

ENHANCING FIRST AID TRAINING IN  
HUNTER EDUCATION

by

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DEDICATION

To my husband, Bill, for all of the words of encouragement, partnership and belief in me through the past two challenging years. Thank you for holding me up when I did not think I could stand. I could not have done this without you. I would like to thank my incredible family for their unwavering support, and encouragement. I appreciate your confidence, tolerance and sacrifices. Thanks for dealing with my tears and frustration while at the same time reminding me of what is truly important . . . the love of my husband, children, grandson and friends. This has truly been a family endeavor.

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## ABSTRACT

Trained but non-expert individuals generally perform first aid. The goals of first aid include the preservation of human life, prevention of additional harm, and the beginning of the recovery process. First aid is used to treat injured persons until definitive care can be reached. First aid can also be used to manage injury eliminating further treatment. First aid is simple procedures that often have life-saving results. Teaching core concepts have a direct impact on the effectiveness of first aid when employed in life situations.

The purpose of this project is to examine the need for enhancing first aid within hunter education. A setting within the hunter education arena in Montana was examined. The hunter education program has an excellent record for reducing fatal injuries among hunters, both within Montana and nationwide. Hunter education does not eliminate all injuries however. The nature of hunting, with high-powered weapons and remote locations, leads to injuries that have significant threat to the injured.

Hunter education follows a national baseline model. It is effective at teaching the essentials of hunter safety, but factors limit the ability of the curriculum from expanding and subsequently teaching a more comprehensive and effective first aid module within the scope of the class. The project plan is to collect and evaluate information, then to propose an evidenced based teaching packet for first aid education that nurses can teach. It can be implemented during the hunter education course.

A limited literature review was conducted which assisted in defining the depth of the perceived problem. Hunter education graduates are charged with conducting themselves in a safe manner as well as educating others. The method and the content that these students are taught, has a significant impact on their future success.

Variables such as the length of class, teaching method, and the specific first aid procedures that are being taught were evaluated and found to be beneficial. Evaluating methods of teaching students was important to be able to identify an effective teaching method. This information will be incorporated into the development of the teaching packet.

## CHAPTER ONE

## INTRODUCTION

Trauma is a significant cause of both mortality and morbidity (Centers for Disease Control, 2014). In excess of 2.8 million persons are hospitalized with some form of injury annually in the United States (US) ultimately costing over \$406 billion through lost productivity and medical expenses (Finkelstein, Corso, & Miller, 2013). Unintentional injuries (accidents) are the fifth leading cause of death in the US. In 2011, there were 122,777 persons of all age ranges killed via unintentional injuries (Hoyert & Xu, 2012).

Trauma related injuries continue to be a major concern for the healthcare system in the US. Annually, trauma accounts for over 40 million emergency department visits across the US (National Trauma Institute, 2014). The American College of Surgeons National Trauma Data Bank annual report for 2011 indicates a total of 722,824 trauma diagnoses across the US. Approximately one-half of those reported patients (46.89%) had minor injuries while almost one-third (29.7%) had injuries that were classified as moderate. While the greatest number of deaths is related to fall-injuries, with automobile accidents and being “struck by something” ranked second and third, injuries as a result of a firearm have the highest case fatality rates. Firearms produce the highest case fatality rate in every age group as well. Interestingly, firearm fatalities peak in the age range of 15-35, but beyond the age of 35, firearm fatalities decrease. The American College of Surgeons Committee on Trauma continues to track these statistics in an effort to improve the care of the injured. Unfortunately, there is little data available delineating what

percentage of unintentional firearm injuries occurs during hunting. As an example, utilizing Cinahl® data base search engine with key words of “hunting and injuries”, four research articles were found.

Montana has a population of just over 1 million (United States Census Bureau, 2013). In 2011, 150,000 Montana resident hunters spent 2,493,000 days hunting. This equates to 17 days hunting per Montana hunter (US Fish and Wildlife Service, 2013). Montana hunters can begin hunting at the age of 12, after successfully completing a hunter education course (Montana Fish Wildlife and Parks, 2014).

The role of the Family Nurse Practitioner (FNP) goes above and beyond working strictly in a patient care setting. Historically, nurses cared not only for the sick but took part in health education of the public and organizing community health concerns. Today, it is common to find nurses collaborating with many other public agencies and members of the community (Kulbok, Thatcher, Park, & Meszaros, 2012). Some of the efforts of today’s nurses are directed toward work with communities and agencies in order to improve the overall health of that community’s population. Nurses are often found putting plans into place that help reduce and/or eliminate possible public health hazards or safety issues within a community or region (Johnson and Johnson, 2014). This author has witnessed the expanding role of nurses and in particular that of the FNP in providing education to the public where it was lacking before. FNPs are now being recognized as leaders in health care and part of that leadership involves community educators. It is especially critical that the FNP take the opportunity to become involved in public

education. A first aid course in a hunter education course provides this opportunity, but it is currently missing from the hunter education curriculum.

As an experienced pre-hospital care provider and certified Emergency Registered Nurse (CEN, RN) this author has seen injuries associated with hunting and the devastation these injuries can cause. One problem noted during my field experience has been that injuries are not always given a notation during care that the injury occurred during hunting. For example, a wound that was sustained while cleaning an animal with a knife is categorized during treatment as simply a laceration, with no further association with hunting. This type of documentation can lead to two problems. First, the actual number of injuries linked to hunting may in fact be underreported. Secondly it is difficult to associate the cost of those injuries with the sport of hunting, as there is no recognition as to where the injury was sustained. Both of these conditions can lead to misconceptions concerning the sport of hunting and any injuries affiliated with it.

The annual cost of traumatic injuries in the US is significant. The total one-year cost to treat a traumatically injured patient is \$75,210. Combining all the one-year treatment costs for adults who suffer major trauma in the US is estimated to be \$27 billion (Weir, Salkever, Rivara, Jurkovich, Nathens, & Mackenzie, 2010). One way to reduce the cost of injuries is for quality treatment to begin as early as possible. In order for treatment to be of sufficient quality, it stands to reason that responders should be adequately trained. Studies reveal that persons properly trained in first aid have higher qualities of providing care for both bleeding and chest pain emergencies (Van de Velde, Heselmans, Roex, Vendekerckhove, Ramaekers, & Aertgeerts, 2009).

The aim of this project is to develop a first aid training tool for current Montana hunter education courses. The toolkit/packet will provide fundamental first aid skills and will be self-contained, creating a standardized educational tool. It is fitting that the FNP take the lead on this project, as community education is integral to the FNP role.

Advanced practice nurses are being sought out to function as active participants, along with physicians and other health care professionals, in the effort to overhaul health care within the United States (Institute of Medicine, 2010). Academic programs training nurse practitioners are now offering areas of study to include the specialty of community health. Enthusiasm for nurse practitioners situated within alternative work environments, such as community settings, has grown within the health care industry (Dracup, 2014).

Individuals, who complete a graduate course of study in nursing, have been prepared for a multitude of responsibilities and range of practice. Many nurse practitioners will choose to ignore the traditional career path of direct patient care in order to consider more contemporary fields of practice. These modern roles are a direct result of the ongoing health care reform of both the national and global health care system (American Association of Colleges of Nursing, 2014).

## Background

### History of Hunter Education

Hunter education courses are not new to Montana or the United States. The first mandatory hunter safety courses were produced in the State of New York in 1947 (Montana Fish, Wildlife & Parks [FWP], 2010, p. 4). According to Montana FWP, the

state of Montana followed suit in the late 1940's with the development of its own hunter safety courses. In 1957, Montana made these classes mandatory for all hunters under the age of 18. Today hunter education in Montana is required for all hunters born after January 1, 1985. All 50 states require some form of hunter education certificate or proof of education (Montana FWP, 2010, p. 4). Interestingly, some states require much broader criteria for range of ages for completing a hunter education course. Michigan, for example, requires hunter education course for anyone born after January 1, 1960 (International Hunter Education Association, 2013).

Just as hunting has changed over the decades, so have hunter education programs. The education of hunters was originally titled *Hunter Safety* (International Hunter Education Association, 2013). While safety remains a key component to today's classes, ethics have also been added, enhancing today's hunter education course curriculum. Original subject matter focused on basic gun safety techniques. Today's classes provide the student with an excellent handbook including multiple chapters, each focusing on important subject matter. The handbook produced by MFWP contains content considered appropriate for new hunters as well as the more experienced hunters (Chapman, 2009).

Hunter education is seen as being invaluable nationwide. Since 1957, more than 220,000 people have successfully passed a hunter education course in Montana (Chapman, 2009). Ultimately, the goal of the International Hunter Education Association and Montana Fish, Wildlife & Parks' Hunter Education programs are to provide the tools and knowledge required to be a safe and responsible hunter. A portion of this goal is centered on the hunter; and a portion of the goal extends beyond the hunter to the

landowner and non-hunter (International Hunter Education Association, 2013, & Montana Fish, Wildlife & Parks, 2010).

### Hunting Fatalities

At both a national and local level, hunter education courses have had an impact on hunting fatalities related to firearms. The Montana Hunter Education student manual emphasizes that hunter education courses have been successful over the years as evidenced by the reduction of hunting injuries and fatalities. In Montana, there has been a reduction in accidents involving a firearms from a high of 60 cases to 11 cases per year, with an average of only 1.3 firearm accidents per year being fatal (Chapman, 2009 & Montana Fish, Wildlife & Parks, 2010). Hunter education is important because it helps to prevent hunting and shooting accidents, improve hunter behavior to maintain public acceptance of hunting, and ensure the future of hunting in Montana by educating the next generation of hunters (MFWP, 2010). According to the National Shooting Sports Foundation (NSSF) unintentional firearms fatalities in the United States (U.S.) are at all time lows. Statistics suggest that firearms are associated with less than 1 percent (0.5 percent) of unintentional fatalities; the U.S. has seen a dramatic decrease in the past 20 years (Palsbo, 2012). While not all firearms related fatalities are associated with hunting, it is interesting to note that as the number of firearms safety education programs nationwide have increased, there has been a corresponding decrease in the number of unintentional firearm fatalities. Hunting is now considered one of the safest sports in America (Palsbo, 2012). These statistics and interpretations suggest a relationship at the

local and national level between hunter education and reduction of firearm fatalities (National Shooting Sports Foundation, 2013).

