

**IMPLEMENTING A FIRST AID AND CPR/AED PROGRAM WITHIN THE  
EAU CLAIRE COUNTY SHERIFF'S OFFICE  
RESERVE CORPS DIVISION**

**by**

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**ABSTRACT**

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American Psychological Association Manual  
**(Name of Style Manual Used in this Study)**

The advancements made to medical emergency lifesaving tools have skyrocketed over the last decade. Because of these technological advancements, emergency medical responders, such as police officers, are now able to carry automated external defibrillators (AEDs) with them to an emergency medical call involving a cardiac arrest.

In years past, only medical personnel such as paramedics and emergency medical technicians (EMTs) would carry devices known as defibrillators. These devices were able to monitor a heart's rhythm. However, the operator had to know how to evaluate the

rhythms and then deliver a shock to a victim of cardiac arrest to try and restore a normal heartbeat.

Today's new AEDs, which are much smaller and much easier to operate, literally tell a user when to deliver a shock to an abnormal heartbeat. Because these modern devices are much easier and smaller than their predecessors, it only makes sense to equip police officers with AEDs so that response time to a person in cardiac arrest is limited and their chances for survival increases.

The county of Eau Claire encompasses a large geographical area. The Eau Claire County Sheriff's Office is responsible for providing law enforcement throughout the county. As part of their job, law enforcement personnel also provide limited medical attention to persons in need. The purpose of this study is to evaluate the need for a First Aid and CPR/AED program within the Eau Claire County Sheriff's Office Reserve Corps Division and then design an annual training program within the Reserve Corps if it is advantageous to implement such a program.

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## Chapter I

### Research Problem and Objectives

#### Description of the Setting/Context within which the Problem Exists

The setting of this problem exists within the Eau Claire County Sheriff's Department Reserve Corps. At present, there are 14 fully sworn deputy members within the Reserve Corps division of the Eau Claire County Sheriff's Department. The Reserve Corps is a separate but equally important division within the Sheriff's Department. The Reserve Corps is responsible for carrying out all duties assigned under the direction of the Sheriff of Eau Claire County. Each member of the Reserve Corps is a sworn deputy of Eau Claire County and has the same authority to carry out the duties of any other law enforcement deputy or officer within the county. Traditionally, the Reserve Corps is responsible for augmenting personnel of the full-time divisions of the department.

The difference between a full-time deputy and a reserve deputy is experience and time invested gaining that experience. Some members have several years of experience in law enforcement while others are just beginning their careers. The Reserve Corps is a very active component within the department. However, the Reserve Corps is just that, a Reserve component of the Sheriff's Department. Therefore, the members within the Corps do not have the same amount of time invested in their training and skill enhancement as those full time deputies. However, each member of the Reserve Corps is required by law to fulfill the same state standardized training to be certified. Because of this, secondary training or non-state mandated training is often last on the itinerary of the Reserve Corps-training roster.



Each member of the Reserve Corps is required to complete minimum levels of training in order to be state certified and to continue their role as a deputy. The state training begins with basic recruit training. This training is currently mandated at 400 hours in length and is offered at a state technical college. There are two options for part-time law enforcement officers/deputies to complete this training. Option one allows a candidate to take this training full-time which runs consecutively for 10 weeks at 40 hours a week (Chippewa Valley Technical College [CVTC] Fall 2002 Course Schedule). This option is referred to as full-time recruit school, and its participants are usually full-time officers just hired or sponsored by an agency or an individual who has accepted the financial burden to send themselves through the training in hopes of finding a full-time job with an agency upon completion. Option two is designed for part-time officers already hired by a department or agency and allows them to complete the training over a period of three years. This second track is broken into modules or sections, and one module meets once a week for 10 weeks at four hours a week. This option is referred to as module training or, mods, and mirrors the same training as the full-time recruit school but is divided into topic sections designed to compliment the schedule of a part-time officer. There are a total of 10 modules which total the 400 hours set forth by the state of Wisconsin to be certified as a law enforcement officer (CVTC Law Enforcement Training Calendar, 2001-2002).

Upon completion of basic recruit school, officers meet the basic state certification requirements to work as a law enforcement officer. These requirements give a new officer the basic foundation of police knowledge and skills. However, each department or agency will mandate its own training requirements that will go above the basic state

requirements. These requirements are usually dictated in the standard operating procedure guidelines and other procedural documentation of the department (Eau Claire County Sheriff's Office [ECSO] Policy Manual, 2000).

The Sheriff's Office Reserve Corps meets every third Thursday of the month. These meetings require mandatory presence by each member unless excused by a duly elected officer or sergeant (ECSO Policy Manual, 2000). Within these meetings are routine discussions about the Corps and other related topics. However, career enhancement training is also supplemented within these meetings. The training topics vary, but they are always job related. These training sessions compliment the training learned in basic recruit school and they are designed to enhance or further a deputy's skill level to meet department guidelines (ECSO Policy Manual, 2000).

#### General Description of the Problem

Within basic recruit school is a First Responder section or module that trains recruits in basic first responder life saving skills to include First Aid and Cardio Pulmonary Resuscitation (CPR) training (CVTC Fall 2002 Course Schedule). The overall problem is that deputies within the Eau Claire County Sheriff's Department Reserve Corp are not mandated beyond basic recruit school to be trained in First Aid and Cardio Pulmonary Resuscitation/Automated External Defibrillator (CPR/AED) skills. In other words, there is no department policy that dictates First Aid and CPR/AED skills training on an annual or biannual schedule or beyond the training received in the First Responder section of basic recruit training. Because Reserve Corps training is limited, compared to those in a full-time capacity, the department does not require such training

and is not mandated by the state to do so. Overall, a problem exists because reserve deputies may be required to fulfill the duties of a full-time law enforcement officer and may encounter a situation that requires them to be proficient in basic First Aid and CPR/AED skills. In recent years, the use of AEDs among first responders has become the cutting edge technological lifesaving tool for victims suffering from cardiac arrest (American Heart Association [AHA] BLS for Healthcare Providers, 2001).

Because police officers are usually the very first responders on a life-threatening scene, it is important that these caregivers are equipped with and trained to use this portable life saving tool. Despite the importance of First Aid and CPR, it is the actual defibrillation that will correct an irregular heartbeat and save the victim. CPR and First Aid are necessary to complement the AED, but it is this tool that actually can save a victim in cardiac arrest (AHA-BLS for Healthcare Providers, 2001). All three components complement each other and are necessary to save someone in a life-threatening situation. This research will discuss both First Aid and CPR skills, but will emphasize the importance of AED implementation and training.

### The Significance or Importance of Solving this Problem

The significance or importance of solving this problem is relevant because it will help implement a policy that requires basic First Aid and CPR/AED training on an annual basis within the Reserve Corps component of the Eau Claire Sheriff's Department.

### Problem Statement

The problem of this study is to determine what can be done to bring members of the Eau Claire County Sheriff's Department Reserve Corps up to current American Red Cross First Aid and CPR/AED standards and continue to keep those members up to current standards set forth by the American Red Cross on an annual basis.

### Research Objectives

The objectives of this study are to

1. Identify the primary reasons why the Reserve Corps should train its members in standard First Aid and CPR/AED skills.
2. Identify the factors that contribute to the Reserve Corps' decision to continue to train its members in First Aid and CPR/AED skills.
3. Determine the overall impact that these factors have in leading the Reserve Corps to implement a standard First Aid and CPR/AED training course.
4. Initiate a plan of action to assist managers and supervisors when making the decision to implement an annual training session.

### Significance of Study

This study should be done to determine if the Eau Claire County Sheriff's Department Reserve Corps should implement an annual standardized American Red Cross First Aid and CPR/AED training course. The importance of this study is to determine the reasons why the Reserve Corps should implement this type of training course within its annual training schedule. Based on these reasons, the Reserve Corps would then want to design and implement a strategy to allow for a standardized American Red Cross First Aid and CPR/AED course to become part of its annual training schedule

and then implement change as necessary to modify its already existing training schedule to meet the changing needs of its participants (deputies).

### Limitations

The limitations of this study are

1. The results of this study are limited to the Reserve Corps of the Eau Claire County Sheriff's Department.
2. The First Aid and CPR/AED skills taught will meet the standards set forth by the American Red Cross.
3. The instructor will be a certified American Red Cross instructor and teach the skills in accordance with American Red Cross standards.
4. The Reserve Corps will coordinate with the local chapter of the American Red Cross all First Aid and CPR/AED training classes to ensure that all participants are meeting the required standards and are certified in accordance with the American Red Cross.

### Assumptions

The assumptions of this study are

1. That the Reserve Corps of the Eau Claire County Sheriff's Department will not eliminate its monthly career enhancement training sessions.
2. That the state of Wisconsin will not mandate law enforcement agencies to require standardized First Aid and CPR/AED training for its employees (Reserve Corps Members).

## Definition of Terms

Adams Apple - The bulge at the front of the neck produced by the thyroid cartilage of the larynx (Urdang, 1983 p.21).

AED Electrode Pads - Adhesive pads that are connected to cables that are connected to the AED. These pads are placed directly onto the victim (AHA BLS for Healthcare Provider, 2001).

Airway - The passageway for air entering or leaving the body. The structures of the airway are the nose, mouth, pharynx, larynx, trachea, bronchial tree, and lungs (Grant, Murray, Jr., Bergeron, 1994, p. 773).

Automated External Defibrillator (AED) - An external computerized defibrillator designed for use in unresponsive victims with no breathing and no signs of circulation. The AED captures the victim's ECG (Electrocardiogram) signal through adhesive electrodes placed on the victim's chest and analyzes the victim's heart rhythm, identifying shockable rhythms. Once a shockable rhythm is identified, the AED automatically charges to a preset energy level and provides voice prompts for the operator. When activated by the rescuer, the AED will deliver a shock through the adhesive electrodes (AHA BLS for Healthcare Providers, 2001, p.242).

Basic life support (BLS) - A group of actions and interventions used to treat, stabilize, and resuscitate victims of cardiac or respiratory arrest. These BLS actions and interventions include recognition of a cardiac or respiratory emergency or stroke, activation of the emergency response system, cardiopulmonary resuscitation (CPR) use of an AED, and relief of foreign-body airway obstruction (AHA BLS for Healthcare Providers, 2001, p.242).

Biological Death - When the brain cells die (Grant et al., 1994, p. 774).

Breastbone -Sternum (Grant et al., 1994, p. 782)

Breathing emergency -A breathing problem so severe that it threatens the victim's life (ARC Community First Aid and Safety, 1993, p. 40).

Cardiac Arrest -When the heart stops circulating blood or stops beating entirely (Grant et al., 1994, p. 775).

Cardiac Emergency -A medical emergency involving the heart (Grant et al, 1994).

Cardiopulmonary resuscitation (CPR) - In the broadest sense, attempting any maneuvers or techniques designed to restore circulation, or a technique combining artificial ventilation and chest compressions designed to perfuse vital organs or restore circulation to a victim of cardiopulmonary arrest (AHA BLS for Healthcare Providers, 2001, p. 242).

Chain of Survival - An American Heart Association metaphor that uses the links in a chain to describe the actions needed to save a victim of sudden cardiac arrest (AHA BLS for Healthcare Providers, 2001, p. 242).

Chest Compressions - During cardiopulmonary resuscitation, pushing motions that depress the sternum (breastbone) to artificially circulate the blood when the heart has stopped beating (Grant et al., 1994, p.775).

Circulation - Movement of an object or substance through a circular course so it returns to its starting point, as in the circulation of blood through the circuitous network of arteries and veins (Urdang, 1983, p. 233).

Clinical Death - When breathing and heart action stop (Grant et al, 1994, p.775).

Cold Emergency - Illness caused by overexposure to extreme temperatures, in this case cold temperatures. Frostbite and hypothermia are two types of cold emergencies (ARC Community First Aid & Safety, 1993, pp. 218 & 221).

Control - The experimenter introduces one or more controls over the experimental situation (Ross, 1999, Experimental Design section).

CPR compression site - For the adult and the child, this is the placement of the hands approximately one finger-width above the substernal notch (Grant et al., 1994, p. 776).

Defibrillation - An electrical current applied to the outside of a patient's chest to stop all electrical activity. Often enabling the heart to restart in a coordinated fashion (Grant et al., 1994, p. 776).

Emergency medical services (EMS) -The planned configuration of community resources and personnel designed to respond to medical emergencies and provide immediate care to persons who have suffered an unexpected illness or injury. The EMS system includes EMS dispatchers and EMS responders (AHA BLS for Healthcare Providers, 2001, p. 243).

Emergency medical technicians (EMTs) - Prehospital emergency care providers trained in a program using the structure and guidelines set forth by the Department of Transportation (DOT) (AHA BLS for Healthcare Providers, 2001, p. 243).

FDA - Abbreviation for Food and Drug Administration (Urdang, 1983, p. 418).

Fibrillation - (In this project it is referred to as a fibrillating heart) Fibrillation of a chamber of the heart results in inefficient random contraction of that chamber and disruption of the normal sinus rhythm of the heart. Fibrillation is usually described by the part that is contracting abnormally, as atrial fibrillation or ventricular fibrillation (Urdang, 1983, p. 426).

First Aid -The immediate care that is given to an injured or ill person prior to treatment by medically trained personnel (Urdang, 1983, p. 429).

First responders-A group including police officers and firefighters trained in a nationally recognized program to respond to emergencies with resources such as oxygen and an AED (AHA BLS for Healthcare Providers, 2001, p. 244).

First Responder Module - (A section or module of the Wisconsin police recruit school that teaches officer's skills necessary to respond to medical related emergencies). This is a 56-hour course designed to provide a standardized level of instruction for First Responders serving the needs of rural areas who serve as a vital link in the chain of the health care team (Chippewa Valley Technical College Fall [CVTC] 2002 Course Schedule p. 42).

Good Samaritan Laws - Laws (which vary from state to state) that generally protect a person who renders emergency aid from civil damages if the person acts in good faith and not for remuneration (AHA BLS for Healthcare Provider, 2001, p. 244).

Heat Emergency - Illnesses caused by overexposure to extreme temperatures, in this case the heat. Heat cramps, heat exhaustion, and heat stroke are conditions caused by overexposure to heat (ARC Community First Aid & Safety, 1993, pp. 218 & 221).

HFS 113 - (Wisconsin Statute-Health and Family Service Administrative Rule 113) This is a state of Wisconsin administrative rule that applies to the certification of first responders who perform defibrillation in pre-hospital settings. HFS 113 covers several issues pertaining to first responders and defibrillation. It goes as far as defining the requirements for setting up a defibrillation program ([WWW.legis.state.wi.us](http://WWW.legis.state.wi.us)).

Injury - Physical harm or damage to a person, property, etc. (Guralnik, 1984).

Manipulation - The researcher does something to at least some of the participants in the research (Ross, 1999, Experimental Design section).

MERT - An on-sight Medical Emergency Response Team created by Lockheed Martin Control Systems (Soule, 2000).

MODs - Basic police recruit school modules or sections. This format is in module sections and is designed for law enforcement officer going through the Wisconsin police recruit school on a part-time basis (CVTC Law Enforcement Training Calendar, 2001-2002).



Paramedic - A person who acts as an assistant to a physician or in place of a physician, especially a person in the military, trained in emergency medical procedures (Urdang, 1983, p.802).

P.A.R.T. - Acronym that stands for, Participation, Accountability, Reasonability, and Training (Krout, 2000).

Prioritize Care - Always care for life-threatening emergencies before those that are not life threatening (ARC Community First Aid and Safety, 1993, p. 23).

Pulse - The rhythmic beats caused as waves of blood move through and expand the arteries (Grant et al., 1994, p.97).

Randomisation - The experimenter assigns participants to different groups on a random basis (Ross, 1999, Experimental Design section).

Recovery Position - By placing the victim on his or her side, fluid can drain easily from the mouth. This position is used in the management of victims who are unresponsive but breathing with signs of circulation. When an unresponsive victim is breathing spontaneously, the airway may become obstructed by the tongue, mucus, or vomitus (AHA BLS for Healthcare Providers, 2001).

Recruit School - This training program is mandated by state statute for new law enforcement personnel. The program serves to certify (primarily) employed law enforcement personnel in a prescribed curriculum and minimum training standards. The program consists of ten major units of instruction: administrative; fundamentals of human behavior, juvenile procedures; police proficiencies; legal principles; crime: investigation and apprehension; traffic supervision; patrol procedures; and administrative procedures. The course is ten weeks/400 hours of intensive instruction. The majority of the program is competency-based and/or a combination of competency-based and/or traditional lecture and demonstration (CVTC Fall 2002 Course Schedule p.44).

Rescue Breathing - Providing artificial ventilations or pulmonary resuscitation to a person who has stopped breathing on his own or whose breathing is inadequate (Grant et al., 1994, p.782).

Sudden Cardiac Arrest (SCA) - Sudden or unexpected cessation of heart function, most often caused by a sudden arrhythmia, such as VF or pulseless VT (AHA BLS for healthcare providers, 2001, p.246).

Sudden Illness - When a person becomes suddenly ill, he or she often looks and feels sick (ARC Community First Aid & Safety, 1993, p.192).

Unconscious (victim) - Unaware of the surrounding environment; insensible; incapable of responding to sensory stimuli (Urdang, 1983, p.1113).

Ventricular fibrillation (VF) - A condition in which the heart's electrical impulses are disorganized, preventing the heart muscle from contracting normally (Grant et al., 1994, p.784).

Ventricular tachycardia or (V-Tach) - A condition in which the heartbeat is quite rapid: if rapid enough, ventricular tachycardia will not allow the heart's chambers to fill with enough blood between beats to produce blood flow sufficient to meet the body's needs (Grant et al., 1994, p.784).

