Rapid Assessment Medical Support (RAMS) for Active Shooter Incidents

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Abstract

This country has witnessed a steady increase in the number of active shooter incidents in recent years. The traditional emergency medical services (EMS) response to such incidents has been to stage at a safe distance until the scene has been secured by law enforcement. Such an approach may lead to unnecessary delays in medical care and potentially needless loss of life. To address this issue locally, the Philadelphia Fire Department (PFD) and the Philadelphia Police Department (PPD) collaborated to develop the Rapid Assessment Medical Support (RAMS) program. All PFD paramedics have been equipped and trained to move with PPD officers into a scene that has been cleared by police but not yet secured in order to initiate emergency care, with an emphasis on hemorrhage control. Patients are then extracted to awaiting EMS resources in the cold zone. The history behind the program and the challenges and obstacles that had to be addressed in its development are described. These included initial and ongoing training and funding sources; buy-in from risk management, labor, and the individual providers; whether only paramedics should be included in the RAMS program or if the PFD’s firefighter-EMTs should be included as well; the potential for mission creep as police recognized the value of this asset and its potential application to other scenarios; and how to involve the many nonmunicipal ambulance services that are not involved in the routine operation of Philadelphia’s 9-1-1 system. To date, RAMS teams have been activated on multiple occasions, but fortunately the incidents were resolved without injury or loss of life. However, the program provides another valuable tool with which the City of Philadelphia can respond should another active shooter incident occur. Keywords: emergency medical services; law enforcement; police; wounds, gunshot

Prehospital Emergency Care 2015;19:213–217

Introduction

The Federal Bureau of Investigation (FBI) defines an active shooter as “An individual actively engaged in killing or attempting to kill people in a confined and populated area.” Incidents are generally of brief duration and most commonly occur in a work site, school, or public place. Victims are chosen at random. In 57% of cases, law enforcement officers arrive while shooting is still underway. The number of active shooter incidents has increased in recent years. Between 2000 and 2008 there were approximately 5 per year. From 2009 to 2012 the number rose to almost 16 per year. These incidents are violent and unpredictable and can occur in any community. Emergency medical services (EMS) agencies must therefore have in place appropriate policies, procedures, and training to respond and initiate care to the victims.

Because of the potential for a large number of victims, medical response to active shooter incidents must be rapid and the responders trained and equipped to manage the injuries they are most likely to encounter. Emergency medical services providers generally operate under agency-specific, regional, or statewide protocols. While EMS protocols have long addressed the management of blunt and penetrating trauma, only recently have they introduced interventions traditionally practiced in a combat setting. In addition, few EMS agencies have procedures and training programs that address patient care and EMS integration with responding law enforcement in the rapidly changing and potentially dangerous environment of an active shooter incident. Some EMS and law enforcement agencies have full- or part-time tactical EMS (TEMS) providers. However, their primary purpose is to support the tactical mission, not to provide care to civilian casualties. In addition, few agencies have a sufficient number of TEMS providers to be available around the clock on short notice. We describe a collaborative program undertaken by the Philadelphia Fire Department (PFD) and the Philadelphia Police Department (PPD) in which all PFD paramedics were trained to work alongside police and provide patient care at active shooter incidents prior to the scene being declared secure.

Rapid Assessment Medical Support

The PFD is the sole 9-1-1 EMS response agency for Philadelphia, the fifth largest city by population in
the country, with over 1.5 million residents. During peak hours the PFD operates 50 ambulances, 36 of which are advanced life support (ALS), staffed with two paramedics or one paramedic and a firefighter/EMT (FF-EMTs), and 14 of which are basic life support (BLS), staffed by FF-EMTs. In addition, 56 engines and 27 ladders function as first responder vehicles. In 2013 the PFD responded to 281,681 EMS calls. Like all EMS providers in the Commonwealth of Pennsylvania, all PFD paramedics and FF-EMTs are required to adhere to the Pennsylvania Statewide Basic Life Support and Advanced Life Support Protocols.9

