NCAA® GUIDELINE 2j

Skin Infections in Athletics

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Skin infections may be transmitted by both direct (person to person) and indirect (person to inanimate surface to person) contact. Infection control measures, or measures that seek to prevent the spread of disease, should be used to reduce the risks of disease transmission. Efforts should be made to improve student-athlete hygiene practices, to use recommended procedures for cleaning and disinfection of surfaces, and to handle blood and other bodily fluids appropriately. Suggested measures include: promotion of hand and personal hygiene practices; educating athletes and athletics staff; ensuring recommended procedures for cleaning and disinfection of hard surfaces are followed; and verifying clean up of blood and other potentially infectious materials is done, according to the Occupational Health and Safety Administration (OSHA) Blood-borne Pathogens Standard #29 CFR 1910.1030.

Categories of skin conditions and examples include:

1. Bacterial skin infections
   a. impetigo;
   b. erysipelas;
   c. carbuncle;
   d. staphylococcal disease, MRSA;
   e. folliculitis (generalized);
   f. hidradentitis suppurativa;
2. Parasitic skin infections
   a. pediculosis;
   b. scabies;
3. Viral skin infections
   a. herpes simplex;
   b. herpes zoster (chicken pox);
   c. molluscum contagiosum; and
4. Fungal skin infections
   a. tinea corporis (ringworm).

Note: Current knowledge indicates that many fungal infections are easily transmitted by skin-to-skin contact. In most cases, these skin conditions can be covered with a securely attached bandage or nonpermeable dressing to allow participation.

Open wounds and infectious skin conditions that cannot be adequately protected should be considered cause for medical disqualification from practice or competition (see Guideline 2a). The term "adequately protected" means that the wound or skin condition has been deemed as non-infectious and adequately treated as deemed appropriate by a health care provider and is able to be properly covered. The term "properly covered" means that the skin infection is covered by a securely attached bandage or dressing that will contain all drainage and will remain intact throughout the sport activity. A health care provider might exclude a student-athlete if the activity poses a risk to the health of the infected athlete (such as injury to the infected area), even though the infection can be properly covered. If wounds can be properly covered, good hygiene measures such as performing hand hygiene before and after changing bandages and throwing used bandages in the trash should be stressed to the athlete.

Antibiotic Resistant Staph Infections

There is much concern about the presence and spread of antibiotic-resistant Staphylococcus aureus in intercollegiate athletics across sports. Athletes are at-risk due to presence of open wounds, poor hygiene practices, close physical contact, and the sharing of towels and equipment. Institutions and conferences should continue efforts and support for the education of staff and student-athletes on the importance of proper hygiene and wound care to prevent skin infections from developing and infectious diseases from being transmitted.

Staphylococcus aureus, often referred to as "staph," are bacteria commonly carried on the skin or in the nose of healthy people. Occasionally, staph can cause an infection. Staph bacteria are one of most common causes of skin infections in the U.S. Most infections are minor, typically presenting as skin and soft tissue infections (SSTI) such as pimples, pustules and boils. They may be red, swollen, warm, painful or purulent. Sometimes, athletes confuse these lesions with insect bites in the early stages of infection. A purulent lesion could present as draining pus; yellow or white center; central point or "head"; or a palpable fluid-filled cavity.

In the past, most serious staph bacterial infections were treated with antibiotics related to penicillin. In recent years, antibiotic treatment of these infections has changed because staph bacteria have become resistant to various antibiotics, including the commonly used penicillin-related antibiotics. These resistant bacteria are called methicillin-resistant Staphylococcus aureus, or MRSA. Fortunately, the first-line treatment for most purulent staph, including MRSA, skin and soft tissue infections is incision and drainage with or without antibiotics. However, if antibiotics are prescribed, patients should complete the full course and consult physicians if the infection does not get better. The Centers for Disease Control and Prevention (CDC), American Medical Association (AMA), and Infectious Diseases Society of America (IDSA) have developed a treatment algorithm that should be reviewed; it is accessible at www.cdc.gov/ncidod/dhqp/ar_mrsa_ca_skin.html.

Staph bacteria including MRSA can spread among people having close contact with infected people. MRSA is almost always spread by direct physical contact, and not through the air. Spread may also occur through indirect contact by touching objects contaminated by the infected skin of a person with MRSA or staph bacteria (e.g. towels, sheets, wound dressings, clothes, workout areas, sports equipment).

If a lesion cannot be properly covered for the rigors of the sport, consider excluding players with potentially infectious skin lesions from practice and competition until lesions are healed.

