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Emergency Nurses' Knowledge, Attitudes and Preventive Practices Regarding Firearms and Firearm Injury Prevention for Children

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EMERGENCY NURSES' KNOWLEDGE, ATTITUDES AND PREVENTIVE PRACTICES REGARDING FIREARMS AND FIREARM INJURY PREVENTION FOR CHILDREN

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For my children, Amanda and Michael

Imagine all the people
Living life in peace
John Lennon

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ABSTRACT

In 2010, there were 134 deaths attributed to unintentional firearm injuries of children under 19 years of age and 3,019 nonfatal injuries in the same age bracket (CDC, 2011). Nurses are expected to identify potential dangers in the community and protect those at risk. It was found that there is limited research on the effectiveness of current firearm injury prevention practices of nurses. The study was designed to examine the knowledge, attitudes and practice characteristics of emergency Nurses toward firearm prevention practices. A convenience sample of 189 emergency nurses completed a voluntary, anonymous survey on practices regarding childhood gun safety. Seventy-one percent of respondents agreed that firearm violence is a problem in the community where they practice and almost half (47.7%) of the nurses believed that firearm injury prevention guidance would help reduce the risk of firearm injury or death to children and adolescents. However, when asked who usually discusses firearm safety with patients or families in their emergency departments most of the respondents (86.6%) indicated "no one." Factors of gun ownership, growing up with firearms and state of practice were found to be the strongest predictive factors in stepwise regression. In addition the study found that the most educated nurses would be the ones to institute change in their organization. The study helps to identify personal characteristics that suggest that an emergency nurse would be willing to support firearm injury prevention education in the emergency department.

CHAPTER ONE

INTRODUCTION

Significance of the Problem

Firearm violence is a public health concern of paramount importance and needs to be addressed by nurses and other health care providers (HCP). In 2007, Firearm injuries were responsible for 31,220 American deaths (CDC, 2011), and tens of thousands of firearm injury related visits to emergency departments, clinics and physicians' offices. In 2010, there were 134 deaths attributed to unintentional firearm injuries of children under 19 year and 3,019 nonfatal injuries (CDC, 2011). Emergency nurses have not been at the forefront of gun injury prevention. This dissertation will investigate the current knowledge, attitudes and practice of emergency nurses regarding firearm injury prevention and offer suggestions for action.

Firearm injury can be a result of an intentional act as in homicide and suicide or an unintentional act when a firearm is fired inadvertently and causes injury or death. Regardless of the intent, firearms pose a threat anytime they are present, evidenced-based safety measures can reduce the risk of firearm related morbidity and mortality. Health care professionals (HCP) are expected to identify real and potential risks in the community, design prevention programs and support legislative actions that will protect the population. Nurses and other HCPs also have the responsibility to work with the government and advocacy groups to enact and enforce laws that protect venerable

members of society. Often times it is the emergency nurse that has access to children and their families coming for treatment in emergency departments who could make a dramatic impact on firearm injury prevention. Injury prevention strategies work best when comprehensive programs are in place and a clear, concise message is delivered from a variety of sources. This paper will explore theoretical foundations associated with injury prevention in relation to firearm injury using the Haddon Matrix, Bandura's self-efficacy and social marketing theory to critically analyze current firearm prevention strategies, identify information gaps in research and raise relevant research questions.

The word "injury" has many connotations including psychological, emotional or physical injuries. Injuries are primarily a result of automobile crashes, firearms, poisonings, suffocation, falls, fires, and drowning. For this paper, injury is referred to as the physical damage resulting from a force of energy greater than the human body can absorb (CDC, 2009; National Center for Injury Prevention and Control, 2009).

Injury prevention includes surveillance, analysis, and interventions that eliminate or reduce the risk of a particular hazard. A multidisciplinary approach to injury prevention is necessary to understand and treat the problem. Experts from the fields of engineering, city planning, government, public health, medicine, nursing, education, law enforcement, and civic leaders often work together to recommend strategies that will help reduce injuries. Strategies to prevent injury have typically been organized into three basic approaches: changing the environment to reduce the risk of the hazard; persuading or educating the public to promote behaviors that make individuals safer; and enforcing rules and laws to reduce the risk (Christoffel & Gallagher, 2006).

This paper examines injury prevention using the conceptual model developed by William Haddon (Haddon, 1973; Haddon, 1972; Haddon, Suchman, & Klein, 1964) in the 1970's. The Haddon Matrix (Haddon, 1973) has been used since that time to categorize and develop injury prevention strategies for a variety of injuries and is an excellent tool to examine firearm injury prevention strategies (Haddon et al., 1964; Haddon, 1973). According to the Haddon Matrix, firearm injuries can be categorized by the phase of time in the injury event: pre-injury phase; injury event phase; post injury event phase. Examining injury prevention by breaking down the injury event into time phases, while also considering contributing factors, helps identify possible interventions. It also highlights the need for a multidisciplinary approach to injury prevention. The Haddon Matrix is used as the guiding framework to examine current strategies to reduce the risk of firearm injury.

Magnitude of the Problem

Morbidity and mortality resulting from firearms affect both children and adolescents in the United States. In 2005, firearm injury was the leading cause of homicide deaths and the eighth leading cause of unintentional death for those 21 and under (CDC, 2009). Suicide rates in youth have increased by four times in the last 10 years with self-inflicted gunshot wounds accounting for most of the increase (CDC, 2009). In 2005, firearm injury was the leading cause of death by suicide for those 21 years and under accounting for 45.3% of all suicide deaths in the age group for that year; of those deaths 89.6% were male (CDC, 2009). During that same time, firearms were implicated in the deaths of black males at a crude rate of 25.60 per 100,000 in the United States population, higher than any other race and gender (CDC, 2009). This rate was even

greater in Illinois and Indiana with crude rates of 31.82 and 32.47 per 100,000 respectively (CDC, 2009).

In 2005, rates of nonfatal firearm injuries among youth between 0 and 21 years of age were even greater, with a total of 26,290 reported with a crude overall rate of 28.97 per 100,000. Of these firearm related injuries, 18,881 were attributed to assault and 724 resulted from self-inflicted wounds (CDC, 2009). Apart from the physical dangers exposure to gun violence interferes with the physical and mental wellbeing of youth and all members of society. Nurses as educated health professional need to increase efforts to reduce the incidence and severity of firearm violence. Nurses are positioned throughout the health care system to organize multidisciplinary services, conduct research, develop, and implement firearm injury prevention programs that could make a difference in this escalation of gun violence in the United States.

CHAPTER TWO

REVIEW OF THE LITERATURE

Haddon's Matrix

Haddon (1973), a physician and engineer, developed an epidemiological model for explaining injuries. The model has been used for years by industry (Mohr, Barach, Crevero, Blike, Godfrey, Batalden, & Nelson, 2003) and public health officials (Christoffel & Gallagher, 2006; Haddon, 1972; Runyan, 1998) in injury prevention research. The model has been utilized as a framework to explain injury case studies (Conroy & Fowler, 2001; Mohr et al., 2003), to consider prevention strategies for common injuries (Cherry, Runyan & Butts, 2001) and as a framework to prepare for terrorist threats to public health (Barnett, Balicer, Blodgett, Fews, Parker, & Links, 2005). A good example of the matrix's success was the decline of highway fatalities after highway safety interventions following the principles of the Haddon Matrix were initiated in 1973. Haddon as the first head of the National Highway Traffic Safety Administration phased in federal motor vehicle and state highway safety standards as well as the reduction of a national speed limit to 55-mph (Orrick, 2005). The combined technological, educational, and legislative strategies reduced motor vehicle fatalities from the peak in 1972 of 56,518 to a stable rate of approximately 40,000 US fatalities annually (CDC, 2011), despite the increasing number of vehicles and roadways.

The significance of the Haddon Matrix is threefold. It challenges the belief that injuries are accidental; it demonstrates that society can intervene at a variety of levels to avoid injury, and the use of the matrix incorporates a multidisciplinary approach to change the physical environment to help minimize the risk of injury (Christoffel & Gallagher, 2006).

The Haddon Matrix (Haddon et al., 1964; Haddon, 1973) incorporates Gordon's (1949) concept to use the well-known epidemiological model [host, agent and environment (physical and social)] to understand injury. Haddon (Haddon et al., 1964; Haddon, 1973) noted that Gordon's (1949) idea could be used to analyze an injury event by incorporating time. The Haddon Matrix organizes the three epidemiologic concepts of agent, host and environment according to the time of the event: pre-injury, injury and post injury (Haddon et al., 1964). The Matrix is arranged into three columns that represent the epidemiologic concepts and three rows that represent the different time phases of injury (see Appendix A) (Haddon et al., 1968; Haddon, 1973).

In the Haddon Matrix, the host is the population at risk for injury (Gordon, 1949, Haddon et al., 1964; Haddon, 1973). The agent is the entity which causes the disease (Haddon et al., 1964, Haddon, 1973) and in the case of injury, the agent is always a form of energy (Haddon et al., 1964; Haddon, 1973). The energy that has the potential to cause injury can be transmitted by a variety of mechanisms; kinetic, chemical, electrical, radiation or the absence of oxygen (CDC, 2009). The environment is the context in which the host and agent interact (Gordon, 1949; Haddon et al., 1964). This refers to the physical location where the interaction occurs and the social, political and economic

environments that predispose the interaction between the host and energy source (Gordon, 1949; Haddon et al., 1964, Haddon, 1973).

The addition of phases of time, in the injury interaction, completes the Haddon Matrix (Haddon et al., 1964). The pre injury phase is the time period when primary prevention approaches can be effective. Primary prevention strategies prevent the interaction from occurring. The injury phase represents opportunities for secondary prevention strategies. These strategies minimize the extent and severity of the injury that occurs during the interaction. Tertiary prevention occurs in the post injury phase and includes strategies following the injury that will optimize the outcome from the injury interaction. The breaking down the injury event into time phases allows researchers and policy makers to distinguish multiple points for intervention to prevent injuries (Haddon et al., 1964; Haddon, 1973).

Once the problem is identified and the matrix is assembled, approaches for decreasing the problem can begin. Runyan (1998) suggests one approach is to convene a committee of experts to "brainstorm" specific approaches to injury control using the Haddon Matrix to guide the conversation. Although there are many possible interventions to prevent injuries, many of the strategies will fall into well-known categories. Injury prevention strategies may focus on persuasion or education of people at risk for the injury to change their behavior to increase protection from the injury. Other prevention strategies relate to public policy and law enforcement activities which force individual or groups to change their behaviors through enacting laws or administrative rules. Some strategies include engineering controls, which offer automatic protection by changing the product or the environment design to prevent or lessen the extent of the injury.

Prioritizing the Strategies

Once the matrix is completed, possible interventions can be evaluated based on which would be most likely to prevent injury or death. Haddon (1973) recommends prioritizing based on a logical sequence he calls 10 countermeasure strategies. The first countermeasure strategy, considered to be the most effective approach, would be to prevent the manufacture of the hazardous agent. If this is not a feasible priority, then emphasis is given to the second and then the third until the ten approaches are exhausted. The counter measures are:

1. Prevent the initial creation (manufacture) of the hazard.
2. Reduce the amount of energy created by the hazard
3. Prevent the release of a hazard that already exists.
4. Modify the spatial distribution of the hazard.
5. Separate the hazard from that to be protected. (Involves human behavior)
6. Separate the hazard from that to be protected by a material barrier.
7. Modify relevant basic qualities of the hazard.
8. Make what is being protected more resistant to damage from the hazard. (Involves human behavior)
9. Start to counter the damage already done by the hazard. (Secondary prevention)
10. Stabilize, repair and rehabilitate the object of the damage. (Tertiary prevention) (Haddon, 1973)

Injury countermeasures (Haddon, 1973) are more effective because they control for the transfer of energy and should be considered first. Prioritizing other which prevention strategies requires an investigation into the most effective and feasible measures that can be utilized. Economics, time, feasibility and efficacy constraints are taken into account during prioritization. Thus, engineering controls and changing the environment to minimize the risk are likely to be the most effective. However, these measures may or may not be within the scope of practice or nurses and other health care providers. Health care providers often resort to the changing human behavior category of

prevention (Christoffel & Gallagher, 2006) which is likely to be less effective than engineering controls. Education prevention strategies require the learner to perform a course of actions to attain a level of safety to avoid injury. These strategies require that the health care provider is capable of providing the education and that the learner is able to execute the desired behavior. Bandura (1997) explains how self-efficacy motivates both the educator and the learner into action.

Bandura's Self-Efficacy Theory

Historically, the study of self-efficacy began with Bandura's social learning theory in 1977 (Bandura, 1977a; Bandura, 1977b) which was later renamed social cognitive theory (Bandura, 1982; Bandura, 1986). Self-efficacy, the subject of Bandura's 1997 seminal text, is a key component in the theory. The term "self-efficacy" refers to the belief in one's ability to manage and complete a task to produce a desired outcome (Bandura, 1997). Efficacy is an important concept in injury prevention strategies categorized in the Haddon Matrix. Injury prevention researchers consider the efficacy of both the population expected to perform the prevention task and the team members' abilities to execute the strategy in deciding which approach are likely to be effective.

Bandura (1997) emphasizes that self-efficacy makes a difference in people's feelings, thoughts, and behaviors. The belief in personal efficacy constitutes the key factor in human behavior. People with an assured sense of self-efficacy, along with capability, organize and effectively orchestrate actions to produce a desired result. Those that have strong beliefs in their capabilities approach difficult tasks as challenges and maintain a strong commitment to attain them. Conversely, if individuals believe that they have no power to produce results, or have a low sense of self efficacy, they will not even

attempt to achieve the desired result. For example, Schunk (1981) examined the level of mathematical problem solving in children who considered themselves to have either high or low self-efficacy in mathematical skills. Although mathematical ability contributed to the performance the researcher leveled the children by their skill ability. Children in each skill level with higher perceptions of self-efficacy were more successful in solving math problems than those that doubted their abilities.

A low sense of self efficacy is often associated with stress, depression, anxiety, and helplessness (Bandura, 1997). Individuals with low sense of self-efficacy become pessimistic about their accomplishments and personal development which produce bouts of depression (Beck, 1984). On the other hand, overconfidence in one's self efficacy can create costly consequences. When people make a mistake in their self-appraisal of athletic or risk taking actions, these can lead to physical injury. However, Bandura (1997) believes that a high sense of self efficacy will most likely be beneficial, whereas a low sense of self efficacy will almost always be defeating. Weinberg and colleagues (1979) found that competitors whose efficacy beliefs were inaccurately raised outperformed their opponents regardless of the participants' capabilities. Conversely, competitors whose efficacy beliefs were inaccurately lowered performed worse than expected.

Researchers prioritizing injury prevention strategies consider the self-efficacy of the population at risk of an injury. One's ability to make a change is dependent on their belief that they have what is needed to make the change (Bandura, 1997). Self-efficacy beliefs affect whether people will attempt to change their health behaviors and if they will continue with the desired change. Brod and Hall (1984) found that smokers who

determine they are incapable of quitting smoking often do not try or give up sooner than those with higher efficacy levels.

One's beliefs about self-efficacy represent a major aspect of their self-awareness. Self-efficacy beliefs are constructed from four sources of information: performed mastery of experiences that enhance feelings of capability, vicarious experiences that modify efficacy beliefs through comparisons of others, verbal persuasion or influences of others, and physical and affective states from which people judge their capabilities (Bandura, 1997). Any one or more of these sources of efficacy can influences one's belief in goal attainment.

Performed mastery of experiences is the most influential source of self-efficacy (Bandura, 1997). When a person is repeatedly successful at a task, self-efficacy increases. If failure occurs, self-efficacy decreases. The repeatedly successful attempts at a task create a strong feeling of self-efficacy. Once this occurs, occasional failures are less bothersome and additional successful attempts are usually attained (Alden, 1986; Grove, 1993; Silver, Mitchell, & Gist, 1995).

People do not depend on performance mastery experiences as the only form to increase self-efficacy. Efficacy beliefs also are influenced by modeling tasks or vicarious experiences (Bandura, 1997). These experiences happen as people observe others perform a task and subsequently feel confidence in their own capability to repeat the same task successfully. Therefore, modeling is an effective tool for promoting a sense of personal self-efficacy (Bandura, 1982). Being able to compare a modeled performance usefully to one's own performance relies on a clear similarity between the characteristics and aptitude of the one performing the task and the learners own attributes (Goethals &

Darley, 1977). Thus, seeing people similar to oneself perform the task successfully raise the efficacy level perceived (Schunk, 1981). Vicarious experiences are generally weaker than the direct mastery of experiences, so establishing a close parallel between model and learner is important.

Social persuasion serves as a means of strengthening one's beliefs that they are capable of the successful completion of a desired task (Bandura, 1997). The significance and credibility of the persuasive voice plays an important role in influencing self-efficacy. The persuasive voice can encourage more motivation and effort, creating a greater opportunity for success and subsequently increasing self-efficacy (Crundall & Foddy, 1981; Webster & Sobieszek, 1974). Many of the injury prevention strategies associated with education provided by healthcare professionals are considered social persuasion.

The use of persuasive information is a consideration in prioritizing the firearm injury prevention strategies explores in the Haddon Matrix. Social persuasion in the form of public announcements on television or print media is often used with hazardous risks like firearms. Fear of the injury is one persuasive approach when informing the public of health threats (McGuire, 1984). However, Witte (1992) cautions that fear tactics can sometimes produce a feeling of no control and lessen the efficacy of the population to perform the desired change. Therefore, researchers choosing potential firearm injury prevention strategies that appeal to fear run the risk of the public believing they have no control and any efforts to reduce firearm morbidity and mortality are futile.

Finally, people rely on their physiological and affective states in judging their capabilities. This is especially relevant in areas that involve physical capabilities.

Physical conditions, such as increased levels of fatigue, decreased strength, and pain; or mood states, such as, anxiety, depression and stress, negatively impact beliefs of personal efficacy (Bandura, 1997; Cioffi, 1991). Clearly, the inverse also is true, enhancing physical abilities and reducing stress and negative emotional states can improve self-efficacy (Forgas, Bower & Moylan, 1990; Salovey & Birnbaum, 1989).

Self-efficacy theory is relevant for many professions including those that aid, support, and teach. It is no surprise that the concept of self-efficacy has implications for nursing practice and injury prevention. The nurse can help patients increase self-efficacy and learn new behaviors through modeling and persuasion (Ziegler, 2005). Healthier behavior is learned effectively through observation and is taught through modeling (Bandura, 1997). Once the new behavior is understood and learned, self-efficacy is increased through repeated successful attempts at performing the desired activity.

Bandura (1997) believes that it is important for educators to have high levels of self-efficacy. Gibson and Dembo (1984) measured teachers' beliefs in their instructional efficacy. They found educators that have a high level of self-efficacy believe that difficult learners can eventually understand and learn new behaviors. However, if the educators believe they will have little impact on the learners' behavior they will be less apt to engage in the education. Woolfolk and Hoy (1990) found that teachers with low self-efficacy in their teaching ability take a more pessimistic view of the student's motivation.

Nurse researchers have focused on measurement of self-efficacy and evaluation of interventions designed to change the learners' behaviors (Ziegler, 2005). Examples of topics on health promotion that nurse researchers have explored are; breast feeding (Kingston, Dennis, & Sword, 2007); chemical dependency (Larden, Palmer, & Janssen,

2004); weight loss (Dennis & Goldberg, 1996); and diabetes education (Corbett, 1999; Corbett, 2003; Fisher, 2006). Most research focused on the self-efficacy of the learner but Fisher (2006) measured school nurses' perceived self-efficacy in providing diabetic care and education to students. The survey revealed that school nurses perceived a moderate level of self-efficacy in providing diabetes education. However, the sample size was small (n=70) and the results were limited to one geographical location. In addition, more research is needed to determine the validity and reliability of the tool used. Interestingly, the researcher noted that school nurses with available diabetic information and nursing educational opportunities had higher levels of self-efficacy.

Opportunities for nursing to lead our society toward a healthier culture are dependent on the nurse's own perceived level of self-efficacy to impact the learner's behavior. This is especially true with providing firearm education. There are no studies that currently examine nurses' perceived self-efficacy related to providing firearm safety education. Two research teams (Finch, Weilley, Ip, & Barkin, 2008; Price, Kinnison, Drake, Thompson, & Price, 2007) have explored other health professionals' perceived self-efficacy related to providing education on firearm injury prevention. Finch and colleagues (2008) measured the impact of pediatricians' perceived self-efficacy and confidence on current practices and attitudes regarding gun storage and removal practices. A random sample of pediatricians from the American Academy of Pediatrics (AAP) Survey of Fellows were queried about counseling practices for violence prevention topics, including gun storage practices and gun removal. Results indicated that of the 486 respondents (n=486, 53% response rate), most pediatricians' (64%) reported they spent too little time on firearm violence prevention issues. They also felt less

confidant and effective in education on issues related to firearm prevention than on other issues like discipline and avoiding media violence. Perceived self-efficacy was the one factor that related to violence prevention counseling frequencies for all topics, with gun safety and storage practices having the lowest perceived self-efficacy ratings. The authors suggest improving self-efficacy with additional training and tools to assist pediatricians in firearm prevention strategies. The survey, however, reflected pediatricians' attitudes and did not directly measure the actual frequencies associated with violence prevention counseling. In addition, the results were based on membership to the AAP and may not reflect nonmember pediatricians, general practitioners and family physicians that care for youth.

Price and colleagues (2007) surveyed Ohio psychiatrists to rate their level of efficacy expectations, outcome expectations, barriers to discussing firearm safety, counseling practices and sources of firearm violence information. Of the 205 respondents (n=205, 60% response rate), almost half (45%) had never thought of discussing firearm violence prevention strategies with patients. However, psychiatrists' with high efficacy expectations were twice as likely as those with low efficacy expectations to provide firearm safety education. This finding is important when considering behavior associated with depressive and other psychiatric disorders that may result in suicidal or homicidal tendencies. The survey also asked to identify barriers to providing firearm safety information to patients. Multivariate logistic analysis found that those that perceived fewer barriers were 3.79 times more likely to council patients regarding firearm safety. Barriers included thoughts that the patient did not need the information, lack of time and lack of personal expertise. The researchers suggest formal education may assist to

increase the self-efficacy of the psychiatrists and result in additional firearm safety education. Again, the survey was limited in that it required self-reporting from the psychiatrists and may not have represented the actual frequency of firearm education. In addition it only encompassed one geographic area. Self-efficacy may be one reason that nurses and other healthcare providers do not routinely provide firearm prevention education to patients and parents. Researchers must also consider findings from social marketing theories and practices that relate to providing firearm injury prevention education.

Social Marketing

Social marketing is a process that applies the traditional principles and techniques of marketing to generate and communicate value with the distinct purpose of benefiting society. The term social marketing was first introduced by Kotler and Zaltman (1971) to encourage the use of marketing techniques to advance a social cause, idea or behavior. Since that time interest and use of social marketing has grown in the fields of public health and injury prevention. In the 1980's the World Health Organization and the Centers for Disease Control started to use the term (Kotler & Lee, 2008).

It is important to consider how social marketing differs from traditional commercial marketing. The prominent distinguishing factors are in that the commercial sector, the marketing process revolves around selling products or services for financial gain. In social marketing the process is used to create a desired behavior for societal good. In commercial marketing the competitor is seen as those that offer similar products or services, while the social marketer competes with the target populations current behaviors and associated barriers or benefits (Kotler & Lee, 2008).

Social marketing has been used to attempt to change a variety of behaviors in the spheres of public health, injury prevention, environmental change and community involvement. The principles at the core of social marketing have been used to discourage tobacco use (Simons-Morton, Haynie, Crump, Eitel, & Saylor, 2001), stop the spread of AIDS (CDC, 2001), make wearing a seat belt a social norm (Washington Traffic Safety Commission, n.d.), stop littering (Olympia, 2005) and encouraging people to vote (Wright, 2004). It has been suggested that many other social issues could benefit from social marketing principles and techniques; examples include obesity, cancer, gun storage, drowning, energy and water conservation, organ donation, and literacy (Kotler & Lee, 2008).

Kotler and Lee (2008) recommend a systematic ten step process for developing social marketing plans. The planner begins with clarifying the purpose and focus; analyzing the current situation and environment; identifying the target markets; establishing marketing objectives and goals; understanding your target population's current position; determining the desired position; designing a strategic plan; and then developing evaluation, budget and implementation plans. Only through a deep understanding of the target audience's current position can a successful campaign be prepared and implemented. Identifying the perceived barriers, benefits and competitors is essential.

Barriers may be related to a variety of factors. They may be internal to the individual, such as lack of knowledge or counter beliefs, or external, such as the structure of the current environment making it inconvenient to produce the desired behavior

(McKensie-Mohr, n.d.). The barriers can be real (carpooling requires time and decreases independence) or perceived (only uneducated, low paid workers carpool).

