

# Medical Preparation for the Tahoe Rim Trail Endurance Races



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# Goals of my talk

- 1) Background of how I got involved
- 2) Roles of the medical director
- 2) General issues with planning medical coverage of an ultra-marathon
  - Pre-race issues
  - Issues during the race
  - Post race follow up
- 3) Tips/tricks we've learned over the years

# How (and why) I got involved with TRTER



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- Community Family Medicine Physician and research director for University of Nevada-Reno Sports Medicine Fellowship
- Had been a road runner and had recently transitioned to trail running including a few 50K races
- Dave Cotter and George Ruiz approached UNR about being the medical director
- Sport Medicine fellow started reading literature about covering road marathons and was trying to figure out logistics

# Why are ultra endurance races different?



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- Usually remote terrain (sometimes harsh)
  - More metabolic demands on the runner (hotter, colder, steeper, etc)
  - Communication much more difficult
  - EMS response times much more delayed
- Longer races= things are more spread out
- Typically not as many runners as big road races
- Ultrarunners themselves



# Roles of Medical Director

- Help to establish this mission of the medical staff
  - Goal is to get as many athletes as possible to the finish SAFELY
- Supervise care provided by medical volunteers
- Oversee organization of equipment and supplies
- Develop/update medical race protocols

# Roles of the Medical Director

## Part II



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- Coordinate emergency planning in conjunction with RD
- Work with RD on scenarios that could result in race cancellation
- Oversee pre-race runner education and post-race follow up

# Minimum responsibilities for a medical director



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- Figure out how/where injured or ill runners would need to go to for advanced care and how they would get there
- Communicate what medical resources will be available to athletes during the event
- Need to be VERY CLEAR with athletes about these issues prior to the race



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# Pre-race planning



# How to determine level of medical support



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- No set of standard guidelines
- Variable upon
  - 1) Number of racers
  - 2) Course layout- point to point/loop
  - 3) Course logistics
  - 4) Budget/race registration
  - 5) Medical resources in the community
  - 6) Where is the race?



# Pre-race responsibilities

- 1) Establish/review medical protocols
- 2) Find volunteers and distribute protocols
- 3) Equipment/supplies set up
- 4) Runner education
- 5) Review pre-race medical histories/anticipate any medical issues



# Race Protocols

- Very important if you are going to have medical volunteers
- Most medical personal aren't going to be familiar with ultra-endurance issues (hyponatremia, etc.)
- Pre-race meeting of medical staff ideal but often difficult
- E-mail brief summaries to try to get them to read



# What makes for a good race protocol

- Complete yet succinct
- Understandable for all of your medical volunteers
- Well organized
- Easy to rely on in case of emergency



# Things to include in the race protocol

- Emergency contact numbers for all jurisdictions
- Descriptions of Endurance-specific medical conditions
- Directions on who to contact in case of emergency
- Medical history forms
- Medical kit inventory