Staph bacteria including MRSA can be found on the skin and in the nose of some people without causing illness. The role of decolonization is still under investigation. Regimens

Some common recommendations include:

A. Keep hands clean by washing thoroughly with soap and warm water or using an alcohol-based sanitizer routinely

B. Encourage good hygiene
- immediate showering after activity
- ensure availability of adequate soap and water
- pump soap dispensers are preferred over bar soap

C. Avoid whirlpools or common tubs
- individuals with active infections, open wounds, scrapes or scratches could infect others or become infected in this environment

D. Avoid sharing towels, razors, and daily athletic gear
- avoid contact with other people's wounds or material contaminated from wounds

E. Maintain clean facilities and equipment
- wash athletic gear and towels after each use
- establish routine cleaning schedules for shared equipment

F. Inform or refer to appropriate health care personnel for all active skin lesions and lesions that do not respond to initial therapy
- train student-athletes and coaches to recognize potentially infected wounds and seek first aid
- encourage coaches and sports medicine staff to assess regularly for skin lesions
- encourage health care personnel to seek bacterial cultures to establish a diagnosis

G. Care and cover skin lesions appropriately before participation
- keep properly covered with a proper dressing until healed
- "properly covered" means that the skin infection is covered by a securely attached bandage or dressing that will contain all drainage and will remain intact throughout the sport activity
- if wounds can be properly covered, good hygiene measures should be stressed to the student-athlete such as performing hand hygiene before and after changing bandages and throwing used bandages in the trash
- if wound cannot be properly covered, consider excluding players with potentially infectious skin lesions from practice and/or competition until lesions are healed or can be covered adequately

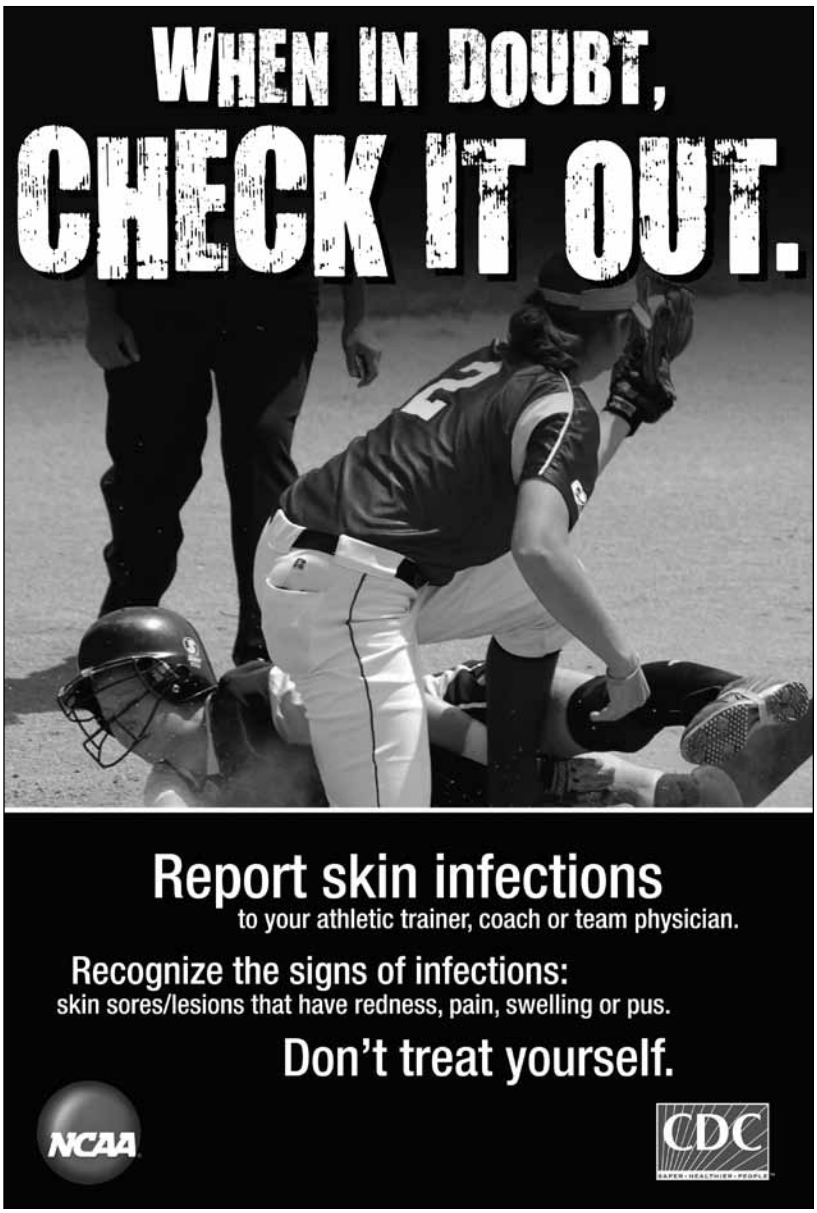
intended to eliminate MRSA colonization should not be used in patients with active infections. Decolonization regimens may have a role in preventing recurrent infections, but more data are needed to establish their efficacy and to identify optimal regimens for use in community settings. After treating active infections and reinforcing hygiene and appropriate wound care, consider consultation with an infectious disease specialist regarding use of decolonization when there are recurrent infections in an individual patient or members of a defined group.

