

THOUGHTS ON AID BAGS

PART ONE

Michael R. Hetzler, 18D; Justin A. Ball, 18D



Special Operations Forces (SOF) have evolved and developed immeasurably during the first seven years of this Global War on Terrorism (GWOT). Even though we've met the challenges presented with a great deal of success, we continue to find ourselves in environments where individually we have had no specific training or exposure. Medics in the direct action (DA) role can arguably find themselves in one of the most challenging environments possible, and it now occurs more frequently with our target sets and the urban environments in which they occur. Regardless of experience, an expectation for preparedness still exists to handle these situations even though they may have never been dealt with in the past.

An assault Medic's role differs from any other, in that he must be able to operate with a minimum of pre-mission planning time yet be prepared for all medical contingencies. These can range from a single patient with a simple gunshot wound to an entire assault force buried in rubble from a building collapse. All this must be accomplished while maintaining the ability to shoot, move, and communicate effectively.

In order to reduce the stress that inevitably comes from trying to prepare for so many trauma scenarios, some basic aid bag packing principles may prove beneficial. Unfortunately, too many still deploy with an aid bag packed for schoolhouse Combat Trauma Management training. With the high operational tempo and turnover of personnel, it is difficult to find the time to develop solutions for everything en masse. It is also unrealistic to set a standard on how to pack an aid bag for all missions. The solution is a basic theory to start from so that every Medic can meet a standard of preparedness for DA missions.

This article is the first of two meant to provide some lessons learned, as well as tactics, techniques, and procedures (TTPs) in preparing aid bags and Class VIII supplies for casualty care in the DA role. These theories

are oriented primarily toward the present environment of Operation Iraqi Freedom (OIF). They are based on the assumptions of maintaining a constant battlefield advantage in both fire superiority and manpower as well as always having capable evacuation assets within a twelve hour response time. Again, by no means are these articles meant to dictate complete and irrefutable parameters. As with any issue and any Medic, a variety



of opinions, theories, and experiences exist, so restricting oneself to a single method could reduce effectiveness. Because scope of practice and theories of care directly reflect Tactical Combat Casualty Care (TCCC) and Damage Control Resuscitation (DCR) guidelines, equipment and supplies mirror those as well. We also hope that these articles may provide some insight in packing aid bags for other missions and operational environments.

The TCCC protocols were established in 1996 primarily from lessons learned due to experiences in So-

malia in 1993. They have become the standard for both military trauma training and civilian Pre-Hospital Trauma Life Support guidelines. The TCCC's identification of causes of combat mortality and essential procedures for their treatment (i.e., tourniquets, needle decompression, etc.) has greatly assisted the Medic in focusing the cube space of his gear to the most relevant life threats. The three phases of care defined by TCCC standards are: Care Under Fire, Tactical Field Care, and Evacuation Care, all of which provide a framework for the SOF provider to effectively deal with combat trauma, guide treatment, and load out medical gear to the most appropriate times in the fight.

DCR guidelines are championed primarily by the U.S. Army Institute of Surgical Research and specifically focus on the prevention of the "Lethal Triad" of hypothermia, presenting coagulopathy, and acidosis in the trauma patient. All three concerns have shared requirements which depending on the success of treatment, can be either mutually beneficial or mutually damaging. These DCR strategies also provide strict parameters for the monitoring and treatment of each concern during aggressive hypotensive and hemostatic resuscitation from the point of injury to the operating room. Ensuring that these goals are met provides a more scientific and therapeutic approach to combat trauma for the most efficient care possible. Additionally, this supports both the TCCC and the next level of care of damage control surgery in the hospital.

THREAT BASED PLANNING

A continuing challenge for the SOF Medics and their commands is to remain aware of the ever evolving set of threats that are characteristic to the enemy currently being faced. To do so requires the constant evaluation of enemy TTPs and their associated wound patterns to make adjustments in supplies and plans. SOF Medics need to read, research, and talk with other Medics (both current and rotating out), and with Intelligence sections, to find out what the enemy is doing on the battlefield. This information will then allow the Medic to better prepare for the specific types of wounds that may be encountered. Since terrorist and insurgent forces have the innate ability to change their tactics and operations within the most minimal amount of time, the Medic should be concerned with what they are doing no matter how long they may have been out of theater. As years have passed, it is easy to see that terrorist and insurgent forces have professionalized over time and their tactics and weapons have become more effective. Knowing the evolving wound patterns will provide the Medic with the information needed to organize aid bags more effectively.

