

Clinical Red Flags from the USSOCOM TMEPS – Recognize, Act Fast, and Evacuate!

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ABSTRACT

Military medical practitioners working in active duty clinics are known for seeing lots of people in a short amount of time. If you've ever seen what goes on every morning at a troop medical clinic on a training post or base you know what I mean. The goal of morning sick call is to find that one really sick person among the many not so sick standing in line for your services. What you learn from working in that setting is how to recognize the red flag – the sign or symptom that clues you in to a potentially dangerous condition. When at war, the ability to recognize the red flag is extremely important. In the austere or unsecure environment, the SOF Medic needs to be the one who knows what the red flags are and what to do about them once spotted.

The USSOCOM Medical Critical Task List (CTL) requires that the SOF Medic be able to recognize, treat, and determine a disposition for many common medical conditions. Some of these conditions are life threatening, yet can present in a subtle and insidious fashion. The SOF Medic often works in an austere and extreme environment. This factor, coupled with the oftentimes non-friendly or unsecure area of operations, necessitates that SOF have an astute clinician assigned who can recognize red flag (life threatening) conditions early on in their evolution. If a red flag is seen, the decision to evacuate, or hold and treat, will have to be made based upon the tactical environment as well as the type and severity of the medical condition. Weighing the risks of evacuating or not evacuating, and then explaining the risks or possible consequences to your commander, is one of the toughest parts of the SOF Medics job.

When you and your element depart for an unsecure area of operations, it is the Medic's job to ensure that everyone in the element understands that medical emergency contingencies could affect your mission. Prior to every mission, you plan for casualties during infil, actions on the OBJ, and during exfil. You rehearse those contingencies during the rock drill or brief-backs. Why not do similar planning for actions at the FOB, safe house, or while in the hide-site when you encounter a medical emergency. Pathogens nowadays progress to-

wards sepsis and tissue destruction at an alarming rate. Early recognition and treatment, or evacuation for some conditions certainly affect morbidity and mortality. The more time you have – the better, when trying to make a timely and informed decision regarding the disposition of a sick teammate.

There are enormous tactical consequences and considerations when evacuating someone who is sick. What does the sick teammate do? Is he a unique and one-of-a-kind guy? Who's going to carry his equipment? Is the area of operations safe enough to call in a MEDEVAC helicopter for evacuation? What are you risking by driving a sick teammate for an hour through bad guy territory to a hospital that has a working lab, CT, or X-ray machine that works? These are all questions you should ask yourself prior to being put into these situations.

Do the medical rock drills and rehearse or at least talk through medical contingencies. Know the red flags for common life threatening conditions so you are able to recognize them early and make a thoughtful and informed decision on your patients' disposition with the least amount of effect on your mission.

Prior to missions or movement to a new area, ask yourself the following questions and be prepared to deal with each. Solutions should have the least amount of mission impact as possible.

1. Where is the closest friendly medical treatment facility? What is the best route for routine or medical emergency evacuation? You will need to balance transit time against the level of danger you are assuming on every possible route? The shortest route might not be the safest.
2. Will you have to navigate through bad neighborhoods, negotiate bad terrain, or endure weather extremes? Do these conditions out-weigh the risk to your patient's health?
3. When is the best time of day (look at the tactical environment) to evacuate sick team mates or to send someone for lab tests and radiology studies beyond your capabilities (if you think you saw a red flag)?
4. What risk to your mission or the safety of the rest of your team are you assuming by making a call to evacuate someone with a red flag condition?

5. What air and ground evacuation capabilities do you have available and what is the response time for them to your location?

Starting on page 22, I have listed a few of the conditions and their associated TMEPS that have the potential for bad outcomes if the red flags are not seen early. Some of these conditions might require evacuation for convenience due to the strain on personnel and resources. These TMEPS are some of the new ones for 2009, soon to be published. Highlighted in red are the aspects of each TMEP that must be recognized to allow for fast decision-making and action. I've added some discussion below each as well. There are many more conditions that are common and have red flags, but I just chose the few we see most often.



ABDOMINAL PAIN



Special Considerations:

1. Common causes in young healthy adults include appendicitis, cholecystitis, pancreatitis, perforated ulcer, and diverticulitis.
2. Consider constipation/fecal impaction as a potential cause of abdominal pain.

Signs and Symptoms Suggestive for Continued Observation:

1. Epigastric burning pain
2. Present bowel sounds
3. Nausea and/or vomiting
4. Absence of rebound tenderness
5. If diarrhea is present, treat per *Gastroenteritis Protocol*

Management:

1.  Antacid of choice
2.  Ranitidine (Zantac) 150mg PO bid **OR** Rabeprazole (Aciphex) 20mg PO qd **OR** Proton Pump Inhibitor of choice
3. PO hydration



Disposition:

1. Observation and re-evaluation.
2. *Priority* evacuation if symptoms not controlled by this management within 12 hours.

