual assessment. - The first-aider is looking for any signs or symptoms not previously apparent. - Some interview questions could be: “Do you have any cuts of bruises?” “How do you feel?” “Do you feel any pain?” “Does anything feel different or odd?”
	Allergies	- This step identifies whether the victim has any allergies. - An interview question could be: “Are you allergic to anything?”
	Medications	- This step identifies whether the victim has or has taken any medication. - If there are medications required for treatment, please be made aware of the intake method, dosage, time it was taken, prescription name, and document this for more advanced care. - Some interview questions could be: “Do you take any medicine?” “What is it for?”
	Past Medical History	- This step helps first-aiders identify medical illnesses and emergencies to make sense of the situation. - The victim’s condition could be re-occurring or could have been acute. - Some interview questions could be: “Do you have any medical conditions such as heart disease or other illness?” “Has this happened before?” “Is this condition apparent in your family?”
	Last Meal/Oral Intake	- This step identifies when the victim may have last consumed anything. - Some interview questions could be: “When did you last eat or drinks?” “What did you have?”
	Events Leading to the Emergency	- This step often identifies potential mechanisms of injury and can shed light on the scenario. - Additional signs and symptoms may become apparent and should be documented. - An interview question could be: “What happened?”

Appendix C

Challenges and Solutions to In-School FAE

Integration of In-school FAE	
Potential Challenges:	**Suggested Solutions:**
Low Confidence Levels and Lack of Teacher Knowledge	- Teachers may certify or re-certify annually in first aid and CPR. - Organizations may provide training to students in first aid and CPR (e.g., Canadian Red Cross, St. Ambulance) - Teachers may consult with organizations regarding the education of first aid. - Teachers may practice or reinforce first aid training during PD
Availability of Organizations/First Aid Instructor Services	- There are many organizations available at the local, provincial and national regions (e.g., Heart Niagara, St. John Ambulance, Heart and Stroke Foundation, Canadian Red Cross). - Private instructors available as guest speakers. - Medical or health professionals may offer their services in place of instructors. - Teachers may seek instructor training (certified to instruct first aid and CPR training through an organization).
Availability in Resources for In-School FAE	- Students may role-play as potential injured victims, if CPR mannequins are not available. Display of the skill is important, even if proper chest compressions are not reinforced. - As part of emergency first aid, students may role-play and use any available resources as first aid tools (e.g., extra clothing as gauze, sticks and tape for stabilizing fractures, paper and pencil for documentation).

	- Ask if a student with an EpiPen or inhaler is comfortable with discussing the importance and use of their medication. - General training topics may be found online. If a teacher or student has completed a first aid course, they may use the training manual as reference to FAE.
Financial Restraints	- Schools may use the opportunity to fundraise and ask for financial assistance from the community. - Non-profit organizations in local, national and international regions may provide financial assistance or resources. - Training may be provided by non-profit organizations at low or no cost. - Teacher unions may also provide documents or first aid training at low or no cost.
Legal Concerns	- Raising a school's number of first-aiders onsite will improve the standard of care for staff and students - WSIB regulation 1101 (2012) requires an approximate of 2-4 first-aiders per school (depending on staff ratio). Some schools across Canada do not meet this requirement due to insufficient trained staff or expired certification.
Time Restraints	- Teachers may use any curricular opportunity to provide in-school FAE (e.g., science, biology, chemistry, history). - Teachers may use health education curriculum to align FAE