Benefits are something the target audience wants or needs and is valued. The benefits are what will motivate the target population to act. Unfortunately the benefit may not be what is obvious to the researcher (Smith, 2003) and may have little to do with societal good. For example, exercise improves overall health of the population but people may be motivated only because exercise makes the individual look good.

In social marketing, the "competition" is those behaviors the target population prefers over the ones that would be promoted, behaviors that are engrained in tradition, and organizations and individuals that send messages that counter or oppose the desired behavior (Kotler & Lee, 2008). Often the competition can potentially erode the success of a campaign if not investigated and understood fully. Once the competition is identified strategies to increase the benefits over the barriers can be devised. If the review of the literature identifies gaps in the understanding of the target population's attitudes, beliefs and knowledge needed to adopt the desired change research methods can be utilized to provide the necessary information. Qualitative research methods such as focus groups and personal interviews can provide insight into barriers, benefits and the competition. Quantitative survey instruments can assist in identifying and prioritizing the benefits and barriers.

Kotler and Lee (2008) have identified the firearm storage practice issue could benefit from the principles and techniques of social marketing. They believe to precipitate change in firearm storage practices to protect children; the target audience is firearm owners whose homes are shared or frequented by children and teenagers.

Secondary audiences are intermediaries who come in contact with firearm owners whose homes are shared or frequented by children and teenagers; for example, police, counselors, social workers, teachers and healthcare professionals including nurses (Kotler & Lee, 2008).

Personal Attitudes and Firearm Ownership

Before embarking on a campaign to encourage nurses to ask about firearm ownership and provide firearm injury prevention education, it will be essential to identify the benefits, barriers and competition associated with this group. The General Social Survey, a biannual survey of the United States civilian population, has reported on household and firearm ownership since 1973 (National Opinion Research Center, 2011). The percentage pattern indicates a steady decline in reported firearm ownership since 1993, with 45.5% of respondents answering yes to having a firearm in the home in 1993 down to 34.5% in 2006. Hepburn and colleagues (2007) examined the size and composition of privately owned firearms in the United States by conducting a telephone survey of 2,770 adults living in the United States. They found that 38% of households reported owning a firearm. Their overall finding was comparable to the General Social Survey that reported 37.3% of households having a firearm for the same year. These findings correspond to about 42 million U.S. households with firearms. Long guns (rifles and shotguns) were the most common type of firearm reported by both studies. Hepburn and colleagues (2007) reported that 48% of their respondents stated that they owned more than four firearms.

Hepburn and colleagues (2007) also asked respondents who owned firearms why they owned the firearm. The most common response was for self-defense (46%),

followed by sport shooting or collecting. Both surveys have limitations that need to be considered. Respondents that refuse to answer any question may collectively have similar responses, changing the overall statistics. A telephone survey limits respondents to those with an active telephone. In addition, self-reported data may be inaccurate due to memory or the tendency to provide socially desirable responses. This is particularly problematic with questions related to firearm ownership. American attitudes and beliefs towards firearms have been forming since the creation of the country and can be challenging when discussing ownership or storage practices to prevent unintentional firearm injuries. Since the election of the Obama administration and fear of restrictions on firearm use, the number of criminal background checks requested for the sale of a firearm has been reported to be increasing (National Instant Criminal Background Check System, 2013).

Attitudes and Beliefs toward Firearms

Americans beliefs and feelings that comprise the attitudes toward firearms are important aspects of determining behaviors associated with firearm ownership, firearm storage, and parents allowing children to handle firearms. In addition, the beliefs and feelings of nurses can be important dimensions underlying attitudes toward firearms and provision of firearm prevention education by nurses.

Attitudes and beliefs of the American public toward firearms are quite varied. One set of beliefs concerns the American public view of whether or not there is a right to own or not own firearms (NRA, 2011). The National Rifle Association's (NRA) mission is to support, defend and foster the Second Amendment right (NRA, 2010). The activities they engage in are designed to promote firearm ownership. A second set of beliefs center on the potential of owning a firearm as protection from crime (NRA, 2010).

Alternatively, some believe that firearm ownership stimulates crime (Brady, 2011) or increases the chance of unintentional shootings (Brady, 2011). The Brady Campaign's mission is to create a safer America by reducing gun death and injuries. The activities are designed to support sensible gun law and public policy at both the state and federal levels (Brady, 2011).

Many Americans feel quite favorably toward the use of firearms in sport, for both target shooting and hunting (NRA, 2011). Thus there are many factors that contribute to individual attitude toward firearm ownership and storage practices and efforts to enhance gun safety and reduce firearm morbidity and mortality.

Right

Many Americans along with the Supreme Court (District of Columbia et al. v. Heller, 2009) believe that the second amendment entrusts an American with an individual right to own a firearm. The National Rifle Association (NRA), a prominent anti-gun control organization, is a strong lobbyist for promoting this concept which is considered a "conservative" political philosophy. States that are known for their conservative values are less likely to have laws that prevent people from owning firearms and allow parents to provide firearms to their children (ATFB, 2010). Conversely, states that are known to have more liberal values have more stringent laws of firearm ownership and firearm storage requirements (ATFB, 2010). More research is needed to determine what are the attitudes and beliefs about firearm injury prevention strategies that allows for gun ownership but requires enhanced safety practices.

Sport

The second most common reason cited for owning a firearm in many studies is for hunting or target shooting (Hepburn et al., 2007). Long guns (shot guns and rifles) are commonly the weapon of choice for hunting. Hunting has long been part of American and family traditions. Target shooting in a controlled environment is probably the least threatening of all the reasons to own a firearm. Target shooting areas often encourage safe storage and handling of weapons.

Emergency Nurses Attitudes

Little research has been done to understand why health care providers differ in their beliefs about firearms and firearm injury prevention education. Recently, Betz and colleagues (2013) examined the beliefs and behaviors of Emergency Department providers (nurses, physicians, psychiatrist, psychiatric nurses and social workers) related to preventing suicide by reducing patient's access to lethal methods and to identify characteristics associated with asking patients about firearm access. The proportion of providers that almost always asked suicidal patients about firearm access varied depending on the scenario; suicidal with a firearm plan (64%); suicidal with no plan by any means (22%); suicidal with no firearm plan (21%); suicidal in the past month but not today (16%); and overdosed but no longer suicidal (9%). In multivariate logistic regression physicians were more likely than nurse to always ask or often ask about firearm access. In addition, Betz reported that 49% of physicians and 72% of emergency nurses hardly ever personally council patients or families to remove or lock up firearm at home. Understanding nurses' and other health care professionals' underlying beliefs and attitudes toward firearms would provide information about why they do or do not

participate in firearm injury prevention strategies. Additional research is needed to identify if nurses' attitudes, beliefs and level of knowledge are barriers obstructing nursing's role in this interdisciplinary effort to reduce firearm injuries. Research using the social marketing approach can be used to discover how attitudes can be changed or used to create a safer environment.

The Haddon Matrix Applied to Youth Firearm Injury

The Haddon matrix provides an excellent model for nurses and other HCP to use in order to analyze and design programs to combat intentional and unintentional injuries sustained by youth as a result of firearms (see Appendix B). This paper specifically addresses youth firearm violence and uses the Haddon Matrix as an organizing framework in order to analyze the research and design research projects around the problem of youth firearm violence. The Haddon Matrix proposes that injuries result from a host, an agent or vehicle and an environment coming together to produce an injury. Upon examining the problem of firearm injury among youth the host is defined as those youth at risk of firearm injury. The agent in this application of the matrix is the firearm. The physical environment involves all aspects of settings in which a shooting occurs, including the home, school, streets, and other public venues. The social environment comprises legal and cultural standards in the United States. The time frame involved with youth firearm violence consist of the pre-event phase before a youth encounters a firearm, the event phase beginning when a firearm is taken out to be fired and the post event phase after a youth is shot and injury has occurred. Using the Haddon Matrix to examine youth firearm violence, interventions can be identified for each of the phases. Although nurses

can make significant contributions in the prevention, treatment and recovery phases of firearm injury, this paper will focus on nursing interventions during the pre-event phase.

The pre-event phase of the youth firearm injury problem provides nurses with a distinct opportunity to intervene prior to a shooting episode at various levels. At the host level parents and youth can be educated on firearm risks. In terms of the agent, nurses can promote trigger locking devices and other safety measures. The environment provides nurses several opportunities to model a social environment where youth would not obtain firearms, educate firearm owners about safe storage practices, provide safe home assessments and help establish and vote for legislation that limits youth access to firearms.

Haddon Matrix Applied to Youth Firearm Violence: Pre-event Phase

Host: Youth/parents - youth education programs. In the pre-event phase many programs are available to teach youth about the dangers of firearms and to persuade children to avoid handling a firearm. Many communities develop their own programs based on perceived specific community needs. A variety of professionals are involved in the programs, such as school teachers, law enforcement officers, youth group leaders and health care professionals. The programs often leave youth with persuasive messages to act in a specific manner that will avoid inappropriate handling of firearms. Most commonly, children are taught to stop, not to touch firearms and to move away and tell a trusted adult. Two well-known programs that focus on the behavior of children have all claimed a measure of success include The Eddie Eagle Gun Safety Program and Speak up (see Appendix C). Each of these programs is geared toward children or teenagers. The programs are educational with persuasion as the influencing element and are designed to

be conducted prior to a firearm encounter. The efficacy of the learner and efficacy of the educator providing the education likely play an important role in success of the intervention.

Eddie Eagle Gun Safety Program

The Eddie Eagle Gun Safety Program began in 1988 and is affiliated with the National Rifle Association (NRA, 2009). The NRA is a well-known organization that lobbies legislature to assure the ability to own and use a firearm is not infringed on by the government. The NRA reports anecdotal testimony, program endorsement by the US Department of Justice, The National Sheriff's Association and the Association of American Educators and praise from governors and other legislatures as evidence of success of the program (NRA, 2009). There is no evidence that suggests this program is effective.

Himle and colleagues (2004) tested the Eddie Eagle program with preschoolers and found the program effectively taught the children to verbally repeat the gun safety message, but failed in real life simulations. They examined two firearm safety programs with four and five year olds. Participants were randomly assigned into a control group with no educational program (n=10), a group that received the education of the Eddie Eagle Program (n=11) and a group that received the same message but also incorporated behavioral skills training (BST) (n=10). The researchers found that both programs, the Eddie Eagle group ($P<.01$) and the BST group ($P<.01$) were effective for teaching the children to verbalize the firearm safety message. The BST was more effective as compared to the Eddie Eagle Group ($P<.01$) in children performing as modeled when supervised with an adult. However, in an in situ experience where children encountered a

gun alone outside of the training area, the three groups did not differ significantly. In fact, of the 11 children who were trained in the Eddie Eagle group none used it in the real life situation and in the BST group (N=10) only two actually used the behavior. Although this is a small study, the findings indicate additional examination of the programs is needed. The sample size is small, the developmental age of the children needs to be considered, and real world situations need to be incorporated in future research.

Gatheridge, Miltenburger, Huneke, Satterlund, Mattern, Johnson, and Flessner (2004) compared the Eddie Eagle Program with a safety skills training program that included behavioral skills training (BST). Forty-five six to seven year old children were randomly assigned into two groups. One group received the persuasive educational approach to education provided in the Eddie Eagle Program. The other group incorporated a modeling, rehearsal approach in addition to the education. They found that both programs were effective in teaching children to verbalize what they should do; don't touch a gun, get away, tell an adult. But children who learned with the modeling behavior scored significantly ($P \leq .001$) higher in an in situ assessment. Gatheridge et al.'s results show that the children in the group with modeling behavior were more likely to perform the desired skill when they were not aware they were being assessed. Some of the limitations of the study included that the in situ testing was performed shortly after the educational program with individual children and in the same school setting where the education took place. It is unknown whether the children would react in the same manner if they encountered a gun in another setting, with other potential influencing peers and at a later time frame.

It is important to understand that an important part of the NRA agenda is to prevent laws which restrict firearm ownership. The Eddie Eagle program is a way to demonstrate to policy makers that the NRA can voluntarily encourage firearm safety, thereby making it unnecessary to pass laws that will restrict firearm ownership. Therefore, the effectiveness of the Eddie Eagle Safety Program may be to create a sense of good will by the NRA and not preventing firearm injuries.

Speak Up

Speak Up (PAX, 2009b) was developed by the Center to Prevent Youth Violence (CPYV) formally known as the PAX foundation in 2002. The CPYV program is a grass roots movement with "the safety of children as the means for the social change." As with the other programs, the child is the active participant; it becomes the child's responsibility to make the environment safe. The parent or gun owner becomes involved only after the child reports the danger. It is difficult to determine if the program is effective as there are no studies that examine the effectiveness of this intervention.

Unfortunately only a few researchers (Gatheridge et al., 2004; Himle, 2004; Howard, 2004) have conducted research to measure the effectiveness of the programs. Their results show the need for further best practice and outcome research. These programs are designed for the children to learn to protect themselves when encountering a firearm. Unfortunately, the behavior of children is often unpredictable. Developmental characteristics of children, including inquisitiveness, impulsivity, and lack of judgment, all suggest reasons why a child would touch a gun even after education. Considering parents are the strongest defense in protecting their children from firearm injury, the behavior of parents may be easier to change in truly productive ways. Diligent

monitoring of the child's behavior, environment and interests can help protect the child from firearm injury. The best way to prevent childhood firearm injuries in the home is to remove the firearm from the home (Howard, 2005; Kellerman, 1998). If parents are unwilling to take this step, an alternative approach is to store the gun safely so that Haddon suggestion of putting a barrier between the hazard and the person is implemented.

Parent and Firearm Owner Educational Programs

Thirty-eight percent of household in the United States report owning a firearm (Hepburn, Miller, Azerael, & Hemenway, 2006). Safe storage practices have the potential to reduce unintentional shootings, suicide by firearm and criminal access to the firearm (Miller, Azerael & Hemenway, 2002). People resist safe storage practices because they think it makes the gun inaccessible for self-defense. This concern needs to be weighed with the potential lethality of a firearm found by a child (Miller & Hemenway, 2004).

Parents often overestimate their children's ability to resist the attraction of a gun (Howard, 2005). Many parents believe that their children will respond as instructed, to stop, not touch and tell an adult when encountering a firearm. Bergstein and colleagues (1996) reported that in a school based survey of 1,200 seventh and tenth graders from two large cities, one in the North East and one in the North Mid West, 28% of youth reported handling a gun without adult supervision or knowledge. However, Miller and Hemenway (2004) in a survey among 12-14 year olds from California 33% (n=100) reported handling a firearm while only 5% handled the firearm without adult supervision or knowledge. Interesting when considering that youths in the age group of 14 or older where more likely to handle a gun without supervision and that adolescents were also the

age group most likely to engage in other high risk behaviors (smoking and binge drinking).

ASK

ASK is a program available from the grassroots organization CPYV (PAX, 2009a). ASK is a national campaign that encourages parents to ask friends and family about the presence of firearms in the home prior to letting the child over to play. This message seems like sound advice. Parents regularly discuss possible dangers prior to allowing children over to play at others' homes. However, gun safety is one conversation that often does not occur between parents as a potential danger in a home. The ASK program provides a platform to raise a question that may in the past been uncomfortable. The CPYV ASK message clearly is for parents of elementary and middle school aged children. However, the topic can easily be expanded for high school age children. The ASK program includes You-Tube videos which are alarming and disturbing and may be effective in prompting action. Fear tactics have been used in other prevention campaigns, including messages against drunk driving, smoking, and drug use. ASK brochures are direct and informative about the dangers of firearm access to youth in homes of friends and family. Unfortunately, there are no research studies which examine the effectiveness of the ASK program.

Stop 2 Firearm Safety Counseling

Stop 2 Firearm safety counseling developed by the Brady Center (Brady Center, 2002) for health care professionals was developed by a multidisciplinary team of individuals interested in protecting against firearm injuries in the home. Cabone and colleagues (2005) studied the effectiveness of firearm safety counseling in a Hispanic

population using the STOP 2 program. Participants in the study received a firearm lock for participation. The study used a non-concurrent design pre-test post-test design. Two hundred and six (7.78%) of 2,649 parents surveyed reported keeping firearms in the house. At follow up 16 % of the control group (N=78) reported removal of all firearms from the home compared with 22% of the intervention group (N=73, P=0.41). In addition, of the families that received the STOP 2 intervention 25% improved the frequency of locked storage compared with 4.8% of those in the control group (P=.003). The study suggests that although the intervention may not have significantly improved removal of firearms from the home, it may improve safe storage practices. The study has limitations. The sample size was small. Self-reports may not be accurately described and its' non concurrent design may be influenced by other community events not identified by the researchers. However, the results indicate promise that brief firearm counseling may be an important strategy to combat firearm injuries. There is no evidence that indicates that The Stop 2 program is the best practice.

Both of these programs, CPYV ASK and The Brady Center's Stop 2, offer important advice to parents with the message; "it is safest not to have a firearm but if you do store it responsibly." There is limited research that examines the effects of these programs. It is difficult to evaluate if the message has been provided to parents and if parents execute the suggested behavior. However, if the message becomes wide spread and accepted social change in attitudes toward firearms may occur. Parents need to hear the message multiple times from various sources in an attempt to persuade parents to be responsible firearm owners.

Many health care providers would support the notion that families that own firearms should receive firearm safety counseling. However, research has shown that it is difficult to determine which family requires the education without questioning all families about firearm ownership. Becker and Christakis (1999) in a small study of 169 families in which 30% of the families admitted to owning a firearm. The family was seen by one of 66 pediatricians, the pediatrician was then asked if they thought the family member was a firearm owner or not. They found that pediatricians were unable to predict firearm ownership for 33% of families that owned a firearm. Therefore, the pediatricians' underestimated gun ownership, suggesting that all families should be approached with the initial question of 'do you own a firearm or do your children visit a home where a gun is kept.' A systematic approach to firearm safety counseling asking every family would assure the prevention message would reach those needing the safety message.

Age Requirements

Many of the changes in the social environment are brought about through the legislative process. Strict, enforceable laws pertaining to ages where a child can use a firearm, similar to those related to driving motor vehicles are essential. The purpose of laws that impose minimum age requirements for the possession and purchase of firearms is to decrease the access of firearms to children. Laws that prevent children from handling firearms differ with gun type. Laws addressing acquiring a handgun are usually more stringent than laws that relate to long guns (shotguns). In addition, sales laws are usually stricter than possession laws. Most legal restrictions favor the parent's decision on when and where a child can handle a rifle. Federal law prohibits licensed dealers from selling or delivering a shotgun, rifle or ammunition to anyone under eighteen. Federal

law also prohibits the sale or delivery of a handgun by a dealer to any person under the age of twenty one. Unlicensed persons may not sell or transfer a handgun to anyone under the age of 18. Federal law prohibits the possession of a handgun by anyone under eighteen. Temporary transfers to those younger than 18 are provided for special activities such as employment, ranching, farming, target practice and hunting (BATF, 2011).

Several states impose minimum age requirements that are stricter than those of Federal laws. Some states (Alaska, Arizona, Arkansas, California, Delaware, District of Columbia, Florida, Hawaii, Idaho, Illinois, Iowa, Louisiana, Maine, Maryland, Massachusetts, Mississippi, Missouri, Nevada, New Jersey, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, Texas, Vermont, and Wisconsin) impose a minimum age for all firearm purchases from a licensed and unlicensed dealer (BATF, 2011). Other states impose a stricter minimum age for the possession of a handgun. Of these most have increased the age to 21 (Connecticut, District of Columbia, Hawaii, Illinois, Iowa, Maryland, Massachusetts, New Jersey, New York, South Carolina) while one (New Mexico) increased it to 19 (BATF, 2011).

Federal and state legislation makes no distinction between selling firearms to different age groups and possessing a firearm. Federal law has no minimum age requirement for the possession of a long gun. Some states (Florida, Hawaii, Idaho, Indiana, Iowa, Michigan, Minnesota, Nevada, New Jersey, Oklahoma, Oregon, Pennsylvania, Rhode Island, Utah, Washing ton, Wisconsin) do impose a minimum age requirement of 18 years, two states (Alaska and New York) of 16 years, two (District of Columbia and Illinois) of 21 years and one (Montana) of 14 years (BATF, 2011). However many of these state laws contain exemptions which allow younger children of

any age to have possession of a long gun under the direct supervision or presence of a parent or guardian while hunting or target shooting. The definition of supervision is often vague and open to interpretation making it difficult to understand and prosecute possible violations (BATF, 2011).

Agent: Firearms and Engineering Control

Prevention strategies that prevent firearm injury by providing automatic protection through required changes in the design of firearms can be considered. This type of approach usually provides a higher degree of effectiveness than the educational approach (Haddon, 1972) in injury prevention. Unfortunately, with firearm injuries these suggestions are usually resisted because one of the intentional uses of a firearm is to protect oneself by causing injury to another. Firearm owners resist design changes based on a fear that the firearm will not be readily available when needed. Due to the heavy lobby of congress by the NRA and other firearm groups, The Federal Consumer Product Safety Commission (2008) exempts firearms and ammunition from scrutiny and has no authority to require manufactures to produce a safer firearm. Prevention strategies associated with firearm design safety, disabling devises and personalized firearms have been considered and in some states required by law (see Appendix D). Each of these design changes can have the potential to reduce the number of firearm related injuries among children and teenagers.

In 2003, Vernick and colleagues examined information about 117 firearm related deaths from the coroner offices of Maryland and the Wisconsin Injury reporting system for Milwaukee. Of the 117 deaths, 44% were classified as preventable if a disabling

device was used either by a personalized firearm, loading chamber indicator or a magazine safety. Incorporating these safety devices has the potential to save lives.

Design Safety

The term, "Saturday night specials," describes low quality handguns designed specifically to provide guns at a low cost. The firearms are often made of low-grade metal and are more likely to misfire than other quality handguns (BATF, 2009). The Bureau of Alcohol, Tobacco and Firearms (2009) reports that these guns are often associated with criminal activity, especially youth.

Consumer products in the United States are regulated by the Federal Consumers Product Safety Act (U.S.C. § 2052(a)(l)(u)(E)) requiring safety and health standards on products sold in the United States. Firearms due to their principle purpose to cause harm are considered dangerous and unsafe. However, they are exempt from any federal requirements. This exemption from federal safety regulation has provided an open market of lesser quality handguns manufactured in the United States. Firearms that are substandard, however, have been banned from entering the United States because they are considered inappropriate for sport shooting.

Only eight states (California, Hawaii, Illinois, Maryland, Massachusetts, Minnesota, New York and South Carolina) require design or safety standard for handguns (Brady, 2010). These design and safety standards incorporate testing to make certain the structural integrity of a handgun can withstand force, repeated firing and heat. The most stringent of these tests is a "drop test" and "firing test" conducted by an agency not associated with the gun manufacturer. The gun is fired repeatedly to check for reliability and dropped from a predetermined height on a hard surface to determine if the

gun will fire unexpectedly. California, Massachusetts and New York have the most comprehensive design and safety standards (Brady Campaign, 2010).

A melting point test is another test (BATF, 2009). This test requires that metal components of the gun be made of metals that have melting points above the heat generated when a gun fires. This prevents the structure of the gun from weakening and possibly misfiring after repeated use. Other available design standards include chamber load indicator or a magazine disconnect mechanism both alerting the operator of potential an unintended ammunition discharge.

Locking Devices

Firearm locking devices are disabling devises designed to keep only those people authorized from firing a specific firearm (BATF, 2011). There are two common types of devices. One is an internal feature that is mounted on the guns grip and secures the hammer to prevent firing. The second is the most common are devices that cover the trigger of the gun externally and prevents the gun from being fired.

Current federal law makes it unlawful for a licensed dealer to sell a gun without the provision of a safe gun storage or locking device. However, the law does not apply to private sellers and does not require the purchaser use the device. There are no federal standard for the locking device. Twelve states (California, Connecticut, District of Columbia, Illinois, Maryland, Massachusetts, Michigan, New Jersey, New York, Ohio, Pennsylvania, and Rhode Island) have laws regarding firearm locking devices (BATF, 2011). All of the states require locking devices be provided with the manufacture and sale of the firearm. Four states (California, Massachusetts, Michigan, and New York) require the locks be provided if a firearm transfers ownership. Only Massachusetts and the

District of Columbia require that the firearm is stored with the safety device in place. California, Maryland, Massachusetts, and New York have set approval standards for the device (BATF, 2011).

Personalized Firearms

Personalized firearms or "smart" guns are guns that are designed to be fired only by an authorized user (Brady Campaign, 2010). The firearm could not be utilized by a child or any unauthorized user if the gun is stolen or lost and found. The goal of smart gun technology would be to prevent both intentional and unintentional shootings.

