

The Next Ten Minutes

Why every officer should carry an individual first aid kit

by Dave Brown

A quick flash, a sudden bang, and you hit the ground before the smoke clears. You reach for the source of pain and are surprised to find blood quickly seeping through your once-pristine uniform. Thankfully, backup is right behind you, EMS is only ten minutes away and the nearest fully equipped trauma room is 30 minutes down the road.

Unfortunately, if bleeding from a serious gunshot wound is not controlled right away, you could be dead in half that time.

These are the next ten minutes. For most of us in populated areas of North America, that's about how long it takes EMS to get to you.

Everyone who carries a firearm for a living or spends any amount of time on training ranges should think seriously about carrying an Individual First Aid Kit (IFAK) in an easily accessible place on their person. Unlike a regular first aid kit where you use your resources, supplies and training to help others, an IFAK is designed primarily to be used on yourself. This is why it should be easily accessible to either hand.

The goal of a good IFAK is to carry the minimum amount of equipment that may be needed to save your life for those first few minutes after a serious gunshot wound. It does not replace general first aid or survival kits; it is a singular-purpose kit designed specifically to stop uncontrolled bleeding from a gunshot wound on the body. (This is why they are sometimes termed blow-out kits.) The philosophy of a compact IFAK on you at all times is simple - the most well-equipped first aid kit in your vehicle may be too far away when you need it the most.

Plus, during an active shooter situation, EMS may only be two blocks away but they may be forced to stay back until all shooters have been neutralized and the zone cleared. If you don't have a tactical medic on your team, consider yourself on your own until someone can get to you. This is where the IFAK comes in and this is why every officer should carry one.

Not every IFAK on the market is going to be perfect setup for everyone. As always, let your mission dictate your gear. But the science of combat first aid has improved significantly in the past few years. Officers can take advantage of these advancements so that now a few carefully selected items can be stored in a compact kit the size of a double AR magazine pouch. This article is about what you should think about for your own personal IFAK, some ideas on how to implement them and suggestions for some really critical items that you might need to keep yourself alive for those first ten minutes.

Lessons From combat

Two decades of armed conflict in Iraq and Afghanistan have seen significant changes in the field of emergency trauma care for combat casualties. While police officers don't deal with the same risks, the lessons learned from combat in those 20 years can help keep officers alive on the streets of North America today.

In the 1990s, a United States Special Operations medical research project was undertaken with the goal of improving combat trauma outcomes through optimization of care rendered in tactical environments. Their research on pre-hospital trauma care resulted in an article titled "Tactical Combat Casualty Care in Special Operations," published as a supplement to the August 1996 issue of Military Medicine.

The project's core principles for Tactical Combat Casualty Care (TCCC) are to avoid preventable deaths with effective gear, good training and proper tactics. Their guidelines were highly customized for use on the battlefield and concentrated on the three most common causes of preventable death in combat:

- extremity hemorrhage (60% of deaths)
- tension pneumothorax (33% of deaths)
- airway obstruction (6% of deaths)

The U.S. military began to equip every soldier on the ground with a compact first aid kit designed to address these three problems specifically. Those kits were designated as the "Improved First Aid Kit" in the U.S. Army, and "Individual First Aid Kit" in the U.S. Air Force and U.S. Marines. Simply called an IFAK, those kits contained a variety of items depending on the issuing branch, designed for self-aid first and buddy-aid second. In other words, when carried in a place easily accessible to either hand, you would first use the kit on yourself, and if that were not possible, another soldier could use your kit on you.

In subsequent years, those percentages of death due to tension pneumothorax have fallen significantly, mostly due to advances in body armour. The same applies to police officers. Consider today that extremity hemorrhage will likely be your biggest concern. Plus, while combat soldiers may have to deal with hospital care that is hours away, police officers may be suddenly thrust into similar situations that begin to look much like a combat zone. Good equipment will never replace good tactics. This is why lessons from combat are so important, even on the streets of Canada today. As long as a direct threat exists, tactical awareness and stopping the threat will always have first priority. This may leave you by yourself until help can get to you, and why the best medicine is superior firepower.

