

## **Medical crisis management and how innovation can be applied to first aid or emergency treatment.**

From years of experience as medical director and looking at recommendations for standard industrial supply and drugstore purchased first aid kits, I have been continuously disappointed. Not only are the actual contents lacking for serious first aid emergencies but they often lack proper instruction regarding use of kit contents.

Options for the lower-end medical first aid kits in commercial and corporate aviation seem to be no exception. First aid kits are meant to be for medical crisis or emergencies, not to be intended for ongoing medical care and management of patients. The true contents then should cater toward the highest injury incidents and making sure properly stocked items to handle these events are included and proper instructions are provided for their usage. I have made my opinions known but there never seemed to be any proactive changes until a recent development and revolution in the first aid industry.

This past year it appears progress has been made with the introduction of Self-contained Emergency Treatment (SET) systems and Emergency Information Devices (EID) into the first aid market. SET Systems are first aid systems that are interactive with the user and provide comprehensive supplies to match step-by-step voice instructions. SET systems deliver just-in-time or anytime training. Voice instructions via an Emergency Information Device (EID) are combined with color-coded supply packs organized by trauma and containing medical supplies, personal protection and clean up supplies for one or multiple injuries. The only models on the market are from a company called First Voice™. The company's patent-pending OSHA compliant product quickly steps you through over 30 emergencies.

As I had stated, one component of the SET system is the Emergency Information Device (EID). The EID is the hardware that provides voice instructions to the user. I have only found one other EID on the market but I will not share the product name because I am not a supporter of its limited function for the field or its limited interactive instructions for the end user. It appears this EID was intended to be used solely as a training tool for basic life support scenarios. My opinion is that having an EID with no matching supplies is a detriment to treatment and I have found the interactive instructions on this EID to be limited and very basic. However, despite these products differing greatly on many facets – both should be commended on the innovation they provide to first aid.

I have become an avid supporter of the SET system based upon how I evaluate first aid systems. Below is a list of questions I consistently ask to evaluate first aid and medical crisis management systems in place at established businesses.

When evaluating your first aid kit and systems, questions that should be asked are:

- Does the kit contain all supplies necessary to treat the majority of injuries and are they easily organized? I am always quick to reference the National Safety Council injury facts and statistics. These statistics show what injuries are occurring at work and I make sure all kits contain supplies that address all workplace injuries according to the recent information. Remember that in an emergency you need to find things quickly. You don't want to be dumping out contents or digging for an item when you should be administering care instead. This is one reason I specifically like the innovative SET systems. The supply packs are color-coded and labeled by type of injury or trauma class. These colors coincide with the emergency buttons on the screen of the EID hardware being used.



Organizing just the right amount of supplies by trauma is a good example of how to quickly address an injury or emergency with maximum efficiency. In addition, it allows for matching supplies with verbal or written instructions that are very clear and have little probability for confusion or wrongful action by the responder. In addition, it ensures that the responder thinks about personal protection, providing gloves and any other PPE needed in the organized supply packs.

- Do you really need commonly used items such as cough drops and antacid tablets or hydrocortisone cream, suntan lotion, mosquito repellent, motion sickness over the counter drugs, ibuprofen or aspirin, benadryl, electrolyte powder, liquid tears, lip balm, tongue depressors, oils or balms, safety pins, paper cups, scissors, tweezers or Qtips? This depends on your philosophy of first aid kit management. I am an advocate of placing these in a first aid kit ONLY if controls are in place to make sure the kit is properly sealed and inspected after each use. There are plenty of times where you can often find these items elsewhere and so if you know you will not 100% of the time re-seal and restock according to inspection procedures I do not advise adding them to your medical crisis management kit. Often times first aid kits become under stocked because something was removed and then over time, things disappear from the kit that renders it practically useless in an emergency situation. I have seen first aid kits without gloves, gauze, CPR masks, or other necessary items because the proper control was not in place. SET system management does appear to bring this into the equation. There are plenty of pockets and spaces to add your own items and they give you an inventory management checklist and seal tight pulls for proper re-sealing. There is even an inspection tag for sign off and dating to be recorded.

I will note that in a life threatening situation, these “common props” are of little use – with the exception of 81mg chewable baby aspirin which should be administered when a heart attack victim is conscious and is able to chew. My opinion is that you want to make sure you stock any of these items to you personal liking in side pockets and be sure to consistently check these items on a regular basis according to your special needs. Providing you with prepackaged supplies of these items is useless and a waste of money – it is better to purchase according to your individual preferences. In all cases the first responder must always seek instruction before administering any type of drug or cream/balm to an injury or victim. A dose of benadryl can delay the ability to operate and be life threatening. In the event of a heart attack, only chewable baby aspirin should be administered. The key is knowing when to administer benedryl or any other drug in your kit and knowing absolutely when you should not. If in doubt, wait until you can reach advanced emergency assistance via phone or 911 assistance or advanced medical care arrives. The First Voice™ EID provided in the SET system is very good at giving the basics until you can reach advanced care.