Technology for personalized firearms is available but, as of yet, is not widely incorporated into the design of firearms. Engineers suggest using magnetic devices, radio frequencies and finger print scanners to detect the authorized shooter (Brady Campaign, 2010). However, manufactures have not aggressively pursued the design and manufacture of smart guns, indicating a belief they are cost prohibitive. In addition, the personalization would need an onboard energy source that if failed would also cause the gun not to fire. The NRA claims that this would leave the authorized owner unprotected (NRA, 2009).

There are no federal laws requiring the manufacture or sale of personalized guns. Only the states of Maryland and New Jersey have addressed personalized guns (Brady Campaign, 2010). Both states require that the technology and status of potential personalized firearms be reviewed every six to 12 months. Once the technology is in place and considered reliable both states will make it unlawful for licensed dealers to sell a handgun that is not personalized.

Physical Environment: Home, School, Streets, and Other Public Venues

Careful monitoring of the child's behavior, environment and interests can help protect the child from firearm injury. The best way to prevent childhood firearm injuries in the home is to remove the firearm from the home (Kellerman, 1998). If parents are unwilling to take this step; the alternative approach is to store the gun safely.

Persuasion and education programs like the ASK campaign and Stop 2 already discussed may help to reduce access to firearms by children. In addition, firearm exchange programs, where firearm owners are asked to turn in their firearms for a type of reward, have been established by local police departments. One example of a gun exchange program was examined by Romero, Wintemute, and Vernick (1998). Participants were surveyed after being asked to exchange a firearm for tickets to a National Basketball Association game. Ninety two of the participants responded (n=92, 79% response rate); of these 46% reported concern that children may get and use the gun as an important factor for turning in the weapon. Programs such as these may reduce the risk of firearm injury but there is currently little evidence to support the effectiveness of firearm buyback programs.

Laws that require gun owners to secure firearms can reduce the risk of firearm injury. Child Access Prevention (CAP) laws (Brady, 2010) make it a crime for adults to store guns in a negligent manner allowing the gun to be later accessed by a child or adolescent. The goal of these types of laws is to make adult gun owners responsible to maintain the safety of children that live or visit their homes.

There are no CAP laws at the federal level (Brady Campaign, 2010). Eighteen states (California, Colorado, Connecticut, Delaware, District of Columbia, Florida,

Georgia, Hawaii, Illinois, Indiana, Iowa, Kentucky, Maryland, Massachusetts, Minnesota, Mississippi, Missouri, Nevada, New Hampshire, New Jersey, North Carolina, Oklahoma, Rhode Island, Tennessee, Texas, Utah, Virginia, and Wisconsin) have enacted CAP laws (BATF, 2011). The strongest of the laws (Florida, Hawaii, Maryland, Massachusetts, Minnesota, New Jersey, and Texas) impose criminal charges if a minor gains access to a negligently stored firearm (Brady, 2010). The weakest laws (Colorado, Delaware, Georgia, Indiana, Kentucky, Mississippi, Missouri, Nevada, Oklahoma, Tennessee, Utah, Virginia, and Wisconsin) prevent a gun owner from recklessly giving a firearm to a minor (Brady, 2010). The term recklessly in the laws is usually vaguely defined and difficult to prove. In many states with CAP legislation the penalty is a misdemeanor, unless the access results in death or injury of another, then it is considered a felony.

Florida was the first state to enact a CAP law in 1989. In Florida, the year after the law was enacted the unintentional shooting deaths dropped by 50% (Webster & Starnes, 2000). The Florida law was enacted along with a comprehensive public service campaign. The media alerted the public of the dangers, law and penalty. In addition, the penalty is severe at a criminal level. CAP laws enacted in other states, which may or may not be as comprehensive, have not resulted in such a great drop in unintentional deaths. The Brady Campaign suggests that a federal law be enacted that require criminal liability of persons who negligently store firearms where minors could gain access and who negligently store firearms that are loaded (Brady Campaign, 2010).

Discussion

In the preceding text, the Haddon Matrix was used as a framework to examine potential interventions to reduce the risk of firearm injuries. Haddon suggests that the

discussion incorporates the countermeasures to prioritize and determine an effective approach to the problem. The first six countermeasures pertain primarily to the pre event phase/primary injury prevention activities of interest in this paper. The pre event phase/ primary prevention activities include eliminating the firearm, changing the design of the firearm and separating the firearm from the child or adolescent.

Countermeasures 1-4: Eliminating the Hazard

The first countermeasure is to prevent the manufacture of the hazard (firearm). Eliminating the manufacture of firearms in American society is unlikely. Many Americans believe, along with the Supreme Court (District of Columbia et al. v. Heller, 2008), that there is an individual right to own a firearm which is a constitutional right. The next three countermeasures are to reduce the number of firearms in society, to prevent the firing of firearms, and to modify the number of discharges or design of firearms. These countermeasures are best enacted through legislation and regulation. Laws could be enacted to mandate a safer firearm. Current firearm regulations at the federal and state level have been examined in the previous text and are included in Appendix D. Firearm manufactures can alter the design to improve safety of the firearm.

According to Haddon (1973) strategies that eliminate the hazard or involve product design are more successful than those that require action from a person. Changes in firearm design laws will not occur without public measures, legislation and new regulations. Nurses and nursing organizations can speak out against firearm violence and encourage legislators to enact policies which are likely to keep firearms out of the hands of children and adolescents. Nurses need to be educated about the federal and local laws that already exist. Accurate information influences the individual nurse's self efficacy

about their ability to speak publically about firearm injury prevention. Nurses could and should be involved in the legislative and policy initiatives to reduce firearm injury.

Countermeasures 5 and 6: Separating the Host from the Hazard

Countermeasures five and six separate the firearm (agent) from the child or adolescent (host). Haddon (1973) identified that strategies that create a barrier between the host and the agent would reduce the number of injuries. At the host level, parents can be extremely effective in preventing youth firearm injuries by eliminating the access to firearms or by safely storing firearms. Nurses have the opportunity to have an active role in these prevention initiatives. Nurses interact with parents and other adults and can explain the risks associated with firearm injury ownership. The nurse can use this time with parents to promote not owning a firearm or adhering to safe storage practices. In addition, for parents who do not own firearms, nurses can instruct parents to ask others if a firearm is present in their home when their children spend time and if present, they can inquire as to safe storage of the firearm. Currently, two programs previously discussed, STOP 2 and CPYV Ask, offer information and brief safety counseling tips to disseminate firearm safety information to parents. Nurses need to examine these programs for efficacy, validity and reliability.

The STOP 2 program supports brief safety counseling between health care providers and parents that own firearms. Use of the program provides a consistent message: a firearm in the home is a danger to your family; the safest thing is not to own a firearm; and if you keep a firearm, store it safely. The key is to separate the firearm from the child or adolescent. The message was written with the input from a team of prominent health related organizations. The program is designed to be used by all health care

providers with the support of the Brady Center to Prevent Gun Violence. The information provided can assist the nurse gain the efficacy to initiate brief firearm prevention safety counseling. The brief safety counseling allows the nurse to intervene prior to the immediate risk and provide recommendations to avoid a tragic incident. Unfortunately, there is little evidence that evaluates the effectiveness of the program. Only one research study has examined the effects of the brief safety counseling using the STOP 2 program for firearm prevention. This lack of evidence presents an opportunity for nurse researchers interested in firearm injury prevention to examine the program and test the intervention with nurses providing the brief safety counseling. In addition, the nurse's perceived self-efficacy can be measured related to the use of the program and the firearm safety intervention.

CPYV Ask program is designed to be used by the public. The message given to parents is that they are responsible to see that where their children play is a safe environment. Parents are given tips on how to ask a family member, friend or neighbor about the safety of the home regarding firearm ownership and storage. The parent can then make an informed choice on where they let their child play. This choice separates the child from the firearm. Unfortunately, there is no evidence to date that this program is effective. Research is needed to identify if this strategy is useful in reducing firearm injuries and to evaluate the efficacy of the strategy.

The Eddie Eagle Gun Safety Program and Speak up educational programs supported by the pro gun lobby require active intervention from the child or adolescent. According to Haddon (1973) these interventions would not be as likely to be as successful as the interventions that eliminate the firearm, change the design of the firearm

and separate the firearm from the child or adolescent. The goals of these programs are to teach children and adolescents not to touch a firearm if they encounter one, separate themselves from the firearm and tell an adult. However, the inquisitive nature of children and the independent character of adolescents may influence their behavior if they encounter a firearm. In addition, the program speaks to each individual child and does not consider what may happen when a group of children encounter a firearm. These programs have very little outcome research that evaluates the effectiveness. In addition, a purpose of these programs may be to appear to be doing something about firearm injuries as a way to pacify legislators and prevent meaningful firearm regulations. Research is needed to address the efficacy of a child in fulfilling the active intervention and at what ages if any might these child education programs have any impact.

Implication for Nursing

Morbidity and mortality related to firearms is a concern of healthcare providers. Firearms injure and kill young people at an alarming rate. In 2010, there were 134 deaths attributed to unintentional firearm injuries of children under 19 year and 3,019 nonfatal injuries (CDC, 2011). The American Medical Association (2008), The American Public Health Association, The American Academy of Pediatrics (1992, 2000), and The American College of Surgeons Committee on Trauma (2000) have all identified firearm violence is a problem and needs to be addressed.

The American Nurses Association (2003) clearly indicates that prevention of injury is within the purview of nursing's responsibility to society. The Society for Pediatric Nurses suggests that pediatric nurses educate parents and develop, participate or implement programs for preventable injuries (Society of Pediatric Nurses, 1998). The

Emergency Nurses Association (ENA) promotes emergency nurses and trauma nurses to educate individuals and communities about firearm safety (ENA, 2004). The ENA endorses legislation and regulations that promote firearm safe storage practices (ENA, 2004). They support the goal of safety counseling that brings about a change in attitudes and behaviors toward safe firearm storage in the home where children reside and in the homes of friends, family, neighbors where children frequent. The ENA also indicates that educational efforts should include not only children but parents, firearm owners, schools and the community (ENA, 2004).

Nurses are the largest segment of health care providers and are in the unique position to institute change. Nursing has the support of many of the professional organizations to take an active role in firearm safety initiatives. Few nursing groups, however, have initiated programs or initiatives against firearm violence. The reasons nurses do not take this initiative is yet to be determined. Researchers must consider that there may be beliefs or attitudes of individual nurses preventing them from providing firearm injury prevention education. The ENA has taken the lead in this area by indicating firearm injury prevention is important for emergency nurses. The role of nursing in firearm injury prevention is yet to be defined.

Research Considerations

The work to reduce the incidence of firearm violence, improve firearm storage practices and limit access of firearms to children and adolescents is an interdisciplinary endeavor involving many fields of study. There are no evidence based programs available at this time which could be used by nurses or other health care providers which have been shown to reduce firearm injuries. The time is ripe for nurse researchers, nurse

practitioners and nurse generalists to become advocates for firearm injury prevention programs and legislation.

The research on the effectiveness of firearm injury prevention interventions is limited; there is little evidence that current practices are best practices. Therefore, opportunities to examine firearm injury prevention interventions are plentiful. Nursing shares in the responsibility to identify, create, implement and study firearm prevention interventions. Haddon suggests that best practices include separating the firearm and the child or adolescent at risk would be essential. Therefore, data that address the impact of firearm ownership and storage practices are desperately needed.

Research that can address the effectiveness of current programs that separate the child or adolescent from the firearm is needed. One program, if found effective, which would accomplish this, is the STOP 2 program. This program has the potential to be utilized by nurses, physicians and nurse practitioners in a variety of health care settings. The message is clear and concise and does not require much time to express. The ease in which the information is incorporated into a history has the potential to increase the efficacy of the practitioner in providing the information. Research is needed to determine the effectiveness of the program, the efficacy of the practitioner in participating, the willingness of the practitioner to participate, and which setting is best to deliver the information. Nurses' beliefs, attitudes and knowledge of firearm injury prevention education need to be examined. The self-efficacy of nurses needs to be examined in their ability to intervene and speak publicly in firearm prevention projects. This dissertation addresses these issues.

CHAPTER THREE

METHOD

Significance of the Study

Morbidity and mortality resulting from firearms affects children and adolescents in the United States and merits special attention. Apart from the physical dangers of firearm deaths and injuries, exposure to violence interferes with the physical and mental wellbeing of youth and all members of society. Emergency nurses are a part of the health care team that can help reduce the incidence of firearm injury. This research proposal provides a start to examine the current knowledge, attitudes and practices of emergency nurses with regard to firearm injury prevention. The Haddon Matrix (Haddon, 1973), Bandura's Self Efficacy Theory (1997), and Social Marketing Theory (Kotler & Lee, 2008) provide the foundation for the research.

Specific Research Questions

1. What is the perceived knowledge level of emergency nurses about firearm control policy, prevention program and the Emergency Nurses Association (ENA) position statement?
2. What is the attitude of emergency nurses toward firearms, firearm control policy, prevention programs, and the ENA's position statement?
3. Do emergency nurses support the ENA's position statement to reduce the dangers of firearm injury?

4. What are emergency nurses' current practices of firearm injury prevention?
5. What is the relationship between firearm knowledge and attitudes about firearm control policy, prevention programs, and ENA's position statement among emergency nurses?

Specific Aims

Although emergency nurses are responsible to deliver care to patients with firearm injuries, little is known about the emergency nurses' knowledge and attitudes toward firearm injury incidence and impact, policy, prevention programs and ENA's position statement. It is not known if emergency nurses support the ENA's position statement on firearm injury. In addition, little is known about the amount of firearm injury prevention education delivered by emergency nurses. Finally, there is no data that examines the relationship between the knowledge and attitudes of emergency nurses around firearms and firearm prevention programs and prevention practices of emergency nurses.

The specific aim of the study was to:

1. Describe emergency nurses' perceived knowledge and attitudes toward firearm injury, firearm control policy, prevention programs and the ENA's position statement.
2. Describe emergency nurses' current practice of firearm prevention education.
3. Determine if emergency nurses support the ENA's position statement on firearm injury.
4. Describe the relationships between the knowledge and attitudes of emergency nurses toward firearms and firearm prevention programs and the actual prevention practices of emergency nurses.

5. Identify potential barriers to providing firearm injury education by emergency nurses.

Proposed Hypotheses

The central hypothesis for this study is nurses with a negative attitude toward firearms, a positive attitude toward firearm injury prevention programs and a higher perception of knowledge toward firearm injury prevention practices will be more likely to engage in firearm injury prevention education/intervention in their practice.

Research Design and Methods

Overview of the Research Design

The study was designed to examine the knowledge and attitudes of emergency nurses about the national incidence of firearm injuries, legislation regarding firearms, and firearm prevention education programs. In addition, the study examined the knowledge and attitudes of emergency nurses toward the ENA's position statement on firearm injury prevention and whether or not emergency nurses support the ENA's position statement. The study also examined the interrelationships between the knowledge and attitudes of nurses toward firearms, firearm ownership, and the self-reported behaviors regarding firearm injury prevention education in the emergency department setting. A non-experimental, descriptive design was used with data collected from a convenience sample of emergency nurses living in Illinois, Indiana, Michigan and Ohio who were willing to respond to email survey data. A onetime internet survey approach was used to collect data. Survey questions were designed to describe emergency nurses' knowledge and attitudes toward firearms, firearm legislation and firearm injury prevention programs and to assess their current practice in firearm prevention. In addition, the study allowed the

researcher to examine relationships among variables concerning emergency nurses' knowledge and attitudes toward firearms and firearm injury education.

Sample and Sampling

Sample size. The main groups to be compared were nurses who were firearm owners and nurse who were not firearm owners. Since about 20-30% of Americans own firearms, sufficient numbers of participants were needed in each category to allow for meaningful comparisons. Sample size was calculated using G Power statistical analysis 3:13 with a typical value of 0.80. This mythology suggested that 395 participants would be needed to have large enough numbers in each category (firearm owners and non-firearm owners) to perform valid statistical analysis.

Reliable estimates of email response rates to surveys are not available (Dillman, 2007). Firearm ownership is an emotionally charged issue and response rates to sensitive subjects are expected to be even lower than the conservative ratio of 30% predicted by Dillman for mail surveys. University of Texas, Instructional Assessment Resource (2011) identified 30% as the predicted response rate for online surveys of college students. Survey Monkey (2011) predicts a 40% response rate, therefore it was estimated that a response rate of only 20% of the total of number of surveys sent would be returned.

In order to enhance the validity of the study it was important to have participants who are representative of the United States nursing workforce. It was hoped that the study sample would mirror the United States nursing population distributions in race and gender, reported by the US Department of Health and Human services, Health Resources and Services Administration. The National Sample Survey of Registered Nurses 2008

(2010) reported the nursing population consists of 90.4% female, 9.6% male. Therefore the study sample was expected to be predominantly female.

In addition, it was hoped that the participants of the study reflected the United States nursing population distribution of US nurses that reported emergency/trauma care as their primary clinical specialty in their principle nursing position. The National Sample Survey of Registered Nurses (2010) reported 228,339 nurses reported emergency/trauma care as their primary clinical specialty. Of these nurse their educational levels was reported as Diploma 9.7% (n approximately 23,945), Associate degree 42.25% (n approximately 104,198), BSN 38.04% (n approximately 93,796) and Graduate Degree 9.9% (n=24,633).

Procedure, material, and data collection instrument. Loyola University Chicago Institutional Review Board (IRB) review was obtained and this group determined the study to be exempt. The initial survey was tested for face validity among a group of three experts in emergency nursing. Three emergency nurse experts were selected to review the questionnaire prior to administration. They were asked to assess the items for content validity. The content validity index (CVI) was used to quantify the degree of agreement between the experts (Waltz, Strickland & Lenz, 2005). The experts were given the objectives of the study and items and asked to independently rate the relevance of each item to the objective using a 4-point rating scale. Using the scale the expert rated if the item as (1) not relevant, (2) somewhat relevant, (3) quite relevant, or (4) very relevant. Once the scores were obtained, the ordinal scale was dichotomized into relevant (scores 3-4=1) and not relevant (scores 1-2=0). The CVI was computed as the

number of experts giving a relevant score by the total number of experts. Lynn (1986) suggests that the item CVI should be 1.00 when there are fewer than five judges.

The three experts were also asked to rate the relevance of each item. One expert was a trauma coordinator at a designated level one trauma center, one was an emergency nurse educator at a designated level one trauma center and the third was an experience staff nurse at a designated level two trauma center. The experts scored each individual question independently. Most of the questions received a CVI of 1 however, the following questions revealed a score of 0.6; (1.) Do you own any of the following types of firearms; (2.) If you own a firearm how is it usually stored; (3.) Do the children who live in your home know where the firearm is stored; and (4.) did you grow up in a home with firearms. After careful consideration and the agreement of the majority of experts, the researcher determined that the questions were too important to be removed.

Any emergency nurse living in Indiana, Illinois, Michigan and Ohio was eligible to participate. Participants were recruited via e-mail from requests sent out by the researcher through professional contacts with nurse leaders, Emergency Nurses Association members, friends, and social media such as “Facebook” and “linked in”. Snowball sampling or chain referral sampling was used. Snowball sampling is a non-probability sampling technique used to identify potential subjects. The initial subjects were asked to help identify people with similar interests. In this study, the initial contacts were asked to forward the survey request to known emergency nurses. In turn, these subjects were also asked to forward the survey to other emergency nurses they knew. All contact with participants occurred electronically through a link to the web based Survey Monkey. No identifiable information about the participants was entered in the Survey

Monkey platform. Therefore there was no way to link participants with their responses. The researcher ensured that received IPL addresses of the emergency nurses were kept confidential and not incorporated into the analysis. This provided anonymity of all the participant responses.

The request to take the survey was emailed to potential participants by nurse leaders and other emergency nurses in facilities in Illinois, Indiana, Michigan, and Ohio (see Appendix E). This notification alerted the nurses that the purpose of the study is to gain insight into the emergency nurses' knowledge and attitudes toward firearms, firearm injury, firearm legislation and firearm prevention education, a link to the survey and provide the survey contact information. The notice described the criteria for participation. In addition, the notice asked the reader to forward the request to potential subjects that they think would fit the survey population. This notification alerted the potential subject of the purpose of the survey and the importance of participation. Within the notification the researcher's name, credentials (including Ph.D. student) and contact information was identified. A link to the web based Survey Monkey was imbedded in the notice. Once the survey was completed a thank you note appeared.

Risks to the subjects were anticipated to be minimal. The greatest risk involved psychosocial issues that develop as a result of remembering an incidence of firearm injury of someone they have cared for or of someone close to the subject. The subject may experience sadness, anger, or anxiety.

The subjects did not receive any direct benefit from participation in the study. However, some subjects may have derived some satisfaction from participating in a study that has relevance to the emergency nurse community in which they belong.

Data collection instruments. The nurses were asked to complete questionnaires measuring their perceived knowledge and attitudes about firearms, firearm legislation, ENA's position statement, injury prevention programs and firearm injury prevention education. In addition, the nurses were asked to fill out a demographic survey including questions about firearm ownership, whether or not they support the current ENA's position statement and current firearm injury prevention practices. The items included in the instrument were drawn from a variety of sources. The survey took approximately 30 minutes to complete.

Measurements

Knowledge

The emergency nurses were asked about the firearm related morbidity and mortality of unintentional injury and death nationally. In addition, four questions were asked to test their knowledge about state laws in the state in which the nurse practices and their awareness of current firearm injury prevention program. In addition they were asked if they had received adequate education about firearm injuries in their education program or in professional education sessions.

Measuring the level of perceived knowledge of firearm injury prevention is important to understanding of emergency nurses' reluctance or eagerness in providing firearm prevention education to firearm owners. One known barrier in providing education is a lack of knowledge. As Bandura (1977) suggests in social cognitive theory a person's level of self-efficacy influences the belief in one's ability to manage and complete a specific task. The more knowledgeable the emergency nurse is about the factors that influence firearm injury the more likely they will provide firearm injury

prevention. In addition, the more often they provide firearm injury prevention education the more likely they will repeat it. Conversely, a lack of perceived knowledge will create a lack of self-efficacy causing a reluctance to provide the education (Bandura, 1977).

Practice and Opinions toward Firearm Legislation and Firearm Injury Prevention Education

The American Academy of Pediatrics (AAP) provided permission to adapt the Periodic Survey of Fellows #73 (see Appendix F) regarding firearm safety for this study. Selected survey items were adjusted to reflect the population of interest, emergency nurses (see Appendix G). Questions were developed by the AAP's Department of Research Staff with assistance from the APP's committee on Injury, Violence and Poison Prevention members and investigators. Construct validity was determined by a panel of pediatricians affiliated with the AAP. Although the survey has been used by the AAP no reliability data is available (AAP, 2010).The AAP tool was used as a template for the survey of emergency nurses.

Items in the survey included current employment, frequency of caring for someone with a firearm injury in the last twelve months, frequency of assessing a patient, parent or guardian of firearm ownership, and frequency of providing information to a patient or parent or guardian about firearm safe storage practices. Finally, the nurses' opinion of screening patient, injury prevention education practices and legislation were included.

The AAP tool was modified to ask if emergency nurses were aware of the ENA position statement about firearm injury and the emergency nurses' role in providing firearm injury prevention education and programs. If the emergency nurse indicated they

are aware of the ENA's position statement they were then be asked if they support the ENA's position statement.

Attitudes toward Firearms

Personal attitudes toward firearms were measured by the Attitudes toward Guns Scale (ATGS) (see Appendix H). Branscombe and colleagues (1991) examined attitudes towards guns in undergraduate students (N=276) and developed an instrument. Alongside the development of the scale he distributed a battery of personality and social methods. A pool of 59 items was developed. Using a 5-point Likert-type scale students determined their agreement or disagreement with higher numbers representing greater acceptance of firearms.

Branscombe and colleagues (1991) performed a principal component analysis using varimax rotation to obtain the three underlying dimensions that eventually formed the ATGS. The three factors account for 60.5% of the variance. Items with factor loadings greater than .50 were retained only if they loaded on only one of the three factors. The reliability and ranges of factor loading were; Rights, alpha coefficient =.90, containing 7 items factor loadings ranging from .73-.81; protection, alpha coefficient =.78, containing 5 items factor loadings ranging from .73-.81 and crime, alpha coefficient=.83, containing 5 factor loadings ranging from .60-.87. Factor analysis found that the scale consisted of three underlying dimensions; rights, protection and crime. These subscales are defined as; rights, the belief that it is an individual's right to own a gun; protection, the belief that a gun can provide protection from criminal activity; and crime, the belief that guns stimulate crime.