The historical gunshot, rocket-propelled grenade, and fragmentation wounds of earlier wars are still seen daily, but stood alone in the early months. Then, as experience and expertise developed in Iraq, terrorists evolved their tactics to use improvised explosive devices (IEDs), vehicle-borne IEDs, and suicide bombers. The IEDs went from a simple bag with a trip wire, to blasts directed from above to target the soft or open overheads of HMMWVs and other vehicles, to utilizing large buried bombs. They then utilize creative materials such as incendiary or choking agent (e.g., chlorine) chemicals for increased effectiveness. Explosively formed projectile technologies were imported next and are still used with a clear increase in capability and devastating effect, even with respect to armored vehicles. House-borne IEDs are now becoming more and more frequent as the enemy looks for additional ways to gain high payoffs with a relatively low cost in both money and manpower, while challenging us with more extensive overpressure and collapse concerns.

Another early tactic was the use of suicide bombers, either in targeted attacks, or opportunistically when coalition forces happened to assault an occupied objective. The wearing of suicide vests by foreign fighters and cell leaders not only allows the enemy to hit targets of opportunity, but also allows them to specifically target members of SOF during offensive operations. Overpressure is a by-product of these weapons and, although not easily understood and measured, its effects in causing traumatic brain injuries are now quantified by their recognition as the hallmark wound of this conflict. Collapse scenarios also come in to play as another by-product of explosive tactics. Not only are these on the rise now, but were seen as early as 2004 when Iraqi army and police elements were first targeted in these traps. Another threat emerged as the accessibility of former Iraqi army ordnance dried up or was secured; IED factories began to develop home made explosives (HMEs) in order to sustain their efforts. It is estimated that over 60% of all explosives presently used in Iraq are HMEs.¹ As the enemy develops, experiments with, and perfects new recipes, the ingredients themselves have become threats in the form of hazardous materials. These hazardous materials have already affected coalition forces in Iraq and undoubtedly will again.

The question to always ask is, 'What's next?' This is where all medical elements need to talk with their own operations and intelligence sections to keep apprised of what's happening on the battlefield. Enemy effects and our preparation and response to them can be predicted, so it is important that every attempt be made to be proactive and not just reactive on the battlefield. Many of the tactics in

the previous two paragraphs have seen extensive historical employment in the West Bank, Gaza Strip, Europe, and Chechnya long before 9/11.

GENERAL

The overall approach is not the packing of a single aid bag, but to understand and develop a depth of care and supplying it with appropriate levels of Class VIII to meet the challenges in all levels of care. Combat casualty care, and the supplies that facilitate that care, start with each Soldier's individual first aid kit, and incrementally increase in application and amount to meet mission requirements and any worst-case scenario. Attempts should be made to pack the aid bags and then stage them per priority of their use; the specific types and abundance of medical supplies in the proper location will ensure success. Planning and packing in each bag should always be based on judgment of the worst-case scenario; this is, of course, based on mission analysis, threats, and assets.

Cross-loading medical supplies ensures that everyone is carrying medical gear that he/she personally packed and is up to date. Personal packing also allows the Medic to concentrate cube space in his/her own kit toward including more advanced items and it creates redundancy in equipment and supplies that can cover multiple contingencies. For example, if every Soldier of a thirty-man element carries a bleeder pack, a chest kit, a hemostatic dressing, a tourniquet, and a war wound kit, this means that together they will independently carry approximately 60 rolls of Kerlex®, 30 ACE wraps, 30 cravats, 30 hemostatic dressings, 30 tourniquets, 60 morphine auto injectors, 30 fentanyl lozenges, 30 tabs of avalox (Moxifloxacin), and 30 pills of Zofran ODT. Then, if three other team members carry a more robust med kit as cross-trained Medics, this provides an additional three cric kits, three intraosseous kits, three bags of Hextend, three hemostatic dressings, and three more injectable antibiotic kits. This stock should significantly ease the burden of supply on the Medic.

