

# Primary Care Reports



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**Editor's Note**—The purpose of this paper is to describe the athletic health care system that is seen in NCAA Division I institutions. Specifically, this paper will focus on the important conceptual differences of the system itself as well as the roles of certain individuals as compared to the commonly seen physician managed health care system. This paper will focus on the importance of and different avenues of communication as well as help the clinician function effectively in the intercollegiate athletic health care system. In addition, this paper will focus on specific current topics of interest in sports medicine and provide case studies designed to develop a greater understanding of this environment.

## Description of the Athletic Health Care System

The athletic health care system at the NCAA Division I level is quite different than the traditional health care system. As Figure 1 indicates, the certified athletic trainer (ATC), and not the primary care physician (PCP), is essentially the gatekeeper of the athletic health care system. The athlete presents initially to the ATC and the ATC determines the next step of evaluation or treatment (see Figure 2). Indeed, the athletic health care system is structured uniquely such that there is unlimited access for medical care. In some ways, the system is akin to socialized medicine except that access is readily available. The athlete can present as many times as he or she wishes to the athletic training room, without incurring additional

cost and with little difficulty obtaining an appointment.

After the athlete enters the athletic health care system, the ATC determines whether referral or consultation with the team physician is indicated. Perhaps one of the most common examples of the ATC attempting to manage a condition without consultation of the team physician is in the case of an overuse injury such as tendonitis. Acting as an extension of the team physician, and in essence with a standing referral, the ATC manages the tendonitis conservatively with physical agents, exercise, and perhaps over-the-counter nonsteroidal medications. If after a period of time

conservative management yields only limited improvement, the ATC may then refer the athlete to the team physician.

The presentation of acute trauma often occurs with a much different scenario. Acute trauma is evaluated by the ATC but often initially referred directly to the team physician for evaluation, and confirmation of diagnosis. It is important to note, however, that the ATC should perform an initial evaluation and communicate the results of this evaluation to the team physician prior to the athlete presenting to the team physician. Perhaps the most visible example of this occurs during an athletic contest. For example, when a football player "goes down" and does not get up, the ATC is the first responder. (One of the primary roles of the ATC is emergency care.) When the athletic trainer determines it is appropriate to transport the athlete to the sidelines, the team physician will initially see the athlete on the sideline or courtside. If the condition is more severe and the

## The Health Care Delivery System in NCAA Division I Intercollegiate Athletics

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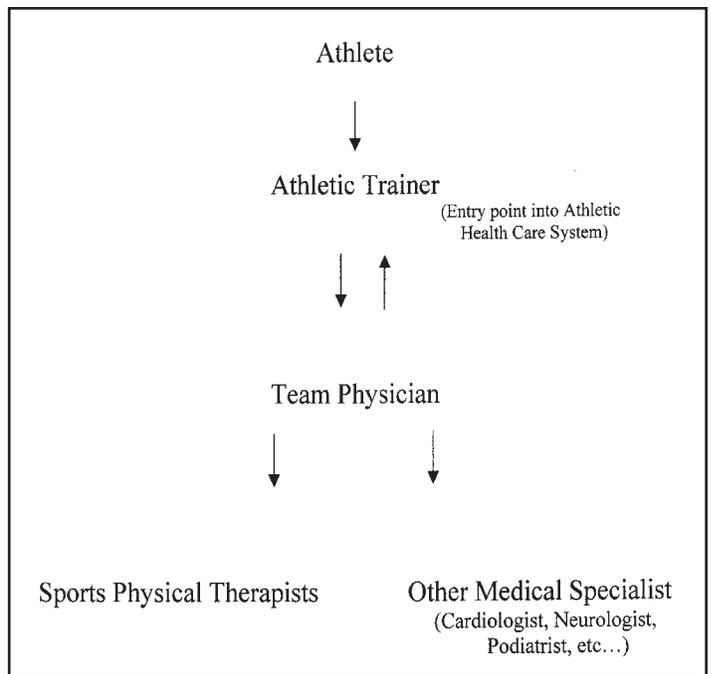
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ATC determines that he or she cannot manage the condition without the team physician, then he or she calls the team physician to the field. Therefore, most team physicians do not perform evaluations on the field of the athletic contest unless the ATC believes that the condition is outside the scope of the typical emergent situation. This is obviously very different than the traditional health care system where the physician is the gatekeeper or evaluator and makes many of these types of determinations initially. Certainly with the significant increase on physician demands, the clinical concept of a physician extender is changing the traditional health care system in some respects like that already seen in athletic medicine. However, unlike the traditional system, in athletics, virtually all athletes are seen first by the ATC (extender), and then referred or treated appropriately. The hierarchy described, although commonly seen, can vary between institutions. Each athletic department should have position descriptions, policies, and procedures in place that dictate the roles of each team member, including team physician and health ATC. The team physician's role may include administrative duties, such is institution specific, and should be defined by the participating institution.