### Hunting Injuries

In 2011, the total number of injuries for the sport of target archery was at 4,933 (National Shooting Sports Foundation, 2013). Also reported in 2011, there were a total of 6,759 injuries reported while hunting with firearms. This averages to 41 injuries sustained while hunting with firearms for every 100,000 participants or 1 injury per 2,439 participants (National Shooting Sports Foundation, 2013).

The National Shooting Sports Foundation (NSSF) advocates that hunting is a very safe sport based strictly on the number of persons reported injured. When comparing the number of injured persons during hunting activities with other sports, NSSF reports that it is 14 times more likely for a person to be injured playing volleyball versus hunting, 30 times more likely to be injured during baseball and volleyball events, and up to 127 times more likely to suffer injuries during tackle football events than when taking part in the sport of hunting (National Shooting Sports Foundation, 2013).

### Discrepancies in Reporting

While the research indicates recreational injuries—and specifically those injuries received by a firearm or bow—have decreased, the data may not indicate true hunting statistics due to lack of reporting by both hunters and emergency rooms. As an example, in a South West Montana town, a 13-year-old patient tripped while hiking and fractured his leg. The patient record does not clearly state the patient was hunting when he was

hiking. This injury was recorded as a hiking injury. This veteran emergency care nurse has noted there are injuries which occur while hunting, however, are recorded as an outdoor activity injury.

Despite international data that supports the concept of hunting being a safe activity, the reality is that hunting injuries do still occur. The Journal of Sports Medicine and Physical Fitness (2012), highlighted injuries sustained during recreational archery. This 10 year study was aimed at determining how often injuries to the general population occur during participation in target or bow hunting. The study found that lacerations were the leading injury (62%) followed by puncture wounds (8%), embedded foreign bodies such as feathers into the hands (6%), and contusions and abrasions (6%). Overall this study found an injury rate of 4.4 injuries per 10,000 archery participants aged 6 and above. The conclusion of the study was that archery is indeed a safe sport but regrettably injuries do still occur. Palsbo (2012) recommended increased instruction during hunter education classes for the safe handling of arrows. The author further recommended that all participants of recreational archery and hunting participate in an accredited education program (Palsbo, 2012).

Therbo & Von Der Osten (2009) found hunting accidents were underreported. These Danish researchers identified there were very few peer reviewed scientific studies on this issue. In fact, in their study seven of the nine sources utilized were in excess of 10 years old; one of the sources utilized was dated from 1930. Some of their data came from insurance and police reports retrospectively in association with fatal hunting incidents. The authors also noted considerable numbers of minor injuries sustained during hunting

are not reported to authorities and that while hunting, even minor safety compromises can lead to devastating and often fatal accidents (Therbo and Von Der Osten, 2009). While the researchers conclude the numbers of hunting accidents in Denmark is similar to that of western countries, including the US, they also admit that in their own country these accidents are underreported. Ultimately the Danish authors surmised that the actual number of hunting-related accidents in Denmark is substantially greater than what is actually reported (Therbo & Von Der Osten, 2009).

#### Time to Definitive Care

An important consideration with regard to survival is the location of the hunter when the hunter experiences an injury. The availability of medical assistance after injury plays a key role for survival. While NSSF suggested one is more likely to be injured playing volleyball or football, the difference between the sport of hunting and organized team sports is that typically emergency medical responders can arrive immediately to the injured person's location and provide first aid (National Shooting Sports Foundation, 2013). This is not often the case with hunting. Hunting occurs away from populated areas, in rugged terrain; an injury in this situation may prove to be far more dangerous than one that occurs in a populated location. For example, a broken leg, or worse, a bullet or arrow penetration injury is compounded by time to definitive care. It is up to the hunter and his/her companions to make decisions that ultimately determine a positive or negative outcome for the injured, as there may be no medical professionals anywhere nearby. Due to the fact that emergency medical services are not readily available and

hunting injuries are often very time sensitive, it may very well be crucial to life and limb that a first aid trained individual be a part of the hunting party.

The State of Alaska is an example of one state which has adopted the stance that first aid training is critical and that every hunter should be trained in both first aid and CPR (Alaska Department of Fish and Game, 2013, p. 1). Because first aid in a wilderness setting may involve difficult environments, limited equipment, and the need to provide extended care of the patient until help arrives, injuries incurred in the wilderness can quickly become life threatening (Alaska Department of Fish and Game, p.1).

#### Statement of the Problem

The Montana Department of Fish, Wildlife and Parks (FWP) has the responsibility of overseeing the hunter education program and its development. The multiple purposes of the hunter education program include encouraging both veteran and beginning hunter's involvement, engendering a sense of responsibility, and advancing knowledge and competence. Additionally, FWP seeks to impart that if the sport of hunting is to survive, there needs to be a sense of proper, accountable, and virtuous behavior on the part of participants (FWP, 2010 p.4). However, the state of Montana has not taken a firm stand on first aid training specific to survival of injury while hunting.

According to State of Montana Fish, Wildlife and Parks, Montana has the highest per capita participation of hunters in the United States. A full 24% of Montana residents hunt, although not all Montana hunters hunt every year (FWP, 2013). Considering statistics associated with hunting in Montana:

- Hunting in Montana generates \$302 million in economic impact and supports more than 2,100 jobs
- Hunting in Montana exists in all seasons and hunters can pursue more than 30 species
- In 2001, Montana hunters spent more than 2.4 million days in the field (FWP, 2013)

The hunter education student manual, given to each attendee at every hunter education class, is 109 pages in length. Of these 109 pages, four are dedicated to first aid. Within these four pages, two pages are dedicated to hypothermia and hyperthermia. The third page is a list of supplies that hunters are encouraged to take into the hunting field. This leaves a single page dedicated to providing care of first aid emergencies. Within the page of explanations of how to provide first aid, there is no visual assistance for the reader. Not only is there no visual assistance as to what an injury might look like, there is also no visual assistance for how to perform any first aid measures. For hunters who are facing their first medical emergency, such as a compound fracture of the lower leg, treating such an injury is a daunting and frightening task. A form of visual reference for the individual providing first aid could be beneficial in treating an injury.

While national statistics indicate improved firearm safety in the wake of implemented hunter safety courses, the statistics regarding field injuries from falls, and other accidents related to hunting are not well-supported nor fully reported. The Montana Hunter safety program touts the importance of skill, knowledge, and the practice of safety rules (FWP, 2010, p. 4), yet only four pages are dedicated to first aid. This is simply not sufficient, as noted by the Department of Fish Game and Wildlife in Alaska, with regard to saving life and limb in remote hunting areas.

This project has merit based on the fact that hunting injuries often occur in remote settings and providing immediate care becomes difficult due to the distances and terrain to care. Hunting injuries often involve life-threatening wounds, which make the timely and effective treatment of those wounds even more important.

### Purpose

The aim of this professional project is to examine the need for enhancing first aid within Montana hunter education. The project is to collect and evaluate information, and then propose a teaching packet for first aid education that nurses can teach. With the development of the educational first aid packet, it is important for the product to be inexpensive and not time consuming. Therefore, addressed in this professional project is: the form of first aid module/packet that can be produced that would enhance the first aid section of Montana Fish, Wildlife, and Parks Hunter Education courses, without incurring significant additional expenses in both time and money. While it is admirable that hunter education programs are largely responsible for the precipitous drop in firearm related hunting fatalities, there is an opportunity to improve the current curriculum with a more comprehensive training module for first aid.

This professional project would serve as an addition to the current curricula in hunter education courses if the instructor chooses to use the packet, but more importantly be a demonstration of first aid techniques utilized for common first aid emergencies. An additional benefit of this first aid education packet is to have attendees in class actually be able to visualize what various injuries look like, in addition to learning, how to

provide care. By having the visual learning tool, attendees will be better prepared to both identify and provide first aid to hunters experiencing a medical emergency in the field.

The idea to research the need for this project initially developed with an informal community needs assessment. This author is recognized in the community for knowledge, skills and abilities as an emergency nurse and paramedic, while also known for providing education to prehospital care providers. Community members asked if this author could become involved in assisting with instruction of first aid among the parents and children who are involved in outdoor activities such as hiking, boating, skiing, boy scouts and hunting.

While at the same time a family member who turned 12-years-old felt he was ready to begin hunting. As an emergency nurse, the author had concerns about safety while hunting, and emphasizing the importance of safe actions. As required, a hunter education course was signed up for and attended. After attending a hunter education course and speaking with several concerned community members, then completing research, as discussed in lit review section, this author believes there was insufficient first aid education and there was a community need that could be addressed through a professional project taught by an FNP.

Montana State law requires that all hunters born after January 1, 1985 to attend and pass a certified hunter education course. Montana's hunter education programs are designed according to a curriculum template produced by the International Hunter Education Association (IHEA). The IHEA has 70,000 volunteer instructors involved with the teaching of hunter education across North America and the IHEA serves as a

professional organization for wildlife conservation agencies across 67 states and provinces. The IHEA was created in the late 1990's and in 1999 formally generated adopted a set of guidelines outlining the performance of basic hunter education courses (IHEA, 2010 p.1)

Standards put forth by the IHEA have been used internationally by hunting education administrators to assess core content within hunter education courses. Industry partners continuously evaluate student manuals and delivery methods, in order to revise standards found within the core curriculum. According to the IHEA, this approach has proven effective based on researched statistics, notably the reduction in fatal hunting incidents (IHEA 2010 p.1).