IFAK: What to carry?

The topic of emergency first aid may seem complex and the field is constantly evolving, but with lessons learned from combat and a careful selection of some of the newest products on the market, a few guidelines may help simplify the decision process about what to pack in a personal kit.

Firstly, you have to recognize that if you are suddenly suffering uncontrolled bleeding from a gunshot wound, the most well-equipped kit in the world back in your car may not be as good as a minimal kit on your person. This means you need to understand what works – and almost as important, what you don't need -- in a compact kit.

Secondly, there are few prepackaged kits on the market that suit every situation. Do some research. The best distributors of kits and components will usually let you mix and match products to suit your own preferences. Don't just buy the first one you see. Remember that human life isn't simple and you aren't stupid. There is too much at stake.

Thirdly, all my extensive research and talking to combat medics, EMS technicians and trauma room physicians have taught me one other important lesson: the amount of gear that people try to stuff into an IFAK is inversely proportional to their experience in real-life gunshot wound situations.

While the above may seem counter-intuitive, it is also a fact; experienced medics know what works and what to leave out. Don't carry more than you can pack in one small case, and don't carry anything you are not trained to apply.

So, based on the fact that hemorrhage bleeding is the number one cause of preventable combat deaths, there are three main possibilities to address in those first critical ten minutes: a gunshot wound to an extremity; a gunshot wound to the chest; or a gunshot wound that pierces an artery. So while tension pneumothorax (a buildup of air from a sucking chest wound) is the next preventable cause of death on the battlefield, it probably won't kill you in the first ten minutes as much as uncontrolled bleeding will. Unlike military troops in combat, police officers in Canada can generally leave pneumothorax for EMS and worry primarily about stopping the red stuff from coming out.



A minimal kit can therefore be as few as four basic items:

- tourniquet;
- compression bandage;
- hemostatic gauze; and,
- adhesive chest seals.

Gloves

Nitrile gloves are a necessity. Even if dealing with your own injuries, they will help pack gauze deep into a bullet wound. Tan or blue-colored gloves are better than black because they show the presence of blood more clearly during a rapid body survey.

Tourniquets

Applying direct or indirect pressure was always the traditional first line of defence for a gunshot wound, but it may not always be practical to keep applying pressure to yourself or others, especially if still under a direct threat. Lessons from Afghanistan and the Boston bombing have shown the value of tourniquets in quickly arresting massive hemorrhage from life-threatening limb injuries or amputations. There is a renewed appreciation for the value of a good tourniquet.

Unlike hastily assembled or jury-rigged tourniquets, the modern combat tourniquet is quick to apply, effective enough to stop the bleeding quickly and won't cause permanent damage even if left on for a few hours. If the threat is still active, there just might not be enough time to apply pressure, pack the wound with gauze and apply a compression bandage.

To be effective, tourniquets must be close at hand so they can be found and applied quickly. The reality is that if you are by yourself, you might lose consciousness while waiting to see if combat gauze or pressure bandages are going to stop serious bleeding, so if wounded in an arm or leg and bleeding is serious, get one on right away. High and tight are the keywords. They should be applied two fingers proximal (toward the centre of the body) to the wound. If the tourniquet will be around a joint, apply it above the joint.



Tourniquets will cause pain when applied, and even more pain when released but this is where proper training is vitally important. Pain is not an indication it is on too tight or that nerve damage is occurring. Pain is better than dead.

Tourniquets should be left on until professional help arrives. They should NOT be

loosened on regular basis to restore circulation. Every time they are loosened, there is a risk of restarting bleeding, especially if arterial, that may not be stopped as easily the second time. If a second tourniquet needs to be applied, for example against the skin when the first one was applied over clothing during a direct threat situation, the second tourniquet should be applied above the first one. Leave both of them on.

Modern tourniquet designs and proper training reduce the risk of complications to the point that one should be able to save both life and limb. This is why many agencies in Canada are now issuing combat tourniquets to every officer. If the gunshot wound is to an extremity and the bleeding is severe, get it on fast, proximal to the wound and tight.