- How many bandages or adhesive bandages does it have and do you really need? Adhesive bandages are a great way to stop bleeding on small or minor cuts but make sure you have more than bandages in the kit. And, I am not a big fan of bandages as they tend to impede healing and promote infections if left on too long. A key to a good kit is having quality gauze bandages and stretch gauze for more severe bleeding situations such as head trauma or deep cuts and a good elastic bandage to keep pressure on a wound – but care must be exercised in making sure not to restrict circulation harmfully. The First Voice™ EID is very good at providing little reminders such as this. I will also add that steristrips, for example are a space saver and are great for a quick suture on a cut and take up a minimal amount of space. I found that very few adhesive bandages were found in the SET systems by First Voice™ but they did contain proper quality gauze as I advise should be in a kit.
- Does the kit allow for minimally trained responders to advanced responders to help assess and treat victims efficiently and correctly? What type of written or verbal instructions comes with the kit? The First Voice EID contains the just-in-time instruction based on yes/no prompts and makes it very easy to treat for different types of injuries based on severity and type of victim (adult, child, or infant). This type of technology is an incredible injury management tool for when medical emergencies happen as it is hard to sit down and concentrate on reading a set of instructions.

Now I want to note that there are high-priced aviation medical kits on the market that are well above the price of the innovative SET Systems and EIDs that have just entered the market. However, in my opinion the value in these systems are in the voice at the other end of the phone line.

These kits and medical service systems become more of a necessity when flying internationally or intercontinental. However, the organization of supplies and types of supplies provided are not as well thought out as the SET systems and they are much less versatile for anyone to use for that specific reason.

- Does it stock latex or non-latex gloves? If you go to the extent of worrying about non-latex gloves are you sure that other items in the kit are non-latex? With some latex allergies causing breathing constriction immediately, I advice that if you can find quality non-latex product to use it. However, if you know for a fact that none of your employees in a certain fixed area does not have any allergies and there is little risk of an outsider entering this environment, there is less reason to be worried about this. Make sure your supplier provides you proper sources of non-latex if this should be a concern for your environment.
- How durable are the gloves? This is a great test - see if they can carry water. If they are good enough to carry water and survive stretching tests they should be a sign they are better than some on the market.
- Does the kit have best supplies or most up-to-date contents for ensuring least amount of soft tissue damage or disability in the long run? A perfect example of how a first aid supplier that is providing value-added service is by providing constant input on the best and latest on any supplies. For example, SAM splints are my preferred splint. This splint can be reused, bent easily, and unlike splint competitors, does not deteriorate much over time. It comes with detailed instructions and offers the benefits of a good splint when needed: reducing bleeding, decreasing pain and reducing potential from further injury. Having a supplier or advisor that will make sure you are stocking your first aid and medical crisis management systems with these types of tools is vital.
- Are there satisfactory cleanup/prep supplies in the kit? You should make sure you have several “tear-open” antiseptic wipes (which are multipurpose for cleaning wounds and for prep or cleanup of hands or equipment). Have you made sure the kit includes proper Blood borne pathogen cleanup supplies to eliminate any OSHA violations from biohazard exposure after the fact?
- Lastly, for any supplies – do you have a good inventory tracking system? Expiration dates should be tracked. The last corporate airplane first aid kit I opened had drugs that were over 5 years expired. Do you have a vendor

supply you with expiration date notifications? Do you track expiration dates regularly? Finding a supplier that can manage your expiration dates for supplies will help. Look to companies like First Voice ([www.firstvoice.us](http://www.firstvoice.us)) regarding this. They provide e-mail notification of expiration dates on their supply packs that do contain expiration items.

- Do passengers or employees know where it is stored? Do you have a sign posted? Do you have all employees trained on how to use the basics? Using simple online training for recertification can simplify your life – just make sure that it qualifies for the right CEH, CEUs, or certificate compliance that pertains to you.

In summary, making sure people have the right supplies with the right instructions to do the best they can until advanced care can be reached is vital. The just-in-time training of SET systems and EIDs are an innovative approach using technology for medical crises. For domestic flights particularly, they offer many benefits over traditional and higher-end first aid medical kits on the market.

*According to Donnie Linder, M.D., first aid kits from stores or commercial/industrial catalogs are mostly packed with stuff that is totally useless and can even be occasionally harmful. Dr. Linder is a strong supporter of first aid kit “modernization” based on his experience as a paramedic, emergency room physician, medical examiner, outdoorsman, medical director and frequent traveler.*