The first subscale reflects the belief that the American public should or should not be permitted to own firearms. The second and third subscales assess views of the potential consequences of firearm ownership in the United States. The second subscale measures the belief that owning a firearm protects the individual from crime; while the third subscale reflects the belief that owning a firearm stimulates or cause crime.

The ATGS was the key tool used in a study by Cooke (2004). The investigator examined the attitudes toward firearms of young people, age 17-25 years from Western Australia (n=219, males=62, females=157), Great Britain (n=177, males=45, females=132) and North Carolina, in the United States (n=145, males=41, females=104). Cooke adopted a traditional 5-point Likert-type for the 18 item scale. One new item that represented current legislation about concealed weapons was also included (Cooke & Puddifoot, 2000).

Cooke (2004) reported the tool to have similar psychometric measures as those found by Branscombe and colleagues. Reliability estimates for the overall scale and three dimensions closely matched those previously reported by Branscombe and colleagues (1991); Rights, alpha coefficient=.93, containing 8 items factor loadings ranging from .58-.84; protection, alpha coefficient=.80, containing 5 items factor loadings ranging from .57-.80 and crime, alpha coefficient=.77, containing 5 factor loadings ranging from .52-.78, ATGS, alpha coefficient=.90 containing 18 items. Alpha reliability indicates a high internal consistency for the ATGS and all of its sub scales. However, this tool has only been used with college age students and not with health professionals. The validity and reliability of the tool in a different population is unknown.

Demographics

Demographic questions included gender, age, marital status, number and age of children living in household, level of education completed. Firearm ownership (if yes do children know where the firearm is kept, do children have access to the firearm, firearm storage practices and did you grow up with firearms in the home) was also included in the instruments.

Data Analysis

Assumptions and Limitations

The proposed study was based on the assumption that a sufficient sample would be acquired and the sample would be representative of the target population. The web based survey design included only one contact with potential subjects. The major limitations to the study included several concerns. The snowball sampling left the researcher with little control over the sample. Sampling bias could occur because the referring participants may have referred participants who were not representative of the population of emergency nurses. Only emergency nurses that key leaders contacted were asked to participate. It is unknown how many nurses were asked to participate. Therefore it is not possible to report the percent of nurses who responded. In addition, non-probability sampling increases the chance of error and requires caution with reporting results. Therefore, the study results are unlikely to be generalizable to U.S. emergency nurses who routinely care for children with firearm injuries.

Analysis

Statistical analysis, outlined in the Data Analysis Plan (see Appendix I) was conducted by the researcher with consultation from a paid nursing and statistic doctoral

prepared faculty, faculty at Loyola University and a statistician available through Survey Monkey also is available for consultation of analysis. The effect of the personal and care practice characteristics were examined, including age, sex, marital status, practice location, geographic region, and firearm ownership will be examined. Practice location was self-defined into groups; urban inner city, urban non inner city, suburban, or rural. Geographic region was determined by self-report of state of practice. Gun ownership was divided into two categories; non-firearm owner and firearm owner. Principle analyses included descriptive statistics: frequency tables, percent, means, median and mode. Non parametric statistics were used for part of the analysis. The Mann-Whitney U Test was used to test for differences between two independent samples. The Kruskal-Wallis Test, which is similar to the Mann-Whitley U test, was used to compare the scores on a continuous variable for three or more groups. Relationships suggested by the multivariate analysis were further examined using stepwise regression to examine multivariate relationships between independent and dependent variables.

CHAPTER FOUR

RESULTS

Sample Characteristics

The survey yielded 246 responses, of these 57 were removed because the respondents did not complete the survey; one answered only one question while the others answered only some of the knowledge and practice portions of the survey. Any surveys that did not complete the majority of the three sections of the survey and through the final demographic portion were eliminated. Therefore, 189 survey responses were used for statistical analysis. Approximately 100 initial requests went to key nursing leaders; using the snowball sampling method it is unknown how many total requests were made and the response rate.

Statistical Analysis

Survey responses were analyzed using SPSS version 20. Descriptive statistics were used to characterize the study population. Inter-item correlation using Cronbach alpha was used to test reliability of the practice attitude scales and personal attitude scales. Mann-Whitney U test, Kruskal-Wallis Test and Chi-square analysis were used to compare differences between medians and percent of post survey practice groups and nurse's professional and personal attitudes and their reported characteristics of practice and demographics.

Demographic Characteristics

Respondents sample was predominantly females (N=156, 84.3%), over the age of 50 (N=83, 44.3%) and married (N=107, 57.8 %). Ages ranged from those reporting to be between 20 and 29 years of age (N=17, 9.1%) and one respondent (.5%) indicating they are over 70 years of age (see Table 1 and Figure 1). Many of the nurses identified their highest level of education to be at the BSN level (N=94, 50.3%) or graduate degree (N=59, 31.5%); others reported the highest level of education to be diploma or associate (N=34, 18.2%) (see Figure 2).

Table 1. Demographic Characteristics

Characteristic	**Number of respondents (Percentage)**
Gender	
Male	29 (15.7)
Female	156 (84.3)
	Total 185
Age	
20-29	17 (9.1)
30-39	42 (22.5)
40-49	45 (24.1)
Over 50 years	83 (44.3)
	Total 185
Marital Status	
Married	107 (57.8)
Single	44 (23.8)
Divorced/Widowed	34 (18.4)
	Total 185
Highest Level of Education	
Diploma/Associate degree in Nursing	34 (18.2)
BSN	94 (50.3)
Graduate Degree	59 (31.5)
	Total 187

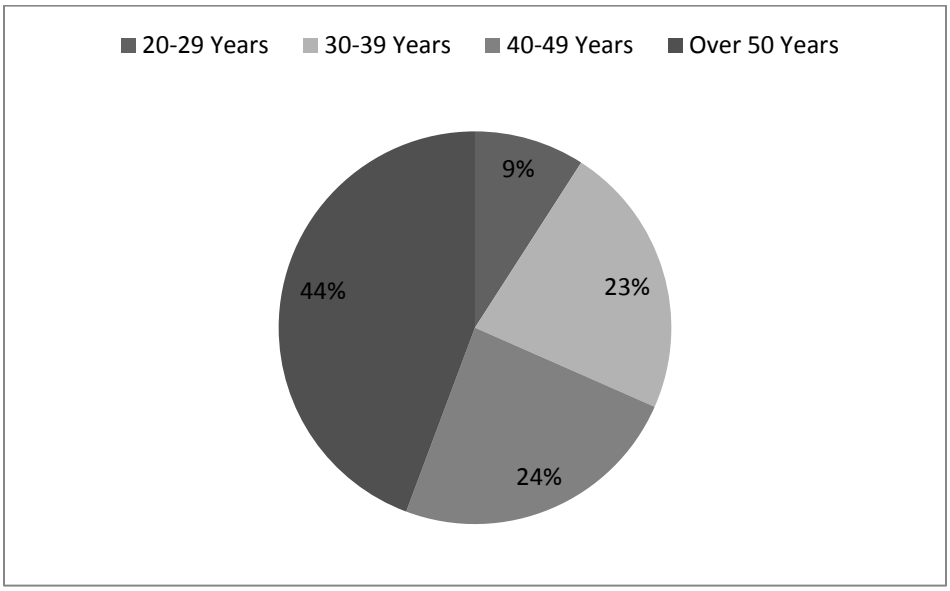

Figure 1. Age in percent

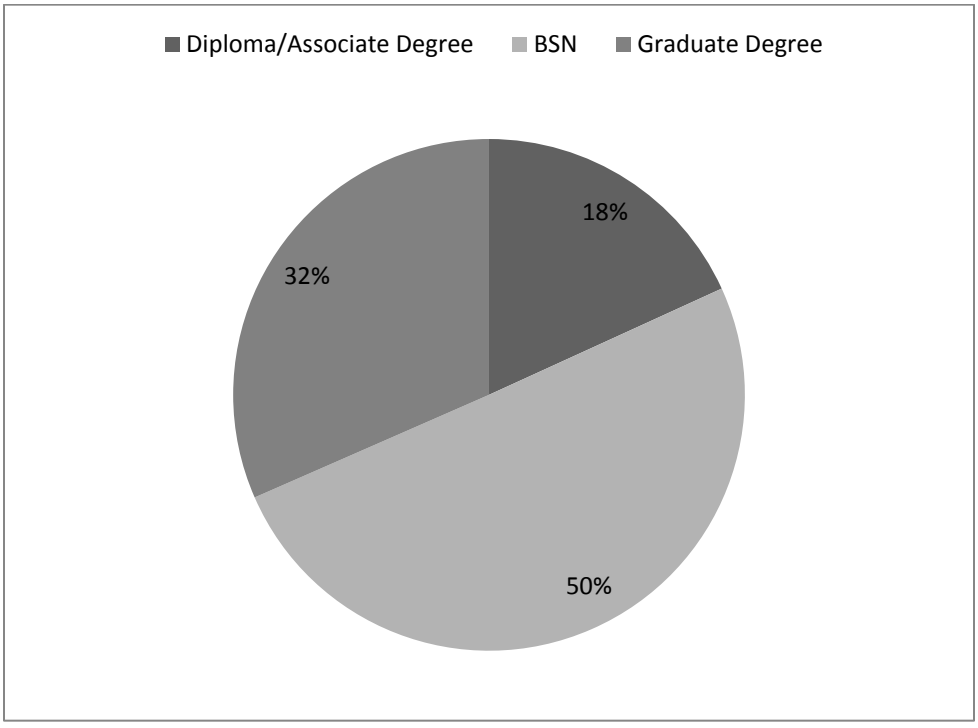

Figure 2. Highest level of education in percent

Firearm Ownership

The nurses were asked about firearm ownership. One hundred and sixteen (61.4%) of the nurses denied owning a handgun or a long gun. Of the nurses owning firearms, 60 (31.7%) indicated owning a handgun and 57 (30.2%) owning a long gun. Of the nurses owning guns most (total, N=51, 69.9%) of them kept their firearms safely stored (locked in a cabinet or safe unloaded (N=36, 19%), locked in a cabinet or safe loaded (N=8, 4.2%), or locked with a trigger safe lock (N=7, 3.7%), while others (N=22, 30.1%) kept their firearms unlocked and unloaded (N=15, 7.9%) or unlocked and loaded (N=7, 3.7%).

The nurses were also asked if they grew up in a home with firearms. Over half of the nurses reported (N=96, 51.9 %) that yes they grew up in a home with firearms (long guns only (N=35, 18.9%), handguns only (N=12, 6.5%) or long guns and hand guns (N=49, 26.5%). The remainder reported (N=89, 48.1%) not growing up in a home with firearms (see Figure 3).

The respondents were grouped into those that reported they owned a firearm and had children under the age of 19 at home (N=34, 47.2%) and those that owned a firearm and did not have children less than 19 years living at home (N=38, 52.8%).Of the nurses owning firearms with children under the age of 19 years at home, most (N=28) of them kept their firearms safely stored (locked in a cabinet or safe unloaded (N=21, 61.8%), locked in a cabinet or safe loaded (N=4, 11.8%), or locked with a trigger safe lock (N=3, 8.8%) while others (N=6, 17.7%) kept their firearms unlocked and unloaded (N=4, 11.8%) or unlocked and loaded (N=2, 5.9%) (see Figure 4).

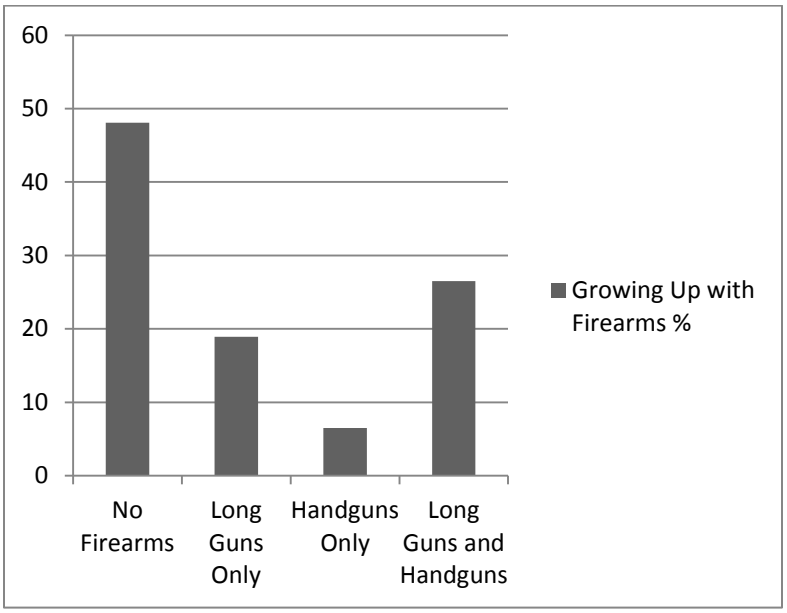

Figure 3. Percent of respondents growing up with a firearm

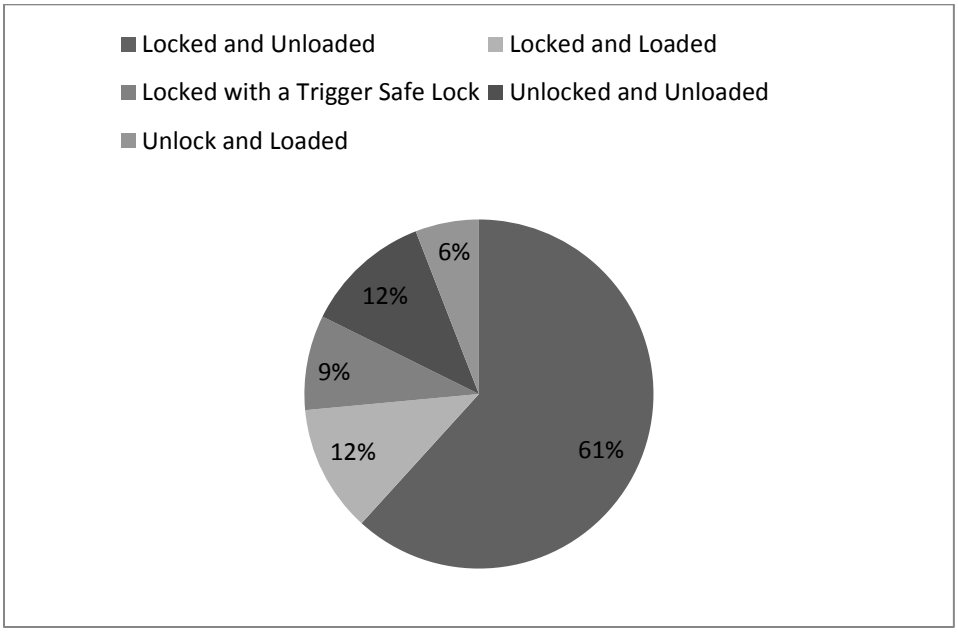

Figure 4. Percent of firearm storage practices with childen under the age of 19 in the home

Of the nurses that reported owning a firearm without children under the age of 19 at home most (N=22, 57.9%) of them kept their firearms safely stored locked in a cabinet or safe unloaded (N=15, 39.5%), locked in a cabinet or safe loaded (N=4, 10.5%), or locked with a trigger safe lock (N=3, 7.9%)) while others (N=16, 42.1%) kept their firearms unlocked and unloaded (N=11, 28.9%) or unlocked and loaded (N=5, 13.2%), (see Figure 5).

The percent of firearm owners with and without children under 19 groups were then compared to the reported storage practices using chi square analysis and there was no significant difference between the percent of the groups compared with safe storage practices.

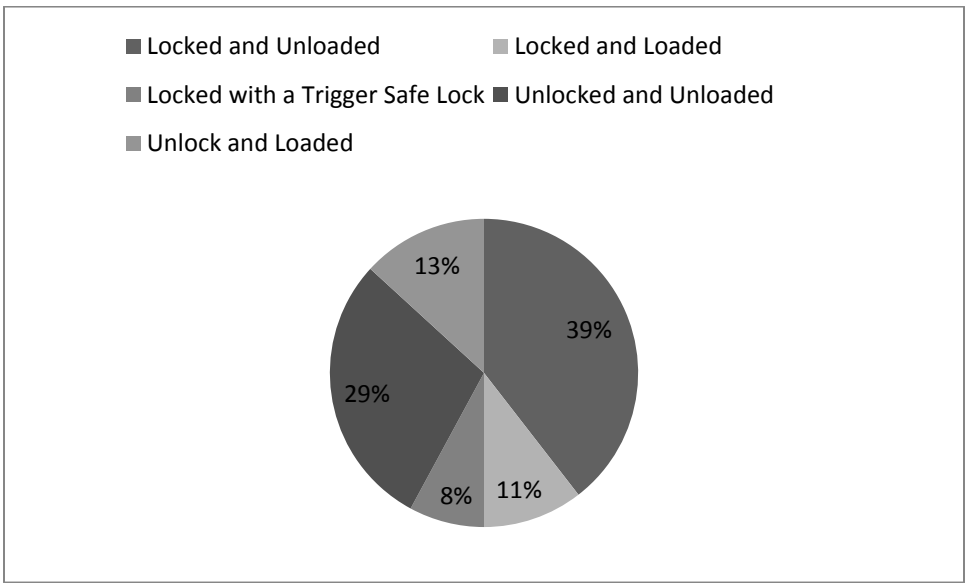

Figure 5. Percent of firearm storage practices without children under the age of 19 in the home

Those nurses that reported owning a firearm and having children under the age of 19 in the home were grouped (N=38) to determine if they believed the children in the

home know where the firearm is stored. One half of the respondents indicated that the children know where the firearm is stored (N=19, 50%), 17 (44.7%) of the respondents indicated they believed the children did not know where the firearm is stored and two (5.3%) indicated they did not know if the children know where the firearm is stored.

Knowledge: What is the knowledge of emergency nurses on firearm injury incidence, firearm legislation, and firearm prevention programs?

A series of questions were asked to determine the level of knowledge the respondents have of incidence and legislations involving firearm. In addition, questions were asked about recent education of firearm injuries and prevention, along with if the nurses believed they had adequate knowledge to provide firearm prevention education. Only nine (4.8%) respondents indicated that they attended any firearm injury prevention educational sessions in the past two years, in which seven of those obtained CEUs; while the majority of respondents denied having any firearm education in the last two years (N=165, 87.3%).

In addition, the nurses where asked how strongly they agree or disagree with the statement "I feel I received adequate professional education in the area of firearm safety." Most of the nurses (N=121, 64.3%) disagreed with the statement, [strongly disagree (N=67, 35.6%) and somewhat disagree (N=54, 28%)], while only 30 (15.9%) of the respondents agreed with the statement strongly agree (N=16, 8.5%) and somewhat agree (N=14, 7.4%).

Practice Descriptive Characteristics

A series of questions were asked about the practice of the respondents (see Table 2). Most of the respondents worked in the state of Illinois (N=130, 69.5%) followed by

Indiana (N=54, 24.1%). Many of the respondents indicated that their title at work could be best described as a staff nurse (N=103, 54.8 %), charge nurse (N=26, 13.8%), or administrator (N=27, 14.4%); others indicated their titles to be staff educator (N=19, 10.1%), clinical nurse specialist (N=7, 3.7%), or nurse practitioner (N=6, 3.2%). The respondents were experienced. The majority of the respondents (N= 152, 81.8%) had greater than five years experience in emergency nursing while very few (N=6, 3.2%) had less than one year experience or greater than one year but less than five years (N=28, 15.1%). Almost two thirds of the nurses worked full time, 36 hours a week or greater (N=121, 64.4%).

Place of Employment Characteristics

Questions were asked to describe the nurses' place of employment. The respondents reported working in a suburban hospital (N=91, 48.4 %), urban facility (N=66, 35.1%), or rural area (N=31, 16.5%) emergency departments. The majority of respondents (N=66, 35.1%) indicated that the place where they worked would be best classified a Non-Government (not for profit) Community Hospital (N=160, 85.6%), (see Table 3 and Figure 6). Over half of the nurses (N=114, 61.4%) report working in a hospital designated as a Trauma Center by the American College of Surgeons, at level I (N=44, 23.7%) at level II (N=60, 32.3%) or at level III (N=10, 5.4%) (see Figure 7).

Table 2. Practice Descriptive Characteristics

Characteristic	**Numbers of Respondents (Percentage)**
State of employment	
Illinois	130 (69.5)
Indiana	45 (24.1)
Michigan/Ohio	12 (6.4)
	Total 187
Title	
Staff Nurse	103 (54.8)
Staff Educator	19 (10.1)
Clinical Nurse Specialist	7 (3.7)
Nurse Practitioner	6 (3.2)
Administrator	27 (14.4)
Charge/Triage Nurse	26 (13.8)
	Total 188
Years experience	
Less than 1 year	6 (3.2)
1-5 years	28 (15.1)
Over than 5 years	148 (81.8)
	Total 186
Hours worked per week	
Part time less than 36 hours	67 (35.6)
Full time 36 hours or greater	121 (64.4)
	Total 188

Table 3. Place of Employment Characteristics

Characteristic	**Numbers of respondents (Percentage)**
Type of Institution	
Non-government	160 (85.6)
Investor owned	18 (9.6)
Government	9 (4.9)
	Total 187
Trauma Center	
Designated Trauma Center	114 (61.4)
Not Designated	72 (38.7)
	Total 186

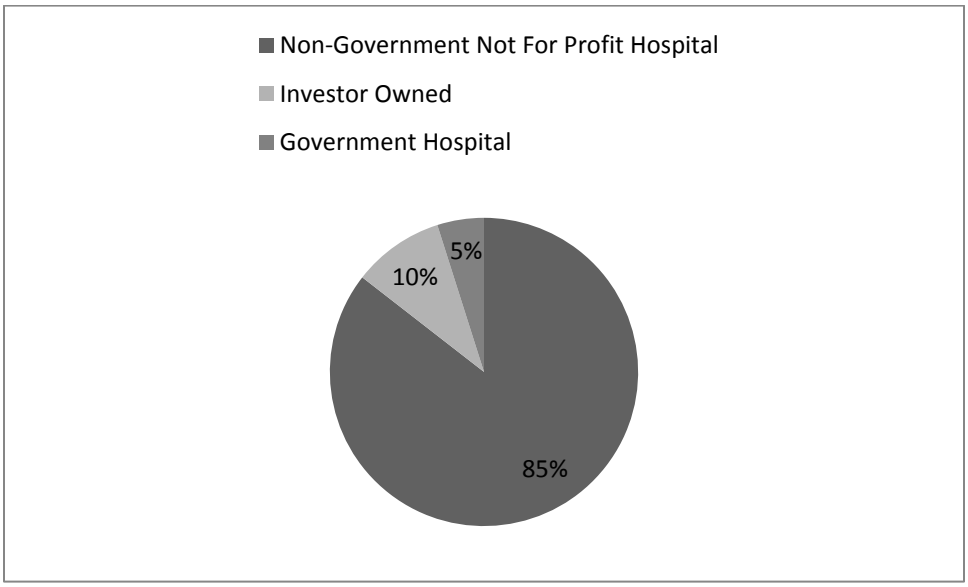

Figure 6. Percent of employment classification

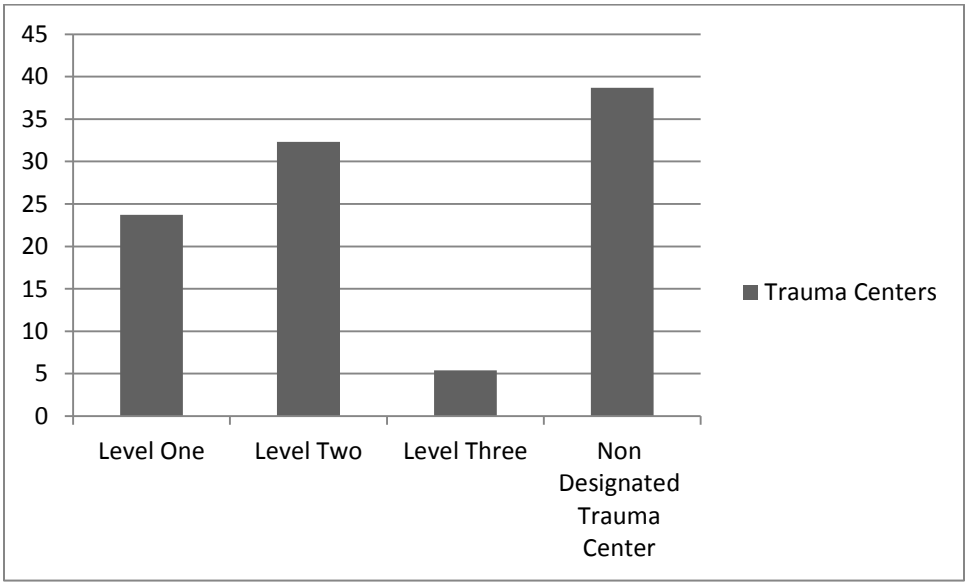

Figure 7. Percent employed in designated trauma centers

Emergency Nurses and the Emergency Nurse Association: Do emergency nurses support the Emergency Nurses Association position statement to reduce the dangers of firearm injury?