Wound - Any physical injury involving a break in the skin, usually caused by an act or accident rather than by a disease, as a chest wound, gunshot wound, puncture wound (Urdang, 1983, p. 1154).

### Outline of the Remainder of this Project

- Chapter II: Review of Literature
- Chapter III: Methodology of Procedures
- Chapter IV: Findings of Analysis of Results
- Chapter V: Recommendations to Supervisors and Managers

### Disclaimer

Much of this project includes information from several sources. Many sources are needed to explain complex subject matter and to define technical terms. The majority of this project draws information from the American Red Cross through its publications and training manuals/supplements. Another leading agency throughout the United States that advocates the use of AEDs is the American Heart Association. This project will draw technical information from several sources to include those published by the American Heart Association as well as other health related community publications. The intent is to gather a wide variety of information that will support First Aid, CPR, and the use of AEDs. However, the certification guidelines and requirements, along with an overview of skills needed to complete First Aid, CPR, and AED use, will meet those outlined by the American Red Cross. Furthermore, the examples used in this research project will include the skills used for adults only following the standards set forth by the American Red Cross.

The purpose of this project is to research and supply information related to First Aid, CPR, and the use of AEDs to supervisors and managers of the Eau Claire County Sheriff's Department. This information may be used to help implement a First

Aid/CPR/AED program within the Reserve Corps division of the sheriff's department. The information will give managers a better understanding of the basic requirements needed to implement such a program. This project gives a written description of skills needed to perform First Aid and CPR and how to use an AED. The intent is not to teach these skills but to give an overview of what is required to successfully complete the certification requirements of First Aid and CPR and how to use an AED as outlined by the American Red Cross. For this reason, a description of how to complete these skills is included throughout the project. Furthermore, because this project is for informational purposes only, it does not meet the requirements for certification in and of itself.

## Chapter II

### Review of Literature

#### Chapter Introduction

Cardiovascular disease claims more victims each year in the United States than any other disease. As a matter of fact, it is the leading cause of death for both men and women (American Heart Association [AHA] BLS for Healthcare Providers, 2001).

In the United States alone, it is estimated that sudden cardiac arrest (SCA) will claim approximately 350,000 lives a year. Of this figure, SCA will be caused by ventricular fibrillation or VF (Capucci et al., 2002). Ventricular fibrillation is defined as "a chaotic and disorganized heart rhythm that results in cardiac arrest" (AHA BLS for Healthcare Providers, 2001, p.247). Recognizing that SCA is taking place and responding to this emergency is the most important link in saving a victim suffering from SCA. The single most important action in saving a victim suffering from SCA is early defibrillation (Capucci et al., 2002).

To further explain, the heart functions based on electrical signals. These signals basically tell the heart muscle to beat. When VF occurs, these signals stop making sense, confusing the organized heart rhythms. Because of this, the heart is unable to send enough blood through the body. The only way to correct this is with an electrical shock, or defibrillation (American Red Cross [ARC] Community First Aid & Safety, 1993).

"Rapid defibrillation and early cardiopulmonary resuscitation (CPR) are the two major contributors to survival of adult victims of sudden cardiac arrest.... Automated external defibrillation is one of the most promising methods of treating cardiac arrest" (Newman & Christenson, 1998, p.14).

As technology advances, so do life saving tools and techniques. Today, first responders and emergency rescuers are equipped with easy to use Automatic External Defibrillators (AEDs). These small compact defibrillators provide the lifesaving shocks that change disorganized heart rhythms into organized rhythms to a victim in cardiac arrest. AEDs use a computer chip to analyze the heart's rhythm and deliver a shock if necessary (ARC Community First Aid & Safety, 1993).

Many first responders, like fire fighters and police officers, are trained to use AEDs. They can reduce the amount of time it takes to give a shock in a cardiac emergency because they are often the first people on the scene. By training the first responders, communities increase the number of emergency personnel trained to use AEDs. (ARC Community First Aid & Safety, 1993, p.65)

## Overview

I. An overview of implementing an Automated External Defibrillator (AED) program within the Eau Claire County Sheriff's Department Reserve Corps.

- A. Definitions related to First Aid, CPR, and AEDs
- B. Why the implementation of an AED program is necessary
- C. What is First Aid?
- D. What is CPR and how does it work?
- E. Performing defibrillation with an AED

II. An overview of various organizations using AEDs and the need for both management and government support.

- A. Organizations using AEDs
- B. The need for management support
- C. Government support and legislation

III. Training requirements for certifications and re-certifications

- A. American Red Cross certification requirements for First Aid
- B. American Red Cross certification requirements for CPR
- C. American Red Cross certification requirements for using an AED

### Why the Implementation of an AED Program is Necessary

Historically to the present, the patrol officer is at a distinct advantage to provide first responder care to an emergency medical situation. While on patrol, officers are mobile and are able to cover a larger geographical area in a shorter period of time than other emergency medical services (EMS) responders. Given this fact, these mobile and quick-to-respond EMS providers should be equipped with the necessary tools and skills to handle any emergency situation that requires basic first responder care until advanced caregivers arrive on the scene.

First responder care ranges from basic First Aid to more advanced care giving such as CPR and the use of AEDs. Each category of care compliments the other to maximize the probability of saving a life (AHA BLS for Healthcare Providers, 2001). Generally defined, first responders are "a group including police officers and firefighters trained in a nationally recognized program to respond to emergencies with resources such as oxygen and an AED" (AHA BLS for Healthcare Providers, 2001, p.244).

To fully understand what an AED is and the theory behind its use, the first responder must first be proficient with basic First Aid and CPR skills. Furthermore, prerequisite certification is necessary in First Aid and CPR in order to be certified and use an AED. This chapter will explain in detail the theory and training requirements of First Aid and CPR and then explain how an AED furthers these components of basic life saving techniques. As mentioned above, First Aid and CPR lay the foundation for AED use, but it is the AED that is key to saving a victim in cardiac arrest. This chapter will be divided into subjects that explain and defend the need to implement an AED program within the Reserve Corps of the Eau Claire County Sheriff's Department.



### What is First Aid?

There are many different emergency factors that fit under the realm of First Aid care. Guralnik (1984) provides a basic definition of First Aid as, "Emergency treatment for injury or sudden illness, before regular medical care is available." A more complex definition of First Aid includes the following:

The immediate care that is given to an injured or ill person prior to treatment by medically trained personnel. Attention is directed first to the most critical problems: evaluation of the patency of the airway, the presence of bleeding, and the adequacy of cardiac function. The patient is kept warm and as comfortable as possible. The conscious patient is reassured and is queried for significant details of his medical history, as diabetes, a known heart condition, or allergic reactions to drugs; if the patient is unconscious, a medical identification card, bracelet, or necklace is sought. The patient is moved as little as possible, particularly if there is possibility of fracture. If there is vomiting, the patient's head is moved to a position for the vomitus to exit easily to avoid aspiration. (Urdang, 1983, p. 429)

As stated earlier, a basic understanding of First Aid skills is necessary for first responders to recognize emergencies and to then begin to apply advanced skills such as CPR and AEDs if the emergency situation changes. First Aid courses are designed to give participants the knowledge and skills required to recognize and give basic care for injuries and sudden illnesses until advanced care arrives (American Red Cross [ARC] First Aid/CPR/AED Program Instructor's Manual, 2001).

Actual First Aid care encompasses a variety of points to be discussed. The following is a basic list of these points that are included in First Aid care. A trained First Aid responder should be able to

- Recognize an emergency situation.
- Protect him/herself when providing First Aid care.
- Know what to do before providing care.
- Know how to prioritize care.
- Know when to provide rescue breathing to an unconscious victim.
- Recognize and care for sudden illnesses.
- Identify different types of wounds and care for them.
- Recognize injuries to muscles, bones, and joints and care for them.
- Recognize heat and cold related emergencies and how to care for them.

(ARC Standard First Aid Participant's Booklet, 1999, p.3)

First Aid is the initial assessment when encountering a medical emergency. A rescuer's ability to recognize what kind of emergency exists is crucial when determining what type of care is needed. First Aid is just that, the first form of aid provided to a victim of a medical emergency.

The goals of first aid are to help someone who is injured or ill to recover, or at least to prevent the injury or illness from getting worse; to provide reassurance; to organize help; and to make the person as comfortable as possible until professional help arrives. (Clayman, 1994, p. 833)

### What is CPR and How Does it Work?

Cardiopulmonary Resuscitation (CPR) to most people, is made up of things such as chest compressions and rescue breathing. However, there is a scientific reason for these skills and their application. "Cardiopulmonary resuscitation is the basic life support measure applied when a patient's heart and lung actions have stopped" (Grant, Murray, Jr., Bergeron, 1994, p. 141). "When the heart stops beating or beats too poorly to circulate blood properly, it is called cardiac arrest. When cardiac arrest happens, breathing soon stops. Cardiac arrest is life-threatening" (ARC Community First Aid & Safety, 1993, p.61). "Sudden cardiac death is the major complication of cardiovascular disease. In the United States approximately 225,000 people die from sudden cardiac death each year" (AHA BLS for Healthcare Providers, 2001, p.1).

The purpose of CPR is to provide artificial circulation and breathing functions until advanced care arrives. CPR usually will not miraculously save a victim of cardiac arrest on the scene. What it will do is prolong their chances until advanced life support arrives (AHA BLS for Healthcare Providers, 2001). As part of first responders' training in First Aid, they should be able to recognize breathing and cardiac arrest emergencies. When the rescuer determines advanced rescue measures such as CPR are necessary, they will follow steps learned in CPR training. Like First Aid training, CPR training and certification is necessary to perform these skills on a victim in need. The American Red Cross provides the necessary training in order to carry a recognized certification.

The goal of American Red Cross Adult CPR instruction is to give the participants the background knowledge and skills needed to recognize breathing and cardiac emergencies and then to provide basic care until help from advanced rescuers arrive such

as emergency medical technicians and paramedics (ARC First Aid/CPR/AED Program Instructor's Manual, 2001). Once again, a basic understanding of First Aid skills are necessary for first responders to recognize emergencies and then begin to apply advanced skills such as CPR and AEDs if the emergency situation changes.

When a victim's breathing and heart stop, this is considered clinical death. A person who is clinically dead can be saved. In other words, this condition is reversible. However, when the brain cells begin to die, this is called biological death and this condition cannot be reversed. Biological death usually takes place within eight to ten minutes of clinical death (Grant et al., 1994). Because there is a short time period between clinical death and biological death, the need for quick response and care to a person suffering from sudden cardiac arrest is essential. In order to understand how, why, and when to perform CPR, a rescuer must first understand what cardiac arrest is. When the heart beats poorly or stops beating totally, the heart is in cardiac arrest. When this happens, a victim will stop breathing (ARC Community First Aid & Safety, 1993).

Sudden cardiac arrest (SCA) is one of the leading causes of death among adults in North America. Each year, it claims the lives of a quarter of a million people in the United States alone. Once ever one or two minutes, another victim succumbs suddenly, often without warning. (Newman and Christenson, 1998, p.1)

When a person is in cardiac arrest, he or she is unconscious, does not have a pulse, and is not breathing. The main indicator of cardiac arrest is the absence of a pulse. Even an experienced rescuer will not be able to locate a pulse, because there is none

present. The absence of a pulse means that there is no blood being circulated to the brain and other parts of the body. This means that there is no oxygen being carried to the brain and the brain will soon die. The brain cells and other organs, however, will continue to live for a very short time after the victim's heart is in cardiac arrest. That is, they will continue to live for a short period of time until the oxygen in the blood is used up. This is why a person in cardiac arrest needs CPR immediately (ARC Community First Aid & Safety, 1993).

CPR is a method of artificial breathing and circulation. When natural heart action and breathing have stopped, we must provide an artificial means to oxygenate the blood and keep it in circulation. This is accomplished by providing chest compressions and ventilations. (Grant et al. , 1994, p.141)

Once a rescuer has determined that a victim is not breathing and does not have a pulse, he or she should begin CPR immediately. There are a few steps that a rescuer needs to perform to determine that a victim is in cardiac arrest. The rescuer needs to check an unconscious victim using the following steps:

### Checking an Unconscious Victim

1. A first responder needs to check the scene for safety and then check the victim.
2. Next, the rescuer should tap the victim's shoulder and shout to see if there is any response.
3. If there is no response, the rescuer should call or have someone else call 911 with information about the location and type of emergency. (In this case the rescuer is the responder to a 911 call)
4. The rescuer should look, listen, and feel for breathing for about five seconds.
5. If a rescuer detects breathing but the victim is unconscious and shows signs that there is blood circulating, the victim should be placed in the recovery position.
6. If a rescuer does not detect any breathing they should roll the victim onto his or her back while providing support to the head and neck.
7. The rescuer should tilt the victim's head back and lift the chin to open the victim's airway.
  - Look, listen, and feel for any signs of breathing for approximately five seconds.
8. If it is determined that the victim is not breathing, the rescuer needs to give two slow rescue breaths.
  - Tilt the head back and lift the chin to open the airway.
  - Pinch the nose shut.
  - Breath into the victims mouth slowly until the chest slightly rises.
9. If the breaths are going in, the rescuer should check for signs of a pulse or circulation.
  - Find the Adam's apple and slide your fingers toward you and down into the groove at the side of the neck.
  - Check for a pulse for no more than 10 seconds.
  - Check the victim over for sever bleeding.

(ARC Adult CPR/AED Skills card, 2001)

If it is determined through this assessment that the victim is not breathing and there is no pulse, a rescuer should begin CPR immediately. CPR skills include the following steps:

### CPR Skills

1. The rescuer should find the hand position on the breastbone.
  - The proper hand positioning is just below the notch at the lower end of the breastbone. A rescuer should place the heel of his/her hand next to and above that notch.
  - The rescuer should place his or her other hand on top of the placed hand.
2. A person performing CPR should position his or her shoulders directly over his or her hands and begin to compress the victim's chest about two inches deep 15 times.
3. The rescuer should give two slow breaths into the victim's mouth.
  - This is done by tilting the head back while lifting the chin to open the airway.
  - At the same time, the rescuer should pinch the victim's nose shut so that air being breathed in does not escape.
  - Slowly breathe into the victim so that the chest slightly rises.
4. These steps should be done so that the rescuer is giving 15 compressions followed by two breaths in sets of three.
5. The rescuer should then check for any signs of a pulse.
  - Find the Adam's apple and slide your fingers toward you and down into the groove at the side of the neck.
  - Check for a pulse for no more than 10 seconds.
6. If the rescuer finds a pulse but the victim is not breathing they should begin rescue breathing. If there is no pulse present then the rescuer should continue CPR.

Note: If CPR must continue, a rescuer can only stop for the following conditions:

- The safety of the scene changes making it unsafe.
- The rescuer is able to find a pulse or notices other signs of circulation.
- An AED is on scene and is ready to use.
- The rescuer becomes physically exhausted and cannot continue.
- Another trained rescuer or person trained in CPR takes over.

(ARC Workplace Training: Adult CPR/AED skills card, 1999)

Before a rescuer decides that CPR is necessary, he or she may have to provide rescue breaths to a victim who is not breathing on his or her own but who does have a pulse. In this case, CPR is not necessary, because the victim has circulation and the only necessary action is to provide oxygenated air through rescue breathing (ARC Community First Aid & Safety, 1993).

### Rescue Breathing

- Tilt the victim's head back while pinching the victim's nose completely shut to form a seal.
- Give two breaths into the victim's mouth slowly until the chest rises slightly.
- Check for any signs of a pulse for about five seconds.
- Breathe into the victim's mouth once every three seconds, continuing for approximately one minute (20 breaths).
- Recheck the victim for a pulse and any signs of breathing.

(ARC Community First Aid & Safety, 1993)

Before rescue breathing, a rescuer has to determine that the air he or she provides is going into the victim's airway. Certain factors, such as blockage due to an obstruction in the airway, may prohibit this air from going into the victim's airway. When this obstruction is identified, the airway must first be cleared in order to provide rescue breathing. (ARC Community First Aid & Safety, 1993).



### Unconscious Choking

If the rescue breaths do not go in

- The rescuer should reposition the victim's airway by slightly tilting the head further back and provide two breaths again.
- Give 15 chest compressions.
- Look for an object that may be obstructing the airway.
- Provide two more rescue breaths.

(ARC Adult CPR/AED Skills Card, 2001)

### Performing Defibrillation with an AED

Once a rescuer is proficient in CPR skills, he or she should be ready to learn and use an Automated External Defibrillator (AED). A defibrillator is a machine that is able to shock the heart muscle so that it can begin to pump in an effective manner. It is small enough to be used away from a hospital setting but requires that only trained medical personnel use it because of their skills and ability to analyze the heart's rhythm. The new AEDs are smaller and use computer technology to analyze the heart's rhythm and thus do not require expert medical personnel to operate them (ARC Community First Aid & Safety, 1993).

Using an AED is the next step to providing care in the field, or away from a medical setting, to a victim in cardiac arrest. An AED is the actual tool that will help save a victim who is in cardiac arrest. CPR will circulate oxygenated blood throughout the system of a victim in cardiac arrest, but it is the AED that will provide the electrical shock to correct an irregular heart beat (ARC Community First Aid and Safety, 1993).

Although many factors influence whether a person will survive an out-of-hospital cardiac arrest (the person's age and prior medical history, for example), the most

significant factor is the total time elapsed from collapse to defibrillation - the delivery of an electrical shock through the chest. (Grant et al., 1994, p.162)

Why is providing a shock necessary to a victim in cardiac arrest? It is estimated that in about two thirds of all cardiac arrest victims' the heartbeats flutter in an abnormal fashion before their hearts stop beating. The heart muscle functions based on electrical signals. It is these signals that stop making sense when the heart flutters, eventually causing the heart to stop beating. When the heart stops beating, it is unable to send blood throughout the body. This condition is known as ventricular fibrillation (VF). The only way to correct VF is with an electrical shock. VF is a reversible condition with the help of a shock (ARC Community First Aid & Safety, 1993).

