

Introduction to Skin Infections – For School Nurses

January, 2014

Objectives

- Summarize clinical and epidemiological information on common skin infections:
 - Fungal (*Tinea*)
 - Bacterial (*Staphylococcus, Streptococcus*)
 - Viral (*Molluscum contagiosum, herpes simplex*)
 - Parasitic (scabies)
- Learn to use this information to protect your students from spread

For Each Disease:

- Name of disease
- Name and type of etiologic agent
- Incubation period
- Infectious period
- How it is spread

Tinea



Name	Where?	Caused by
Tinea capitis	scalp	<i>Microsporum canis, Trichophyton tonsurans</i>
Tinea corporis	body	<i>M canis, T mentagrophytes, T tonsurans, T verrucosum, M gypseum, Epidemophyton floccosum, T rubrum</i>
Tinea cruris	Jock itch	<i>E floccosum, T rubrum, T mentagrophytes,</i>
Tinea pedis	Athlete's foot	<i>T rubrum, T mentagrophytes</i>
Tinea faciei	face	<i>M canis, T verrucosum</i>

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Incubation 1-3 weeks

- Person-to-person transmission from *T tonsurans*
- Fomites such as:
 - Hats, combs, brushes
 - Wrestling mats, helmets
- Classroom: return after antifungal therapy is begun
- Contact sports: return after 2 weeks of antifungal therapy



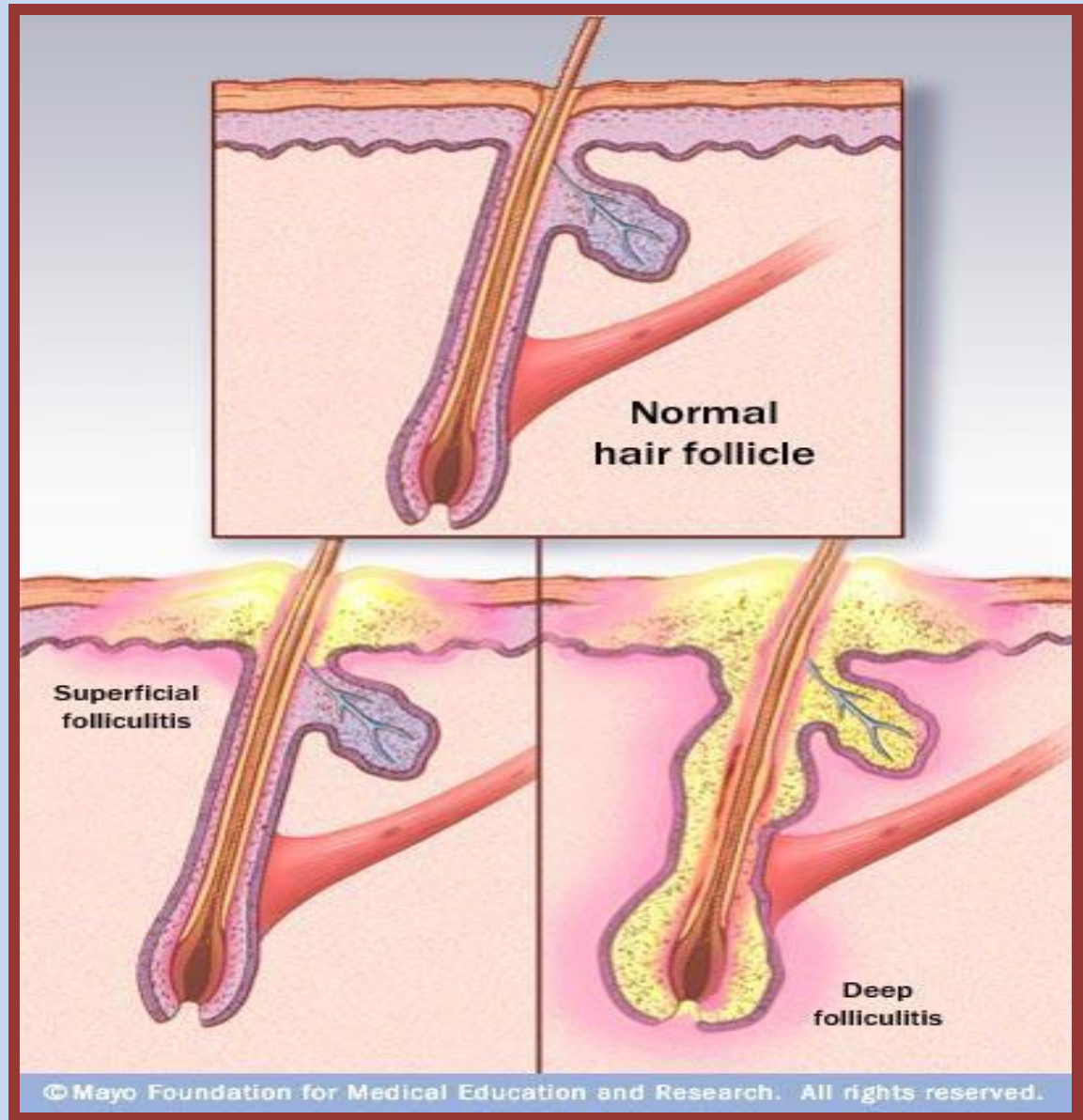
**Incubation
1-3 weeks**

- Person-to-person transmission by direct contact
- Fomite transmission
 - Mats, towels, clothing
- Classroom: return after therapy is initiated
- Contact sports: return after 3 days of therapy and lesion is covered

