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REVIEW

Optimizing the Sideline Medical Bag

Preparing for School and Community Sports Events

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In Brief: Primary care physicians are often asked to provide sideline medical coverage at school athletic events. They may also be asked to cover organized adult recreational leagues and less formal events at community centers or neighborhood parks.

Guidelines that describe the contents of sideline medical bags often focus on covering collegiate or professional contests. Having a well-thought-out plan of action and the necessary resources and equipment to deal with medical emergencies at less formal community venues is no less important.

A consensus statement published by the American College of Sports Medicine (ACSM)¹ recommends equipment that a primary care provider should have when covering an athletic event. Most articles published on this subject focus on medical coverage for collegiate or professional sports in which the primary care provider has a formal relationship with a team.²⁻⁵ Many physicians, however, are more likely to cover less organized venues such as high school, junior high, grade school, or adult recreational leagues. Physician involvement in community activities is one way to encourage patients to exercise, especially as our nation faces the obesity epidemic.

Event Planning

Many primary care physicians provide medical care for athletes by acting as a team physician, or they may provide medical coverage during an athletic contest. These duties may be reimbursed, but more often they are volunteered free of charge. The standard of medical care should not differ whether the physician is covering a junior varsity high school contest or a high-profile collegiate event.

When covering an event, it is wise to speak with local emergency medical service (EMS) providers. Some states require EMS and/or certified athletic trainers to be present for contests such as high school football games. Certified athletic trainers are skilled and highly trained (ie, graduate level) health professionals who provide medical treatment to injured athletes. If a player is injured, it should be clear which healthcare professional should evaluate the injury on the field.^{3,4,6,7} It is also important to establish a "chain of command" and determine who has the ultimate responsibility for

return-to-play decisions and, if necessary, deciding if a player must be transferred to the hospital for care.⁵

When deciding on how and when to intervene, a primary care provider should also keep in mind "primum non nocere" (first, do no harm). Physicians are well-trained to handle emergent and complex situations in a hospital setting with other medical personnel and where the necessary medical equipment is both familiar and easily accessible. In a community where a high school football or basketball game may attract a large number of people, providing sideline care to an athlete is equivalent to providing an emergency house call witnessed by the whole town. The practitioner must be prepared, organized, and able to anticipate how to handle various scenarios. In certain circumstances, it may be best for a provider to call 9-1-1 rather than to attempt a procedure that the clinician is not completely comfortable performing. For example, if the last time the provider relocated an anteriorly dislocated shoulder was years ago in training, it is probably wise not to attempt this on the field.

When providing medical coverage at an athletic event, the primary care provider has a duty to be present for the entire event and should "check out" with both teams before leaving the venue. Halftime and the first few minutes right after the contest ends can be the most dangerous times of the event. Spectators on the athletic field can lead to distractions and leave a medical emergency unnoticed. The medical team (ie, athletic trainers, EMS personnel, and primary care providers) should all know where the other members will be stationed during the event. When providing medical coverage, it is not appropriate to sit in the stands as a spectator. Practitioners should be on or near the bench of the team that has arranged for them to be present. At the very least, all personnel should indicate where they will be during the game and stay at that position. Many find it helpful to exchange cell phone numbers or use walkie-talkies. If an emergency occurs and 9-1-1 is activated, EMS protocol should be followed and emergency personnel should be allowed to do their jobs.^{3,7-10}

EMS personnel have a wide selection of emergency equipment available, and they regularly train to use it properly. If primary care providers bring EMS equipment, such as an endotracheal tube or cervical spine collar, they assume responsibility for remaining certified in its use, making sure that the equipment is properly maintained, and that it fits the participant. The most important points in deciding whether or not to bring this equipment are:

- How far is the event from a hospital?
- How much time will it take EMS personnel to arrive?
- How does the transfer of care to EMS personnel occur? For example, if a high school football player sustains a serious neck injury, what is the best approach?

The ACSM and the National Collegiate Athletic Association advocate leaving the player's helmet and pads in place, but immediately removing the face mask. This allows access to the airway and minimizes movement of the cervical spine.^{8,11,12} Medical personnel should know in advance what type of tool works best and the easiest way to remove the particular style of face mask in use.

Primary care providers may often assume a less formal medical role at an athletic event. The clinician may be a spectator with a son or daughter as a

team member, or the clinician may be a coach. Sometimes treating athletes in these circumstances may create conflicts of interest within the preestablished roles. Possible conflict of interest must be considered before attempting to intervene with medical care. At times, unless a true medical emergency exists, the primary care provider may decide to act as a "civilian" and let others assume medical care of an injured athlete.