After initial consultation with the team physician, the athlete may be referred to the ATC or to another specialist for initial treatment and/or rehabilitation. Some of these specialists may include the sports physical therapist or ATC (in the case of musculoskeletal injuries), or other medical specialists including cardiologists, neurologists, podiatrists, and orthopedists. It is interesting to note that while in some NCAA Division I institutions, the team physician has a generalist background (general practitioner or internist); at other institutions, the designated

**Figure 1. Athletic Health Care System**



team physician is an orthopedic surgeon. In the case of the latter, it is quite common for medical conditions to present to the orthopedist that would traditionally be handled by, for example, another specialist. If this is the case, the orthopedist who is the designated team physician should maintain a level of knowledge regarding a range of medical conditions. Clearly, the ideal athletic system involves 2 physicians (one orthopaedist, one general medical practitioner) with referral from the ATC. With current excellent sports medicine primary care fellowships, many primary care team physicians evaluate both general medicine and musculoskeletal injuries. Certainly the sport covered (football vs men's basketball vs swimming) creates a differing need for specialty training and level of orthopaedic knowledge and care.

### Role of the Team Physician

While the team physician may not always be the entry point into the athletic health care system at the intercollegiate level, he or she may be responsible for coordination of all activities. For example, with some institutions it is often the responsibility of the team physician to determine the athletic trainers used by the athletic department and to review all policies and procedures related to the athletic health care system.<sup>2</sup> Such administrative tasks are not always delegated to the team physician however, but are directed to employees based on policies of the individual institution.

The team physician is the one who ultimately determines who does or does not participate in a sport. This determination usually occurs in the preparticipation physical exam. It should be noted that the NCAA requires one full physical examination during the 4 to 5 years that an athlete participates in collegiate athletics. This one time physical examination most often occurs prior to the beginning of the freshman season and in August. Other physical examinations are usually follow-up to that ini-

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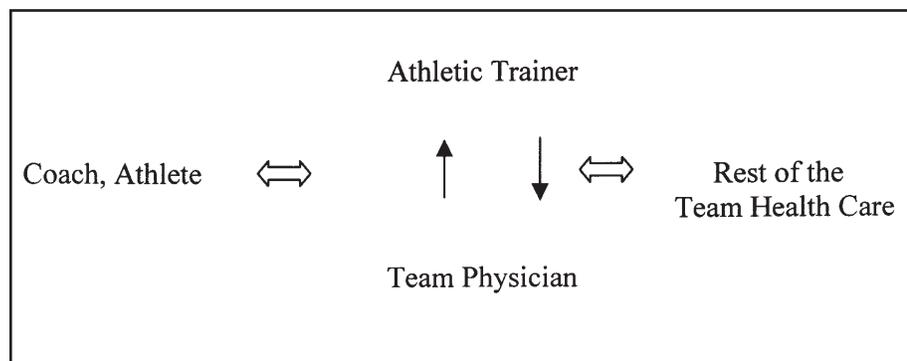
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**Figure 2. Flow of Communication in Athletic Health Care System**



