Event Medicine
Summary Handout

- Planning and organization are the most important aspects of event medicine
    - Questions to ask of every event planner:
        - How many people will be attending?
            - Dictates how many staff and resources you will need
        - Where is the event?
            - Is this covering a large area requiring several aide stations? Is it in a dessert? Open water? Beach? Forest? Warm? Cold? Is there adequate shade for participants/attendees?
            - All of these impact the potential health threats. Drowning, dehydration, hypo/hyperthermia.
        - Is this location difficult to access?
            - ex. Large rural music festival with long winding road in or outdoors race in forest - i.e how to evac. Will air support be necessary as access via a road is impeded with traffic or flooding possibilities?
            - If open water is accessible need to have concern for drowning injuries - especially among intoxicated patrons or participants.
        - How long is the event?
            - Staffing needs, fatigue or participants and spectators
        - What will these people be doing?
            - Think about possible health outcomes of those involved. Is this a state fair where older participants are eating greasy fair foods? Or is it a rock concert where young people are doing drugs and drinking alcohol
- Number of injuries depends on event types:
    - What accounts for these differences?
        - "Collective Mood" Prior to event; activities of the event; alcohol, drugs; access to water; terrain; age of spectators/participants
    - Sporting Event:
        - 0.3 to 1.6 per 1,000 - Similarities between Indy 500 and NFL games
        - Contrast this to golf championship where people are walking around all day and drinking: 5.1 per 1,000
    - Marathons: 24 per 1,000
        - Strenuous activity but many of the complaints may be extremely simply like blisters or muscle cramps
    - Rock Concerts: 0.96 to 17 per 1,000
        - Associated to ETOH and Drugs
    - Triathlon
        - 17-50/1000 for shorter triathlons

        - 100-375/1000 for longer races
        - Vast majority of medical evaluations occur at finish line
        - Majority of catastrophic events occur in the swimming leg
    - Injury may vary based on event types – during a triathlon more risk at certain legs of the race
        - Swim - Trauma (contusions/lacerations) - think lots of people swimming/flailing
        - Hypothermia - especially when water temp and air temp are lower - can occur at any temperature.
        - Envenomation/stings/encounters with wildlife - not likely in this Vermont example but applicable if in ocean or other locations
        - Bike - Abrasions - road rash. Trauma. Hydration (dehydration), GI
        - Running - Heat illness, dehydration, hyponatremia, MSK problems (cramps/ strians). Skin - blisters, GI
- Feasible levels of care
    - Need to determine ahead of time what can/cannot be managed at the event
        - Generally need
            - BLS crew: 4 minutes away
            - ALS: 8 minutes away
            - Hospital: 30 minutes away (Air or ground)
    - While it sounds basic, understand that to solve medical problems healthcare workers and patients must be able to meet each other.
        - Placement of aide stations is very important
            - Some medical conditions will present themselves to the medical tent. These may be simple complaints like a headache, blsiters, small cuts or larger problems like a broken arm in which the patient is ambulatory. Problems like syncope, cardiac arrest, stroke, broken leg won't present to a aide tent on their own
            - Recommend that patients can present within 5 minute walk or about 1/8 of a mile.
                - If event is at an established venue - stadium, auditorium etc., Use existing setups as signs, supplies and communication hubs
                - Emergencies can happen at any time - make sure all stations are stocked and staffed and ready to go from the start
            - Should be easily identified, offer ambulance ingress and egress