The IHEA recognizes that not all individual hunter education courses are identical, nor does the IHEA desire this to be the case. The IHEA also refers that there may be additional procedures and practices that could be placed into hunter education courses. It is not the intent of the IHEA to implement every possible suggestion into their core curriculum. The core curriculum proposed by the IHEA is produced to define a minimum frame of knowledge that is required to make hunting safe, satisfying and lawful. The IHEA uses hunting incident and violation statistics to propose standards that are focused on reducing risk to the hunter (IHEA, 2010 p.1)

The IHEA's provides the opportunity for entities using the IHEA standards to address their individual needs based on the population served, geographic area and other unique features of its' population. The IHEA specifically addresses this with the statement, "It is recognized that there are different types of hunter education courses,

programs and methods of delivery with different target audiences. These standards are intended to specify the minimum body of knowledge required to successfully complete a jurisdiction's certification examination"(IHEA, 2010, p. 2). As mentioned previously, 67 states and provinces have adopted the basic curricula of the IHEA, providing this author with the impression that the basic curriculum is well received.

The IHEA repeatedly stresses their standards meet the minimum requirements for hunter education courses. The IHEA also encourages entities and instructors to adapt and go beyond what is provided. All participants who assist in the development of hunter education courses, to include industry partners, instructors, agency administrators and other non-government organizations are supported by the IHEA when the basic curriculum is extended beyond minimal standards. These approaches can include teaching methods and course designs that aid student's learning the ideas of ethics, responsibility and safety. The IHEA notes that it will be producing documents in the future that outline best practices for teaching and advises that performance standards may become more exhaustive in the future (2010, p. 2).

When comparing the Montana curriculum to the IHEA curriculum, hunter education courses in Montana accurately reflect the curriculum of the IHEA.

### Project Goal

A 2006 study regarding first aid training and injury reduction revealed that there is significant evidence showing a change in both safety behavior and safety attitude within specific populations, who have received first aid training (Alberta Center for

Injury Control and Research, 2006). The goal for this professional project is to take new hunters and assist them in being proficient in providing first aid. Ferguson (2010) an MD with the American Heart Association volunteer, co-chair of the First Aid Writings Group, “Prompt and effective first aid can save lives and prevent many medical situations from worsening” (American Red Cross and American Heart Association, 2010, p. 1). In making new hunters aware of the need for first aid training, as well as giving them some of the basics through the hunter education course, the benefits of this project may well save limbs or lives. While it may take years to see any significant adjustment to survival rates as a result of enhanced teaching of first aid, this proposed professional project has the ability to impact students immediately, as they go out into the hunting field.

#### Project Improvement Aim Statement

All of Montana Hunter Education course instructors are volunteers. It would not be conceivable to ask each instructor to become certified in first aid, as that would require both a time and financial commitment (P. Buckingham, personal communication, January 10, 2013). As an example, a basic CPR course through the Missoula Fire Department is 4 hours in length and costs \$35 (R. Brunell, personal communication, January 3, 2014). The proposed solution for this professional project eliminates that potential expense.

Montana hunter education has a component of instructor variability that makes consistency difficult to reproduce across multiple classes (P. Buckingham, personal communication, January 10, 2013). By utilizing an interactive DVD teaching tool there are multiple advantages. Advantages include a consistent message, consistent time frame

for teaching, attendees get the same material at the same time while in class, ease of use, cost effective, and can be customized to include sections of the DVD that force students to answer questions or practice a skill thereby allowing the DVD to become more interactive (Training Today, 2014).

The goal for this project is to enhance the first aid portion of hunter education. One option would be to produce a first aid DVD that could be shown in classrooms during hunter education courses. There will need to be audio-visual equipment to show the DVD, however these costs appear to be offset by the location of the courses.

Based on the FWP website, all twelve hunter education courses offered beginning in January 2014 are being held in a school facility, a FWP office, or other location such as an Elks Lodge. The only significant cost for this project would be the creating of the DVD's. The DVD could be given to each hunter education instructor. Additional time would be added to the course for the enhanced education.

It is the intent of this professional project to propose the development of a first aid educational tool in the form of a DVD that the instructor would show during class. The DVD could be paused and reviewed as needed. The material covered in the DVD could be taught by a medical professional in the nursing field and would be thorough enough to eliminate or address foreseen potential questions. The students in class would be able to watch first hand via the DVD what is expected during first aid. This would eliminate instructor variability as much as possible and encourage standardized techniques.

### Liability Statement

The matter of liability when teaching first aid is a valid concern. The Montana FWP hunter education program has a small first aid component regarding the actual treatment of injuries. These treatment protocols are derived directly from the American Red Cross, according to FWP. FWP also encourages all hunters to attend and become certified by the American Red Cross in First Aid (FWP, 2014). For this project, the content will remain consistent with American Red Cross criterion when presenting material within the tool packet of this professional project.

### Theoretical Framework

There were three theoretical frameworks utilized while completing the professional project. The Rural Nursing theory, the Plan, Do, Study, Act (PDSA) cycle of continuous improvement and the Cognitive Theory of Multimedia Learning

The initial theoretical organization of this project can be found within the rural nursing theory. Rural theory promotes that there are unique ideas associated with practicing nursing in a rural setting. Some of the core conclusions include isolation, distance, health and work beliefs, and self-reliance. Many persons living in Montana characterize well-being as the ability to be productive and able to work. Rural dwellers also characterize quality health as the opportunity to do what one wishes. Nurses working in rural settings see people that consider being healthy as the ability to perform their activities of daily living (Winters & Lee, 2010).

A key concept with rural theory connects the view that distance and isolation play a key role in understanding rural nursing. Rural dwellers routinely travel significant distances for both routine (50 miles) and emergency health care access (23 miles). Despite the distances travelled, rural dwellers generally saw health care access as appropriate and did not consider themselves isolated (Winters & Lee, 2010). The very nature of hunting is similar to these concepts of distance and isolation, in that hunting generally occurs in areas not easily accessible.

The rural nursing theory conclusions of both independence and self-reliance among rural dwellers are considered meaningful. Rural persons tend to care for each other and themselves as much as they can. Rural dwellers are also seen as willing to accept help from more informal and local sources as opposed to accepting help from a non-rural person. This ambition plays an important role in understanding rural nursing (Winters & Lee, 2010). This author sought to create, through this project, a solution that would not be viewed as anything other than being created locally or regionally.

Montana is classified as a rural state and consequently the use of rural nursing theory was suitable. Montana has a population of 1,015,165 persons in an area of 145,545.80 square miles resulting in an average of 6.8 persons per square mile (United States Census Bureau, 2014). Additionally, urban is defined as having a population of at least 1,000 per square mile, which Montana does not have (Health Resources and Services Administration, 2013).

In rural theory, the definition of rural also contains the impression of being sparsely populated. As a result, all of Montana is considered to be rural in nature, despite

the presence of a few more densely populated urban areas. These details allow for an assumption to be made that rural health needs are distinct and inherently different than the health needs of more urban areas. There is a general acceptance that all rural areas share common health care issues. Because of this, rural theory advocates that urban health care models do not fit, nor should they be applied to rural areas because they will not meet the unique needs (Winters & Lee, 2010).

For the purposes of this project, one can consider 150,000 hunters in Montana as a distinct and important population within the state. Many of the key concepts of rural nursing are readily applicable to this special population. The rural nursing theory concepts of isolation, distance to healthcare, self-reliance, and the ambition to work and partake in activities as desired, were considered readily applicable to this population.

As a result of these factors, considered additional components of rural nursing when addressing this project. One such issue surrounds the reality that Montana has some unique work cycles, such as harvest. Rural nursing endorses the idea that rural dwellers often will forgo education because of important work cycles. This is important to the nurse educator, for if these work cycles are ignored, the health care message may not be heard as rural dwellers are working (Winters & Lee, 2010). This author identified that hunter education courses are often given in the winter, after harvest and before calving season, and consequently provided a good time frame for educating students about first aid.

The issues of isolation and distance, coupled with self-reliance are also relevant. Many rural dwellers will not ask for help until they are very sick or significantly injured.

A portion of this self-reliance notion can be associated with the fact that rural dwellers often live a significant distance from healthcare and are in essence physically isolated. An important facet to remember when providing education to rural dwellers is to emphasize the benefits of preventative health (Winters & Lee, 2010). By creating a message through this project that quality first aid training can improve the ability to respond to illness and injury, thereby reducing the severity of injury and potentially decreasing long term disability, this author seeks to impart on the hunting population the concept that being better prepared for the hunting health care crisis can prevent injuries from becoming completely catastrophic, both physically and financially.

This project sought to consider hunters within Montana as a distinct population. Rural dwellers and hunters in Montana share several particular health care issues. By using the rural nursing theory, the unique health care issues associated with hunters can be addressed appropriately. Through adherence to several of the tenets outlined in rural nursing theory, the impact of this project can be greater and the goals made more obtainable

The second theoretical framework that was chosen is the PDSA model. The PDSA model was chosen for several reasons. Central to the concept of continuous improvement (PDSA) is the belief that development of a process should be effective. The PDSA model demonstrates that changes should be correlated to science in order to maximize effectiveness, and thereby the overuse or underuse of ineffective measures can be reduced or even eliminated. By improving the overall process, the entire operation becomes more efficient (Institute for Improvement of Healthcare, 2014).

The PDSA model has the ability to make changes and assess those changes rapidly. Part of the rationale involved in rapid assessment is the premise that changes can occur on a very small scale. By producing and implementing changes on a small scale, feedback can occur rapidly, and subsequent assessment of that feedback is also expeditious. Utilizing this swift evaluation ensures that the evolution of the process does not materialize in a misguided direction (American College of Cardiology, 2004). By using both evidence based practice, which has a scientific base, and by implementing a small change in a larger process, this professional project will be able to utilize the PDSA model effectively.

