

# ENDURANCE EVENT MANAGEMENT AND MEDICAL LOGISTICS

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## Objectives

- 👉 Learn race medical operations purpose and event planning strategies
- 👉 Learn the injury classification, incidence, & risk in endurance events
- 👉 Learn common medical protocols for endurance events
- 👉 Understand the various aspects of race medical management
- 👉 Develop an algorithm to prepare for mass participation events

## I. Introduction

- A. Race medical operations purpose
  - 1. Competitor safety
  - 2. Injury prevention
  - 3. Injury care
- B. Event medical care
  - 1. Physician is unknown to competitors and coaches
  - 2. Competitors and coaches are unknown to physician
  - 3. Physician is athletes' health advocate
- C. Aspects of medical planning for mass participation events
  - 1. Pre-event strategies
    - a. Improve competitor safety
      - (1) Develop primary and secondary strategies to prevent injury
    - b. Arrange staffing, supplies, and equipment
    - c. Develop support systems
  - 2. Event strategies
    - a. Primary purpose
      - (1) Stop progression of injury or illness
      - (2) Management of injuries
        - (a) Triage
        - (b) Treatment
        - (c) Transfer
    - b. Secondary purpose for mass participation events
      - (1) Prevent emergency room overload
  - 3. Post-event strategies
    - a. Analyze outcomes of prevention strategies
    - b. Implement new strategies for future events
- D. Plan for adverse incidents and injuries
  - 1. Injury risks at different events are unique & shared
  - 2. Predict potential casualties from
    - a. Literature description of type and incidence
    - b. Data collection from each specific event
    - c. Personal experience on the sidelines or at the race course
  - 3. Anticipate & prepare for
    - a. Common problems



5. Assemble staff, equipment, & supplies to support protocols
  6. Mass gathering is a "planned disaster"
- II. Injury incidence & risk in endurance events
- A. Estimating casualties
    1. (Anticipated participants) X (casualty incidence)
    2. Estimate is used to project needs
      - a. Medical and non- medical staff
      - b. Medical supplies
      - c. Equipment
  - B. "Injury" risk ranges
    1. Mass participation endurance events
      - a. Running (41 km) - 1% to 20%
      - b. Running(<21 km) - 1% to 5%
      - c. Triathlon (225 km) - 15% to 35%
      - d. Nordic skiing (55 km) - 4-6%
      - e. Triathlon (51 km) - 2% to 5%
      - f. Cycling (Variable) - 5%
  - C. Sudden death in endurance events
    1. Road racing
      - a. 1/50,000 - 1/100,000 entrants
        - (1) Cardiovascular
        - (2) Hyponatremia
          - (a) Recent increase in incidence
      - b. 1/100,000 finishers
    2. Nordic skiing
      - a. Unknown but probably similar
    3. Triathlon competitions
      - a. Unknown but probably similar
      - b. Drowning
  - D. Classification of casualty types in running events and other competitions
    1. Exercise associated collapse
      - a. Temperature classification
        - (1) Hyperthermic
        - (2) Normothermic
        - (3) Hypothermic
      - b. Severity classification
        - (1) Mild
        - (2) Moderate
        - (3) Severe
    2. Trauma
      - a. Macrotrauma
        - (1) Musculoskeletal
          - (a) Sprains and strains
        - (2) Vascular
        - (3) Head & neck
        - (4) Visceral organs
      - b. Microtrauma
        - (1) Tendinitis
        - (2) Stress fracture
        - (3) Fasciitis
      - c. Dermatologic
        - (1) Blisters
        - (2) Abrasions