In my research, I have found three different levels of pre-hospital tourniquets:

- High quality combat-tested tourniquets such as the genuine Combat Applications Tourniquet (CAT) and the new version of the Special Operations Forces Tactical Tourniquet (SOF-TT Wide.) The CAT is slightly smaller and lighter, thanks to its composite rod versus the aluminum rod of the SOF-TT. Both are extremely well made. The CAT is now standard issue for Canadian troops, and has been issued to millions of soldiers in the United States, Canada and Britain since 1995. Other manufacturers are also quickly entering this market with their own unique designs.
- No-name knock off (what I call "white label") brands that copy the CAT design and are manufactured by medical supply houses in China. Primarily sold in volume by tender, there is no evidence that they may fail to work as designed. Potential copyright issues aside, I personally wouldn't buy one just to save a few dollars.

- Imitation CATs designed for airsoft gamers. These are cheap counterfeit copies made by toy companies in China that one can buy for \$14 on eBay. They are designed only for the look and should never be used in a real first aid kit. Be aware that the counterfeit tourniquets may be poor quality but are good imitations of the real thing. They have fooled more than one combat soldier who purchased one off eBay. Strictly toys, and one of the many reasons why I don't play with toy guns.

Compression Bandages

Compression or "combat" bandages are designed to wrap tightly around a wound and to apply needed pressure. They can be applied where a tourniquet is not appropriate. Stored in a highly-compressed state, they usually come in 4-inch and 6-inch widths. The best ones are the Israeli bandages (most of which are still made in Israel) and the Olaes bandage, named after U.S. Special Forces combat medic Army Staff Sgt. Tony Olaes who was killed September 20, 2004 during Operation Enduring Freedom in Afghanistan.

Applied properly, they are capable of significant compression. One 4-inch Israeli (commonly called an "Izzy") or 4-inch flat-packed Olaes fits very nicely into my compact IFAK, and I keep several more 4-inch and 6-inch Israelis plus an Olaes bandage in a larger mobile vehicle kit.

The pressure bandage is not designed to soak up blood for a serious or arterial wound; it is designed to apply pressure over top of tightly-packed gauze in the wound. If a pressure bandage soaks through quickly, it is an indication that the wound was not packed tight enough and it should be removed and new gauze applied.

Hemostatic Gauze

Hemostatic products speed clotting of blood, and this is where significant improvements have been made the past few years. Original products came in a powder or crystal form that was sprinkled over the wound and then sealed or packed with gauze. The problem was that the early versions could cause severe burns through a chemical reaction. Emergency room physicians absolutely HATED these older hemostatic agents because of the possibility of burns and the difficulty in debriding wounds. They also found that people would use them when they got a simple fishhook stuck in their thumb and not for bleeding that could not be otherwise stopped through pressure.

Hemostatic agents have now been removed from most military IFAKs, and replaced by the much better hemostatic-impregnated gauze. QuikClot Combat Gauze and Celox Rapid z-fold gauze are among the most well-known products currently on the market. The gauze can be packed tightly into wounds to control bleeding or folded into a pad and placed over shallow wounds such as in the head, torso or neck where compression bandages don't work well.

QuikClot Combat Gauze is impregnated with kaolin, an inorganic mineral that accelerates the body's natural clotting ability and produces no exothermic reaction. It works on contact with blood to enhance the blood's natural clotting mechanism within seconds.

Celox uses a natural material called chitosan, a byproduct of shellfish. When chitosan contacts blood, it quickly swells and sticks together to form a gel seal. It does not generate heat, and any leftover material is easily absorbed by the body. Celox has also been extensively tested on people, many with shellfish allergies, with no ill effects ever reported.

Hemostatic gauze must be packed tight to the wound and must make contact with blood. It cannot be reused and if a wound must be repacked, it should be removed completely and new hemostatic gauze applied. If more gauze is needed to increase the pressure in the wound cavity, regular gauze may be packed over top of hemostatic gauze.

Chest Seals

One place you do not need any holes – as if there were any place on your body that you do – is the chest. This includes from the belly-button area to the clavicle, on all four sides. A bullet hole here creates an opening in the chest area and lungs where air being sucked in through the hole is just as likely to kill you as the bleeding. (This is why they are often referred to as a "sucking" chest wound.)

