Less-Lethal

Law Enforcement’s Use of the TASER in Demanding Suspect Compliance

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Dedication

To Mom and Dad, whose tireless efforts, encouragement, and guidance led to a betterment of both my mind and morals that will serve me faithfully for the rest of my life.

...AND...

To my readers, Dr. Nancy Beran and Dr. Sandra Skovron who taught me to contemplate truth and pursue knowledge in a Dominican light and without whose guidance and expertise this thesis would never have been possible.
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Introduction

In years past police officers were issued a baton or nightstick and a sidearm with which to defend themselves against threats. What gives a human being such a right, however, to defend oneself against a threat? There are three examples that can clarify this point for us. First, the philosopher John Locke said in his Second Treatise that man “hath by Nature a Power, [...] to preserve his Property, that is, his Life, Liberty and Estate, against the Injuries and Attempts of other Men” (§87). Second, according to Christopher Kutz in his article “Self-Defense and Political Justification”, Philosopher Thomas Hobbes would say that no man could ever rationally give up defending himself, regardless of the amount of damage that results from having done so (752). Finally, in the Supreme Court decision of Beard v. U.S., the United States Supreme Court repeated the Supreme Court of Ohio in saying “A true man, who is without fault, is not obliged to fly from an assailant who by violence or surprise maliciously seeks to take his life, or to do him enormous bodily harm” (158 U.S. 550). Joseph Beale Jr. notes that in another decision two years later the high court added “if he is attacked by another in such a way as to denote a purpose to take away his life, or to do him some great bodily harm...he may lawfully kill the assailant...provided he use all the means in his power otherwise [...] or disabling him without killing him, if it be in his power” (567).

Therefore, if all human beings have the right to defend themselves, even using deadly force, in these situations the concept must also carry over to law enforcement officers, who, charged with protecting the public face these dangers every day.
With the continued advances in technology, improvements have come in many facets of human’s daily lives and defense systems for police officers are no exception. As time progressed, many police officers began carrying pepper spray in addition to greatly improved nightsticks (or expandable batons). Now enter the TASER, an electronic control device designed in the 1970’s “for use by police departments” to allow police officers to defend themselves and/or get control of unruly suspects, from a distance (United States General Accounting Office 4). The name TASER is actually an acronym that stands for Thomas A. Swift Electric Rifle and it is a device based on the principles of Neuro-Muscular Incapacitation.

The TASER may just be the device that affords police officers the ability to protect themselves and others and end confrontations without killing another person, in effect “disabling him without killing him, if it be in his power” (Beale 567). This is especially important because, although officers and citizens are permitted to defend themselves using deadly force, there is a certain point at which time that force becomes appropriate, and at any time prior to that point, deadly force is not authorized. In Tennessee v. Garner both the appellate court and the U.S. Supreme Court held that, in regards to deadly force, “such force may not be used unless necessary to prevent the escape and the officer has probable cause to believe that the suspect poses a significant threat of death or serious physical injury to the officer or others” (471 U.S. 1). We might also draw a similar conclusion when considering the Beard decision which noted that deadly force was appropriate when “an assailant who by violence or surprise maliciously seeks to take his life, or to do him enormous bodily harm” (158 U.S. 550).
A very limited number of police confrontations would satisfy the requirements to employ deadly force. Therefore, with limitations on deadly force there becomes a necessity to provide law enforcement officers with a means to defend themselves without causing death or serious injury to the suspect, a role the TASER is meant to fulfill.

Even with this additional defense tool for law enforcement there are limitations on when it may be used. Law Enforcement Officers follow a use-of-force continuum to determine when various types of force, including the use of a TASER, are appropriate. The use-of-force continuum will be discussed in greater detail in Part Two, when we discuss the issues surrounding TASERs and their use. In addition, there is a great deal of controversy today about how these devices function, whether they are a safe alternative to the use of a firearm or other less-lethal tactics and equipment, and whether police officers should be allowed to carry and utilize these devices. The purpose of this thesis is to present accurate information about the TASER, investigate the controversial issues surrounding the TASER and its use, and discuss evidence that is leading us toward a conclusion about the safety of these devices, so that readers can make an informed decision about these devices.

In order to best investigate this topic, “Law Enforcement’s Use of the TASER in Demanding Suspect Compliance”, I will be separating this thesis into two sections. In the first section I will investigate some of the literature about the TASER. This section will be divided into several parts:

**Part One:** How the TASER Works.
Part Two: Issues Surrounding the use of TASERs.

Part Three: Cardiac Safety of TASER Devices.

For the second section of this thesis, I will be completing a small-scale research study. This study will survey two groups of people, police officers and the public.

From the police officer survey I will be attempting to determine attitudes about the TASER through the use of the following questions:

- Does the TASER help in the control/arrest of a suspect when used properly?
- Is the TASER worth carrying?
- Is using the TASER device on a subject more or less emotionally and physically damaging than using a sidearm (handgun)?

From the public survey I will be attempting to determine how the public feels about TASERs in regard to the following questions:

- Should police be allowed to have and employ TASERs with the appropriate training?
- Is a police shooting more or less emotionally and physically damaging than the use of a TASER?

The survey section of this thesis is important because relatively little, if any, research has been done to determine both how police officers feel about the use of the TASER and how the public feels about police having them. This research will serve two purposes. First, it provides basic data from a single police agency in Ohio, with which we can attempt to explore the above questions. Second, and most importantly, it will
serve as an exploratory study and establish a methodology for further investigation of this topic in future larger scale studies.
SECTION ONE

Literature Review
Part One: How the TASER Works.

Misinformation, incorrect speculation, and the like occur in some form or another with almost every facet of our daily lives. Consequently, it should come as no surprise that there is a great deal of misinformation about the TASER in the public domain. It is important to combat this misinformation so that people can form opinions based upon fact and not the opinions or speculations of others. The information that is contained in this section will draw together device data and information that is based on the manufacturer’s information. This information is relevant for the purposes of this paper because there has been little academic writing on the devices themselves in terms of how they operate, which could be linked to some of the issues that will be discussed in the following section of the thesis. It is hoped that the reader will take from this section a clear, fully informed, academic understanding of how the devices work and then use this understanding in making an educated decision on whether or not to support law enforcement’s use of these devices.

This part will first discuss the classification of the TASER as a non-lethal weapon. Secondly, this part will discuss the principle of Neuro-Muscular Incapacitation, the theory behind the function of the modern TASER. Thirdly, this section will discuss the two different firing modes of the current TASER models, Cartridge/Probe Mode and Drive Stun Mode. The various cartridge options will also be discussed in the Cartridge/Probe Mode section. Finally, this part will investigate the two modern TASER models. Two different TASER models are actively used by law enforcement. The first, the ADVANCED TASER M26, is the older of the two models. The other is the TASER
X26, which sports the most recent TASER technology developed by TASER International.

Before I begin the investigation of the topics listed above, it is important to note that the information contained below was obtained by studying materials available on the TASER website at www.TASER.com, or through conversations with police officers who are equipped and are familiar with the TASER and its use. Unfortunately, TASER International refused to comment on questions presented to them, even after multiple attempts, despite the fact that they declare their complete support of independent reviews of the devices they market.

**TASER Classified as Non-Lethal Weapon**

The United States Department of Defense has defined non-lethal weapons as “Weapons that are explicitly designed and primarily employed so as to incapacitate personnel or materiel, while minimizing fatalities, permanent injury to personnel, and undesired damage to property and the environment” (White 2). It is important to note, especially before looking at the TASER in detail that it must be designed to minimize fatalities, not to prevent them completely. The TASER has also been referred to as a less-lethal weapon, and this is also an entirely accurate definition, because according to the U.S.D.O.D., the two terms mean exactly the same thing (TASER Non-Lethal Systems: Reducing Injuries and Saving Lives 6). The term “Non-Lethal Weapon” is generally used in Military Literature and the term “Less-Lethal Weapon” is generally used in Civilian and Law Enforcement Literature.
Neuro-Muscular Incapacitation (NMI)

In short, Neuro-Muscular Incapacitation is the process by which electrical signals are used to disrupt the nervous system and assume control over the body’s skeletal muscles. This is where the TASER differs from a traditional stun-gun. Stun-guns inject electricity into pain sensors and nerve endings; the person feels an incredible amount of pain and will generally cease their attack or modify their behavior in order to make the pain stop; but if the person is extremely goal-oriented or in a “drug induced dementia”, the body can ignore the pain (TASER Technology Summary). With TASER, it is not required for the person to feel the pain because “The TASER devices directly stimulate motor nerve tissue, causing incapacitation” (TASER Technology Summary). This method works a great deal better than a stun-gun and increases officer safety in that regard.