Philadelphia has been both directly and indirectly impacted by active shooter incidents. On October 2, 2006, a lone man entered the West Nickel Mines Amish School in Nickel Mines, Pennsylvania, about 50 miles west of Philadelphia. After allowing the boys to leave, he lined up the girls and shot them, killing 5 and injuring 5 others before taking his own life. Four of the victims were transported to Philadelphia for their care. On September 9, 2010, a woman who had just been suspended from her job at a Kraft Foods facility in northeast Philadelphia retrieved a gun from her car in the parking lot, re-entered the building, and shot and killed two coworkers and critically injured a third.7 Philadelphia Fire Department paramedics responded to the scene along with PPD officers. Like most other EMS providers, PFD paramedics had been trained to wait until a scene is secured before entering to initiate patient care. However, due to the large size of the facility and initial confusion about the location of the shooter and victims, the paramedics unknowingly entered an unsecured scene. They did so without any ballistic protection and while carrying conventional equipment, including a cardiac monitor-defibrillator.

The Kraft Foods active shooter incident illustrates that it is not always possible for EMS providers to know where danger is. As a consequence, they may find themselves in potentially unsafe situations without proper training or equipment. In 2013, the Philadelphia Fire Department and the Philadelphia Police Department addressed this issue through development of their joint Rapid Assess Medical Support (RAMS) program. This program is intended for active shooter incidents, bombings, barricade or hostage situations, or other criminal or terrorism-related scenarios that generate, or have the potential to generate, multiple trauma victims in need of emergency care but where the scene has not yet been fully secured by police. The first police officers to arrive on such a scene will form a contact team, which will move toward the shooter or sound of gunfire, bypassing victims, improvised explosive devices, or other potential threats. Their sole objective is to eliminate the immediate threat. The area of operation of the contact team is designated as the hot zone, indicating that there is a known hazard or threat that is direct and immediate. Only law enforcement will operate in the hot zone. Once the immediate area is cleared by police, the contact team will call in a rescue team, which consists of no less than 4 police officers and a RAMS team of 2 paramedics and either an EMS officer if available or an attendant paramedic. The RAMS team members wear body armor and ballistic helmets and carry enough medical supplies for several victims. The area where they operate is designated as the warm zone, indicating that it has been cleared by police, and there is minimal or mitigated threat. They will perform basic life-saving interventions until they run out of patients or supplies, at which point they will begin patient evacuation. As more EMS assets arrive on scene, additional rescue teams may be formed to provide further patient care or to assist with evacuation. The police officers' sole responsibility is to protect the paramedics. The function of the EMS officer or attendant paramedic is to coordinate movement of the RAMS team with its police security element and to communicate by radio with staged EMS resources. The area to which patients are evacuated by the RAMS team is designated as the cold zone, indicating that there is little or no threat, either due to its location or because the area has been secured by police.

Care provided by RAMS team paramedics is based on Tactical Emergency Casualty Care (TECC) principles. Derived from Tactical Combat Casualty Care (TCCC), TECC applies medical lessons learned by the military on the battlefield to the civilian setting. It takes into consideration the different scopes of practice of civilian EMS providers, the types of wounds they are most likely to encounter, the generally shorter transport times in the civilian environment, and the more diverse demographics of the patients they treat, including children and the elderly. Interventions performed by RAMS team paramedics within the warm zone may include hemorrhage control, emphasizing use of tourniquets and pressure dressings, as well as wound packing with standard gauze or hemostatic gauze when indicated. Only basic airway interventions are performed. Chest wounds are managed with application of occlusive dressings when indicated and needle thoracostomy if tension pneumothorax is suspected. For patient accountability, live patients are marked with a red Cyalume VisiPad chemical light and deceased patients with a blue Cyalume light.

To date, all approximately 240 PFD paramedics have undergone one-day RAMS team training. This consisted of several hours of lectures, which covered the relevant policies, medical interventions, and orientation to equipment. These were followed by instruction on tactical movement presented by members of the PPD Special Weapons and Tactics (SWAT) team. The training ended with exercises in which paramedics and SWAT team members formed rescue teams and
responded, initiated care, and evacuated patient role-players. This initial training has subsequently been reinforced with a number of joint PFD-PPD field training exercises that have involved a limited number of paramedics. These exercises have been conducted in schools, malls, government facilities, and office buildings within the city to simulate the variety of venues where active shooting incidents may occur.