In planning for casualty care the SOF Medic should always develop, use, and pack supplies that have multiple applications. Every item that is put into the aid bag takes up space and has weight so it is important to attempt to pack only those items that are multifunctional. For example, Kerlex® can be used as pressure to pack wounds, protection to dress wounds, provide padding and guarding for impaled objects, wipe away dirt and blood for access and treatment, etc. An ACE wrap can provide pressure and work in conjunction with Kerlex® to arguably provide the most functional pressure dressing kit there is; it can also work as a hasty tourniquet and be used for splints and rags. The Tac-Wrap can be used for splint-

ing, a pressure dressing for the abdomen, pelvis, leg, shoulder, neck, axillary, and chest, splinting applications, and even casualty transport.

Conservation of supplies should be a priority in the mind of the Medic and should be exercised just as what has been taught in guerilla warfare practices. Those same habits will provide success even on today's more developed battlefield. These practices have been taught by good NCOs and the schoolhouse for decades and the importance of safeguarding supplies has not decreased in any way. It starts with quality training, competence and confidence in skills, and using only what is needed to treat wounds and injuries.

Preparation is 80% of success. The time put into preparing, packing, and practicing with the aid bag will pay back tenfold when it is needed the most. Packaging all the items together that will be required to do a procedure ("kitting" your procedures), deciding what to pack and where to place it in the aid bag, and ensuring the depth of supplies is paramount. Additionally, conducting good training and rehearsals that will test and challenge plans and preparation, as well as reviewing after action reports, will continue to provide confidence and proper coverage.

It is important that the aid bag is opened every couple of weeks to assure familiarity with its contents, especially if it hasn't been used in some time. Aid bag drills, where the aid bag is laid out as if treating a casualty and then trying to find items in the aid bag without looking, as taught and practiced during the Q-Course, are still applicable now; no matter how good the Medic is. Always, it is important to be critical with the packing list during inspections to make sure nothing is ever forgotten, at any level of care.

Kitting procedures allows the Medic to assemble all the supplies and equipment that are needed for any procedure into a single water-resistant bag: either a zipper seal bag or, for more durability, a vacuum sealed bag. (Figures 1a and 1b) Kitting procedures will allow for modularization of the aid bags and will provide flexibility for any changes needed and extra supplies for repacking. These kits also provide the Medic with both the tools and confidence for good care under the worst conditions. Combining all equipment and supplies into any procedure kit will automatically save time and provide clarity under the many stressors of engagements; thus putting them back into autopilot and negating higher cognitive thought while always providing positive progress. Having and seeing the items together will automatically prompt the Medic into the next step which increases efficiency and decreases confusion. Additionally, develop "cheater cards" for each specific kit either for the individual Medic or others to achieve the same purpose. Handing any kit to



Figure 1a Here are a few examples of procedure kits and an example of an inventory list developed for packing specific procedure kits.



Figure 1b Example of an anesthesia kit and an inventory list developed for packing.

Cricothyroidotomy Kit

- Betadine Swab
- #10 Scalpel
- Cric Hook
- 10cc Syringe
- 7.0 – 7.5 Tube
- Securing Material / Suture Material

IM Antibiotic Kit

- Betadine Swab
- 3cc Pre-filled Syringe
- 20g Needle
- 1g Cefotan / Rocephin / Ertapenem

a trained team member immediately lets him know what is expected without explanation.

If the decision is made to vacuum seal equipment and supplies be careful with tubes, bags, and balloons as some machines may employ too much vacuum that could cause medical grade plastic to adhere to itself, lose its intended shape or purpose, and possibly even tear the more sensitive parts such as the balloons on intubation tubes. It is good to mark every kit with the name of the procedure in big, black letters on either two inch white medical tape, or using a paint marker for easy recognition under stress. Make sure to turn all medications and vials out so that they can be seen with their names and expiration dates for quick reference through the packaging. We recommend a small cut in the top corner of every bag marked with a piece of tape above and below to serve as quick opening tabs. Record the packing date on the kit for reference as well. Generally, the goal is to rotate kits out of the aid bag every year to decrease the chance of malfunctions from normal wear and tear over time. This is true for every level of coverage whether it is individual first aid kits, vehicle bags, or resupply bags. Ensure those older rotated kits are used during training to reconfirm your packing list and develop everything you carry.

Take responsibility for everything that is carried. This means, “train with everything you pack” and have confidence in it. If the decision is made to carry a new occlusive dressing, or even a new style of Kerlex®, it should be opened and used at least two or three times to gain knowledge and confidence in their use. If commercially developed and packaged products are used, remember that they can vary in types, supplies, packing methods, and (most especially) their quality control – so know everything that is carried inside and out.