- (3) Lacerations
      - 3. Chance medical emergencies
        - a. Cardiac arrest
        - b. Hyponatremia
        - c. Insulin shock
        - d. Asthma
        - e. Anaphylaxis
        - f. Hyponatremia
        - g. Rhabdomyolysis
      - 4. Drowning & near-drowning
- E. Unpredictable, uncertain, and unforeseeable variables that contribute to injury
  - 1. Weather conditions
    - a. Increasing heat and humidity increase risk
    - b. Cold and wet increase risk especially to slow competitors
  - 2. Condition of participants
    - a. Fitness
    - b. Acclimatization
  - 3. Field and course conditions
    - a. Wet surface
    - b. Ice
    - c. Rough or uneven surface
  - 4. Uncontrolled traffic
- III. Medical protocols for endurance events
  - A. Basic medical volunteer instructions
    - 1. Do no harm
    - 2. Stay within training level
  - B. Medical protocols
    - 1. First aid
    - 2. CPR
    - 3. ACLS
      - a. Early defibrillation
      - b. TCM endurance activity modifications
        - (1) Dextrose 50% in water
        - (2) Hi dose epinephrine
        - (3) Sodium bicarbonate
      - c. Advanced medications
        - (1) Bretylium
        - (2) Amrodione
    - 4. ATLS
    - 5. Exercise associated collapse (EAC)
      - a. Temperature class
        - (1) Hyperthermic
        - (2) Normothermic
        - (3) Hypothermic
      - b. Severity scale
        - (1) Mild
        - (2) Moderate
        - (3) Severe
    - 6. Hypoglycemia / insulin shock
    - 7. Anaphylaxis
    - 8. Asthma and acute bronchospasm
    - 9. Exertional heat stroke

10. Hyponatremia
- C. Basic differential of the collapsed endurance athlete
  1. Cardiac arrest
    - a. Check breathing and pulse
  2. Exertional heat stroke
    - a. Check rectal temperature
  3. Hyponatremia
    - a. Check serum sodium
  4. Hypoglycemia
    - a. Check blood glucose med alert tags
  5. EAC
    - a. Exclusion diagnosis
    - b. Start protocol with leg elevation during assessment
- D. Initial assessment of collapsed athlete
  1. Airway (cervical spine control)
  2. Breathing
  3. Circulation (hemorrhage control)
  4. Disability = neurologic status
  5. Vital signs and rectal temp
  6. Exposure & exam
- E. Severity status
  1. Severe
    - a. Unconscious
    - b. Altered mental state
      - (1) Confused, disoriented, aggressive
    - c. Rectal temp  $>40^{\circ}\text{C}$  or  $<35^{\circ}\text{C}$
    - d. Systolic BP  $<100$  mm Hg
    - e. Heart rate  $> 100$  bpm
    - f. Blood glucose high or low
    - g. Serum sodium  $<130$  mmol/L or  $>148$  mmol/L
    - h. Body weight loss  $>10\%$
    - i. Body weight gain
  2. Non-severe
    - a. Conscious
    - b. Alert mental state
    - c. Rectal temp  $<40^{\circ}\text{C}$  or  $>35^{\circ}\text{C}$
    - d. Systolic BP  $>100$  mm Hg
    - e. Heart rate  $< 100$  bpm
    - f. Blood glucose normal
    - g. Serum sodium  $130$  mmol/L to  $148$  mmol/L
    - h. Body weight loss  $<5\%$
- F. Initial disposition
  1. Race medical facility
  2. Transport to "off-site" emergency facility
- G. Treatment and transfer protocols
  1. Determine in advance to support the basic differential diagnosis
    - a. Keep protocols simple
    - b. First aid vs treatment
    - c. Integrate protocols into Emergency Medical Services
  2. Automatic transfers
    - a. Cardiac arrest
    - b. Respiratory arrest

- c. Shock
    - 3. Delayed transfers
      - a. Severe EAC
- IV. Preparation for mass participation events
  - A. Athletes safety is the first consideration
    - 1. Primary prevention strategies
      - a. Definition
        - (1) Prevent the occurrence of casualties
        - (2) Reduce the severity of casualties
      - b. Types
        - (1) Passive
          - (a) Does not require cooperation
          - (b) Choice removed
        - (2) Examples
          - (a) Start and finish times for competitors
          - (b) Race day
        - (3) Active
          - (a) Requires cooperation or behavior change
        - (4) Examples
          - (a) Fluid recommendations
          - (b) Sunscreens
        - (5) Enforced Active
          - (a) Required behavior change
        - (6) Examples
          - (a) Helmets in bicycle races
          - (b) Wetsuits in cool swim water races
    - 2. Secondary prevention strategies
      - a. Definition
        - (1) Early detection of injury or illness
        - (2) Intervention protocols to stop progression
      - b. Examples
        - (1) Impaired runner policy
        - (2) ACLS, ATSL, or EAC protocol
    - 3. Tertiary prevention strategies
      - a. Definition
        - (1) Treatment of illness or injury
        - (2) Rehabilitation of illness or injury
      - b. Examples
        - (1) Emergency room transfer
        - (2) Hospital admission
        - (3) Rehabilitation center
  - B. Volunteer education
  - C. Competitor education
    - 1. Risks of the activity
    - 2. Safety measures to reduce individual risk
    - 3. Fitness recommendations for the event
    - 4. Hydration instructions and available fluids during event
      - a. Risk of overhydration and hyponatremia
    - 5. Type and location of medical assistance
    - 6. Volunteer identification for assistance
      - a. Standard colors
      - b. Keep visible