tial evaluation. Although this may sound risky, one full examination followed by a yearly medical history update is usually adequate. However, each returning athlete should be required to complete an updated medical history questionnaire. This is true because the team physician is typically intimately familiar with the 300-500 athletes that participate in a Division I athletic program. The team physician will not only make a determination as to whether someone participates, but he or she should also be responsible for determining when someone does or does not return to athletic participation after an injury that required significant time away from that sport.<sup>2,12</sup> Nonetheless, follow-up physicals in the spring and subsequent semesters are routinely performed for veterans. This allows the physicals required in August to focus on incoming freshmen.

If it is also the role of the team physician to “oversee the sports medicine program,” he or she should, as mentioned previously, determine the roles and responsibilities of other members of the athletic health care team.<sup>2</sup> All policies and procedures, from distribution of pharmaceutical products, to typical emergency care of athletic injuries would be the responsibility of the team physician. Even though the ATC is in essence the gatekeeper, he or she is acting as an “extension” of the team physician. But importantly, the relationship between the head ATC and head team physician should be functional and allow this role to occur without humiliation.

For example, the team physician has the ultimate determination of athletic care including the responsibility of rehabilitation after an injury or surgery. The team physician should make individualized decisions based on the experience of the provider rather than traditional turf wars of specific team members. A common controversy is the arena of post injury or post surgery rehabilitation that creates a potential conflict. It is inherent in this arrangement that the team physician and the ATC, particularly the head ATC, have a good working relationship. This is absolutely essential to the quality of health care provided and the overall confidence of the athletes and coach in the health care provider. This need for good relationships (ie, communication) should be extended to all members of the sports medicine team. The need for careful record keeping and documentation is crucial for any successful athletic health care system. The success of the delivering of comprehensive medical or surgical care involving multiple caregivers is clearly dependent upon accurate documentation. This is especially important where those involved include both medical and non-medical persons (stu-

dent-athlete, parent, coach, physician, ATC, physical therapist). The importance of records demonstrating the timing, type, level, and care received, and outcome of the care cannot be overlooked and is a significant component of the athletic health care system.

Use of the sports physical therapist has increased in popularity in Division I athletics. This individual can enhance the health care of the athlete if used appropriately. He or she is typically involved in postsurgical or other complicated rehabilitations. It is important that a clear line of communication exists between the ATC and the physical therapist. The ATC will, in most instances be perceived by the ath-

letic department as having ultimate responsibility for the rehabilitation. The team physician will obviously need to have a direct relationship with both parties.

### Student Athletic Trainers

Since many Division I athletic training programs also have student athletic trainers available to them, it is important that the team physician foster good relationships with these individuals. While these students are in the process of learning how to be athletic trainers and are many times undergraduate students, they are still an important part of the athletic health care system. In fact, many times the student athletic trainer is one of the first responders to an acute injury. The need to be a teacher and in some ways a mentor for these individuals is extremely important. The student trainers have a unique environment of classroom activities and clinical training on a daily basis. The importance of respect for these young individuals with clear understanding of the time commitment that student trainers make with little or no financial remuneration cannot be overemphasized. Much like a third-year medical student, the student trainer is basically paying for his or her work experience. Hence, the team physician must fulfill the role of educator when working among the training staff.

### Other Members of the Sports Medicine Team

Other members of the sports medicine team obviously include the injured athlete, the parents/guardians, and coach. It is imperative that the team physician maintains a high level of communication with all of these individuals. Unlike the traditional health system in which information is passed only to the patient/family, the athletic health care system always involves the coach. In many instances, it is the role of the team physician not only to coordinate the care of the athlete, but also to perhaps attempt to change a behavior in the athlete. In these instances, the ATC, coach, parent/guardian, and the athlete him- or herself are going to be involved in this process. The head ATC plays a crucial role here, as he or she should have strong communication skills and have an established relationship with all parties (see Figure 2).