DEPTH OF SUPPLY

Having a depth of supplies is no different than having a defense in depth or depth on a battlefield. It means layering and prioritizing the placement of supplies and equipment to provide more complete coverage and to be more effective when it is needed the most. Standardizing what each Soldier carries and how he carries it provides the basic medical logistics support that is needed at the point of injury. That first line of supply is backed up with vehicle, outstation, or mass casualty bags that would cover trauma even if they had to stand alone as the only source of supply. This, in turn, allows the Medic to decrease and prioritize what is personally carried in both the assault and backup aid bags to provide a higher, more effective level of care at the point of injury.

For this theory to reach its potential, cross training has to be extensive and continuous. Training the team to

standards and then holding them to those standards is paramount in making them force multipliers. Those skills may even save your own life one day. On an assault team everyone should be proficient in the primary survey and the appropriate actions at each level of combat casualty care, tourniquet use, airway management, occlusive dressings, relief of a tension pneumothorax, effective use of pressure as well as hemostatic dressings, packaging, and transport. Cross-trained team Medic skills can include advanced airway management, intravenous or intraosseous access, antibiotic therapy, and a full and complete secondary survey.



Figure 2 Inventory for IFAKs carried by every Soldier.

As the first line of supply, every Soldier should carry the medical supplies that are meant to save his or her own life. It is these supplies that provide the Medic with a bank of Class VIII for trauma care (Figure 2). Tourniquets are the most valuable stopgap to uncontrollable extremity hemorrhage, so it is important to ensure that every Soldier carries one on the front of their gear, accessible by either hand, and easily identifiable at all times. Every Soldier should be trained to access and employ them on themselves with one hand, on any extremity, and at any time necessary. Pressure dressings, or “Bleeder kits” can come in a variety of components such as a four-inch ACE wrap, two Kerlex® for packing bowl shaped wounds, and a cravat for miscellaneous use. More developed and multifunctional equipment and supplies are coming out on the market now such as the Oales bandage which can be used as a basic dressing, a pressure dressing, or traumatic amputation dressing. It even has limited occlusive dressing applications. Additionally, Chest kits should contain two Ashermans (ACS™), Hyfins, or simple Hydrogel along with a 10 gauge three-inch hard needle large and long enough to cover most chest sizes. Lastly, most Soldiers can carry a small 250cc normal saline IV starter kit – again primarily as back-up for fluids, since most care they provide should center on hypotensive resuscitation.

Cross-trained team Medics take coverage one level higher by providing both advanced procedure capabilities as well as a more specialized medical kit for more critical situations. Their equipment and supplies should directly mirror the training and level of care that is decided for them, so these skills need to be held to a standard. Even if the team Medic doesn’t employ them, the medical kits they carry can provide the Medic with critical backup supplies (Figure 3). Cricothyriodotomy kits, Hextend®, parenteral antibiotic kits, and epinephrine autoinjectors are some supplies that may be included here. Individual first aid kits should be maintained as well.



Figure 3 Suggested inventory for a Team Medic Kit.

Vehicle aid bags provide a mobile supply cache and the next line of supply. They should be task organized as per A B Cs, with kits to support the level of training that is given to the teams. One bag per vehicle or team is generally enough and again provides depth in supplies for mass casualty events that a vehicle would likely be a part of. Every vehicle should also have a “litter kit” with a sensitive items bag. This bag can be a duffel bag, an aviator’s kit bag, or a commercially made product, providing the ability to consolidate and control the casualties’ weapons, ammo, and radios minimizing the risk of loss. Hypothermia control is another part of the litter kit. Preplacing a space blanket, or passive rewarming blankets and headgear automatically gives the ability to protect the patient against a known contributor to mortality such as the ‘lethal triad’ (Figure 4).

CARE UNDER FIRE KIT FOR THE MEDIC

What the Medic carries on their body also contributes to effectiveness, speed, and depth of supplies. Based off the TCCC concept of Care Under Fire, a Medic needs to have an immediately available pouch of lifesaving equipment (Figure 5). If removal of the aid bag has to be completed to accomplish this, both time and economy



Figure 4 Several examples of commercially available Litter Kits; a commercial Sensitive Items Bag sits to the far left but this can be replaced by any duffel or kit bag.



