

Combating Terrorism with Non-Lethal Weapons

By John B. Alexander

IN THE CONDUCT of the global war on terrorism, certain trends in terrorist activities are clearly emerging. To create the most damage as well as a lasting psychological effect, attacks often have taken place in densely populated areas with civilians as the primary targets. Given the likelihood of collocation of terrorists and non-combatants, it is necessary to reconsider the use of area non-lethal weapons, including incapacitating agents.

It is worth considering a few examples of recent civilian-targeted attacks. On March 11, 2004, in Madrid, 10 near-simultaneous explosions ripped through four commuter trains of the Cercanias transportation system with devastating effect. The backpack bombs killed 191 riders and wounded another 1,755. In addition to the physical casualties, the timing of the attack was influential in the outcome of the general elections held three days later.¹ The following year, on July 7, 2005, domestic suicide bombers similarly attacked the London public transportation system. Initially, three bombs were detonated within 50 seconds of each other at disparate locations along the Underground. Approximately one hour later, a bomber blew himself up on a double-decker bus at Tavistock Square. The attacks resulted in 52 fatalities and more than 700 wounded passengers.² On July 11, 2006, attacks in Mumbai, India demonstrated similar, well-coordinated planning and were executed with devastating effects. These incidents included the detonation of seven bombs within 11 minutes at various locations along the suburban railway system during the evening rush hour. Casualties were high and included 209 riders killed and more than 700 others wounded.³

1 "Scores Die in Madrid Bomb Carnage," BBC, March 11, 2004.

2 Paul Murphy, MP, "Report into the London Terrorist Attack of 7 July 2005," Intelligence and Security Committee, Parliament (UK), May 2006.

3 "Tuesday Terror: Six Blasts Rock Mumbai Railway Stations," *Times of India*, July 11, 2006.

In each of these terrorist incidents, clearly the objective was both causing casualties and generating fear throughout the civilian sector. Although different groups were responsible for each attack, there were several common factors. Foremost, every incident took place in a major metropolitan area. The attacks required a high degree of coordination and sophistication to carry out. The perpetrators were either local, or had the ability to operate openly in their environment. None of the targets were military in nature or represented national symbols of power.

These attacks, and others like them, foretell the nature of future terrorist incidents. Specifically, most often they will take place in densely populated cities and the assailants will be almost indistinguishable from their potential victims. Under such conditions, the ability of counter-terrorist organizations to apply force is, at best, limited. Mistakes can and do happen, such as the London shooting death of Brazilian Jean Charles de Menezes on July 22, 2005, only two weeks after the bombings there.⁴

If collocation of terrorists and innocent civilians becomes a norm, then new alternative capabilities need to be explored. The best cases to examine regarding alternatives took place in Russia. The outcomes were dramatically different, but one offers an example of a highly controversial technique for resolving hostage situations.

Incapacitating Agents

On October 23, 2002, 42 armed Chechen terrorists stormed a theater in the Dubrovka area of Moscow where *Nord-Ost* was being performed and took approximately 850 hostages. During the next two and a half days, discussions were held between the terrorists and the Russian government. The history of the Chechen terrorists was well-known, and they had a propensity for violence; in 1995, they had taken a hospital in Budyonovsk and massacred all of the hostages. In an unusual turn, the Moscow terrorists were about evenly

4 Due to misidentification, and a series of circumstances that culminated in no spare reaction time, Menezes was shot in the head seven times by officers who had no good alternatives. See Ken Livingston, Mayor of London, "Statement on IPCC Report," August 2, 2007.

split between men and women, and many came wearing bombs. Although negotiations were initiated, it was believed that the terrorists planned to blow up the theater with all of the hostages and themselves when they thought they could get the most publicity.

After gunfire was heard in the theater, the Russian government made a crucial decision to end the standoff. They authorized the use of a previously secret chemical agent designed to cause rapid incapacitation of everyone in the theater. While never formally acknowledged, the agent, called M-99, is thought to be fentanyl-based and capable of rendering humans unconscious in a matter of a few seconds. The introduction of the gas through the ventilation system had the intended effect. Immediately upon application of the agent, *Spetsnaz* troops entered the building and dispatched most of the terrorists. The details of the rescue operation that followed remain clouded. It is certain that at least 129 of the hostages died as a result of inhalation of the gas; however, more than 600 were rescued.⁵

The application of this chemical incapacitating agent was at once successful and unfortunate. The rescue of hundreds of hostages quickly became overshadowed by the secrecy of the chemical makeup of the aerosol and controversy regarding legality of using that agent. The rules of engagement in hostage situations, however, are that once casualties occur all attempts are made to save as many hostages as possible. Additionally, the laws regarding use of chemical agents in domestic situations are quite different from use in war.

