Medical Coverage Plans for Large Scale Athletic Events

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Medical Role in Race Operations

- Ensure event safety
- Provide medical care
- Medical decisions
- Act as Medical Spokesperson
- Coordination of city, town, state agencies
Race Medical Operations

Purpose

• Pre-race
  - Improve athlete’s safety
  - Prevent excessive injury or illness
  - Head off legal issues
  - Coordination with Race Staff
  - Coordination with City, State, Local agencies
Race Medical Operations

Purpose

• Race Day (primary focus)
  - Stop progression of injury or illness (triage, treatment, transfer)
  - Do no harm
  - Rapid response to all locations
  - Stay within training levels
  - Prevent emergency room overload
Race Medical Operations

• Post-Race
  - Injury/Illness follow up
  - Evaluation of medical plan
  - Medical volunteer retention
  - Improve each year
  - Don’t be afraid to lead the pack
Medical Coverage/Planned Disaster

- Mass Gathering
  - Potential for Casualties
  - Staff and spectator concerns
  - Medical control during mass casualty plan
Medical Concerns

- Dehydration
- Cardiac Events
- Hyper/Hypothermia
- Hyponatremia
- Podiatatric issues
- Overuse Injuries
- Others
<table>
<thead>
<tr>
<th><strong>Before</strong></th>
<th><strong>After</strong></th>
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</thead>
<tbody>
<tr>
<td>Cardiac Arrest</td>
<td>Dehydration</td>
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<tr>
<td>Heat Stoke</td>
<td>Postural Hypotension</td>
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<tr>
<td>Hyponatremia</td>
<td>Exercise Associated</td>
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<tr>
<td>Rhabdomyolysis</td>
<td>Collapse (EAC)</td>
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<tr>
<td>Insulin Shock</td>
<td>“Just happy to be there”</td>
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<tr>
<td>Anaphylaxis</td>
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## Medical Preparation

- Competitor Safety
- Preparticipation Screening
- Hazardous Conditions
- Competitor Education
- Impaired competitor policy
- Race scheduling
- ER notification
- Communications

- Fluid Protocols
- Equipment/Supplies
- Medical Staffing
- Medical Records
- Medical Protocols
- SD Protocol
- HIPPA/federal regulations
- Transportation Plans
Competitor Education

- Safety Measures
- Risks of participation
- Fitness Requirements
- Hydration Risks
- Nutrition
- Finishing Strategies
- Volunteer Identification
- Medical Locations
Race Bib/Medical Information

- **Back side of bib**
  - Name, age, DOB
  - Emergency contact with phone number
  - Known medical problems
  - Medications, supplements, dosage
  - Physical limitations
  - Allergies
Incidence/Risk of Injury

- Boston Marathon (normal year) 3-6%
- Boston Marathon 2004 10%
- Twin Cities Marathon .8 to 3.3%
- Houston Marathon 6%
- Pittsburgh Marathon 10%
- Falmouth Road Race 1%
- Iron Man Tri (225km) 15-35%
People’s Beach to Beacon
Injury Rate
Based on 5000 runners

- 1998: 45
- 1999: 33
- 2000: 60
- 2001: 56
- 2002: 52
- 2003: 29
Risk Factors

- Weather
- Fitness levels of participants
- Course layout/difficulty
- Participants Medical History
- The Unknown
Heat Injuries

- Heat Cramps
- Heat Syncope
- Heat Exhaustion
- Heat Stroke
Heat Stroke “true sports emergency”

- Body Core Temperature > 40.5 C/104 F
- Exertional Heat Stroke = Sweating
- Mental Status Changes
- Can occur even in moderate conditions
- Factors: Air Temp/humidity/solar radiation/metabolism/clothing
- Body cannot dissipate heat
- Other medical factors
Emergency Care

- Cooling body core temperature
- Ice bath (full body immersion)
- Ice application to neck/axilla/groin
- Fluids (water/sports drinks)
- IV’s (normal saline)
- Extremity elevation
- Differential Diagnosis - Hyponatremia
Blood Chemistries

What happens to a runner’s blood

- BUN
- Calcium (Ca)
- Sodium (Na)
- Glucose
- Hematocrit
- Magnesium
- Total Protein
Hypothermia
“the cold runner”

- Body Core Temperature of < 90 Degree’s
- Depressed Vital Signs
- Altered Level of Consciousness
- Shivering
- Dehydrated
- Hypovolemic
Hypothermia Treatments

- Establish Vitals
- Remove Wet Clothes
- Warm Patient
- Drink Warm Fluids
- IV Therapy (warmed to 104-106 degrees)
- O2
- Bair Hugger
Hyponatremia

Clinical Profile
- Slow runner > 4 hours
- Small stature
- Female gender
- Over hydrated
- > on a hot day
- > with use of NSAIDS
* Cause of death in 2002

Symptoms
- Light headed
- Nausea/vomiting
- Confusion
- Salty sweater
- Edematous
- Normal vitals
- Weight gain
Symptoms of Hyponatremia

- **Mild** (sodium 131-135mm): usually asymptomatic
- **Moderate** (Na 126-130): Malaise, nausea, fatigue, confusion
- **Severe** (Na < ): coma, seizures, death
- **??** Use of hot saline in severe cases
Avoiding Hyponatremia

- Determine sweat rate/fluid replacement.
- 1 pint replaces 1 pound of water weight.
- Have runner write weight on race bib.
- Do not overload on fluids!!
- Eat “salty” snacks or drink bouillon post race.
- Do not continue to drink fluids post race if you are feeling sick.
- Only return to normal drinking post race until after you have started to urinate.
- Avoid NSAIDS.
Hyponatremia Management Guidelines

- **Course**
  - Symptomatic with profile
    - No oral/IV fluids
    - Immediate ED transport
  - Mild or asymptomatic
    - Monitor with no fluids until able to urinate
    - Gatorade only/salty foods
    - Advise fluid intake of 8oz per hour for the next 24 hours

- **Medical Tent**
  - Serum sodium < 125 MMols/L
    - Start IV line/ keep open with normal saline
    - Immediate transport
  - Serum sodium 125-130 MMols/L
    - No more that 8oz. Of fluids until spontaneous urination
    - Observe for no more than 30 min.
    - Discharge with instruction sheet
  - Serum sodium > 130 MMols/L
    - Advise runner not to drink more than 8 0z. Of fluids until they begin to urinate
Risk of Sudden Death in Road Racing

* Cardiac
  - Estimated 1/100,000 entrants
  - Increased age of runners
  - Over 40 = CAD
  - Under 30 = Cardiac Anomaly

* Hyponatremia
  - Low frequency
  - Slow runners