Police Use of Force: The Impact of Less-Lethal Weapons and Tactics

by Philip Bulman

A new study suggests that less-lethal weapons decrease rates of officer and offender injuries.

In the mid-19th century, police officers in New York and Boston relied on less-lethal weapons, mostly wooden clubs. By the late 1800s, police departments began issuing firearms to officers in response to better-armed criminals. Today, many law enforcement agencies are again stressing the use of less-lethal weapons, but they are using devices that are decidedly more high-tech than their 19th-century counterparts.

Use of force, including less-lethal weaponry, is nothing new to policing, and in any use-of-force incident, injury is a possibility. Researchers have estimated that between 15 and 20 percent of arrests involve use of force. A group of researchers led by Geoffrey P. Alpert, professor of criminology and criminal justice at the University of South Carolina, recently completed an NIJ-funded study of injuries to officers and civilians during use-of-force events. Injury rates to civilians ranged from 17 to 64 percent (depending on the agency reporting) in use-of-force events, while injury rates to officers ranged from 10 to 20 percent. Most injuries involved minor bruises, strains and abrasions. Major injuries included dog bites, punctures, broken bones, internal injuries and gunshot wounds.

Can New Technologies Decrease Injuries?

Advances in less-lethal technology offer the promise of more effective control over resistive suspects with

fewer serious injuries. Pepper spray was among the first of these newer, less-lethal weapons to achieve widespread adoption by police forces. More recently, conducted energy devices (CEDs), such as the Taser, have become popular.

More than 11,000 American law enforcement agencies use CEDs, but their use has not been without controversy. Organizations such as Amnesty International and the American Civil Liberties Union have questioned whether CEDs can be used safely, and whether they contribute to civilian injuries and in-custody deaths. Policymakers and law enforcement officials want to know whether CEDs and other less-lethal weaponry are safe and effective, and how police should use them.

Analysis of Information from Specific Law Enforcement Agencies

Alpert's research on use of force and less-lethal weapons, in part, focused on data gathered from three law enforcement agencies — the Richland County (S.C.) Sheriff's Department, the Miami-Dade (Fla.) Police Department and the Seattle Police Department.

Richland County Sheriff's Department

Approximately 475 sworn officers from the Richland County Sheriff's Department (RCSD) serve the unincorporated portions of Richland County, S.C. The agency started phasing in Tasers in late 2004. During data collection, about 60 percent of deputies carried Tasers.

Researchers coded 467 use-of-force reports from January 2005 to July 2006. The most frequent force level used by deputies (59 percent of incidents) was soft empty hand control (e.g., holding a suspect to restrain him), which increased the odds of officer injury by 160 percent.

> If injury reduction is the primary goal, agencies that deploy pepper spray and CEDs are clearly at an advantage. Both weapons prevent or minimize the physical struggles that are likely to injure officers and suspects alike.

Pepper spray decreased the odds of suspect injury by almost 70 percent, and a deputy aiming a gun at a suspect reduced his or her injury odds by more than 80 percent (the act of pointing a gun alone often effectively ends a suspect's resistance). The use of a canine posed, by far, the greatest injury risk to suspects, increasing injury odds almost forty-fold. Suspects who displayed active aggression toward deputies were also more likely to suffer injuries.

In contrast to the Miami-Dade and Seattle Police Departments, Taser use by the RCSD had no effect on the likelihood of suspect injury. Also in contrast to the Miami-Dade Police Department, Taser use by the RCSD had no effect on the likelihood of officer injury; Taser use by the Seattle Police Department, however, similarly showed no effect on the likelihood of officer injury. This suggests that not every agency's experience with CEDs will be the same.

Miami-Dade Police Department

With 3,000 officers, the Miami-Dade Police Department (MDPD) is the largest law enforcement agency in the southeast.

The MDPD started using Tasers in 2003. By May 2006, about 70 percent of the officers carried Tasers. The researchers examined 762 use-of-force incidents between January 2002 and May 2006. Most injuries were minor, and officers were substantially less likely to be injured than suspects, with 17 percent of officers injured and 56 percent of suspects injured.

Use of both soft hand tactics and hard hand tactics (e.g., using kicks or punches to restrain a suspect) by officers more than doubled the odds of officer injury. Hands-on tactics also increased the odds of injury to suspects, as did the use of canines. Taser use, however, was associated with a reduction in the likelihood of both officer and suspect injury.

