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**The Use of Less Than Lethal Weapons
in a Correctional Setting**

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**By
Jeff Paullus**

**Comal County Sheriff's Office
New Braunfels, Texas
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ABSTRACT

Research was conducted to determine the most cost efficient as well as most effective form of less than lethal weaponry to be recommended to the Comal County Sheriff's Office correctional facility for use. While the sheriff's office does allow for the use of less than lethal weapons by members of the patrol division as a use of force option the research sought to find which weapon would be most beneficial within the confines of the jail. The weapon to be chosen was to be determined based on providing a higher safety factor to officers as well as inmates while attempting to reduce liability through proper training while offering use of force options. For the purposes of the research a review of literature was completed as well as a written survey of municipal and county law enforcement agencies. Four types of less than lethal weapons were examined. They were the taser, beanbag rounds, O.C. spray and the Jaycor Pepperball system. The conclusion of the research found that little information was available for the use of these weapons within the confines of a jail and most of the available information revolved around patrol officers as well as specialized units within an agency. As a result of the overall information researched the Jaycor Pepperball system appeared to be the overall weapons choice to be recommended to the Comal County Sheriff's Office as the best less than lethal weapon for deployment as an additional alternative use of force option.

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INTRODUCTION

Working within a correctional setting of a sheriff's office or municipal police agency is one of the most volatile areas a peace officer or correctional officer can work. These officers are equipped with a minimal number of tools at their disposal to deal with the inmates that they are entrusted to watch. The issue that this research will address will be to compare less than lethal weapons options that can better equip these officers to safely conduct their daily duties. This research will also look at some of the issues that go along with the deployment of these weapons to include legal issues, when to implement these weapons on the use of force continuum, situational uses such as when to deploy, safety issues to the officers as well as the inmates.

The purpose of this research is to provide the Comal County Sheriff's Office a better understanding of the types of products available for use within the county jail. By conducting this research it will assist the agency in making the best choice for the officers and the agency. By giving officers additional equipment to work with this will give them further options for use of force. The research will also attempt to show that the additional tools, when deployed properly will reduce liability and safety concerns within the agency.

The intended method of inquiry will involve the use of a survey. A survey of several county sheriff's offices and municipal police agencies that have operational jails will be conducted, with survey questions as to whether they employ any type of less than lethal weapons in their facility. If they do employ these weapons the survey will further attempt to find out which ones are used and their effectiveness. Further research will include a review of periodicals, professional journals, magazines, newsletters and books.

The intended outcome of the research is to supply information on the best option(s) available to them that is both cost efficient and effective and to help the Comal County Sheriffs

Office choose the most cost efficient as well as most effective types of less than lethal weapons to employ. By adding the use of less than lethal weapons in the use of force continuum it is anticipated that, with proper training and use, liability can be reduced. This can be accomplished while making the jail facility a safer environment for the officers and inmates alike.

Through proper training and implementation this research will seek to reduce liability to both the officers and the agency as a whole. It will also seek to find the most effective choices for use by the Comal County Sheriff's Office while still being fiscally responsible in the choices made. With liability issues continuing to face law enforcement on a daily basis the implications of looking for additional force options needs to be seriously looked at by all agencies.

REVIEW OF LITERATURE

Most of the literature found that dealt with the use of less than lethal weapons was based on their use by law enforcement personnel assigned to patrol divisions or specialized units such as SWAT that work outside the confines of a correctional facility. The correctional facility represents a more controlled environment. This environment does however have some of the same type problems such as prisoner on prisoner assaults, prisoner on officer assaults, riot situations and possibly hostage situations. All of these situations can call for the use of less than lethal weapons as a use of force option prior to the use of deadly force. Because of the potential for these incidents to occur within a correctional facility the research was done.