### Adherence

Adherence to any treatment program is critical in the management of all patients, whether in the traditional or athletic health care system. However, in the athletic system, the con-

cern for adherence should be made in each athlete. The age, maturity level, and commonplace absence of immediate family make involvement of the physician and especially the ATC crucial to ensure compliance with prescription medications, activity modifications, therapeutic exercises, and even a simple activity such as obtaining an ancillary radiologic examination such as a bone scan or magnetic resonance image. The athlete typically is balancing both academic and practice/competition schedules with differing levels of maturity and individual personality, often requiring that the sports medicine team must function in a supportive mode to ensure proper care. Clearly,

this involves communication with the athlete such that the role of the ATC is critical. Communication to the parents is also critical and should be performed (or at least attempted) at the time of initial evaluation. In our opinion, the physician should be an integral part of that communication (usually a phone call) to the parents—this creates 2 benefits: 1) the athlete hears again the explanation of diagnosis, test results, and treatment; 2) the parents are frequently grateful and tremendously reassured in the quality of care provided by receiving a call from the physician. This process allows ample opportunity for all parties involved to have any questions answered. It is our practice to

call the parent in front of the athlete as part of the patient evaluation process. If the athlete desires confidentiality and does not want the parent(s) contacted, the traditional rules of confidentiality are kept. Nonetheless, this is an extremely rare athlete, and calls to parents are welcomed, if not silently desired by the athlete.

Finally, communication with the coach is crucial. It is both accepted and expected in this athletic health care system for the team physician or ATC to provide information of extent of injury, prognosis, return to play criteria, as well as aid the coach in communication with the parent. (Parents invariably contact the coach after injury or illness that affects play or scholarship activity.) In most athletic systems, communication to the coach is via the ATC. Although the physician (depending upon individual relationships) may

**Table 1.**

**GUIDELINES FOR APPROPRIATE CARE OF THE SPINE-INJURED ATHLETE**

**General Guidelines**

- Any athlete suspected of having a spinal injury should not be moved and should be managed as though a spinal injury exists.
- The athlete's airway, breathing, circulation, neurological status and level of consciousness should be assessed.
- The athlete should not be moved unless absolutely essential to maintain airway, breathing and circulation.
- If the athlete must be moved to maintain airway, breathing and circulation, the athlete should be placed in a supine position while maintaining spinal immobilization
- When moving a suspected spine-injured athlete, the head and trunk should be moved as a unit. One accepted technique is to manually splint the head to the trunk.
- The Emergency Medical Services system should be activated.

**Face Mask Removal**

- The face mask should be removed prior to transportation, regardless of current respiratory status.
- Those involved in the prehospital care of injured football players should have the tools for face mask removal readily available.

**Football Helmet Removal**

The athletic helmet and chin strap should only be removed:

- if the helmet and chin strap do not hold the head securely, such that immobilization of the helmet does not also immobilize the head;
- if the design of the helmet and chin strap is such that, even after removal of the face mask, the airway cannot be controlled nor ventilation provided:

- if the face mask cannot be removed after a reasonable period of time;
- if the helmet prevents immobilization for transportation in an appropriate position.

**Helmet Removal**

Spinal immobilization must be maintained while removing the helmet.

- Helmet removal should be frequently practiced under proper supervision.
- Specific guidelines for helmet removal need to be developed
- In most circumstances, it may be helpful to remove cheek padding and/or deflate air padding prior to helmet removal.

**Equipment**

Appropriate spinal alignment must be maintained.

- There needs to be a realization that the helmet and shoulder pads elevate an athlete's trunk when in the supine position.
- Should either the helmet or shoulder pads be removed – or if only one of these is present – appropriate spinal alignment must be maintained.
- The front of the shoulder pads can be opened to allow access for CPR and defibrillation.

**Additional Guidelines**

- This task force encourages the development of a local emergency care plan regarding the prehospital care of an athlete with a suspected spinal injury. This plan should include communication with the institution's administration and those directly involved with the assessment and transportation of the injured athlete.
- All providers of prehospital care should practice and be competent in all of the skills identified in these guidelines before they are needed in an emergency situation.