- D. Preparticipation screening for mass participation events
  - 1. Not cost effective for large events
  - 2. Some events with qualification standards indirectly “pre-screen” participants
- E. Impaired competitor policy
  - 1. No disqualification for medical evaluation
  - 2. Criteria to proceed or continue in the event
    - a. Oriented to person, place, & time
    - b. Straight line progress toward finish
    - c. Good competitive posture
    - d. Clinically fit appearance
  - 3. Disqualify for the following
    - a. Risk to life or health
    - b. Requires IV fluids
  - 4. Publish the criteria in advance
- F. Race scheduling
  - 1. Location by latitude, longitude, and altitude
  - 2. National weather service data
    - a. Average high and low temperatures
    - b. Extreme high and low temperatures
    - c. Average relative humidity
  - 3. Avoid the hot, humid seasons
  - 4. Avoid extreme cold seasons
    - a. High temps below -4 °F
  - 5. Start time during the day
    - a. Safest start and finish times for competitors
      - (1) Elite
      - (2) Citizen
    - b. If average high temperature is >60 °F use early AM start
    - c. In cold conditions consider mid day starts
      - (1) Participants should finish
        - (a) Before dark
        - (b) Before temps drop in late day
  - 6. Finish time of the day for the elite and slowest competitors
    - a. Avoid finishing slow runners in cooling conditions
- G. Hazardous conditions
  - 1. Conditions that increase the risk during an event above the inherent risk of the activity
    - a. Behavioral adaptations relinquished to the race administration
  - 2. Conditions that pose a risk to the participants safety
    - a. Heat
    - b. Cold
    - c. Traction
    - d. Wind
    - e. Windchill
    - f. Lightning
    - g. Avalanche
    - h. Obstacles
      - (1) Vehicle traffic
      - (2) Trees
      - (3) Lift towers
  - 3. Alternatives for the event when hazardous conditions exist

- a. Alter or modify course or schedule
  - b. Postpone the event
  - c. Cancel the event
- 4. Publish hazardous condition protocol in advance
  - a. Lightning safety protocol example
    - (1) If you can hear it, clear it
    - (2) If there is < 30 second between a lightning flash and the thunder retort, clear the area for 30 minutes from the last lightning flash
    - (3) Clear to buildings, cars, or busses
- 5. Announce risks of current competitive environment at start
  - a. Weather conditions
  - b. Medical team recommendation
- 6. Volunteer safety should be considered in conditions that pose risk
- H. Course set-up and considerations
  - 1. Start area
    - a. Downhill start will be more dangerous
      - (1) Wheelchair racers
      - (2) Nordic ski racers
      - (3) Bikes
    - b. Variations to improve safety of the mass start
      - (1) Wave start
        - (a) Groups start at set intervals to spread out the competitors
        - (b) Timing more difficult
        - (c) Chip timing improves
      - (2) Split start
        - (a) Groups start at different areas and rejoin along the race course
        - (b) Timing not difficult, but "different" course
      - (3) Chip timing with narrow start chute
  - 2. Course survey for "unsafe" conditions
    - a. Urban vs rural vs wilderness (remote)
      - (1) Access for medical intervention
    - b. Hills, sharp turns, & immovable objects for collisions
    - c. Traffic control at intersections
    - d. Altitude changes for temperature
    - e. Open water for temperature and drowning
  - 3. Aid stations for fluids and medical care
    - a. Types
      - (1) Major
        - (a) Full medical care
      - (2) Minor
        - (a) Comfort care and first aid
      - (3) Rolling or mobile aid
        - (a) Medically equipped and staffed bus or van
        - (b) Bring care to the downed athlete
      - (4) First response teams
        - (a) Motorcycles or bikes equipped with automatic defibrillators
        - (b) Decrease time to defibrillation
    - b. Provisions