The use of less than lethal weapons is a fairly new concept for law enforcement considering the age of what is considered modern law enforcement. The first studies for developing less than lethal weapons came shortly after the civil unrest during the late 1960s and early 1970s that surrounded the protests against the Vietnam War as well as other acts of civil

disobedience occurring at the time. In 1972 the National Science Foundation along with the Department of Justice called for a conference to discuss possible use of force options as well as the development of less than lethal weapons (NIJ, 1987). The 1985 Supreme Court decision in *Tennessee v. Garner* further showed law enforcement that other use of force options were needed when the court ruled that deadly force could not be used against a fleeing felon (NIJ, 1993).

In 1986 U.S. Attorney General Edwin Meese called another conference to determine what if any progress had been made since 1972 in the development of less than lethal weaponry. The conference also sought to determine the future development of such weapons. The conference was made up of law enforcement personnel, military personnel as well as representatives from the private sector in fields such as science and education. All were considered vital in the future development of new non-lethal weapons (NIJ, 1987,1993).

In order to better understand which weapons would be the best choice for the Comal County Sheriffs Office to use within its jail several previous studies were explored. The weapons studied were the 12 gauge and 37mm/40mm beanbag round, the electric taser, O.C. (oleoresin capsicum) spray commonly referred to as pepper spray, and the Jaycor Pepperball System.

A study done by the Los Angeles Police Department prior to 1981 on the use of chemical irritant sprays and tasers resulted in the agency adopting their use in April 1981 after a period of research and field-testing. The LAPD adopted these weapons after the testing was ordered by the office of The Board of Police Commissioners as the result of the death of a mentally impaired female in January 1979 during a confrontation with officers. The board called for the research into the use of intermediate weapons to reduce the immediate need to use deadly force (Meyer, 1992).

One of the newest versions of the taser is the compact X26 Taser made by Taser International of Arizona. The weapon is meant to incapacitate by causing an electro muscular disruption or what is considered an uncontrollable spasm or contraction of the muscles of the individual it is deployed on (Griffith, 2003). A study done by Taser International on over 4000 human volunteers and 2000 actual field deployments against suspects gave an injury rate of 0% for any long term effects to the subject (Mabry, 2003). Many agencies that are using this weapon are placing it at the same level within their agencies use of force continuum as O.C. spray due to the quick recovery of the suspect (Janin, 2004). One legal case that looked at the use of the taser was *Michenfelder v. Sumner*, 1988 where the court felt that the use of the taser was preferred as “least confrontational” when attempting to control a suspect instead of the use of physical restraint, baton or beanbag gun (Meyer, 1992).

The product commonly referred to as pepper spray, was first introduced in its current form in 1990 by the manufacturer Def-Tec. Oleoresin Capsicum or O.C. spray is derived from the oils of cayenne peppers. It causes an inflammatory response to the eyes and sweat glands of the suspect when dispensed. Agencies are adopting its use as an alternative method to gain compliance from a suspect once voice commands are no longer effective in controlling a suspect. The proposed result of its use are to reduce injury to both officers and suspects. One problem found with O.C. spray is that it is not always effective on its own in controlling 100 % of those it is used on. Some manufacturers claim a 100 % effective rate where as in 1995 the ACLU of southern California placed its effectiveness at closer to 86 % (Doerner & Morabito, 1997).

Beanbag rounds are manufactured by numerous companies and are either shot from a 12 gauge shotgun or either a 37mm or 40 mm gas gun. They have come under fire in the past for lack of accuracy when fired but in the past few years vast improvement has been made. As of

1997 approximately 1500 law enforcement agencies throughout the United States have authorized their officers to use these munitions according to Bill Moles of Defense Technologies, a major manufacturer of beanbag rounds. The rounds are considered accurate within a few inches up to 30 feet away (Graham, 1997).

A long term study done between the Los Angeles Sheriffs Office (LASD) and Penn State University has sought to find the most accurate form of less than lethal munitions such as the beanbag round. Early in 1997 over a period of two days LASD officers fired five rounds each of 80 different less than lethal munitions at the LASD firing range. The study found that at 21 feet all the munitions showed little variance in accuracy but at 75 feet nearly one third missed the center of the target by 18 inches or more and could not be considered as reliable (Penn State, 2001).