Another "reversible" condition is known as V-Tach, or ventricular tachycardia. This condition is very unusual in most cardiac arrest victims. In fact, it is observed in less than 10% of cardiac arrest victims. With ventricular tachycardia, there is usually an organized, but rapid heartbeat. This rapid heartbeat usually will not let the chambers of the heart fill with appropriate amounts of blood needed to support the body's normal functions (Grant et al., 1994).

Numerous scientific studies conducted during the past two decades have proven that rapid defibrillation is the single most important factor affecting survival from sudden cardiac arrest in adults. This research, coupled with important technological advances, has driven the international movement to increase access to early defibrillation. (Newman & Christenson, 1998, p.13)

Evidence has shown that it is essential for a rescuer to reach a victim suffering from cardiac arrest within minutes. It is this quick response that can mean the difference between life and death in the case of a cardiac arrest. Timeliness and quick response is the key. According to the Rochester, MN, Police Department's (RPD) Early Defibrillation Program

Medical studies have proven that the sooner a fibrillating heart can be defibrillated, the better the chances that the person will survive. Each minute that passes essentially reduces the odds of survival by 10%. If defibrillation can be accomplished within one minute of the cardiac arrest, the odds of survival are about 90%. After five minutes, the odds are about 50%. In the ten minute range, there is virtually no hope of survival.

(Rochester Police Department, [n.d.], para. 2)

The American Heart Association's BLS for Healthcare Providers (2001) simplifies this equation. "Every minute that passes can reduce the chance for successful conversion by 7% to 10%" (p. 7). In other words, a person in cardiac arrest decreases his or her chances for survival about 10% for every minute that passes from the time cardiac arrest begins until the time the defibrillator is used. So, if one minute passes, the victim has about a 90% chance of survival. However, if nine minutes pass, his or her chances for survival are about 10% once defibrillation begins. Quick response, to include a defibrillator, is essential for survival when dealing with cardiac arrest.

There are numerous sources that provide some type of statistic indicating the importance of early defibrillation. According to Capucci, et al. (2002), “Sudden cardiac arrest (SCA) claims an estimated 350,000 lives per year in the United States, representing a major public health problem” (p. 1065). Furthermore, “after 10 minutes, very few resuscitation attempts are successful (0% to 2%)” (Cappucci, et al. 2002, p. 1065). Again, these statements reiterate the importance of early defibrillation in order to increase the survival rate of a victim suffering from cardiac arrest. Quick response and education are key elements in increasing survival rates of any medical emergency.

Out-of-hospital sudden cardiac arrests account for 50% of cardiovascular deaths. The first reports of impact of community-based emergency rescue systems (EMS) on its uniform fatality demonstrated survival rates of 14% and 11%. Subsequent refinements to response systems, early defibrillation strategies, and public education on bystander CPR subsequently resulted in improved outcomes. (Myerburg, et al., 2002, p. 1058)

Note: Before using an AED, the rescuer must determine that a victim does not have a pulse and is not breathing.

1. Once the rescuer has determined that the victim does not have a pulse, the rescuer should power the AED on.
2. The rescuer should prepare to use the AED by completing the following steps.
  - Wipe the victim's chest dry.
  - Begin placing one of the AED pads on the victim's upper right portion of the chest and then place the other pad on the lower left side of the victim.
  - Attach the AED pads to the victim's chest.
  - Plug the electrode cable into the AED itself.
3. The AED itself will begin to analyze the victim's heart rhythm. However, the rescuer needs to actually push the "analyze" button for the AED to automatically read the heart rhythm.
  - The rescuer should make sure that all bystanders are clear of the machine and that nobody is actually touching the victim.
  - The rescuer should actually verbalize, "Everyone stand clear."
4. If the AED prompts the rescuer to deliver a shock they should then do so.
  - Again, the rescuer should make sure that nobody has come into contact with the victim.
  - Again, the rescuer should verbalize, "Everyone Stand Clear."
  - The rescuer should listen for the automated prompts and then deliver a shock, if instructed to do so, by pushing the "shock" button.
  - Again, the rescuer should let the machine analyze the victim's heart rhythm by pushing the "analyze" button.

OR

If the AED does not prompt the rescuer to deliver a shock the rescuer needs to continue the following steps.

- The rescuer needs to check for a pulse for about five seconds.
5. If a pulse is present, the rescuer should check the victim for about five seconds for signs of breathing.

Note: If the rescuer is unable to detect a pulse, he/she should do CPR until the AED has a chance to reanalyze the victim.

(ARC Workplace Training: Adult CPR/AED Skills Card, 1999)

When a person is in need of emergency medical services (EMS) usually someone calls the local emergency number to summon help. This call is just one link in what is known as the "Chain of Survival."

The chain of survival is made up of different links. The American Red Cross Community First Aid and Safety Manual (1993) uses a diagram of six links. The first begins with a typical citizen's response to a situation by recognizing that an emergency exists. Next, this response is usually that of a call to the local emergency number. In most areas this is a 911 system. The third link in the chain is care from a first responder, which is usually a police officer or firefighter dispatched to the scene. While the first responder is on scene, generally there is an EMT or paramedic unit in route. EMT/paramedic care makes up the fourth link in the chain. Following EMT/paramedic response is advanced care at the hospital. The sixth and final link in the chain is patient rehabilitation (ARC Community First Aid & Safety, 1993).

Note, the first actual on-scene caregiver is a first responder, who is usually a police officer or firefighter. One of these two public service agencies is usually the first on scene to an emergency situation. According to the Rochester, MN Police Department, police officers are usually the first to respond to a medical emergency situation because they are in a better position than other public service agencies (Rochester Police Department, [n.d.]).

Simultaneous dispatch of AED-equipped police and standard EMS is a strategy intended to achieve device availability, diagnosis, and defibrillation as quickly as

possible when VT/VF is observed by the first service vehicle arriving at the scene (defined as a first responder for this study). (Myerburg et al., 2002, p. 1059)

According to the American Heart Association, there are four links for survival from cardiac arrest. These include early access to the EMS system, early CPR on a cardiac arrest victim, early defibrillation, and early advanced cardiovascular care (AHA BLS for Healthcare Providers, 2001, p. 5).

Newman and Christenson (1998) state that survivors of sudden cardiac arrest have four main things in common. These four things are links in the chain of survival. They describe the first link as someone witnessing and recognizing an emergency event and then calling the local emergency number. As part of the first link, the witness is also able to establish unresponsiveness, which leads into the second link. In this link, someone starts CPR immediately and waits until advanced rescue help arrives. The third link involves the quick arrival of the AED and the actual shock that helps the heart get back into a normal rhythm. Finally, the fourth link involves EMS personnel who are able to provide advanced life support, which may include breathing support and the distribution of medications (Newman & Christenson, 1998).

There are a variety of sources that may edit and shorten or add to the links. Nevertheless, timeliness and quick response to an emergency medical situation involving a cardiac arrest is essential for victim survival. It is crucial to train and equip first responders with AEDs so that they can play an important role and strengthen the links in the chain of survival.

"All basic life support personnel must be trained to operate, be equipped with and be permitted to operate a defibrillator if in their professional activities they are expected to respond to persons in cardiac arrest" (Newman & Christenson, 1998, p.13).

Evidence has shown the importance and the need for first responders, especially police officers, to be trained in First Aid, CPR, and the use of AEDs. Police officers are usually the first on scene in an emergency situation, so they should be equipped with the right training and tools to handle that situation. "AEDs weigh about seven pounds. Their portability makes them adaptable for use on site and for placement in vehicles that service remote locations" (Broderick & Spencer, 2000, p. 48).

#### Organizations Using AEDs

There have been several studies done to show the benefits of early defibrillation with AEDs. The majority of these studies were conducted from medical or EMS records showing the importance of early defibrillation. However, there is a growing interest in AEDs and their use by other organizations such as airlines and laypersons in general (White, R. D., [n.d.]).

Broderic and Spencer (2000) use the example of a construction site, stating that they are usually outside of the 10-minute response time for EMS personnel, making it difficult to begin early defibrillation. They also point out that, upon arrival, EMS rescuers may have difficulty locating the actual emergency site due to a large construction area and other obstacles such as gates and barricades furthering the delay to defibrillation. Their argument is to have AEDs and trained personnel on sight.



Lockheed Martin Control Systems in Johnson City, NY, a designer and manufacturer of electronic systems for commercial, defense, and space markets, required that some of their employees be trained in CPR. These are on-site employees who handle emergency situations that may require the use of CPR. However, the site is about four to ten minutes away from EMS response. So, in the event of a cardiac arrest situation, this may exceed the window for successful defibrillation. Because of this, Lockheed Martin Control Systems created a Medical Emergency Response Team (MERT). This response team was also equipped with an AED and training included in the standard operating procedures. This on-site AED saved the life of a visitor who went into cardiac arrest. The MERT team was able to save the visitor, because the emergency happened at the Lockheed Martin Control Systems facility where there was an in-house AED and trained personnel (Soule, April 2000).

There are several emergency situations that may arise at any given time. To emphasize an earlier stated point, time is of the essence when dealing with a cardiac arrest victim. The key is early defibrillation. United Airlines has begun to implement AED programs on board some of their flights for obvious reasons being that an airborne flight is self-sufficient until it lands. According to Vanessa Jamison, United Airlines emergency procedure and training manager, "Both United and its flight attendants felt it was important that our training go well beyond just learning how to push the buttons of an AED." She goes on to say, "It's important that they feel confident and competent in both recognizing potential medical situations as well as managing them" (Business Wire, 1999, March 8, para. 4).

In Sunnyvale, CA, the Sunnyvale Town Center Mall and the Public Safety Department implemented an early defibrillation program. The program took off due to the efforts of two local firefighters who decided the survival rate of cardiac arrest victims in their community was too low. These two firefighters began touring their community armed with statistics and the names of victims who had died in the local community due to cardiac arrest. Along with their names, the two firefighters also listed the location in the community where the victims had died. The duo then began looking at the survival rates of victims over a four-year period that had been saved with the help of AEDs and their skilled users. It was these efforts that laid the foundation for their argument of the importance of AEDs and their availability (Hjelmeland & Adams, 2001).

Another heart-warming story took place at a Colorado ski resort. While skiing, a 39-year-old woman fell off of a chair lift as she went into cardiac arrest. The story credits the fall as saving her life because it allowed on-site ski patrol personnel, equipped with an AED, quick access to begin advanced care. The ski patrol was able to arrive on scene within a matter of minutes, which was within the basic 10-minute survival time (Newman & Christenson, 1998).

There are a few police agencies out there that have begun to adopt an AED program. According to PR Newswire (1999, August 24), Rhode Island is the first state to initiate funding to implement an AED program within law enforcement. According to Dave Ricciarelli, coordinator of instruction and testing for the AED deployment program, "Our goal is to place one AED in every police cruiser in the state" (para. 3).

In Rochester, Minnesota, for example, use of police equipped with AEDs has resulted in an average response time of 6 minutes, with a 45% survival rate for witnessed VF. Similar positive experiences have been reported in select locations such as aircraft and casinos. (Capucci et al., 2002, p. 1065)

In 1994, the Rockford, IL, Fire Department began to use AEDs. Approximately two years later, almost 200 employees were trained to use the AEDs. In the first month of the program, three victims of sudden cardiac arrest were saved. According to training officer Steven Bishop, the firefighters trained to use the AEDs believed in what they were doing, so their attitude towards the extra responsibility and training was positive. Bishop also commented that the AED program was good for public relations, the firefighters themselves, and the community (Newman & Christenson, 1998).

Evidence shows that quick response to a cardiac arrest situation is essential for survival. AEDs are lightweight at about five pounds and are dubbed "idiot proof", meaning they are easy to use. AEDs use advanced technology allowing them to diagnose distress and indicate to the user when a shock is necessary (Herbert, 1999).

"Early defibrillation is the link in the Chain of Survival that is most likely to improve survival rates. The placement of AEDs in the hands of large numbers of trained rescuers may be the key intervention for increasing survival from out-of-hospital cardiac arrest" (AHA BLS for Healthcare Providers, 2001, p.7).

### The Need for Management Support

Like anything in business and industry, along with non-profit organizations, there must be management support to implement change. Creating and implementing an AED program is not an easy task. There are many things to consider when starting such a program, such as initial cost for equipment and training. Upon the initial investment, further costs must be factored in, such as equipment maintenance and annual training. However, the benefits of having lifesaving equipment and trained personnel at a community's disposal should always be a factor worth considering.

Keith A. Krout (2000), author of, "Part I: Is Safety Really the No. 1 Priority?", uses the acronym P.A.R.T to describe safety in the work place. It can also apply to the implementation of new programs such as an AED program. P.A.R.T stands for Participation, Accountability, Reasonability, and Training. These four elements are essential when introducing new ideas into an organization. Each element requires something from both management and staff and is a mutual responsibility of both parties in order to ensure program success.

Krout (2000) also lists certain factors that are required in order to ensure participation. The first factor involves input from participants and both feedback and input from management. He goes on to say that input requires feedback regardless of the answer. If the answer is no, an explanation is warranted so that the individual supplying the input knows his or her idea has at least been considered. Another key factor is listening to all participants involved with the process. The final factor is acting on the information and ideas presented.

Mentally, design the safety approach to be practical, so that everyone sees it as reasonable and useful. Get input from everyone. Develop strong and active safety committees that have a mission and high expectations, are highly trained, and actually have a reasonable budget for furthering their plans. (Pater, 2001, p. 26)

According to Paula Smith (2000), there are three key items needed to gain management approval. First and foremost, management needs to be educated on what an AED is and what it can do. Management should also be briefed with as much information about why AEDs are needed. Finally, management needs to know the cost of implementing an AED program.

Getting an AED program started can be rather simple according to Steven Bishop, Rockford, IL, is Fire Department training officer.

“We received funding through the usual city fire department budgeting process and purchased the units gradually over a three-year period. Then we got up to speed with initial training and set up a cycle for retraining on a regular annual basis. We didn't run into any problems.” (Newman & Christenson, 1998, p.80)

According to Linda F. Johnson (2000), when creating a new safety program, in this case implementing an AED program, it is essential to make a lot of plans prior to developing the program. Also, participants in the design phase should ask a lot of questions. Johnson says that one of the biggest mistakes when designing a program is to get too advanced, too fast. Getting too advanced is likely to overwhelm management,

employees, and the system itself. Johnson is mainly referring to new safety and health professionals designing a safety program. However, these principles may also apply to police departments that are just beginning to create an AED program.

Management needs to be aware of the types of emergencies that can occur in the workplace. As managers in a police department, they must consider a wide variety of emergency possibilities. Because public safety officials cannot possibly predict and plan for every emergency situation that may arise, it is necessary for these managers to plan and prepare employees for a variety of possibilities.

Simply put, according to Louis Rinaldi, a safety director for Tampa Electric Co., "Go beyond basic first aid and CPR and address medical emergencies that can occur in your place of business" (Finnegan, 2000, p. 55).

This is a general statement for all managers to consider when planning a safety program within their business. Public safety and police work is no different, in that officers work in the community. Therefore, it is important that top-level police administrators take into account the different emergencies that may happen within the community. An AED is a tool that will help save lives when dealing with cardiac arrest victims. The possibility of a cardiac arrest can happen to anyone at anytime and anywhere. Management must be presented with all the facts pertaining to AEDs so that they can design a program and equip officers with this life saving tool. It is a joint effort; officers should be involved with implementing an AED program within their department. It is management's responsibility to make sure that it is a joint effort (Johnson, 2000).

### Government Support and Legislation

As research shows, first responders are at a distinct advantage concerning response time and are thus able to provide care much sooner than an ordinary citizen. With the help of an AED, first responders will be able to increase the save ratio of cardiac arrest victims (AHA-BLS for Healthcare Providers, 2001). First responders are trained responders and thus have to act within their authority and the laws that govern them when providing care to a victim. Each state is different when it comes to first responder care and the laws that govern such care. It is up to the government to provide legislation for AED use.

AEDs are considered to be restricted medical devices. Some states have already begun to enact laws regulating the use of AEDs. "Many states have specifically added the inclusion of Good Samaritan limited immunity to AED owners, physicians who prescribe the use of an AED or provide oversight for AED programs, and educators who train AED providers" (AHA BLS for Healthcare Providers, 2001, p.210).

In the state of Wisconsin, various state statutes and administrative codes establish standards for required certifications of first responders performing defibrillation. An administrative code, Health and Family Services #113 (HFS 113), applies to first responders and the liability they hold while providing defibrillation care. HFS 113 covers several issues pertaining to first responders and defibrillation. It goes as far as defining the requirements for setting up a defibrillation program. These statutes and administrative codes detail instructions for setting up a defibrillation program plan. (Administrative code for the state of Wisconsin - [WWW.legis.state.wi.us](http://WWW.legis.state.wi.us))

In conjunction with state laws and statutes that protect rescuers, there are Good Samaritan laws that protect ordinary citizens who act in good faith when providing care.