**DISCUSSION**

Active shooter incidents, as well as mass woundings or killings by perpetrators wielding other types of weapons, have become an unfortunate reality of modern life not only in the United States but around the world. On April 16, 2007, at Virginia Tech in Blacksburg, Virginia, Seung-Hui Cho murdered 32 people and wounded 17 in the most lethal active shooter incident by a single gunman in the country’s history. On July 22, 2011, 68 people were killed and over 100 injured by a lone gunman at a summer camp on the Norwegian island of Utøya. On March 1, 2014, eight attackers randomly stabbed people in the railway station in Kunming, China, killing 29 and injuring more than 130. These are just three of many such incidents.

Traditionally, when responding to such incidents, EMS responders would stage in a safe location until the scene had been secured by police. This was the approach taken by EMS responding to the Columbine High School shootings in Littleton, Colorado, in 1999, an approach that led to an extended delay in care for victims unable to escape the building. Some of the 13 deaths that day may have been prevented if basic medical interventions, particularly hemorrhage control, had been initiated sooner. Since the Columbine shooting, there has been a significant paradigm shift, in part due to a change in public expectations of emergency responders. The public now expects law enforcement to immediately address the threat, rather than waiting for additional resources, and also expects shorter times to medical care. Reflecting this change, the Hartford Consensus Conference convened in April 2013. Under the auspices of the American College of Surgeons and the FBI, the conference brought together leaders from the medical, law enforcement, fire/rescue, and EMS communities to develop strategies to improve survival from active shooter incidents. The group concluded that care of victims is a shared responsibility between law enforcement, fire/rescue, and EMS. As such, emergency response agencies should develop joint protocols and engage in joint training to improve care of the victims while taking into account tactical and other operational considerations. Patient care heavily emphasizes early evaluation: hemorrhage control with tourniquets, pressure dressings, or hemostatic agents; and prompt transport to definitive trauma care. The conclusions of the Hartford Consensus Conference were further elaborated by the U.S. Fire Administration in its publication *Fire/Emergency Medical Services Department Operational Considerations and Guide for Active Shooter and Mass Casualty Incidents.* The PFD and PPD developed the RAMS program to address the reality of active shooter incidents and to incorporate these recommendations into their policies and procedures.

In developing the RAMS program, a number of issues had to be considered. Among these was initial and ongoing funding for equipment. Deployment of body armor of various sizes, ballistic helmets, and RAMS medical bags in all 36 PFD advanced life support (ALS) ambulances and 6 EMS supervisor vehicles was budgeted to cost over $100,000. Replacement costs of medical supplies and protective equipment over time also had to be considered. Initial costs were defrayed through a variety of funding sources, including federal and state homeland security grants as well as state EMS operating funds. However, as time passes, more permanent sources of funding may need to be sought.

Obtaining buy-in from key stakeholders was also necessary. These included City Risk Management; the providers’ labor representative, Local 22 of the International Association of Firefighters (IAFF); and the providers themselves. Having paramedics don helmets and body armor and enter an environment from which they had been traditionally excluded may certainly raise the concern for increased risk of occupational injury or even death of the employees. However, the intent of the RAMS program is to keep the providers more safe, not less, by giving them additional equipment and training to respond to situations where they had previously found themselves in the course of their routine duties. It established a formal agreement with the PPD for responsibility for the paramedics’ safety, and it mandates that Unified Command be established prior to committing PFD personnel to the warm zone. In addition, it enables them to respond and initiate care to victims more rapidly. One could therefore argue that the RAMS program in fact may decrease, not increase, risk to the providers and improve the likelihood of victim survival.

Regarding potential labor concerns, the IAFF recently issued a position statement on active shooter and mass casualty terrorist events, which states that “fire and law enforcement departments, regardless of size or capacity, must find ways to marshal appropriate and effective responses to these events. Therefore, local jurisdictions should build sufficient public safety resources to deal with active shooter scenarios.” The RAMS program is consistent with the IAFF position statement.

Finally, most paramedics seemed to consider the program to be much needed and the additional training valuable preparation for both active shooter scenarios.
as well for routine care of trauma patients. That being said, a few paramedics initially expressed discomfort with being asked to enter a scene that has not been completely secured by police. In addition, while most paramedics felt comfortable with the ability of PPD SWAT operators to protect them, some were concerned that patrol officers, with whom they would generally be deploying, lacked the same amount of training and discipline as their SWAT colleagues. The appropriate way to address these concerns and what to do if a provider refuses to participate in the program have not yet been determined. However, as the program has matured the paramedics’ comfort level has increased. To date following several actual RAMS activations, no paramedic has refused to don gear and deploy.