- (1) Fluids (and food?)
  - c. Shelter
    - (1) School busses for well drop outs
    - (2) Stationary ambulance or tent for ill
  - d. Location
    - (1) Every 15 to 20 minutes
    - (2) Increase number for very large fields to improve access
    - (3) Finish line
- 4. Finish area
  - a. Layout
    - (1) Pre-finish line area access
      - (a) "Bad" medical collapse
    - (2) Chute area
      - (a) Slows or stops competitors
        - i) Loss of muscle pump increases collapse
      - (b) Changes with the use of chip technology
        - i) No need to stop suddenly
        - ii) Decreased collapse rates?
        - iii) Collapse later in finish area?
    - (3) Post-chute
      - (a) Mylar or plastic "blankets" for windbreaker
      - (b) Medals and T-shirts
      - (c) Fluids and foods
      - (d) Chip removal
      - (e) Dry clothing shuttle
    - (4) Family reunion area
    - (5) Post-race party area
    - (6) Dropped out runner bus return area
  - b. Well finisher shelter and support
    - (1) Portable clothes dryer for cold conditions
- 5. Finish area medical care
  - a. Triage
    - (1) Pre-finish and chute triage
    - (2) Post-chute triage
    - (3) Area triage (Sweep teams)
  - b. Medical care area
    - (1) Major aid station
    - (2) Subdivisions
      - (a) Triage
      - (b) Intensive medical
      - (c) Intensive trauma
      - (d) Minor medical
      - (e) Minor trauma
      - (f) Skin
      - (g) Medical records
    - (3) Minor care and evaluation stations
      - (a) Post-race party
      - (b) Course drop-out bus return
      - (c) Massage
  - c. Ambulance support (ACLS)
- I. Transportation for competitors
  - 1. Well drop-out competitors on the course

- a. Prevent new or increased previous injury
      - (1) Hypothermia
      - (2) Stress fracture
      - (3) Muscle strain
      - (4) Exhaustion
    - b. Examples
      - (1) Vans
      - (2) Buses
      - (3) Public transportation
      - (4) Snowmobiles
      - (5) Snow cats
  - 2. Ill or injured competitors on the course
    - a. Access care for illness or injury
      - (1) Prevent progression of illness or injury
    - b. Examples
      - (1) Ambulance
        - (a) ALS
        - (b) BLS
      - (2) Helicopter
      - (3) Above medically equipped
  - 3. Ill or injured competitors in the finish area
    - a. Access care in finish area
      - (1) Wheelchair
      - (2) Litter
      - (3) Stretcher
      - (4) Manned carries
      - (5) Golf cart
    - b. Access tertiary care from the finish area
      - (1) Ambulance
        - (a) ALS
        - (b) BLS
- J. Communications for the medical team
  - 1. Type
    - a. Phone
      - (1) Digital/cellular
      - (2) Hard wire
    - b. Portable radio systems
      - (1) Regular hand helds
      - (2) Repeater hand helds
  - 2. Where to have access to the communication system
    - a. Start
    - b. Course
      - (1) Aid stations
      - (2) Pick-up vans
      - (3) Course spotters and first aid providers
        - (a) Line of sight cell phone chain with central call in number to report emergencies
      - (4) Ambulance
      - (5) Medical aid vehicles
      - (6) First response teams
    - c. Finish area
      - (1) Field hospital

- (a) Phone for EMS and ER
        - (b) Central dispatch for course
      - (2) Finish area triage teams
      - (3) Medical Director
    - 3. 911 or emergency phone system access
      - a. Any volunteer can use system
        - (1) Must know exact location
      - b. Summon ambulance
      - c. In some situations may not be wanted
- K. Fluids & fuel
  - 1. Type
    - a. Water
      - (1) Excess water intake may lead to hyponatremia
        - (a) Ultra-endurance events
        - (b) Marathon distance
        - (c) Ironman distance triathlon
    - b. Carbohydrate-electrolyte solutions
      - (1) Improve performance for events >50 min duration
      - (2) Safer for > marathon distance for hyponatremia risk?
    - c. Foods & fruits
      - (1) High carbohydrate
      - (2) Competitor preferences
      - (3) Probably best at finish line for events of marathon distance or less
      - (4) Course litter and traction risk
  - 2. Location
    - a. Start
    - b. Aid stations
    - c. Finish area
      - (1) Post-chute area
      - (2) Medical area
      - (3) Post-race party
  - 3. Amount available
    - a. 6-12 ounces each competitor every 15-20 minutes for a reasonable running pace
      - (1) Every 10 minutes for very large fields to improve access
        - (a) Not to increase fluid volume for slow runners
    - b. Double numbers for start, finish, & transition areas
    - c. Food amounts based on event experience
      - (1) At least 1 of each item per entrant at finish
  - 4. Publish in advance
    - a. Fluid types
    - b. Food types
    - c. Locations for each
  - 5. Competitor education
    - a. Know sweat rate
    - b. Replace losses only
    - c. Risks of too much fluid
    - d. Salt replacement
      - (1) Salty sweaters
      - (2) Not acclimatized to heat
- L. Equipment