A chest seal is an adhesive plastic disk designed to stick to the skin and quickly seal up bullet holes. The best ones come in pairs, because if there is one hole in your chest, there is likely two. They use a very high adhesive seal that will effectively stick to hair, blood and wet skin.

Before the advent of good chest seals, medics would sometimes use old EKG probe patches or plastic sheets from bandage wrappers taped on three sides, but there is no reason to waste time doing that today. The only downside to the seals is the awkward size of packaging meant folding before it fits in a compact IFAK. Adhesive chest seals are licensed by Health Canada as a Class 2 medical device, and the popular Halo Chest Seals can no longer be sold in Canada. A good alternative is the Fox Seal, which comes from the same maker as Celox, and is licensed for Canada.

What you *don't* need

Many of the experts I talked to have seen valuable space in an officer's IFAK taken up with unnecessary gear -- everything from nasopharyngeal airways, chest decompression needles, and even scalpels. Understand that you are not surrounded by combat soldiers who have all been trained in emergency first aid. You may be by yourself, or you may be surrounded by people with minimal or no training. Your kit is designed to be used on yourself first and used by others on you second.

For example, before anyone decides to put a chest needle into their kit, I always suggest they look around at the other people on the shooting range and decide for themselves if they want any of these folks jabbing long sharp needles into their chest close to their heart. Chest needles and airways are two items that are difficult for even the experts to apply and they usually aren't something that needs to be done in the first ten minutes, especially if you properly occlude a chest wound with chest seals.

First aid trainers with real life gunshot-wound experience will usually say that outside of trauma rooms, needle or valve decompression of the chest is not always very effective, has a high complication rate and is better done as a chest drain at the hospital anyway.

Individual First Aid Kit



Here are the contents of my individual kit:

- 1 pair tan nitrile gloves
- CAT tourniquet
- 4-inch Israeli bandage
- Celox Rapid combat gauze
- 1 pair Halo chest seals
- Sharpie pen
- Small roll surgical tape
- EMS shears

I chose the CAT over the SOF-TT wide because many people have reported it is easier to apply one-handed. The Sharpie is for marking the time of application on the tourniquet and the surgical tape just fills a space. A universal first aid patch on the outside of the kit and a few inches of orange paracord to the zipper pulls to help distinguish the first aid kit in a hurry. I pack all my items into one compact kit so that what I call the "big four" are always right at hand.

Another solution for some might be to split components; carrying a tourniquet in an easily accessible pocket, and then a slimmer kit with pressure bandage, chest seals and hemostatic gauze tucked inside body armour or around an ankle.

Vehicle Kit

I spend a lot of time on shooting ranges, so I carry a second larger kit in my vehicle for more of the same, plus other items that are important but not necessarily critical for those first few minutes:

- 5 more pairs nitrile gloves
- a second CAT tourniquet
- 4-inch Olaes modular bandage
- 6-inch Israeli compression bandage
- QuikClot Combat Gauze
- 2 packs H&H compressed sterile gauze
- EMS shears
- CPR mask
- 12 4x4 gauze pads
- 2 Purell cleansing and sanitizing towels
- 2 packs Water-Jel burn dressing
- All Weather space blanket
- Head-mounted LED light
- Reflective traffic vest



This has been a review of some of the items I would recommend. I am not a medic or a first aid expert. In my career, I deal with firearms almost daily. I researched the top-quality products on the market today but what works for me isn't going to work for everyone. The science of combat medicine is constantly evolving and new products are being introduced almost every day. This article is designed to get you thinking about what *you* would carry in your individual first aid kit and what you might need to save *your* life for those first ten minutes.

Like everything else in police work, survival is good training, good equipment and a proper mindset. When you are on the ground and watching blood gushing from a bullet wound, nothing reinforces your survival mentality more than knowing you can apply direct or indirect pressure on a wound and then reach for combat-tested gear. Make it through the next ten minutes and you have an excellent chance of survival.

After that, the most comforting sound in the world will be the sirens in the distance.