

# A Proposed Guideline for Tactical Medical Self-Care in the Civilian Environment:

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This is the foundation document upon which the BFE Labs (<http://BFELabs.com>) class “Self-Care in the Tactical Environment” is based. This entire idea began with writing this out to post on the blog and a forum. This provides the foundation off which all BFE Labs Tactical Self-Care material builds.

## Overview:

In environments involving violent use of firearms, knives, and other weapons capable of inflicting life threatening penetrating trauma (which we might call *Tactical Environments* for lack of a better term), there exists a need for medical management guidelines specifically addressing the unique concerns of said environment. The military and police communities have addressed this with adoption of the military generated Tactical Combat Casualty Care guidelines. Recognition of the risk of injury in the tactical environment, and the need for improved, tactically sound, care methods for those engaged in violent encounters has slowly begun seeping into the civilian context of armed/self-protection minded citizens. What information exists, however, is generally gleaned from the documents and training created around the military/police contextual model, which differs significantly from that of the armed citizen engaged in self defense.

The civilian environment lacks the protections afforded by operating in small units which can provide suppressive fire to protect dedicated medics, and members of which generally wear body armor and protective equipment. Injury sustained in the civilian environment must be self stabilized, for lack of better options, until professional care arrives. The safety and security of the environment in which the care is delivered is also up to the individual most likely suffering the injury. The armed citizen is triple-tasked to negate active threats, use cover and effective fire (not volume) to secure themselves, and provide their own care for stabilization of a life threatening injury in the “Platinum 10-minutes” after it occurs. This demand for self-care is only heightened by the inevitable delay in arrival of emergency medical services, given response times and the need for police to declare a scene secured prior to EMS entering.

Meeting the needs of medical care in civilian engagements can be accomplished via the first two stages of Tactical Combat Casualty Care: *Care Under Fire* and *Tactical Field Care*. The third stage, Casualty Evacuation, is handled by the arrival of EMS, and is of far less concern than self stabilization in the immediate aftermath of violent penetrating trauma.

## Definitions:

### Care Under Fire:

Defined in Tactical Combat Casualty Care (henceforth, TC3) as care given at, or immediately following, the point of injury, while still under effective hostile fire. Can be reasonably extended to care given while still under strong threat of hostile fire, w/o immediate rounds coming down-range. In the context of this protocol; Care given to mitigate injury during the fight, under fire or in a lull w/o positive assurance of active threats being negated, i.e. a hastily applied one-handed-tourniquet administered to an extremity injury under cover, prior to returning to the

fight.

### **Tactical Field Care:**

Defined in TC3 as care rendered once the injured and care giver are no longer under effective hostile fire, or in a mission setting in which there has been no hostile fire. In context; Care given after the negation of immediate threats, cessation of the need to actively fight, i.e. after definitively stopping a threat and seeking safe cover in which to perform care.

### **Self-Care:**

Care rendered to the injured party by themselves, w/o aid. Although the underlying principles apply to buddy-aid/care of others in the civilian tactical setting, the priority of this protocol is self treatment of the active defender who has sustained injury.

### **Protocol:**

#### **1. Care Under Fire:**

- **Move:** Actively make distance/seek cover, finishing the fight/eliminating threats to do so if possible.
- **Fight:** Finish the fight while moving. Stay in the fight; check weapon, reload, confirm fighting grip & muzzle orientation.
- **Assess:** Evaluation of success of movement/finding cover + Visual and tactile assessment of felt wounds.
- **Care:** Implement immediate care - Tourniquet to control bleeding in debilitating/life threatening extremity wounds. Maintain environmental & threat awareness.
- **Re-Assess:** Re-Evaluate environment for threats; Are downed threats still down, are retreated threats returning? Re-evaluate weapon, evaluate environmental availability of other weapons and improved cover
- **Fight:** Address new and returned threats.
- **Re-Assess:** Repeat as above.