MRSA infections in the community are typically SSTI, but can also cause severe illness such as pneumonia. Most transmissions appear to be from people with active MRSA skin infections. Staph and MRSA infections are not routinely reported to public health authorities, so a precise number is not known. It is estimated that as many as 300,000 hospitalizations are related to MRSA infections each year. Only a small proportion of these have disease onset occurring in the community. It has also been estimated that there are more than 12 million outpatient (i.e., physician offices, emergency and outpatient departments) visits for suspected staph and MRSA SSTIs in the U.S. each year. Approximately 25 to 30 percent (80 million persons) of the population is colonized in the nose with staph bacteria at a given time and approximately 1.5 percent (4.1 million persons) is colonized with MRSA.

In an effort to educate the public about the potential risks of MRSA, organizations such as the CDC, NCAA and the National Athletic Trainers' Association (NATA) have issued official statements recommending all health care personnel and physically active adults and children take appropriate precautions if suspicious skin infections appear, and immediately contact their health care provider.

Individual cases of MRSA usually are not required to be reported to most local/state health departments; however, most states have laws that require reporting of certain communicable diseases, including outbreaks regardless of pathogens. So in most states if an outbreak of skin infections is detected, the local and/or state health department should be contacted.

Recognition of MRSA is critical to clinical management. Education is the key, involving all individuals associated with athletics, from student-athletes to coaches to medical personnel to custodial staff. Education should encompass proper hygiene, prevention techniques and appropriate precautions if suspicious wounds appear. Each institution should develop prevention strategies and infection control policies and procedures.



Skin Infections in Wrestling

Data from the NCAA Injury Surveillance Program indicate that skin infections are associated with at least 17 percent of the practice time-loss injuries in wrestling.

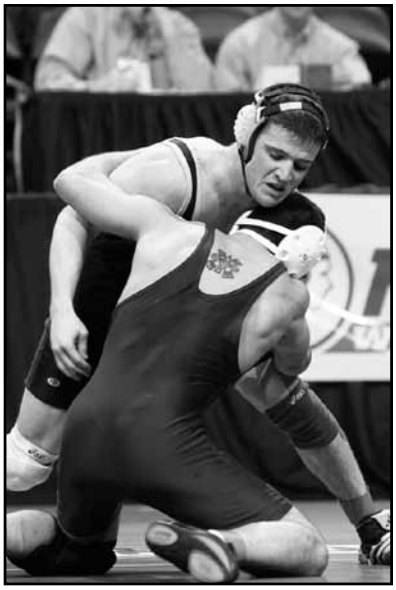
It is recommended that qualified personnel, including a knowledgeable, experienced physician, examine the skin of all wrestlers before any participation (practice and competition). Male student-athletes shall wear shorts and female student-athletes should wear shorts and a sports bra during medical examinations.

Open wounds and infectious skin conditions that cannot be adequately protected should be considered cause for medical disqualification from practice or competition (see Guideline 2a). The term "adequately protected" means that the wound or skin condition has been deemed as non-infectious and adequately treated as deemed appropriate by a health care provider and is able to be properly covered. The term "properly covered" means that the skin infection is covered by a securely attached bandage or dressing that will contain all drainage and will remain intact throughout the sport activity. A health care provider might exclude a student-athlete if the activity poses a risk to the health of the infected athlete (such as injury to the infected area), even though the infection can be properly covered. If wounds can be properly covered, good hygiene measures such as performing hand hygiene before and after changing bandages and throwing used bandages in the trash should be stressed to the athlete. (See Wrestling Rule WA-15.)

Medical Examinations

Medical examinations must be conducted by knowledgeable physicians and/or certified athletic trainers. The presence of an experienced dermatologist is recommended. The examination should be conducted in a systematic fashion so that more than one examiner can evaluate problem cases. Provisions should be made for appropriate lighting and the necessary facilities to confirm and diagnose skin infections.

Wrestlers who are undergoing treatment for a communicable skin



disease at the time of the meet or tournament shall provide written documentation to that effect from a physician. The status of these individuals should be decided before the screening of the entire group. The decision made by a physician and/or certified athletic trainer "on site" should be considered FINAL.