According to the manufacturer of the Pepperball System, Jaycor Tactical their weapon is effective from 30 to 100 feet away from the suspect compared to 10 feet for O.C. spray, 20 feet for tasers and 30 to 150 feet for impact rounds such as beanbags. This weapon delivers a kinetic impact like the beanbag to the suspect and also a chemical agent like O.C. spray. The company claims this is the only weapon to deliver both. The system was first introduced in 1999 and had great success during crowd control during the World Trade Meeting in 2002 when it was deployed by the Seattle Washington Police Department (Jaycor Technologies, 2003). One author called the weapon “the first of its kind to offer chemical, kinetic energy and a psychological effect to a suspect thus making it a popular choice in corrections (Strandberg, 2003). Another author wrote the weapon offers a distinct advantage over others because suspect compliance can be gained by area saturation as well as direct suspect strikes where other weapons require direct contact with the suspect to be effective (Mabry, 2003).

An overall study of less than lethal weapons was completed in 1990 by the office of Law Enforcement and Administrative Survey (LEMAS). This study showed that less than lethal impact weapons such as batons were used by 77 % of municipal police agencies, 78 % of county sheriff's offices and 65 % of state agencies surveyed. All three types of agencies also allow the use of chemical agents at a rate of 70 %, 69 %, 61 % respectively. Very few agencies authorized the use of electrical devices (tasers) 22 %, 34 % and 44 % respectively (Bailey, 1996).

A major concern for the companies that manufacture less than lethal weapons and law enforcement is the possibility of ongoing litigation for misuse or excessive force. This will continue in the future just by societies nature but can be reduced through training and documentation (NIJ, 1987). Less lethal weapons are not cheap to implement but do reduce costs in the long run. They can reduce officer/inmate injuries by making it safer to gain control of a suspect (Strandberg, 2003).

In review of all cases and studies the main issue that continued throughout was the need for training, documentation when the weapons were deployed and placement on the agencies use of force continuum in the agencies policy manual to justify when the weapons would and would not be authorized. One author went on to write "when it comes to determining how much force is necessary in any given instance nothing is more important than training, judgment and experience" (Alexander, 1999, pg.51). This further supports the need for ongoing training to reduce agency and officer liability.

When force is authorized and has been used the agency and officer must meet the reasonableness standard for the weapon's use. Standards for use of force issues were first addressed in *Tennessee v. Garner* (105 S. Ct. 1694, 6th Cir., 1985) and again in *Graham v. Conner*. (490 U.S. 386, 5TH Cir., 1989) In *Graham v. Conner* the court outlined four factors that would

need to be considered when use of force is used against a suspect. The four are: 1) the severity of the crime, 2) whether or not the suspect posed an immediate threat to the safety of others or to the officers, 3) whether or not the suspect was actively resisting, 4) whether or not the suspect is attempting to flee. If these elements exist it becomes the responsibility of the officer to determine the level of force required to resolve the situation (FORG study, 2000). This still does not preclude the officer from following departmental policy.

METHODOLOGY

The issue to be addressed through the research is to better equip the officers of the Comal County Sheriffs Office assigned to the jail division with additional less than lethal weapon options to be employed in the use of force continuum. This will include the best overall choice of weaponry to protect both the officer and the inmates while seeking to reduce agency liability.

It is hypothesized that the agency should provide additional tools to assist the corrections officer perform his/her duties while improving both officer and inmate safety and still maintain the highest safety and security to the facility. It is further hypothesized that the Jaycor Pepperball System is the best overall choice for deployment within the confines of the Comal County Jail based on effectiveness, cost and trainability in its use.

In order to further research this topic a written survey instrument was utilized. The survey instrument was given to both municipal law enforcement agencies and county law enforcement agencies that may or may not operate a correctional facility. Many agencies make less than lethal weapons available to patrol officers as well as specialized units such as SWAT teams in their agencies but may not make these options available to officers working within the enclosed environment of a jail facility.

