Sports Medicine Emergencies:

When You’re the One Sweating

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Objectives

- Identify key references and guidelines that assist with fieldside physician coverage.
- Discuss optimizing the sideline team physician's medical bag.
- Describe the approach to the fallen athlete.
- Identify and discuss common sports medicine emergencies.
References and Guidelines that assist with Fieldside Physician Coverage
Sideline Preparedness for the Team Physician: A Consensus Statement

Sideline Preparedness
Definition

“Sideline preparedness is the identification of and planning for medical services to promote the safety of the athlete, to limit injury, and to provide medical care at the site of practice or competition.”
Medical Protocols

Team physician responsibilities:

- Clearance status
- Management of game-day injuries
- Determining same-day return
- Follow-up care
- Notification
- Observation
- Documentation
Administrative Protocols

- Team Physician:
  - Environmental concerns
  - Medical coordinator of personnel
  - Medical emergency response plan
  - Communications
  - Identification of treatment sites
National Athletic Trainers’ Association Position Statement: Emergency Planning in Athletics

Emergency Action Planning

- Each institution that sponsors athletic activities must have a written action plan.
- Emergency action plans (EAP) must be written documents and distributed to all applicable personnel.
- An EAP for athletics identifies personnel and qualifications.
- The EAP identifies equipment and location.
- Outline of communication and transportation.
- The EAP is specific to the venue.
Emergency Action Planning

- EAP will include location of emergency care facilities.
- The EAP specifies appropriate documentation.
- The EAP should be rehearsed at least annually.
- All personnel involved share a responsibility to develop the plan.
- All personnel have a legal responsibility to participate in plan development, implementation, evaluation and execution.
- The EAP should be reviewed by the institution and legal counsel.
Optimizing the Sideline Team
Physician's Medical Bag
The Team Physician’s Bag

- Dependent upon game-day resources
  - Certified athletic trainer
  - EMT ambulance squad
- Highly Desirable vs. Desirable
  - General
  - Cardiopulmonary
  - Head/neck
  - HEENT
- Sports-specific

Emergency Bag
- Adhesive strips
- Aspirin
- Bandage tape
- Inhaler
- Epinephrine
- Gloves
- Oral glucose
- Pocket mask
- Sterile gauze pads

Judgement!!
Improved First Aid Kit

- Israeli Pressure Dressing (IPD)
  aka: Trauma Dressing
  Weight: 1.08 lbs  Cube: 128 ci
  $4.20

- 4” Kerlix
  $0.98

- Combat Application
  Tourniquet (CAT)
  $27.28

- 14g Needle
  $2.50

- 2” Tape
  $1.38

- Nasopharyngeal
  Airway (NPA)
  $1.66

- Exam Gloves (4)
  $0.32

- MOLLE Type
  Pouch
  $15.00 (max)
Approach to the Fallen Athlete
Advanced Trauma Life Support

- Program developed in 1978, and adopted by the American College of Surgeons.

- **Primary Survey**
  - Life threatening injuries are identified and treated simultaneously.

- **Secondary Survey**
  - Head to toe evaluation of the patient after vital signs are normalized.
Assessment of the Injured Athlete

- **ATLS – Primary Survey**
  - Airway maintenance with cervical spine protection
  - Breathing and ventilation
  - Circulation with hemorrhage control
  - Disability: Neurologic status
  - Exposure/Environmental control
Airway with C-Spine Control

- Look, listen, feel
- Jaw thrust, chin lift
- Oral or nasal airway only if unconscious
- Consider definitive airway or needle cricothyroidotomy
Nasal Airway
C-Spine Control

- Face down...consider log roll technique
- Head maintained in neutral position
- Helmet remains
- Face masked removed
Breathing and Ventilation

- Assess ventilation: look and listen/auscultate and feel
- Supplemental oxygen
- Mouth to mask
- Bag-valve mask
Tension Pneumothorax

• Large bore needle thru second intercostal space, midclavicular line
Breathing and Ventilation
Circulation

- Check carotid pulse
- CPR if indicated
- Early defibrillation
- Check hemorrhage sites and apply direct pressure
- Establish venous access
Circulation
Disability

- Rapid neurologic assessment
  - AVPU: alert; vocal stimuli; painful stimuli; unresponsive
  - Glasgow Coma Scale
  - Pupils for size and reactivity
Exposure/Environment

- Remove equipment/clothing
  - As appropriate
- Carefully inspect and palpate
Common Sports Medicine Emergencies
Anaphylaxis
Anaphylaxis

- Multi-organ systemic response to exogenous antigen exposure in a previously sensitized patient.
  - Respiratory distress
  - Cardiovascular collapse
  - Cutaneous
  - Gastrointestinal
Anaphylaxis

- Insect bites most common
- Drugs
- Pollens
- Exercise-induced anaphylaxis
Anaphylaxis

Clinical Presentation:

- Hoarseness, dysphonia, difficulty swallowing
- Sridor, dyspnea, wheezing
- Urticaria, angioedema
- Atypical - syncope, seizure, acute cardiac event
Anaphylaxis

- **Treatment:**
  - Call 911
  - ABCs
  - Epinephrine
    - 0.2 to 0.5ml
    - 1:1000 sq or im; may repeat every 10 to 15 minutes
Cardiac Collapse
Be Prepared!
Basic and Advanced Cardiac Life Support

Chain of Survival

Early Access  Early CPR  Early Defibrillation  Early Advanced Care

ACLS Provider Manual
Basic and Advanced Cardiac Life Support

- Call 911 and Get an AED;
- Open Airway and Assess Breathing;
- If not breathing, give 2 breaths that make chest rise;
- Check pulse for ten seconds;
- If no pulse, give 30 compressions (100/min) and 2 breaths until the AED arrives.
Basic and Advanced Cardiac Life Support

- Turn the Power On;
- Attach Pads – upper right sternal border and cardiac apex;
- Analyze;
- Shock;
- Resume CPR for 5 Cycles;
- Analyze
Heat Stroke
Heat Illness Morbidity and Mortality

Heat Illness in the military is a significant problem (Army data ’03-’04):
- 2,676 heat casualties;
- 574 cases of heat stroke;
- 11 deaths.
Heat Illness Morbidity and Mortality

- Heat stroke deaths and summer football practice.
Doug Casa, ATC, PhD

“Heat stroke death is preventable.”
Inter-Association Task Force on Exertional Heat Illnesses Consensus Statement

Task Force Recommendations

**Recognition:**
- Medical staff should be properly trained...to assess core temperature...via rectal thermometer.
- Axillary, oral, tympanic temperatures are not valid.

**Treatment:**
- Aggressive and immediate whole body cooling (via immersion) is the key to optimizing treatment.
  - Cold water 35 to 58 degrees;
  - Cease when core temp reaches 101 to 102; transport.
Lightning Injury

- Case report reviews demonstrate that lightning strike carries a morbidity of 70%, and a mortality of 30%.
- Only a small percentage of victims sustain deep thermal burns.
- The only immediate cause of death is from cardiac arrest.
Lightning Injury

- Standard ACLS protocols are followed;
- Victims do not retain a “charge”;
- Lightning can strike the same place...personal safety is key;
- Pupils can become fixed and dilated secondary to lightning; resuscitation attempts should not be stopped;
- In lightning victims, cardiac automaticity may resume prior to respiratory drive, so patients should have ventilation supported;
- The triage process is reversed in a mass casualty situation from lightning, as the ‘dead’ should be resuscitated first.
Head and Spine Trauma
Epidemiology

- 1 mil traumatic brain injuries per yr in US
- Incidence=100:100,000
- 50,000 deaths
- M:F 2:1
- Bimodal peak
  - 15-24 & >75
Epidemiology

- 250,000 concussions/yr in contact sports
- 50% minor head injuries
- 1.5 mil HS football players/yr
- 1 in 5 HS football players
- 8 deaths/yr in football
High Risk Sports

- Football/Rugby
- Gymnastics
- Hockey
- Wrestling
- Lacrosse
- Equestrian Sports
- Martial Arts/Boxing
Concussion and the Team Physician: A Consensus Statement

Prehospital Care of the Spine Injured Athlete: A Document from the Inter-Association Task Force for Appropriate Care of the Spine-Injured Athlete

National Athletic Trainer’s Association, March 2001. Dallas, TX.
Spine Injury

Prehospital Care Document
- On-the-Field Management and Immediate Care
- Equipment Management
- Immobilization and Transportation
- Injuries and possible mechanisms
- Return-to-Play Criteria
- Prevention
- The Emergency Plan
On-the-Field Management and Immediate Care

- Initial Assessment – Activate EMS
- Airway
- Breathing
- Circulation
- LOC/Neurologic
- Transportation
- Emergency Plan Activation
Equipment Management

- **Face Mask**
  - Should be removed as quickly as possible.
  - Knives. Scissors are not recommended.

- **Helmet**
  - Should not be removed unless the rescuer cannot access the airway.

- **Shoulder Pads**
  - Removed simultaneously with the helmet.
Immobilization and Transportation

**Immobilization In-Place vs. Neutral Spine**
- Airway assessment

**The Prone Athlete**
- Log roll requires a minimum of four rescuers

**Methylprednisilone**
- 30mg/kg administered over 1 hr, then 5.6 mg/kg administered over the next 23 hrs.
Assessment of Neck Injuries
Immediate Transport of Concussion

- Diplopia
- Severe or increasing emesis
- Seizure
- Focal neurologic findings
- Pupillary changes
- Rapidly progressive headache
- Personality change
Conclusion

- Anticipation is the role of medical team.
- Practice is critical.
- Documentation should not be forgotten!
- The most important tool the physician brings to the sideline is...