# Medical issues we cover in our protocol



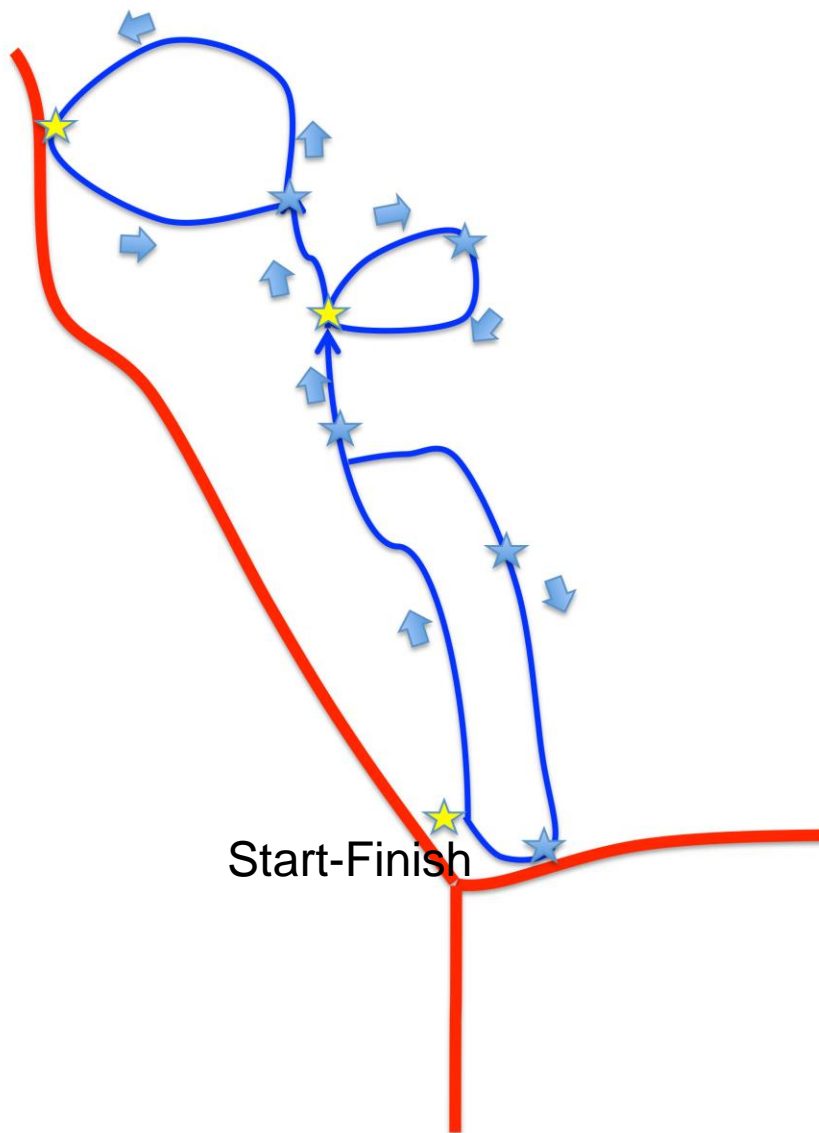
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- Chest pain
- Bites and stings
- Downed runner protocol
- Heat illness/hypothermia
- Hyponatremia
- Altitude Sickness
- Concussion



# Where/how to set up

- Logistics
- Logistics
- Logistics
- Best done in conjunction with the Race Director
- May also need to consider where you can get help from outside resources
- Medical staff volunteer considerations







# How to set up the medical tent

- Want to be in the action but also have ability to keep people out if possible
- Mid-race stations- borderline between a resting spot and medical facilities
- Need some protection from the elements



# Medical supply bag

- Again, absolutely no set standard
- Tend to focus on unlikely disaster scenarios than commonly seen issues all too often
- Variables to consider:
  - EMS response times
  - Budget for the race
  - Number of runners
  - Space/mobility considerations



# Medical Bag

- Crash Bag- - AED, Self inflating bag mask, manual suction pump, ET tubes
- Portable emergency kit (Grab and go box)- Gloves, oral airways, pocket CPR mask, epi 1:1000, 3 cc syringe with needles, tongue blades
- IV equipment (starter kits are great)
- Needles- 18-25 ga, TB syringes with needles, 5 and 10 cc syringes



# Medical Bag

- Meds- Epinephrine, glucagon, albuterol, diphenhydramine, non-sedating antihistamine, acetaminophen, nitroglycerine, aspirin, ondansetron, loperamide, Proton pump inhibitor, antacid tablets, anti-itch gel, saline eye drops
- Tape box- coban, tape, tube gauze, ace wraps, KT tape
- Blister box- 18 ga needles, #11 scalpels, alcohol prep wipes, enduratape, blister pads, moleskin, spray adhesive
- Skin box- surgical scrub brushes, band-aids, steri-strips, benzoin, gauze, betadine, duoderm/tegaderm



# Medical Bag

- Diagnostics box- Stethoscope, oto/ophthalmoscope, penlight, BP cuff, oral and rectal thermometers (with hypothermic capacity), pulse ox, glucometer, I-stat, urine test strips, stool hemocult tests
- Bottles box- Saline wash, vaseline, betadine, hydrogen peroxide, baby powder
- Pens, sharpies, SAM splints, emesis bags, cots, clear wrap, bags for ice, oxygen tanks, tampons, medical waste bags, sharps box
- Zip ties, duct tape!