#### **2. Tactical Field Care:**

- **Assess:** Moving from stage one final assessment of hostilities end, into re-assessment of injuries, with eye toward further stabilization
- **Care:** Extend treatment of wounds; assess effectiveness and tighten tourniquet if necessary, apply hemostatics, pack wounds and dress with trauma dressings. Application of occlusive dressings/chest seals to penetrating chest injury and needle thoracotomy (if necessary/part of skillset).
- **Secondary Survey:** Survey location and environment. Remain aware for new threats. Reposition if possible/necessary. Summon emergency response services. Be aware of possible loss of consciousness, and position as necessary to prevent airway occlusion or further damage in the event of blackout.

### **Procedures:**

#### **Care Under Fire:**

Movement is essential, becoming immobile in response to injury greatly increases the risk of sustaining further, and potentially worse, injury. Moving targets are harder to hit – You should have been moving already – As are targets behind cover. Moving to cover also creates a potentially safer area in which to render self care after finishing the fight.

Finishing the fight/neutralizing threats and rendering them unable or unwilling to continue is

essential to successfully rendering care. You cannot manage both life threatening hemorrhage and an assailant at the same time. Quick, effective, neutralization of threats is ideal to create a safe environment for care.

Immediate application of a tourniquet to control hemorrhage in extremities is the most effective, and fighting efficient, care we can render. Requiring minimal time to employ, allowing a faster return to the fight when applied during a lull, and offering excellent control of the massive extremity hemorrhage.

### **Tactical Field Care:**

After the fight is over, or immediate hostilities have ceased, care moves into the second stage focusing on improved care of critical injury. Activate police/emergency medical services. Re-assess the wound(s) to determine efficacy of tourniquets. Application of a hemostatic agent, followed by wound packing (or a combination thereof, I.E. QuickClot Combat Gauze), and secured by a pressure dressing should follow. In the case of penetrating chest injury, occlusive dressings/chest seals should be applied. If trained, needle thoracotomy can be performed if necessary. Contact should be made with emergency services if you haven't done it prior to this, along with moving/repositioning for tactical advantage if threats return, as well as to be seen/easily identified by first responders. Re-positioning, i.e. moving to put a wall behind the injured shooter, should include positioning to support the body positively, in a manner supportive of the airway, if unconsciousness is a possibility. Remain aware as possible during this stage, as a return to the care under fire stage may remain possible at any moment.

### **Skills:**

The most critical skill for care in the tactical environment is stabilization of rapid blood-loss, followed by stabilization of penetrating chest injury with potential for tension pneumothorax. According to the TC3, deaths in combat occur from the following, in the following amounts: 31% penetrating head trauma, 25% surgically uncorrectable torso trauma, 10% potentially surgically correctable trauma, 9% exsanguination (bleeding to death) from extremity wounds, 7% mutilating blast trauma, 5% tension pneumothorax, and 1% other airway complications. Deaths from combat injury after the fact, usually infection, account for the remaining percentage of fatalities.

Some wounds will be fatal no matter the care provided, and often faster than care can be provided. Head wounds, severe chest wounds causing massive internal hemorrhage, etc. have very little potential for positive outcomes, and even less opportunity for self-care. Ignoring the things over which there can be no expectation for control in the self-care environment, we are left with primary concerns of exsanguination, and tension pneumothorax, i.e. penetrating extremity trauma and penetrating torso trauma.

### **Assessment:**

In conventional medicine, assessments are observational tools for the medic or physician walking into an event relatively cold, with very little prior information available at the time of their arrival. The injured performing self care has the prior knowledge of their environment, the location of an injury, and the mechanism responsible from the moment care begins. The focus of their medical assessment is thusly on the extent of their injury related to immediate care.

A rapid assessment immediately after the injury as to whether or not there is a need to apply a tourniquet or take other immediate action other than moving/finishing the fight, can be performed fairly simply if injury is noticed immediately. Suffering the injury, and quick

visual/physical inspection should be enough to make these kinds of decisions.

In the care under fire stage, exposing the injury, tearing or cutting back surrounding clothing to allow improved visual and/or tactile inspection of the wound(s) is essential. Don't let clothing get in the way of making a proper assessment.

Use visual and if necessary physical inspection to determine the nature and extent of the injury, and effectiveness of tourniquet placement at reducing blood-flow.