Firing Modes

Cartridge/Probe Mode

Cartridge/Probe Mode is another feature of the TASER that is not offered in most other electrical defense weapons. A TASER Air Cartridge is attached to and resides on the front of the TASER. Inside the nitrogen compressed Air Cartridge are two small metal probes resembling tiny needles. The metal probes are attached to insulated, electrically conductive wire. The air cartridge is sealed in the front by plastic blast
doors. When the TASER is fired, the plastic blast doors burst open; the probes are released from the nitrogen compressed tubes at over 160 feet per second, and will attach to clothing or skin (TASER Technology Summary). The electrical pulses are then passed down the wire for the duration of the TASER firing cycle (cycles vary, discussed later). Once a cartridge has been fired it cannot be re-used; however, as long as the probes remain attached to the body or clothing, the TASER can be cycled multiple times, useful for those subjects who continue to remain belligerent or aggressive past the first application.

Because the distance between an aggressive subject and the TASER equipped officer can vary greatly and because various law enforcement organizations have differing requirements for the TASER, TASER International offers a number of different cartridges for the TASER devices. TASER Cartridges are available in distances of 15, 21, 25, and 35 feet. The rated distance is the maximum distance from which the cartridge should be fired. Additionally, the 25 and 35 foot cartridges feature extra penetration probes (XP) to better the chances of probe attachment to the target. The path the probes take in comparison to the laser sight on the TASER varies by the cartridge selected and the distance that the officer is from the target (TASER Cartridge Specification and 35’ TASER Cartridge Specification). TASER also offers several training cartridges that can be used when teaching officers or staff unfamiliar with the TASER devices how to safely and appropriately operate them.

Each TASER Cartridge, regardless of rated distance, features the Anti-Felon Identification (AFID) system. Inside each cartridge are several small serialized micro-
dots that are scattered from the cartridge when it is fired. The serialized number on these dots can assist in preventing misuse of the TASER by increasing officer accountability after a deployment or to determine, in instances where more than one cartridge was fired, where each cartridge was used (TASER Cartridge Specification and 35’ TASER Cartridge Specification).

**Drive Stun Mode**

In addition to offering the Cartridge/Probe Mode, the TASER also offers what is called Drive Stun Mode. The application of a TASER cycle through Drive Stun Mode is the same as the use of a traditional stun gun; it relies on pain compliance rather than Neuro-Muscular Incapacitation. In order to complete the electrical circuit, the officer has to physically contact the target with the front of the TASER device. Contact must be maintained during the entire cycle. Drive Stun Mode is available to the officer when there is no cartridge present on the front of the weapon or after a cartridge has been fired. Drive Stun Mode can be useful in several different situations. Suppose a cartridge is fired and one of the probes misses the target or becomes dislodged and there is no time to reload; the TASER still retains functionality to the officer. Additionally, if an officer should choose to employ a TASER device in a close-quarters situation, it may be safer to remove the cartridge from the front of the weapon than to attempt to fire it at very close range.

**ADVANCED TASER M26**
Background Info

As noted above, the ADVANCED TASER M26 was the first of two TASER models actively being used by law enforcement to be introduced to the market. Up to this point, the TASER offered about the same stopping power as a traditional stun-gun, it relied on pain compliance to stop subjects. The introduction of the M26 in 1998 was the direct result of Project Stealth, a study convened by TASER International to develop “higher power weapons to stop extremely combative, violent individuals who were impervious to non-lethal weapons” (TASER International, Background Info). In testing, the new device showed great promise and a much higher degree of effectiveness than previous models.

How Designed

The ADVANCED TASER M26 is a pistol-shaped weapon and is intended to be handled with the same safety and care as a police officer’s duty weapon. The M26 features ambidextrous safety levers that, when flipped upward, arm the TASER. The M26 has post sights on top of the weapon to assist in aiming but also features a 650 nanometer (nm) laser that allows the officer to target a subject more easily in a stressful situation. A TASER air cartridge latches onto the front of the weapon. Power for the M26 is provided by 8 AA batteries or an optional battery pack housed in the grip of the weapon. To track usage and prevent misuse, the TASER M26 will store the date and time of approximately the last 585 firings. The data stored on the weapon can be downloaded to a computer for analysis via the use of the data port on the weapon (M26 Series Specification).
How M26 Operates

When a police officer feels that there is justification for the use of the TASER M26, he/she draws the weapon and flips the safety lever upward. The laser sight appears and the weapon becomes armed. If and when the weapon is fired, a five-second electrical discharge cycle is activated. The officer has the option to end the five-second discharge cycle at any time by flipping the safety lever back down into the safe position.

A major myth about the TASER M26 is that it applies 50,000 volts to the target, and this is incorrect. While the circuit is open, either before the probes contact the target or while there is a lack of contact with the prongs on the front of the weapon, it is true that 50,000 volts are being discharged. This is called the open circuit arcing voltage. However, as soon as the probes or prongs make contact with the target the voltage drops to what is known as the peak loaded voltage. For the M26, the peak loaded voltage is 5,000 volts. Compare this to a wall socket of only 120 volts, and you can see why many people believe that TASER is a deadly weapon. Voltage, however, is only the “pressure” behind the current; the true amount of electrical current is the amperage (How Electricity Works). Another way to explain this is to consider water that flows through a hose. The amount of water flowing through the hose would be the amperage, while the pressure of the water in the hose is the voltage (Jozefowicz 2). Note then, the amperage of the TASER M26 which is rated at a mere 3.6 milliamps. Compare this to your average wall socket in the United States which pumps out 16 amps or “a bulb on a string of Christmas tree lights (that) uses about 1 amp” (Ashley
2). What is enough electricity to kill a person or cause severe harm depends on the person, among other factors. However, the numbers should demonstrate why the TASER M26 is classified as a non-lethal weapon, because it is designed specifically NOT to cause death or serious injury (M26 Series Electronic Control Device Specification).

**TASER X26**

*Background Info*

Five years after deploying the new and improved TASER, the ADVANCED TASER M26, TASER International unveiled the TASER X26. Much like the M26, X26 redefined the market in electrical defense devices. The new X26 features what TASER International refers to as Shaped Pulse Technology. By changing the waveform characteristics of the energy pulse, TASER International believed they could design an improved weapon that was smaller, lighter, used less power, and packed even more punch than the popular and effective model M26, all while remaining safe for the subject exposed to the device. They were correct, and the X26 was introduced to the TASER market (TASER International, Background Info).

*How Designed*

The X26 is designed much like the M26 in that it is a pistol shaped weapon. However, the TASER X26 is 60 percent smaller and lighter than its sibling the M26. One of the downsides of the M26 was that it was rather large and cumbersome to carry all the time, so one of the major objectives when designing the X26 was to make it
small enough to be carried full-time on the duty belt. The X26 includes an eXoskeleton Holster that attaches to the duty belt so that the TASER is carried with the officer at all times. The X26 shares a couple of features with the M26; including the presence of the ambidextrous safety levers as well as the integrated 650nm laser sighting system. The X26 also sports new and useful features. One such feature is housed with the integrated laser sight, two small Low-Intensity LED lights designed to provide illumination to very dark situations. The X26 is also capable of storing a great deal more data than the M26; X26 sports enough memory to store data pertaining to 1,500 firings of the device. X26 also sports a small Central Information Display (CID) that provides feedback to the officer including the amount of energy remaining in the battery, the current time and date, the temperature of the unit, the countdown of time left in a discharge cycle, and more. The way power is provided to the TASER unit also differs from the M26. With the TASER X26, a Digital Power Magazine with sealed batteries provides the power for unit operation and provides enough power for approximately 195 firings. An extended version of the DPM is also available and allows for the storage of an extra cartridge in the bottom of the TASERs hand grip (X26 Digital Power Magazine and Extended Digital Power Magazine).

*How X26 Operates*

The TASER X26 operates in much the same fashion as the M26. The weapon is armed and disarmed the same way, the arming of the weapon activates the laser as well as the two LED lights and the Central Information Display (CID), and the power
discharge cycle is still 5 seconds in duration. The discharge cycle can be ended at any point by flipping the safety lever back to the safe position.