These guidelines were developed as a consensus statement by the Inter-Association Task Force of Appropriate Care of the Spine-Injured Athlete: Douglas M Kleiner, PhD, ATC, FACSM, (Chair) National Athletic Trainers' Association; Jon L. Almqvist, ATC, National Athletic Trainers' Association Secondary School Athletic Trainers' Committee; Julian Bailes, MD, American Association of Neurological Surgeons; John C. Biery, DO, FAOASM, FACSM, American Osteopathic Academy of Sports Medicine; Kevin Black, MD, MS, American Orthopaedic Society for Sports Medicine; T. Pepper Burruss, ATC, PT, Professional Football Athletic Trainers' Society; Alexander M. Butman, DSc, NREMT-P, National Registry of EMTs; Jerry Diehl, National Federation of State High School Associations; Robert Domeier, MD, National Association of EMS Physicians; Kent Falb, ATC, PT, National Athletic Trainers' Association; Henry Feuer, MD, National Football League Physicians Society; Jay Greenstein, DC, American Chiropractic Board of Sports Physicians; Letha Y. Griffin, MD, National Collegiate Athletic Association Committee on Competitive Safeguards and Medical Aspects of Sports; Robert E. Hannemann, MD, American Academy of Pediatrics Committee on Sports Medicine and Fitness; Stanley Herring, MD, FACSM, American College of Sports Medicine, North American Spine Society; Margaret Hunt, ATC, United States Olympic Committee; Daniel Kraft, MD, American Medical Society for Sports Medicine; James Laughana, ATC, National Athletic Trainers' Association College and University Athletic Trainers' Committee; Connie McAdam, MICT, National Association of Emergency Medical Technicians; Dennis A. Miller, ATC, PT, National Athletic Trainers' Association; Michael Oliver, National Operating Committee on Safety and Equipment; Andrew N. Pollak, MD, Orthopaedic Trauma Section; David Thorson, MD, American Academy of Family Physicians; Patrick R. Trainor, ATC, National Association of Intercollegiate Athletics; Joe Waackorke, MD, American College of Emergency Physicians; Robert G. Watkins, MD, American Academy of Orthopaedic Surgeons Committee on the Spine; Stuart Weinstein, MD, FACSM, Physiatric Association of Spine, Sports & Occupational Rehabilitation; American Academy of physical Medicine and Rehabilitation, American College of Sports Medicine; Jack Wilberger, MD, American college of Surgeons – Committee on Trauma.

Source: (Prehospital Care of the Spine-Injured Athlete, A Document from the Inter-Assoc. Task Force For Appropriate Care of the Spine Injured Athlete, pg 30, Table 1 )AOSSM [10]

**Table 2.**

## **NATIONAL FOOTBALL LEAGUE GUIDELINES**

The guides set forth by the NFL for game officials to use during serious on-field injuries include:

- Players and coaches must go to and remain in the bench area. Direct all players and coaches accordingly. Always ensure adequate lines of vision between the medical staff and all available emergency personnel.
- Attempt to keep players a significant distance away from the seriously injured player(s).
- Do not allow a player to roll an injured athlete over.
- Do not allow players to assist a teammate who is lying on the field: i.e. removing the helmet or chin strap or attempting to assist breathing by elevating the waist.

- Do not allow players to pull an injured teammate or opponent from a pile-up.
- Once the medical staff begins to work on an injured player, all members of the officiating crew should control the total playing field environment and team personnel and allow the medical staff to perform services without interruption or interference.
- Players and coaches should be appropriately controlled to avoid dictating medical services to the certified athletic trainers or team physicians or taking up their time to perform such service.

Note: Officials should have a reasonable knowledge of the location of emergency personnel and equipment at all stadiums.