# Legal Issues and Malpractice

- Check with your race director about coverage
- Regulations vary from state to state
- Good Samaritan laws likely won't cover you
- Also check with your individual malpractice insurance



# HIPAA

- From my understanding, HIPAA doesn't not apply to medical services covered at a race
- Covered Entity defined as “Covered entities are defined in the HIPAA rules as (1) health plans, (2) health care clearinghouses, and (3) health care providers who electronically transmit any health information in connection with transactions for which HHS has adopted standards.
- Nonetheless, be discreet!



# Runner education

- Assume the worst, hope for the best
- Think about the athlete from the place most different from the race area
- Things to consider:
  - Solar exposure
  - Surface
  - Temperature and humidity
  - Altitude





# Pre-race Medical questionnaire

- Variable in quality from race to race
- Good to get as much information as you can
- E-mail blast to participants asking them to disclose any particular issues is helpful
- May require you to reconsider your medical kit...maybe



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Race Day



# Race cancellation

- Best if you discuss these issues with your RD prior
- Unfortunately, often times you can't predict issues that could cause a cancellation
- If in question, highly recommend discussing this with first responder agencies, hospitals, etc

# Communication issues during the race



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- Varies from race to race
- Varies from point to point on the course
- Work closely with your RD – Should have some idea of issues related to this before the race

# Documentation of medical encounters



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- Need to be clear with medical personal when to document
- Few hard and fast rules
  - 1) If we get vitals (other than weight)
  - 2) Giving the athletes prescription medications
- Things we don't document
  - Handing out most OTC meds
  - Blister care

# Medical forms



Medical Team/Evaluator: \_\_\_\_\_

Date: \_\_\_\_\_

Arrival Time: \_\_\_\_\_ Departure Time: \_\_\_\_\_

Location (circle one): Start/Finish    Tunnel Creek    Diamond Peak

Athlete Name: \_\_\_\_\_ Age: \_\_\_\_\_

Gender (circle one): M / F

Race Number: \_\_\_\_\_

Distance (circle one): 50k    50 mi    100 mi

PMH:

Allergies:

Meds:

**SYMPTOMS/SIGNS :**

- |  |  |  |  |
|--|--|--|--|
| <input type="checkbox"/> Fatigue             | <input type="checkbox"/> Abdominal Pain  | <input type="checkbox"/> Confusion     | <input type="checkbox"/> Blisters        |
| <input type="checkbox"/> Lightheaded         | <input type="checkbox"/> Nausea/Vomiting | <input type="checkbox"/> Wheezing      | <input type="checkbox"/> Chafing         |
| <input type="checkbox"/> Blurred Vision      | <input type="checkbox"/> Diarrhea        | <input type="checkbox"/> Muscle Cramps | <input type="checkbox"/> Skin Abrasion   |
| <input type="checkbox"/> Chest Pain          | <input type="checkbox"/> Feeling Hot     |  | <input type="checkbox"/> Skin Laceration |
| <input type="checkbox"/> Shortness of Breath | <input type="checkbox"/> Feeling Cold    |  |  |

Vital Signs	Time:			
Temp				
BP Sitting				
BP Lying				
Heart Rate				
Resp Rate				
Pulse Oximeter				
Weight				

HPI:

Exam:

Labs/Other findings:

**DIAGNOSIS:**

- |  |   |  |
|--|---|--|
| <input type="checkbox"/> Exercise Assoc Collapse | <input type="checkbox"/> Blisters         | <input type="checkbox"/> Muscle Cramps       |
| <input type="checkbox"/> Dehydration             | <input type="checkbox"/> Skin Abrasion    | <input type="checkbox"/> Muscle Strain       |
|  | <input type="checkbox"/> Skin Laceration  |  |
| <input type="checkbox"/> Hypothermia             | <input type="checkbox"/> Ankle Sprain L R | <input type="checkbox"/> GI Distress         |
| <input type="checkbox"/> Heat Exhaustion         | <input type="checkbox"/> Knee Sprain L R  | <input type="checkbox"/> Asthma Exacerbation |
| <input type="checkbox"/> Hyponatremia            |   |  |