The major difference in the how the TASER X26 operates when compared with the M26 is with the amount of electricity applied to the target. The open circuit arcing voltage is still the same as the M26, 50,000 Volts. As noted above however, the actual amount of power that is applied to the target with a completed circuit is called the Peak Loaded Voltage and is rated at 1,200 Volts on the TASER X26. The amperage on the X26 is also lower than its sibling and is rated at an average of 2.1 milliamps (X26E Series Electronic Control Device Specification).

TASER CAM

The TASER CAM is a new accessory available for the TASER. While it is only currently available for the X26, it is an important part of the TASER arsenal, and because many police departments are equipping their TASERs with the TASER CAM it is important and applicable to discuss its features and operation.

TASER CAM is designed to record video and audio of events that take place at the cartridge end of the TASER device when it is armed. This footage is useful for preventing misuse of the TASER or to protect officers from litigation following the use of a TASER by showing the events as they actually happened. The TASER CAM is able to provide this evidence through the interaction of the following features. From the time that the TASER is armed the camera will record video and audio for 90 minutes before it will loop over previously recorded material. The camera is able to record video in low and even zero light conditions due to its infra-red illuminator, perfect for officers who
work at night or are drawn into dark areas while pursuing suspects. Should the camera lens become blocked at any time during recording, TASER CAM will alert the officer by causing the Central Information Display to begin flashing. The TASER CAM attaches to the TASER X26 where the Digital Power Magazine would normally reside and looks like a small boot attached to the bottom of the TASER. The TASER CAM contains a rechargeable DPM to supply the power for both the X26 and the camera and it is able to supply on average enough power for 100 firings of the TASER and 2 hours of video/audio recording time. The TASER CAM also provides a socket to which an extra TASER Cartridge can be attached (TASER CAM).
Part Two: Issues Surrounding the use of TASERs.

The goal of this part is to examine some of the issues surrounding police use of TASER devices. Each issue will be presented and the relevant literature examining that issue will be reviewed.

Issue 1: Does TASER Use Cause Death?

One of the major concerns about the TASER is that in some cases its use results in death. In this regard both Amnesty International (AI) and the American Civil Liberties Union (ACLU) are concerned with the impact of the TASER on public safety. In *STUN GUN FALLACY: HOW THE LACK OF TASER REGULATION ENDANGERS LIVES*, a report written in September of 2005, the ACLU notes that 148 deaths have occurred following the use of a TASER device since 1999. ACLU believes that these deaths should not have occurred and states that “the rising fatality rate is serious cause for concern” (4). In a report released by AI, the number of deaths is calculated to be in excess of 150 since 2001 (Amnesty International’s continuing concerns about taser use 1). One such death was Patrick Lee, a man in Nashville, Tennessee who was causing a disturbance in a night club. When police arrived and confronted the man, he removed his clothing and began acting aggressively, while proclaiming to the police that he was high on drugs. In the effort to subdue Mr. Lee multiple types of force were used, including a TASER. After police had gotten control of Mr. Lee he claimed to be having trouble breathing, and he died in the hospital two days later.

Mr. Lee is only one of the 150 plus people that have died following the use of a TASER (Jozefowicz 1). But his story is relatively the same as many of the others in that
police attempted to subdue the individual and in doing so deployed a TASER device. In the aftermath of the struggle and after the TASER had been used (not during its use) the individual died. Additionally, in most cases when speaking of a death, AI and ACLU note that the death occurred after the use of a TASER, which would mean that the TASER might not be the only factor contributing to the death of the individual. John G. Peters Ph.D. is the President of both the Institute for the Prevention of In-Custody Deaths inc. and the Defensive Tactics Institute, inc. and answered myths with facts about Electronic Control Devices (ECD) in a recent article. As stated by Peters: “To date, this ‘cause and effect’ relationship has not been shown. While it is true that the person may have died after having an ECD applied to him (or her), this temporal usage does not show cause and effect” (3). Death is usually the result of Sudden In-Custody Death Syndrome (otherwise known as excited delirium), a mix of contributing factors (such as preceding heart conditions, drug or alcohol use, etc) combined with the use of the TASER that resulted in death. It is important to note here, that Excited Delirium or Sudden In-Custody Death Syndrome is a consideration not unique to TASERs; other situations can lead to Excited Delirium without a TASER application. However, TASER International cautions about Sudden In-Custody Death Syndrome and notes some common symptoms in its Law Enforcement Product Warnings document. Some listed symptoms of the syndrome are “extreme agitation, bizarre behavior, imperviousness to pain, exhaustive exertion, and ‘superhuman’ strength” among others (Product Warnings 2). TASER International states that if someone is exhibiting signs of excited delirium
that those involved should “consider combining use of a TASER device with immediate physical restraint techniques and medical assistance” (Product Warnings 2).

What is also not discussed when speaking of deaths in the wake of TASER usage is just how often TASERs are deployed. When one compares the number of uses of the TASER with the number of deaths, the figure of 150 does not seem so large. Peter Bronson, in his article *Taser deaths grossly exaggerated*, states that “Tasers are used about 100,000 times a year” (1). If this is accurate and we multiply the number of years that TASERs have been in use by 100,000 (representing uses per year) and then compare that number to the figure of 150 (representing the total stated deaths) we find the latter to be an extremely small figure \(150/(100,000\times7)=2.14\times10^{-4}\) in comparison to the total number of deployments. Even if the number of 150 (which was accurate in 2005 according to AI and ACLU) has doubled or even tripled by early 2007, the number of deaths after the use of a TASER is still extremely small. Consider if officers were involved in 700,000 deadly force shootings in the same seven year period and it is quite conceivable that the rate of death would be much higher. This should make it rather clear that the risk of death post-TASER use is less than the criticism implies.

**Issue 2: Does TASER Use Save Lives and Reduce Suspect and Officer Injury?**

Another major issue surrounding the use of the TASER is whether it saves lives. This is best investigated by looking at situations where officers who used the TASER would have traditionally relied on deadly force to end a standoff or who would have been justified in doing so. Of course, there are times when the use of a TASER would not be an appropriate response to the threat presented, such as a subject with a
firearm who is directly threatening an officer’s life or the life of another; but when it is appropriate to use the TASER and it is used successfully, it is likely that the life of the subject will be spared. Phoenix Police Chief Harold Hurtt agrees when he says “We have to give our officers a lot of credit….When they’re given the option to use less than lethal force, they are doing that (Villa 1). It is possible that other forms of less-lethal technology could have been used in a given situation however, TASERs were not compared to these other methods as it was beyond the scope of this documents analysis.

There are a number of situations that demonstrate how the TASER saves lives and therefore, the likely reason why police departments use them. One such incident occurred on February 2, 2005. A woman in Mobile, Alabama was threatening to commit suicide and was holding a knife above her head. Despite multiple requests to abandon the knife the woman continued to cling to it and suddenly brought it quickly up in the air and pointed it at her chest. Officers deployed the TASER, the woman was disarmed without further incident and she was taken into custody. Had the police not had the TASER they would have either had to attempt another less-lethal option or to use deadly force on the woman in a situation known as suicide-by-cop. By using the TASER, her life was spared (Johnson 1). Another incident that demonstrates how TASERs save lives occurred in Arizona. Phoenix Police responded to a call involving a man hitting his wife. When officers arrived, the man released his wife but continued to clutch a 12 inch butcher knife despite repeated orders to drop it. Sgt. Dave Lane, who was on scene, commented on the incident “You don’t want to have to shoot anybody,
You think of all the other options you could use first. Pepper Spray? No, it would get in his face, too. Baton? No, the room was too cramped” (Villa 1). After considering the other options available to him, deadly force would have been inevitable, especially when the man began to approach him. Luckily an officer equipped with a TASER arrived and he deployed it on the subject. The subject dropped the knife and “Before he knew what hit him, he was in handcuffs” (Villa 1). A final example of the ability of the TASER to save lives is demonstrated in a study of the Orange County Sheriff’s Office. In one year 18 subjects were subdued and restrained by the use of a TASER in situations where deadly force would have been justified (Mesloh 3). Those 18 incidents could have ended much worse, had the justified deadly force been used. In addition, this study found that the TASER had the lowest escalation rate of any other less-lethal weapons. Meaning that once a TASER was used, it did not escalate the situation in as many cases as did pepper spray (OC) or a baton strike (Mesloh 3).