The survey instrument was given to employees from 30 municipal and county law enforcement agencies representing offices from across the state of Texas. Of the surveys given to these agencies 26 were returned with responses. Several questions were asked of the respondents to the survey that included the types of less than lethal weapons authorized by their agency for use, whether or not the responding agency had an operational jail facility along with the size of the facility and number of employees assigned to this part of the agency. Additionally questions were asked about the type of formalized training and the frequency of the training that was available to the officers that were going to be asked to deploy these weapons. Finally the issue of whether the responding agency had a formal use of force policy and if the deployment of less than lethal weapons was specifically covered within that policy.

FINDINGS

The information obtained will be analyzed through the review of various less than lethal weapons that are available, the actual responses received from the survey instrument given to other agencies, a review of our agencies use of force policy and the overall effectiveness and cost of the weapons reviewed.

For the purposes of this study several types of less than lethal weapons were looked at and further researched. Those weapons researched included O.C. (pepper spray), beanbag projectiles shot from a 12 gauge shotguns or 37mm/40mm gas guns, the electric taser and the Jaycor pepperball system. These weapons were specifically chosen due to their availability as well as their ability to be deployed within an enclosed/controlled environment such as a jail facility. The ultimate desired outcome is to provide safety to the officers/inmates while still maintaining the security of the facility when attempting to gain control of an inmate or riot

situation within the jail. This must be resolved in the best possible way while not using excessive force to gain a successful outcome.

The first weapon researched was O.C. (oleoresin capsicum) commonly referred to a pepper spray. This weapon is made of natural elements and is created using the oily resin found in the cayenne pepper. This weapon is not effective on all individuals and was not found to be the best choice to be used within an enclosed environment. Pepper spray can take anywhere from approximately 30 minutes to close to one hour for the effects to wear off once sprayed. This spray can contaminate a larger area, especially when there is an internal air conditioning system moving air from one room to another. Pepper spray in the aerosol form is harder to deliver to the desired target only. Cross contamination can occur to innocent bystanders as well as the officer deploying the spray. This weapon requires the officer to be within a closer proximity of an offender to effectively make contact (approx. 3-10 feet). Pepper spray is designed to gain compliance from a suspect through the reaction to the cayenne pepper in the spray alone and does not involve any type of kinetic energy from the weapon. Once the spray is delivered the officer must still gain physical control of the suspect. This weapon is very cost effective with an average cost of \$10.00 to \$15.00 per container.

The next weapons to be looked at were beanbag rounds shot from a 12-gauge shotgun and either a 37mm or 40 mm gas gun. These weapons were also found to not be the best choice but for different reasons. First is the lack of availability of these weapons for deployment within a jail facility. These are not commonly allowed within the confines of jails due to their ability to also discharge regular 12-gauge shotgun shells or in the case of the gas gun or launcher other live ordinance. These weapons also require much more training to be proficient with their use. This is not something that a correctional officer would have regular access to. If the user was not

familiar with the operation or recoil of these weapons than more damage than good could occur. The beanbag round is designed to gain suspect compliance through the impact that it delivers to the suspect only. This would be the weapon that creates kinetic energy to the body of a suspect to gain compliance. This weapon also allows the officer to remain at a further distance when deploying it, which increases the safety to the officer. These weapons can become very cost prohibitive especially to a smaller agency. The average cost for a 12-gauge shotgun is \$250.00 or more per weapon, a 37mm/40mm gas gun can cost close to \$1000.00 per weapon. The rounds for these weapons can cost between \$5.00 per 12-gauge round up to \$ 50.00 per round for the gas gun depending on the manufacturer and type projectile.

The third less than lethal weaponry that was looked at was the electric taser. This weapon also requires more training fro the operator to be proficient in its use. The taser is designed to deliver two darts preferably to the suspect's torso and then deliver an approximate five-second electrical pulse to the suspect. This is to deliver a temporary loss of muscle control to the suspect to allow the officer to gain control. The two main drawbacks to this weapon are the fact that both electrode darts must attach to the suspect to create a completed electrical circuit for the weapon to operate correctly. If the batteries of this weapon system are not completely charged this may also create a substandard charge to be delivered to a suspect. This weapon also allows for an officer to create further distance between themselves and the suspect allowing for greater safety. One further drawback to this weapon is the need for more extensive training for the officer deploying it to become proficient with the weapon. One concern that could not be proven or disproved is the fact that a jail facility is constructed out of metal and this weapon delivers an electrical pulse to the suspect and this may create a problem if the electrode darts come into contact with the metal cell construction while being used on the suspect. This weapon seeks to

gain suspect compliance only through the physiological muscle response to electrical shock. This weapon can also become cost prohibitive for an agency with the cost exceeding \$700.00 to \$1000.00 per weapon.