When citizens respond to an emergency and act as a reasonable and prudent person would under the same conditions, Good Samaritan immunity generally prevails. This legal immunity protects you, as a rescuer, from being sued and found financially responsible for the victim's injury. (ARC Community First Aid & Safety, 1993, p. 5)

Some of these laws extend to first responders who are not considered "professional rescuers" in the traditional sense. According to Wisconsin state statute 895.48(1) a Good Samaritan is:

Any person who renders emergency care at the scene of any emergency or accident in good faith shall be immune from civil liability for his or her acts in rendering such emergency care. This immunity does not extend when an employee trained in health care or health care professionals render emergency care for compensation and within the scope of his or her usual and customary employment or practice at a hospital or other institution equipped with hospital facilities, at the scene of any emergency or accident, enroute to a hospital or other institution equipped with hospital facilities or at a physician's office. (Good Samaritan law, Wis. State Statute 895.48(1) - [WWW.legis.state.wi.us](http://WWW.legis.state.wi.us))



The wording can cause confusion when it comes to first responders providing care. Depending on the extent of the responder's level of training and his or her classification, i.e. EMT, paramedic, etc., may determine their level of liability when providing care. It is very difficult to determine the levels of liability for first responders and thus a department should seek legal advice for each situation. The purpose of this project is not to give such legal advice, as it would exceed the scope of this particular study. Such advice must come from certified council authorized to give such advice. In the scope of this study, first responders are police officers and not fully trained health care providers. Also, police officers do not transport medical emergency victims. First responder care is not the main scope of an officer's duties. This is why the wording is ambiguous in regard to police officers and must be interpreted by legal council.

According to the Rochester, MN police department, they are not too concerned about legal liability for the following reasons:

1. First responders who act in good faith are immunized from liability by the Minnesota Good Samaritan Law.
2. These AEDs can do no harm. They are extremely reliable. They will not deliver a shock unless the patient needs it.
3. The victim of a cardiac arrest already has one foot in the grave. Unless early defibrillation is applied, the patient will probably die. The use of a defibrillator greatly enhances the likelihood that a cardiac arrest victim will survive. A greater liability might exist if rescuers did not attempt defibrillation.
4. Any police officer, firefighter or other medical responder would certainly perform CPR upon a cardiac arrest victim in any event. The use of a defibrillator enhances the effectiveness of the rescue effort and in fact significantly reduces (but does not eliminate) the need for CPR. CPR is not a gentle procedure and there can be incidental injuries associated with it.

(Rochester Police Department, [n.d.], Liability Issues section)

Laws and statutes lay the foundation for setting up a defibrillation program within a law enforcement organization, but the program also requires community support at the local level. According to Boca Raton's city councilman, "the most important step in getting community early defibrillation programs off the ground is obtaining local support" (Jerrard, [n.d.], para. 6).

It is important to have awareness and support from local government when dealing with AEDs. If government supports the use of AEDs with public service agencies, then the agencies themselves will be more apt to implement an AED program.

"The purchase and use of AEDs occurs within a complex maze of federal and state laws and regulations. At the federal level, the U.S. Food and Drug Administration (FDA) oversees the manufacture of AEDs because they are medical devices" (Newman & Christenson, 1998, p. 21).

In order for first responders to provide the best care possible, they must know that both their department and the government support them. Government support can be local or federal, and this support is in the form of laws and regulations governing their actions. In the state of Colorado, Governor Bill Owens supports a law that will allow trained responders to use AEDs without the risk of being sued when their use is in good faith (Health Industry Today, 1999).

People in need of care can give permission for first responders to treat them. If a victim is conscious, a responder may obtain permission by simply asking the victim if he/she can help. To get permission, however, the rescuer must tell the victim who they are, their level of training, and describe how they are going to help. If a conscious victim refuses help, the rescuer must not provide care. In most cases, it is assumed that an

unconscious victim or an unresponsive victim needs help. In this case, permission is implied. (ARC Community First Aid & Safety, 1993).

Due to a greater public awareness and the benefits involved with AEDs manufacturers of the devices are under the gun to produce more. AEDs are showing up in stadiums, malls, airports and airplanes, and other areas of large public arenas. Legislative acts, such as the Cardiac Arrest Survival Act (CASA) and the Rural Access to Emergency Devices Act (RAEDA), are only helping to increase public use of AEDs. CASA basically requires federal public buildings to implement AED programs and protect users from liability. RAEDA provides federal funding to rural communities and helps them finance the costs of AED purchases. The act also funds training costs (Health Industry Today, 2001).

#### Training Requirements for Certification and Re-certification

In the past, only trained medical personnel used defibrillators. As technology continues to advance, so does the ease in using defibrillators. Automated External Defibrillators (AEDs) are just that, automated, and thus require less medical training than their predecessors (ARC Community First Aid & Safety, 1993). Because a basic understanding of when, why, and how to defibrillate is required to use an AED, it is necessary to receive a certain level of training on the device. As mentioned earlier, First Aid and CPR compliment and provide the care leading up to the use of an AED. It is important to have a basic understanding of all of these skills (AHA BLS for Healthcare Providers, 2001).

### American Red Cross Certification Requirements for First Aid

An American Red Cross Basic First Aid course will encompass the following factors, as laid out in a course outline:

- Recognizing Emergencies
- Protecting Yourself
- Before Providing Care
- Prioritizing Care
- Rescue Breathing
- Cardiac Emergencies
- Sudden Illness
- Wounds
- Injuries to Muscles, Bones, and Joints
- Heat- and Cold-related Emergencies

(ARC First Aid/CPR/AED Program Participant's Booklet, 2001, p. 2)

The purpose of the American Red Cross First Aid course is to give individuals in the workplace the knowledge and skills necessary to recognize and provide basic first aid care for injuries and sudden illnesses until advanced medical personnel arrive and take over. (ARC First Aid/CPR/AED Program Instructor's Manual, 2001, p.189)

Students in an American Red Cross Standard First Aid class will receive training in the above topics. An American Red Cross certified instructor facilitates the training and the certification is valid for three years. This training may take place at a work site or at an American Red Cross facility. Other organizations, such as the American Heart Association, also provide training in First Aid skills. However, this research will follow the standards set forth by those of the American Red Cross.

### American Red Cross Certification Requirements for CPR

The American Red Cross Adult CPR course will encompass several factors, and at the end of an American Red Cross Adult CPR course the student will learn the following:

- Recognizing Emergencies
- Protecting Yourself
- Before Providing Care
- Prioritizing Care
- Rescue Breathing
- Cardiac Emergencies

(ARC First Aid/CPR/AED Program Participant's Booklet, 1999, p.3)

The Adult CPR course is taught by a certified American Red Cross instructor and is facilitated either at the work place or at the local American Red Cross chapter. After completing the CPR block of instruction, a participant will receive a universal certificate in Adult CPR valid for one year.

### American Red Cross Certification Requirements for AEDs

In order for a rescuer to understand when and why to use an AED, he or she must have an understanding of CPR. Once he/she learns CPR, he/she is ready to advance his/her life saving skills by learning how to use an AED. Many advocates of the AED claim that it is "idiot proof". This statement may be true, to a point. However, the user should be trained on the device so that he/she understands when to deliver a shock and why. Even though AEDs are automated and prompt the user, the user still must have a

basic understanding of the machine in order to use it correctly and safely (Hjelmeland & Adams, 2001).

"The word automated actually means semiautomated, because most commercially available AEDs will 'advise' the operator that a shock is indicated but will not deliver a shock without an action by the rescuer (i.e., the rescuer must push the SHOCK button)" (AHA BLS for Healthcare Providers, 2001, p. 93).

There are a variety of professional organizations that offer instruction on AED use. Again, this study will use the general guidelines of AED instruction based on those taught by the American Red Cross. The American Red Cross AED course is taught by a certified American Red Cross instructor and is facilitated either at the work place or at the local American Red Cross chapter. After completing the AED block of instruction, a participant will receive a universal certificate valid for one year.

This particular course is designed to give students the knowledge and skills needed to recognize and identify breathing emergencies and then provide care. The care required may include cardiopulmonary resuscitation (CPR) or the use of an AED for those suffering from cardiac arrest (ARC First Aid/CPR/AED Program Instructor's Manual, 2001).

### Requirements Expected of Students to Complete a First Aid/CPR/AED Course

In order for participants to receive a certificate in the First Aid, CPR, and AED portions of the American Red Cross Workplace Training Course, they must

- Attend lectures, discussions, skill sessions, and skill scenarios.
- Demonstrate competency in all required skills listed on the Participant Progress Log (See Appendix A).
- Participate in all skill sessions and scenarios.
- Correctly answer at least 80 percent of the questions in each section of the final written examination (8 correct answers out of 10 questions in each section).

(ARC First Aid/CPR/AED Program Instructor's Manual, 2001, pp. 145, 189, 334)

### Requirements Needed to Implement Such a Program and then Train Officers

The foundation for implementing any training program is employee buy-in and management support. One of the most important aspects of training is getting employee involvement. To do this, employees must see the benefits and the needs for the training. "Create a receptive and interesting atmosphere where people want to become more involved" (Pater, 2001, p. 101).

Officers must also see the benefits of this type of training. In police work, it is not uncommon for an officer at some point in his or her career to encounter a medical emergency. Perhaps these real life experiences can show the officer the importance of such training. Officers can share these experiences with other coworkers so that everyone involved with the training process can learn (Lyerly & Maxey, 2001). Managers also need to look at the legal responsibilities when setting up an AED program. That is, there are certain laws and regulations that must be followed before, during and



after the implementation of such a program. Managers need to be familiar with the liability issues as well.

As pointed out in the Government Support and Legislation section of this project, managers will need to seek advice from legal council when implementing this type of program. That is, "AED laws may also provide for requirements associated with implementation of a program, including physician oversight, training, devices maintenance, and notification of the EMS system" (AHA BLS for Health Care Providers, 2001, p.210).

When a program is to be set up, it must be sponsored by or operate under the authority of a police department medical director. That is, it should get some directive from a physician. According to the Rochester Police Department's Early Defibrillation Program, the medical director shall have the authority to

- Issue standing orders concerning the use of defibrillators, e.g. patient treatment protocols, etc.
- Develop, conduct, regulate and/or modify the training requirements for officers as these requirements relate to the use of defibrillators, CPR or first aid or other patient-care issues.
- Direct the Police Department Staff Development Unit to maintain records to assure that all officers are trained as required.
- Direct officers assisting at the scene of medical calls as those officers' actions relate to patient care procedures. The medical director does not have general supervisory authority over officers who have been assigned non-medical functions at those scenes, e.g. traffic direction, scene preservation, crowd control, etc.
- Gather response time and other statistical data from the Police Department to support early defibrillation research.
- Conduct follow-up interviews with officers concerning any medical incident for purposes of clarifying the circumstances of the medical call.

- Advise Police Administration concerning development, implementation or modification of policies relating to the Early Defibrillation Program or emergency medical response.
- Serve as a representative of the Police Department in public presentations, publications or news releases relating to the general functions of the Early Defibrillation Program.

(Rochester Police Department, [n.d.], Program Policies section)

In general, the above points provide a basic guideline for managers to follow when planning the beginning stages of a First Aid, CPR, and AED program. Obviously, each police agency looking to implement a First Aid, CPR, and AED program will have to customize its own program. But the above points give managers some ideas to consider when starting their own program. For example, managers need to design their own standard operating procedures when dealing with First Aid/CPR/AEDs. (This may include the input and guidance from a physician.)

Another equally important factor to consider in the planning process is the development of a training program. A First Aid certification is valid for up to three years from the date of becoming certified. Likewise, CPR and AED certifications are valid for one year from the date of certification. Therefore, managers should take into account these training requirements so that officers keep their certifications valid and also keep proficient with the necessary skills to perform First Aid, CPR, and use an AED. The department's budget will dictate how the department designs its training program. A department may choose to design an in-house training program rather than use an outside source. For example, a department may choose to buy its own training equipment and

sponsor an officer to become instructor certified. This option will involve, but is not limited to, the following equipment:

- Mannequin(s), (also to include cleaning and maintenance supplies)
- Training AED(s)
- Current training books and manuals
- First Aid training supplies (To include bandages, splints, braces, etc)
- Certification costs per officer
- Certification cost to sponsor in-house instructor
- Officer's salaries while attending training
- Training records

(Rochester Police Department, [n.d.]}

The American Red Cross sponsors and teaches First Aid, CPR, and AED classes to various businesses in the workplace setting. This option involves less cost to the department or organization choosing to go this route. The American Red Cross will facilitate classes either at a local Red Cross chapter or on site at the requesting organization. Obviously, there are costs to this option, but they are generally less than designing an in-house program. This option offers, but is not limited to, the following:

- The American Red Cross provides an instructor.
- The American Red Cross provides all equipment needed to certify students (officers).
- The department is responsible for the cost of books and manuals.
- The department will still be responsible for maintaining its own training records in order to monitor certification dates, etc.

(American Red Cross Authorized Provider Agreement, 2000)

Finally, because first responders have some training in basic care giving skills, they should be expected to provide that care in accordance with their training. It is important for training managers and supervisors to keep detailed records of employee training. Record keeping is important because it will enable supervisors to keep track of

training needs and expiration dates of employee certifications. Also, this documentation is important in the event that an employee is involved in a lawsuit pertaining to any claim of negligence filed against the county or the individual employee.

### Chapter Review

This chapter looks at the many different aspects involving the implementation of a First Aid, CPR, and an AED program. By first describing and defining what First Aid is, the reader should have a basic understanding of its importance when dealing with a medical emergency. Also, the reader should now know why a basic understanding of First Aid is important before a rescuer can recognize the need for advanced care such as CPR and the use of an AED. Without the ability to recognize what type of emergency exists, i.e. victim not breathing, does not have a pulse, etc., a rescuer would not be able to draw on his/her knowledge and experience to further the level of care needed (ARC-Community First Aid & Safety, 1993).

Once a rescuer is proficient with First Aid skills, he/she can move onto more advanced rescue techniques such as CPR if an emergency situation calls for such techniques. Again, CPR provides artificial circulation and oxygenated air to a victim who is not breathing and does not have a pulse. CPR sustains a victim until an AED is available and more advanced rescuers arrive on scene (AHA BLS for Healthcare Providers, 2001).

Perhaps it is the AED that is the life saving tool for a victim suffering from a cardiac arrest. This project points out several examples where an AED has saved a person's life. It is imperative for first responders to be able to use and operate an AED throughout the course of their work. Because the police officer does have a distinct

advantage in arriving at the scene of a medical emergency quicker than most other public service agencies, it is essential to equip them with both the knowledge and tools to help save a victim suffering from cardiac arrest.

For managers considering implementing a First Aid/CPR/AED program at the work place, it is essential to be familiar with local, state, and federal laws concerning rescue procedures using the skills encompassed in First Aid/CPR/AEDs. Each state differs when it comes to laws and regulations governing First Aid/CPR/AEDs. However, it is becoming a much more widespread practice to teach and educate employees (officers) how to save a life. Liability is becoming less of a burden on rescuers who attempt to help somebody in need when their attempts are in good faith.

In fine detail, this project gives an overview of the actual skills and steps required to perform First Aid, CPR and how to use an AED. The intent of showing these skills is not to encourage people to try them without actually becoming certified by the American Red Cross, but rather to give managers an overall understanding of what skills and requirements are needed for rescuers to become certified in these skills.

## Chapter III

### Research Methods

#### Overview

This chapter is divided and organized into 12 different sections. The first three sections include the problem statement and the research objectives (introduction) of this study. Following the introduction is a detailed layout of the research design, which will describe and justify the type of design used and how it will be applied to the stated problem area. Sections six through nine will include a description of the population used for this study and will explain the data collection techniques used to support the unbiased research. Finally, sections 10 through 12 will categorize the major research activities in the research schedule.

#### Problem Statement

The problem of this study is to determine what can be done to bring members of the Eau Claire County Sheriff's Department Reserve Corps up to current American Red Cross First Aid and Cardio Pulmonary Resuscitation/Automated External Defibrillator standards and continue to keep those members up to current standards set forth by the American Red Cross on an annual basis.

## Research Objectives

The objectives of this study are to

1. Identify the primary reasons why the Reserve Corps should train its members in Standard First Aid and CPR/AED skills.
2. Identify the factors that contribute to the Reserve Corps' decision to continue to train its members in First Aid and CPR/AED skills.
3. Determine the overall impact that these factors have in leading the Reserve Corps to implement a standard First Aid and CPR/AED training course.
4. Propose a plan of action to assist managers and supervisors when making the decision to implement an annual training session.

## Description of Research Methodology

The research methodology of this project is quantitative in nature. A detailed survey will be handed out to members of the Eau Claire County Sheriff's Department Reserve Corps Division. The designed survey will be used to measure Reserve Corps members' current skill levels pertaining to First Aid, CPR and the use of an AED. In addition to a survey, both a pre-test and post-test will be handed out to students in a current police recruit (academy) class. The pre-tests will measure recruits' knowledge of First Aid, CPR and the use of an AED before they participate in a class involving these topics. The post-test will measure their knowledge after attending the lesson. A quantitative design is being used because it will allow for objectivity.

Quoted from an excerpt, "Ways of Approaching Research: Quantitative Designs" (1999) Author John Ross uses the following definition to define quantitative research. "A formal, objective, systematic process in which numerical data are utilized to obtain information about the world" (Ross, 1999, Definition section).

Quantitative research will support this particular research project because

- It is objective in nature.
- It has only one reality.
- It may be reduced, controlled, and allows for predictability.
- It is measurable.
- The many parts will equal the whole.
- It allows for reported statistical analyses.
- The researcher is often separate from the research.

(Bottorff, [n.d.], slide seven)

Quantitative research can be classified into three major types. These types are descriptive, quasi-experimental, and experimental. This project will follow an experimental design by using a pre- and post-test. An experimental design can be defined as

A specific plan for a research study, which includes: (1) methods of selecting and assigning subjects and (2) number and types of treatment variables. Experimental designs must include at least two comparison groups with at least one group receiving a treatment (some amount of the independent variable). (Sproull, 1995, p. 136)



Below describes three essential elements of the experimental design:

Manipulation: The researcher does something to at least some of the participants in the research.

Control: The experimenter introduces one or more controls over the experimental situation.