The question that is important to ponder here is what would have happened if deadly force had been used. It is not completely acceptable to assume that death would have occurred although common sense tells us that when police employ deadly force, and that force impacts the target, the target of that force usually sustains fatal wounds, as police officers are trained to shoot center mass, the location of all the body’s vital organs. So if the police are able and willing to employ a TASER device to end a standoff and that standoff ends without using deadly force, is it not then reasonable to say that the TASER device saved a life? It is important to remember, however, that not every situation in which a TASER was used called for deadly force or
would have eventually called for it; for example an emotionally disturbed person who refused to comply with police and was threatening to hurt or was hurting themselves. TASER use here that did not result in death could also be chalked up as a life saved by the use of the device. Essentially, it is reasonable to say here that TASERs at a very minimum offer the capacity to save lives.

In addition to saving lives, TASER use reduces suspect and officer injury. A study completed by the Los Angeles Police Department shows that of all use of force options, TASER use represents the lowest rate of relative suspect and officer injury, so low that it registers 0 percent on both scales (one scale represents suspect injury and the other represents officer injury or adversely affected). By comparison, chemical sprays resulted in a 5 percent suspect injury rate and a 29 percent officer injury rate. An additional comparison can be made with the use of a baton in which 78 percent of suspects sustained an injury as well as 20 percent of officers. In addition to the LAPD study, statistics from the Phoenix Police Department show that after deployment of 1,500 TASER X26’s, the suspect injury rate fell by 67 percent, a major improvement (TASER Non-Lethal Systems: Reducing Injuries and Saving Lives 2). During the first 6 months of 2004 in Cincinnati, Ohio, the first 6 months Cincinnati officers had TASERs, they were deployed over 300 times. The results were astounding: “Arrest related injuries to officers have dropped approximately seventy percent from the same period in 2003. Assaults on police officers have also dropped seventy percent. Suspect injuries have dropped forty percent and use of force by other traditional means has dropped fifty percent” (Ventre 1).
Issue 3: The Use-of-Force Continuum and the TASER

Another issue that surrounds the TASER is when it is acceptable, based on necessary force, to deploy the TASER. AI states that the decision to use a TASER in a situation can be warranted by department policy far before it should be. AI maintains that along a use of force continuum, TASERs are too close to the 'minimal or no force end'. For instance, in Excessive and Lethal Force?, AI notes that in Miramar, Florida, TASERs are available to police as a use-of-force option before using any sort of blunt force, such as a baton. A similar scenario exists in Indianapolis, Indiana, where police are allowed to use a TASER as soon as any kind of force becomes necessary (12). In an article written by Greg Connor for Law and Order Magazine, Connor notes that more than 85 percent of police agencies have placed TASERs at the level of response appropriate to a resistant (active) subject. Connor defines an actively resistant subject as “an individual [that] has already indicated his physical non-compliance to the officer(s) present, presenting them with the potential for continued resistance, necessitating an appropriate application of force” (Connor 88). AI states that “a review of reported cases suggests that some departments are deploying tasers in routine arrest situations, at the first sign of resistance or in the face of relatively minor resistance” (12). ACLU agrees that this is unacceptable. The question, however, is what is considered the first sign of resistance; would the first sign of resistance fit the definition of an actively resistant subject? It seems as though there needs to be more research in this area. Connor would agree by saying that every agency should
“promulgate a comprehensive policy governing the use of electronic control weapons” (87).

ACLU believes that a TASER should only be used “in life-threatening situations” (STUN GUN FALLACY 15). Bill Everett, a litigation attorney and use of force trainer who is quoted in an article written by the Force Science Center (which studies police use of force) says: “If we restrict the Taser to a very limited subclass of cases, then the consequence of this is going to be officers hitting uncontrolled people more with batons, breaking more bones and tearing more flesh” (3). Now, keeping officer safety in mind, consider how dangerous it is to become involved physically in a situation with a resistant subject, especially one who may be intoxicated on alcohol and/or drugs. If the officer wanted to keep his/her distance from the person for safety and deadly force was not an option due to the situation (there was no immediate threat of death or serious bodily harm) what options would be available and feasible? Batons would be removed from the viable options because they require close contact between officer and subject and this does not satisfy the officer safety requirement. Considering the other options that are generally immediately available to police officers (in other words, what is carried on the duty belt), that leaves chemical sprays (which only affect a small portion of the body, and whose effects can be fought) and the TASER (which, according to the device specifications discussed in the first section, affects the entire body and prevents continued action). It seems as though the TASER would be the best option considering its effectiveness. In addition, according to an article written by Americans for Effective Law Enforcement (AELE), a group incorporated in 1966 as a not for profit
educational organization for the purpose of establishing an “organized voice” for the law-abiding citizens regarding this country’s crime problem, and to lend support to professional law enforcement” (AELE, General Information), on the place of non-lethal or less-lethal weapons in the use of force continuum, the following must be considered when determining which weapon to use in a situation:

On the one side is the likelihood of gaining control of an individual; on the other is the likelihood and extent of injury. In general, techniques which have a high propensity for causing tissue damage, hematoma or clotting and have a low potential for control should be rejected. Conversely, methods or weapons that have a low likelihood of causing injury, but a high potential for control, should be encouraged (2).

Batons tear flesh and cause severe bruising (tissue damage) and have a low potential for control. Chemical sprays cause swelling of the skin and throat and choking, and still do not offer the best level of control. The TASER does not cause tissue damage (with the exception of two small marks where the probes connect) and has an extremely high degree of control. The question that remains is, where then, should TASERs be placed on the use of Force Continuum? Dr. Bill Lewinski, director of the Force Science Center believes they should be “above OC” (oleoresin capsicum, a common defense spray) and “below the baton” in the use-of-force continuum (Force Science News 3). Kevin Parsons, PhD, would agree with this conclusion. Parsons lists “Compliance – Mechanical” (which the TASER could be classified as a mechanical and electronic control device) above “Compliance – Pain” which would be attributed to chemical sprays, and
below “Impede – Baton” which is clearly the use of a baton in *The Confrontational Continuum*, a guide chart developed by his firm, Kevin Parsons and Associates, that details how use-of-force incidents should escalate (AELE 14).

To further this discussion and show application of theory in the field, the United States General Accounting Office conducted a study of TASER use by several policing agencies. In regards to the placement of the TASER on the use-force-continuum in Sacramento, California, both the Police Department and Sheriff’s Department permit use as soon as the “officer perceives the situation as potentially harmful”, defined as “assaultive behavior that creates a risk of physical injury to another” (GAO 9). At this stage, these two agencies also permit the use of batons (there is no clarification about which should be used first). The Austin, Texas Police Department, the Ohio Highway Patrol, the Phoenix Police Department, and the San Jose Police Department permit the use of TASERs in a perceived “volatile” situation, in other words, “actively resisting arrest but not attacking the officer”, and sprays are another option at this stage (again with no clarification on deployment sequence) (GAO 9). Finally, the Orange County Sheriff’s Department allows TASER use in a perceived “tactical” situation, namely a subject who is “passively resisting by not responding to the lawful, verbal commands of the officer” (GAO 9).

In summary, this section has demonstrated that the TASER is below deadly force on the use-of-force continuum but the point at which it becomes acceptable to employ the TASER can vary depending on the attitudes of the officer and the policies implemented in the enforcement agency.
Issue 4: TASER Training, What is Enough?

Another issue surrounding the TASER and its use is the training provided to officers. Some believe that there is not enough training provided. ACLU maintains that the training materials issued by TASER International contain “significant misrepresentations about the safety of Tasers and encourage the liberal use of the weapon, giving officers a false impression of the risks of using Tasers on potential suspects” (STUN GUN FALLACY 8). Out of the training materials actively used by 56 agencies surveyed by ACLU, only 4 “departments created or used their own training materials” (STUN GUN FALLACY 8). ACLU believes this is a problem because what officers understand about the weapon and how it should be used is built on the “foundation” of the training. They argue that if the training materials and therefore that foundation contain egregious errors, then officers are not fully informed about the course of action they are taking and what its aftermath could really be. This is a fair statement and when it comes to any form of use-of-force or any general police procedure, officers should be fully trained and fully aware. In the GAO study discussed in the use-of-force section, all seven departments required TASER-specific training in addition to the minimum of sixty hours of firearm training (not including TASER) for the Austin Police, eighty hours for Ohio Highway Patrol, Orange County Sheriff, and Phoenix Police, and one-hundred hours for both Sacramento Police and Sheriff and San Jose Police (GAO 10). The minimum amount of TASER specific training ranged from four hours to eight hours and six of the seven agencies used TASER International training materials combined with their own (GAO 11-12). Only one agency, the Ohio Highway Patrol used only its own
training materials in the TASER training of its staff (GAO 11). Six of the seven agencies also required yearly recertification for their staff (GAO 11).