### **Tourniquet Application:**

Tourniquets, preferably of the one-hand operation variety, and of a significant width to more effectively block blood-flow without causing damage, are applied to extremities in response to sustaining a penetrating wound causing life threatening (arterial) hemorrhage. Upon sustaining such an injury, the injured should fight their way to a secure/covered location, giving themselves time to apply a tourniquet away from immediate threat. The fight may not be over, but a space of time has been created in which to apply a tourniquet.

Tourniquets can only be applied to extremities, I.E. arms and legs. A tourniquet must never be placed over a joint (knees, elbows, wrists, ankles).

Tourniquet must be applied above the injury, at least two to three inches.

Tourniquets must be placed tightly for maximum effectiveness. Attention should be paid to placement, and once secured left in place (not loosened and adjusted) to prevent reperfusion injury.

Tourniquets can safely be left in place for up to an hour without increased risk of tissue damage. Inside the window of awaiting police scene clearance for emergency responders to enter and provide care, this is a more than adequate amount of time.

### **Hemostatic Agent Application:**

Application of a hemostatic (clotting) agent can greatly increase the reduction of blood-flow, particularly in concert with well applied tourniquets, and thorough wound packing and pressure dressing. Hemostatics, regardless of brand, are commonly found in the following forms: Powder/Granulated, Impregnated Dressing/Sponge, Impregnated Gauze.

**Powder/Granules:** Expose wound, and use roller gauze to remove excess blood. Identify primary bleed(s), if possible in an elongated or complex, wound. Pour hemostatic into the wound until a layer of non-blood soaked material is on top. Use dry gauze or gloved finger to wipe away excess hemostatic from edges of wound, and pack wound with gauze. Use pressure dressing to secure gauze packing in wound.

**Dressing/Sponge:** Expose, remove excess blood and identify primary bleed(s). Pack dressing/sponge into wound, using multiples as necessary to achieve complete coverage. Pack wound with gauze, and secure with pressure dressing.

**Hemostatic Gauze:** Expose, use *non-hemostatic* gauze to remove excess blood, identify primary bleeds, Unroll gauze and begin packing from the end as with standard roller gauze. Pack into wound focusing on primary bleed(s), use excess gauze as packing atop the wound, and secure with a pressure dressing.

After using hemostatic agents to treat wounds, use tape or a safety pin to attach the hemostatic agents package to clothing near wound, in case of unconsciousness, to alert EMS to its use.

### **Wound Packing:**

Packing the wound with roller gauze (or hemostatic gauze, ala QuickClot Combat Gauze) improves the efficacy of a pressure dressing, or direct pressure with a dressing on the surface

of the wound. Wound packing allows adsorbent material to much more closely contact, and transfer pressure to, the actual bleeds.

Expose the wound, and use gauze to remove excess blood, allowing identification of primary bleed(s). Unroll gauze partially, enough to initially pack into the wound, and begin packing from the unrolled bundle. Press the gauze deep into the wound, starting at the bleed, and working to fill the cavity as tightly as possible. Pack deeply, to the bone if the wound is deep enough, and tightly. Use excess gauze that cannot be packed into the wound as additional dressing material for bandaging with a pressure dressing.

### **Bandaging:**

Once a wound has had hemostatic applied, and been packed, the packing should be secured with a pressure dressing. A pressure dressing both provides a more robust securing for packing and hemostatics, and creates sufficient pressure against the bleed to increase effectiveness of other treatments.

Off the shelf pressure dressings, commonly employing some form of elastic wrap with a dedicated adsorbent wound pad and often featuring a leveraging device or hook for increasing pressure, have become the standard for field bandaging. Emergency Bandages (“Israeli Dressings”), Cinch-Tight and H-Bandages, and Olaes Bandages all fall into this category.

The bandage should be removed from packaging, and the wound pad exposed (and unfolded, if it folds out larger than the bandage width). The pad should be placed against the wound, or atop the packing, and the bandage wrapped around the extremity or torso. Once wrapped once, if employing a leverage device the wrap should be threaded through this and turned back, wrapping the other way there-by pulling tension against itself. If no tensioning device is attached, wrap the bandage extremely tightly, to affect maximum pressure. When wrapping is completed, use the attached hooks or velcro to secure the bandage. If additional securing is needed, use duct tape.