Randomisation: The experimenter assigns participants to different groups on a random basis.

(Ross, 1999, Experimental Design section)

A qualitative research design, though systematic, will not support this project because it is the complete opposite of a quantitative design. In a slide presentation titled “Workshop on Qualitative Research” author Joan L. Bottorff uses the following definition to describe qualitative research. That is, “any kind of research that produces findings not arrived at by means of statistical procedures or other means of quantification” (Bottorff, [n.d.], slide three).

It did not take us long to discover that the "field" of qualitative research is far from a unified set of principles promulgated by networked groups of scholars. In fact, we have discovered that the field of qualitative research is defined primarily by a series of essential tensions, contradictions, and hesitations. (Denzin & Lincoln, 1994, preface)

The true difference between qualitative and quantitative research is that qualitative research tends to deal with or work with small samples or groups of people.

These groups are usually studied in depth. Quantitative research, on the other hand, tends to use larger numbers or groups and seeks statistical significance (Miles & Huberman, 1994). Because one of the main goals of this study is to compare results of a pre-test and post-test and then give statistical data concerning these results, it is more feasible to conduct this study using quantitative research methods.

"In quantitative studies one uses theory deductively and places it toward the beginning of the plan for a study. In quantitative research the objective is to test or verify a theory, rather than to develop it" (Creswell, 1994, p.87). In contrast:

In a qualitative study, one does not begin with a theory to test or verify. Instead, consistent with the inductive model of thinking, a theory may emerge during the data collection and analysis phase of the research or be used relatively late in the research process as a basis for comparison with other theories. (Creswell, 1994, pp. 94-95)

A comparison between a quantitative and a qualitative research approach is shown below:

<b>Quantitative Research</b>	<b>Qualitative Research</b>
Objective	Subjective
Deductive	Inductive
Generalisable	Not generalisable
Numbers	Words

(Ross, 1999, Comparison of Features section)

#### Above Terms Defined

Objective: Being, or regarded as being, independent of the mind; real; actual.

Subjective: Of, affected by, or produced by the mind or a particular state of mind; of or resulting from the feelings or temperament of the subject, or person thinking; not objective; personal.

Deductive: (Deduce) to infer by logical reasoning; reason out or conclude from known facts or general principles.

Inductive: Of, or proceeding by methods of, logical induction (inductive reasoning).

Generalisable: (Generalize) to formulate general principles or inferences from particulars.

Not generalisable: Opposite of generalize or "generalisable". Not being able to formulate general principles or inferences from particulars.

Numbers: One of a series or group that is numbered or thought of as numbered; specific.

Word(s): A speech sound, or series of them, serving to communicate meaning and consisting of at least one base morpheme with or without prefixes or suffixes but with a superfix.

(Guralnik, 1984)

### Research Design

The research design used for this project is descriptive in nature. The design relates to the problem and research objectives because it allows for a detailed description and the ability to report information based on the collected data. The data will come from two separate sources. First, a detailed survey will be distributed to members of the Eau Claire County Sheriff's Department Reserve Corps. The survey is designed to assess the current skill levels and subject knowledge of each reserve deputy within the Eau Claire County Sheriff's Office Reserve Corps Division. The questions are designed so that survey participants can assess their own skill level by using a Likert scale survey along with yes and no questions.

A survey design provides a quantitative or numeric description of some fraction of the population - the sample - through the data collection process of asking questions of people. This data collection, in turn, enables a researcher to generalize the findings from a sample of responses to a population. (Creswell, 1994, p. 117)

The second source of information will come from a pre-test and post-test distributed to police recruits in a current recruit/academy class, also referred to as “recruit school”, at the Chippewa Valley Technical College in Eau Claire, Wisconsin. A pre-test and post-test will be given to students in a current police recruit class prior to and after the facilitation of a First Aid/CPR/AED class. This particular class is part of a First Responder section incorporated within the academy and is a requirement to obtain a Wisconsin state certification in law enforcement. This test will be used to assess students' skill levels prior to and after instruction of First Aid/CPR/AED skills. The objective of these tests is to show an increase in student knowledge pertaining to First Aid/CPR/AED skills after attending the class.

By completing the survey, the outcome will give managers and supervisors within the Reserve Corps Division of the Eau Claire County Sheriff's office a better understanding of current and future training needs. This, in turn, will allow more training opportunities for members of the Reserve Corps Division. Once proficient in First Aid and CPR, and with the knowledge to use an AED, trained members may be able to help a community member with a medical emergency.

By completing the pre- and post-test, the outcome may be shared with Chippewa Valley Technical College recruit school facilitators so that they may gain a better understanding of current and future First Aid, CPR and AED training needs and incorporate those needs into their recruit school.

This particular design relates to the end product because it is able to report findings to department managers and school facilitators so that they can decide how this

information may be used or applied to their own core competencies and departmental goals and objectives.

The design is applied to the problem area in various phases. In phase one, supportive data will be collected through periodical journals, professional publications, professional articles located on the Internet, and professional manuals and books. In the second phase, data will be compiled and collected through returned survey forms. In the final phase, data will be compiled and collected through the use of a pre-test and post-test. The data collected from the survey will be analyzed to determine the various skill levels of Reserve Corps Members pertaining to First Aid and CPR/AEDs. The data collected from the pre- and post-tests given to the recruits will be analyzed to show the increase in knowledge after completing a First Aid, CPR, and AED class.

The statistical information will be reported in written form and obtained through the use of a survey and a pre- and post-test. Based on the information obtained, this report will show these findings throughout the research project. Most of the information gathered from professional journals, magazine articles, articles and information found on the Internet and the information found in books and manuals is reported in chapter II (Literature Review). The statistical information to be analyzed will be reported in Chapter IV.

#### Population and Sample(s) (Selection of Subjects)

The population consists of 14 members of the Eau Claire County Sheriff's Department Reserve Corps and 13 recruits from a police academy class conducted at the Chippewa Valley Technical College (CVTC). The total population size is 27. Skill

levels in First Aid and CPR/AED use differ among participants. Some members of the population are already proficient at these skills while others hold only a basic understanding.

Those chosen to participate in this survey are reserve deputies working directly for the Eau Claire County Sheriff's Department and recruits assigned to a police academy class hosted through the Chippewa Valley Technical College. This project does not require a sample base because the whole population is the sample. It is anticipated that only a few members of the total population are certified in First Aid and CPR/AEDs. Thus all members of the population will be surveyed.

The sample was selected after completion of the literature review so that a better understanding of First Aid and CPR/AED use could be given. Once a clear definition of First Aid, CPR and the use of an AED had been obtained, the next step was to begin researching the two groups to be used and then to select members who have a direct impact on the Reserve Corps.

The characteristics of the sample population are the same as the total population. Each participant in the sample holds the position of deputy or police recruit and has a key role in First Aid, CPR, and the use of an AED.

### Instrumentation

The survey that is to be given is designed to assess the current skill levels and subject knowledge of each reserve deputy within the Eau Claire County Sheriff's Department Reserve Corps Division. The design of the survey is self-evaluating in nature. The questions are designed so that survey participants can assess their own skill level by using a Likert scale survey along with yes and no questions. The survey itself is

divided into eight sections (See Appendix B). The first section pertains to standard First Aid and is made up of two yes and no questions. The next section also consists of two questions and is in a yes and no format, but its questions pertain to CPR. The third section pertains to the use of an AED and consists of three yes and no questions. The fourth section is made up of six yes and no questions. However, it asks specific questions pertaining to the Eau Claire County Sheriff's Department Reserve Corps. These questions are First Aid, CPR, and AED related and they are opinion questions to see if the implementation of a First Aid/CPR/AED program would be welcomed among the division members.

Sections five through eight use a Likert scale to assess skill competencies pertaining to First Aid, breathing/airway emergencies, CPR, and the use of an AED. Each section using the Likert scale consists of five possible ratings. The number one represents a low level of skill needed to complete the task and the number five represents a high level of skill needed to complete the task. Section five encompasses two First Aid questions. Section six involves breathing/air way emergency questions. In section seven, the questions are all CPR related. Finally, section eight deals with the use of an AED and is made up of three questions.

The pre- and post-test will be given to students in a current police recruit/academy class prior to and after the facilitation of a First Aid/CPR/AED class. The pre-test will be used to assess students' skill level prior to the instruction of a First Aid/CPR/AED class, and the post-test will measure their level after the class has been conducted (See Appendix C). The test is the same test as the pre-test. The goal of distributing this test is



to assess what particular skills the average recruit needs in order to be able to recognize the need for and perform First Aid, CPR, and to use an AED.

### Classroom Procedures

The survey being distributed to Eau Claire County Sheriff's Office Reserve Corps members will be handed out at a monthly meeting. Along with the survey, a voluntary consent form will be handed out to each survey participant prior to his or her participation (See Appendix D). The participant has the choice whether to participate or decline participation. The method used to select subjects is simply to survey all members of the Reserve Corps. Because the Reserve Corps has fewer than 30 members, a total population survey is feasible and realistic. Furthermore, because the Reserve Corps meets every third Thursday of the month, it will be plausible to survey the entire population at one time. Prior to handing out the consent forms and the surveys, both verbal and written instructions will guide Reserve Corps members through the survey process.

The pre-test and post-test will be given to police recruits at the Chippewa Valley Technical College and will be accompanied by a consent form (See Appendix E). Each form will be handed out to every recruit prior to his or her participation. Recruits have the choice to participate or decline. The method used to select subjects for the pre- and post-tests is to hand out the test to members of a recruit class prior to and after their completion of a First Aid/CPR/AED class. There are a total of 14 recruits and they are required to attend the First Aid/CPR/AED portion of the first responder section of recruit school. Because attendance is mandatory, there is a high likelihood for total population participation. The pre- and post-tests are the only test instruments in this study that use

some type of identifier. The participants are asked to put only the last four digits of their social security number somewhere on the pre-test and post-test. The reason for this information is twofold. First, there may be a couple of weeks between the pre-test and the post-test. By providing the last four digits of their social security number, participants have a greater chance of remembering their "specific identifier" so that they can remember to add this on the post-test, which may occur a few weeks after the pre-test. In other words, the likelihood of participants remembering that they used their last four digits of their social security number is much greater than trying to recall a randomly assigned number. Secondly, in order to compare the results of the pre-test to results of the post-test, the researcher needs some way to identify which test taker took which pre-test and then to compare it to that same participant's post-test. The researcher has no way of matching the last four digits of a social security number to a particular individual. In addition, verbal instructions will be given to recruits prior to handing out consent forms and tests. Included in these instructions will be the assurance that the individual will not be able to be specifically identified by the researcher or anyone else.

### Data Collection Techniques

According to Sproull (1995), there are four types of data collection methods:

1. Interviewing. (interviewer, researcher)
2. Instrument administration. (questionnaires, attitude scales, and tests)
3. Observation. (person, researcher)
4. Examination of documents, materials and artifacts.

This project concentrates on the administration of instruments (survey and pre-test/post-test) along with the review of documents and subject-related materials. Various types of data related to First Aid and CPR/AEDs were needed to complete this study. Included with the data were definitions pertaining to First Aid and CPR/AEDs and the training required for American Red Cross certification. The research required information on the need to use an AED for victims of cardiac arrest. In order to use an AED, the user must obtain a basic understanding of First Aid and CPR. Furthermore, an overview of First Aid and CPR/AED use was given to further explain the need for deputies, acting as first responders, to be proficient in the skills required to perform First Aid, CPR, and to use an AED. Also required were statistical data analyzed to support the decision to implement a First Aid/CPR/AED program within the Reserve Corps of the Eau Claire County Sheriff's Department. The decision to implement such a program is left up to managers. However, the information needed to make this decision is supplied throughout this project.

Professional books and manuals provided skill tasks for completing First Aid and CPR/AED certification requirements. These books and manuals also offered definitions for technical terminology. Examples of these books and manuals include American Red Cross Instructor manuals and student participation skill cards. Also included was an American Red Cross student-assigned class text and an Emergency Medical Technician class text. Furthermore, a professional medical dictionary along with marketing literature books published by the American Heart Association supported much of the research included in this study.

Finally, data from returned surveys and pre- and post-tests were used. The data are considered valid and reliable based on the input of reserve deputies, other rescuers surveyed, and the manuals and books published by reputable organizations such as the American Red Cross.

### Data Processing and Analysis

Upon the return of completed surveys, the data will be analyzed to see if Reserve Corps members feel that an annual First Aid/CPR/AED program will be advantageous to the Reserve Corps division of the Eau Claire County Sheriff's Department. Also, this data will be analyzed to find out the percentage of members who have completed a First Aid/CPR/AED course. In addition, it will determine what the current First Aid/CPR/AED skill level of the Reserve Corps is as a whole.

Upon the return of completed pre-tests and post-tests, the data will be analyzed to see if recruits taking the test had increased, decreased, or obtained the same score after completing a First Aid/CPR/AED block of instruction. With the use of a numerical identifier, the analyzed data should also be able to tabulate whether a certain recruit is able to increase, decrease, or obtain the same score after completing a First Aid/CPR/AED block of instruction. The tabulated data gathered from both the surveys and the pre- and post-tests will be analyzed and interpreted so that managers and supervisors from the Eau Claire County Sheriffs Department can weigh the data into the process of deciding whether to implement an annual First Aid/CPR/AED program within the Reserve Corps division.

As mentioned earlier, this project uses both an experimental and a descriptive design. It is experimental in that it uses a pre- and post-test. By using a pre- and post-

test, the design allows for manipulation, control, and randomization. It is descriptive in nature because

Descriptive designs are designed to gain more information about a particular characteristic within a particular field of study. A descriptive study may be used to, develop theory, identify problems with current practice, justify current practice, make judgments or identify what others in similar situations may be doing. (Ross, 1999, Descriptive Design section)

### Methodological Assumptions

There are several assumptions to be made about this study. The more common assumptions involve the population group(s) used to collect data. Concerning the population to be surveyed, it is assumed that every member of the Eau Claire County Sheriff's Department Reserve Corps division will participate in the survey process. There are a total of 14 members, so it is feasible that every member will take the time to complete the survey. Furthermore, the Reserve Corps meets every third Thursday of the month, so the group is together at least once a month. These meetings create the opportunity to distribute the survey along with written and verbal instructions. In addition, it is likely that members will be able to complete and return the survey prior to the end of the meeting. In the event that a member is absent from a meeting, it is likely that the member will be present the following month. Otherwise, members are required to complete a certain number of hours working in some capacity as a deputy.

When deputies report for duty, they are encouraged to check the assigned Reserve Corps mailbox for current information. A survey, along with a consent form, will be left in the mailbox for any deputy who is not present at a meeting. Also, the Reserve Corps is small enough that any supervisor would be able to call the deputy and explain the procedure for completing the survey. In an extreme case, the survey could be mailed to the deputy, but it is very unlikely that the lack of communication with a deputy would get to this point. Because each Reserve Corps member brings with them a unique background, it is assumed that some of the members already possess strong skill levels needed to perform First Aid, CPR and to use an AED. Furthermore, it is assumed that some of the members already hold a current First Aid/CPR/AED certification card.

The population group that will take both the pre-test and post-test will be police academy recruits taking a first responder course as part of their requirement to complete the police academy. The key word is requirement. Because recruits are required to take the first responder course as part of their certification requirement, it is assumed that the total population of 13 recruits will complete both the pre-test and post-test. The whole academy class will take the first responder course together. By having the group together at one time, it will be feasible to distribute a pre-test prior to First Aid/CPR/AED instruction. Likewise, it will be just as feasible to distribute a post-test shortly after the completion of a First Aid/CPR/AED block of instruction.

The only foreseeable limitation is that a student may be ill or excused from this block of instruction. However, the student must still complete this block of instruction at some point in time to fulfill certification requirements. Therefore, a pre-test and post-test can be given during the student's make-up time. Some of these students may already

have completed First Aid, CPR, and AED training. They are still required to take the first responder portion of the recruit school, but it may be assumed that their proficient skill level concerning First Aid/CPR/AED use may be evident on both the pre-test and post-tests.

### Limitations of Methodology

Some limitations concerning the pre-/post-test population may be the rescheduling of the class as a whole. If this occurs, the results of both tests will be delayed. Other basic limitations may include participants in general. For example, some participants may not be completely honest when answering survey or test questions. Or perhaps, the chosen time to distribute either the survey and/or the pre-/post-test may conflict with the schedules of the Reserve Corps or the recruit class. This however, is unlikely, because arrangements with both the Sheriff's Department and the Chippewa Valley Technical College will be made prior to the distribution of materials. Overall, there are few limitations of this study.

According to Sproull (1995), there are some disadvantages to the instrument administration. That is, tests and questionnaires. Two distinct disadvantages are these:

1. Subjects may react to the intrusion of being measured and lie or distort information or change their behavior.
2. If good existing instruments are not available, the researcher may have to generate an instrument. This is time consuming and can be costly (p. 165).

As mentioned above, some participants may not be completely honest when answering survey or test questions. However, the nature of the subject matter is not intended to rate and critique a participant's performance, but rather to gain information

for future training needs. Therefore, it is more likely that participants will see the benefits to answering the questions as honestly as possible so that the information may be used to design and implement future training courses.

Pertaining to the instrument itself (survey and pre-/post-tests), it is only feasible that a customized survey and pre-/post-test be designed. This will be done so that those questions pertaining to the Eau Claire County Sheriff's Office Reserve Corps can reflect the needs of the Corps in general. Also, the test questions are designed specifically for a law enforcement audience to assess their skill levels pertaining to First Aid, CPR, and the use of AEDs.