SOURCE: *z(Prehospital Care of the Spine-Injured Athlete, A Document from the Inter-Assoc. Task Force For Appropriate Care of the Spine Injured Athlete, pg 31, Table 3) AOSM [15]*

contest (*see Table 2*). Recently, “guidelines for the appropriate care of the spine-injured athlete” have been developed. These guidelines were developed from a coordinated effort of a number of entities involved in the care of the athlete, including the National Athletic Trainers Association, the American Orthopedic Society for Sports Medicine, the Professional Football Athletic Trainers Soci-

contact the coach directly, it should always be after (chronologically) the athletic trainer is informed and the line of communication is discussed. In our experience, 80-90% of communication to the coach is via the ATC involved in that sport.

The next section of this paper will deal with a variety of short discussions on “hot topics” currently facing the team physician at a typical NCAA Division 1 program.

### **1. Appropriate Care of the Spine-Injured Athlete**

One of the most significant injuries that can occur on the athletic playing field is a spine injury. For years, typical guidelines related to emergency care have conflicted with the specific emergency care of the injured athlete. For example, historically some emergency medical technician (EMT) training taught that the helmet should be removed, as in the case of a motorcycle helmet after a motor vehicle accident. However, in the case of the suspect of a spine-injured football player with a helmet, it has clearly been shown that the football helmet should not be removed from the unconscious athlete. Instead, the facemask should be removed in order to access the airway. Furthermore, in the athlete wearing shoulder pads (football, hockey, lacrosse), immobilization of the cervical spine is done more effectively with the helmet on than with it removed (*see Table 1*); the removal of the helmet on a backboarded athlete wearing shoulder pads creates the unwanted position of cervical kyphosis.

Conflicts such as these have arisen primarily with first responders to athletic injuries. Obviously, this kind of a conflict and indecision should not occur at the time of injury. These types of issues must be discussed prior to any athletic practice or contest.<sup>7</sup> The team physician should coordinate communication between themselves and the first responder to the athlete, the ATC. However, access to EMS and ambulance is also critical; therefore, a coordinated emergency system should be identified and even practiced prior to any athletic practice or

ety, the American College of Sports Medicine, and the American Physical Therapy Association’s Sports Physical Therapy Section. This is a unique instance in which multiple organizations were able to reach a consensus and develop guidelines. These guidelines are presented in Table 1 and Table 2.

### **2. Preparticipation Screening, Including Possible Cardiovascular Anomalies**

In March 2000, a brief report from *JAMA* indicated that the “preparticipation screening process” used by many US colleges and universities may have limited potential to detect (or raise the suspicion of) cardiovascular abnormalities capable of causing sudden death in competitive student athletes.<sup>14</sup> It should be noted, however, that there are definite American Heart Association recommendations from 1996.<sup>2</sup> The major issues here are the cost effectiveness of a more in-depth cardiovascular screening for at-risk athletes such as an electrocardiogram, sickle-cell screen or, echocardiogram, vs. institutional liability. A screening that includes multiple tests increases the cost of each preparticipation screen dramatically. This screen in turn may identify relatively few competitive athletes with underlying and previously unrecognized cardiovascular disease. This issue has not been completely resolved and remains a concern in many athletic departments. The team physician should become intimately familiar with AHA guidelines and should make the determination as to the depth of the preparticipation screening. It should be noted that the team physician is not only ethically and morally responsible for the care of the athlete, including the quality of the preparticipation screen, but the team physician is also legally responsible.<sup>2</sup> A full review as well as recommendations of the preparticipation screen can be found in a previous issue of *Primary Care Reports*.<sup>11</sup>

### 3. The Effects of Minor Concussions on the Athlete

Specifically, in individual and college athletics, it is not uncommon for the football or soccer player to get his or her “bell rung.” This may occur repeatedly in several athletes throughout the course of an athletic season and is suspected to occur at least once during every game.<sup>8</sup> Specifically, the American Academy of Neurology defines a Grade I concussion as no loss of consciousness and mental status abnormalities (eg, confusion) that lasts for less than 15 minutes.<sup>1</sup> Historically, this has not been perceived as a threat to the overall

health of the athlete, but recent experience may indicate otherwise.<sup>9</sup> The effects of post-traumatic concussion syndrome include mental and physical deficits with both acute and long-term effects; and these effects have been reported.<sup>3,4,5,13</sup> The bottom line relative to this issue is that, for now, the team physician should inform the ATC that he or she wishes to monitor all concussions—even the “minor” concussions. Obviously, the team physician should look for the individual who has incurred multiple minor concussions over the course of a season. The team physician and the ATC should develop a policy to address return to play after concussive events.