Guidelines for Disposition of Skin Infections

Unless a new diagnosis occurs at the time of the medical examination

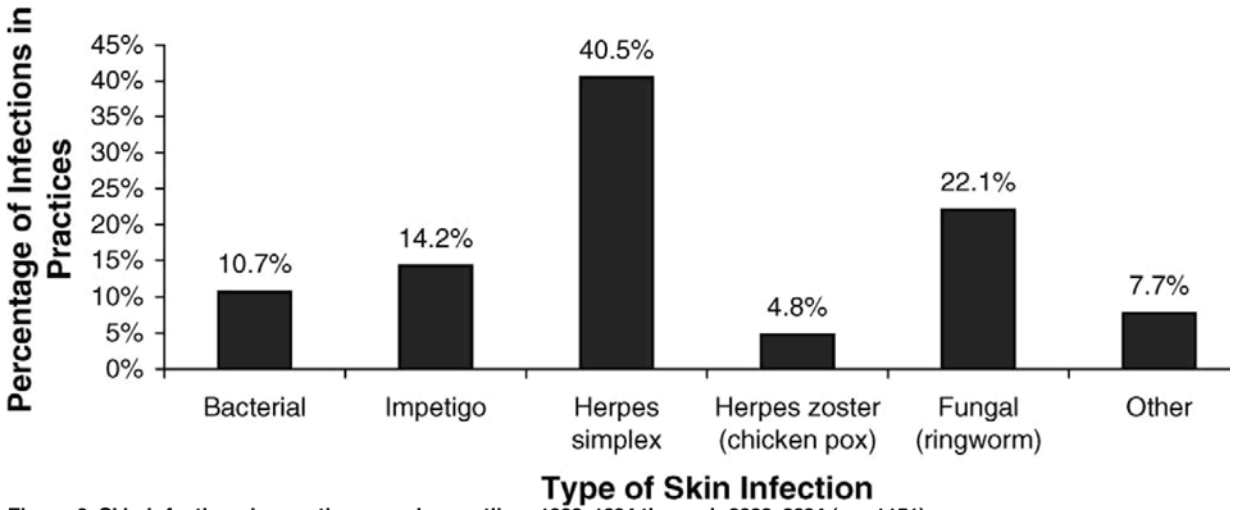


Figure 3. Skin infections in practices, men's wrestling, 1993–1994 through 2003–2004 (n = 1151).

conducted at the meet or tournament, the wrestler presenting with a skin lesion shall provide a completed Skin Evaluation and Participation Status Form from the team physician documenting clinical diagnosis, lab and/or culture results, if relevant, and an outline of treatment to date (i.e., surgical intervention, duration, frequency, dosages of medication).

BACTERIAL INFECTIONS

(Furuncles, Carbuncles, Folliculitis, Impetigo, Cellulitis or Erysipelas, Staphylococcal disease, MRSA)

1. Wrestler must have been without any new skin lesion for 48 hours before the meet or tournament.
2. Wrestler must have no moist, exudative or purulent lesions at meet or tournament time.
3. Gram stain of exudate from questionable lesions (if available).
4. Active purulent lesions shall not be covered to allow participation. See above criteria when making decisions for participation status.

HIDRADENITIS SUPPURATIVA

1. Wrestler will be disqualified if extensive or purulent draining lesions are present.
2. Extensive or purulent draining lesions shall not be covered to allow participation.

PEDICULOSIS

Wrestler must be treated with appropriate pediculicide and re-examined for completeness of response before wrestling.

SCABIES

Wrestler must have negative scabies prep at meet or tournament time.

HERPES SIMPLEX

Primary Infection

1. Wrestler must be free of systemic symptoms of viral infection (fever, malaise, etc.).
2. Wrestler must have developed no new blisters for 72 hours before the examination.
3. Wrestler must have no moist lesions; all lesions must be dried and surmounted by a FIRM ADHERENT CRUST.
4. Wrestler must have been on appropriate dosage of systemic antiviral therapy for at least 120 hours before and at the time of the meet or tournament.
5. Active herpetic infections shall not be covered to allow participation.

See above criteria when making decisions for participation status.

Recurrent Infection

1. Blisters must be completely dry and covered by a FIRM ADHERENT CRUST at time of competition, or wrestler shall not participate.
2. Wrestler must have been on appropriate dosage of systemic antiviral therapy for at least 120 hours before and at the time of the meet or tournament.
3. Active herpetic infections shall not be covered to allow participation.

See above criteria when making decisions for participation status.