Certain constraints may affect what equipment is brought to a sporting event, including budgetary issues, available space, and equipment upkeep. A primary care provider should be able to buy a generic medical bag and most contents from a local department store or online for approximately \$200 to \$300.^{13,14} Using one of these generic medical bags, one can easily provide medical coverage for most events such as "fun runs," soccer tournaments, or high school sporting events.

The Emergency Bag

A fanny pack or similar small bag is the most portable and offers the widest variety of uses, depending on the medical provider's role. It can be worn, carried, or incorporated in a larger, main medical bag. Whether the physician is a spectator, coach, or official at the game, this bag holds the basic equipment needed to respond to medical emergencies (figure 1, table 1).

Figures: Courtesy of James M. Daniels, MD



FIGURE 1. A fanny pack holds the essential items for an emergency bag.

TABLE 1. Recommended Equipment for an Emergency Bag

Adhesive strip bandages

Aspirin

Bandage scissors
Bandage tape
Beta agonist inhaler
Epinephrine injections and alcohol wipes
Latex and nonlatex exam gloves
Oral glucose solution
Pocket mouth-to-mouth mask
Sterile gauze pads

The emergency bag should include a cell phone and important phone numbers (eg, hospital, orthopedist, dentist, pharmacy, athletic director), a mouth-to-mouth cardiopulmonary resuscitation mask, nonsterile gloves, sterile gauze pads, bandage scissor and tape, and adhesive strip bandages that are easily accessible. The gloves and gauze pads allow easy assessment of wounds and cuts while following blood-borne pathogen standards. The emergency bag also includes a beta agonist inhaler for patients with asthma, a source of glucose for suspected hypoglycemia, and epinephrine for anaphylaxis caused by insect stings. An epinephrine pen can be purchased, but it often expires before it is used and costs around \$45. A small syringe with a vial of concentrated epinephrine can be used to inject medication subcutaneously. Alcohol pads for preparing skin are kept with this equipment.

A regular-strength aspirin or two baby aspirin can be kept in this bag to be administered to an athlete or spectator who has signs or symptoms of myocardial infarction. Oral nitroglycerin in this circumstance is not recommended because of the risk that hypotension may lead to decreased myocardial perfusion when nitro is given to patients without intravenous access.

Main Medical Bag

A larger, general medical bag comprises kits that can be organized in the compartments, thus allowing easy access and organization of supplies (figure 2). The main bag can be placed in a car's backseat or trunk. This bag is most appropriate when acting as a team physician or when providing medical coverage for a community event.



FIGURE 2. A duffel bag or large sports bag makes a durable yet lightweight main medical bag.

A duffel bag with numerous compartments is often preferred because of its

portability and accessibility, but some practitioners choose a hard-sided case with drawers and compartments like a tackle box. Within the compartments, several water-resistant, color-coded plastic containers of various sizes can be used to store equipment and create kits for quick access to important supplies. Each container should be labeled with its function and have a list of contents taped to the underside of the lid. The types of kits needed may vary from event to event and can be customized by the physician. These supplies are used frequently and will need replenishment fairly often.¹⁵ We have found the creation of a medication kit, wound procedure kit, eye kit, and ear kit to be a helpful way of organizing commonly used supplies. A prepackaged dental trauma kit is also useful.

The medication kit (table 2) contains frequently used medications, but no controlled substances. Although it is off label, we use 1% silver sulfadiazine cream to treat blisters and abrasions, unless the patient has a sulfa allergy. All perishable medications should be kept in a separate container that is removed for storage indoors, not stored in a vehicle where it could be exposed to temperature extremes. Expiration dates should be clearly noted on all medications.

TABLE 2. Suggested Content for a Medication Kit

Acetaminophen
Antibiotic ointment
Antibiotics
Antihistamines
Aspirin and other NSAIDs
2.5% hydrocortisone cream
Metaxalone
Proton pump inhibitor
1% silver sulfadiazine cream for blister management and abrasions
Tramadol hydrochloride

NSAIDs = nonsteroidal anti-inflammatory drugs

A wound management procedure kit is helpful, because wounds of varying severity are regularly encountered at sporting events (figure 3, table 3). Most wounds can be appropriately treated with irrigation, cleansing, and secure dressings to allow return to play. Suture materials are included for simple laceration repair. Complex lacerations ideally should be managed in the more sterile environment of a clinic or emergency department. A small, portable sharps container and biohazard bags are also required for clothing or bandages that are contaminated with human secretions.¹⁶



FIGURE 3. A wound management procedure kit keeps items quickly accessible for treating minor lacerations.