        - Best place for medical tent is near the finish line - can have ancillary tents elsewhere on the course but one should be at finish line given the likelihood of events at this area
            - Tent should be “down line” form finish. Be placed next to a cool down area that allows self-triage of atheletes as well as spotters to pull finishers into the tent. Nonetheless tent should be off to the side and not in direct path of finish as non-injured finishers should not get in the way of those who need care
    - Consider mobile units which can walk through crowd and identify those who may need care
        - Utilize security and other staff as spotters.
            - If large outdoor event possibly hold up a flag or have radio communication with central aide station. Make sure this role is identified and/or allowed to be performed by this non-medical staff.
        - Transport
            - Need to move patient from the field back to the aide station. Make sure that whoever is transporting patient has the ability to get past locked gates, doors, roads to ensure that time isn’t wasted.
            - EMS - Need EMS ability to exit/enter to get athletes to further levels of care. Don’t want EMS to impede post race triage/flow which may prevent staff from seeing new patients. Finishers need to be unobstructed and to keep moving so they can be spotted or move on to receive medals, snacks, family etc.
- Medicolegal – Insurance? Liability? Good Samaritan?
    - Good Samaritan usually does not apply as the law does not apply to non-emergent events i.e volunteer athletic events
    - Personal liability coverage or institutional policy may cover if it is hosted by physician's usual employer - i.e. a race organized by local hospital
    - If no personal coverage, consider USAT even coverage insurance
        - $50-$60 per provider per event
        - Only covers when practicing in usual limits of training and experience
    - If at an out of state event - licensure may not cover care if not licensed in that state
        - Currently, Colorado, Washington, Florida, Utah, Louisiana, and Montana offer a ‘‘courtesy license,’’ which will provide some protection; however, this is not available in all states.
- Staffing – Important to remember the event cannot entirely be staffed by just you! All staff don’t need to be physicians either

- How many staff do we need? - General recommendations
    - 1-2 Physicians per 50,000 spectators
    - 1 paramedic/EMT team per 10,000 spectators
    - 1-2 physicians per 100 participants (i.e. marathon)
    - Medical spotters - volunteers along the course who can identify those with medical needs. Should have 1-2 spotters for 300 competitions
    - Anticipated usage rates, based on previous experience
    - Non physician staff training in CPR/ AED
- Account for staff shift length? Breaks? Events longer than 8 hours?
- Ask for help!
    - American Red Cross
        - Their staff and personnel have resources and experiences in your local area
        - Even if not involved in event can provide helpful suggestions, tips and tricks
    - Local EMS, Fire and Police
        - Already are knowledgeable of community disaster plans and crowd management

- Supplies – What is essential?
    - Necessities - basic equipment to obtain vital signs and perform a basic medical examination including
        - blood pressure cuff, thermometer, stethoscope, and portable pulse oximeter. AED. POCT glucose.
        - All races should have provisions to address life-threatening events
        - Be able to adress the most common complaints on scene
            - Allergic reactions
            - Asthma exacerbations
            - Cardiac events
            - hypo/hyper
                - Thermia - Have methods of cooling/heating on site as needed
                - Natremia
                - Glycemia

- MSK
    - Abrasions, road rash, blisters
    - Ointments, lidocaine, sterile dressings, latex/nonlatex gloves
    - Bandages, sutures
    - Sunscreen, lotions
- Medications - Epinephrine, inhaled beta agonist, aspirin, antihistamines, IV Fluids, AED
- For longer races or those far from hospital, consider equipment to identify eletrolyte abnormalities, rhabdomyolysis etc
    - Able to measure sodium, potassium, glucose, and hematocrit, for long course triathlons or those conducted in extreme weather conditions.
    - It is recommended that in cases where exertional hyponatremia is suspected that a serum sodium level be obtained before IV fluids are started. Additionally, those athletes with altered mental status, significant gastrointestinal distress, or large muscle group cramping should have blood collected for analysis at time of initiation of IV fluids.

- Documentation!
    - Medical documentation is essential especially in cases where care is transferred
    - Consider basic, standardized handwritten documentation
    - Can also be used as source of information in planning future events
    - Think about having some information on “high risk” participants with existing medical conditions
- Debrief at end of event
    - Identify problems or near misses
        - If possible, follow up on patients sent to hospital
    - Identify areas for improvement
    - If possible, have staff, volunteers or any others submit detailed feedback
    - Properly dispose of biohazards