Signs and Symptoms Suggestive for Urgent Evacuation:

1. Severe, persistent or worsening abdominal pain is the key sign
2. Rigid abdomen
3. Rebound abdominal tenderness
4. Fever
5. Absence of bowel sounds
6. Focal percussive tenderness
7. Uncontrollable vomiting
8. Presence of bloody vomitus or stools
9. Presence of black tarry stools
10. Presence of coffee ground vomitus

Management:

1. Start IV with normal saline (NS), 1 liter bolus, followed by NS 150cc/hr. Keep NPO except for medications or PO hydration.
2.  Ertapenem (Invanz) 1gm IV qd
3.  **OR** Ceftriaxone (Rocephin) 1gm IV qd. plus Metronidazole (Flagyl) 500mg PO q8h
4. Treat per *Pain Protocol*
5. Treat per *Nausea and Vomiting Protocol*

Disposition:

Urgent evacuation to a surgical facility.

Discussion: Abdominal pain comes with a long list of possibilities in its differential. Don't forget a rectal examination with a stool guaiac check if possible. A testicular examination can also assist in narrowing the list of culprits. Send your findings with the patient if he is evacuated. Eventually, abdominal pain, or the narcotics that go into lessening it, can turn your ambulatory patient into a litter patient; be prepared for a litter evacuation. The abdominal cavity also has the potential space to hold lots of fluid from a ruptured, perforated, or infected organ. Be prepared for massive fluid loss if this happens.






ANAPHYLACTIC REACTION

Signs and Symptoms:

1. Wheezing (bronchospasm)
2. Dyspnea
3. Stridor (laryngeal edema)
4. Angioedema
5. Urticaria (Hives)
6. Hypotension
7. Tachycardia

Management:

FOR PATIENTS WITH SIGNS AND SYMPTOMS OF AIRWAY INVOLVEMENT AND/OR CIRCULATORY COLLAPSE:

1.  Epinephrine is the mainstay of therapy.
 - A. Administer Epi-Pen
 - B. **OR** Epinephrine 0.5mg (0.5ml of 1:1000 IM). **DO NOT USE INTRAVENOUSLY**.
 - C. Repeat epinephrine q 5 minutes prn.
2.  Diphenhydramine (Benadryl) 50mg IV/ IM/ PO/ SL.
3. IV Normal Saline TKO (saline lock).
4.  Dexamethasone (Decadron) 10mg IV/ IM.
5. Oxygen
6. Pulse oximetry monitoring.
7.  Ranitidine (Zantac) 150mg PO bid.
8.  If severe respiratory distress exists, aggressive airway management with bag-valve-mask and airway adjuncts (oral and nasopharyngeal airways). Intubate early if no response to epinephrine.
9. Administer 1 – 2 liters Normal Saline bolus for hypotension; then titrate to establish systolic blood pressure > 90mmHg or palpable radial pulse if BP cuff not available.

Disposition:

1. Urgent evacuation.

Discussion: Oftentimes, a simple allergic reaction (urticaria or hives) can rapidly lead to full shock with circulatory or respiratory collapse. Any allergic reaction in a tactical environment needs to be dealt with promptly and aggressively. If a patient suffering from an allergic reaction starts to get better with the administration of medicines, you still have to watch for a possible latent phase reaction for at least 8 hours.

BRONCHITIS / PNEUMONIA




Special Considerations:

1. Consider high altitude pulmonary edema (HAPE) at high altitudes.
2. Consider pulmonary embolism (PE) and pneumothorax (fever and productive cough are atypical for these).

Signs and Symptoms:

1. Fever
2. Productive cough, especially with dark yellow, red tinged, or greenish sputum
3. Chest pain
4. Rales may be present and breath sounds may be decreased over the affected lung.
5. Dyspnea may be present in severe cases.

Management:

1.  Azithromycin (Zithromax) 500mg PO first dose then 250mg qd for 4 days **OR** Moxifloxacin (Avelox) 400mg PO qd for 7 days.
2.  If unable to tolerate PO intake, Ertapenem (Invanz) 1gm IV/ IM **OR** Ceftriaxone (Rocephin) 1gm IV qd.
3.  Albuterol (Ventolin) by metered dose inhaler 2 to 4 puffs q 4 – 6h.
4. Treat per *Pain Management Protocol*.
5. If febrile, acetaminophen 1gm PO q6h.
6. **Pulse oximetry monitoring.**
7. Oxygen prn.
8. If at high altitude, see *Altitude Illness Protocol* and treat for HAPE.