The design of this project is derived from the Plan, Do, Study, Act (PDSA) cycle of continuous improvement was created by Walter A. Shewhart. While Shewhart is given credit for creating this tool, originally designed for joining statistical analysis with management thinking, William E. Deming is acknowledged as having been the individual who popularized the process. Consequently, the PDSA cycle is often referred to as the Deming circle. Shewhart's cycle is based on the argument that continuous and repeated evaluation of both policy and procedures involved in a process will ultimately lead to endless improvement. Shewhart endorsed the theory that by constantly making changes through the never-ending PDSA process, beginning with low cost changes, quality development will repeat regularly and progressively (Best & Neuhauser, 2006).

The third theory is the Cognitive Theory of Multimedia Learning, which demonstrates the effectiveness of multimedia learning. The proposed solution to the gap in hunter education first aid training that has been highlighted by this professional project

is a DVD. The DVD would not only visually demonstrate first aid techniques, but would also have a narrative component to explain the actions seen by the students. A DVD is considered a multimedia tool. This learning tool was selected for a number of reasons to include ease of use, portability, consistency of message, low cost, and because it fits precisely within the Cognitive Theory of Multimedia Learning.

The Cognitive Theory of Multimedia Learning was originated by Richard Mayer, a Professor of Psychology at the University of California, Santa Barbara. The cognitive theory of multimedia learning advocates that there are three primary suppositions.

The first supposition is that humans possess two distinct avenues for processing information. One avenue is auditory and the other visual. The second supposition promotes that there is a limited capacity within each channel for information to pass. The final supposition promotes learning as an active event, utilizing the mechanisms of filtering, selecting, organizing and integrating material and information.

Ultimately the objective in cognitive learning theory is to not merely attach words to pictures but to create an experience that processes information. Part of this process is to enable the learner to create visual representations through the use of multimedia, such as video from a DVD. Mayer suggests that only so much information can pass through the auditory and visual channels, both channels being vital, and that the human mind uses the input from the visual and auditory channels to create a sensible cerebral construct (Educational Researches, 2014). Mayer offers the idea that the visual channel can actually carry less information than the auditory channel at any one point in time, but it is

the combination of both these channels together than makes multimedia learning, such as through a video from a DVD, so effective (Mayer R. E., 2009).

The cognitive theory of multimedia learning by Mayer has 12 principles of educative composition. These principles were generated through research studies and established in a theory of how individuals become educated through the use of both words and pictures combined. Several of Mayer's 12 principles directly related to the use of a DVD as a teaching medium as proposed by this project. Mayer advocates that individuals learn more effectively when words (spoken or printed) and pictures are closely associated with each other on a screen (Mayer R. E., 2009).

As evidenced in the research for this class, current hunter education courses teach limited first aid material mainly through lecture, which entails only words from an instructor. By adding visual cues through the use of a DVD, students are able to use both visual and auditory cues, enhancing their education. An additional principle by Mayer indicates that when words are verbalized, along with pictures, as opposed to words alone, the learning is enhanced (Mayer R. E., 2009).

The current first aid portion of the hunter education student manual provides words only and no pictures. The DVD would provide both. A third important principle that could be utilized via the DVD is associated with the concept that when students hear a voice stressing certain words or concepts, such as would be on the DVD, learning is augmented. Mayer advocates that because the human mind picks up the auditory cue of a verbally stressed word of phrase, the student will essentially learn subconsciously (Mayer

R. E., 2009). This principle could be easily replicated in the proposed solution, by having the person on the DVD verbally stress important parts of first aid education.

The Merriam-Webster dictionary identifies learning as synonymous with education, and defines education as “The understanding and information gained from being educated.” (Merriam-Webster, 2014). Mayer’s cognitive theory of multimedia learning has been accepted as an effective tool for teaching. A 2013 article in the *International Journal of Instruction* found that “Virtual simulation helped students to increase their achievement in a topic” (Ziden & Rahman, 2013).

In 2008 a study examined the effectiveness of fully understanding how to create instructional materials that assist in the learning process. Mayer’s theory was examined during this. Results of this study concluded that multimedia instruction design, established in theory and based in science, are an effective teaching tool (Mayer R. E., 2008). In 2012 a report in the journal *Computers and Education*, established that multimedia education was effective for students that were primarily verbalizers (those that learn primarily by listening) and for visualizers (those that learn primarily by seeing). Researchers found that multimedia that was video based created the most effective learning performance and the greatest positive emotions for verbalizers. Additionally, dynamic as opposed to static multimedia tools, such as video, is most relevant for visualizers (Chen & Sun, 2012). A Dutch study found that students who were exposed to multimedia learning tools that included not only illustrations but verbal narrative, such as would occur in a DVD, performed better on exams than students who received only illustrations and printed words (Harskamp, Mayer, & Suhre, 2007).

It is well established that multimedia education has significant merit for students. This project has indicated that the majority of students attending hunter education are youths. This author also observed a few adults in class during the research portion of this project. Multimedia education has been found to require no special accommodations for older adults. Current principles of existing multimedia design can be utilized to teach older students. Older students were not found to be lacking in the visual or auditory channels advocated by Mayer, and subsequently multimedia tools remain effective for this population as well (Van Gerven, Paas, & Tabbers, 2006).

Mayer's Cognitive Theory of Multimedia Learning is an efficient, appropriate and powerful educational theory that has been applied to this professional project. Students of many ages and multiple learning styles can receive significant benefits by using this educational theory.

In summary, all three theoretical frameworks were used together to complete this project. The rural nursing theory characterized the unique and challenging features of the hunting population, as well as provided measures to mitigate the nursing challenges associated with that population. The PDSA framework was utilized as a mental roadmap for conducting research for this project, including evaluating possible solutions. Mayer's cognitive theory for multimedia learning was the foundation for choosing a solution to the gap in hunter education. Mayer's theory provided the support required to validate the proposed solution. All three theories worked together to make this project cohesive.

### Significance of the Project

While the majority of incidents that are reported during the sport of hunting involve the discharge of a weapon, the frequency of other types of injuries such as musculoskeletal injuries, lacerations, illnesses, spinal injuries, etc. cannot be ignored. As previously stated, the very nature of hunting can often compound what ordinarily would have been a fairly straightforward injury, and now that injury may become a matter of life and death.

Some of the compounding factors include but are not limited to remote locations, inclement weather, hunting alone, forced to spend a night out unprepared, and no cell phone access to call for assistance. Since hunting is often done on foot and involves hiking in remote areas, an example of a broken ankle can be used for examination: ordinarily if a person is in a town or city and breaks an ankle, emergency medical services of some form is generally available within a reasonable time frame. When scrutinizing hunting however, one can see that breaking an ankle while hiking alone, several rocky, elevated miles from a vehicle with no cell phone service can produce a critical incident quickly. When looking at a more dramatic injury such as a deep laceration from a hunting knife or a gunshot wound, and the situation can be significantly more severe.

It appears one of the prevailing attitudes within current hunter education courses is to work on hunter safety in terms of the safe handling of firearms, tree stand safety, and adequate clothing, which this is important. However, the actual first aid treatment procedures are a valuable lesson to learn. While hunter education courses are producing

safer hunters; safer hunters does not eliminate hunting accidents. This author's opinion is that no matter how safe the hunting population has become, accidents can and will continue.

First aid training can be very important to those who are injured. For example, when considering major bleeding, the American Society of Hematology Education Program states, "Results from studies evaluating the effectiveness of massive hemorrhage protocols suggest an improvement in outcomes of such patients." (Callum & Rizoli, 2012, p. 2) The results from this study are encouraging, but it requires training to know how to stop significant bleeding, even if the victim is the only one around to do it. Without proper training, the attempt to stop the bleeding often has poor results.

In another example, Steve Donelan with the Wilderness Medical Society points out,

"Traditional bandaging techniques have almost disappeared from urban-oriented First Aid and First Responder courses, but are making a comeback in Wilderness courses. Wilderness responders (unlike urban responders) also need to apply bandages that will stay on even if the patient is active or is being evacuated from the backcountry. They also need to be able to improvise bandages with whatever materials they have." (Donelan, 2006)

During the 2009 big game hunting season in Montana, one particular hunter severely injured himself while hunting in the backcountry of the Bob Marshall Wilderness, in the western part of Montana. This particular individual, Larry (not real name), was an experienced hunter. Larry also had advantages when it came to first aid, knowledge as an experienced Firefighter Paramedic who worked in a busy, urban system. The party had shot an elk and was beginning to dress the animal in the field. In an

interview with Larry, he related that he had begun to field dress the animal and stabbed himself in the left calf muscle with his bloody knife. Larry relates he sank the knife several inches into his calf during the incident. He was able to control bleeding with the assistance of his hunting party, but continued to have significant swelling in the lower extremity due to internal bleeding. Compounding the fact that Larry was bleeding and seriously injured, was the fact that the hunting party was eight miles deep in the backcountry and the pack string that they used to go in was not scheduled to return to bring them out for two more days. The group was eventually rescued and Larry was removed.

Larry was able to relate that despite all his knowledge, skills and abilities as a professional Firefighter Paramedic, this wound rendered him almost immobile and completely reliant on the assistance of others (J. Chesbro, personal communication, December 12, 2012). While envisioning this injury occurring to a non-first aid trained hunter who might be hunting alone, it is quite easy for this author to see how an injury of this nature could conceivably become fatal without any first aid training.