Questions were asked to determine if the nurses were members of the Emergency Nurses Association (ENA) and if they supported the Emergency Nurses Association Position Statement about firearm prevention practices. Of the respondents many indicated they are members of the ENA (N=153, 81.4%), while only 35 (18.6 %) are not members. (see Table 4).

Table 4. Emergency Nurses and the Emergency Nurses Association's Position Statement

Characteristic	**Numbers of Respondents (Percentage)**
ENA Member	
Member	153 (81.4)
Not a member	35 (18.6)
	Total 188
Emergency Nurses Position Statement On Firearm Injury Prevention	
I do not know about the position statement.	134 (70.9)
I have heard about the position statement.	30 (15.9)
I am somewhat/very familiar with the position statement.	23 (12.2)
	Total 187
Support of the position statement	
Support	30 (24.4)
Do Not Support	12 (9.8)
I don't know	81 (42.9)
	Total 122

The respondents were then grouped into ENA members and ENA nonmembers to compare responses to questions asking if the respondent is familiar with the ENA position statement about firearm injury prevention and if they support the position statement. Of those that are members of the ENA (N=151), most (N=102, 67.5 %) did not know about the position statement while some (N=49, 32.4%) had a least heard of the statement. Of those respondents that are not members of the ENA only three (1.5%) indicated they had at least heard about the position statement. No comparisons could be made comparing ENA members with non members because of the small sample size (see Figure 8).

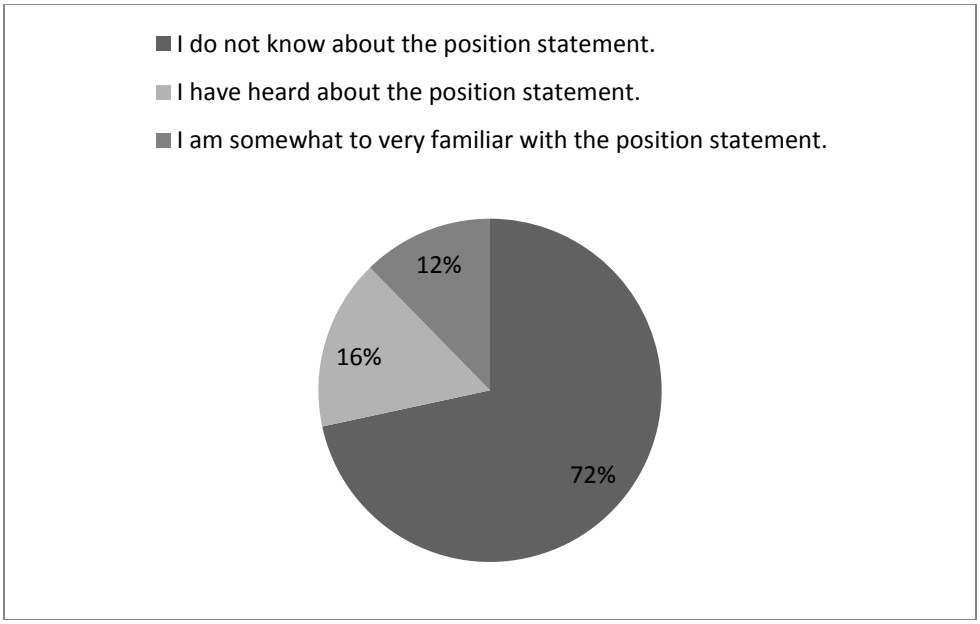

Figure 8. Percent aware of the Emergency Nurses Association position statement on firearm injury prevention

The same groups, those that reported they are members of the ENA and those that are not members of the ENA, were asked if they supported the ENA's position statement on firearm prevention. Of those that reported they were members of the ENA, most

(N=63, 61.8%) indicated they did not know if they supported the statement, while 29 (28.4%) supported the statement and 10 (9.8%) did not support the statement. Of the group that are not ENA members, none indicated that they supported the statement while two (10%) indicated they did not support the statements and 63 (90%) they did not know if they supported the statement. No comparisons could be made comparing ENA members with non members because of the small sample size.

Practice Characteristic: What is the emergency nurses' current practice of firearm injury prevention?

Frequency of Firearm Injury Prevention Assessment and Education in Practice

The respondents were asked a series of questions related to the frequency of providing firearm injury prevention education. The response scale is a 7-point Likert scale with 1=Never, 2=Rarely, 3=Occasionally, 4=Sometimes, 5=Frequently, 6=Usually and 7=Every time. Most of the respondents never identify families that have firearms (N=135, 72.2%), never recommend removal of a firearm to families who have firearms in the home (N= 135, 72.2%), never recommend unloading and safely storing firearms (N=139, 73.9%), or never educate families to ask about the presence of firearms in homes where their children play/spend time (N=144, 77%).

Practice Characteristics

The respondents were asked about the current practice characteristics in the emergency department where they work. Few of the respondents indicated that their emergency department required the nurse to provide firearm safety information to patients identified as owning or having a firearm in the home (N=2, 1.1%). The remaining 187 respondents responded that they did not (N=150, 79.4%) have a policy or

did not know (N=37, 19.6%) if they had a policy that would require them to provide firearm injury prevention education. The respondents also indicated that on the rare occasion where they screened patients for firearms in the home it was initiated without a prompt from a paper or computerized questionnaire but from their own verbal inquiry (N=6, 6.2%). When asked who usually discusses firearm safety with patients or families in their emergency department most of the respondent indicated "no one" (N=161, 86.6%) (see Table 5).

Table 5. Practice Characteristics [adapted from AAP (2011)]

Who usually discusses firearm safety with patients or families in your department?	Frequency (Percent)
Nurse	8 (4.3)
Physician	12 (6.5)
Other	5 (2.7)
No one (it is not discussed	186 (86.6)
	Total 186

The respondents were also asked how often the emergency department made firearm safety material available for distribution, place pamphlets for patient's to read in waiting areas or provided materials available through a computer program. The response scale is a 7-point Likert scale with 1=Never, 2=Rarely, 3=Occasionally, 4=Sometimes, 5=Frequently, 6=Usually and 7=Every time. The respondents identified that they or emergency department never provide materials on firearm safety (N=151, 82.5%), rarely (N=25, 13.7%), occasionally (N=2, 1.1%), sometimes (N=2, 1.1%), frequently (N=2, 1.1%) and usually (N=1, .5%) (see Table 6).

Table 6. Emergency Department Frequency of Providing Firearm Injury Prevention Material [adapted from AAP (2011)]

	Never	Rarely	Occasionally-Usually	Every time	Mean
Make available materials on firearm safety.	151 82.5 %	25 13.7%	7 3.8%	0	1.26
Distribute firearm safety pamphlets in the waiting area.	168 91.3%	10 5.4%	8 4.4%	0	1.17
Distribute computer generated material to all patients on firearm safety.	172 93%	9 4.9%	4 2.1%	0	1.12

The nurses were aware of many of the common firearm prevention programs. They were most aware of Firearm Exchange Programs (N=97, 51.6%) and programs that provide trigger locks (N=61, 32.8%) (see Figure 9). The nurses were also asked to report if they or any one in their department used any of the common community outreach firearm injury prevention programs. The most common types of program reported used by emergency departments were firearm exchange programs (N=11, 6.0%) and programs that provide gun locks (N=6, 3.2%).

Care Experience

Many of the respondents indicated that over the last 12 months they had not cared for a patient age 0-18 years with injuries from a firearm (N=107, 57.5%). Of the injuries cared for by the respondents, handguns (N=60, 31.7%) were the most common type of firearm used to cause the injury. Most injuries was classified by the respondents as intentional related to assault, homicide, or legal intervention (N=52, 57.1%) or intentional self-inflicted (N=2, 2.2%). While 37 (40.7%) would be classified as unintentional.

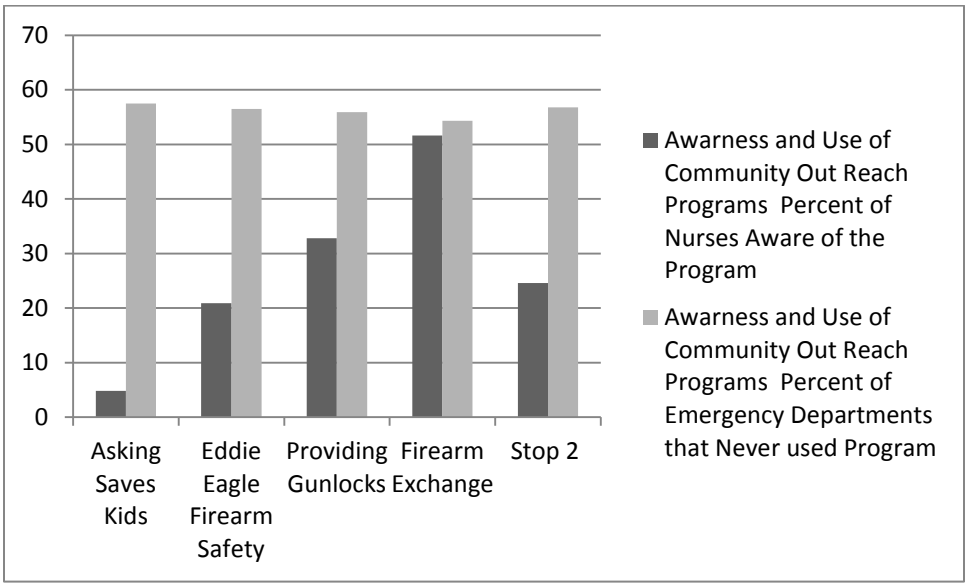

Figure 9. Percent of respondents' awareness and use of common firearm prevention programs

Practice attitudes: What is the attitude of the emergency nurse toward firearm injury prevention?

The respondents completed four scales that related to attitudes toward firearm prevention education in practice. The scales consisted of questions related to attitudes of the respondents' support of legislation and prevention education in practice. The scales consisted of 15 items, 12 items were a traditional 5-point Likert scale ranging from 1 strongly disagree to 5 strongly agree, and three items were a 4-point forced answer Likert scale ranging from 1 strongly disagree to 4 strongly agree. Overall the 15 items, Cronbach alpha=.754. Alpha reliability greater than .70 indicates an adequate internal consistency (DeVillis, 2003).

The respondents were asked if firearm violence is a problem in the community where they practice and 95 (70.6%) agreed, strongly agreed (N=46, 24.6%), and

somewhat agree (N=49, 26.2%). The nurses also believe that anticipatory guidance would help reduce the risk of firearm injury or death to children and adolescents [strongly agree (N=32, 17%) and somewhat agree (N=58, 30.7%)]. A majority of respondents (N=145, 77.1%) indicated that they agree that violence prevention should be a priority issue for emergency nurses (see Table 7).

Approximately one third (N=59, 31.6%) of the respondents strongly disagree and one third of the respondents strongly agree (N=59, 31.6%) that emergency nurses should support community efforts to restrict possession or sale of handguns. While more of the nurses (N= 88, 47.3%) strongly disagree that nurses should support community efforts to ban the sale or possession of handguns. However, most of the respondents strongly agree (N=132, 70.6%) that nurses should support legislation to enact holding gun owners responsible for child and adolescents use of guns. In addition, when they were asked if legislations will help reduce the risk of injuries most agreed (N=97, 51.6%), strongly agree (N=41, 21.8%), and somewhat agree (N=56, 29.8 %) (see Table 7).

Respondents were also asked the impact of internal influences (confidence in ability to care for firearm injuries, comfort in discussing firearm safety, and whether they received adequate education). The nurses were confident in their ability to care for patients with firearm injuries (strongly agree N=113, 59.8% and somewhat agree N=55, 29.1%). They feel comfortable in their ability to discuss firearm safety with families and patients (strongly agree N=47, 25.3% and somewhat agree N=48, 25.8%). However, they do not believe they have received adequate professional education in the area of firearm safety (strongly disagree N=67, 35.6% and somewhat disagree N=54, 28.7%).

Table 7. Practice Attitudes Legislation [adapted from AAP (2011)]

Emergency nurses should support community efforts to enact legislation	Strongly Disagree 1	Somewhat Disagree 2	Neutral 3	Somewhat Agree 4	Strongly Agree 5	Mean	Median	Standard Deviation
Restricting possession or sale of handguns	59 31.6%	15 8.0%	30 16.0%	24 12.8%	59 31.6%	3.04	3	1.65
Banning the sale and possession of handguns	88 47.3%	15 8.1%	36 19.4%	23 12.4%	24 12.9%	2.35	2	1.48
Holding gun owners responsible for child and adolescent use of guns	12 6.4%	5 2.7%	15 8%	23 12.3%	132 70.6%	4.37	5	1.15
Gun control legislation/regulation will help reduce risk of injury or death to children or adolescents	60 31.9%	19 10.1%	12 6.4%	56 29.8%	44 21.8%	2.99	4	1.6
Violence prevention should be a priority issue for Emergency Nurses	6 3.2%	9 4.8%	28 14.9%	70 37.2%	75 39.9%	4.05	4	1.01
Anticipatory on firearm safety provided by emergency nurses will help reduce the risk of injury or death to children and adolescents	22 11.7%	28 14.9%	48 25.5%	58 30.9%	32 16.9%	3.26	3	1.24

The nurses were also asked a series of questions that were specific to potential external influences (sufficient time, and resentment of families) that may influence providing firearm safety education (see Table 8). The nurses disagreed [strongly disagreed (N=82, 44.1%) and somewhat disagree (N=54, 28.7%)] that there is sufficient time in emergency department visits to address firearm safety issues. In addition, the majority of nurses (strongly agree N=56, 29.9% and somewhat agree N=63, 33.7%) believe that parents and families resent the intrusion of being asked about firearms in the home (see Table 8).

Table 8. Practice Attitudes, Internal and External Influences [adapted from AAP (2011)]

	Strongly Disagree 1	Somewhat Disagree 2	Neutral 3	Somewhat Agree 4	Strongly Agree 5	Mean	Median	Standard Deviation
Gun violence is a problem in the community where my practice is located	31 16.6%	31 16.6%	30 16.0%	49 25.9%	46 24.3%	3.2	4	1.42
I am confident in my ability to care for patients with injuries caused by firearms.	5 2.6%	7 3.7%	9 4.8%	55 29.1%	113 59.8%	4.3	5	.93
I am comfortable discussing firearm safety with families and patients.	12 6.5%	39 21.0%	40 21.5%	48 25.8%	47 25.3%	3.42	4	1.25
I feel I have had adequate professional education in the area of firearm safety.	67 35.6%	54 28.7%	37 19.7%	14 7.4%	16 8.5%	2.24	2	1.25
There is sufficient time in the emergency department visits to address firearm safety issues.	82 44.1%	57 30.6%	24 12.9%	17 9.1%	6 3.2%	1.96	2	1.10
Parents/families resent the intrusion of being asked about firearms in the home	4 2.1%	12 6.4%	52 27.8%	63 33.7%	56 29.9%	3.82	4	1.00

The nurses were asked if they believed emergency nurses' should assess and recommend firearm safety practices. These three items were a 4-point forced answer Likert scales ranging from 1 strongly disagree to 4 strongly agree. More than half respondents indicated that they disagree that emergency nurses should ask all patients about the presence of firearms in the home (strongly disagree N=37, 19.8% and somewhat agree N=68, 36.4%) while just under half believe all patients should be asked about the presence of firearms in the home (strongly agree N=25, 13.4% and somewhat

agree N=57, 30.5%). They believe that nurse should ask parents with handguns to unload them and lock them away (strongly agree N=97, 52.2%, and somewhat agree N=51, 27.4%). However, they disagree that parents who have handguns should remove them from their homes (strongly agree N= 65, 34.9%, and somewhat agree N=86, 46.2%) (see Table 9).

Table 9. Practice Attitudes Prevention Education [adapted from AAP (2011)]

Emergency Nurses should ask	Strongly Disagree 1	Somewhat Disagree 2	Somewhat Agree 3	Strongly Agree 4	Mean	Median	Standard Deviation
All families about the presence of firearms in the home	37 19.8%	68 36.0%	57 30.5%	25 13.4%	2.37	2	.94
Parents who have handgun to remove them from the home	65 34.9%	86 46.2%	20 10.8%	15 8.1%	1.91	2	.88
Parents who have handguns unload and lock them away	16 8.6%	22 11.8%	51 27.4%	97 52.2%	3.23	4	.96

Six questions from the above scales were combined to create a new scale that examined the nurses' overall practice attitudes toward gun control legislation, firearm prevention education and firearm violence as an emergency nurse. The new scale combined six questions; the first three questions asked how strongly the nurses agreed or disagreed with each of the following statements. Emergency nurses should support community efforts to enact legislation; 1, restricting possession or sale of handguns, 2, banning the sale and possession of handguns, 3, holding gun owners responsible for child and adolescent use of guns. Question 4, 5 and 6 asked how strongly the nurses agreed or disagreed with the following statements: 4, violence prevention should be a priority issue

for Emergency Nurses; 5, anticipatory guidance on firearm safety by emergency nurse will help reduce risk of injury or death to children and adolescents; and 6, gun violence is a problem in the community where I practice. The scale consisted of six items with a traditional 5-point Likert scale ranging from 1 strongly disagree to 5 strongly agree. Overall the six items, Cronbach alpha=.709. Alpha reliability greater than .70 indicates an adequate internal consistency (DeVillis, 2003) (see Table 10).

Table 10. Overall Practice Attitude Scale [adapted from AAP (2011)]

Emergency nurses should support community efforts to enact legislation	Strongly Disagree 1	Somewhat Disagree 2	Neutral 3	Somewhat Agree 4	Strongly Agree 5	Mean	Median	Standard Deviation
Restricting possession or sale of handguns	59 31.6%	15 8.0%	30 16.0%	24 12.8%	59 31.6%	3.04	3	1.65
Banning the sale and possession of handguns	88 47.3%	15 8.1%	36 19.4%	23 12.4%	24 12.9%	2.35	2	1.48
Holding gun owners responsible for child and adolescent use of guns	12 6.4%	5 2.7%	15 8%	23 12.3%	132 70.6%	4.37	5	1.15
How strongly do you agree or disagree with the following statements.								
Violence prevention should be a priority issue for Emergency Nurses	6 3.2%	9 4.8%	28 14.9%	70 37.2%	75 39.9%	4.05	4	1.01

Anticipatory on firearm safety provided by emergency nurses will help reduce the risk of injury or death to children and adolescents	22 11.7%	28 14.9%	48 25.5%	58 30.9%	32 16.9%	3.26	3	1.24
Gun violence is a problem in the community where my practice is located	31 16.6%	31 16.6%	30 16.0%	49 25.9%	46 24.3%	3.2	4	1.42

The nurses' overall median scores on the new scale emergency nurses' practice attitude scale were compared to specific characteristics; age, gender, education level, state of employment, practice in a designated trauma center and gun ownership. The Mann-Whitney U test was used to compare the medians between two characteristic groups and the Kruskal-Wallis test to compare the ranks for characteristics including three or more groups. A Kruskal-Wallis test revealed a statistically significant difference in practice attitudes across three different states of employment (Illinois, n=130, Indiana, n=45, Ohio and Michigan combined, n=12), p=.000, alpha=.05/3=.017.

A Mann-Whitney U test revealed a significant difference was accounted for in the emergency nurses practice attitude scale across the states of employment Illinois (Md=3.75, n=130) and Indiana (Md=2.8333, n=45), p=.000, alpha=.05; with Illinois having the highest level of overall practice attitudes. Nurses from Illinois were more likely to support community efforts to enact legislation toward gun control, prevention

education as a priority issue for emergency nurses, and that anticipatory guidance on firearm safety will reduce the risk of injury.

A Kruskal-Wallis test revealed a statistically significant difference in the emergency nurses practice attitude scale across three different categories of education level (Diploma and Associate degree, n=34, BSN degree, n=94, Graduate degree, n=59), p=.001, alpha=.05/3=.017. A Mann-Whitney U test revealed the significant difference was accounted for in practice attitudes across education level between Diploma and Associate degree levels (Md=2.75, n=34) and BSN level (Md=3.4, n=94), p=.001, alpha=.05; and in Diploma and Associate degree levels (Md=2.75, n=34) and graduate levels (Md=3.6667, n=59), p=.001, alpha=.05. There was no significant difference between practice attitudes across BSN (Md=3.4, n=94) and graduate levels (Md=3.6667, n=59) of education, p=.623, alpha=.05. Nurses with a graduate education had the highest level of attitudes supporting firearm education and firearm control policies. Nurses with at least a BSN education were more likely to support community efforts to enact legislation toward gun control, prevention education as a priority issue for emergency nurses, and that anticipatory guidance on firearm safety will reduce the risk of injury.

A Mann-Whitney U test revealed a significant difference in overall emergency nurses practice attitude scale and gender. The significant difference of medians across males (Md=3.0, n=29) and females (Md=3.5, n=156) included p=.028, alpha=.05. Females had a higher median score than males in overall practice attitudes.

In addition, a Mann-Whitney U test revealed a significant difference in overall emergency nurses practice attitude scale and gun ownership. The significance difference in overall practice attitudes across gun ownership included gun owners (Md=2.8333,

n=50) and non-gun owners (Md=3.8333, n=101), p=.000, alpha=.05. Non gun owners had the higher overall practice attitudes. A Mann-Whitney U test revealed a significant difference in overall practice attitudes across growing up with a firearm in the home (Md=3.5, n=76) and not growing up with a firearm in the home (Md=3.8333, n=76), p=.019, alpha=.05. In addition, a Kruskal-Wallis test revealed a significant difference of overall practice attitudes across growing up with a gun and gun ownership (group 1, those that grew up with a gun and own a gun, Md=2.6667, n=48, group 2, those that did not grow up with a gun and own a gun, Md=3.0, n=20, group 3, those that grew up with a gun and does not own a gun, Md=3.75, n=48, group 4, those that did not grow up with a gun and does not own a gun, Md=3.8333, n=68), p=.000, alpha .05/4=.008).

The Mann-Whitney U test revealed a significant difference in overall emergency nurses practice attitude scale across Group 1 and 2, p=.023; Group 1 and 3, p=.000; Group 1 and 4, p=.000; and group 2 and 4, p=.001, alpha=.05. Non gun owner and those that did not grow up with a gun were more likely to support community efforts to enact legislation toward gun control, prevention education as a priority issue for emergency nurses, and that anticipatory guidance on firearm safety will reduce the risk of injury.

Two predictive factors included state of practice and growing up with firearms as measured by the emergency nurses practice attitudes median scores were significant. The forward stepwise regression ANOVA analysis F (2,180)=43.195, p=.000 indicated a linear predictive model at an alpha .05 level. The slope was statistically significant for each of the two predictive variables at an alpha .05 level. The multiple R for the regression model was 0.327 and the linear regression model accounted for 32.7% of the variation in the overall practice attitudes.

Personal attitudes: What is the personal attitude of the emergency nurse toward firearm injury prevention?

The respondents completed the Attitude toward Gun Scale (ATGS) (Branscombe, Weir, & Crosby, 1991) (see Tables 11, 12, 13). The scale consisted of three underlying dimensions. The three subscales were a right to own a gun (Rights), a gun can provide protection from crime (Protection), and a gun can stimulate crime (Crime). The response values were reversed. The Rights scale (see Table 11) was a traditional 5-point Likert scale ranging from 1 strongly disagree to 5 strongly agree, containing seven items, Cronbach's alpha=.96. The Protection scale (see Table 12) was a traditional 5-point Likert scale ranging from 1 strongly disagree to 5 strongly agree, containing five items, Cronbach's alpha= .88. The crime scale (see Table 13) was a 4-point forced answer Likert scale ranging from 1 strongly agree to 4 strongly disagree containing five items, Cronbach's alpha= .94. Overall the ATGS containing 17 items, Cronbach's alpha= .71. Alpha reliability greater than .7 indicates an adequate internal consistency (Devillis 2003), while the subscales with alpha reliability above .8 indicates high internal consistency on all of the sub scales (DeVillis, 2003).

Of the three scales that measured the respondents personal attitudes toward firearms the emergency nurses' means were highest on the scale that measures the belief that it is an individual's right to own a firearm.