The final weapon that was researched was the Jaycor Pepperball System. This weapon is fairly new to law enforcement and was introduced in 1999. The weapon is based on an air-powered weapon similar to a paintball gun and delivers a hard plastic sphere that contains a powdered form of O.C. (pepper spray). This weapon is considered by its manufacturer to be “non-lethal” and does not create any long-term effects. Because the O.C. is in the powdered form it is more easily contained to a small area or to the suspect. The effects wear off within 10 minutes as opposed to the longer period experienced in the aerosol form. The weapon is very easily operated and training time is reduced. The weapon creates no recoil and is easily handled by any individual. The manufacturer claims that suspect compliance will be achieved through three different reactions by the suspect the first is a psychological reaction to being shot, the second is from the kinetic impact to the body of the plastic projectile and the third is achieved from the temporary reaction to the O.C. powder. This weapon also allows for the officer to remain at a greater distance for safety reasons while still being highly accurate. This weapon system will cost an agency between \$500.00 and \$1000.00 to begin with. The projectiles cost approximately \$1.00 each once the system is in place.

Information received from the survey conducted showed that many of the agencies employ some type of less than lethal weaponry in their agency’s use of force continuum. Some of these agencies allowed for multiple less than lethal weaponry to be made available. All of the agencies that did respond that covered the use of less than lethal weapons placed them after the use of verbal commands on the use of force continuum. Once these commands were no longer

effective and the next step would be an officer response such as open-handed tactics the use of less lethal weaponry options was authorized. This finding also coincides with the use of force policy of the Comal County Sheriffs Office. It was also found that not all agencies responding agreed on the type of less than lethal weapon(s) their officers would be allowed to use. Many of the agencies only allow for the use of O.C. (pepper spray) by their officers.

The findings went on to show that many of the agencies only allowed for the use of such less than lethal weapons such as beanbag rounds or tasers to be utilized by specialized units within the agency such as SWAT or special response teams. These agencies had made no provisions for these items to be made available to first line officers that could need them on a daily basis.

The survey also revealed a disturbing trend that regular re-certification in the use of these weapons was not done on a regular basis. One respondent even went so far to say that their agency only provided training when time permitted. Another finding was that some agencies that allow for the use of these weapons did not even cover the use of these weapons in their agency's use of force policy. From the survey results it also appeared that no agency considered one form of less than lethal weaponry superior to another and that the agency chose certain weapons over others as a matter of personal choice or cost effectiveness and not necessarily by the effectiveness of the weapons themselves.

The following results are those gathered from the survey instrument given to 30 municipal or county law enforcement agencies. Of the 30 agencies given the survey 26 responded to the questions and returned completed forms.

Of the 26 respondents all had a formal use of force policy within their agency but only 24 of those agencies covered the use of any type of less than lethal weaponry within that policy. The

type of weapons authorized by the responding agencies varied with 11 agencies authorizing the use of 12-gauge shotgun beanbag rounds, 8 allowed the deployment of beanbag rounds shot from either a 37mm or 40 mm gas gun. 8 agencies allowed for the use of the electric air taser, 2 had pepperball systems, 3 responded to other type weapons (baton) and the largest response was the use of O.C. (pepper spray). As stated earlier some of the responding agencies allowed for multiple weapon choices.

Two items that were found were that all of the respondents did not have a portion of their use of force policy that dealt with the deployment of less than lethal munitions. 21 agencies did have the issue addressed within their use of force policy while 5 agencies made no reference to these. 22 agencies have a use of force report that will be filled out when an escalation of force is required to subdue a suspect. 4 agencies do not have any form of reporting these actions.