By providing quality first aid training utilizing a DVD, students will have a greater chance of retaining the information taught. The DVD has been utilized with success in many teaching areas. When utilized in a class for the instruction of the concepts behind physical chemistry in practice, DVD's were employed for several modules of the curriculum being taught. In each of the modules that utilized a DVD, students were able to exhibit statistically significant advancement in their understanding of the material (Dyer, Towns, & Weaver, 2007)

By providing quality first aid training, this author envisions two other potential side effects. Montana allows individuals to begin hunting at 12-years-old. Despite the fact that new hunters are required to take and pass a hunter education course, 12-years-old is still very young. The author feels that providing enhanced first aid training during the hunter education course could conceivably put the parents of these hunters more at ease with the idea of their child hunting. It is not uncommon to find a child wishing to hunt, but neither parent being a hunter. This in turn means that the child will quite possibly be hunting with friends or relatives. With the first aid portion of hunter education being enhanced, it may offer these parents better peace of mind knowing their child has first aid knowledge.

A second additional benefit to the general population is that any skills learned for first aid in a hunter education course can be applied elsewhere. First aid skills are not strictly relegated to the hunting arena. It is conceivable that a 12-year-old hunter education graduate, who was taught how to correctly manage hemorrhaging, was at home with a younger sibling that lacerated his/her self on broken glass, that hunter education graduate would have the knowledge, skills and ability to manage the situation.

First aid skills taught through the mechanism proposed in this professional project would certainly not be restricted to only the hunting arena. Those skills could be applied at any place, time and location they are required. As the Boy Scouts of America have said through their motto for 100 years, “Be Prepared.” (2013)

## CHAPTER 2

## REVIEW OF LITERATURE

Research conducted for this professional project reveals an area in the hunter education program curriculum, specifically first aid training, which could be enhanced through this professional project. There are multiple populations that could benefit from enhanced first aid training, the first of which are the hunters themselves.

The review of literature for this project included searching for specific data surrounding injuries associated with the sport of hunting. As this project progressed however, it became clear that determining the scope of this problem was challenging. Data bases such as The National Shooting Sports Foundation website, the National Electronic Injury Surveillance System (NEISS), and the National Trauma Data Bank (NTDB) provide limited data that quantifies the number of persons injured annually during hunting, but not exactly what these injuries entail. Systems such as the NEISS also combine injuries associated with hunting along with other categories such as injuries from agriculture, making the ability to obtain an accurate picture very difficult. Based on research, this author was able to conclude that the existing data does not break down injuries associated with hunting into specific injury type categories. Additionally, there is difficulty in obtaining exact numbers of injuries associated with hunting due different reporting methods.

A review of the literature for injuries associated with hunting was conducted utilizing the Global Health®, Cochrane Library®, PubMed® and CINAHL® databases.

The year range was from 2004 to 2014. The following search terms were entered into each search engine in no particular order.

- Hunting, first aid, injuries
- Injuries, hunting accidents
- First aid, hunting
- Hunting, accidents, injuries
- Hunting and injuries
- Injuries suffered during hunting
- First aid during hunting
- Hunting and nursing
- Hunting, accidents, fatalities, lethal injuries
- Hunting, unintentional injury

After entering the word groups into each search engine, this author was able to find a limited number of articles relating to injuries associated with hunting. Additional searching with the same word groups through websites including the Emergency Nurses Association, American Nurse Association, Online Journal of Nursing, and Nursing Times also revealed a lack of articles with similar subject matter. There were a total of 4 relevant research articles indicating numbers of injuries occurred while hunting.

A search of the National Trauma Data Bank (NTDB) library found one article with reference to hunting injuries. The authors of that article used data from the NTDB Annual Report 2004 for their discussion. In this limited research, the authors looked at injuries involving shotgun and hunting rifles in places of recreation and sport. This

combination revealed only 485 national records of injury. Of these there was a 4% mortality rate, an average length of stay in the hospital of seven days, and an average hospital bill of \$31,000. (Fantus & Fildes, 2005) The author found this information to be of limited usefulness as the injuries referenced only involve a shooting injury with no further delineation as to where on the body the victim was hit, or what care was rendered in the field. By focusing only on penetrating trauma, any other injury associated with hunting was not investigated.

While it is clear that injuries do occur while persons hunt, the author does not have a further explanation as to why additional information is not available. According to the National Shooting Sports Foundation, in 2011 there were a total of 6, 759 injuries sustained nationwide during hunting activities. (Foundation, 2013) Based on personal experience as an emergency department nurse for over 10 years with an additional 20 years as a pre-hospital care provider, the author can attest that injuries from hunting do occur. Some of the injuries seen by the author were minor such as sprains and small lacerations, while other hunting injuries were significant such as neck penetration by an arrow. It is this author's educated guess that one of the reasons for poor tracking of hunting injuries is that when the injured party presents to care providers, the injury is not classified as anything other than its injury type, such as penetrating trauma, and not classified as a hunting injury. This type of classification could lead to inaccurate data collection unless the injury was specifically identified as a hunting injury.

Interestingly, one of the few articles found in the aforementioned search engine query, mentions a similar tone. In an article for *The Journal of Trauma: Injury, Infection*

and Critical Care, the authors Gates et al, determined that despite a state law in West Virginia requiring all hunting injuries to be reported to the WV Department of Natural Resources (WV DNR), only 13% of the cases they reviewed for analysis of deer stand injuries, had actually been reported to the WV DNR. This led Gates et al to believe that deer stand injuries will only be reported if there is a fatality or significant injury. Their research also showed that even serious injuries suffered during hunting might not ever be reported. (Gates, Helmkamp, Wilson, & Beaver, 2002)

Based on the lack of literature evidence available, belief that there are extremely limited amounts of discussion found in medical or nursing literature that examines the field treatment of basic injuries and first aid procedures for either minor or major injuries sustained during hunting activities. The evidence that injuries do occur is available through databases such as the National Shooting Sports Foundation, the National Electronic Injury Surveillance System, and the National Trauma Data Base, but the specific types of injuries and how these injuries were treated in the field is unclear. This realization in itself is problematic and warrants further study, but for the purposes of this project, the author can conclude that injuries during hunting do occur but there is a high probability the actual number of injuries is significantly underreported.

A literature review was conducted to determine the most advantageous method for teaching first aid. This review was done through reading of books, journals, nursing publications, teaching publications, teaching research articles and the Internet. Collectively the information was cataloged, analyzed and summarized for use in this professional project. As a secondary but equally vital part of this literature review, the

author attended hunter education courses. A web search of hunter education classes was conducted based on current websites for the states of Montana, Wyoming, Idaho, and Colorado. Phone conversations at State FWP offices and to the IHEA were completed when information was not available on-line.

### Nursing Problem

As the goal of this project is to propose a new educational first-aid component for hunter education courses, it is a natural progression to ask who would be a logical selection to instruct this portion of the hunter education class. Nursing can furnish this role. Every hunter that goes into the field is a potential patient. An FNP can provide first aid education as a form of preventative medicine for all potential patients. While first aid training itself will not stop injuries from occurring, first aid education can improve the treatment of those injuries and thereby improve patient outcome.

Nursing as a profession has a long history of being intimately involved in the education of the public. This concept is often associated with the idea of a public health nurse, being not only a care provider but also an educator. Lillian Wald, who established the New York City Henry Street Settlement in 1893, is largely given credit for creating the term Public Health Nursing. Wald's goal was to emphasize the community value of the nurse who worked to understand all the facets of the problems often associated with the health and illnesses of the poor. Wald's vision resulted in a nursing practice that extended beyond simply caring for patients when they were sick, to advocate for reform in many areas of society. Wald saw it important for nursing to encourage reform in not

only health care, but also education, industry, housing and recreation. As that era's public health campaign began to shift focus from bacteriology and environmental sanitation, the idea of a nurse who was not only a care provider but someone who could teach the public about the prevention of disease and how to live a healthy lifestyle began to take shape. (Buhler-Wilkerson, 2010) This history shows a unique relationship between nursing as a profession and the public that has lasted for over 100 years.

The nursing Code of Ethics provides further illustration as to why nursing, as a profession should take on this particular role. According to the code of ethics, nursing has a significant history of concern surrounding the well being of not just the sick and injured but additionally of communities. Nursing has a proud tradition of working towards the prevention of illnesses, mitigating hardship, and sponsoring health for individuals, aggregations of persons, and entire portions of society. Nurses are charged with being vigilant for social injustice and emboldened to revise areas of civil structure that they deem inequitable (American Nurses Association, 2014).

Provision 7 of the nursing code of ethics references the responsibility that nurses have to advance their profession. Several of the methods that can accomplish this goal include nurses augmenting education, knowledge development and nursing practice. Specifically, in section 7.1, the code of ethics encourages nurses to provide input as they see fit to any of their profession's activities and leadership. Section 7.1 pointedly mentions, "Nurses can also advance the profession through participation in civic activities related to care or through local, state, national, or international initiatives" (American Nurses Association, 2014). It is this author's opinion that this description

illustrates the view that nurses have a unique opportunity ideally suited for their profession and should take part in the teaching of first aid during hunter education courses.

Provision 8 of the nursing code of ethics discusses the need for nurses to cooperate with other health care professionals in addition to the public, to meet the health needs of local, state, regional, national and international communities. The code of ethics expands this objective to charge nurses with advocating for the safety, welfare, and health of all populations. This advocacy should comprise broad subject matter, such as the dissemination of health information, and not just the demands of solitary sufferers. Section 8.2 argues that nurses have a very distinct burden towards the public. Within this section, the code of ethics mandates that nurses have an understanding of the health of an entire community, which includes any hazard to health and safety. As a result of nurses becoming involved in their community, such as with hunter education, there is an opportunity to educate the public as well as pinpoint circumstances and settings that may contribute to sickness, suffering, and disorder. Beyond diagnosing these threats, the nurse has a responsibility to become involved in attempts to rectify such conditions (American Nurses Association, 2014).