Disposition:

1. *Urgent evacuation for severe dyspnea or hypoxia.*
2. *Observation or Routine evacuation as necessary.*

Discussion: *Several dangerous conditions can mimic bronchitis or pneumonia as they are associated with chest pain and/or cough as well. If someone has been immobile for a long period (long flight or in a hide site), a pulmonary embolus (PE) is a possibility. PE's usually originate from a patient's calf as a DVT (see DVT TMEP). A patient with pneumonia and low oxygen saturation needs continuous monitoring. How much time do you have to devote? How low is their oxygen saturation and when do you evacuate?*

CELLULITIS/CUTANEOUS ABSCESS





Special Considerations:

1. Superficial bacterial skin infection
2. Generally begins about 24 hours following a break in the skin, but more serious types of cellulitis may be seen as early as 6 – 8 hours following animal or human bites. If abscess formation occurs, only attempt I&D in the tactical setting IF:
 - a. The abscess is clearly well demarcated and superficial.
 - b. Local anesthesia is available.

Signs and Symptoms:

1. Painful, erythematous, swollen, tender area.
2. Fever may or may not be present.
3. Typically, erythema spreads without treatment.
4. **Rapidly spreading and very painful infections suggest the possibility of necrotizing fasciitis, a life-threatening infection of the deeper tissues that should be treated per Sepsis/ Septic Shock Protocol.**
5. Fluctuant, tender, well-defined mass indicates abscess formation.

Management:

1.  Moxifloxacin (Avelox) 400mg PO qd for 10 days **OR** Amoxicillin/Clavulanic Acid (Augmentin) 875mg PO bid
2.  **PLUS EITHER** Trimethoprim-Sulfamethoxazole (Septra DS) 1 tab PO bid **OR** Rifampin (Rifadin) 600mg PO bid for 10 days.
3. Clean and dress wound and surrounding area.
4. Use a pen to mark the demarcation border of the infection and re-evaluate in 24 hours.
5. Limit activity until infection resolves.
6.  Add Ertapenem (Invanz) 1gm IV/ IM qd if worsening at 24 hours or no improvement at 48 hours of treatment.
7. **IF ABSCESS IS PRESENT:**
 - A. Incise and drain (I&D) if the environment permits:
 - 1) Establish sterile incision site with Betadine.
 2.  Local anesthesia using Lidocaine.
 - 3) Incise the length of the abscess cavity, but no further.
 - 4) Incision should be parallel to skin tension lines if possible.
 - 5) On initial treatment, leave wound open and pack with iodoform or dampened gauze, if available. On subsequent dressings, wick the wound. **DO NOT SUTURE THE SITE.**
 - B. Bandage site and perform wound checks daily.
8. Treat per *Pain Management Protocol*.

Disposition:

1. Re-evaluate daily and watch for progression of erythema while on antibiotics.
2. Cellulitis in critical areas (head, neck, hand, joint involvement, perineal) requires *Priority* evacuation.
3. Use of IV antibiotics requires *Priority* evacuation.

Discussion: Cellulitis or an abscess that involves a joint, or requires IV antibiotics, will certainly be a strain on you and your resources. In this situation, consider early evacuation. The spread of MRSA and other drug resistant strains of infection causing pathogens make abscess and cellulitis a condition that can quickly necessitate evacuation as a red flag condition.

HEADACHE

Signs and Symptoms:

1. If the headache is atypical for the patient, check elevated blood pressure (if possible), fever, neck rigidity, visual symptoms, mental status changes, neurological weakness, and hydration.

Management:

1. If the patient has fever, nuchal rigidity, photophobia, petechial rash, or nausea and vomiting, treat per *Meningitis Protocol*.
2. Treat per *Pain Management Protocol*.
3. If headache is accompanied by nausea and/ or vomiting, treat per *Nausea and Vomiting Protocol*.
4. Oxygen if other therapies are ineffective.
5. If dehydration is suspected, treat per *Dehydration Protocol*.
6. If at altitude, treat per *Altitude Illness Protocol*.

Disposition:

1. Evacuation is usually not required if the headache responds to therapy.
2. Acute headache in the presence of fever, severe nausea and vomiting, mental status changes, focal neurological signs, or preceding seizures, loss of consciousness, or a history of “it’s the worst headache in my life” constitutes a true emergency and requires *Urgent* evacuation. Also consider *Urgent* evacuation for anyone without a prior history of headaches if their pain is severe.

Discussion: Knowing what is normal and not normal is extremely important when dealing with a headache. The consequences of misdiagnosing a malignant cause of a headache for something routine will be catastrophic.



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