## Chapter IV

### Results

#### Purpose for Conducting Research

The purpose for conducting this research was to evaluate the current skill levels and subject knowledge of deputies within the Eau Claire County Sheriff's Department Reserve Corps Division pertaining to First Aid skills, Cardio Pulmonary Resuscitation (CPR) skills, and the use of an Automated External Defibrillator (AED). The data for this research came from two separate sources. The first source included a detailed survey that was distributed to 14 members of the Eau Claire County Sheriff's Department Reserve Corps. This particular survey was designed to assess the current skill levels and subject knowledge of each reserve deputy within the Reserve Corps division. The questions were designed so that participants could evaluate themselves and rate their skill levels using a Likert scale survey along with yes and no questions.

The second source of information came from a pre-test and post-test distributed to 13 police recruits in a current recruit class at the Chippewa Valley Technical College in Eau Claire. The pre-test was given to recruits prior to the facilitation of a First Aid/CPR/AED class. Recruits were asked to answer questions pertaining to First Aid, CPR, and the use of an AED before they were given any formal instruction. The purpose of this test was to assess student's skill levels prior to the instruction of a First Aid, CPR, and AED class. Following the facilitation of the class, a post-test was given to recruits to evaluate if there was an increase in student knowledge.

The research design used for this project is descriptive in nature. The design relates to the problem and research objectives because it allows for a detailed description

and the ability to report information based on the collected data. Department managers may use collected data to decide how this information may be used or applied to their own core competencies and departmental goals and objectives.

### Survey Results from the Eau Claire County Sheriff's Department

There are a total of 14 Reserve Corps members who participated in this survey. The following is a breakdown of each question and how participants responded. This section will report the yes and no questions related to First Aid, CPR, and the use of an AED first. Following the yes and no questions, there will be a break down of how participants responded to the self assessment sections with relation to First Aid, CPR, and the use of an AED.

#### Yes/No Questions Pertaining to Standard First Aid

Item one asked participants if they have ever taken a First Aid class before. Thirteen (92.9%) of the deputies responded yes to this question and one (7.1%) responded no. Item number two asked if members were currently certified in standard First Aid. Of the 14 participants, six (42.9%) answered yes and eight (57.1%) answered no. This shows that over half of the Reserve Corps members are not certified in First Aid. However, a large majority (92.9%) of the deputies have had some First Aid training at some time in their career.

#### Yes/No Questions Pertaining CPR

The first question in this section asked participants if they have ever taken a CPR class before. Thirteen (92.9%) responded yes to this question and only one (7.1%)

responded no. This shows that, of the 14 members, the majority is somewhat familiar with CPR skills. Question two in this section expands on CPR by asking if any Reserve Corps members are currently certified in CPR. Eight (57.1%) answered yes to this question and six (42.9%) answered no. Again, a large majority (92.9%) of the deputies have had some CPR training throughout their career.

#### Yes/No Questions Pertaining to AED Use

The first question in this section asked deputies if they are familiar with an AED and what it does. Nine (64.3%) answered yes and five (35.7%) answered no. The second item in this section asked participants if they have ever taken an AED class before. Seven members answered yes and seven answered no. This figure shows that half (50%) of the Reserve Corps members have some basic understanding of AEDs. The third item in this section asked participants if they are currently certified to use an AED. Again, seven members answered yes and seven answered no. Reserve Corps members are split equally with regards to basic AED knowledge and current certifications.

#### Yes/No Questions Pertaining to the Eau Claire County Sheriff's Department

Item one in this section asked members if they felt it would be helpful to learn First Aid skills to perform their job as a law enforcement officer. The total population (100%) responded yes to this question. Item two in this section asked members if they felt it would be helpful to learn and to be certified in CPR to perform their job as a law enforcement officer. Again, the total population responded yes. Item three asked if members felt it would be helpful to learn and to be certified to use an AED to perform

their job as a law enforcement officer. Once again, every participant answered yes. The fourth item asked if members felt that the Eau Claire County Sheriff's Department should implement an AED program within the Reserve Corps Division. 13 (92.9%) responded yes to this question and one (7.1%) responded no. Overall, the majority agrees that such a program should be implemented into the Reserve Corps division.

The fifth item asked members if they have ever encountered a medical emergency while performing the duties of a law enforcement officer. Ten (71.4%) responded yes and four (28.6%) responded no. Over 70% of the deputies in the Reserve Corps have encountered a medical emergency while performing duties of a law enforcement officer. The final item in this section asked members if they would feel confident to provide care in the event of a medical emergency. The results mirrored those of the fifth item. Ten (71.4%) answered that, yes, they would feel confident to provide care given an emergency situation, and only four (28.6%) answered no.

#### Self-Assessment Questions Related to First Aid

The first item in this section asked participants if they would be able to recognize an emergency situation. Using a Likert scale to respond, one (7.1%) member assessed himself/herself as having a moderate skill level. Seven (50%) of the members rated themselves as having above a moderate skill level and six (42.9%) of the members rated themselves as having a high skill level needed to recognize an emergency situation.

The second item asked participants if they would be able to give First Aid in an emergency situation. One (7.1%) participant rated himself or herself as having a low skill level. Three (21.4%) of the Reserve Corps members rated themselves as having a

moderate skill level. Five (35.7%) rated themselves as having above a moderate skill level, and five (35.7%) rated themselves as having a high First Aid skill level. Given these figures, over 90% of the members rate themselves as having or exceeding a moderate skill level needed to perform First Aid.

#### Self-Assessment Questions Related to Breathing/Airway Emergencies

Item one in this section asked participants if they would be able to recognize a breathing emergency. Four (28.6%) of the members rated themselves as having a moderate level of skill needed to recognize a breathing emergency. Four (28.6%) rated themselves as having above a moderate skill level and six (42.9%) rated themselves as having a high skill level needed to recognize a breathing emergency.

Item two asked participants if they would be able to clear an obstructed airway. One (7.1%) responded that he or she had a low skill level. One (7.1%) responded as having just above a low level but under a moderate level. Another (7.1%) member rated himself or herself as having a moderate skill level. Five (35.7%) rated themselves as having above a moderate skill level and six (42.9%) rated themselves as having a high skill level needed to clear an obstructed airway.

Item three asked participants if they would be able to determine if a victim is conscious. One (7.1%) rated himself or herself as having a below moderate skill level needed. Two (14.3%) of the deputies responded as having a moderate skill level. Three (21.4%) rated themselves as having an above moderate skill level while the remaining eight (57.1%) members rated themselves as having a high skill level needed to determine consciousness.

The final item in this section asked participants to rate themselves on their ability to provide rescue breathing to a victim in need. Of the 14 participants, one (7.1%) rated himself or herself as having a low skill level needed to perform rescue breathing. Another (7.1%) member rated himself or herself as having a moderate skill level needed to perform rescue breathing. Six (42.9%) of the members rated themselves as having skill levels higher than moderate, and the remaining six (42.9%) rated themselves as having a high skill level. Overall, the majority of deputies feel that they have an above-moderate skill level needed to perform rescue breathing techniques.

#### Self-Assessment Questions Related to CPR

The first item in this section asked participants if they would be able to identify and recognize a victim who is not breathing and who does not have a pulse. A total of four (28.6%) responded that they have a moderate skill level needed to perform this task. Three (21.4%) participants felt that they have more than moderate levels of skill needed to perform this task, while the remaining seven (50%) feel that they have a high level of skill needed to recognize a victim who is not breathing and who does not have a pulse.

The second item in this section asked participants if they would be able to recognize signs of a cardiac arrest. The results varied for this question with one (7.1%) member rating himself or herself as having a low level of skill needed to recognize the signs. Four (28.6%) of the members also rated themselves fairly low, but just a bit higher than a low-level rating. Two (14.3%) members rated themselves as having a moderate skill level needed to recognize the signs, while four (28.6%) felt that their skill level is

higher than moderate. Finally, the last three (21.4%) felt that they had a high level of skill needed to recognize the signs of a cardiac arrest.

The third and final item in this section asked participants if, in an emergency situation where the victim was not breathing and did not have a pulse, they would be able to perform CPR. Only one (7.1%) of the members rated himself or herself as having a low level of skill needed to perform CPR. Likewise, one (7.1%) other member rated himself or herself as having a skill level just above the lowest rating. Two (14.3%) members gave themselves ratings of having a moderate skill level while three (21.4%) of the members rated themselves just below the high skill rating. Half of the Reserve Corps members, seven, rated themselves as having a high skill level needed to perform CPR. Overall, 85% of the members feel that they possess at least a moderate level of skills needed to perform CPR.

#### Self-Assessment Questions Related to the Use of an AED

Item one in this section asked participants if, given an emergency involving a cardiac arrest, they would be able to recognize the urgency to respond with an AED in a timely manner. In all, five (35.7%) members responded by rating themselves with a low skill level needed to perform this task. One (7.1%) member felt that he or she had a skill level just above the low rating. Another (7.1%) member felt that he or she had a moderate skill level, while three (21.4%) felt that their levels of skill were above the moderate rating. The remaining four (28.6%) members felt that their skill levels were equal to the high rating.

The second item in this section asked participants if, given an emergency situation involving a cardiac arrest, they would be able to understand the concept of an AED. Four (28.6%) members felt that their understanding needed to perform this task warranted a low rating. One (7.1%) of the members felt that his or her understanding was just above the low rating, and another (7.1%) member felt that he or she had a moderate understanding of an AED. Two (14.3) members rated their understanding of AEDs as being just below the high level. The remaining six (42.9%) felt that their understanding of an AED is high. Over half (64.3%) of the Reserve Corps members felt that they would have at least a moderate understanding and concept of an AED given an emergency situation. But a significant minority (35.7%) felt that their understanding was below moderate.

The final item in this section asked participants if, given an emergency situation involving a cardiac arrest, they would be able to use an AED to help defibrillate the victim. Five (35.7%) of the members rated themselves as having a low level of skill necessary to use an AED. Only one (7.1%) member felt that he or she had a level just above the low rating. Then the ratings jump to just under the high rating, with three (21.4%) members in this block. The five (35.7%) remaining members rated themselves as having a high skill level needed to perform defibrillation with an AED. Looking closer at these ranges, five of the members are at the low rating and five are at the high rating. The other four fall in between the low and high.



### Survey Results from the Pre-test and Post-test

The pre-test and post-test were given to 13 police recruits at the Chippewa Valley Technical College. The purpose for these tests was to see if recruits would increase their knowledge after receiving formal First Aid, CPR, and AED training. All 13 recruits participated in both the pre- and post-test. The test was divided into a First Aid section, a CPR section, and an AED section. There were a total of 15 true/false questions per section. The results are broken down and reported separately for each section.

#### Pre-test and Post-test Questions Related to First Aid

Item 1. First Aid responders should be able to recognize an emergency situation (i.e. person who is not breathing, etc.).

- The correct answer to this question is true.
- Every recruit (100%) answered this question correctly on both tests.

Item 2. First Aid is providing care to a person who is in need of basic medical attention.

- The correct answer to this question is true.
- Eleven (84.6%) recruits answered this question correctly on the pre-test.
- Two (15.4%) recruits answered this question incorrectly on the pre-test.
- Twelve (92.3%) recruits answered this question correctly on the post-test.
- One (7.7%) recruit answered this question incorrectly on the post-test.

Item 3. A first responder should always check the scene of an emergency to see if it is safe before providing care to a victim in need.

- The correct answer to this question is true.
- Every recruit (100%) answered this question correctly on both tests.

Item 4. The best way to establish if a victim is conscious or unconscious is to tap the victim's shoulder and shout to see if there is any response.

- The correct answer to this question is true.
- Ten (76.9%) recruits answered this question correctly on the pre-test.
- Three (23.1%) recruits answered this question incorrectly on the pre-test.
- Every recruit (100%) answered this question correctly on the post-test.

Item 5. When a victim is in extreme pain, the First Aid caregiver should always move the victim away from the scene of an accident even if there is no further possibility of harm to the victim or the rescuer.

- The correct answer to this question is false.
- Every recruit (100%) answered this question correctly on both tests.

Item 6. Providing First Aid can be as simple as bandaging a small cut.

- The correct answer to this question is true.
- Every recruit (100%) answered this question correctly on both tests.

Item 7. In the case of a serious emergency, an experienced First Aid giver does not need to call 911.

- The correct answer to this question is false.
- Every recruit (100%) answered this question correctly on both tests.

Item 8. Splinting a broken bone is part of First Aid care.

- The correct answer to this question is true.
- Twelve (92.3%) answered this question correctly on the pre-test.
- One (7.7%) answered this question incorrectly on the pre-test.
- Every recruit (100%) answered this question correctly on the post-test.

Item 9. Being able to recognize heat-and cold-related emergencies and how to care for them is beyond the scope of First Aid care.

- The correct answer to this question is false.
- Every recruit (100%) answered this question correctly on both tests.

Item 10. A trained First Aid responder should know what to do before providing care.

- The correct answer to this question is true.
- Every recruit (100%) answered this question correctly on both tests.

Item 11. A First Aid caregiver should always provide rescue breaths to an unconscious victim.

- The correct answer to this question is false.
- Eleven (84.6%) answered this question correctly on the pre-test.
- Two (15.4%) answered this question incorrectly on the pre-test.
- Twelve (92.3%) answered this question correctly on the post-test.
- One (7.7%) answered this question incorrectly on the post-test.

Item 12. It is not necessary for a First Aid responder to be able to recognize different types of wounds and how to care for them.

- The correct answer to this question is false.
- Every recruit (100%) answered this question correctly on the pre-test.
- Twelve (92.3%) answered this question correctly on the post-test.
- One (7.7%) answered this question incorrectly on the post-test.

Item 13. It is not necessary for a First Aid responder to be able to recognize injuries to muscles, bones, and joints and to care for them.

- The correct answer to this question is false.
- Twelve (92.3%) answered this question correctly on the pre-test.
- One (7.7%) answered this question incorrectly on the pre-test.

- Twelve (92.3%) answered this question correctly on the post-test.
- One (7.7%) answered this question incorrectly on the post-test.

Item 14. A First Aid responder should know how to prioritize care.

- The correct answer to this question is true.
- Every recruit (100%) answered this question correctly on both tests.

Item 15. Only professional emergency responders should provide First Aid care to a victim in need of medical attention.

- The correct answer to this question is false.
- Eight (61.5%) answered this question correctly on the pre-test.
- Five (38.5%) answered this question incorrectly on the pre-test.
- Ten (76.9%) answered this question correctly on the post-test.
- Three (23.1%) answered this question incorrectly on the post-test.

Note: See **Table 1** on p. 86.

A further comparison between the pre-test and post-test can be seen on (**Table 1**).

This table shows and compares the percentage of correct answers on both the pre-test and post-test for questions pertaining to First Aid. The table also shows if there is a percentage increase or decrease from pre- to post-test.

**Table 1****Comparison between pre-test and post-test questions related to First Aid.**

<b>Item Number</b>	<b>Pre-test</b>	<b>Post-test</b>	<b>Percentage increase</b>
<b>Item 1</b> % of correct answers	100	100	None
<b>Item 2</b> % of correct answers	84.6	92.3	7.7
<b>Item 3</b> % of correct answers	100	100	None
<b>Item 4</b> % of correct answers	76.9	100	23.1
<b>Item 5</b> % of correct answers	100	100	None
<b>Item 6</b> % of correct answers	100	100	None
<b>Item 7</b> % of correct answers	100	100	None
<b>Item 8</b> % of correct answers	92.3	100	7.7
<b>Item 9</b> % of correct answers	100	100	None
<b>Item 10</b> % of correct answers	100	100	None
<b>Item 11</b> % of correct answers	84.6	92.3	7.7
<b>Item 12</b> % of correct answers	100	92.3	-7.7
<b>Item 13</b> % of correct answers	92.3	92.3	None
<b>Item 14</b> % of correct answers	100	100	None
<b>Item 15</b> % of correct answers	61.5	76.9	15.4

### Pre-test and Post-test Questions Related to CPR

Item 1. In the event of a serious emergency where the victim is unresponsive, the rescuer should call or have someone else call 911 with information about the location and type of emergency.

- The correct answer to this question is true.
- Every recruit (100%) answered this question correctly on both tests.

Item 2. The rescuer should assess the victim and look, listen, and feel for breathing for about two minutes before providing care.

- The correct answer to this question is false.
- Eleven (84.6%) recruits answered this question correctly on the pre-test.
- Two (15.4%) recruits answered this question incorrectly on the pre-test.
- Every recruit (100%) answered this question correctly on the post-test.

Item 3. If a rescuer detects a pulse but does not detect breathing he or she should immediately begin CPR.

- The correct answer to this question is false.
- Five (38.5%) recruits answered this question correctly on the pre-test.
- Eight (61.5%) recruits answered this question incorrectly on the pre-test.
- Nine (69.2%) recruits answered this question correctly on the post-test.
- Four (30.8%) recruits answered this question incorrectly on the post-test.

Item 4. When a victim is not breathing and does not have a pulse, a rescuer should immediately provide CPR.

- The correct answer to this question is true.
- Twelve (92.3%) recruits answered this question correctly on the pre-test.
- One (7.7%) recruit answered this question incorrectly on the pre-test.
- Twelve (92.3%) recruits answered this question correctly on the post-test.
- One (7.7%) recruit answered this question incorrectly on the post-test.

Item 5. Rescue breathing along with chest compressions is necessary for a person who is not breathing and who does not have a pulse, because it acts as an artificial circulatory system that provides oxygenated blood throughout the system.

- The correct answer to this question is true.
- Every recruit (100%) answered this question correctly on both tests.

Item 6. CPR alone will almost always save a victim of cardiac arrest within minutes of the arrest taking place.

- The correct answer to this question is false.
- Ten (76.9%) recruits answered this question correctly on the pre-test.
- Three (23.1%) recruits answered this question incorrectly on the pre-test.
- Twelve (92.3%) recruits answered this question correctly on the post-test.
- One (7.7%) recruit answered this question incorrectly on the post-test.