The American Association of Nurse Practitioners (AANP) continues to advocate for the expanding role of APRN's. The APRN role continues to mature as healthcare and societal demands evolve. APRN's are considered to be leaders in both primary and acute health care. This leadership position encompasses multiple focuses such as educator, provider, mentor, researcher and administrator. APRN's involved in these activities retain

their leader status through involvement in health policy activities at not only at the state and national level, but at the local and community level as well (American Association of Nurse Practitioners, 2013).

The American Association of Colleges of Nursing's, *Population-Focused Nurse Practitioner Competencies*, advocates that the Family Nurse Practitioner (FNP) is groomed during schooling to care for not only individuals but also families across the entire lifespan. FNP's have responsibilities that include not just direct patient care, but preventative healthcare. This preventative healthcare effort must broaden beyond individuals to include families and communities. One of the recommended core competencies is for the FNP to be able to develop educational materials that are patient-appropriate. (American Association of Colleges of Nursing, 2013).

Advanced practice nurses have been and continue to be recognized as representatives of the current health care delivery system. Within that system, APRN's provide care across the entire wellness-illness sequence. APRN care includes direct patient care, health advocacy, health literacy and education, and disease avoidance (APRN Joint Dialogue Group Report, 2008).

APRN's are deliberately being pursued for improvement in both clinical and preventative services. Conventional practices are not being abandoned, but rather coupled with innovative approaches to health promotion and prevention. APRN's are identified as ideal and unique to deliver this message. Nursing as a profession is being encouraged to be very responsive to proposed changes, as nursing is seen as a leader to implement innovation. APRN's are positioned to develop into unequalled prevention professionals,

who can facilitate the eventual ambitions of disease risk reduction, human behavior change, advancement of positive health habits, and upgraded health care delivery systems (Meyers, 2009). By participating in the instruction of first aid during hunter education classes, nurses can fulfill these ethical directives.

An article in *Nursing Times*, (2013) discussed a conflict that is currently occurring among nursing as a profession. The author points out that nurses feel well recognized and respected for their abilities in caring for patients, however where nurses feel frustrated and unseen is in nursing's role as a promoter of health among entire communities and specific populations. There is a general feeling among the nursing profession that increasing nursing's prominence in this area of health promotion is of paramount importance (Ford, 2013).

A similar theme appeared in the *Journal of Advanced Nursing*. The authors report that currently the public view of nursing is very disparate and contradictory. A portion of this perception is attributed to the nature of nursing, which is at times unseen by the healthy public. As nurses frequently receive satisfaction from their public image, this report recommends that nursing as a profession exerts greater energy towards public interaction and increased input into healthcare systems (Ten Hoeve, Jansen, & Roodbol, 2013)

In a 2013 article in the *Online Journal of Issues in Nursing*, the authors state that nurses are in a unique position to influence public policy. Specifically, it is the collective knowledge gained through countless contacts with patients that provide nurses with an exclusive perspective that allows nurses to campaign for change in a community or

program. Political agendas surrounding healthcare include topics such as cost, access and outcomes. It is the nurse that frequently has the greatest understanding about these concerns, and is credible in the eyes of the public. Therefore, it is vital that nurses be willing and able to partake in public discourse involving the health of a population or community (Maryland & Gonzalez, 2012).

The nursing profession can begin to have an impact in the public arena through many avenues. It is this author's opinion that by nurses becoming involved in small efforts such as the teaching of first aid will ultimately lead to health improvement in specific populations, such as hunters.

As evidenced by the previous discussion, nursing has the particular knowledge, skills, abilities, and decree to mitigate what this author sees as the problem of insufficient attention being paid to the teaching of first aid during hunter education courses. Beyond a historical, practical and ethical approach is the concept of evidence-based practice.

According to the Honor Society of Nursing, Sigma Theta Tau, the principles of evidence-based practice are synonymous with evidence-based nursing. Sigma Theta Tau defines evidence-based nursing as "An integration of the best evidence available, nursing experience, and the values and preferences of the individuals, families and communities who are served" (Sigma Theta Tau, 2005)

Sigma Theta Tau considers optimal nursing to be provided when all parties involved have the most up to date research and expert opinions, allowing the use of judgment to define the processes that are undertaken, not discounting both personal and cultural beliefs and inclinations (Sigma Theta Tau, 2005)

Teaching first aid to the specific population of hunters is a nursing concern. While this author believes that nurses are ideally suited for adjusting the disparity of insufficient attention being paid to this important subject matter, it is not lost on this author that EBP demands that any redesign needs to be safe, practical, adequate, and economical (Stevens, 2013). The Institute of Medicine defines quality healthcare as, “The degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge” (Institute of Medicine, 2014).

The work completed with this professional project meets the requirements set forth by the Institute of Medicine. This author believes, based upon research, that improved education methods could result in better retention and therefore better outcomes among the hunting population when sick or injured.

Often EBP is completed through the thorough use of available best evidence along with expertise in the particular area of clinical experience. This evidence includes the results of trials, documentation from qualitative and quantitative research, in addition to case studies, principles of science and expert opinion. There are situations where a significant base of analysis is not available.

In situations such as these, decisions regarding health care issues are then decided chiefly from other non-research sources. These non-research sources can include scientific fundamentals and expert viewpoint. As additional research is completed, these results must be factored in to the EBP for the particular health issue.

By connecting continued research in conjunction with re-evaluation of any current changes made to the health issue, nursing can continue to advance identifiable goals. Once changes are widely accepted and the EBP is integrated into a healthcare format, the change ceases to be viewed as a modernization, but as the standard (Titler, 2008). This author believes that the procedure proposed in this professional project for the teaching of first aid in hunter education courses by nurses follows current EBP.

In summary, nursing has a long and storied history of public education. Nursing continues to be intimately involved with the health and well being of not just patients but entire communities, regions, nationally and for specific populations such as hunters. Nursing likewise has an ethical commitment to public education, and can use the realm of public education to further the profession of nursing. Finally, nursing must apply evidence-based practice to any changes advocated for in the hunter education arena.

A 2009 study investigating the effectiveness of DVD use in a class designed to develop linguistic skills found that an added DVD component was an advantage for students. By using a DVD, there are advantages for the student in so much as the DVD can provide simulated classroom conditions similar to the destination climate. These conditions are not visually available through traditional lecture (Jaen & Basanta, 2009).

### Active Learning

In a study titled Effects of Active Learning on Enhancing Student Critical Thinking in an Undergraduate General Science Course, the authors sought to augment the critical thinking of their students. During the study, active learning modules were

constructed and subsequently carried out through group-based learning and credible tasks. Critical thinking levels were then investigated over time. Ultimately this study recognized that active learning procedures were appropriate for boosting critical thinking (Kim, Sharma, Land, & Furlong, 2012). In a time limited learning arena such as the first aid portion of hunter education, it may be very beneficial for the critical thinking of students to utilize a similar approach with active learning techniques.

The Journal of Thoracic and Cardiovascular Surgery produced a study in 2010 aimed at determining whether simulation training had any impact on staff performance in a pediatric cardiac intensive care unit (ICU). For the purpose of this study, a training program was created to address the technical skill and teamwork needs required of staff members during a pediatric resuscitation. By utilizing the simulation based training program, the authors of the study sought to determine what development occurred in caregivers associated with the pediatric ICU. This study revealed that simulation based training given to caregivers who work in the pediatric ICU not only breeds preparation and increases procedure comfort levels, but that simulation can reduce anxiety among caregivers (Allan, et al., 2010).

Based on research such as is outlined in this above study, that simulation training would have a similar effect on students learning first aid as part of hunter education. Increased procedure comfort levels and decreased anxiety, in this author's opinion, would provide a hunter facing his/her first medical emergency, a greater ability to manage that emergency.

Summary of Literature Review

Based on literature review, class attendance, Internet research and personal communication, there is an area in the hunter education courses in terms of first aid that could be enhanced. Ideally during the instructional process, students should have some form of hands-on activity to reinforce concepts and procedures. Not every first aid emergency needs to be reviewed during hunter education, but some very critical subjects warrant effort: bleeding, splinting, heart attacks, shock.

## CHAPTER THREE

## METHODS

Design

The Shewhart cycle contains four distinct stages. These stages are focused on the improvement of an existing process and not the creation of an entirely different procedure. Stage one is titled Plan. Within the plan stage is the identification of what needs to be modified and exactly what that modification should consist of. Observing the current process for weaknesses is an essential part of the plan stage, as it facilitates an accurate understanding of what is presently occurring. For this professional project, several activities were undertaken in the planning stage. This author attended several hunter education courses to gain an understanding of what is currently being offered for first aid training. A literature review was conducted. Other research to include telephone interviews, Internet activities, and additional reading was undertaken. A cohesive analysis of the current first aid education as well the role of nursing in education was created. Following the research a proposed solution to enhancing first aid within the hunter education was generated or planned.

Stage two is titled Do. This stage is where the implementation of the modification occurs. During the course of this project, two proposed solutions were generated. The first solution that was generated was analyzed in the context of how effective it would be once placed into hunter education curriculum. This solution was discussed with individuals involved in training in ongoing yearly classes. This initial solution was seen

as not being effective and would not produce the desired results. As a consequence, a second proposed solution was created, as is outlined in this professional project. This proposed solution is the instructional DVD.

Stage three is titled Study. During the study stage, the modified process is observed a second time, analyzed for improvement, and subsequently the results of the modification are compared to the projected results. This stage is where the second proposed solution was analyzed for impact on hunter education. This author took the second proposed solution and examined it for effectiveness in light of the structure of hunter education curriculum. This stage was also used to re-evaluate the entire project and make improvements.