The question still remains as to what is an appropriate amount of training for officers who carry the TASER. Common sense would demand that an appropriate amount of training for the use of the device would result in the officer having a full knowledge of how the device works and is used, as well as being familiar with the use-of-force continuum for the specific department he or she works for. If the officers are fully prepared in training with knowledge of the appropriate use of the device and its effects, it is reasonable to say that misuse of the device would not occur as a result of a lack of officer/device awareness and the training concern will have been addressed. However, to address the current concern that the training materials provided by TASER International are inaccurate or do not appropriately train the officers, perhaps it would be prudent for each TASER equipped department to improve upon those materials and create their own specific training for their officers. An independent third-party such as a professional organization or citizen panel might also be useful in the creation of these training materials so that all public and professional concerns are considered and addressed prior to the deployment of TASERs to the officers.

Issue 5: Selected Deployment. On Whom Should TASER Use Be Avoided?

A final issue surrounding TASERs is that their use may be inappropriate on certain groups of people and there is little regulation to prevent this. ACLU states that there are certain groups of people that should not be exposed to TASER shocks. These groups include juveniles, pregnant women, and the elderly, as well as those individuals
who are already restrained or are unconscious. ACLU says that of the 56 departments surveyed only 23 had policies prohibiting the use of TASERs on pregnant women, 19 have policies regarding the elderly, and just 10 departments “have a policy restricting the use of Tasers on juveniles” (STUN GUN FALLACY 13). With regard to individuals already in restraints or those who are unconscious only 8 departments had policies regulating the use of TASERs on unconscious individuals and just 14 departments had a policy about using TASERs on those people who were already restrained. AI agrees that these are vulnerable groups but also adds that in accordance with a study they discuss extensively in *continuing concerns about taser use* (the HECOE study), those with underlying heart conditions or “individuals with concurrent drug use [...] are sensitive individuals that could experience [ventricular fibrillation] under normal use of an EMI device” (16). Investigation of the policies surrounding selected deployment in the GAO study yielded that all seven agencies noted above had safety policies that stated that the TASERs “should not be used on children, pregnant suspects, or near bystanders or flammable liquids” (GAO 15).

In summary, it is visible that more widespread policy implementation concerning these selected groups of people is needed in departmental usage guidelines.
Part Three: Cardiac Safety of TASER Devices.

In Part Two, we discussed issues surrounding the TASER including the viewpoints of those who support the devices as well as those who do not. As noted in the section above, one of the major positions of Amnesty International and the American Civil Liberties Union among other non-supporters is that TASERs kill people. Scientific research studies have been done by individuals independent of TASER International using the TASER devices or devices made to function in the same manner to determine the physical impact of TASERs. Two studies concerning pig models will be reviewed, including the methodology and results, to determine if TASERs have the ability to cause Ventricular Fibrillation in pigs, which have a heart model most like a human being. As defined by the American Heart Association “Ventricular Fibrillation” or VF “is a condition in which the heart’s electrical activity becomes disordered. When this occurs the heart’s lower (pumping) chambers contract in a rapid, unsynchronized way” (American Heart Association 1). Untreated, VF will lead to cardiac arrest and death within a few minutes. In addition, there are two studies investigating the physical impact on humans that will be reviewed, one study which investigated official causes of death in situations where death ensued after the use of a TASER and the other that monitored the cardiac rhythm changes before, during, and after TASER use.

The first pig study is entitled “Effects of Cocaine Intoxication on the Threshold for Stun Gun Induction of Ventricular Fibrillation” and involved several researchers including Dhanunjaya Lakkireddy, MD of the Cleveland Clinic Foundation. The intent of the study was to determine “cocaine’s effect on Taser-induced ventricular fibrillation”
The researchers developed a custom device whose output characteristics matched that of a TASER X26 and used five-adult pigs for the test. “Pigs were chosen because they have a heart-body weight ration and cardiac anatomy similar to that of humans, with relatively low VF thresholds” or the point as which VF will be induced (Lakkireddy et al. 805). The pigs were injected intravenously with high dose cocaine. The probes were placed in five different locations on each pig with one of the positions being directly over the heart in the sternal notch. During the experiment the level of output capacitance was set to the standard X26 output and then increased in multiples “(x5, x10 and then multiples of x10 up to x100)” by replacing the custom devices main capacitor until VF was induced. After the induction of VF the output “was decrease in reversed sequence with the addition of x7 and x2 when needed until 3 sequential discharges of equal stored charge did not induce VF” (Lakkireddy et al. 807). The conclusion of the researchers was that being intoxicated on cocaine reduces the likelihood that Ventricular Fibrillation will be induced by a TASER, even when the probes are placed directly over the heart. In fact, the authors state “Cocaine increases the safety margin approximately 1.5 to 2 times” (Lakkireddy et al. 809). The authors note that a limitation in this study is that the pigs were under anesthesia. Pigs that are not anesthetized could experience a different effect. The authors also state that the pigs did not have any previously known “cardiac abnormality” such as heart disease (Lakkireddy et al. 811) It is important to understand that even with this finding Sudden In-Custody Death Syndrome is a complex mix of multiple factors that can contribute to death; this study simply demonstrates that in cases where the pig was intoxicated on
cocaine that death by VF as a result of the intoxication on cocaine in addition to the application of the TASER is not likely, but other factors under the umbrella of Sudden In-Custody Death Syndrome could still result in the death of the individual.

The other pig study that we will investigate is entitled “Cardiac Safety of Neuromuscular Incapacitating Defensive Devices” and is authored by multiple researchers including first named Wayne C. McDaniel of the University of Missouri-Columbia. This study also involved the use of pigs. A custom NMI device with output of 6,000 volts was built (McDaniel et al. S284). As in the other study output capacitance was varied by replacing the main capacitor in multiples of 2, from 4 to 48. In all cases one probe from the NMI device was placed in the sternal notch of the pig with the other being placed in the area of the thorax (McDaniel et al. S285). In all, 9 experiments were completed and the findings once again supported the safety of TASERs. The researchers determined that an output of anywhere between 15 and 42 times the amount of output from a TASER X26 was required to induce VF (McDaniel S286). The large difference in multiples before VF induction is likely to be linked to the differences in the weights of the pigs, which varied from 30 to 117 kilograms.

The review study that investigated the causes of death post-TASER use was entitled “Taser Use in Restraint-Related Deaths” and was conducted by Jared Strote and H. Range Hutson. The two researchers used a convenience sample design and searched the web to discover TASER related deaths in the United States between January 2001 and January 2005. Their searches yielded 75 results. The researchers then requested copies of the autopsy report from the medical examiner in the county
and state where each death had occurred (Strote 447). Strote and Hutson extracted
data from thirty-seven of the reports (thirty-three of the report requests generated no-
response or a refusal to release the report, four others were eliminated due to death
occurring outside 24 hours post-TASER use, and one case was eliminated for an
obvious cause of death other than TASER use). The data extracted from the reports
included “demographic information [...], medical examiner-listed cause of death,
preexisting heart disease, diagnosis of excited delirium, toxicology findings, type of
restraint, and medical examiner estimation of the role of the Taser in the fatality”
(Strote 448). Strote and Hutson found that all 37 eligible cases were men of varying
race with an average age of 35.6 years and age range between 18 and 50 years. In 13
of the 37 cases the TASER was mentioned in some fashion in the ruling of the cause of
death. Of those thirteen cases TASER use was listed as “specifically not a factor” in
three, as “a potential cause” in six, and as “a contributory cause” in four of the cases
(Strote 448). The findings also show that in twenty-eight of the cases, “a diagnosis of
excited delirium”(ED is the same as Sudden In-Custody Death Syndrome, discussed
earlier) was given by the medical examiner (Strote 448). The authors summarize by
stating that in their discussion that “demonstrating a causal relationship between Taser
injury and subsequent death is difficult” (Strote 448). They do note in their conclusion,
however, that the data demonstrates “that sudden deaths can and do occur after Taser
use” (Strote 448). They are careful to note however, that a common factor in the
deaths was extreme agitation or excited delirium, as was discussed above. It is clear
that additional research is needed in this area, specifically to determine the contributory nature of TASERs in a situation where a subject is suffering from excited delirium.