TABLE 3. Wound Management Procedure Kit

Adhesive bandages

Alcohol pads

Bandage tape

Betadine sponge brush

Biohazard bags

Butterfly intermittent infusion set

Coolant spray

Gauze rolls

Liquid adhesive

Needles (22, 25, 27 gauge)

Ointments:

Topical corticosteroid cream (ex, Betamethazone)

1% and 2% lidocaine

1% xylocaine

Povidone-iodine swab sticks

Sterile suture kit:

Nonabsorbable sutures

4-0, 5-0 Ethilon (Ethicon, Somerville, NJ)

5-0, 6-0 Prolene (Ethicon, Somerville, NJ)

Polymer to make absorbable sutures

2-0, 3-0 Dexon (Syneture, Norwalk, CT)

Scalpels (no. 10, 11)

Sterile drape

Sterile gauze pads

Sterile gloves

Sterile lubricant

Steri-strips (3M Company, St Paul)

Syringes (3, 6, 12 mL)

Tampons

Tourniquet (latex)

Wound cleanser

The eye and ear kits (figure 4, table 4) are suggested for evaluation and treatment of common problems, including corneal abrasions and foreign bodies or wax buildup in the ear canal.



FIGURE 4. An eye kit (A) and an ear kit (B) for assessing injury and removing foreign bodies.

TABLE 4. Suggested Contents for Eye and Ear Kits

Eye Kit

Eye pads

Fluorescein eye strips

Anesthetic eye drops

Sterile eye wash

Sterile cotton-tipped applicators

Pocket blue light

Mirror

Ear Kit

Irrigation syringe with tubing

Ear specula

Otowicks

Insufflator

Aqueous hydrocortisone drops

Antibiotic drops

Ear cures

A dental injury management kit contains some type of tooth transport medium (eg, Save-A-Tooth, Phoenix-Lazerus, Inc, Pottstown, PA) and guidelines for handling avulsed, displaced, and fractured teeth.

We recommend using an outside compartment of the bag to store a stethoscope, sphygmomanometer, penlight, reflex hammer, tuning fork, tongue depressors, and otoscope/ophthalmoscope for easy access. Towels and washcloths are generally useful, and reference books (eg, *The Team Physician's Handbook*, *Pharmacopeia*, *Fracture Management for Primary Care*) may also come in handy.

If the practitioner is covering football, hockey, or lacrosse games, face mask removal tools should be included in the medical bag, unless these tools are supplied by the team or venue. Depending on the type of helmet and face mask and its maintenance level, different tools may be most efficient, including an anvil-type tree pruner, screwdriver, cordless screwdriver, pliers, multi-purpose tool, or channel locks.¹⁷ We do not use a Trainer's Angel (Riverside, California) or bolt cutters to remove face masks because they cause an undue amount of head and neck movement.^{4,8} A trainer shark and trauma scissors are used for easy removal of clothing and protective equipment. The trainer or the team may supply these tools.

In a separate compartment, we store a prescription pad, business cards, plastic bags for applying ice to injuries, and helpful forms. Prescription pads have the advantage of not expiring, as medication can, but may also create a security issue. Not included are chemical ready-ice mixes. Although handy, these are caustic, and if one leaks, it may cause a burn. We include an athlete treatment form (figure 5) to document medical care and for follow-up. In addition, copies of the [Sport Concussion Assessment Tool](#) are stocked to assist with concussion evaluation. This form was developed through the Second International Conference on Concussion in Sport based on the most recent research.¹⁸ It includes a definition of concussion and return-to-play guidelines for athletes who have had a concussion.

Athlete Treatment Form	
Date: _____	
Name: _____	DOB: _____
School: _____	Home #: _____
Sport: _____	Position: _____
CC:	
PX:	
DX:	
RX:	
Physician Signature: _____	

FIGURE 5. Using a simple athlete treatment form can help busy clinicians record details on the sidelines.

We also store personal items such as sunglasses, pen and notebook, insect repellent, sunscreen, camera, a hat, and raingear in the upper compartment. Appropriate clothing on the sidelines is important.¹⁹ It is perfectly appropriate to wear a suit and tie while covering a high school regional basketball championship, but this attire would not work well for an outdoor football game in the Midwest in the middle of November. When covering an outdoor event during inclement weather, we recommend wearing layers that can be peeled off, instead of one thick coat. In addition, when standing in one place for a long time, it is difficult to keep one's feet and hands warm. Wearing properly rated thermal clothing and using personal hand and feet warmers not only makes the game more comfortable, it also allows one to better concentrate on the contest instead of the discomfort of being in inclement weather.