There were several operational errors that could have significantly lowered the fatality rate that night. Adequate transportation was not available to move hundreds of unconscious patients. Fentanyl is a known respiratory inhibitor; there could have been arrangements made to ensure all of the unconscious victims remained breathing by assigning an assistant to each victim. Finally, the Russians

5 Paul Wax, MD, et al., "Unexpected 'Gas' Casualties in Moscow: A Medical Toxicology Perspective," *Annals of Emergency Medicine* 41 (2003): pp. 700-705.

authorizing the operation could have better informed the medical staffs about the nature of the substance being used. That information would have allowed for more effective treatment. No rescue operation of that magnitude, however, had ever been attempted previously. Despite the efforts of the *Spetsnaz* forces in saving the hostages, the world attention remained focused on the chemical warfare aspects of the operation.

About two years later, on September 1, 2004, Chechen separatists initiated another massive terrorist incident. Now known as the Beslan Massacre, several dozen terrorists took about 1,200 hostages at a school on the first day of the academic year. Having learned from the Dubrovka operation, the terrorists quickly smashed out the windows to increase the circulation of air and make introduction of an incapacitating aerosol more difficult. This incident ended tragically for all involved. On day three of the siege, chaos erupted with massive gunfire and detonation of several of the terrorists' pre-placed bombs. Unlike the Moscow theater, the military and police units surrounding the Beslan school did not have a clear plan in place in case the situation deteriorated quickly. As a result, the death toll was 368 killed, including many young children, and an additional 738 severely injured.⁶

Research into incapacitating agents is not new, nor exclusively Russian. In the 1960s and 1970s, the U.S. Army also explored the use of fentanyl and other similar agents.⁷ Upon signing the Biological and Toxin Warfare Convention in 1972, it was determined that even research in that area was in contravention of the treaties and work was stopped. As recently as 1997, the conventions have become even more restrictive, banning the use of riot control agents and flame weapons on the battlefield.⁸ Concurrently, the situations facing military units have

become more complex. There has been a significant rise in peace support operations in which there is a need to apply force, but at minimum levels, especially when large numbers of non-combatants are present.

Despite the obvious conundrum, the mood of the international community, especially of Europeans, is to take the most conservative position regarding chemical weapons.⁹ They cite the slippery slope argument, suggesting that use of any chemical agent would lead to use of all chemical agents. In addition, there are other new technologies that are equally contentious.

Energy Weapons

Anti-personnel directed energy weapons may also be useful as area weapons in counter-terrorism situations. They have encountered similar legal issues that have delayed their entry onto the battlefield. The technology needed to field the Active Denial System (ADS) has been demonstrated and could have been deployed years ago. Due to the uniqueness of the effects (temporary pain that stops immediately after exposure), the Department of Defense has opted not to send the ADS into Iraq.¹⁰

The ADS provides a new dimension in directed energy. This beam weapon is highly directional and quickly induces pain. It can affect targets accurately that are many hundreds of meters distant and would be useful in separating terrorists from civilians. Traveling at the speed of light, the system can also inhibit snipers who must expose themselves in order to shoot. Operating with experienced counter-sniper spotters and rapid response time, a single system could provide suppression over a broad area.

There are other developments in directed energy weapons that would be effective in isolating terrorists. These are anti-materiel systems that can damage or destroy sensitive electronics. Advances have been made in systems that can block

communications, incapacitate vehicles, or even predetonate explosives.

Conclusion

Given the high probability that troops will encounter terrorists in close proximity to non-combatants, it is imperative that new, innovative technologies be explored. Having the options of shooting or not shooting is unacceptable. This suggests a two-pronged effort in providing soldiers with additional capabilities. First, research into incapacitating technologies must be dramatically increased. Due to the variability of human physiology, it is unlikely that a perfect solution will be found. The differential between rapid incapacitation and death is small. Even under the best of circumstances, anesthesiologists lose patients. Given the exigency of hostage situations, however, calculated risks must be deemed acceptable. Both chemical and electromagnetic technologies offer the ability to improve rescue odds.

The second axis may be more difficult, as tremendous emotional interest has been vested in prohibiting chemical weapons. Initiated nearly a century ago, for worthy and altruistic purposes, societies have sought to ban such weapons that can inflict widespread death. A paradox now exists, however, as tremendous advances have been made in chemistry and it is now possible to employ such weapons in a life-conserving mode. Just as the global war on terrorism has forced a reevaluation of concepts of conflict, it also suggests that perspectives on chemical and electromagnetic technologies are changed. The goal is to provide the capability to incapacitate an area and allow rescuers to sort out terrorists from hostages.

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6 Uwe Klussmann, "The Beslan Aftermath: New Papers Critical of Russian Security Forces," *Der Spiegel*, July 4, 2005.

7 Chemical Warfare Convention, effective April 29, 1997.

8 "The Protocol for the Prohibition of the use in War of Asphyxiating, Poisonous or Other Gases, and of Biological Methods of Warfare," signed in Geneva, Switzerland, June 17, 1925.

9 In November 2005, COL George Fenton, USMC (Ret.) and I appeared before a group of Chemical Warfare Convention delegates in The Hague in support of incapacitating weapons. The European participants were adamantly opposed to the use of any chemical agents.

10 David Martin, "The Pentagon's Ray Gun," 60 Minutes, March 2, 2008.