The study monitoring cardiac rhythms before, during, and after TASER use was entitled “Cardiac Monitoring of Human Subjects Exposed to the Taser” and was conducted by Saul D. Levine et al. In this study, researchers attached an electrocardiographic (ECG) device to 76 police officers who had volunteered to be TASERed as part of their training for the TASER X-26. The subjects were tased using the X-26 while their heart rhythm was monitored by the ECG. In nine of the seventy-six cases, equipment malfunction occurred leading to the removal of those nine participants from the data pool. Of the other sixty-seven participants the mean shock time was 2.2 seconds with a range of 0.9 to the full 5 seconds. A change in heart rate occurred with an average positive amount of 19.4 beats per minute. The authors conclude that “other than an increase in heart rate, there were no cardiac dysrhythmia or ECG morphology changes in human subjects who received a Taser shock” (Levine et al. S47).

These four research studies demonstrate different things. The two pig studies indicated that pigs did not experience Ventricular Fibrillation when exposed to electric shocks designed to be similar to the output of TASER models currently in use by law enforcement. This finding applied to pigs that were induced with cocaine as well as pigs not induced with cocaine. The Strote research demonstrated that while TASERs do have the capacity to contribute to death in humans, in the thirty-seven cases reviewed the TASER was not the only factor contributing to the death of the individual and
cannot, therefore, be linked causally as the only reason for the death. Finally, the data available from the physical test of the TASER on the 67 police officers demonstrated that while the heart rate did increase with the use of the TASER, its use did not cause any abnormalities or concerns. While this does not eliminate all doubt concerning the safety of these devices, these studies should serve to demonstrate at a minimum that TASERs are designed to be a safe and effective law enforcement tool and are intended to restrain an individual without killing him or her. It is important to remember that there is a major limitation to the human studies in that they have not been conducted using individuals who were displaying signs of excited delirium or were intoxicated on alcohol and or drugs. We can say with certainty at this point that the TASER is safe when used on a healthy person. As a policy recommendation at present, it does not appear that TASERs pose a great enough risk to demand that their use be suspended; however, future research is needed to answer questions on its effects when used on at-risk individuals.
Summary

It should be possible to view from the theory about the TASER that has been discussed above; that the devices, whose uses are not without risk, are relatively safe and are useful tools for law enforcement officials who become threatened or must confront and control unruly suspects. At this point, the reader has learned several things. First, we have discussed that humans have the right to defend themselves when involved in situations that present the possibility of serious bodily harm or death, and why such a right must carry over to law enforcement officers. Second, the reader has learned how the TASER devices are designed and how they work. Third, the use of TASERs seems to be reducing suspect and officer injury as well as police officers use of lethal force. Fourth, there are concerns about the death of suspects post-TASER use. Fifth, there is inconsistency in policies and procedures amongst TASER equipped departments and this issue should be addressed, and at the least minimum standards for training and use should be established. Finally, the reader has learned that scientific research available with pigs and humans has contributed favorable evidence that claims of the cardiac safety of TASERs are true, with some limitations as discussed. However, at this point in time, there is little research on public attitudes about the use of TASER devices. In addition, there is little research or theory discussing the attitudes and perceptions of police officers in regards to the TASER. In the small-scale research study that has been conducted and whose results will be discussed in the second section of the thesis, I have determined both public (Ohio Dominican Students) and police attitudes about TASERs.
SECTION TWO

Research Study
**Intent**

To conduct a small-scale research study to determine basic attitudes of the participants, this included members of the Ohio Dominican Community and the Englewood Police Department, toward TASER devices and to provide a methodology for future expanded research in this area.

**Preparation**

Release forms and two versions of the survey, a public version and a law enforcement version were prepared and submitted to the Ohio Dominican University Institutional Research Board (IRB). The surveys and release forms received approval from the IRB. Copies of all three of the forms are included in the Appendix of this document.

**Sampling**

**Police Survey**

Multiple police departments in the Columbus, Ohio area and the Englewood, Ohio Police Department were contacted electronically (via email or online contact form) on the basis of a convenience sample and asked to participate in a research study concerning the TASER. A few of the departments replied that they were not TASER equipped and were therefore unable to participate. Several other departments did not respond to the inquiries sent to them and were not included in the study. Two favorable responses were received, one from the Englewood, Ohio Police Department and the other from the Dublin Division of Police in Dublin, Ohio. Surveys were sent to the Englewood Department along with instructions for their administration and later
were returned completed. Unfortunately, the Dublin Division of Police was not included in the research due to exigent circumstances on the part of the author which precluded their participation in the study. Therefore, the results included for the Police Survey include data from the only participant, the Englewood, Ohio Police Department. The city of Englewood, Ohio is a middle class suburb of Dayton, Ohio with a majority Caucasian population.

Public Survey

A convenience sample design was used in the public survey. Potential respondents were approached in Spangler Learning Center (the campus library) or in various classes held on the main Ohio Dominican University Campus in Columbus, Ohio. The researcher approached potential participants and informed them that he was conducting research on police use of TASER devices and public attitudes and asked if they would be like to participate. Participants were surveyed following the methodology below.

Methodology

All voluntary participants were required to fill out a release of liability form prior to being permitted to take the survey. Any questions the participants had could be answered by the researcher at this time or at the conclusion of the survey. Once the release form was collected, the appropriate survey form was provided to the participant. At any time prior to the collection of the survey (because the forms were shuffled to protect the responses of participants and insure the anonymity of the participant) the participant could choose to withdraw from the survey. After the survey
was collected, withdrawing would have been impossible because that particular individual’s survey responses would have been indistinguishable from the pool. At the conclusion of the survey, each participant was thanked for their time and participation in the study.

**Results**

**Public Survey**

Analysis of the public data was performed using SPSS version 12.0.1. The data pool contained 152 participants; however, anyone associated with law enforcement was excluded from the final results to prevent the skewing of data through the combination of law enforcement and public attitudes. The first question on the survey sought to determine any association with law enforcement and if answered positively resulted in removal from the data pool. A total of 133 participants remained and were included in the analysis.

**Demographics**

Gender demographics showed the participation of 76 females, 50 males, and 7 non-respondents. Race demographics noted that 26 respondents were African American, 92 were Caucasian, 9 were in the Other category (those who responded but could not mark African American, Caucasian, Asian American, or American Indian), and 6 choose to give no response. Age demographics showed that the pool contained 43 individuals under age 20, 65 between the ages of 20 and 29, 11 for ages 30-39, seven for ages 40-49, two for ages 50-59, and five non-respondents. Tables and Illustrations 1A, 1B, and 1C contain this data.
Table 1A

<table>
<thead>
<tr>
<th>Gender</th>
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<tr>
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</tr>
<tr>
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<tr>
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<tr>
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Illustration 1A

Table 1B

<table>
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<th>Race</th>
<th>Frequency</th>
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<tr>
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<tr>
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<tr>
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<td>4.5</td>
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<tr>
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<tr>
<td>Total</td>
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### Illustration 1B

**Race**

- African American: 50
- Caucasian: 80
- Other: 10
- No Response: 3

**Table 1C**

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<thead>
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<th>Age</th>
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<td>30-39</td>
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<td>40-49</td>
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<td>50-59</td>
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<tr>
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<tr>
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</table>
Physical and Emotional Severity of Police Handgun Usage

Respondents were asked “How severe, in terms of emotional and physical damage, do you believe the use of a duty firearm (police shooting) on a subject is?” Respondents could mark one of 5 levels to denote severity of police handgun usage. Level 1 indicated “Not Severe”, Level 2 “Moderately Severe”, Level 3 “Moderately Severe”, Level 4 “Very Severe”, and Level 5 “Deadly”. 61 respondents marked Level 4, 31 Level 3, 29 Level 5, 11 Level 2, and one respondent marked Level 1. The mean response was 3.8 indicating that on average participants felt that the use of a police handgun was rather severe. The data for this question is outlined in Table and Illustration 2.
Table 2

How severe, in terms of emotional and physical damage, do you believe the use of a duty firearm (police shooting) on a subject is?

<table>
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<th>Frequency</th>
<th>Percent</th>
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<tr>
<td>2, Moderately Severe</td>
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<td>4, Very Severe</td>
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</tr>
<tr>
<td>Total</td>
<td>133</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Illustration 2

Histogram

How severe, in terms of emotional and physical damage, do you believe the use of a duty firearm (police shooting) on a subject is?
Physical and Emotional Severity of TASER Usage

Participants were asked “Having read how the TASER device works; how severe, in terms of emotional and physical damage, do you believe the use of a TASER device on a subject is?” The same ranking levels noted above apply to this question. 53 respondents marked Level 2, 42 Level 3, 20 Level 1, 13 Level 4, and five respondents marked Level 5. The mean response was 2.47 indicating that participants believed on average that the use of a TASER device was moderately severe but less severe than the use of handgun. The data for this question is contained in Table and Illustration 3.