**Table 3.**

#### On-Site Medical Supplies

**LEGEND**

Highly Desirable

Desirable

The team physicians should have a game-day sideline “medical bag” and sideline medical supplies. The following is a list of “medical bag” items and medical supplies for contact/collision and high-risk sports:

#### ON-SITE MEDICAL BAG

GENERAL	CARDIOPULMONARY	HEAD & NECK/NEUROLOGIC
Alcohol swabs and povidone Iodine swabs	Airway	Dental kit (e.g. cyanoacrylate, Hank's solution)
Bandage scissors	Blood pressure cuff	Eye kit (e.g. blue light, fluorescein stain strips, eye patch pads, cotton tip applicators, ocular anesthetic and antibiotics, contact remover, mirror)
Bandages – sterile/non-sterile, band-aids	Cryothyrotomy kit	Flashlight
D-50%-W	Epinephrine 1:1000 in a pre-packaged unit	Pin or other sharp object for sensory testing
Disinfectant	Mouth-to-mouth mask	Reflex hammer
Gloves – sterile/non-sterile	Short-acting beta agonist inhaler	
Large bore angiocath for tension Pneumothorax (14-16 gauge)	Stethoscope	
Local anesthetic/syringes/needles		
Paper and pen		
Sharps box and redbag		
Suture set/steri-strips		
Wound irrigation materials (e.g. sterile normal saline, 10-50cc syringe)		
	Advanced Cardiac Life Support (ACLS) drugs and equipment	
Benzoin	I.V. fluids and administration set	
Blister care materials	Tourniquet	
Contact lens case and solution		
30% Ferric subsulfate solution (e.g. Monsel's – for cauterizing abrasions and cuts)		
Injury & illness care instruction sheets for the patient		
List of emergency phone numbers		
Nail clippers		
Nasal packing materials		
Oto-ophthalmoscope		
Paper bags (for treatment of hyperventilation)		
Prescription pad		
Razor and shaving cream		
Rectal thermometer		
Scalpel		
Skin lubricant		
Skin staple applicator		
Small mirror		
Supplemental oral and parenteral medications		
Tongue depressors		
Topical antibiotics		

SOURCE: ( AOSSM Board of Directors Endorses Consensus Statement on Sideline Preparedness for the Team Physician, Pg 5) AOSSM [15]

### 4. Dispensing Prescription Medication in the Athletic Health Care Environment

Each individual college or university typically has its own guidelines regarding prescription medication. The primary point to be made here is that the NCAA does have guidelines for dispensing medications. These guidelines should be reviewed and instituted by all team physicians at NCAA institutions. They are comprehensive and following them may protect a team physician from legal action.<sup>6</sup>

### 5. The Use of Injectable Corticosteroids in Sports Injuries

Team physicians have long had differing opinions on the use of injectable corticosteroids in sports. It should be noted that the NCAA also has a guideline for the use of injectable corticosteroids. Specifically, this guideline recommends that the following procedures not be performed: “interarticular injections particularly in major weight-bearing joints”; “intratendinous injections”; “administration of injected corticosteroids immediately before a competition”; “administration of corticosteroids in acute trauma”; and obviously “administration of corticosteroids in infection.”<sup>16</sup>