Belief that it is an Individual's Right to Own a Firearm

The first scale measures the belief that it is an individual's right to own a firearm (Branscombe et al., 1991) (see Table 11). The respondents strongly agreed that people should be allowed to have handguns in the home (N=112, 59.6%), that a ban on

handguns would be against the constitution (N=110, 58.8%), the right to bear arms is an important American freedom (N=116, 61.4%), that regardless of potential injury, it is a person's right to choose to own a gun (N=104, 55.3%), and that people should be able to own guns for sport (N=96, 51.1%). In addition, the respondents strongly agreed that they should be able to own a gun if they want to (N=109, 58%) and that gun ownership is a basic American value, (N=92, 49%). Very few of the respondent strongly disagreed with any of these statements.

The nurses' overall median score of the attitude toward the individual right to own a firearm scale was compared to specific characteristics. The Mann-Whitney U test was used to compare the medians between two groups and the Kruskal-Wallis test to compare the ranks for three or more groups. A Kruskal-Wallis test revealed a statistically significant difference in the overall rank score on the personal attitude scale related to the individual's right to own a firearm across state of practice (Illinois, Md=4.3571, n=130, Indiana, Md=5.0, n=45, Ohio/Michigan, Md=4.8571, n=12), p=.002, alpha .05/3=0.17. A Mann-Whitney U test revealed the significant difference was accounted for personal attitude scale related to individual's right to own a firearm across the states of employment of Illinois, Md=4.3571, n=130, and Indiana, Md=5.0, n=45, p=.001, alpha=.05. Nurses from the state of Indiana had a stronger belief that it is an individual right to own a firearm compared to nurses from the state of Illinois.

Table 11. Personal Attitudes toward Firearms, Right (Branscombe et al., 1991)

Right to own	Strongly Disagree 1	Somewhat Disagree 2	Neutral 3	Somewhat Agree 4	Strongly Agree 5	Mean	Median	Standard Deviation
People should be allowed to have handguns in their home.	9 4.8%	19 10.1%	13 6.9%	35 18.6%	112 59.6%	4.18	5	1.21
A ban on handguns would be a violation of the US constitution.	10 5.3%	14 7.5%	16 8.9%	37 19.8%	110 58.8%	4.19	5	1.19
The right to bens.ar arms is an important freedom for Americans	13 6.9%	14 7.4%	16 8.5%	30 15.9%	116 61.4%	4.17	5	1.26
Regardless of their potential for injury, it is a person's right to choose to own a gun.	11 5.9%	18 9.6%	9 4.8%	46 24.5%	104 55.3%	4.13	5	1.22
People should be able to own guns because many people use them for sporting purposes.	11 5.9%	17 9.0%	18 9.6%	46 24.5%	96 51.1%	4.05	5	1.22
I should be able to get a handgun if I want to.	17 9.0%	13 6.9%	23 12.2%	26 13.8%	109 58.0%	4.04	5	1.34
Gun ownership is a basic American value.	18 9.6%	12 6.4%	31 16.6%	34 18.2%	92 49.2%	3.90	4	1.33

A Mann-Whitney U test revealed a significant difference in the median scores of the attitude toward the individual right to own a firearm scale across gender, males (Md=5.0, n=29) and females (Md=3.5, n=156), p=.013, alpha=.05. Males had a stronger belief that it is an individual right to own a firearm compared to female nurses.

A Mann-Whitney U test revealed a significant difference in overall personal attitudes that support it is an individual's right to own a firearm and gun ownership. The significance difference in overall personal attitudes that support an individual's right to own a firearm across gun ownership included gun owners (Md=5.0, n=50) and non gun owners (Md=3.8571, n=101), p=.000, alpha=.05. Gun owners had the higher overall personal attitude that support it is an individual's right to own a firearm. A Mann-Whitney U test revealed a significant difference in overall personal attitudes that support it is an individual right to own a firearm across growing up with a firearm in the home (Md=4.8571, n=76) and not growing up with a firearm in the home (Md=3.8571, n=76), p=.000, alpha=.05. Nurses that grew up in a home with firearms had an overall personal attitude that support that an individuals have a right to own a firearm.

In addition, a Kruskal-Wallis test revealed a significant difference of overall personal attitude that support it is an individual right to own a firearm across growing up with a gun and gun ownership (group 1, those that grew up with a gun and own a gun, Md=5.0, n=48, group 2, those that did not grow up with a gun and own a gun, Md=5.0, n=20, group 3, those that grew up with a gun and does not own a gun, Md=4.50, n=48, group 4, those that did not grow up with a gun and does not own a gun, Md=3.7143, n=68), p=.000, alpha .05/4=.008). The Mann-Whitney U test revealed a significant difference in overall practice attitudes across Group 1 and 3, p=.000; Group 1 and 4, p=.000; and group 3 and 4, p=.004, alpha=.05. Gun owners and those that grew up with guns have a stronger attitude that an individual have a right to own a firearm.

Two predictive factors included state of practice and growing up with firearms as measured by attitudes toward an individual's right to own a firearm median scores were

significant. The forward stepwise regression ANOVA analysis F (2,180)=33.765, p=.000 indicated a linear predictive model at an alpha .05 level. The slope was statistically significant for each of the two predictive variables at an alpha .05 level. The multiple R for the regression model was .275 and the linear regression model accounted for 27.5% of the variation in the attitudes toward an individual's right to own a firearm.

Firearms Protect People from Crime

The second scale measures the belief that firearms protect individuals from crime (Branscombe et al., 1991) (see Table 12). The majority of the nurses disagreed with these statements. They disagreed that owning a handgun decreases a person's chances of being a crime victim (strongly disagree N=51, 27%), that if you have a gun you do not have to worry about being victimized (strongly disagree N=94, 49.7%), that storeowners who have handguns are less likely to be robbed (somewhat disagree N=60, 31.7%), that criminals do not attack people who have guns (strongly disagree N=90, 47.6%) and that the only way to avoid being a victim is to own a handgun (strongly disagree N=98, 52.4%).

A Mann-Whitney U test revealed a significant difference in overall personal attitudes that support a firearm protects from crime and gun ownership. The significance difference in overall personal attitudes that support a firearm protects from crime across gun ownership included gun owners (Md=2.70, n=50) and non gun owners (Md=1.60, n=101), p=.001, alpha=.05. Gun owners had the higher overall personal attitude that support it is an individual's right to own a firearm.

Table 12. Personal Attitudes toward Firearms, Protection (Branscombe et al., 1991)

Protect	Strongly Disagree 1	Somewhat Disagree 2	Neutral 3	Somewhat Agree 4	Strongly Agree 5	Mean	Median	Standard Deviation
Owning a handgun decreases a person's chances of being a crime victim.	51 27.0%	46 24.3%	32 16.9%	39 20.6%	21 11.1%	2.64	2	1.36
When you have a handgun of your own you can stop being victimized.	94 49.7%	49 25.9%	22 11.6%	21 11.1%	3 1.6%	1.88	2	1.09
Store owners who have handguns on the premises are less likely to be robbed than those without a weapon	53 28%	60 31.7%	40 21.2%	24 12.7%	12 6.3%	2.37	2	1.19
Criminals do not attack people who own guns.	90 47.6%	55 29.1%	27 14.3%	13 6.9%	4 2.1%	1.86	2	1.03
The only way to ensure that you will not be criminally victimized is by owning a handgun.	98 52.4%	52 27.8%	22 11.8%	13 7.0%	2 1.1%	1.76	1	.98

In addition, a Kruskal-Wallis test revealed a significant difference of overall personal attitude that a firearm protects from crime across growing up with a gun and gun

ownership (group 1, those that grew up with a gun and own a gun, Md=2.60, n=48, group 2, those that did not grow up with a gun and own a gun, Md=2.50, n=20, group 3, those that grew up with a gun and does not own a gun, Md=1.70, n=48, group 4, those that did not grow up with a gun and does not own a gun, Md=1.60, n=68) p=.001, alpha .05/4=.008). The Mann-Whitney U test revealed a significant difference in overall practice attitudes across Group 1 and 3, p=.005; Group 1 and 4, p=.000; and group 2 and 4, p=.015, alpha=.05. Gun owners and those that grew up with guns have a stronger attitude that a firearm will protect against crime.

Firearms Stimulate Crime

The final scale measures the belief that guns stimulate or cause crime (Branscombe et al., 1991) (see Table 13). The respondents agreed that gun availability makes killing easy, but the majority disagreed that gun availability caused people to commit suicide (strongly disagree N=70, 37%), that murders would not take place if there wasn't a gun available (strongly disagree N=56, 30.1%), that easy access to guns increase crime (strongly disagree N=54, 28.7%) and that guns stimulate crime (strongly disagree N=65, 34.9%).

A Kruskal-Wallis test revealed a statistically significant difference in personal attitudes that firearms stimulate crime across three different categories of education level (Diploma and Associate degree, n=34, BSN degree, n=93, Graduate degree, n=59), p=.002, alpha=.05/3=.017. A Mann-Whitney U test revealed the significant difference was accounted for in personal attitudes that firearms stimulate crime across education level between Diploma and Associate degree levels (Md=1.50, n=34) and BSN level (Md=2.40, n=93), p=.001, alpha=.05; and in Diploma and Associate degree levels

(Md=2.75, n=34) and graduate levels (Md=2.60, n=59), p=.003, alpha=.05. There was no significant difference between practice attitudes across BSN (Md=2.40, n=93) and graduate levels (Md=2.60, n=59) of education, p=.832, alpha=.05. Nurses with a graduate education and BSN have a stronger belief that firearms stimulate crime more than nurses with a diploma or associate degree.

Table 13. Personal Attitudes toward Firearms, Firearm Ownership Stimulates Crime (Branscombe et al., 1991)

Crime	Strongly Agree	Somewhat Agree	Somewhat Disagree	Strongly Disagree	Mean	Median	Standard Deviation
Gun availability makes killing too easy.	51 25%	47 25%	44 23.4%	46 24.5%	2.54	2	1.13
People commit suicide often because handguns are too readily available.	28 15.0%	26 13.9%	63 33.7%	70 37.4%	2.94	3	1.05
Many murders would not take place if a handgun had not been available	41 22.0%	42 22.6%	47 25.3%	56 30.1%	2.63	3	1.13
The easy access of handguns is likely to result in an increased crime rate.	42 22.3%	45 23.9%	47 25.0%	54 28.7%	2.60	3	1.12
Guns stimulate crime.	30 36.1%	44 23.7%	47 25.3%	65 34.9%	2.79	3	1.09

A Kruskal-Wallis test revealed a statistically significant difference in the ranks score on the personal attitude scale related to the belief that firearms stimulate crime across state of practice (Illinois, Md=2.60, n=129, Indiana, Md=1.60, n=45, Ohio/ Michigan, Md=2.20, n=12), p=.001, alpha .05/3=0.17. A Mann-Whitney U test revealed the significant difference was accounted for personal attitude scale related to the belief that a firearm stimulates crime across the states of employment of Illinois, Md=2.60,

n=2.60, and Indiana, Md=1.60, n=45, p=.000, alpha=.05. Nurses from the state of Illinois had a stronger belief a firearm stimulates crime compared to nurses from the state of Indiana.

A Mann-Whitney U test revealed a significant difference in overall personal attitudes that support the belief that a firearm stimulates crime and gun ownership. The significance difference in overall personal attitudes that support an individual's right to own a firearm across gun ownership included gun owners (Md=1.60, n=50) and non-gun owners (Md=2.80, n=100), p=.000, alpha=.05. Non gun owners had the higher overall personal attitude that supports the belief that a firearm stimulates crime. A Mann-Whitney U test revealed a significant difference in overall personal attitudes that support the belief that a firearm stimulates crime across growing up with a firearm in the home (Md=2.20, n=75) and not growing up with a firearm in the home (Md=2.7750, n=76), p=.011, alpha=.05. Nurses that did not grow up in a home with firearm had an overall personal attitude that supports the belief that a firearm stimulates crime.

In addition, a Kruskal-Wallis test revealed a significant difference of overall personal attitude that a firearm stimulates crime across growing up with a gun and gun ownership (group 1, those that grew up with a gun and own a gun, Md=1.40, n=48, group 2, those that did not grow up with a gun and own a gun, Md=1.90, n=20, group 3, those that grew up with a gun and does not own a gun, Md=2.60, n=47, group 4, those that did not grow up with a gun and does not own a gun, Md=2.80, n=68), p=.000, alpha .05/4=.008). The Mann-Whitney U test revealed a significant difference in overall practice attitudes across Groups 1 and 3, p=.000, Group 1 and 4, p=.000; and group 2 and

3, p=.016, Group 2 and 4, p=.000, alpha=.05. Nurses that do not own or did not grow up in a home with firearms have a stronger belief that firearms stimulate crime.

A Mann-Whitney U revealed a significant difference in overall personal belief that a firearm stimulates crime and working in a designated trauma center (Md=3.0, n=73) and not working in a designated trauma center (Md=2.6, n=40), p=.030, alpha .05. Nurses that work in a Trauma center have a stronger belief that firearms stimulate crime.

Two predictive factors included growing up with firearms and educational level as measured by attitudes toward the belief that owning a firearm stimulates crime scores was significant. The forward stepwise regression ANOVA analysis F (2,177)=36.571, p=.000 indicated a linear predictive model at an alpha .05 level. The slope was statistically significant for each of the two predictive variables at an alpha .05 level. The multiple R for the regression model was .295 and the linear regression model accounted for 29.5% of the variation in the attitudes toward the belief that owning a firearm stimulates crime.

Barriers to Practice: What is the relationship between firearm knowledge, demographic and practice factors?

The purpose of this part of the study was to explore if there was a difference in practice, demographic, and work variables between two practice groups, those practicing firearm prevention education and those that never provide firearm injury prevention education. The groups were formed post survey based on their answer to the frequency in practice scale. The scale is a 7-point Likert scale with 1=Never, 2=Rarely, 3=Occasionally, 4=Sometimes, 5=Frequently, 6=Usually and 7=Every time. The nurses were grouped into never practicing (N=115) (answering Never to all of the practice

questions) to practicing (N=71) (answering at least rarely once in that they assessed for, recommended storing a firearm safely, and/or educated families to inquire about the presence of firearms in homes where their children play/spend time).

State of Employment

There was no significant difference between the mean of the practice groups (those that reported never to all the practice questions and those that answered at least once to providing firearm education) compared to state of employment those in Indiana or Illinois (Chi Square test=.47, N=173, df=1, significance level .05).

Level of Experience in Years

There was no significant difference between the means of the practice groups (those that reported never to all the practice questions and those that answered at least once to providing firearm education) compared to the number of years of experience (N=183), those having over five years' experience (N=149) and those having five years or less experience (N=34); the two sided Fishers Exact Test determined p=.846 at an alpha .05 level, df=1.

Trauma Center

There was no significant difference between the means of the practice groups (those that reported never to all the practice questions and those that answered at least once to providing firearm education) compared to the report that they worked in a designated trauma center (Levels I, II or III) by the American College of Surgeons (Not a Trauma Center N=71; A Trauma Center N=112), (Fisher Exact Test, p=.441, df=1, alpha = .05 level).

Knowledge

There was no significant difference between the means of the practice groups (those that reported never to all the practice questions and those that answered at least once to providing firearm education) compared to the report that they attended any type of educational session on firearm injury prevention in the last two years (N=18) and did not attend an educational session on firearm injury prevention in the last two years (N=163), (Fishers Exact Test, p=.30, df=1, alpha=.05 level).

Emergency Nurses Association Position Statement

There was a significant difference between the means of the practice groups (those that reported never to all the practice questions and those that answered at least once to providing firearm education) compared to the report that they had at least heard of the Emergency Nurses Position Statement about firearm injury prevention (N=51) and those that did not know about the ENA's position statement (N=133), (Pearson chi-square .013, Fishers Exact Test N=184, p=.018, df=1, alpha=.05 level). This means that the proportion of those who do know about the ENA position statement who practice (provide firearm safety education) is significantly different than those that do not know about the ENA position statement and never practice (never provide firearm safety education).

Demographics

There were no significant differences between the means of the practice groups (those that reported never to all the practice questions and those that answered at least once to providing firearm education) compared to age, marital status, level of education,

having children living in the home, owning a firearm or growing up in a home with firearms.

Practice Attitudes: Internal and External Influences

To determine if there was a difference in ranks of practice attitudes between the two practice groups (those that reported never to all the practice questions (Median=3.16) and those that answered at least once to providing firearm education (Median=3.33), the data was not normally distributed a non-parametric test Mann-Whitney U test was used to compare the ranks. Five questions were explored as potential internal or external influences to practice. Influence scale is a 6-item, 5-point Likert scale with 1=strongly disagree to 5=strongly agree. A significant difference in ranks was found (Mann-Whitney U, p= 0.002, significance level .05). The null hypothesis is rejected.

To determine if there was a difference in ranks of the two practice groups (those that reported never to all the practice questions and those that answered at least once to providing firearm education), compared to attitudes if nurses should support community efforts to enact legislation a Mann-Whitney U test was used. Support community efforts scale is a 3-item, 5-point Likert scale with 1=strongly disagree to 5=strongly agree. The distribution of the ranks (Median never practicing group=3.0, Median=3.36 of the practicing group) of the questions in the scale indicated a significant difference (Mann-Whitney U, p=.049, significance level .05). The null hypothesis is rejected.

To determine if there was a difference in medians of the two practice groups (those that reported never to all the practice questions and those that answered at least once to providing firearm education), compared to the practice attitudes if nurses should ask about the presence of firearms, to remove firearms or safely store firearms a Mann-

Whitney U test was used. The scale is a 3-item 4-point Likert scale with 1=strongly disagree to 4=strongly agree. The distribution of the ranks of the questions in the scale indicated a significant difference (Mann-Whitney U, p=.036, significance level .05). The null hypothesis is rejected.

Personal Attitudes

To determine if there was a difference in medians of the two practice groups (those that reported never to all the practice questions and those that answered at least once to providing firearm education), compared to attitudes that guns provide protection from crime a Mann-Whitney U test was used. Guns provide protection from crime is a 5-item, 5-point Likert scale with 1=strongly disagree to 5=strongly agree (Branscomb et al., 1991). The distribution of the ranks (Median never practicing group= 2.2, Median=1.6 of the practicing group) of the questions in the scale indicated a significant difference (Mann-Whitney U, p=.049, significance level .05). The null hypothesis is rejected. This was the only scale that measures personal attitudes that showed significance.

CHAPTER FIVE

DISCUSSION

Mortality and morbidity resulting from firearms affect children and adolescents in the United States and merits attention. Over 3,000 youths (CDC, 2011) under the age of nineteen are either injured or killed unintentionally by firearms each year. Emergency nurses are members of the multidisciplinary team whose profession advocates for the development of injury prevention strategies to prevent firearm injury. The Emergency Nurses Association (ENA) encourages emergency nurses and trauma nurses to educate individuals and communities about firearm safety (ENA, 2004). They also endorse legislation and safety measures that promote firearm safe storage practices (ENA, 2004). Nursing are the largest group of health care providers and are in the unique position to institute change. The current role of the emergency nurse in firearm injury prevention has yet to be clearly defined. This research is one of the first studies to examine the emergency nurse's self-reported knowledge, attitudes and practice patterns concerning firearm injury prevention education for patients, families and communities

Characteristics of Respondents

The majority of respondents were educated at the baccalaureate degree level or higher (81.9%), which is higher than US Department of Health and Human Services, Bureau of Health Professional (2010) most recent report of the registered nurse population reporting emergency/trauma care as their overall primary specialty at 55% of

nurses with a BSN on higher. The responding nurses were older (31.6% under 40 years) than the Registered Nurse Population report of 54% under 40 years. In addition, there were more male (15.7%) respondents compared to 9.6% national average report (HRSA, 2010). This difference may be attributed to the snowball sampling technique where like nurses were more apt to send the request to nurses with similar characteristics.

Knowledge

Only nine (4.8%) of the nurse respondents indicated that they had any firearm injury prevention education in the last two years. This was less than the 13.1% of pediatricians that answered the same question and responded they too did not have any firearm injury prevention education in the last two years (American Academy of Pediatrics, 2000). In addition, most of the nurses who responded (N=121; 64.3%) said they had not received adequate education concerning firearm injury prevention practices. However, only half of the respondents (N=95; 51.1%) indicated that they would be comfortable providing firearm injury prevention to patients and families, even if they had no formal education themselves. This suggests that nurses may not think providing firearm injury education requires any training or skill. It is possible that if nurses had adequate education about firearm injury prevention they may be even more willing to provide firearm injury education to families that need it. This is an important message to schools of nursing, emergency department educators and organizations that provide continuing education to emergency nurses.

The emergency nurses were aware of some firearm prevention programs or programs that provide trigger locks (see Figure 8). Awareness of programs could be an incentive for nurses to provide information to educate families on where to get

information about firearm safety. The nurses were most aware of firearm exchange programs or programs that provide trigger locks. Safe storage practices have the potential to reduce unintentional shootings, suicide by firearm and criminal access to firearms (Miller, Azerael & Hemenway, 2002). These types of programs are relatively well accepted by the public and could be promoted by emergency nurses. In addition, these programs provide a safety message to the public that would be consistent with eliminating firearms in the homes of those that do not want firearms or safely storing them in a locked cabinet or with a trigger lock. However no data is available in the literature that examines the efficacy of the programs.

Practice Characteristics

The majority of responding emergency nurses never discussed firearm ownership (N=135, 72.2%) or safe storage practices, or never recommend unloading and safely storing firearms (N=139, 73.9%), with patients or families. In comparison, Slovack and colleagues (2010) reported 34% (N=697) of social workers assessed for firearm ownership, while only 15.3% provided firearm safety education. In 2000, the American Academy of Pediatric Fellows survey found 15.2% of pediatricians always and 53.6% sometimes identify families with firearms in the home while 31.2% never do (AAP, 2000). Solomon and colleagues (2002) reported that 50% (N=322) of pediatric residents routinely counseled patient on firearm safety and more than 20% never counseled patients. Even with suicidal patient one study (Betz, Babber & Miller, 2009) that surveyed emergency department staff (N=146) including physicians, psychiatrists and nurses (N=54, 34%), found that only 46% of emergency providers asked suicidal patients about access to firearms.

Most of the departments where nurses work do not require the nurse to provide firearm injury prevention education. When asked who usually discusses firearm safety with patients or families in their emergency department most of the respondents indicated "no one" (M=161, 86.6%). Almost half of the respondents agreed or strongly agreed (N=90; 47%) that anticipatory firearm safety education provided by emergency nurses will help reduce the risk of injury or death to children or adolescents; in contrast, 26.6% strongly disagree or disagree with the statement. This is an important finding; no one is currently providing firearm injury prevention education yet almost half of nurses believe they can reduce injuries by educating patients and families. The stage may be set to provide the tools to emergency nurses to begin to provide this valuable intervention.

Practice

Consistent with pediatricians (92%) (AAP, 2000; Solomon et al., 2002) that viewed violence prevention as an important issue to their discipline, most emergency nurse respondents (N=145; 77%) viewed violence prevention as an issue important to emergency nurses. When asked if emergency nurses should support efforts to enact legislation to restrict (agreeing N=83; 44.4% and disagreeing N=74; 39.6%) or ban firearms (agree N=47; 25.3%; disagree N=74; 39.6%) their beliefs were polarized. However, many respondents strongly agreed that emergency nurses should support efforts to enact legislation that holds gun owners responsible for child and adolescents use of guns (N=132; 70.6%). In comparison, a large majority of pediatricians (AAP, 2000), believe legal steps to reduce firearms (84%) will reduce the risk of injury, support legislation that makes firearm owners responsible (91.7%) for child and adolescent use of firearms and less believe firearms (64.8%) should be banned.

Consistent with their beliefs about legislation the emergency nurses were equally willing to ask families to remove firearms from the home (N=151; 81.1%) and to unload and lock them away (N=148; 80.6%). These beliefs indicate that emergency nurses may be willing to provide firearm injury prevention education that emphasizes the firearm owners' responsibility to keeping firearm safely stored and away from children. The findings can be compared to pediatricians (AAP, 2000), of whom 95% believe that it is important to ask parents to unload and lock away firearms.

Patterns of response to six of the professional attitude questions were analyzed according to age, gender, level of education, state of employment, practice in a trauma center and gun ownership. Nurses from Illinois scored the highest (most favorable) in professional attitudes toward the emergency nurse taking steps toward gun control legislation, providing anticipatory guidance toward firearm safety, identifying firearm violence as a priority and firearm violence an issue for emergency nurses. This factor was strongest when compared to nurses that practice in Indiana. This finding may be related to political differences associated to the two states, with Indiana known to be politically conservative and Illinois, especially northern Illinois, to be more liberal.