Seattle Police Department

The Seattle Police Department (SPD) has about 1,200 sworn officers. The agency started using Tasers in December 2000. The SPD recorded 676 use-of-force incidents between December 2005 and October 2006. Suspects suffered injuries in 64 percent of the incidents, while officers suffered injuries in 20 percent of the incidents. Officers used hands-on tactics in 76 percent of the incidents. The next most frequent type of force

What Is Use of Force, and What Is a Use-of-Force Continuum?

"Use of force" refers to the "amount of effort required by police to compel compliance by an unwilling subject."[1] The Fourth Amendment forbids unreasonable searches and seizures, and various other legal and policy controls govern how and when officers can use force. Most agencies tightly control the use of force, and supervisors or internal affairs units routinely review serious incidents.

Many law enforcement agencies instruct officers in, and have policy guides for officers regarding, appropriate responses to an escalation of activities in an encounter with a civilian. "The use-of-force continuum" is a phrase to describe this kind of guide. The continuum of a particular agency may cover a full spectrum of actions from no-force, in which having officers present is enough to defuse the situation or deter crime, to lethal force, in which officers use deadly weapons. For a sample continuum, see NIJ's topic page.

▶ http://www.ojp.usdoj.gov/nij/topics/law-enforcement/officer-safety/use-of-force/continuum.htm.

When any kind of physical use of force is required, there is always a chance of injury to the officer or the suspect. When police in a democracy use force and injury results, concern about police abuse arises, lawsuits often follow and the reputation of the police is threatened. Injuries also cost money in medical bills for indigent suspects, workers' compensation claims for injured officers, or damages paid out in legal settlements or judgments.

1. Definition by the International Association of Chiefs of Police, *Police Use of Force in America, 2001,* http://www.theiacp.org/Portals/0/pdfs/Publications/2001useofforce.pdf.

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officers used was the Taser (36 percent), followed by pepper spray (8 percent).[1]

Taser use was associated with a 48 percent decrease in the odds of suspect injury in a use-of-force incident (it was not associated with a significant change in the odds of officer injury). The use of physical force by officers increased the odds of officer injury 258 percent. Not surprisingly, the odds of officer injury also increased when suspects resisted by using physical force or when suspects used or threatened to use a weapon.

Combined Agency Analysis

The researchers conducted a combined analysis of use-of-force data from 12 large local law enforcement agencies (including Miami-Dade, Seattle and Richland County).[2] The large sample, representing more than 24,000 use-of-force incidents, allowed the researchers to use statistical techniques to determine which variables were likely to affect injury rates. The use of physical force (e.g., hands, fists, feet) by officers increased the odds of injury to officers and suspects alike. However, pepper spray and CED use decreased the likelihood of suspect injury by 65 and 70 percent, respectively. Officer injuries were unaffected by CED use, while the odds of officer injury increased about 21 percent with pepper spray use.

Longitudinal Analysis

To see if the introduction of CEDs was associated with changes in injury rates in individual police

departments, the researchers reviewed monthly reports of use-of-force incidents and of officer and suspect injuries from police departments in Austin, Texas, and Orlando, Fla., both before and after the introduction of CEDs.[3]

The Orlando data included 4,222 incidents from 1998 to 2006 (CED use began in February 2003). The Austin data included 6,596 incidents from 2002 to 2006 (CED use was phased in beginning in 2003 and was completed in June 2004). Use-of-force cases increased in Orlando after CEDs were deployed, but they dropped after full deployment of CEDs in Austin. A large drop in injury rates for suspects and officers alike occurred in both cities following CED introduction.

In Orlando, the suspect injury rate dropped by more than 50 percent compared to the pre-Taser injury rate. In Austin, suspect injury rates were 30 percent lower after full-scale Taser deployment.

In Orlando, the decline in officer injury rates was even greater than for suspects, with the average monthly rate dropping by 60 percent after Taser adoption. In Austin, officer injuries dropped by 25 percent.

Interviews with Officers and Suspects

Researchers also collected qualitative data through interviews with officers and suspects involved in use-of-force incidents. Researchers conducted interviews with 219 officers from the Richland County Sheriff's Department, 35 officers from the Columbia (S.C.) Police Department (CPD) and 35 suspects involved in use-of-force situations. Unlike the RCSD, the CPD does not use CEDs.