Other: \_\_\_\_\_

**TREATMENT:**

- |  |  |  |
|--|--|--|
| <input type="checkbox"/> Supine with legs elevated | <input type="checkbox"/> Blister Care  | <input type="checkbox"/> Albuterol Inhaler |
| <input type="checkbox"/> Oral Fluids               | <input type="checkbox"/> Wound Dressed |  |
| <input type="checkbox"/> NS IVF _____ L infused    | <input type="checkbox"/> Ace Wrap      | <input type="checkbox"/> Ice Pack          |
| <input type="checkbox"/> Other: _____              |  |  |

**Final Dispo Plan (check all that apply):**

- |  |  |   |
|--|--|---|
| <input type="checkbox"/> Continue participation                  | <input type="checkbox"/> Disqualified from further participation |   |
| <input type="checkbox"/> Patient able to ambulate independently. | <input type="checkbox"/> Patient able to tolerate po             | <input type="checkbox"/> Patient urinating normally |
| <input type="checkbox"/> Discharged to self                      | <input type="checkbox"/> Discharged with friend/family member    | <input type="checkbox"/> Ambulance evacuation       |

Provider Signature: \_\_\_\_\_

Date: \_\_\_\_\_



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# When to pull a runner

- Obviously one of the hardest things you might have to do
- GET THE RUNNERS BIB (equivalent of taking a football players helmet)
- If possible, work with safety runners, family, friends, etc
- Extra safety runners in the area?
- If possible communicate with next aid station about questionable runners
- If medical staff has issues, medical director should have final word



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Post Race





# Post race medical follow up

- Anybody who is sent for additional medical care
- Anybody who we recommend to go get additional medical care
- Document these on their medical forms
- Calls to the athletes' physicians may also be helpful (but would discuss this with athletes first)



# Post race follow up

- E-mails to medical staff
  - Any suggestions for improvement
  - Think about not only what to add but maybe what to subtract
  - For newer races- look at peak times in the medical tent to help with resource planning for subsequent years
- Write these things down somewhere!
- Sit down and have a beer with your RD

TRTER tips,  
tricks and  
tribulations



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# Changes we implemented over the years



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- Organization from plastic bags to plastic boxes
- Went from getting I-stats donated to buying our own
- Help for “non-medical” aid stations



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# Organization



# I-stats

- Temperature fickle
- Cartridges are not cheap
- Finding myself using them more for reassurance than anything
- Available for loan



# “Minor Aid stations”

- Self contained box with:
  - Oral thermometer
  - Automated BP cuff
  - Pulse Oximeter
  - OTC meds (tylenol, antihistamines, antacids)



# Non-medical staff

- Need to know who to trust!
- Many of them have way more experience than some of your medical volunteers





# Weighing patients

- Yeah, we still do it
- Use digital scales on a piece of plywood
- Had plenty of issues
  - Standardizing scales
  - Batteries
  - Digital scales in the sunlight
- What's the value?- Gives us a chance to look the runners in the eye



# Things we (I) struggle with

- Volunteers
- IV fluids
- Covering the entire course



# Finding volunteers

- Best resource is finding the people you've used from year to year
- Direct contact (phone call/ face to face) works better than e-mail
- Try to find medical professionals who are also athletes and play up the race karma angle
- Explain the mission of medical staff support at these events



# Who has volunteered?

- Physicians (and residents) from every speciality
- APNs, MAs
- Podiatrists
- RNs, PT
- Medical assistants
- EMTs
- Medical students
- Just need to keep in mind, not everybody can do everything, both legally and logistically!



# IV fluids

- Probably the biggest issue is at the start/finish line
- Educate athletes about why they don't need an IV
- Our policy:
  - 1) Have to get an i-stat prior
  - 2) If you get an IV, you are done for the race
  - 3) Should they all go to the ED?

# Communicate early and often and later with your RD



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- Even “little” changes can have huge effects
- The more years you do it, the easier it becomes
- Still always good to review potential race scenarios



# Talk to other medical directors

- One of the most satisfying things I do all year
- Amazing how much I've learned from my colleagues (and will continue to learn)
- Share resources (equipment, tips, staff, etc)
- Sign up for ultra running google groups (e-mail me at [avpiv711@sbcglobal.net](mailto:avpiv711@sbcglobal.net))



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The End