### 6. Sideline Preparedness for the Team Physician

The American Orthopedic Society for Sports Medicine Board of Directors has endorsed a consensus statement on sideline preparedness for the team physician. While it is not within the scope of this paper to

present the full text of that document, anyone who is preparing to be a team physician for the first time should review the document. Table 3 lists recommended items for both the onsite medical bag and sideline medical supplies. These Tables will give one an indication of the amount of preparation required by both the team physician and the head ATC in order to participate on the sideline in any NCAA contest.<sup>6</sup>

## 7. Insurance or Medical Endemny Plan for all Athletes

One significant issue currently with athletes, sports medicine providers, and the NCAA is medical insurance coverage for athletes. Many difficulties are encountered with noninjury related medical issues where the athlete is required to have insurance coverage, and usually this is through the parent's insurance carrier. It is clear that frequently athletes do not have an insurance carrier, and in my opinion, and obviously dependent upon the participating school, one of three athletes do not have independent medical insurance coverage. Coverage is critical in the care of the athlete, and further work and discussion is needed, and is ongoing in the NCAA.

The third section of this paper will review a typical case of an injured athlete presented by the team physician.

### Patient

**Athlete EC.** Although clinical diagnosis involves careful evaluation, the athletic health care system is one that requires trust of the ATC, coach, team physician, and, most importantly, the athlete. Mixed with all these individuals, the need for proper communication and quick response is needed. A useful example is that of an acute ACL injury occurring in Fall 2001. A 20-year-old female softball player injured her right knee during competition in a fall season game. The athlete injured her knee Saturday and was evaluated by the team physician Sunday during Football Clinic hours. The athlete was diagnosed as having an acute ACL/MCL injury by the softball ATC and was present during the evaluation. Radiographs were obtained and negative. Diagnosis was confirmed on Lachman and valgus stress testing at 25° knee flexion. The athlete was counseled and the patient requested the parents to be notified. Thereafter, the parents were called (California) again explaining the plan for treatment on that Sunday, the day of initial visit. The head softball coach was contacted by the ATC. An MRI was obtained 2 days later. The athlete was counseled on results, parents recontacted, MR description of complete ACL/MCL injury, and small meniscal tear was explained. The patient followed by preoperative range of motion and underwent a mid-third patellar tendon reconstruction 18 days postinjury. Coaching staff and several softball team members were present at the hospital at the day of outpatient surgery. The student athletic trainer for softball was present as a "consented" observer in the operating room suite. Immediately after surgery, the parents were contacted by phone, the ATC contacted, and the surgeon met with coaches in waiting room. Rehabilitation was started with the softball ATC and sports physical therapist with the physical therapist managing the initial postoperative rehabilitation course. Progressive return to

sport activities and exercises were transferred back to the softball athletic trainer 2 months postsurgery with planned return to sport depending upon functional improvement and athlete confidence with a minimum of 4-6 months postsurgery as the planned timeline of return to softball lineup.

**Comment.** Straightforward injury and diagnosis with coordinated management between the ATC and the team physician, with appropriate communication to parents and coach, makes for a relatively straightforward treatment of a previously career ending injury.

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### Physician CME Questions

33. The health care delivery system in athletics is best described as:
  - a. an HMP/PPO type plan with the trainer as physician extender.
  - b. a fee for service plan with multiple team members.
  - c. much different from the traditional healthcare system with the certified athletic trainer (ATC) as the gatekeeper.
  - d. socialized medicine.
34. The head team physician is defined as:
  - a. the physician who performs surgery on the athletes.
  - b. a sports medicine fellowship trained physician.

- c. the individual participating institution.
  - d. the physician selection by the athletic trainer.
35. Preparticipation physicals are:
  - a. time tested and true.
  - b. require multiple ancillary tests when use properly.
  - c. have limited potential to detect preexisting musculoskeletal injuries.
  - d. may have limited ability to detect cardiovascular abnormalities capable of causing sudden death.
36. The single most important quality of a team physician is:
  - a. his or her diagnostic ability.
  - b. the surgical technique for injured athletes.
  - c. current understanding of the medical literature.
  - d. the ability to communicate effectively.

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