Table 3

<table>
<thead>
<tr>
<th>Level</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1, Not Severe</td>
<td>20</td>
<td>15.0</td>
</tr>
<tr>
<td>2, Moderately Severe</td>
<td>53</td>
<td>39.8</td>
</tr>
<tr>
<td>3, Moderately Severe</td>
<td>42</td>
<td>31.6</td>
</tr>
<tr>
<td>4, Very Severe</td>
<td>13</td>
<td>9.8</td>
</tr>
<tr>
<td>5, Deadly</td>
<td>5</td>
<td>3.8</td>
</tr>
<tr>
<td>Total</td>
<td>133</td>
<td>100.0</td>
</tr>
</tbody>
</table>
With Proper Training Should Police Be Able to Utilize the TASER?

Respondents were asked “Do you believe that with the proper training, police officers should be allowed to employ a TASER device in demanding suspect compliance or for self-defense?” 124 of 133 participants responded favorable toward police use of TASERs while the other nine felt that police should not be permitted to have TASERs. The data is outlined in Table and Illustration 4.
Do you believe that with the proper training, police officers should be allowed to employ a TASER device in demanding suspect compliance or for self-defense?

<table>
<thead>
<tr>
<th>Valid</th>
<th>Police Should Not Have TASERs</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Police May Use TASERs</td>
<td>124</td>
<td>93.2</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>133</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Illustration 4

Do you believe that with the proper training, police officers should be allowed to employ a TASER device in demanding suspect compliance or for self-defense?
Police Survey

Analysis of the police survey data was conducted using SPSS version 12.0.1. The data pool for this survey contained a total of 15 participants. Because of the small number of participants, an analysis of the demographics was not conducted.

Physical and Emotional Severity of Police Handgun Usage

Officers were asked “How severe, in terms of emotional and physical damage, do you believe the use of a duty firearm on a subject is?” Respondents could mark one of 5 levels to denote severity of usage. Level 1 indicated “Not Severe”, Level 2 “Moderately Severe”, Level 3 “Moderately Severe”, Level 4 “Very Severe”, and Level 5 “Deadly”. 12 respondents marked a Level 5, two a Level 4, and one respondent marked Level 3. The mean was 4.7 indicating a high level of severity. In this case the public ranked police handgun severity lower on average at 3.8, than did the officers. The data is outlined in Table and Illustration 5.

Table 5

| How severe, in terms of emotional and physical damage, do you believe the use of a duty firearm on a subject is? |
|---|---|---|
| | Frequency | Percent |
| 3, Moderately Severe | 1 | 6.7 |
| 4, Very Severe | 2 | 13.3 |
| 5, Deadly | 12 | 80.0 |
| Total | 15 | 100.0 |
How severe, in terms of emotional and physical damage, do you believe the use of a duty firearm on a subject is?

Illustration 5

Physical and Emotional Severity of TASER Usage

Officers were asked “How severe, in terms of emotional and physical damage, do you believe the use of a TASER device on a subject is?” The same ranking levels applied for this question. Seven participants marked a Level 1, seven a Level 2, and one participant marked a Level 4. The mean was 1.7. This indicates that the police participants shared views with the public in that, in most cases the use of a TASER is less severe than the use of a police handgun. Police officers ranked TASER usage, on average, lower than the public by comparison. The data is outlined in Table and Illustration 6.
Table 6

| How severe, in terms of emotional and physical damage, do you believe the use of a TASER device on a subject is? |
|---|---|---|
| Frequency | Percent |
| Valid | 1, Not Severe | 7 | 46.7 |
| | 2, Moderately Severe | 7 | 46.7 |
| | 4, Very Severe | 1 | 6.7 |
| Total | 15 | 100.0 |

Illustration 6

How severe, in terms of emotional and physical damage, do you believe the use of a TASER device on a subject is?

TASER Worth Carrying TASER in Duty Equipment?

Officers were asked “Do you feel that the TASER is a useful device that is worth carrying in your duty equipment?” All 15 respondents marked that they felt that the
TASER was a useful device that was worth carrying in their duty equipment. The data is outlined in Table and Illustration 7.

Table 7

<table>
<thead>
<tr>
<th>Valid</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes, Worth Carrying</td>
<td>15</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Illustration 7

Do you feel that the TASER is a useful device that is worth carrying in your duty equipment?

Number of Officers Who Have Discharged a TASER

Officers were asked “Have you ever discharged a TASER device to demand compliance of a suspect?” Of the 15 respondents, 11 marked that they had discharged a TASER in an enforcement setting. Those participants were asked to complete the three additional questions. However, only 10 chose to do so. Therefore, only data
from 10 officers is available for analysis concerning the use of the TASER. On the last 3 questions, officers were asked to consider one incident involving TASER use and respond according to the scales discussed below. Officers had the option of completing a survey for each additional incident. The data is outlined in Table and Illustration 8.

Table 8

<table>
<thead>
<tr>
<th>Have you ever discharged a TASER device to demand compliance of a suspect?</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>4</td>
<td>26.7</td>
</tr>
<tr>
<td>Yes</td>
<td>11</td>
<td>73.3</td>
</tr>
<tr>
<td>Total</td>
<td>15</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Illustration 8

Have you ever discharged a TASER device to demand compliance of a suspect?

- No
- Yes
**Subject Cooperation Level**

Officers were asked “After discharging the TASER, did the subject become less cooperative or more cooperative?” Levels 1 through 5 were available with Level 1 denoting “More Cooperative”, Level 3 “No Difference”, and Level 5 denoting “Less Cooperative”. Levels 2 and 4 were available as interim levels. All 10 participating officers marked a Level 1 post-TASER use denoting that in those 10 situations, the use of the TASER resulted in added subject cooperation. The data is outlined in Table and Illustration 9.

Table 9

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid, 5, More Cooperative</td>
<td>10</td>
<td>66.7</td>
</tr>
<tr>
<td>Missing, System</td>
<td>5</td>
<td>33.3</td>
</tr>
<tr>
<td>Total</td>
<td>15</td>
<td>100.0</td>
</tr>
</tbody>
</table>
After Discharging the TASER, did the subject become less cooperative or more cooperative?

Illustration 9

Overall Arrest Difficulty

Officers were asked “After discharging the TASER, was the overall arrest of the subject made easier?” Once again Levels 1 through 5 were available, with Level 1 illustrating the overall arrest was “Easier”, Level 3 “No Difference”, and Level 5 “More Difficult” post-TASER use. Levels 2 and 4 served as intermediate levels. Nine officers marked a Level 1 with only one officer marking a Level 2 demonstrating that in all 10 situations the overall arrest of the subject was made easier post-TASER discharge. The data is outlined in Table and Illustration 10.
Table 10

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1, Easier</td>
<td>9</td>
<td>60.0</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>6.7</td>
</tr>
<tr>
<td>Total</td>
<td>10</td>
<td>66.7</td>
</tr>
<tr>
<td>Missing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>System</td>
<td>5</td>
<td>33.3</td>
</tr>
<tr>
<td>Total</td>
<td>15</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Illustration 10

Adverse Effects Reported Post-TASER Discharge

The final question asked of officers was “After discharging the TASER, were any adverse health effects (more than normally expected) related to the use observed by you, reported by the subject, or reported by health professionals (EMS, Paramedic, Hospital Staff) either at the scene or while in-custody?” A 5 level scale was available
with Level 1 denoting “No Adverse Effects”, Level 3 “Medical Attention Needed”, and Level 5 “Life-Threatening Effects” reported. Levels 2 and 4 were available as intermediate levels. All 10 officers marked Level 1 meaning that in their particular situations, the use of the TASER did not cause any post-discharge health concerns that they were aware of, above that which is normally expected by the trained officer. The data is outlined in Table and Illustration 11.

Table 11

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid 1, No Adverse Effects</td>
<td>10</td>
<td>66.7</td>
</tr>
<tr>
<td>Missing System</td>
<td>5</td>
<td>33.3</td>
</tr>
<tr>
<td>Total</td>
<td>15</td>
<td>100.0</td>
</tr>
</tbody>
</table>

After Discharging the TASER, were any adverse health effects (more than normally expected) related to the use observed by you, reported by the subject, or reported by health professionals (EMS, Paramedic, Hospital Staff) either at the scene....
After Discharging the TASER, were any adverse health effects (more than normally expected) related to the use observed by you, reported by the subject, or reported by health professionals (EMS, Paramedic, Hospital Staff) either at the ...