1. Major aid station - see tables 1 & 2
    - a. Shelter
      - (1) Tents
      - (2) Vehicles
      - (3) Buildings
    - b. Security fencing
    - c. Defibrillators
      - (1) Manual
      - (2) Automatic
    - d. Cricothyroidotomy kit
    - e. Nebulizer
    - f. Sodium analyzer
    - g. Glucose monitor
    - h. O<sub>2</sub> sat monitor
    - i. Tubs (for onsite heat stroke treatment)
  2. Minor aid stations - see table 3
- M. Supplies
1. General lists in Tables 1 & 2
  2. IV fluids
    - a. D<sub>5%</sub> NS
      - (1) After 1 liter fluid replaced consider NS
      - (2) Check glucose and sodium
  3. Medications
    - a. ACLS drug kits
      - (1) Epinephrine
      - (2) Atropine
      - (3) Lidocaine
      - (4) Procainamide
      - (5) Bretylium
      - (6) Verapamil
      - (7) Na Bicarb
      - (8) Morphine
      - (9) D<sub>50%W</sub>
      - (10) Amorphodione
    - b. D<sub>50%W</sub>
    - c. Albuterol MDI and nebs
    - d. Epinephrine (Epi-pen)
    - e. Antihistamine
    - f. Diazepam
    - g. Magnesium sulfate
    - h. Other
  4. Oxygen
- N. Staffing
1. Personnel
    - a. Physicians
    - b. Acute care nurses from critical care units & ER
    - c. Paramedics
    - d. EMT's
    - e. Athletic trainers
    - f. First aid personnel
    - g. Non-medical assistants
  2. Sources for volunteers

- a. Hospital and clinic staff
  - b. Community ambulance services
  - c. National Guard or Armed Services Reserves
  - d. American Red Cross
  - e. National Ski Patrol
  - f. Civil Bicycle Patrol
  - g. Civil Defense
  - h. Explorer Scouts
- O. Notification of area emergency facilities and transport services
- 1. Date and location of the event
  - 2. Start and anticipated finish times
  - 3. Anticipated number and types of casualties
  - 4. Allow ER to adjust staffing
- P. Medical & race records - see table 4
- 1. Document care
  - 2. Calculate incidence of casualties
  - 3. Project future needs
  - 4. Research
  - 5. Document environmental conditions
- Q. Medical precautions
- 1. Body fluids and risk
    - a. Not sweat
    - b. Deep hollow bore needle stick
  - 2. Modified universal precautions
    - a. Gloves, ? gowns, ? goggles
  - 3. Hazardous waste disposal
    - a. Sharps boxes
    - b. Red bag disposal
  - 4. Risks
    - a. Hepatitis B, C, and others
    - b. Kuru
    - c. HIV/AIDS
- R. Adverse event protocol
- 1. Report deaths and serious medical problems to Medical Director
  - 2. Limit discussion of the problem to those who need to know
  - 3. Medical Director to handle press release
- S. Post-race review
- 1. What went right
  - 2. What went wrong
  - 3. Proposed changes for the next event
- V. Summary
- A. Competitor safety - primary goal
    - 1. Prevent injuries
    - 2. Stop progression of injury
    - 3. Relieve ER of excess encounters
  - B. Mass participation events
    - 1. Planned disasters
    - 2. Event planning for competitor safety
      - a. Treatment protocols
      - b. Hazardous conditions
      - c. Challenge traditions
    - 3. Emergency protocols for the course and finish area

- a. Easy to comprehend
- b. Easy to execute
- C. Formula for success
  - 1. Plan and prepare for the event
  - 2. Educate participants and volunteers
  - 3. Record care and environment
  - 4. Share and publish findings for other races

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TABLE 1  
**Physician's Kit\* for Teams or Events**