Training is another issue that the survey sought to explore. Of the respondents 10 agencies required certification or training in the use of these weapons only one time, 4 agencies required this on a semi-annual basis, 7 required the training once a year, 4 responded their training was required as other (i.e. bi-yearly, or unspecified), 1 agency responded that there was only formalized training when possible.

With 26 agencies returning the survey it was evenly divided with 13 agencies having an operational jail or holding facility and 13 agencies not operating such a facility. 10 agencies allowed for the use of O.C. (pepper spray) within the jail, 1 specified the electric air taser, 1 pepperball system and 1 respondent stated their policy did not specifically preclude them from using any type of less than lethal weapon within the jail facility.

CONCLUSIONS

The purpose of this study was to determine which less than lethal weapon(s) would be the most effective to employ within the correctional facility of the Comal County Sheriffs Office. The research sought to find which weapons would be the most cost effective, easy to put in the hands of an officer through ease of training and still utilized in such a way as to reduce staff/inmate injury while reducing liability issues to the agency. It was hypothesized that the agency needed to add less than lethal weapon alternatives for use in the use of force continuum while still having this weaponry covered under the agency's use of force policy. It was further hypothesized that the Jaycor Pepperball System would be the best choice for deployment within the jail facility.

The research conducted only partially supported the choice of this weapons system as the best alternative for the Comal County Sheriffs Office to make available. Most of the agencies surveyed supported the use of some type of less than lethal weaponry but in a review of the survey response showed that no one agency supported a certain weapon over another. It appeared to be mainly a choice based on availability and cost of the weapons. Very little information was available about the use and effectiveness of these weapons being used within the confines of a correctional facility. Most research on these weapons covers their use by patrol officers or by specialized units within agencies such as SWAT or special response teams. When used outside a confined area such as a jail facility these weapons take on different characteristics.

The fact that many of these weapons such as beanbags are designed for the use with a 12-gauge shotgun, 37/40mm gas gun also hinders their use within the enclosed environment of a jail. These weapons are not usually readily accessible within a jail and most correctional officers

receive minimal if any training in their use. These weapons do attempt to gain suspect control through kinetic impact only.

Pepper spray also has its drawbacks when deployed within a confined or enclosed environment due to the contamination factors. This weapon can cause quite a bit of cross contamination to the officers as well as the suspect and innocent bystanders in the enclosed jail. This weapon is currently available within the Comal County Jail but is deployed in very limited situations due to this contamination factor.

Electric or air tasers are another weapon that may or may not have drawbacks when used inside of a jail. These weapons depend on an electrical pulse to gain suspect compliance and may not be well suited for use in a metal environment such as a jail. No information could be found to support this claim or not support it.

The best overall choice for use in the jail facility appears to be the Jaycor Pepperball System. This weapon does employ the use of kinetic impact from the hard plastic ball to gain suspect compliance as well as deploying a pepper-based powder to the suspect or to an area of the facility. The kinetic impact that the weapon provides will not cause any permanent injury but will gain compliance. The pepper powder that the weapon deploys does not cause the contamination problems to the officer, suspect or facility that normal pepper spray does. The powder is easily contained to a small area and easily cleaned up. The effects of the powder wear off in about a third of the time that pepper spray does once it has been deployed. The initial cost for start up with this system are well under \$1,000.00 and the ease of training are two major factors for this as the primary less than lethal weapon to be made available to the officers. This weapon is very user friendly and does not have any recoil making it the best choice for officers who normally do not use any other type of firearms on a regular basis.

The results of the study have shown that many agencies do feel the need to add less than lethal weapons to their use of force continuum. This does nothing less than give the officers additional tools to attempt obtaining the most effective outcome when dealing with suspects and creating the safest outcome to both officer and suspect. By offering these weapon choices to officers it can only reduce agency liability through proper training and deployment of these weapons. Agencies need to continue to explore the use of these weapons with the continuing concerns of liability to both the officer and the agency as a whole.

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