In addition, nurses with a higher degree of education (BSN or above) scored highest (most favorable) in professional attitudes toward the emergency nurse taking steps toward gun control legislation, providing anticipatory guidance toward firearm safety, identifying firearm violence as a priority and firearm violence an issue for emergency nurses. This is an interesting finding for nursing education. BSN and higher nursing education programs often focus on community/populations, health promotion and disease prevention, as well as critical thinking and the role of the nurse to promote

positive change. The ANA Social Policy Statement has identifies advocacy as roles of the professional nurse. Differences in attitudes may be due to the difference in philosophy of Associate degree or Diploma education or lack of time to address these issues in a shortened program of education. Differences may also be related to whether or not respondents are college educated, as participation in civic life in the U.S. is related to level of education, with more highly educated individuals more likely to vote (OECD-ilibrary, 2011).

Female nurses scored highest (most favorable) in professional attitudes toward the emergency nurse taking steps toward gun control legislation, providing anticipatory guidance toward firearm safety, identifying firearm violence as a priority and firearm violence an issue for emergency nurses. This finding is not surprising since males have traditionally had a greater support of firearms use (Branscombe et al., 1991; Cooke, 2004). As expected, nurses that owned guns or grew up in a home with a gun were less likely to be in favor of the emergency nurse taking steps toward gun control legislation, providing anticipatory guidance toward firearm safety, identifying firearm violence as a priority and firearm violence an issue for emergency nurses. Given that the mid western states have large farming and hunting communities, nurses may be more apt to participate in these activities or know someone who does, own firearms or grow up in a home with firearms. They therefore might have less support for changes in legislation controlling firearm ownership or believe that firearm violence is a problem or priority for emergency nurses.

Attitudes

The respondents' attitudes are not uniform in their personal beliefs about firearms. Like many Americans (Branscombe et al., 1991; Cooke, 2002; Gallup, 2002; Gallup, 2005) the majority of nurses indicated affirmation for the concept that it is an individual's right to own a firearm. This finding coincides with the nurses' response to their beliefs about practice. They seem to be willing to instruct patients and families to secure their firearm safely as well as to remove firearms from the home, thereby protecting individual rights to own firearms.

Nurses who owned firearms or grew up with firearms scored higher (more favorably) on the scale that measures belief that a firearm protects people from crime. Some of the respondents did not think that owning a firearm protects a person from crime. The respondents were evenly divided in their beliefs on whether owning a firearm stimulates crime. It is clear that personal beliefs about firearms could potentially influence the nurses' beliefs about their role in providing firearm prevention education.

Nurses employed in the state of Indiana scored higher (more favorably) on the scale that measured an individual's right to own a firearm when compared to the nurses employed in Illinois. This finding may be related to the politically conservative views of the people from Indiana. This scale specifically measures beliefs about freedom, independence, and the right to bear arms and other political beliefs usually associated with the conservative views. In addition males had a stronger belief that an individual has a right to own a firearm. Again, this may be due to males having more association with firearms in sport. Firearm ownership and growing up with a firearm was also associated with a higher score on the scale that measured the individual's right to own a firearm.

Clearly, the state of practice, firearm ownership and growing up with a firearm in the home are the strongest factors affecting nurses personal attitudes toward firearms especially those that measure the belief that it is an individual's right to own a firearm and the firearm protects from crime.

Nurses employed in the state of Illinois scored lower on the scale that measures the belief that firearm stimulate crime when compared to the state of Indiana. In addition, non-firearm owners and those that did not grow up in a home with firearms scored higher on the belief that owning a firearm stimulates crime. This scale measures concepts of firearm availability causing murders or suicide. In the achieved sample, nurses from Illinois and non-gun owners were more likely to believe that the availability of a firearm stimulates crime.

Interestingly, two other factors were significant when measuring the belief that firearm stimulate crime these included the level of education and if they worked in a designated trauma center. Nurses with a higher education level at or above the BSN level and those that work in a designated trauma center had lower scores on the scale that measures the belief that firearms stimulate crime than nurses at an associate degree or diploma level or those that did not work in a designated trauma center. The study did not explore if nurses with higher levels of education were more likely to work in Trauma centers so it is unknown if these are independent or related factors.

Firearm Ownership

Unlike the survey of pediatricians where only 13.2% (AAP, 2000) indicated they owned firearms, 38.6 % of the nurses responded yes to owning a firearm. However, this finding is consistent with national trends, The General Social Survey (2006), a biannual

national survey that studies trends in the United States, reports 34% of respondents having a gun in their home. While the Gun Stock Survey (Hepburn et al, 2007) had similar results of 38% of households owning at least one firearm. However, Hepburn (2007) and Coyne-Beasley and colleagues (2005) reported that women report lower levels of household firearm ownership than men. Respondents from this study mostly women reported firearm ownership at 38.6%. However, they represented only four states and were not randomly selected, so it is not possible to make valid comparisons with national data.

Barriers

Five groups of variables were identified as having significant influence between the group of emergency nurses that never provide firearm injury prevention education and the group of emergency nurses providing firearm injury prevention education at least once. The strongest of these findings was related to internal and external influences. It appeared that the greatest influence was that the nurses did not feel they had adequate professional education to provide firearm injury education and that they did not have sufficient time to provide firearm injury prevention education. However, many responded they were comfortable giving firearm injury prevention education. Lack of time and inadequate education barriers were similar to those found by the studies with pediatricians (AAP, 2000; Finch et al., 2008) and social workers (Slovack et al., 2010). The degree of difference between the means has both statistical and clinical relevance. It seems that if the nurses are provided adequate education they would feel comfortable giving a clear, concise, non-time consuming message to safely store firearms to patients and families that need the information.

Implications of the Findings

Implications to Theory

The Haddon Matrix (1997) was used as a framework for the study. Haddon recommended 10 countermeasures to consider when developing injury prevention strategies that would best suit the situation. Of the countermeasures, removing the hazard is the most likely to be a successful strategy to decrease the injury (Haddon, 1997). However, personal attitudes toward firearms, especially that firearm ownership is a right, may prevent nurses from providing this message. If nurses are to be champions of social change, the conversation may need to steer away from political views and be framed in what is best for the health and safety of children in our communities. Nurses who have views that firearms are more likely to stimulate crime; are less likely to believe firearm ownership is a right, practice in a liberal state and are educated at least at the BSN level are more likely to want to provide this message.

An education strategy where nurses provide firearm prevention messages requires the educator to provide the information and the learner to perform a course of action to attain the required level of safety. The nurses in this study believed they were comfortable in providing firearm safety education, even though they did not think they had adequate education about the firearm injury prevention education and, for the most part, rarely or never provided firearm injury prevention education. Bandura (1997) emphasizes that with an increased level of knowledge the more likely the learner will perform a course of action. Therefore, if the emergency nurse is provided more information about firearm injury prevention, and provided protocols that require teaching,

the more likely they should be able to provide the information to patients and families. Further research is needed to see if this is the case.

Of course other variables may interfere with the emergency nurse providing firearm injury prevention education. Social marketing theory (Koller & Zaltman, 2008) warns that although level of knowledge is a factor, other internal and external variables may prevent or encourage the emergency nurse in providing the firearm injury prevention education. The variables that were identified in this study include insufficient time to discuss firearm injury prevention in an emergency department visit, a clear belief that firearm ownership is an individual's right, and that firearm owners are responsible for children and adolescents handling of firearms. Therefore, it is recommended that emergency nurses are educated with a clear, concise message to inform patients to remove a firearm or safely store firearms away from children and adolescents. A safety message that is consistent with their beliefs and attitudes toward firearms injury prevention practices will be more likely to be accepted and implemented into practice.

Implications to Practice

Emergency nurses can incorporate firearm injury prevention education into practice if they are provided with the tools and professional support. Messages about removal and safe storage practices are consistent with the attitudes of many emergency nurses. More research is needed to determine "best practice." Some messages could be perceived as "anti- gun" or "violating rights;" however, asking professional to go beyond their comfort level and actively advocate for evidence toward measures that would actually reduce firearm related morbidity and mortality are also within the scope of professional nursing practice (ANA, 2006). In addition, some could argue that

professional nurses should be leaders in promoting effective public policy which promotes health other than be timid followers who only support less effective measures in order to avoid controversy.

Implications to Education

The findings suggest that emergency nurses do not feel that they received adequate education to provide firearm injury education. This is important for schools of nursing, educators in the emergency department and organizations that provide ongoing education to emergency nurses. All nurses should be educated about evidenced-based injury prevention practices to reduce the risks including those related to firearm injury.

Limitations of the Study

The study had several limitations. The recruitment strategy to gain participants was limited to snowball sampling techniques rather than access of a nationally representative sampling frame. Many potential participants may have been kept from responding to the survey by healthcare organizations that did not facilitate access to potential participants. It is important for leaders in healthcare organizations to allow researchers to have access to professionals that could participate in such important research endeavors in order to advance the quality and safety of the populations they serve. In addition, the overwhelming majority of the respondents practiced in only two of the 50 states.

Survey methods have many threats to internal validity. Subjects may have inaccurate recall, lack of knowledge of the topic and/or the possibility of providing a socially acceptable, but not true, response. The tools used had never been used in the nursing population prior to this study. The AAP tool (2004) has only been administered

to pediatricians and the AGTS (Branscombe et al., 1991) has only employed with college age students. The four point rating scale used in the scale that measured attitudes toward firearms and crime created a forced choice rating scale and could bias results by eliminating the undecided or those without an opinion. The initial plan for statistical analysis was to use parametric techniques. However, the groups were not normally distributed with regard to the variables considered most important, so non-parametric techniques were used.

The survey was designed to touch on many constructs but did not examine any one construct in depth. The questionnaire may have not been specific enough to determine what would entice the emergency nurse into providing firearm injury prevention education. In addition, those that chose to participate may have had specific views that compelled them to participate while those that stopped answering questions (and were eliminated from the study) may have had particular attitudes toward firearms, which may have influenced the results. However there was wide variation in attitudes and beliefs conveyed by those who chose to participate.

Strengths of the Study

Despite these limitations, study provided insights into the practices, attitudes and perceived knowledge toward firearm prevention education among emergency nurses from Illinois, Indiana, Michigan and Ohio. It provided evidence that most of the emergency nurses that responded to the survey believe that violence is a problem in their community; that as an emergency nurse they comfortable providing firearm injury prevention education and that doing so can help decrease the risk of firearm injury. However, few actually provided any firearm education. Factors of gun ownership,

growing up with firearms and state of employment were found to be the strongest predictive factors associated with selected variables in stepwise regression ANOVA analysis. In addition, the effects of educational level and working in a designated trauma center needs to be investigated further. The current study suggests that most educated nurses would be the ones to institute change in their organizations. Identifying nurses that will support firearm injury prevention education for patients in the emergency department is an important step to initiating changes in practice.

Directions for Further Study

Further research is needed to examine what nurses are currently taught about public policy, the role of professions in relevant public health, injury prevention, including firearm injury prevention. Efforts on how to educate emergency nurses about firearm injury prevention, specifically removal of a firearm and safe storage practices, need to be studied. Educating nurses on providing evidence-based brief counseling on firearm removal and safety storage practices, along with written computer generated information may result in increased firearm safety behaviors in the home. This suggestion needs further exploration. Future research should include the factors of gun ownership, growing up with firearms and state of employment as these where the strongest predictive factors associated with self reported attitudes, beliefs and behaviors. In addition, nurses' educational level and working in a designated trauma center may provide an avenue to begin changing attitudes and emergency nurses' practice.

As Haddon suggests a multidisciplinary approach to firearm injury prevention is the best response. Emergency nurses interact with a large number of patients every day. If a short concise message to remove or safely store firearms could be developed, and

shown to be effective, emergency nursing can help and play an active role in reducing the risk of firearm injury in communities.

Emergency nurses are well positioned to take a leadership role briefly educating patients and families in emergency departments about firearm injury prevention; emergency nurses can fill this gap and do something meaningful in practice. Firearm injuries during childhood are largely preventable and nurses are obligated as educated health professionals to use their knowledge and skills to promote the health or their patients and communities.

APPENDIX A

HADDON MATRIX

FACTOR/ PHASE	Host (youth & parents)	Agent/vehicle (firearm)	Physical environment (home)	Social environment (legislation, policy, procedures, rules)
Pre-event (before access)				
Event (at access)				
Post-event (after injury)				

APPENDIX B

HADDON MATRIX FIREARMS

FACTOR/ PHASE	**Host (youth & parents)**	**Agent/vehicle (firearm)**	**Physical environment (home)**	**Social environment (legislation, policy, procedures, rules)**
Pre-event (before access)	Educate youth about the danger of firearms. Educate parents about preventing youth access. Educate parents and youth about the consequences of firearm injury. Public service announcements. Identify those at risk. Provide brief injury prevention counseling. Provide first aid skill training. Provide emergency action and 911 training.	Prevent the manufacture of firearms. Modify firearms so they can only be operated by owners. Utilize safety trigger locks. Establish design standards for firearms.	Eliminate firearms in the home. Eliminate access to firearms through safe storage practices. Provide safe home assessments. Provide brief injury prevention counseling.	*Establish*, *vote for*, and enforce laws about youth access to firearms including ownership and transfer. Model a social environment where it is unacceptable to allow anyone under the age of 18 to handle a firearm. Create strict family rules about access to firearms.
Event (at access)	Assure adult supervision of youth when a firearm is present. Take cover Take charge Activate 911	Design firearms that will not fire multiple rounds. Design less destructive bullets.	Activate 911 when a firearm is used as a threat.	Prohibit firearm carrying at school campuses, parks, and places frequented by youth. Enforce restrictions on the transfer of firearms to minors.

Post-event (after injury)	Provide first aid Activate 911	Reduce the capacity of a firearm to continue to fire.	Have phones available to activate 911.	Establish sound EMS and trauma systems. Identify and provide best practices for emergency, restorative and rehabilitative care. Provide post event counseling.

APPENDIX C

FIREARM INJURY PROGRAMS

Title	Cost	Teacher Preparation	Safety slogan	Interventions	Mascot	Cultural Diversity	Grade level
Eddie Eagle Gunsafe® Program	$5/25-workbook, $2.50-Teacher guide, Grants available	Anyone-teacher guide book	Stop, Don't touch, Leave the area, tell an adult	Role play, Brochure, Workbook, VHS/DVD, Reward sticker, Newsletter	Eddie Eagle ($2650 costume only sold to law enforcement), Can get on loan	English Spanish	PreK-3rd grade
Stop 2	1st kit free, $10 for shipping additional	Guide for health care providers or "anyone that has the opportunity to talk to kids about safety"	If you must own a gun store it safely	Family Brochure, Counseling tool for health care providers, Risk test, Poster, Childs' interactive webgames	Clarence's Adventure, A Day in the Neighborhood (unable to access)	English Spanish	Parent info for toddlers, children, preteens, adults and seniors.
ASK	Unavailable	Parents, community groups, media, individual assistance	ASK if there is a gun before sending your child over to play.	ASK day (1st day of summer). Public service announcements Campaign Powerpoint presentation, brochure, stickers and t-shirts, letter to the editor	Sonia's story	English Spanish	Parents
Speak UP	Unavailable	Student guide, individual assistance	Speak up to report a weapon threat at school.	Call 1-866-SPEAK-UP, National Safe Schools Week 3rd week of October, posters, key chains, wallet cards, and brochures, radio and media announcements.	None	English	School children

APPENDIX D

FIREARM LAWS THAT DIFFER FROM FEDERAL LAWS BY STATE

State	Minimum age laws to purchase from a licensed dealer	Minimum Age Laws to purchase from unlicensed dealer	Minimum age to possess	CAP	Design Safety Laws	Locking Device Laws
Federal Law	18 (long gun) 21 (hand gun)	None (long gun) 18 (hand gun)	None (long Gun) 18 (hand gun)	None	Exempt	Required with sale from licensed dealers
Alabama						
Alaska		18 (long gun)	16 (long gun)			
Arizona		18 (long gun)				
Arkansas		18 (long gun)				
California		18 (long gun) 21 (hand gun)		Yes	Yes	Required with manufacture Required with transfer
Colorado				Yes		
Connecticut			21 (hand gun)	Yes		Required with manufacture
Delaware		18 (long gun) 21 (hand gun)		Yes		
District of Columbia	21 (long gun)	21 (long gun) 21 (hand gun)	21 (long gun) 21 (hand gun)	Yes		Required with manufacture Stored with locking device
Florida		18 (long gun)	18 (long gun)	Yes		
Georgia				Yes		
Hawaii	21 (long gun)	21 (long gun) 21 (hand gun)	18 (long gun) 21 (hand gun)	Yes	Yes	
Idaho		18 (long gun)	18 (long gun)			
Illinois	21 (long gun)	21 (long gun) 21 (hand	21 (long gun) 21 (hand gun)	Yes	Yes	Required with manufacture

		gun)				
Indiana			18 (long gun)	Yes		
Iowa		18 (long gun) 21 (hand gun)	18 (long gun) 21 (hand gun)	Yes		
Kansas						
Kentucky				Yes		
Louisiana		18 (long gun)				
Maine		16 (long gun)				
Maryland		18 (long gun) 21 (hand gun)	21 (hand gun)	Yes	Yes	Required with manufacture
Massachusetts	21 (large capacity long gun)	18 (long gun) 21 (hand gun)	21 (hand gun)	Yes	Yes	Required with manufacture Required with transfer Stored with locking device
Michigan			18 (long gun)			Required with manufacture Required with transfer
Minnesota			16 (long gun) 14 (with safety certificate)	Yes	Yes	
Mississippi		18 (long gun)		Yes		
Missouri		18 (long gun)		Yes		
Montana			14 (long gun)			
Nebraska						
Nevada			18 (long gun)	Yes		
New Hampshire				Yes		

New Jersey		21 (hand gun)	18 (long gun) 21 (hand gun)	Yes		Required with manufacture
New Mexico			16 (long gun) 19 (hand gun)	No		
New York			21 (hand gun)		Yes	Required with manufacture Required with transfer
North Carolina				Yes		
North Dakota						
Ohio		18 (long gun) 21 (hand gun)				Required with manufacture
Oklahoma		18 (long gun)	18 (long gun)	Yes		
Oregon		18 (long gun)				
Pennsylvania		18 (long gun)	18 (specific long gun)			Required with manufacture
Rhode Island		18 (long gun) 21 (hand gun)	18 (long gun)	Yes		Required with manufacture
South Carolina	21 (hand gun)	21 (hand gun)	21 (hand gun)		Yes	
South Dakota						
Tennessee				Yes		
Texas		18 (long gun)		Yes		
Utah			18 (long gun)	Yes		
Vermont		16 (long gun)				
Virginia				Yes		
Washington			18 (long gun)			

West Virginia						
Wisconsin		18 (long gun)	18 (long gun)	Yes		
Wyoming						

APPENDIX E

SURVEY REQUEST

Date

Dear Nurse Colleague,

I am writing to ask your help in a study of emergency nurses being conducted in the states of Illinois, Indiana, and Ohio. This study is to describe the emergency nurses' knowledge and attitudes toward firearms and relationship with firearm injury prevention practices for children. If you are an emergency nurse currently working in an emergency department I ask that you complete the survey found at the end of this request and share this email with other emergency nurses so they too can choose to participate. If you are not an emergency nurse I ask that you forward this request to emergency nurses in your facility, to provide them the opportunity to participate.

I am attempting to contact emergency nurses with valid emails in these states to ask them about firearms, firearm injury and firearm injury prevention practices. Results from the survey will be used to help us understand the role of the emergency nurse in firearm injury prevention practices and make our communities a safer place to live. By understanding what emergency nurses do we can develop better programs and policies concerning firearm injury prevention practices.

Your answers are completely confidential and will be released only as summaries in which no individual's answers can be identified. You will complete the survey through a survey company, Survey Monkey, and your answers can not be traced back to you. The survey is completely voluntary. However, you can help us very much by taking time to share your experiences and opinions about this important subject.

If you have any questions or comments about this study I would be happy to reply. You can contact me at dgomez@marian.edu or you can write to Dorothy Gomez RN, MSN, Marian University, 3200 Cold Spring Road, Indianapolis, IN, 46220. The study is part of the degree requirement for a PhD in Nursing at Loyola University, Chicago.

Thank you very much for helping with this important study.

Please access the survey now (link).

Sincerely,

Dorothy Gomez, RN, MSN
PhD Student
Loyola University, Chicago, IL
Associate Professor of Nursing
Marian University, Indianapolis, IN

APPENDIX F

AAP SURVEY

American Academy of Pediatrics
DEDICATED TO THE HEALTH OF ALL CHILDREN™

PERIODIC SURVEY OF FELLOWS

#73

This survey asks about your experiences and opinions regarding firearm safety.

Please answer the questions by circling the number of the appropriate response or by filling in the blanks.

1. **During a typical complete workweek, how many hours per week do you spend in the following professional activities?** *If you do not spend any time in a particular activity, please indicate this by entering zero (0) hours in the appropriate space.*

Activity:	Hours:
Direct patient care	_____
Administration	_____
Academic medicine	_____
Research	_____
Fellowship training	_____
TOTAL HOURS/WEEK	_____

1.a. Are you currently in a pediatric residency training program? Yes. ..... 1 No.....2

The following questions are for pediatricians who provide some DIRECT PATIENT CARE.

If you do NOT provide direct patient care, please check this ☐ box and go to Q#18.

2. When providing health supervision, how frequently do you or your staff:
Circle one response for each item.

	Always	Sometimes	Never
Identify families who have firearms in the home	1	2	3
Recommend to families who have handguns their removal from the home	1	2	3
Recommend to families who have firearms the unloading and locking away of guns	1	2	3
Counsel families to inquire about the presence of guns in homes where their children play/spend time	1	2	3

3a. When you or your staff screen patients for firearms in the home, how frequently do you use:
Circle one response for item

If you do not identify families with firearms in the home, check here ☐ *and go to Q3b*

	Always	Sometimes	Never
A paper questionnaire or checklist	1	2	3
A computerized questionnaire or checklist	1	2	3
Verbal inquiry (without questionnaire or checklist)	1	2	3

3b. Who <u>usually</u> discusses firearm safety with patients/families? *Circle one response*

If you do not discuss firearm safety, check here ☐ *and go to Q3c*

Self 1
Nurse practitioners/physician assistants 2
Other nursing staff 3
Other staff (health educator, etc) 4

3c. Do you or your staff distribute or make available written materials on firearm safety?

Yes .....1 →
No 2

3d. How are they distributed/made available? *Circle All that apply*

Available to all patients in waiting room 1
Given to *all/most* patients identified as having firearms in the home 2
Given to only s*ome* patients identified as having firearms in the home 3

4. There are several programs available to help address firearm injury prevention for children.

(A) Please indicate your awareness of the following, and if you are aware,
(B) Please indicate whether you use this program (or materials) in your practice <u>to address firearm injury prevention (IP)</u>.

	(A) Aware of Program?			(B) Use for Firearm IP?	
Asking Saves Kids (ASK) campaign	No	Yes	→	No	Yes
Gun safety programs for children (eg, Eddie Eagle)	No	Yes	→	No	Yes
Provide gunlocks or vouchers/discount coupons for gunlocks	No	Yes	→	No	Yes
TIPP (TIPP® - The Injury Prevention Program)	No	Yes	→	No	Yes
Connected Kids: Safe, Strong Secure	No	Yes	→	No	Yes
Bright Futures guidelines	No	Yes	→	No	Yes

5. When providing health supervision to an adolescent identified as depressed, or to a patient in a family where intimate partner violence is identified, how frequently do you or your staff recommend gun removal from the home?

	Always	Sometimes	Never
Adolescent with depression	1	2	3
Patient in home with intimate partner violence	2	2	3

6. In the past 12 months, have you treated (or consulted on) children with injuries caused by guns?

Yes..... 1

No..... 2 →

6a. Have you <u>ever</u> treated (or consulted on) children with injuries caused by guns?

Yes..... 1 → In what year was the <u>last gun injury</u> you have treated (or consulted on)?

7. In the past 12 months, how many cases of injuries or deaths caused by the following types of guns have you treated or consulted on?

Please indicate the number of cases of injuries or death caused by each type of gun in each age group. If you have seen no cases caused by that particular type of gun in a specific age group, please indicate "0".

AGE GROUP

TYPE OF GUN	0-4 Years	5-9 Years	10-12 Years	13+ Years
Handguns				
Long guns				
B-B gun or other air gun				
Type of gun unknown				

8. Approximately what proportion of the above reported gun-related injuries or deaths seen during the past 12 months are in the following categories?