<b>EQUIPMENT</b>	<b>SKIN CARE &amp; WOUND KIT</b>	<b>AIRWAY &amp; ALCS KIT</b>	<b>INTRAVENOUS FLUID KIT</b>
Stethoscope	Elastic bandage (4" & 6")	Nasal pharyngeal airway (3 sizes)	D5% 1/2 NS (or D5%NS) - 500ml
Flashlight	Sterile dressing (2x2, 4x4, 8x7-1/2)	Oral airway (3 sizes)	IV administration sets
Reflex hammer	Nasal packing	Mouth to mouth mask	Vein catheters (16, 18, & 22 gauge)
Sphygmomano-meter	Needle holder	Crico-thyrotomy kit	Butterfly catheter (18, 22, & 25 gauge)
Oto-ophthalmoscope	Scissors	Bulb suction or turkey baster	Tourniquet
Measuring tape	Forceps	Laryngoscope (Plastic - adult & pediatric size)	
Thermometer: Clinical	1% lidocaine	Endotracheal tubes (3mm, 5mm, 7mm)	<b>DRUG KIT</b>
High temp	Band-aids	Ventilation bag, mask, & reservoir with CO <sub>2</sub> whipple	Diazepam
Low temp	Kling gauze	Oxygen & administration set	Nitroglycerin SL
Tongue blades	Petroleum jelly	Defibrillator & monitor	Epinephrine 1:1,000
Safety pins	Suture (3-0,4-0, & 5-0 nylon)		Epinephrine 1:10,000
Bandage scissors	Steri-strips		Lidocaine Cardiac
Blue light	Soap (small can shave cream)		Atropine
Florescence stain strips	Provodine iodine		NA Bicarbonate
Eye Patch Pads	Alcohol swabs		Diphenhydramine
Cotton tip applicators	Sterile barrier (full & fenestrated)		Acetaminophen
Exam gloves	Benzoin adherent		D50W (50 ml)
Sling	Bacitracin ointment		Albuterol MDI
Paper bags (lunch size)	Silvadene cream		Propranolol
Emesis bags (airline type)	Sterile gloves		Morphine
Plastic bags (ziploc)	Syringes (10cc, 5cc, & 3cc)		Demerol
Moist towelettes (individual)	Needles (30, 25, 22, & 18 gauge)		Naloxone
Paper	Tape:		Opthaine
Pen	Adhesive		
Coins	Paper		
Red bag	(1/2", 1", 2" rolls)		
Sharps box			

\*Kit may vary from physician to physician and event to event.

TABLE 2  
SUPPLIES AND EQUIPMENT

EQUIPMENT FOR MAJOR AID STATIONS	
Shelter:	
Tents (1 - 30 x 60 in finish area plus 1 - 10 x 30 entry area)*	
Vehicles (12 stationary at aid stations, one following main pack, and two at finish)	
Buildings	
Portable electric generator - (1)	Wheelchairs (10)
Lights (trouble or clamp) - (12)	Security fencing (400 feet)
Flash lights	Ambulance:
Extension cords - (2)	Advanced Cardiac Life Support
Plug strip - (3)	(2 dedicated, plus back-up)
Heater - (1 propane gas)	Fluid containers (3 cold, 1 hot)
Blankets, wool - (150)	Fluids:
Mylar-aluminum Blankets - (6,000)	Water (1,200 gal.)
Respiratory Humidifier -	Electrolyte drink (150 gal.)
(Bennett Cascade or Bird) (1)	Clothes dryer, portable
Air conditioner	Pick-up vehicles:
Ice (6 bags-large)	Mini-Vans (7)
Tubs	Busses (8)
Fans	Wash stand (1 finish tent)
Sprayers	Portable toilet (1 finish tent)
Cots (50)	Portable telephone (1)
Stretchers	Chairs (12)
Tables (6)	Back board
Cervical collar (Hard)	Splints: Cardboard & Inflatable
Aluminum padded splint	Knee immobilizer
Crutches	Ice chest
Water jug	Turkey Baster (Suction Bulb)
Screwdriver	Tin snips
Cups (60,000)	
MEDICAL SUPPLIES FOR MAJOR AID STATIONS (Estimate numbers for expected casualties)	
Physician's kit (see Table 1)	Oxygen tanks with regulators & masks (2)*
Autolet (1)	Exam gloves (3 boxes)
Home glucose monitor (1)	Blood glucose sticks (1 box)
Diaper pins (3 dozen)	1/8" cord (100 feet) or nylon cable ties to hang IV's
Defibrillator - monitor pack (1)	Facial tissue (6 boxes)
#11 scalpel blades (100)	Wet wipes (6 boxes)
Pens (50)	Clipboards (50)
Intravenous set-ups (50)	Medical records (200)
D50W- 50 ml preloads (50)	Contaminated waste container bag (2)
Thermometer covers (200)	Sharp instrument disposal container (2)
Thermometers (rectal)	Intravenous fluids - 500 ml bags
Clinical (200)	D5 1/2NS for events < 4 hours (50)
Low temp range - 70° F (10)	D5 NS for events > 4 hours
High temp range - 110° F	
Advance cardiac life support kits (2)	
	*(Twin Cities Marathon Numbers)