The final stage is titled Act. During the act stage, researchers can adjust the process to account for results found in the study stage. The act stage is fashioned to eliminate discrepancies between the expected results and actual results. Shewhart described this process as one that could occur with repeated frequency as desired by those involved in the actual operation. Ultimately, the original mechanism being evaluated would have the occasion for enhancement again (Best & Neuhauser, 2006). This final stage will be enacted when the proposed solution to enhancing first aid is adopted in hunter education. Over time the proposed solution should be evaluated for effectiveness. This fourth stage will be used to investigate the effectiveness of this project, and changes can be made to improve the education.

This four-step process will be a central theory and apparatus for this professional project.

There are two distinct populations impacted by the educational tool developed as a result of this professional project. The leading population includes all the individuals who attend Montana FWP hunter education courses. This assemblage is the target for which this project was conceived, researched, and created. Considering the wide range of ages that can attend a hunter education course, basic education abilities were taken in to account. As the minimum age to attend a hunter education course in Montana is 12 years old, this author will assume that all attendees have at least a sixth grade education level, regardless of their actual age. It was also concluded that by the age of 12, all attendees would have been exposed to the primary educational tool proposed in this project.

The second population impacted by this project comprises the subject matter experts of the target material being taught. Nurses were actively sought after to be the essential educators during this project. The first aid educational tool was devised to be straightforward in design, allowing for ease of use. The educational tool could stand alone if required, but this project sought to enhance the mechanism of education by adding nurses to conduct training.

### Setting

This professional project will be constructed around a classroom setting used during hunter education courses. This setting can be in virtually any location within the State of Montana. The educational tool does require technology to be displayed however, and the optimal setting would be a form of classroom. This project also has need for

adequate space for students to practice hands on skills or visualize the hands on skills demonstrated.

### Timeline and Procedure

The idea for this hunter education first aid teaching tool was generated over the course of 18 months, beginning in the fall of 2012 and ending in the spring of 2014. Initial efforts encompassed local class research and informal community needs assessment during fall of 2012 and spring of 2013. Literature review began in the spring of 2013, and additional contact with other hunter education programs was executed through fall of 2013. The final project will be available in late spring 2014.

### Summary of Methods

The DVD's effectiveness as a teaching tool is proven in multiple subjects. A 2008 study observed that when learning the subject of geography, individuals involved in the research displayed a positive demeanor towards the use of the DVD as an educational means. This study also related a positive correlation between the DVD and the attained results of the test subjects (Golightly, 2008). An additional study compared two groups and the use of traditional lectures as opposed to a multi-media approach including the use of DVD's. After material was presented, the group who was exposed to the multi-media approach displayed greater abilities in theory, practical understanding and visual knowledge. This same multi-media group also expressed a heightened interest in this manner of education (Milovanovic, Obradovic, & Aleksandar, 2013).

### Assessment of Current Curriculum

One of the assessment efforts for this professional project was to attend hunter education courses and observe what was actually taught in regards to not only first aid but also the teaching methods in general. Hunter education classes, sponsored by the Montana FWP, were utilized in both the Florence and Missoula areas. It is important to recognize that the Montana FWP allows the actual instruction methods and class arrangement to the discretion of the individual instructor(s). A telephone call to FWP offices in Helena, confirms that the Montana curriculum is based on the IHEA curriculum. FWP confirms that there is a minimum number of hours (12) the students must be in class. FWP also indicated that the attendees must pass a final exam to become certified. FWP indicates that a field course typically completes a program. (personal communication)

The first class audited, hereafter described as Class 1, was held over the course of a single week. Class was held for 2.5 hours per night, including the fifth night, which was when the final exam was given. The instructor for class 1 had over 30 years' experience teaching hunter education classes. As part of the introduction, the instructor for class 1 advised the class he had some experience in the medical field with the local volunteer fire department. Students had been instructed to read the entire student manual prior to coming to class.

First aid was taught by a retired volunteer firefighter on the first evening in class 1. A total of 30 minutes was spent for the first aid portion of class 1. While the length of time required to teach first aid interventions at the beginner level is variable, this author

questions the teaching method and lecture, chosen by the instructor. Some areas of the first aid portion could be enhanced are summarized as:

- Using language such as “we are trying to scare you kids with stories so you won’t get hurt”
- No props produced to demonstrate first aid measures
- No handouts produced, nor were students required to follow along in the student manual to take notes
- Reliance on the student to understand what was being taught in relation to first aid theory, equipment and technique
- Instructor was teaching first aid methods that were out of date and no longer recommended
- Instructor spent time reading questions from the final exam and having the students answer him. This was explained as a method to ensure all the appropriate questions were covered.

As a general overview, class 1 had an minimal first aid portion in which the information was presented.

Another class audited, hereafter called class 2, had a very different situation. Class 2 was for a total of 9 nights of 2.5 hour classes and had two field days associated with it. Teaching styles were dramatically different with two coordinators managing the course but with four additional adult instructors. There were also four teenage assistants that were present. Students were not only encouraged but also required to participate in all parts of class, which included hands-on portions to each evening.

While the teaching methods used in class 2 were improved, some areas to review in the first aid portion were as follows:

- Positive
  - An intensive care unit registered nurse from a local hospital came in to class and taught hypothermia and hyperthermia
  - Pictures were used as props
  - First aid education lasted over 60 minutes
- Negative
  - Intensive care unit registered nurse's lesson plan was geared for an adult population.
  - No other first aid covered other than hypo/hyperthermia
  - The one page first aid chart in the student manual was not covered

Both class 1 and class 2 ultimately had room for improvement in their first aid education. However, both classes met the minimum standard requirements. The IHEA basic curriculum is very well laid out for the minimum of material that is required to be taught.

#### Telephone Interviews

One of the main concerns for Montana FWP, detailed in telephone calls to their Helena offices, is that there is a challenge finding qualified instructors to teach the actual hunter education course, and it is additionally challenging finding someone who is qualified to teach first aid as well. The IHEA expressed similar sentiments in a telephone call to the National Offices. Both the IHEA and FWP indicate that another barrier could be the cost and time commitment for hunter education instructors to become first aid certified as well (10+ hours of training and \$60-100 dollars). (P. Buckingham, personal communication, January 10, 2013)

Montana FWP agreed that there are several areas where the classes could be conceivably improved, but the FWP's main concern is that the core curriculum topics are covered and the hour requirements are met. After those criteria are taken care of, the instructor's methods of teaching is allowed to be variable and dependent on each individual instructor. Currently the FWP has no plans to follow hunter education course instructors once they have passed the 'train the trainer' course. (P. Buckingham, personal communication, January 10, 2013,)

This author believes that the current approach towards the teaching of first aid in hunter education courses meets the minimum standards set forth in the IHEA basic hunter education curriculum. However, the dilemma that this author sees with this approach is that the comprehension of first aid techniques could be significantly enhanced with an instructional method change. The solution to this dilemma, proposed by this author, is to use the tool proposed through this professional project to enhance the current first aid portion of the hunter education curriculum.

The nursing and education communities have endorsed both simulation and hands-on training as effective learning instruments. There is also evidence that the use of electronic education mediums can have a positive impact on student learning. Using the tool proposed through this professional project, these methods can be applied.

The American College of Surgeons (ACS) has produced recommendations for active learning. This guidance is especially important for students who struggle with both comprehension and retention. Retention is often described as information being retrieved from memory. One of the first instructions from the ACS to students is to use what they

have learned. This can be accomplished by doing something other than reading or listening to lecture. The ACS recommends connecting with the material presented in a number of ways, one of which is to physically connect, such as practicing actual medical techniques (Schmitz, D'Cunha, & Antonoff, 2010). Hands-on practice would provide for such a physical connection for hunter education students.

Nursing education is currently using simulation to compensate for placement shortages of nursing students in nursing programs. As fewer actual healthcare sites are available for nursing students to gain experience, simulation labs are increasingly being utilized to practice procedures. While recognizing that skill labs do not replace actual patient care experience, advocates stress that simulation labs keep both the students and patients safe as learning progresses. Repeated opportunity for skill enhancement is seen as a positive experience as it augments the confidence and competence of students. This translates to students acquiring a much better learning outcome when they actually enter the healthcare community (Stephenson, 2014). A similar argument could be made for hunter education classes in that any simulation training will benefit the hunter in an actual hunting environment.

A report published in the journal of Adult Learning, supports the position that simulation methods currently employed in nursing education are appropriate for adult learning. This report also emphasizes that simulation learning is firmly entrenched in adult learning theory. According to this report, one advantage of simulation training is centered on the idea that simulation can be applied to a mixture of adult learning, to include cognitive and social learning. Cognitive learning includes the processes of

observing, deliberating, and refining information. Simulation can link these operations to the teaching environment. Students are able to digest new knowledge and thereby create additional knowledge. Contemplation can also be supported and used during simulation. The student can then recall this information at a later date and time. In general, by using simulation, the instructor can promote an environment in which the student learns how to learn, in addition to gaining fresh knowledge. Social learning theory centers on students learning through the observation of others. By accumulating and saving images through observation, this theory suggests that reciting and reproduction of skills is not needed. The student can then recapture the image at a later time when prompted (Rutherford-Hemming, 2012). This author believes that simulation training during first aid can benefit a variety of learners as evidenced by the results of this study. Even if the hunter education student is only able to observe a first aid technique, based on the social learning theory, that student should be able to reproduce an image of a first aid procedure at a time when it is needed.

Technology has the ability to impact learning in many ways. Instructors continue to have time proven methods of teaching at their disposal, to include the traditional lecture in a classroom setting. However, technology has evolved sufficiently to allow both instructors and students the advantage of learning from a variety of electronic systems. These systems today are generally free of the technical challenges and causes of frustration that were prevalent in years past. By using technology such as a DVD, active learning is now more commonplace as the student is actively engaged in the presentation as opposed to traditional methods such as lecture, which promotes student passive

learning. While technology cannot completely replace quality instruction, it can be embraced in a classroom in an effort to promote a more active and positive learning experience (Rollag & Billsberry, 2012). A 2012 study revealed how effective a DVD can be in the education process. In this study, the researcher sought to examine the effectiveness of DVD learning versus conventional textbook learning in a collegiate English as a foreign language class. At the conclusion of the study, the author found that viewing of the DVD in combination with classroom discussion, significantly heightened scores on reading exams when compared to the historic textbook teaching method (Mei-Ling, 2012).