In nine incidents (out of 109), officers in the RCSD reported that a Taser did not work properly or did not have the desired effect. Researchers received reports of multiple Taser hits on a suspect (i.e., more than one officer using a Taser on a single suspect) and multiple uses of the Taser in drive stun mode (when the Taser is pressed against a suspect rather than firing darts).

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Nine percent of the officers reported injuries, almost all of which were scrapes, cuts or bruises suffered while struggling with resistant suspects. Officers also reported that 26 suspects (12 percent) were injured. Most suspect injuries were cuts or abrasions, but there were also two dog bites, and one suspect was shot in the arm after firing at officers.

Suspect Perceptions

In 22 cases, researchers interviewed both the officers and the suspects involved in an incident. Suspects often told a different story than the officer who arrested them. In almost all cases, suspects said officers used excessive force and that they were not resisting. Some suspects said officers used Tasers early in the interaction, and several said the officers seemed to enjoy watching them endure the pain. Some suspects said officers kneed them in the back and kicked or punched them after they were in handcuffs. Some also said officers used Tasers on them after they were handcuffed.

Implications for Policy, Training and Future Research

CED use is widespread and often controversial. Based on their findings, the researchers involved in this study made recommendations about whether and how CEDs should fit into the range of less-lethal force alternatives available to law enforcement officers.

If injury reduction is the primary goal, however, agencies that deploy pepper spray and CEDs are clearly at an advantage. Both weapons prevent or minimize the physical struggles that are likely to injure officers and suspects alike.

The researchers compared injuries reported by the RCSD and by the CPD. Most injuries in both agencies occurred when officers and suspects struggled on the ground, but the

differences between the agencies in terms of percentage of officers and suspects injured were striking. The RCSD deputies, most of whom carry Tasers, reported fewer injuries to themselves and suspects from ground fighting than did CPD officers, who do not carry CEDs (9 percent and 31 percent, respectively). Injuries to suspects caused by contact with the ground were also lower in RCSD incidents. Some of the injuries to CPD officers and suspects might have been prevented had officers used CEDs instead of hands-on tactics.

Although both pepper spray and CEDs cause pain, they reduce injuries; and, according to current medical research, death or serious harm associated with their use is rare.[4] In that sense, both are safe and similarly effective at reducing injuries. The researchers recommend that both should be allowed as possible responses to defensive or higher levels of suspect resistance. This recommendation is followed by most agencies that responded to a national survey conducted by the Police Executive Research Forum.[5]

Policy and Training Issues Related to CEDs

CEDs are rapidly overtaking other force alternatives. Although the injury findings suggest that substituting CEDs for physical control tactics may decrease the chance of injury, their ease of use and popularity among officers raise concerns about overuse.

CEDs can be used inappropriately. Law enforcement executives can manage this problem with policies, training, monitoring and accountability systems that provide clear guidance (and consequences) to officers regarding when and under what circumstances CEDs should and should not be used.

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Besides setting the resistance threshold appropriately (that is, determining the level of suspect resistance at which officers should be allowed to use CEDs), good policies and training would require that officers evaluate the age, size, sex, apparent physical capabilities and health concerns of a suspect. In addition, policies and training should prohibit CED use in the presence of flammable liquids or in circumstances where falling would pose unreasonable risks to the suspect (e.g., in elevated areas, adjacent to traffic, etc.). Policies and training should address use on suspects who are controlled (e.g., handcuffed or otherwise restrained) and should either prohibit such use outright or limit it to clearly defined, aggravated circumstances.

In addition to the possibility of CEDs being used in too many cases (i.e., inappropriately in instances of low-level resistance), there are also concerns about CEDs being used too many times in a single case. Deaths associated with CED use often involve multiple CED activations (more than one CED at a time) or multiple five-second cycles from a single CED. CED policies should require officers to assess continued resistance after each standard cycle and should limit use to no more than three standard cycles. Following CED deployment, the suspect should be carefully observed for signs of distress and should be medically evaluated at the earliest opportunity.

Directions for Future Research

A critical research question is whether officers can become too reliant on CEDs. During interviews with officers and trainers, the researchers heard comments that hinted at a "lazy cop syndrome." Some officers may turn to a CED too early in an encounter and may rely on a CED rather than on their conflict resolution skills or even on hands-on applications.