The Splint Bag

This bag may be kept in a vehicle and not carried into each sporting event, but the equipment should be readily available (figure 6). It includes finger splints, slings, a knee immobilizer, crutches, elastic wraps, self-adhesive wrap, and splinting material in various sizes (table 5). Preassembled fiberglass splints are economical and flexible, and allow thumb spicas, long arm splints, and posterior splints of the lower extremity to be applied. For convenience and modesty of the athlete, a pair of shorts can be included and used when a full-knee or lower extremity exam is warranted. The athlete can change into shorts in a private area, and then a detailed exam can be performed in a more public area, if necessary.



FIGURE 6. A splint bag may not be needed on the sidelines, but it can be kept in a nearby vehicle or coach's office.

TABLE 5. The Splint Bag

Casting materials

Crutches (regular and tall)

Elastic wraps (various sizes)

Finger splint kit

Knee immobilizers (large and small)

Self-adhesive wrap

Shoulder sling

Splinting materials

Be Prepared

A well-stocked medical bag allows the team physician a flexible, portable, and affordable approach to providing medical coverage for various sporting events. Whether covering a local event as the team physician or as a spectator, the most important concept is to use sound clinical judgment, a coordinated effort, and a predetermined plan for treating or referring medical conditions.

References

1. American College of Sports Medicine Expert Panel: Sideline Preparedness for the Team Physician: A Consensus Statement. Available at <http://www.acsm.org/pdf/sideprep.pdf>. Accessed November 3, 2005
2. Carfagno DG, Cianflocco AJ: On the field emergencies, in Garrett WE Jr,

- Kirkendall DT, Squire DL (eds): Principles and Practice of Primary Care Sports Medicine. Philadelphia, Lippincott, Williams & Wilkins, 2001, pp 23-27
3. Halpern BC, Cardone DA: Injuries and emergencies on the field, in Mellion MB, Walsh WM, Shelton GL (eds): The Team Physician's Handbook, ed 2. Philadelphia, Hanley & Belfus, 1997, pp 36-51
 4. Inter-Association Task Force for Appropriate Care of the Spine-Injured Athlete: Prehospital Care of the Spine-Injured Athlete. Available from the National Association of Athletic Trainers at <http://www.nata.org/spineinjuredathlete/main.htm>. Accessed November 3, 2005
 5. National Collegiate Athletic Association: Sports Medicine Handbook 2005-06, ed 18. Indianapolis, NCAA, 2005, pp 10-16
 6. Prentice WE, Arnheim DD: Arnheim's Principles of Athletic Training: A Competency-Based Approach, ed 11. New York City, McGraw Hill, 2003, pp 191-200
 7. American Academy of Family Physicians: The team physician and return-to-play issues consensus statement. Leawood, Kansas, AAFP, 2002. Available at <http://www.aafp.org/x27793.xml>. Accessed November 22, 2005
 8. Andersen J, Courson RW, Kleiner DM, et al: National Athletic Trainers' Association Position Statement: Emergency planning in athletics. J Athl Train 2002;37(1):99-104
 10. Stuart MJ: On-field examination and care: an emergency checklist. Phys Sportsmed 1998;26(11):51-55
 11. Leonard JC, Townsend HE: Ready, set, go! sports medicine on and off the field. Postgrad Med 1996;99(5):237-244
 12. Rubin A: Emergency equipment: what to keep on the sidelines. Phys Sportsmed 1993;21(9):47-54
 13. Waeckerle JF: Planning for emergencies. Phys Sportsmed 1991;19(2):35-38
 14. Hunter SC: Coverage of games and events, in Baker CL, Flandry F, Henderson JM, (eds): The Hughston Clinic Sports Medicine Book. Baltimore: Williams & Wilkins, 1995, 9-15
 15. Rice EL: The medical bag, in Mellion MB, Walsh WM, Shelton, GL (eds): The Team Physician's Handbook, ed 2. Philadelphia, Hanley & Belfus, 1997, pp 223-227
 17. Buettner CM: The team physician's bag. Clin Sports Med 1998;17(2):365-373
 18. Sideline preparedness for the team physician: consensus statement. Med Sci Sports Exerc 2001;33(5):846-849
 19. Swartz EE, Norkus SA, Cappaert T, et al: Football equipment design affects face mask removal efficiency. Am J Sports Med 2005;33(8):1210-1219
 20. McCrory P, Johnston K, Meeuwisse W, et al: Summary and agreement statement of the 2nd International Conference on Concussion in Sport, Prague 2004. Phys Sportsmed 2005;33(4):29-44
 21. Ray RL, Feld FX: The team physician's medical bag. Clin Sports Med 1989;8(1):139-146

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Disclosure information: Drs Daniels, Kary, and Lane disclose no significant relationship with any manufacturer of any commercial product mentioned in this article. 1% silver sulfadiazine cream is mentioned in this article for an unlabeled use.

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