Maintenance of the paramedics’ RAMS-related skills over time is an issue that also needs to be addressed. While RAMS teams are being requested by the PPD with increasing frequency, these responses still constitute a very small percentage of total EMS calls. Therefore, during the course of their career with the PFD, most paramedics will be mobilized in a RAMS team rarely if at all. Without an ongoing training program, skills degradation is a real possibility. While the medical interventions are variants of care paramedics provide on a routine basis, tactical movement and integration with law enforcement officers require motor skills and a degree of situational awareness that are not commonly practiced. How best to provide ongoing training, how often refresher training is needed, and how to pay for it must be considered. For the present, updates will be provided during the paramedics’ annual in-house continuing education. A heavy emphasis will be placed on hands-on scenarios. In addition, the paramedics will be exposed to those elements of the Multi-Assault Counter-Terrorism Action Capabilities (MACTAC) curriculum that pertain to patient care.

Another phenomenon that must be considered is mission creep. The RAMS program was initially envisioned for active shooter incidents, terrorist bombings, and other scenarios where paramedics may be called upon to render emergency care in a setting that has been cleared by police but not secured. The 2010 Kraft Foods facility shooting and the September 2013 Washington Navy Yard shooting are illustrative examples. However, on a near-daily basis the PPD responds to incidents such as barricades or hostage takings where there is a very real potential for multiple casualties requiring care in an unsecured setting. PFD RAMS teams are frequently requested by the police to respond and standby in case they are needed. While prudent, this also has the potential to take much-needed paramedics out of a very busy EMS system for an extended period of time. How to balance the needs of law enforcement with the ongoing needs of the EMS system is currently being examined. One option to address this could be the development of a full-time TEMS component within the PFD using PFD paramedics or EMTs. However, this in itself would involve many challenges.

Another issue that the PFD must consider in moving forward with the RAMS program is whether its FF-EMTs should undergo the same training. Currently, FF-EMTs generally work in anALS or BLS ambulance several days in a row every few months before rotating back to their engine or ladder company. Among the PFD’s approximately 1,900 firefighters, there are 1,100 FF-EMTs. Ideally, all FF-EMTs would undergo RAMS training as well. However, the small amount of time they work in ambulances and their large number compared with paramedics make initial and ongoing training, as well as skills maintenance, challenging. As a temporizing measure, funding sources have been identified to purchase tourniquets for all PFD firefighters to keep in their bunker gear. These can be used for self-aid, buddy-aid, and to care for the public in case of a mass casualty incident. A shorter block of training on TECC concepts of self-aid, including tourniquet application, will be presented to all firefighters via distributed education and station-based hands-on exercises.

A final consideration related to the PFD RAMS program is whether to include nonmunicipal ambulance services and, if so, the best way to do so. The Commonwealth of Pennsylvania is divided into 15 EMS regions. Due to its size, Philadelphia is a city, a county, and an EMS region. While the PFD is the sole 9-1-1 fire and EMS response service in Philadelphia, within Philadelphia there are over 60 nonmunicipal ambulance services, most of which are basic life support services. The PFD and nonmunicipal ambulance services participate in joint training exercises and assist each other with patient care on occasion. That being said, nonmunicipal ambulance services are not seamlessly integrated into the city’s emergency response system. Whether, and how, these other ambulance services should undergo RAMS training, and if they do undergo training how they can be best utilized, are yet to be determined. One option would be to deploy them in the cold zone for support functions and casualty transportation to definitive care. At present, funding sources are being identified to supply nonmunicipal ambulances with tourniquets and other hemorrhage control products.

**Conclusions**

The Philadelphia Fire Department’s Rapid Assessment Medical Support program represents one way for large urban EMS systems to prepare for the increasing threat of active shooter incidents and other criminal acts that generate a large number of victims requiring emergency care in areas that have not been secured by police. By training all of its paramedics to
operate alongside police, the PFD has ensured that this resource is readily available around the clock and so can respond within minutes, rather than waiting for a specialty unit, such as a tactical EMS team, to arrive. The program has also instilled PFD paramedics with additional awareness and skills that are applicable to routine patient care.

References