Another important CED-related research project would be a study of in-custody deaths involving CED use and a matched sample of in-custody deaths when no CED use occurred. Advocacy groups argue that CEDs can cause or contribute to suspect deaths.[6] The subjects in CED experimental settings have all been healthy people in relatively good physical condition who were not under the influence of alcohol or drugs. However, not all subjects in actual cases of CED use would meet experimental requirements of good health. Law enforcement officials typically argue that most, if not all, of the citizens who died when shocked

Study Findings: Factors Affecting Injuries

Physical Force

Physical force and hands-on control increased the risk of injury to officers and citizens. When controlling for the use of CEDs and pepper spray in the multiagency analysis, using force increased the odds of injury to officers by more than 300 percent, and by more than 50 percent to suspects.

Suspect Resistance

Increasing levels of suspect resistance were associated with an increased risk of injury to officers and suspects. The increased injury risk was especially acute for officers. These findings suggest that officers, rather than suspects, face the most increased injury risk when suspects resist more vigorously.

Pepper Spray

The overall analysis (of 12 agencies) showed that pepper spray use reduced the likelihood of injury to suspects. For officers, however, pepper spray use increased the likelihood of injury. This finding was unexpected, and further research may help to explain how officers choose to use pepper spray instead of CEDs.

CEDs

Except for Richland County, where its effects were insignificant, CED use substantially decreased the likelihood of suspect injury. The analysis of 12 agencies and more than 24,000 use-of-force cases showed that the odds of suspect injury decreased when a CED was used. CED adoption by the Orlando and Austin police departments reduced injuries to suspects and officers over time.

Demographic Characteristics

The 12-agency analysis showed that male suspects were twice as likely to be injured as female suspects. In that analysis, the presence of a male suspect slightly increased injury risk to officers. In Seattle, female officers were more than twice as likely to be injured as male officers. In Miami-Dade and Seattle, where suspect race was available as a variable for analysis, the odds of injury for non-white suspects were lower than they were for white suspects.

by a CED would have died if the officers had controlled and arrested them in a more traditional hands-on fashion. Research is needed to understand the differences and similarities in cases where suspects died in police custody, including deaths where a CED may or may not be involved.

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Notes

1. Note that more than one use-of-force tactic could be recorded for each incident.
2. The other nine agencies included police and sheriff's departments in Austin, Texas; Cincinnati, Ohio; Harris County, Texas; Hillsborough County, Fla.; Los Angeles (both the city and the county); Nashville, Tenn.; Orlando, Fla.; and San Antonio, Texas.
3. For a more in-depth description of the researchers' approach to their longitudinal analysis, see section 6 of the report, "A Multi-Method Evaluation of Police Use of Force Outcomes." Available at http://www.ncjrs.gov/pdffiles1/nij/grants/231176.pdf.
4. National Institute of Justice, *Study of Deaths Following Electro Muscular Disruption: Interim Report,* Washington, DC: National Institute of Justice, June 2008, NCJ 222981, http://www.ncjrs.gov/pdffiles1/nij/222981.pdf.
5. Details about the national survey can be found in section 3 of the report.
6. Amnesty International, *'Less Than Lethal?' The Use of Stun Weapons in US Law Enforcement,* London, England: Amnesty International Publications, 2008, http://www.amnesty.org/en/library/info/AMR51/010/2008/en.

Visit NIJ's Web topic page at http://www.ojp.usdoj.gov/nij/topics/technology/less-lethal/how-ceds-work.htm.

CED safety and effectiveness was a topic of discussion at the 2010 NIJ Conference. To listen to the panel, go to http://nij.ncjrs.gov/multimedia/audio-nijconf2010-ceds.htm.

For more information

- Smith, M.R., R.J. Kaminski, G.P. Alpert, L. Fridell, J. MacDonald, and B. Kubu, *A Multi-Method Evaluation of Police Use of Force Outcomes,* Final report submitted to the National Institute of Justice, Washington, DC: National Institute of Justice, July 2010, NCJ 231176, http://www.ncjrs.gov/pdffiles1/nij/grants/231176.pdf.
- National Institute of Justice, *Study of Deaths Following Electro Muscular Disruption: Interim Report,* Washington, DC: National Institute of Justice, June 2008, NCJ 222981, http://www.ncjrs.gov/pdffiles1/nij/222981.pdf.

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