Figure 5 Above: Where and how a Medic carries his equipment is limited only by his imagination and training.

Below: Recommended inventory for items carried on a Medic's body.

Care Under Fire Medic Supplies on Body	
• Bandage Scissors x 2	• Ammonia
• Lights on Body x 2	• Exam Gloves x 3 pr
• Window Punch x 1	• PO Antibiotic Tab x 6
• Marker x 1	• Morphine INJ x 2
• Alcohol Pen x 1	• Trauma Supplies
• 4 x 4's	– Kerlex x 4
• Casualty Cards x 5	– 4" ACE Wrap x 2
• Pulse Ox x 1	– Hemostatic Dsg x 2
• 10g Hard Needle x 2	– Occlusive Dsg x 2

of effort are lost. The placement and choice of equipment is based on buying enough time to get to the next stage (Tactical Field Care). There the patient is in a more secure area and the Medic is free to lower security, remove his aid bag, and begin more thorough assessment and treatments. We recommend a “one is none, two is one” for the less appreciated but more essential items on your body (i.e., bandage scissors and light sources).

Some suggestions:

- Carry extra tourniquets so you'll never come up short.
- Carry casualty cards in a pocket for easy accessibility and to remind you of their use.
- Always have two methods and sizes of permanent markers to use on casualties or on the casualty cards.
- Consider carrying a small zipper lock bag of 4 x 4's so there is a fast and simple method to wipe blood away from wounds to ensure that the extent of damage can be seen.
- Carrying easily accessible (pockets, assault vest, etc) lifesaving materials and kits for those procedures that may save a life within seconds requires some thought and self critique. Usually having an emergency cricothyroidotomy kit easily accessible to treat a severe maxillofacial compromise saves both the time and frustration of having to go into an aid bag. Having 10-gauge hard needles accessible for an emergency needle decompression is another logical point for handling breathing emergencies.
- Try to have several types of hemostatic adjuncts to treat circulatory emergencies. Clamps, extra tourniquets, hemostatic dressings, and maybe a bleeder kit in a pocket will again save the frustration of taking off and getting into an aid bag when time counts most.

TACTICAL FIELD CARE, THE ASSAULT AID BAG

An Assault Aid Bag is usually designed and configured to provide a stop gap, and life saving procedures coming off of the Medic's back. It should not be so large and cumbersome that it cannot be sat on, (in the seat of a helicopter or HUMVEE) climb over a wall, or move through a door with another Soldier while not knocking each other over. This aid bag combined with a Back Up Aid Bag for more extensive resuscitation or a mass casualty event again allows the Medic to layer supplies and treatments; and while doing so, more specifically task organize what is being carried and what can be done because of that depth.

EVACUATION CARE, THE BACK-UP AID BAG

As mentioned before, the Back-up Aid Bag can and will provide anything that may be needed for longer

term casualty sustainment, or those supplies needed for a mass casualty event. This aid bag is generally not carried on a Medic's back, but certainly can be if the mission analysis warrants it. In theory, it can be dropped at a breach to be retrieved later, prepositioned on a vehicle to be recalled when needed, or left on an aircraft to be dropped in, in an emergency. The assault aid bag, the back-up aid bag, and their equivalents will be covered extensively in the next article.

After any casualty event, make sure to employ some habits that will continue to ensure success. Our enemy is very creative with information operations; we must ensure that we do not provide them with anything that they can be used against us in the media. At the point of injury, pick up every single scrap of cloth, dressing, or trash, and sterilize the treatment areas just as if leaving a patrol base. When casualties are turned over and the

Medic has returned to base, it is important to immediately refit every bag that was used. The Medic does not want to be caught unprepared in continuing mission sets or engagements. Make sure to have those essential kits and supplies packed well beforehand and ready so there is no waste of time preparing equipment verses planning or recovering. Deploy with a trauma box already packed with prepared kits and items, enough to repack the entire assault bag and ready kit, and to assist in backfilling the mass casualty bag if necessary.

We hope that this, the first of two articles, will provide Medics who find themselves in direct action missions with some foundation to develop their logistical and Class VIII support as well as provide lessons learned and insight to aid bag packing and treating casualties in the field. The next article will go into greater depth specifically covering the Assault Aid Bag and the Back-up Aid Bag in this environment.

The authors are assigned as 18Ds to USASOC and have accumulated 43 months of deployed time in both OEF and OIF between them.