Unintentional..... _____%

Assault/Homicide/Legal intervention ..... _____%

Intentionally self-inflicted/suicide..... _____%

Unknown or unclear ..... _____%

100%

9. How would you rate the level of severity of the gun related injuries you have seen during the past 12 months? *For each category listed, please enter a % of all injuries or "0" if none?*

Treated in office or ER and sent home..... _____%

Hospitalized – inpatient unit..... _____%

Hospitalized – ICU ..... _____%

Death..... _____%

100%

10. Please indicate how strongly you agree or disagree with <u>each</u> of the following statements:

	Strongly Agree	Somewhat Agree	Neutral	Somewhat Disagree	Strongly Disagree
Pediatricians should support community efforts to enact legislation:					
Restricting possession or sale of handguns	1	2	3	4	5
Banning the sale and possession of handguns	1	2	3	4	5
Holding gun owners responsible for child and adolescent use of guns	1	2	3	4	5
Pediatricians should ask:					
All families about the presence of firearms, specifically handguns, in the home	1	2	3	4	5
Parents who have handguns to remove them from their home	1	2	3	4	5
Parents who have firearms to unload and lock them away	1	2	3	4	5
Gun control legislation/regulations will help to reduce risks of injury or death to children and adolescents	1	2	3	4	5
Violence prevention should be a priority issue for pediatricians	1	2	3	4	5
Anticipatory guidance on firearm safety provided by pediatricians will help to reduce risk of injury or death to children and adolescents	1	2	3	4	5

11. Do you own any of the following types of guns? *Please circle ALL that apply:*

Handgun 1
Long gun 2
Air gun 3
None of the above 4

12. Please indicate how strongly you agree or disagree with <u>each</u> of the following statements:

	Strongly Agree	Somewhat Agree	Neutral	Somewhat Disagree	Strongly Disagree
Gun violence is a problem in the community where my practice is located	1	2	3	4	5
I am confident in my ability to manage patients with injuries caused by guns	1	2	3	4	5
I am comfortable discussing firearm safety with parents of my patients	1	2	3	4	5
I feel I have received adequate professional training in the area of firearm safety	1	2	3	4	5
There is sufficient time in health maintenance visits to address firearm safety issues	1	2	3	4	5
Parents resent the intrusion of being asked about firearms in the home	1	2	3	4	5

13. During the past two years, have you: *Circle ALL that apply*

Attended any firearm injury prevention educational training sessions.....1
Attended any firearm injury prevention counseling CME courses 2
Helped organize or been a presenter at any educational sessions on firearm injury prevention given to:
health care providers 3
parents or the general public.....4
None of the above 5

Practice/Personal Characteristics

Patient Information:

14. What is your best estimate of the percentage of patients in your main practice in the following age groups?
If you do not have any patients in a particular age category, please place a zero (0) in that space.

Birth to 12 months....._____%

1 to 4 years ....._____%

5 to 12 years ....._____%

13 years and older ....._____%

100 %

15. Approximately what percentage of your patients are covered by the following insurance sources and systems? *Please enter a number or "0" if none; percentages should sum to 100%*

Private insurance, traditional fee-for-service ....._____%

Private insurance, managed care (HMO, IPA, PPO, POS, etc)....._____%

Public insurance (Medicaid, SCHIP or other), fee-for-service....._____%

Public insurance (Medicaid, SCHIP or other), managed care....._____%

TRICARE (military insurance)....._____%

Uninsured....._____%

100 %

☐ Don't know patients' insurance sources

16. What proportion of your patients would you estimate to be in the following ethnic or cultural groups? *Please enter a number or "0" if none; percentages should sum to 100%*

African American ....._____%

Asian/Pacific Islander..... _____%

Native American/Alaskan Native..... _____%

Hispanic ..... _____%

White, non-Hispanic ..... _____%

Other (specify)_____ ..... _____%

100 %

Practice Information:

17. During your last complete week of work, about how many hours did you personally spend in each of the following patient care activities?

If you did not spend time in an activity, please indicate this by entering zero (0) on the appropriate line.

Hours:

In the office or other ambulatory care setting seeing patients..... _____

In the emergency room ..... _____

In the operating or delivery room ..... _____

In the hospital making rounds or in other hospital activities ..... _____

Talking with patients or consulting over the telephone..... _____

Email or Web-based communication with patients/families ..... _____

Record keeping and other office work ..... _____

Other patient care activities (specify)..... _____

_____

Total hours (last complete week of work) in patient care: ..... _____

18. Do you provide direct patient care in an office- or clinic-based ambulatory care setting?

Circle one response

Yes..... 1

No..... 2 → **If you do not provide patient care in an ambulatory care setting, please Go to Q# 21**

19. Which of the following best describes how visit scheduling is done in your office (if more than one setting, please respond for the office where you spend the most time)? *Circle One response*

Patients will see different clinicians, depending on availability.....1

Patients view me as their provider and I will often see them, but they will frequently see other clinicians as well, depending on availability.....2

Patients view me as their provider and I will always or nearly always see them 3

20. Do you and/or others in your practice offer the following office services on a regular basis?

For each service, circle ALL that apply

	I offer this service	I offer, but for sick care only	Others in my practice offer this service	Others in my practice offer, but for sick care only	No one in my practice offers this service
Early morning hours (before 8 a.m.)	1	2	3	4	5
Evening hours (after 6 p.m.) only one night per week	1	2	3	4	5
Evening hours (after 6 p.m.) more than one night per week	1	2	3	4	5
Weekend hours (1/2 day only)	1	2	3	4	5
Weekend hours (full day, or more)	1	2	3	4	5
Walk-in clinic hours (ie, no appointments)	1	2	3	4	5
House calls	1	2	3	4	5
Specific phone hours for nonurgent questions	1	2	3	4	5
24-hour emergency phone # where you or a back-up pediatrician can be reached	1	2	3	4	5
Range of payment options for services	1	2	3	4	5

21. Approximately what percentage of your time is spent in the following areas?

General Pediatrics..... _____%

Other specialty/ subspecialty area (specify - please print)..... _____%

100 %

_____

22. Do you currently work part-time?

Yes..... 1

No..... 2

23. Please describe the community in which your primary practice/position is located?
Circle one response

Urban, inner city 1

Urban, not inner city..... 2

Suburban..... 3

Rural..... 4

24. Please indicate your primary employment setting, that is, the setting where you spend <u>most</u> of your time. *Please circle only **ONE** response*

Self-employed solo practice..... 01

Two physician practice..... 02

Pediatric group practice:

3-5 pediatricians 03

6-10 pediatricians 04

>10 pediatricians..... 05

Multispecialty group practice *with primary and specialty care*..... 06

Multispecialty group practice *with primary care only* 07

Multispecialty group practice *with specialty care only*..... 08

Health Maintenance Organization (staff model) 09

Medical school or parent university..... 10

Non-government hospital..... 11

Non-profit community health center 12

City/county/state government hospital or clinic 13

US government hospital or clinic 14

Other _____ 98

Pediatrician Information:

25. Do you currently have children living at home in the following age groups? *Circle All that apply*

Less than 5 years of age 1

5-12 years of age 2

13-18 years of age 3

No children <19 years living at home 4

26. In what year were you born? 19_____

27. What is your sex?

Male 1

Female 2

APPENDIX G

AAP SURVEY ADAPTED FOR EMERGENCY NURSES

Modification of the American Academy of Pediatrics Survey (2011) for Emergency Nurse

Directions:

This survey asks you about you and your experiences, your knowledge and your attitudes toward firearms, firearm injury prevention and firearm injuries.

Please answer the questions by clicking in the appropriate box or by filling in the box provided.

The survey should take approximately 30 minutes.

Knowledge Questions

1. Approximately how many children 18 years and under are unintentionally injured or killed by a firearms each year in the United States?
    a. Less than 999
    b. Between 1000-1999
    c. Between 2000-2999
    d. Greater than 3000
    e. I don't know

2. There are several state laws that protect children from firearm injuries. Please indicate your knowledge of the laws in the state where you work.

	Yes	No	Don't know
1. The state where I work has a law that requires firearm owners to obtain a license.			
2. The state where I work has laws that prevent children under 18 years of age from firing or handling firearms.			
3. The state where I work has laws that require firearms to be sold with child safety locks.			
4. The state where I work has laws that hold adults accountable for keeping firearms away from children.			
5. The state where I work has laws that forbid healthcare providers from giving patient's information about firearm safety.			

3. There are several programs available to help address firearm injury prevention for children. Please indicate your awareness of the following firearm injury prevention programs.

Program	Aware	Unaware
1. Asking Saves Kids (ASK) Campaign (PAX)		
2. Eddie Eagle Firearm Safety Program (NRA)		

4. Programs that provide gunlocks		
5. Firearm Exchange Programs		
6. Stop 2 Program (Brady Campaign)		

Practice Questions

1. In which of the following states is your primary place of employment?

    a. Illinois
    b. Indiana
    c. Michigan
    d. Ohio
    e. Wisconsin

2. Please indicate the title that best fits your employment in the emergency department of your primary place of employment.

    a. Staff/bedside nurse
    b. Staff educator
    c. Advanced practice nurse
        i. Clinical Specialist
        ii. Nurse Practitioner
    d. Administrator
    e. Charge/triage nurse

3. How many years experience do you have working in emergency nursing?

    a. Less than 1 year
    b. 1-2 years
    c. 2-5 years
    d. 6-10 years
    e. 11-20 years
    f. Greater than 20 years

4. How many hours in a typical work week do you currently work in the emergency department?

    a. 0-12 hours
    b. 20-24 hours
    c. 36 hours
    d. 40 hours
    e. Greater than 40 hours

5. Please describe the community in which the emergency department of your primary employment is located?

    a. Urban
    b. Suburban
    c. Rural

6. Please indicate which of the following best describes your primary employment setting?

    a. Non government (not for profit) Community Hospital
    b. Investor Owned (For Profit) Community Hospital
    c. State and Local Government Community Hospital
    d. Federal Government Hospital
    e. Non federal Psychiatric Hospital
    f. Non federal Long Term Care Hospital
    g. Hospital unit of Institutions (Prisons, College Infirmaries)

7. Please indicate if the institution is or is not designated as a trauma center by the American College of Surgeons.

    a. Level I Trauma Center
    b. Level II Trauma Center
    c. Level III Trauma Center
    d. Level IV Trauma Center
    e. Level V trauma Center
    f. Not designated as a Trauma Center

8. Does your emergency department have a policy or procedure that requires you to provide firearm safety information to patients identified as owning or having a firearm in the home?
    a. Yes
    b. No
    c. I don't know

9. When providing patient care, how frequently do you

	Never	Rarely	Occasionally	Sometimes	Frequently	Usually	Every time
Identify families that have firearms in the home.	1	2	3	4	5	6	7
Recommend removal of firearms to families who have firearms in the home.	1	2	3	4	5	6	7
Recommend unloading and	1	2	3	4	5	6	7

locking away firearms to families who have firearms in the home.							
Educate families to inquire about the presence of firearms in homes where their children play/spend time.	1	2	3	4	5	6	7

10. a. Do you screen patients for firearms in the home?
    a. Yes
    b. No

10. b. If you screen patients for firearms in the home, how frequently do you use

	Never	Rarely	Occasionally	Sometimes	Frequently	Usually	Every time
A paper questionnaire or checklist	1	2	3	4	5	6	7
A computerized questionnaire or checklist	1	2	3	4	5	6	7
Verbal inquiry (without a questionnaire or checklist)	1	2	3	4	5	6	7

11. Who usually discusses firearm safety with patients or families in your department? (choose one)
    a. Nurse
    b. Nurse practitioner
    c. Physician
    d. Other
    e. No one (it is not discussed)

12. How often:

	Never	Rarely	Occasionally	Sometimes	Frequently	Usually	Every time
Do you or your department distribute or make available	1	2	3	4	5	6	7

materials on firearm safety?							
Are materials distributed on firearm safety by a pamphlet in the waiting room?	1	2	3	4	5	6	7
Are materials generated automatically and given to all patients identified as having a firearm in the home through a computer program?	1	2	3	4	5	6	7
Are materials generated and given to patients that have been selected as needing the information by you?	1	2	3	4	5	6	7

13. Some Emergency departments have community outreach programs designed to provide firearm injury prevention information to the public. Please indicate whether you or someone in your department has used any of these programs (or materials) to address firearm injury prevention in the last 12 months?

Program	Yes	No	I don't know
1. Asking Saves Kids (ASK) Campaign (PAX)			
2. Eddie Eagle Firearm Safety Program (NRA)			
4. Programs that provide gunlocks			
5. Firearm Exchange Programs			
6. Stop 2 Program (Brady Campaign)			
7. Other program devised by your department			
8. Other program			

14. In the past 12 months working in the emergency department, how many children have you cared for (age 0-18 years) with injuries caused by firearms?

    a. 0
    b. 1-9
    c. 10-20
    d. > 20

15. Of those injuries caused by firearms, which of the following types of firearms was the most common used? (choose one)

    a. Handguns
    b. Long guns
    c. Unknown

16. Approximately how many of the above reported firearm related injuries or deaths seen during the last 12 months are in the following categories?

    a. Unintentional _____
    b. Assault/homicide/legal intervention _____
    c. Intentionally self-inflicted/suicide _____

17. During the past two years, have you (choose all that apply)

    a. Attended any firearm injury prevention education sessions
    b. Attended any firearm injury prevention CEU course
    c. Helped organize or been a presenter at any educational sessions on firearm injury prevention given to
        i. Nurses or other healthcare providers
        ii. Children, parents or the general public
    d. None of the above

18. a. How familiar are you with the Emergency Nurses Association's position statement about firearm injury prevention?

    a. Do not know about the position statement.
    b. I have heard about this position statement.
    c. I am somewhat familiar.
    d. I am very familiar with this position statement.

18. b. If you are familiar with the ENA's Position Statement on Firearm Prevention, do you support the ENA's position statement?

a. Yes
b. No
c. I don't know

19. Please indicate how strongly you agree or disagree with each of the following statement.

	Strongly Agree	Somewhat Agree	Neutral	Somewhat Disagree	Strongly Disagree
Emergency nurses should support community efforts to enact legislation:					
Restricting possession or sale of handguns	1	2	3	4	5
Banning the sale and possession of handguns	1	2	3	4	5
Holding gun owners responsible for child and adolescent use of guns	1	2	3	4	5
Emergency nurses should ask:					
All families about the presence of firearms, specifically handguns, in the home	1	2	3	4	5
Parents who have handguns to remove them from their home	1	2	3	4	5
Parents who have firearms to unload and lock them away	1	2	3	4	5
Gun control legislation/regulations will help to reduce risks of injury or death to children and adolescents	1	2	3	4	5
Violence prevention should be a priority issue for Emergency Nurses	1	2	3	4	5
Anticipatory guidance on firearm safety provided by emergency nurses will help to reduce risk of injury or death to children and adolescents	1	2	3	4	5

20. Please indicate how strongly you agree or disagree with each of the following statement.

	Strongly Agree	Somewhat Agree	Neutral	Somewhat Disagree	Strongly Disagree
Gun violence is a problem in the community where my practice is located	1	2	3	4	5
I am confident in my ability to care for patients with injuries caused by firearms	1	2	3	4	5
I am comfortable discussing firearm safety with families and patients	1	2	3	4	5
I feel I have received adequate professional					

education in the area of firearm safety	1	2	3	4	5
There is sufficient time in emergency department visits to address firearm safety issues	1	2	3	4	5
Parents/families resent the intrusion of being asked about firearms in the home	1	2	3	4	5

Attitudes towards Firearms Questions

1. Personal Attitudes Gun Scale (Branscombe et al, 1991)
   Please indicate how strongly you agree or disagree with each of the following statement.

	Strongly Agree	Somewhat Agree	Neutral	Somewhat Disagree	Strongly Disagree
Right of the public to own guns					
People should be allowed to have handguns in their homes	1	2	3	4	5
A ban on handguns would be a violation of the US constitution	1	2	3	4	5
The right to bear arms is an important freedom for American's to retain	1	2	3	4	5
Regardless of their potential for injury, it is a person's right to choose to own a gun or not	1	2	3	4	5
People should be able to own guns because many people use them for sporting purposes	1	2	3	4	5
I should be able to get a hand gun is I want to	1	2	3	4	5
Gun ownership is a basic American value	1	2	3	4	5
Guns protect individuals from crime					
Owning a handgun decreases a person's chances of being a crime victim	1	2	3	4	5
When you have a handgun of your own, you can stop worrying about being victimized	1	2	3	4	5
Storeowners who have handguns on the premises are less likely to be robbed than those without a weapon	1	2	3	4	5
Criminals do not attack people who own guns	1	2	3	4	5

The only way you can ensure that you will not be criminally victimized is by owning a handgun yourself	1	2	3	4	5
Guns stimulate or cause crime					
Gun availability makes killing too easy	1	2	3	4	5
People commit suicide often because handguns are too readily available	1	2	3	4	5
Many murders would not take place if a handgun had not been available	1	2	3	4	5
The easy access to handguns is likely to result in an increased crime rate	1	2	3	4	5
Guns stimulate crime	1	2	3	4	5

Demographic Information Questions

1. What is your gender?

    a. Male
    b. Female

2. What is your age

    a. Between 20-29
    b. Between 30-39
    c. Between 40-49
    d. Between 50-59
    e. Between 60-69
    f. Over 70

3. What is your marital status?

    a. Married
    b. Single
    c. Divorced
    d. Widowed

4. Do you currently have children living in your household in the following age groups? (select all that apply)

    a. Less than 5 years of age
    b. 5-12 years of age
    c. 13-18 years of age
    d. No children < 19 years of age living at home

5. Please indicate your highest level of education.

    a. Diploma in Nursing
    b. Associates degree in nursing
    c. Bachelor of nursing degree
    d. Master of Science in nursing degree
    e. Master in another major
    f. Doctoral degree in nursing
    g. Doctoral degree in another major

6. Do you own any of the following types of firearms?

    a. Handgun
    b. Long gun
    c. None of the above

7. If you own a firearm, how is it usually stored?

    a. Locked in a cabinet or safe unloaded
    b. Locked in a cabinet or safe loaded
    c. Locked with a trigger safe lock
    d. Unlocked and unloaded
    e. Unlocked and loaded

8. If you have children in your home less than 19 years of age, do the children who live in your home know where the firearm is stored?

    a. Yes
    b. No
    c. I don't know

9. Did you grow up in a home with firearms?

    a. Yes, long guns only
    b. Yes, hand guns only
    c. Yes, both long guns and handguns
    d. No

APPENDIX H

PERSONAL ATTITUDES TOWARD FIREARMS

The 5 point Likert scale is imbedded in the survey (appendix B) for Emergency Nurses, question 1, under the subheading of Attitudes. The survey is a five point Likert scale asking the respondent how strongly they agree or disagree with the statements. Items from the Attitudes Towards Guns Scale (Branscombe et al, 1991; Cooke & Puddifoot, 2000).

Right of the public to own guns

People should be allowed to have handguns in their home.

A ban on handguns would be a violation of the US constitution.

The right to bear arms is an important freedom for American's to retain.

Regardless of their potential for injury, it is a person's right to choose to own a gun or not.

People should be able to own guns because many people use them for sporting purposes.

I should be able to get a handgun if I want one

Gun ownership is a basic American value

Guns protect individuals from crime

Owning a handgun decreases a person's chances of being a crime victim.

When you have a handgun of your own, you can stop worrying about being victimized.

Storeowners who have handguns on the premises are less likely to be robbed than those without a weapon.

Criminals do not attack people who own guns.

The only way you can ensure that you will not be criminally victimized is by owning a handgun yourself.

Guns stimulate or cause crime

Gun availability makes killing too easy.

People commit suicide often because handguns are too readily available.

Many murders would not take place if a handgun had not been available.

The easy access to handguns is likely to result in an increased crime rate.

Guns stimulate crime.

APPENDIX I

DATA ANALYSIS PLAN

Research Question	Survey questions	Statistical tests	Compared to Survey questions
1. a. What is the knowledge level of Emergency Nurses on firearm national incidence and impact?	Knowledge Questions 1, identified as correct or incorrect, (nominal data).	Descriptive; report percents	Based on CDC reported incidence
1.b. What is the knowledge level of Emergency Nurses on firearm legislation?	Knowledge Questions 2, (categorical data).	Descriptive; report percents	Based on state laws and the state in which the respondent works, Practice Questions 1
1. c. What is the knowledge level of Emergency Nurses on firearm prevention programs?	Knowledge Questions 3, (categorical data).	Descriptive; report percents	
1. d. What is the knowledge level of Emergency Nurses on firearm ENA position statement?	Practice Question 19, (Categorical).	Descriptive; report percents	
2.a..What is the attitude of the emergency nurse toward firearms?	Attitudes toward Firearms Questions 1; personal Attitudes Gun Scale (Branscombe et al, 1991), (ordinal data).	Descriptive; report mean, median, mode	
2 .b. What is the attitude of the emergency nurse toward firearm legislation?	Practice Question 21, (1, a, b, c) (3,a), (ordinal data).	Descriptive; report mean, median, mode	
2. c. What is the attitude of the emergency nurse toward firearm injury prevention?	Practice Questions 21, (2,a, b, c), (3, b, c) ordinal; 22 (2, 3, 4, 5, 6); (ordinal data).	Descriptive; report mean, median, mode	
3. Do emergency nurses support the ENA's position statement to reduce the dangers of firearm injury?	Practice Question 20, (categorical data).	Descriptive; report percents	

4. What is the emergency nurses' current practice of firearm injury prevention?	Practice Questions 8 (ordinal), 9 (ordinal),10 (nominal),11 (nominal), 12 (nominal), 13 (nominal), 14 (ordinal), 15 (nominal), 18 (nominal)	Descriptive; report percents, mean, median, modes	
5. a. What is the relationship between firearm knowledge and demographic and practice factors of emergency nurses?	(Dependent variable) Knowledge Question 1 (incidence) correctly identified, Knowledge Question 2 (legislation of state) correctly identified, Question 3 (knowledge of programs); Knowledge index will be determined based on number of correct responses to knowledge questions providing one dependent variable.	Multivariate multiple linear regression, stepwise, Mann Whitney U, Chi Square, Kruskal-Wallis	Demographic factors (independent variable); Demographic Question 2- age, Question 1- sex, Question 3- marital status, Question 4- children, Question 5- level of education, Question 6 &9- firearm ownership, Question 7 & 8- firearm storage practices; nominal. Practice factors; Practice Question 1- State of practice, Question 2- employment title, Question 3-years of experience, Question 4- hours of work, Question 5- type of community, Question 6- type of facility, Question 7- designated trauma center, Question 15- recent care of firearm injury, Question 16- type of firearm, Question 17- intent of injury)
5. b. What is the relationship between personal attitudes toward firearms and demographic and practice factors of emergency nurses?	Attitudes towards firearms Question 1, Personal attitudes Gun scale (Branscombe et al 1991); (Likert Scale) (dependent variable)	Multivariate multiple linear regression, stepwise, Mann Whitney U, Chi Square, Kruskal-Wallis	Demographic factors; (independent variables) Demographic Question 2- age, Question 1- sex, Question 3- marital status, Question 4- children, Question 5- level of education,

			Question 6 &9- firearm ownership, Question 7 & 8- firearm storage practices; nominal. Practice factors; Practice Question 1- State of practice, Question 2- employment title, Question 3-years of experience, Question 4- hours of work, Question 5- type of community, Question 6- type of facility, Question 7- designated trauma center, Question 15- recent care of firearm injury, Question 16- type of firearm, Question 17- intent of injury)
5. c. What is the relationship between practice attitudes toward firearm injury prevention and demographic and practice factors?	Practice question 21, Practice Question 22; (Likert Scale) (dependent variable)	Multivariate multiple linear regression, stepwise, Mann Whitney U, Chi Square, Kruskal-Wallis	Demographic factors; (independent variables) Demographic Question 2- age, Question 1- sex, Question 3- marital status, Question 4- children, Question 5- level of education, Question 6 &9- firearm ownership, Question 7 & 8- firearm storage practices; nominal. Practice factors; Practice Question 1- State of practice, Question 2- employment title, Question 3-years of experience, Question 4- hours of work, Question 5- type of community, Question

			6- type of facility, Question 7- designated trauma center, Question 15- recent care of firearm injury, Question 16- type of firearm, Question 17- intent of injury)
5. d. What is the relationship between support of the ENA's position statement and demographic and practice factors?	Practice Question 20, (Categorical). (dependent variable)	Multivariate multiple linear regression, stepwise, Mann Whitney U, Chi Square, Kruskal-Wallis	Demographic factors; (independent variable) Demographic Question 2- age, Question 1- sex, Question 3- marital status, Question 4- children, Question 5- level of education, Question 6 &9- firearm ownership, Question 7 & 8- firearm storage practices; nominal. Practice factors; Practice Question 1- State of practice, Question 2- employment title, Question 3-years of experience, Question 4- hours of work, Question 5- type of community, Question 6- type of facility, Question 7- designated trauma center, Question 15- recent care of firearm injury, Question 16- type of firearm, Question 17- intent of injury)

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