Item 7. CPR is just one link in the survival chain of a person in cardiac arrest.

- The correct answer to this question is true.
- Every recruit (100%) answered this question correctly on both tests.

Item 8. A rescuer should continue to encourage a coughing choking victim to keep coughing.

- The correct answer to this question is true.
- Ten (76.9%) recruits answered this question correctly on the pre-test.
- Three (23.1%) recruits answered this question incorrectly on the pre-test.
- Eleven (84.6%) recruits answered this question correctly on the post-test.
- Two (15.4%) recruits answered this question incorrectly on the post-test.

Item 9. It is possible for a victim to breath but not have a pulse.

- The correct answer to this question is false.
- Twelve (92.3%) recruits answered this question correctly on the pre-test.

- One (7.7%) recruit answered this question incorrectly on the pre-test.
- Nine (69.2%) recruits answered this question correctly on the post-test.
- Four (30.8%) recruits answered this question incorrectly on the post-test.

Item 10. It is possible for a victim to have a pulse but not be able to breathe.

- The correct answer to this question is true.
- Eleven (84.6%) recruits answered this question correctly on the pre-test.
- Two (15.4%) recruits answered this question incorrectly on the pre-test.
- Every recruit (100%) answered this question correctly on the post-test.

Item 11. When it is determined that CPR is necessary, the first step is to make sure that the victim has an open airway and that rescue breaths are going in.

- The correct answer to this question is true.
- Every recruit (100%) answered this question correctly on both tests.

Item 12. If rescue breaths are not going in, a rescuer should skip giving breaths and go right to chest compressions.

- The correct answer to this question is false.
- Nine (69.2%) recruits answered this question correctly on the pre-test.
- Four (30.8%) recruits answered this question incorrectly on the pre-test.
- 10 (76.9%) answered this question correctly on the post-test.
- Three (23.1%) answered this question incorrectly on the post-test.

Item 13. When checking a victim for a pulse, a good place to check is the carotid artery on the side of the neck.

- The correct answer to this question is true.
- Every recruit (100%) answered this question correctly on both tests.



Item 14. When providing CPR it is necessary to provide exactly 15 compressions to two breaths.

- The correct answer to this question is false.
- Four (30.8%) recruits answered this question correctly on the pre-test.
- Nine (69.2%) recruits answered this question incorrectly on the pre-test.
- Three (23.1%) answered this question correctly on the post-test.
- Ten (76.9%) answered this question incorrectly on the post-test.

Item 15. CPR is all that is needed for a victim in cardiac arrest.

- The correct answer to this question is false.
- Every recruit (100%) answered this question correctly on both tests.

Note: See **Table 2** on p. 91.

A further comparison between the pre-test and post-test can be seen on (**Table 2**). This table shows and compares the percentage of correct answers on both the pre-test and post-test for questions pertaining to CPR. The table also shows if there is a percentage increase or decrease from pre- to post-test.

Table 2

**Comparison between pre-test and post-test questions related to CPR.**

<b>Item Number</b>	<b>Pre-test</b>	<b>Post-test</b>	<b>Percentage increase</b>
<b>Item 1</b> % of correct answers	100	100	None
<b>Item 2</b> % of correct answers	84.6	100	15.4
<b>Item 3</b> % of correct answers	38.5	69.2	30.7
<b>Item 4</b> % of correct answers	92.3	92.3	None
<b>Item 5</b> % of correct answers	100	100	None
<b>Item 6</b> % of correct answers	76.9	92.3	15.4
<b>Item 7</b> % of correct answers	100	100	None
<b>Item 8</b> % of correct answers	76.9	84.6	7.7
<b>Item 9</b> % of correct answers	92.3	69.2	-23.1
<b>Item 10</b> % of correct answers	84.6	100	15.4
<b>Item 11</b> % of correct answers	100	100	None
<b>Item 12</b> % of correct answers	69.2	76.9	7.7
<b>Item 13</b> % of correct answers	100	100	None
<b>Item 14</b> % of correct answers	30.8	23.1	-7.7
<b>Item 15</b> % of correct answers	100	100	None

### Pre-test and Post-test Questions Related to the use of an AED

Item 1. AEDs are small-automated external defibrillators that use computer technology to analyze the hearts rhythm of a victim in cardiac arrest.

- The correct answer to this question is true.
- Every recruit (100%) answered this question correctly on both tests.

Item 2. Because AEDs are automated, it is not necessary for users to learn how to properly use them.

- The correct answer to this question is false.
- Every recruit (100%) answered this question correctly on both tests.

Item 3. AEDs are compact defibrillators that can help save a person in cardiac arrest.

- The correct answer to this question is true.
- Every recruit (100%) answered this question correctly on both tests.

Item 4. AEDs are large machines that require detailed set-up before they can be used on a victim suffering from cardiac arrest.

- The correct answer to this question is false.
- Every recruit (100%) answered this question correctly on both tests.

Item 5. The success of an AED depends on the amount of time that has elapsed from the moment a victim suffering from cardiac arrest collapses until the AED delivers a shock.

- The correct answer to this question is true.
- Twelve (92.3%) recruits answered this question correctly on the pre-test.
- One (7.7%) recruit answered this question incorrectly on the pre-test.
- Twelve (92.3%) recruits answered this question correctly on the post-test.
- One (7.7%) recruit answered this question incorrectly on the post-test.

Item 6. When using an AED on a cardiac arrest victim, it is recommended that a second rescuer hold down the victim while the shock is being delivered.

- The correct answer to this question is false.
- Eleven (84.6%) recruits answered this question correctly on the pre-test.
- Two (15.4%) recruits answered this question incorrectly on the pre-test.
- Twelve (92.3%) recruits answered this question correctly on the post-test.
- One (7.7%) recruit answered this question incorrectly on the post-test.

Item 7. When an AED is attached to a cardiac arrest victim, it is the responsibility of the rescuer to analyze the victim's heart rhythm not the machines.

- The correct answer to this question is false.
- Six (46.2%) recruits answered this question correctly on the pre-test.
- Seven (53.8%) recruits answered this question incorrectly on the pre-test.
- Twelve (92.3%) recruits answered this question correctly on the post-test.
- One (7.7%) recruit answered this question incorrectly on the post-test.

Item 8. If a victim is not breathing but does have a pulse, an AED should be used to help the victim breath on his or her own.

- The correct answer to this question is false.
- Twelve (92.3%) recruits answered this question correctly on the pre-test.
- One (7.7%) recruit answered this question incorrectly on the pre-test.
- Every recruit (100%) answered this question correctly on the post-test.

Item 9. The presence of AEDs is becoming more common in large public arenas such as malls and sporting events.

- The correct answer to this question is true.
- Twelve (92.3%) recruits answered this question correctly on the pre-test.
- One (7.7%) recruit answered this question incorrectly on the pre-test.
- Every recruit (100%) answered this question correctly on the post-test.

Item 10. Once trained on the proper use of an AED, rescuers have very little chance for error.

- The correct answer to this question is true.
- Five (38.5%) recruits answered this question correctly on the pre-test.
- Eight (61.5%) recruits answered this question incorrectly on the pre-test.
- Eleven (84.6%) recruits answered this question correctly on the post-test.
- Two (15.4%) recruits answered this question incorrectly on the post-test.

Item 11. Law enforcement personnel are often times exposed to an emergency situation were an AED should be used.

- The correct answer to this question is true.
- Ten (76.9%) recruits answered this question correctly on the pre-test.
- Three (23.1%) recruits answered this question incorrectly on the pre-test.
- Twelve (92.3%) recruits answered this question correctly on the post-test.
- One (7.7%) recruit answered this question incorrectly on the post-test.

Item 12. Rescuers trained to use AEDs should have a good understanding of First Aid and CPR skills in order to understand why AEDs are necessary to help a victim in cardiac arrest.

- The correct answer to this question is true.
- Every recruit (100%) answered this question correctly on both tests.

Item 13. Before using an AED, a rescuer should be able to recognize that a life-threatening emergency exists.

- The correct answer to this question is true.
- Every recruit (100%) answered this question correctly on both tests.

Item 14. Quick response, including the use of an AED, is essential for survival when dealing with cardiac arrest.

- The correct answer to this question is true.
- Every recruit (100%) answered this question correctly on both tests.

Item 15. When using an AED on a cardiac arrest victim, the rescuer should listen for the automated prompts and then deliver a shock if instructed to do so.

- The correct answer to this question is true.
- Every recruit (100%) answered this question correctly on the pre-test.
- Twelve (92.3%) answered this question correctly on the post-test.
- One (7.7%) answered this question incorrectly on the post-test.

Note: See **Table 3** on p. 96.

A further comparison between the pre-test and post-test can be seen on (**Table 3**). This table shows and compares the percentage of correct answers on both the pre-test and post-test for questions pertaining to the use of an AED. The table also shows if there is a percentage increase or decrease from pre- to post-test.

Table 3

**Comparison between pre-test and post-test questions related to the use of an AED.**

<b>Item Number</b>	<b>Pre-test</b>	<b>Post-test</b>	<b>Percentage increase</b>
<b>Item 1</b> % of correct answers	100	100	None
<b>Item 2</b> % of correct answers	100	100	None
<b>Item 3</b> % of correct answers	100	100	None
<b>Item 4</b> % of correct answers	100	100	None
<b>Item 5</b> % of correct answers	92.3	92.3	None
<b>Item 6</b> % of correct answers	84.6	92.3	7.7
<b>Item 7</b> % of correct answers	46.2	92.3	46.1
<b>Item 8</b> % of correct answers	92.3	100	7.7
<b>Item 9</b> % of correct answers	92.3	100	7.7
<b>Item 10</b> % of correct answers	38.5	84.6	46.1
<b>Item 11</b> % of correct answers	76.9	92.3	15.4
<b>Item 12</b> % of correct answers	100	100	None
<b>Item 13</b> % of correct answers	100	100	None
<b>Item 14</b> % of correct answers	100	100	None
<b>Item 15</b> % of correct answers	100	92.3	-7.7

### Discussion of Data from the Eau Claire County Sheriff's Department

Concerning questions pertaining to First Aid, 13 of the 14 deputies have had some First Aid training. Overall, that's 92.9% of the Reserve Corps population. Of that figure, only six (42.9%) are currently certified in First Aid. This means that over half (57.1%) of the Reserve Corps members are not certified. When surveyed about CPR, 13 (92.9%) members indicated that they have had formalized training, but only eight (57.1%) are currently certified. So, almost half of the members do not hold a current CPR certification.

Because AEDs are just starting to appear amongst law enforcement agencies, it is not surprising that five (35.7%) of the Reserve Corps members are not familiar with AEDs and what they do. Only half of the members have even taken an AED class before. According to the data, only half of the total population is certified to use an AED.

According to the data, the whole Reserve Corps population felt that it would be helpful to learn First Aid, CPR, and AED skills. Only one member felt that it was not worth implementing an AED program. Overall, the data shows that members of the Reserve Corps Division would welcome a formalized First Aid/CPR/AED program. Statistics show that a majority of Reserve Corps members (71.4%) have encountered a medical emergency while performing the duties of a law enforcement officer. Should other medical emergencies arise, it would be advantageous to have the total population of Reserve Deputies be trained and prepared to handle the situation.



### Discussion of Data from Police Recruits

Data compiled from this group was important, because overall it showed that recruits did better on the post-test following formalized training of First Aid/CPR/AED skills. Recruits as a whole did better on the First Aid post-test than they did on the pre-test. When reviewing this section, recruits either provided the same answer on both tests or increased the number of correct answers on the post-test. This is true for all of the questions in this section except for question 12. Concerning this question, every recruit provided the correct answer on the pre-test but one recruit answered it incorrectly on the post-test. Reasons for the incorrect answer on the post-test are unclear.

Like the First Aid section, recruits on the CPR section generally increased the number of correct answers from pre-test to post-test. There were some questions where all 13 recruits provided the correct answer on both tests. There were two questions where the reverse happened. With regard to questions 9 and 14, recruits did better on the pre-test than on the post-test. Overall, recruits did better on the post-test after formal CPR training.

After comparing the AED results of both tests, recruits seemed to do significantly better. In fact, all but one of the answers shows at least the same results if not an increase from pre-test to post-test. The only question of concern was number 15. For this question, every recruit answered it correctly on the pre-test but one recruit changed his or her answer on the post-test. However, there was still a high percentage (92.3%) of correct answers.

The researcher found that the majority of recruits did better on post-tests than they did on pre-tests. This formal training was combined with lecture and hands-on practice at

CVTC. These techniques gave recruits the opportunity to learn skills and to practice them. The instruments used to gather data from the Eau Claire County Sheriff's Department Reserve Corps division and from police recruits enrolled at CVTC supports the theory of this project in that formalized First Aid, CPR, and AED training will better prepare deputies when dealing with medical emergencies.

## Chapter V

### Summary, Conclusions, and Recommendations

#### Summary of Chapters

The first chapter of this project gave a detailed description of the problem to be researched. The setting of the problem exists within the Eau Claire County Sheriff's Department Reserve Corps Division. The problem of this study is to determine what can be done to bring members of the Reserve Corps Division up to current American Red Cross First Aid and CPR/AED standards and to continue to keep those members up to current standards set forth by the American Red Cross on an annual basis. The importance of this study is to determine why the Reserve Corps should implement this type of training within the annual training schedule. A solution to this problem is necessary because it will help implement a policy that requires basic First Aid and CPR/AED training on an annual basis within the Reserve Corps Division of the Eau Claire County Sheriff's Department.

Chapter two reviews the many different aspects involving the implementation of a First Aid, CPR, and AED program. This chapter first described and defined what First Aid is, which gives the reader a basic understanding of its importance when dealing with medical emergencies. Once a basic definition of First Aid was provided, the next level of emergency care was defined. Cardio pulmonary resuscitation (CPR) provides artificial circulation and oxygenated air to a victim who is not breathing and who does not have a pulse (AHA BLS for Healthcare Providers, 2001). CPR sustains a victim until an AED is available and more advanced rescuers arrive on scene. This project points out several examples where an AED has saved a person's life. In fine detail, chapter two gives an

overview of the actual skills and steps required to perform First Aid, CPR, and how to use an AED.

Chapter three points out that the research methodology of this project is quantitative in nature. The designed survey was used to measure Reserve Corps members' current skill levels pertaining to First Aid, CPR, and the use of an AED. In addition to this survey, both a pre-test and a post-test were handed out to police recruits in a current recruit class. The purpose of the pre-test was to measure recruits' knowledge of First Aid, CPR, and the use of an AED before participating in formalized training. The post-test was designed to measure the knowledge after attending the lesson. The reason for the quantitative design was that it allowed for objectivity. The particular design relates to the problem, because it allows for the processed data to be reported to managers of the Reserve Corps Division so that they can decide how the information may be used or applied to the core competencies of the department.

Chapter four summarized the results of the surveys distributed to the Reserve Corps members of the Eau Claire County Sheriff's Department and compared the pre-test scores to the post-test scores of police recruits after the facilitation of First Aid, CPR, and AED skills training. The data from the surveys showed that Reserve Corps members have had some First Aid, CPR, and AED training. It also showed that some members had more training than others in these areas. Overall, the survey showed that the majority of Reserve Corps members would welcome the implementation of an AED program within the division. The post-test scores when compared to the pre-test scores of recruits taking formalized First Aid, CPR, and AED training also showed an increase in knowledge after the training. These two findings support the research objectives that

Reserve Corps deputies will welcome the implementation of an AED program and that formalized training is necessary to keep deputies proficient in these skills.

### Conclusions

The objectives of this study were to

1. Identify the primary reasons why the Reserve Corps should train its members in standard First Aid and CPR/AED skills.
2. Identify the factors that contribute to the Reserve Corps' decision to continue to train its members in First Aid and CPR/AED skills.
3. Determine the overall impact that these factors have in leading the Reserve Corps to implement a standard First Aid and CPR/AED training course.
4. Initiate a plan of action to assist managers and supervisors when making the decision to implement an annual training session.

Clearly, the study identified the primary reasons why the Reserve Corps should train its members in standard First Aid and CPR/AED skills. The fact that police officers have a distinct advantage in arriving at the scene of a medical emergency more quickly than most public service agencies shows that it is essential to equip them with both the knowledge and the tools to help save a person's life. Factors that should contribute to the Reserve Corps' decision to continue to train its members in First Aid and CPR/AED skills are supported by the results of the survey and the fact that test scores were better on the post-test after the formalized training of First Aid, CPR, and how to use an AED. The literature review has provided this study with several examples of lives being saved because of quick response by trained rescuers and the use of an AED. This supports the overall impact that these factors have that should lead the Reserve Corps to implement a

standard First Aid and CPR/AED training course. Again, the results from the surveys and the scores on the post-tests also support these factors. The literature review provides managers with statistics, information pertaining to government regulations, and some basic management support factors that may be used when managers and supervisors are making the decision to implement an annual training program.

### Recommendations

The research supports the implementation of an annual First Aid, CPR, and AED training program. When determining whether to implement such a program within the Reserve Corps Division of the Eau Claire County Sheriff's Department, managers (to include captains, lieutenants, and sergeants) should take the following three factors into account:

1. Managers should take into account the potential to save lives.
2. As AEDs become more vital in the fight to save victims of cardiac arrest, so do laws and regulations governing their use. In fact, these same laws may someday work against agencies that do not train their employees on the use of AEDs (to encompass First Aid and CPR training).
3. Managers should consider implementing a First Aid, CPR, and AED program that includes annual training to keep deputies current with American Red Cross standards.