TABLE 3

MINOR AID STATION SUPPLIES

Wool blankets	Non-sterile tongue blades	Ice
Cots (2-5)*	Chairs (2-5)	Pen
4 x 4 gauze pads (5)	Tape - adhesive: 1/2" & 1"	Clipboard
Penlight	Thermometer clinical (1-5)	Facial tissue
Moleskin	Albuterol MDI	Emesis bags
Plastic bags(10)	Garbage bags (2 boxes)**	Bacitracin ointment
Band-aids(20)	Medical record forms	Elastic wrap (2)
#11 scalpel blades(10)	Vaseline - 1# jars (3-6)	Pocket venti-mask
Paper towels	Alcohol or betadine preps	Handi-wipes

Basic life support ambulance with standard supplies

Cups (3 / entrant / aid station)

Fluids

Water (8-12 oz / runner)

Electrolyte drink (8-12 oz / runner)

\*(Twin Cities Marathon Numbers)

\*\*Cut head & arm holes for windbreaker

**TABLE 4**

Injury Record Form: This form can be printed on 2 sides of an 8 1/2" X 5 1/2" heavy paper card.  
(side 1)

**TWIN CITIES MARATHON MEDICAL RECORD - CONFIDENTIAL**

2002

Race # Location: Finish / Aid Station Mile Arrival time  
 Name Discharge time  
 Age Gender M / F Finish Time Best previous time  
 Previous marathons: Entered Finished Weekly Mileage  
 Pre-race injury/illness: Y / N Describe  
 Medical History

Symptoms: Exhaustion Fatigue Lightheaded Hot Cold  
 Mobility: Independent With assistance Wheelchair  
 Mental Status: Alert Confused Unresponsive  
 Neuro symptoms: Headache Syncope Weak  
 Orientation: Person Place Time  
 Cardiac symptoms: Chest pain Tachycardia Palpitations  
 Resp symptoms: SOB Wheeze Cough  
 GI status: Nausea Vomiting Diarrhea Stomach cramps  
 Muscle cramps: Y / N Location: Calf Thigh Abdomen Back  
 Skin: Hot Cold Sweaty Dry  
 Other:

Time	Temp (rectal)	BP	Pulse (r/ir)	Glucose check	Meds/Rx/Additional labs

Lab: O2 Sat (ra) % Na+ K+ Hct

PO Fluids: #1 1L D5NS IV #2 1L D5NS or NS IV #3 1L D5NS or NS IV Fluids: IV  
 D50W: #1 #2  
 Discharge status: Home / ER transfer (ER Follow-up: Admit/Home)  
 Notes:

Diagnosis  
 EAC: Hyperthermic:Normothermic:Hypothermic - mild / mod / severe  
 Exercise Assoc Cramps Other:  
 Signature: MD ©Wm Roberts MD

**Side 2**

Race # Arrival Time Discharge time

Skin, Bones, & Joints  
 Complaint: Pain Blister Abrasion Bleeding Swelling  
 Other  
 Tissue: Skin Muscle Tendon Ligament Bone  
 Other  
 Location: Toe R / L Knee R / L  
 Foot R / L Thigh R / L  
 Ankle R / L Hip R / L  
 Calf R / L Back R / L  
 Other  
 Diagnosis: Blister Abrasion  
 Sprain Tendinitis  
 Strain Stress Fx (suspected)  
 Other

Notes:

Treatment:	Musculoskeletal	Skin	General
	Ice pack	Prep	Fluids
	Compression	Lance	D/C instruction sheet
	Elevation	Bacitracin	
	Stretching	Dressing	
	Massage		
	Phys Rx		
	Other		

Treatment Refused

Signature: MD/DPM/RN/EMT ©Wm Roberts MD