In summary, it is this author's belief that current hunter education curricula is minimally adequate for teaching first aid at a very basic level. This author concludes that enhancement in the teaching of first aid can occur, and proposes the use of a tool such as is suggested to advocate for a standardized interactive simulation approach to the first aid portion of hunter education class, using widely accepted and readily available technology.

### Ethical Issues

The professional project is a study to evaluate the effectiveness of a curriculum designed to teach first aid in hunter education courses. Results of this research will be used to enhance the information presented to future students of hunter education for the treatment and prevention of injuries or illness that may occur in locations that are not in close proximity to immediate health care.

The students are chosen because they represent the demographics of hunters in Montana. There are no discernible risks associated with this professional project and research. There is no monetary benefit to any person. There is benefit to the student and educator through the learning of first aid skills, which can be used in the future if a situation was encountered. There is no obligation that one must use these skills after receiving the first aid training. Use of the skills is up to the individual's discretion.

## CHAPTER FOUR

## DESCRIPTION OF FINDINGS

Nursing Practice Implications

This emphasis on lifelong learning cannot be overstated. The student manual for hunter education courses also encourages this attitude with the understanding that hunters who spend their whole lives going into the field can continuously learn. It is not uncommon to learn something new each time a hunter ventures out. In addition to gaining actual experience by going out and enjoying hunting, all hunters can be aided by discussing outdoor skills along with other important subjects with members of their family and community. New hunters are especially encouraged to find a hunting mentor, (Montana Fish Wildlife and Parks, 2010). This project can be viewed as a key component to this lifelong educational process. By exposing inexperienced hunters with an effective and appropriate first aid education, and having them participate in the hands-on learning, there can be positive lifelong consequences.

Nursing nationwide is being asked to take on wider roles than before as well. It would be a mistake for nursing as a profession to sit back and not take an active role in the teaching of first aid, in whatever arena it may be presented. Current practices and attitudes very often target a number of groups to work together in order to accomplish one goal.

One area of nursing that could potentially play a major role in the teaching of first aid is that of FNP. While the purpose behind this professional project is to promote the

suggestion of a DVD that can be inserted into any hunter education program, the benefit of having a medical professional in class to assist with teaching of first aid can be invaluable. While the DVD could be shown on its own, having a Registered Nurse (RN) present who could add technique, answer questions and in general speak to the value of first aid training would compound the benefit of first aid training. The Online Journal of Issues in Nursing advocates that public health nursing today necessitates special knowledge, capabilities, and qualifications. These special skills must combine with the belief that nursing should be population-focused, and needs to progress beyond merely caring for the sick. Nursing today can include health education, community coordination, as well as social and political rehabilitation. Nurses today possess the confidence and capacity to function in close coordination with both community representatives and public agencies (Evolving Public Health Nursing Roles: Focus on Community Participatory Health Promotion and Prevention, 2013). Clearly there is an opportunity for the nursing profession in Montana to take a more active role in hunter education. Taking two hours to go to a hunter education course and teach first aid with an adjunct of a DVD to a class of students seems well within the abilities of any nurse working in Montana.

While the goal of this professional project is to produce a specific item for use in hunter education courses, there is tremendous opportunity for the nursing profession to assist with the teaching of first aid while utilizing the result of this project. With the rural nature of the State of Montana, and the continuing involvement of community nursing roles, especially at the Advanced Practice Registered Nurse (APRN) level, there is a role within hunter education that could be filled with nursing professionals. There is

significant opportunity for nursing to become involved, and be a major player in future hunter education courses.

## CHAPTER FIVE

## RESULTS

The primary outcome of this professional project was the proposal of creating a hunter education first aid teaching tool. This professional project was given to committee in the spring of 2014 for approval. The project is defining a nursing problem and developing a proposal of a first aid teaching packet consisting of an instructional DVD on basic first aid. Accompanying this tool packet would be a registered nurse who would then teach through the DVD during hunter education class. This author determined that each hunter education lead instructor would be responsible for finding a registered nurse to come to class if so desired. The lead instructor could also utilize the teaching tool for educating his/her students.

During this project, hunter education classes were researched. First aid was not provided greater than two hours for instruction per class. Individual instructors felt 1–2 hours of instruction was appropriate and possible to insert. As a result the DVD should be no longer than 1.5 hours in length. A DVD of this duration would allow for hands on practice and simulation training of first aid procedures, to not exceed an intended two hour time period. This author recognizes that each distinct hunter education class can allow as much time as the lead instructor deems appropriate. It was never the intent of this project to review all first aid emergencies. Several key first aid emergencies were selected for review. These emergencies included shock, severe bleeding, penetrating trauma, burns, fractures, unresponsive persons, and the recovery position.

It would be beneficial to include first aid supplies. These supplies would allow the nurse instructing the first aid portion of the class to demonstrate along with the DVD how to actually perform first aid measures. It is also permissible for students to utilize the first aid supplies to practice the same first aid procedures as time allows during class.

A secondary outcome from this professional project was the understanding of the value of a registered nurse taking part in this important public education. Nursing as a profession has a long and impressive history of imparting knowledge to the general public. This is done for injury prevention, injury treatment, and for the general health of a community or population. By viewing students in class and hunters in general as an important population within Montana, nursing was identified as an integral segment of this project.

## CHAPTER SIX

## CONCLUSION

Hunting is a relatively safe sport that is enjoyed by considerable numbers of Montanans annually. Current research into the number of injuries incurred during hunting suggests that there are minimal numbers of injuries in relation to the number of participants. Data on hunting incidents that are reported indicate that hunting injuries and illnesses can be severe due to the nature of weapons involved and/or the location associated with most hunting activities. Additional research indicates that the true numbers of hunting incidents may be vastly underreported. Understanding the nature of hunting and the inability to generate an accurate picture in relation to the data places greater emphasis on proper first aid training during hunter education. The main objectives of first aid are to sustain life, assuage suffering, stimulate recovery, and to forestall exasperation of illness or injury until definitive assistance can be obtained. First aid is an important piece of hunter education within the State of Montana and nationwide.

The purpose of this professional project was to propose a tool that could be utilized during the teaching of first aid in hunter education courses. This project also identified that hands on and simulation-teaching methods during first aid training are appropriate for multiple learning theories. This project pinpointed the use of technology as being an acceptable addition for instruction. Additionally, this professional project concluded that nurses are a suitable body of instructors to use during the teaching of first

aid. Repeated evaluation of the first aid portion of hunter education courses in the future will allow for adjustments to be made in teaching first aid, maximizing the effectiveness.

### Evaluation

When evaluating this proposed hunter education first aid instructional tool, there are both strengths and weaknesses associated with it. Based on the research conducted for this project, it was this author's opinion that a substantial need was present and this tool fills that need. With the creation of this educational tool, students of hunter education can receive coordinated, consistent and relevant first aid information.

A second strength to this tool is its portability. A DVD and set of simple first aid adjuncts make replicating this project straightforward. Additionally, there is not great weight or size to this educational tool, allowing lead instructors of hunter education the ability to add this tool to their arsenal of teaching supplies without significant impact. This tool is small, lightweight, portable and inexpensive.

A third strength is the opportunity for hunters, students, and the nursing profession to begin to network and establish relationships. These types of alliances can serve to improve the health of the hunting population in addition to providing insight for the nursing profession into the true incidence of illness and injury associated with hunting.

A fourth strength is the advancement of first aid skills among hunter education students. First aid skills acquired during this class are not strictly regulated to the hunting field. This author believes that a student who amasses first aid skills through this

education would be able to apply those skills in any environment as required. First aid skills can be just as necessary in a local business as they are in the backcountry.

One weakness for this project is the inability to take significant measures of time in hunter education class for the sake of teaching a wider range of first aid skills. This author recommends skills deemed critical for the sustainment of life and limb to be reviewed in the DVD. It is encouraged that every student of hunter education should take a full first aid course and become certified, however, it is understandable that time and finances may dictate that this is not possible.

A second weakness of this project is the need to update a DVD as medical procedures advance. It will be paramount to review the information provided on the DVD every few years to ensure that the information put forth continues to meet recommendations of the American Red Cross. Any alteration in treatment algorithms will mandate that new DVD's be created.

A third weakness of this project is that there is no mechanism to ensure a registered nurse is present during the showing of the DVD to facilitate discussion and enhance learning. While the first aid teaching tool could be used without assistance, the benefit of the tool is greatly enhanced by having a registered nurse present. There is no instrument in place to ensure that this occurs other than strong recommendation from this author.

### Recommendations

Along with this educational tool were three recommendations. The first recommendation is to have a registered nurse attend the playing of the DVD to enhance the learning objectives. Nurses will be able to provide valuable insight and feedback to students on the topic of first aid.

The second recommendation is for first aid measures to be monitored for changes. As mentioned, adjustments to algorithms will require the creation of new instructional DVD's. Staying abreast of proposed changes in American Red Cross first aid procedures would allow for the creation of new DVD's to be completed when new first aid recommendations are implemented. This would ensure that the DVD's were not out of date.

A final recommendation is for further study into this subject matter. Additional research is required to determine the actual scope of the problem surrounding hunting accidents that produce illness or injury. It would be well within the realm of a separate project to create a reporting tool for use by hunters to record illness or injury acquired during hunting activities. This research effort could provide valuable information used to more accurately frame the scope of this concern.

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