A cravat/triangular bandage can be used to improvise a pressure dressing. The cravat is folded into a long strip, two to three inches wide, and an abdominal pad or additional roller gauze is placed over the wound as padding. The cravat is then placed atop the dressing, wrapped around until the ends meet, and tied tightly, pulling it snug and using reinforced knotting if necessary to secure it.

### **Occlusive Dressings/Chest Seals:**

In the case of non-fatal penetrating chest injury, there is risk of air entering the pleural space either from the outside environment, or escaping from a punctured lung. To prevent tension pneumothorax an occlusive dressing, or chest seal, must be applied to chest wounds to prevent the passage of air from the outside, while still allowing pressure inside to escape if necessary.

The most common tools for this task are Petrolatum Gauze, petroleum jelly impregnated gauze pads, and Chest Seals, either of the Asherman or Bolin type, although improvised seals using plastic sheeting and packaging from other materials can be used.

Petrolatum gauze should be placed over the penetrating injury (and its corresponding exit wound) and secured with duct tape. The dressing over the entry wound should be sealed on all but one corner. Allowing one corner to flap up provides an escape route for air trapped in the chest, but leaves a small enough opening that when inhaling the path will pull in and seal, preventing outside air from entering the pleural space. A sheet of plastic or foil, such as packaging from one of the dressings used, can also be used in a similar manner.

The Asherman and Bolin chest seals are simply adhesive backed plastic sheets, which have

a purpose made valve system designed to adhere over penetrating chest injury, and allow escape of air without letting more in from the outside. To place these tools, the area around the wound must be wiped free of blood and debris as much as possible. To promote adhering, the area should be wiped down with benzoin tincture, if available, prior to application of the seal. Chest seals can have difficulty adhering to wet, dirty, and hairy areas of the body, and use of benzoin can reduce these issues. Super glue has also been recommended, as has the use of duct tape to secure all edges.

Exit wounds opposite those treated with valve chest seals should be sealed with pet. gauze, completely secured, or non-valve type chest seals, which are simply sheets of adhesive backed plastic without the valve.

## **Notes**

Several assumptions are made in this protocol. Namely, the ability of the injured to perform all these tasks under stress and debilitation of their injuries. This is part of the importance of starting with a high-value action like tourniquet placement, that if nothing else is done, something effective has still been applied. In emphasizing a maximum level of care in the self-care environment, encouragement is given to the armed citizen in their thinking and training habits that they can in fact perform at this level, offering support for a survivors mindset of never quitting.

A second working assumption is the necessity of applying hemostatic to injuries by default, rather than following the conventional “pack, dress, re-assess, un-dress, apply hemostatic, re-dress” method. The injured performing self-care has a limited window of time in which to provide effective care before falling victim to altered levels of consciousness or unconsciousness. As such the self-care provider has a greater need for high-value actions which require a minimum investment of time and effort. By placing hemostatic early, rather than waiting and reassessing, the self-care provider guarantees a maximum level of care has been provided, without needing an expanded window of time they may not have.

In forming a baseline for use of hemostatic agents, instruction and training protocols developed by QuickClot and Celox were used as standard models for the range of products. While more specialized applicators exist, these tools are both common brands, and common types of hemostatic applications, making them an ideal baseline. Rather than focusing on specific techniques and products, the intent of this document is to focus on acceptable baselines of effective skills, from which individuals can build to incorporate use of their chosen tools.

Default placement of chest seals/occlusive dressings is encouraged in the suggested environment. Signs and symptoms of pneumothorax and tension pneumothorax are the expected pain, shortness of breath and tightness in the chest, along with elevated heart rate, coughing and poor perfusion – All very probable symptoms following a violent encounter in which injury was sustained, and not necessarily indicative of pneumothorax. However, their expected presence for the environment is not contraindicative either, making placement by default a reasonable response.