Analysis

The two major points of comparison in this study are the perceptions between the police and the public on the severity of TASER usage and handgun usage. With regard to the use of TASERs, we noted a public mean response of 2.47 and a mean response of 1.7 for police officers. Based on these numbers we can see that the police perceive the use of a TASER to be a less severe response than does the public. Even more noteworthy were the findings in regards to the use of a handgun. The mean public response was 3.8 with the mean police response at 4.7 which demonstrated that the surveyed police officers clearly feel that the use of deadly force is perceived to be a
much more severe response than does the public and is a great deal more severe than the use of a TASER. Initially I questioned whether the TASER was perceived as less emotionally and physically damaging than the use of a handgun, the data shows that this is indeed the case. Additionally, it was expected that the population would be more split in regards to police being able to use TASERs than it was. There were an extremely high percentage of respondents that indicated that the police use of TASERs was acceptable. Many participants, while taking the survey, commented to the effect “I would much rather be TASERed than get shot”. I initially questioned whether the public would find TASER use acceptable with the proper training and the data demonstrates that the public responds favorably toward the use of TASERs. With regard to the TASER being a useful tool that leads to added suspect control when used, the police respondents marked that in all cases, the arrest was made easier after the use of the TASER. Finally, I had questioned whether the TASER was as useful as the company claimed it was and the police officers surveyed confirm that it is indeed a useful tool that is worth carrying.

**Limitations**

A major limitation of this study is the limited number of responses obtained. The police officer sample is extremely limited and was not near as large as initially intended. The same occurred with the public survey base in which a limited number of responses was collected in comparison to the initial goal. Additionally, due to sample design (convenience sample) the public survey base was not balanced demographically. The demographics of this survey base in comparison to demographics of the United States
showed a higher percentage of African American and Female participants. In addition, no conclusions can be drawn outside of the survey base because the sample was not randomized.

As noted above in the analysis, the public had a mean response of only 3.8 for the police use of handguns (deadly force). There is a possible confounding variable here which may have led to a lower than expected response level. There were two questions on the survey to determine the public perception of TASERs and police handguns. The handgun question was asked first and in many cases there was confusion over whether I was referring to the TASER or a handgun. I would answer the question for the participant however, those who did not ask may have marked a low level for a handgun and then also marked a low level for the TASER. To combat this, the questions could have been asked in the opposite order, or the question could have both appeared on the same side of the page. This possible confound did not occur with the police officer survey, as the format had both questions featured on the front side of the page.

Conclusions

On average, respondents in both survey groups indicated that TASERs were a moderately severe use of force but was a less severe response by the police than the use of a handgun. The public respondents also overwhelmingly approved police use of TASERs. In addition, the police officers noted that the TASER was an effective and useful tool that when used, helped to make a subject more cooperative and make an arrest easier without causing any apparent excessive health concerns, and that it was a
tool worth carrying in their duty equipment. It is important to remember, however, the limitations discussed above and consider this study purely exploratory; due to the small sample size as well as the lack of randomization which precludes applying the findings to a broader spectrum. Future research is needed in this area to more broadly establish the attitudes of the police and public toward law enforcement use of TASER devices. In addition, analysis of policies across various departments should be undertaken because, as discussed in the literature reviews, there is little common ground on TASER policy. In some cases, additional policy will need to be established, and in others, less policy and control would faithfully serve the police department in question in regards to their use of the TASER devices in demanding suspect compliance.
APPENDIX

Survey Documents
I, _________________________________, agree to release Ohio Dominican University and the associated surveyor from any liability related to or associated with my participation in the TASER research survey. I understand that this survey is completely anonymous, but that my responses will be pooled with the responses of others and used in a research project being conducted by a student of Ohio Dominican University in pursuit of an Undergraduate Degree and partial fulfillment of Honors Program requirements. Furthermore, I understand and agree that this survey may be kept by Ohio Dominican University indefinitely. Finally, I understand that there to be no compensation for my participation in this study and that the risks associated with my participation are not greater than those risks encountered in everyday life. By signing and dating below, I affirm that I was not coerced into taking, or forced to take the survey attached to this form; that my responses to the questions on the survey were purely voluntary; and that all my questions pertaining to this survey were answered to my satisfaction prior to my completion of said survey.

Please Print Your Name _____________________________________

Sign ____________________________________________________

Date _____________/____________/________________

Month Day Year

Researcher’s Name_________________________________________

Researcher’s Signature______________________________________
TASER Survey
Public Version

<table>
<thead>
<tr>
<th>I am:</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>African American</td>
<td>Caucasian</td>
<td>Asian American</td>
</tr>
</tbody>
</table>

Age: Under 20 22-29 30-39 40-49 50-59 60+

DIRECTIONS: Complete the attached release form and place in Envelope A. Then, please complete the following short survey as accurately as possible. For your reference, a short description of how a TASER device works is included below, along with photos of the devices. Please do not put any personally identifiable information on this sheet to ensure that your responses remain anonymous. If you are unsure about a particular question, please circle the answer that corresponds to your INITIAL reaction. For the rating question, if you are between answers, please mark the CLOSEST number.

Thank You.

How it works: When fired, the TASER releases two small metal barbs, attached to electrically conductive wire. When the barbs make contact with the body or clothing an electrical circuit is completed and electricity is passed through the body for 5 seconds. The electricity is of a non-lethal amperage and overrides the electrical signals to the muscles in the body, causing a loss of muscular control during the 5 second cycle. The TASER is intended to allow Law Enforcement Officers to overpower subjects that are resisting commands or acting in a threatening manner and is designed to leave no lasting effect.

1. Are you associated with Law Enforcement in any way?

YES

NO

2. How severe, in terms of emotional and physical damage, do you believe the use of a duty firearm (police shooting) on a subject is?
3. Having read how the TASER device works; how severe, in terms of emotional and physical damage, do you believe the use of a TASER device on a subject is?

1  2  3  4  5
Not Severe  Moderately Severe  Very Severe/Deadly

4. Do you believe that with the proper training, police officers should be allowed to employ a TASER device in demanding suspect compliance or for self-defense?

Police may use TASERs  Police should not have TASERs

Please put this Survey in Envelope B

THANK YOU VERY MUCH FOR YOUR TIME!!
TASER Survey
Law Enforcement Version

I am: Male Female
I am: African American Caucasian Asian American American Indian Other
Age: Under 20 22-29 30-39 40-49 50-59 60+

DIRECTIONS: Complete the attached release form and place in Envelope A. Then, please complete the following short survey as accurately as possible. Please do not put any personally identifiable information on this sheet to ensure that your responses remain anonymous. If you are unsure about a particular question, please circle the answer that corresponds to your INITIAL reaction. If you are between answers, please mark the CLOSEST number. Thank You.

1. How severe, in terms of emotional and physical damage, do you believe the use of a duty firearm on a subject is?

1  2  3  4  5
Not Severe Moderately Severe Very Severe/Deadly

2. How severe, in terms of emotional and physical damage, do you believe the use of a TASER device on a subject is?

1  2  3  4  5
Not Severe Moderately Severe Very Severe/Deadly

3. Do you feel that the TASER is a useful device that is worth carrying in your duty equipment?

YES, Worth Carrying NO, Not Worth Carrying

4. Have you ever discharged a TASER device to demand compliance of a suspect?

YES NO
If you answered “NO” to question number 4, STOP HERE--------

If you answered “YES”, please continue to other side.

For the rest of the survey, please consider ONE incident where you used a TASER on a subject. If you have more than one incident, you may complete an additional survey for each incident (optional).

5. After Discharging the TASER, did the subject become less cooperative or more cooperative?

1  2  3  4  5
Less Cooperative  No Difference  More Cooperative

6. After Discharging the TASER, was the overall arrest of the subject made easier?

1  2  3  4  5
Easier   No Difference  More Difficult

7. After Discharging the TASER, were any adverse health effects (more than normally expected) related to the use observed by you, reported by the subject, or reported by health professionals (EMS, Paramedic, Hospital Staff) either at the scene or while in-custody?

1  2  3  4  5
No Adverse Effects  Medical Attention Needed  Life-Threatening Effects

Please put this Survey in Envelope B---------------------

THANK YOU VERY MUCH FOR YOUR TIME!!
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