Some of the more common limitations that managers will face are the coordination of training resources and efforts with the members of the Reserve Corps. Other limitations will include training budget costs as well as equipment costs and equipment maintenance costs. County board members may be reluctant to approve

training and equipment costs of this nature. However, the American Red Cross supports the training efforts of police agencies and their personnel when it comes to saving lives using the skills of First Aid, CPR, and the use of AEDs.

Overall, the data supports the problem of the study because it shows the benefits of implementing an AED program within a law enforcement agency. The study has identified the primary reasons why the Reserve Corps of the Eau Claire County Sheriff's Department should implement an AED program. The study has also identified the factors that contribute to other law enforcement agencies' decisions to implement an AED program. Finally, the report shows how to initiate a plan of action to assist managers when making the decision to implement an AED program.

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## Appendixes

### Appendix A

#### First Aid/CPR/AED Participant Progress Log

The First Aid/CPR/AED Participant Progress Logs are check off sheets used by American Red Cross instructors to log the completion of certain skills. Basically, when a student shows the instructor that he/she is able to perform certain tasks, the instructor checks the student off for that particular area indicating that the student was able to perform the task on that particular day. This log is then filed with American Red Cross class records. These participant progress logs record the student's ability to perform the following First Aid/CPR/AED related tasks in a safe and correct manner. The following is a list of tasks that a student must perform in order to be checked off by the instructor.

First Aid tasks to be completed by student:

- Remove Gloves
- Check an Unconscious Victim
- Control External Bleeding
- Sling and Binder
- Head, Neck, and Back Immobilization

CPR tasks to be completed by student:

- Remove gloves
- Conscious choking
- Check an unconscious victim
- Perform rescue breathing
- Perform Adult CPR
- Unconscious choking

AED tasks to be completed by student:

- Conscious choking
- Check an unconscious victim
- Remove gloves
- Perform rescue breathing
- Perform adult CPR
- Unconscious Choking
- Use an AED
- CPR/AED scenario 1 or 2
- CPR/AED scenario 3
- CPR/AED scenario 4

Note: The first seven tasks are required of students to perform. The American Red Cross also has designed different scenarios to be used with the AED training. Each scenario is a little different and gives students a variety of possible situations. The scenario portion of the class requires students to participate. The last three bullet points appear on the check off sheet as tasks to participate in rather than as a requirement.

(ARC First Aid/CPR/AED Program instructor's manual, 2001, pp. 185, 230, 362)

## Appendix B

## Skills Assessment Survey for First Aid/CPR/AEDs

Please answer the following questions by circling either yes or no for each answer. This survey will be used to assess the current skill levels of members of the Eau Claire County Sheriff's Department Reserve Corp pertaining to First Aid, CPR and the use of AEDs

**Questions pertaining to Standard First Aid:**

- |  |     |    |
|--|-----|----|
| 1). Have you taken a Standard First Aid class before?  | Yes | No |
| 2). Are you currently certified in Standard First Aid? | Yes | No |

**Questions pertaining to CPR:**

- |   |     |    |
|---|-----|----|
| 1). Have you taken a CPR class before?  | Yes | No |
| 2). Are you currently certified in CPR? | Yes | No |

**Questions pertaining to AED use:**

- |  |     |    |
|--|-----|----|
| 1). Are you familiar with what an AED is and what it does? | Yes | No |
| 2). Have you taken an AED class before?                    | Yes | No |
| 3). Are you currently certified to use an AED?             | Yes | No |

**Questions pertaining to the Eau Claire County Sheriff's Reserve Corp:**

- |   |     |    |
|---|-----|----|
| 1). Do you feel it would be helpful to learn First Aid skills to perform your job as a law enforcement officer?                                     | Yes | No |
| 2). Do you feel it would be helpful to learn and be certified in CPR to perform your job as a law enforcement officer?                              | Yes | No |
| 3). Do you feel it would be helpful to learn and be certified to use an AED to perform your job as a law enforcement officer?                       | Yes | No |
| 4). Do you feel that the Eau Claire County Sheriff's Department should implement an AED program within the Reserve Corp. Division?                  | Yes | No |
| 5). While performing the duties of a law enforcement officer, have you ever encountered a medical emergency?  | Yes | No |
| 6). Given an emergency medical situation while performing the duties of a law enforcement officer, would you feel confident enough to provide care? | Yes | No |

**Please rate you're skill level for each question by circling a number with 1 being a low level of skill needed to complete the task and 5 being a high level of skill to complete and perform the task.**

### **First Aid**

- |   |           |
|---|-----------|
| 1). You would be able to recognize an emergency situation           | 1 2 3 4 5 |
| 2). Given an emergency situation, you could give standard First Aid | 1 2 3 4 5 |

### **Breathing/Airway Emergencies**

- |  |           |
|--|-----------|
| 1). Given an emergency situation, you would be able to recognize a breathing emergency.              | 1 2 3 4 5 |
| 2). Given a breathing emergency, you would be able to clear an obstructed airway.                    | 1 2 3 4 5 |
| 3). Given a breathing emergency, you would be able to determine if a victim is conscious.            | 1 2 3 4 5 |
| 4). Given a breathing emergency, you would be able to provide rescue breathing to a victim in need.. | 1 2 3 4 5 |

### **CPR**

- |  |           |
|--|-----------|
| 1). Given an emergency situation, you would be able to identify and recognize a victim who is not breathing and does not have a pulse. | 1 2 3 4 5 |
| 2). Given an emergency situation, you would be able to recognize signs of a cardiac arrest.  | 1 2 3 4 5 |
| 3). Given an emergency situation were the victim is not breathing and does not have a pulse, you could perform CPR.                    | 1 2 3 4 5 |



**AED**

- 1). Given an emergency situation involving a cardiac arrest, you would be able to recognize the urgency to respond with an AED in a timely manner. 1 2 3 4 5
  
- 2). Given an emergency situation involving a cardiac arrest, you would be able to understand the concept of an AED. 1 2 3 4 5
  
- 3). Given an emergency situation involving a cardiac arrest, you would be able to use an AED to help defibrillate the victim. 1 2 3 4 5

## Appendix C

**Pre-test/Post-test**

**Please answer the following questions pertaining to First Aid by circling either true or false. The information you provide may be used to assess current and future training needs for law enforcement personnel in various agencies.**

**First Aid Questions:**

- 1). First Aid responders should be able to recognize an emergency situation.

**True**

**False**

- 2). First Aid is providing care to a person who is in need of basic medical attention.

**True**

**False**

- 3). A first responder (person giving first aid) should always check the scene of an emergency to see if it is safe before providing care to a victim in need.

**True**

**False**

- 4). The best way to establish if a victim is conscious or unconscious is to tap the victim's shoulder and shout to see if there is any response.

**True**

**False**

- 5). When a victim is in extreme pain, the first aid care giver should always move the victim away from the scene of an accident even if there is no further possibility of harm to the victim or the rescuer.

**True**

**False**

- 6). Providing First Aid can be as simple as bandaging a small cut.

**True**

**False**

- 7). In the case of a serious emergency, an experienced First Aid giver does not need to call 911.

**True**

**False**

8). Splinting a broken bone is part of First Aid care.

**True**

**False**

9). Being able to recognize heat-and cold-related emergencies and how to care for them is beyond the scope of First Aid care.

**True**

**False**

10). A trained First Aid responder should know what to do before providing care.

**True**

**False**

11). A First Aid caregiver should always provide rescue breaths to an unconscious victim.

**True**

**False**

12). It is not necessary for a First Aid responder to be able to recognize different types of wounds and how to care for them.

**True**

**False**

13). It is not necessary for a First Aid responder to be able to recognize injuries to muscles, bones, and joints and to care for them.

**True**

**False**

14). A First Aid responder should know how to prioritize care.

**True**

**False**

15). Only professional emergency responders should provide First Aid care to a victim in need of medical attention.

**True**

**False**

**Please answer the following questions pertaining to CPR by circling either true or false. The information you provide may be used to assess current and future training needs for law enforcement personnel in various agencies.**

**CPR Questions:**

- 1). In the event of a serious emergency where the victim is unresponsive, the rescuer should call or have someone else call 911 with information about the location and type of emergency.

**True**

**False**

- 2). The rescuer should assess the victim and look, listen, and feel for breathing for about two minute before providing care.

**True**

**False**

- 3). If a rescuer detects a pulse but does not detect breathing he or she should immediately begin CPR.

**True**

**False**

- 4). When a victim is not breathing and does not have a pulse, a rescuer should immediately provide CPR.

**True**

**False.**

- 5). Rescue breathing along with chest compressions is necessary for a person who is not breathing and who does not have a pulse, because it acts as an artificial circulatory system that provides oxygenated blood throughout the system.

**True**

**False**

- 6). CPR alone will almost always save a victim of cardiac arrest within minutes of the arrest taking place.

**True**

**False**

- 7). CPR is just one link in the survival chain of a person in cardiac arrest.

**True**

**False**

8). A rescuer should continue to encourage a coughing choking victim to keep coughing.

**True**

**False**

9). It is possible for a victim to breathe but not have a pulse.

**True**

**False**

10). It is possible for a victim to have a pulse but not be able to breathe.

**True**

**False**

11). When it is determined that CPR is necessary, the first step is to make sure that the victim has an open airway and that rescue breaths are going in.

**True**

**False**

12). If rescue breaths are not going in, a rescuer should skip giving breaths and go right to chest compressions.

**True**

**False**

13). When checking a victim for a pulse, a good place to check is the carotid artery on the side of the neck.

**True**

**False**

14). When providing CPR it is necessary to provide exactly 15 compressions to 2 breaths.

**True**

**False**

15). CPR is all that is needed for a victim in cardiac arrest.

**True**

**False**

**Please answer the following questions pertaining to the use of an AED by circling either true or false. The information you provide may be used to assess current and future training needs for law enforcement personnel in various agencies.**

**AED Questions:**

- 1). AEDs are small-automated external defibrillators that use computer technology to analyze the hearts rhythm of a victim in cardiac arrest.

**True**

**False**

- 2). Because AEDs are automated, it is not necessary for users to learn how to properly use them.

**True**

**False**

- 3). AEDs are compact defibrillators that can help save a person in cardiac arrest.

**True**

**False**

- 4). AEDs are large machines that require detailed set-up before they can be used on a victim suffering from cardiac arrest.

**True**

**False**

- 5). The success of an AED depends on the amount of time that has elapsed from the moment a victim suffering from cardiac arrest collapses until the AED delivers a shock.

**True**

**False**

- 6). When using an AED on a cardiac arrest victim, it is recommended that a second rescuer hold down the victim while the shock is being delivered.

**True**

**False**

- 7). When an AED is attached to a cardiac arrest victim, it is the responsibility of the rescuer to analyze the victim's heart rhythm not the machines.

**True**

**False**

- 8). If a victim is not breathing but does have a pulse, an AED should be used to help the victim breath on his or her own.

**True**

**False**

- 9). The presence of AEDs is becoming more common in large public arenas such as malls and sporting events.

**True**

**False**

- 10). Once trained on the proper use of an AED, rescuers have very little chance for error.

**True**

**False**

- 11). Law enforcement personnel are often times exposed to an emergency situation were an AED should be used.

**True**

**False**

- 12). Rescuers trained to use AEDs should have a good understanding of First Aid and CPR skills in order to understand why AEDs are necessary to help a victim in cardiac arrest.

**True**

**False**

- 13). Before using an AED, a rescuer should be able to recognize that a life-threatening emergency exists.

**True**

**False**

- 14). Quick response, including the use of an AED, is essential for survival when dealing with cardiac arrest.

**True**

**False**

- 15). When using an AED on a cardiac arrest victim, the rescuer should listen for the automated prompts and then deliver a shock if instructed to do so.

**True**

**False**

## Appendix D

**Consent Form**

**Project Title: Assessment to implement a First Aid and CPR/AED program with an annual Training Course.**

As an authorized officer and signer for the Eau Claire County Sheriff's Office, I understand that this agency's participation in this study is strictly voluntary and may be discontinued at any time without prejudice.

I understand that the purpose of this study is to both assess the current First Aid, CPR and AED skill levels of Reserve Corp Division members and also to assess future training needs for members of the Reserve Corp Division within the Eau Claire County Sheriff's Office.

I further understand that any information about members and/or the department collected during this study will be held in the strictest of confidence and will not be part of a permanent record unless duly authorized decision makers choose to use this information to implement such a training program. I understand that in order for this research to be effective and valuable, certain personal identifiers need to be collected. I also understand that the strictest of confidentiality will be maintained throughout this study and that only the researcher(s) will have access to the confidential information. I understand that at the conclusion of this study all records, which identify individual participants, will be destroyed. I am aware (as an authorized signer) that the department has not and is not waiving any legal rights by agreeing to this participation.

By signing below, the department agrees to and understands the conditions listed above.

Printed Name of Authorized Signer \_\_\_\_\_

Signature of Authorized Signer \_\_\_\_\_

Today's Date \_\_\_\_\_

**For questions concerning this survey, please contact one of the following:**

**Researcher**

**John Spletstoser**  
2109 Hogeboom Ave  
Administrator  
Eau Claire, WI 5470  
715-834-6309

**Research Advisor**

**Mark Fenton**  
Department of Business  
University of Wisconsin-Stout  
Menomonie, WI 54751  
Office: 715-232-5268

**Human Protections Administrator**

**Sue Foxwell**  
Human Protections  
University of Wisconsin-Stout  
(Institutional Review Board)  
11 Harvey Hall  
University of Wisconsin-Stout  
Menomonie, WI 54751  
Office: 715-232-1126



## Consent Form

**Project Title: Assessment to implement a First Aid and CPR/AED program with an annual Training Course.**

I understand that my participation in this study is strictly voluntary and I may discontinue my participation at any time without prejudice.

I understand that the purpose of this study is to both assess the current First Aid, CPR and AED skills level of Reserve Corp members and also to assess future training needs for members of the Reserve Corp.

I further understand that any information about me that is collected during this study will be held in the strictest of confidence and will not be part of my permanent record. Furthermore, none of the information gathered in this study will affect my current or future employment status with the Reserve Corp. I understand that in order for this research to be effective and valuable, certain personal identifiers need to be collected. I also understand that the strictest of confidentiality will be maintained throughout this study and that only the researcher(s) will have access to the confidential information. I understand that at the conclusion of this study all records, which identify individual participants, will be destroyed. I am aware that I have not and am not waiving any legal rights by agreeing to this participation.

By signing below, I verify that I am at least 18 years of age or over, and I agree to and understand the conditions listed above.

Printed Name \_\_\_\_\_

Signature \_\_\_\_\_

Date \_\_\_\_\_

**For questions concerning this survey, please contact one of the following:**

**Researcher**

**John Spletstoser  
2109 Hogeboom Ave  
Administrator  
Eau Claire, WI 5470  
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**Research Advisor**

**Mark Fenton  
Department of Business  
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11 Harvey Hall  
University of Wisconsin-Stout  
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Office: 715-232-1126**

## Appendix E

**Consent Form**

**Project Title: Assessment to implement a First Aid and CPR/AED program with an annual Training Course.**

I understand that my participation in this study is strictly voluntary and I may discontinue my participation at any time without prejudice.

I understand that the purpose of this study is to both assess the current First Aid, CPR and AED skill levels of general Law Enforcement members (using a random population selection) and also to assess future training needs for members in general. Also, this study is designed for individual departments so that they can assess general current training needs along with future needs.

I further understand that any information about me that is collected during this study will be held in the strictest of confidence and will not be part of my permanent record. Furthermore, none of the information gathered in this study will affect my current or future employment opportunities and in no way will it affect my standing or status as a student enrolled at Chippewa Valley Technical College. I understand that in order for this research to be effective and valuable, certain personal identifiers need to be collected. I also understand that the strictest of confidentiality will be maintained throughout this study and that only the researcher(s) will have access to the confidential information. I understand that at the conclusion of this study all records, which identify individual participants, will be destroyed. I am aware that I have not and am not waiving any legal rights by agreeing to this participation.

By signing below, I verify that I am at least 18 years of age or over, and I agree to and understand the conditions listed above.

Printed Name \_\_\_\_\_

Signature \_\_\_\_\_

Date \_\_\_\_\_

**For questions concerning this survey, please contact one of the following:**

**Researcher**

**John Spletstoser  
2109 Hogeboom Ave  
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11 Harvey Hall  
University of Wisconsin-Stout  
Menomonie, WI 54751  
Office: 715-232-1126**

## Consent Form

**Project Title: Assessment to implement a First Aid and CPR/AED program with an annual Training Course.**

As the Program Chair and an authorized signer for the Protective Services program at the Chippewa Valley Technical College, I understand that this institution's participation in this study is strictly voluntary and may be discontinued at any time without prejudice.

I understand that the purpose of this study is to both assess the current First Aid, CPR and AED skill levels of general Law Enforcement members (using a random population selection) and also to assess future training needs for members in general. Also, this study is designed for individual departments so that they can assess general current training needs along with future needs.

I further understand that any information about students and/or this institution collected during this study will be held in the strictest of confidence and will not be part of a permanent record unless duly authorized decision makers choose to use this information to customize or change the existing training program. I understand that in order for this research to be effective and valuable, certain personal identifiers need to be collected. I also understand that the strictest of confidentiality will be maintained throughout this study and that only the researcher(s) will have access to the confidential information. I understand that at the conclusion of this study all records, which identify individual participants, will be destroyed. I am aware (as an authorized signer) that the Chippewa Valley Technical College has not and is not waiving any legal rights by agreeing to this participation.

By signing below, the Chippewa Valley Technical College agrees to and understands the conditions listed above.

Printed Name of Authorized Signer \_\_\_\_\_

Signature of Authorized Signer \_\_\_\_\_

Today's Date \_\_\_\_\_

**For questions concerning this survey, please contact one of the following:**

**Researcher**

**John Spletstoser**  
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