Questionable Cases

1. Tzanck prep and/or HSV antigen assay (if available).
2. Wrestler's status deferred until Tzanck prep and/or HSV assay results complete.

Wrestlers with a history of recurrent herpes labialis or herpes gladiatorum could be considered for season-long prophylaxis. This decision should be made after consultation with the team physician.

HERPES ZOSTER (chicken pox)

Skin lesions must be surmounted by a FIRM ADHERENT CRUST at meet or tournament time and have no evidence of secondary bacterial infection.

MOLLUSCUM CONTAGIOSUM

1. Lesions must be curetted or removed before the meet or tournament.
2. Solitary or localized, clustered lesions can be covered with a gaspermeable membrane, followed by tape.

VERRUCAE

1. Wrestlers with multiple digitate verrucae of their face will be disqualified if the infected areas cannot be covered with a mask. Solitary or scattered lesions can be curetted away before the meet or tournament.
2. Wrestlers with multiple verrucae plana or verrucae vulgaris must have the lesions "adequately covered."

TINEA INFECTIONS (ringworm)

1. A minimum of 72 hours of topical therapy is required for skin lesions.
2. A minimum of two weeks of systemic antifungal therapy is required for scalp lesions.
3. Wrestlers with extensive and active lesions will be disqualified. Activity of treated lesions can be judged either by use of KOH preparation or a review of therapeutic regimen. Wrestlers with solitary, or closely clustered, localized lesions will be disqualified if lesions are in a body location that cannot be "properly covered."
4. The disposition of tinea cases will be decided on an individual basis as determined by the examining physician and/or certified athletic trainer.

References

1. Descriptive Epidemiology of Collegiate Men's Wrestling Injuries: National Collegiate Athletic Association Injury Surveillance System, 1988–1989 Through 2003–2004. Journal of Athletic Training 2007;42(2):303–310.

2. Adams, BB.: Transmission of cutaneous infection in athletics. British Journal of Sports Medicine 34(6):413-4, 2000 Dec.

3. Anderson BJ.: The Effectiveness of Valacyclovir in Preventing Reactivation of Herpes Gladiatorum in Wrestlers. Clin J Sports Med 9(2):86-90, 1999 Apr.

4. Association for Professionals in Infection Control and Epidemiology (APIC). 1996. APIC infection control and applied epidemiology principles and practice. St. Louis: Mosby.

5. Beck, CK.: Infectious diseases in sports: Medicine and Science in Sports and Exercise 32(7 Suppl):S431-8, 2000 Jul.

6. Belongia EA, Goodman JL, Holland EJ, et. al.: An outbreak of herpes gladiatorium at a high school wrestling camp. The New England Journal of Medicine. 325(13):906-910, 1991.

Cordoro, KM and Ganz, JE. Training room management of medical condition: Sports Dermatology. Clinics in Sports Medicine. 24: 565-598, 2005.

7. Cozad, A. and Jones, R. D. Disinfection and the prevention of disease. American Journal of Infection Control, 31(4): 243-254, 2003.

8. Centers for Disease Control and Prevention (CDC) Division of Healthcare Quality Promotion. (2002). Campaign to prevent antimicrobial resistant in health care settings. Available at www.cdc.gov/drugresistance/healthcare/.

9. Dorman, JM.: Contagious diseases in competitive sport: what are the risks? Journal of American College Health 49(3):105-9, 2000 Nov.

10. Mast, E. and Goodman, R.: Prevention of Infectious Disease Transmission in Sports. SportsMedicine 24(1):1-7,1997.

11. Kohl TD, Martin DC, Nemeth R, Hill T, Evans D.: Fluconazole for the prevention and treatment of tinea gladiatorum. Pediatric Infectious Disease Journal 19(8):717-22, 2000 Aug.

12. Lindenmayer JM, Schoenfeld S, O'Grady R, Carney JK.: Methicillin-resistant Staphylococcus aureus in a high school wrestling team and the surrounding community. Archives of Internal Medicine 158(8):895-9, 1998 Apr.

13. Vasily DB, Foley JJ.: More on Tinea Corporis Gladiatorum. J Am Acad Dermatol 2002, Mar.

14. Vasily DB, Foley JJ, First Episode Herpes Gladiatorum: Treatment with Valacyclovir (manuscript submitted for publication). Weiner, R. Methicillin-Resistant Staphylcoccus aureus on Campus: A new challenge to college health. Journal of American College Health. 56(4):347-350.

15. Zinder SM, Basler RS, Foley J, Scarlata C, Vasily DB. National Athletic Trainers' Association Position Statement; Skin Diseases. Journal of Athletic Training. 2010; 95 (H);411-428.