Bacterial Infections

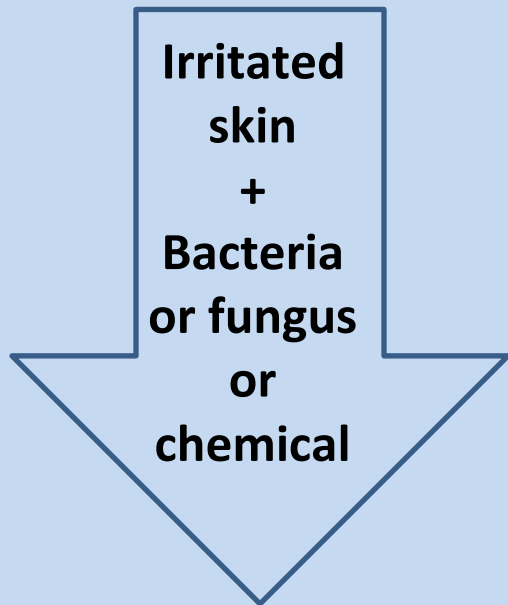
- **Folliculitis**
- **Impetigo**
- **Abscess**

FOLLICULITIS



What causes folliculitis?

Areas of skin with hair



FOLLICULITIS



Folliculitis



Folliculitis presents as papules and pustules at the base of hair follicles.

Common Types of Folliculitis

A. Superficial folliculitis:

- Clusters of small red or pus-filled bumps
- Pus-filled blisters break open and crust over
- Red and inflamed skin
- Itchiness or tenderness



Staphylococcal folliculitis

- Incubation period: 1-10 days
- Spread through close contact
- Sharing personal items
- Contact with contaminated items





Hot tub folliculitis

- *Pseudomonas aeruginosa*
- Appears 72 hours after hot tub use
- Resolves in 7-10 days
- Control:
 - Remove swimsuit
 - Shower
 - Clean hot tub

B. Deep folliculitis:

- large swollen bump
- Pus-filled blisters that break open and crust over
- Pain
- Possible scars



Carbuncles

ABSCESS

- Pus-filled lump beneath the skin
- Red, warm, swollen, painful
- Spread by direct contact with pus or contaminated items
- Treatment: surgical drainage





IMPETIGO

Spread by getting too close to infected children, or by using their towels, wash cloths, etc.

Impetigo

- Appear 4-10 days after exposure
- Spread person-to-person
 - Contact with infected skin
 - Contact with contaminated items
 - scratching

**Impetigo: thin-walled vesicles
rupture into a honey-colored crust**

Causes of Impetigo

Break in the skin

- Trauma
- Skin condition

Bacteria
(staph, s↓trep)



Impetigo

Transmission

- Person-to-person (skin) contact
- Direct contact with contaminated surfaces
- Sharing of personal items
- Through use of hot tubs or spas

General Control Measures

- Warm compresses
- Medicated shampoo
- Antibiotic or antifungal cream
- Do not puncture lesion
- Cover scabbed lesion
- Changed soiled dressing regularly

General Control Measures - 2

- Avoid shaving the bumps.
- Avoid touching blisters that are oozing.
- Wash hands thoroughly after touching infected skin.
- Keep your skin clean to prevent getting the infection.
- Clean minor cuts and scrapes with soap and water.

- Good personal hygiene
 - Bathe or shower daily, especially after exercise.
 - Do not reuse soiled clothing.
 - Avoid sharing towels, washcloths, or other personal items.
- Clean shared surfaces and sports equipment regularly.
- Don't scratch or pick on the lesions.

- Avoid contact with others or surfaces when lesions are draining.
- **May return to contact practices and competition:**
 - After 72 hours of treatment provided the infection is resolving
 - No new lesions for at least 48 hours
 - No moist, exudative, draining lesion
- Careful daily screening of all team members for similar infections.

Molluscum contagiosum



Skin disease caused by a virus.

- Small
- Painless
- Appear as single bump or in cluster



Flesh-colored with indented center

- Incubation Period: 2-8 weeks
- Spread by:
 - Direct skin-to-skin contact
 - Autoinoculation
 - Contact with contaminated objects
- Infectious Period: when lesions are present
- Treatment: None

- Keep the skin area clean and covered. Child can go to school or daycare.
- Do not touch, pick, or scratch any skin with bumps or blisters.
- Good hand hygiene.
- Maintain clean environment
- Avoid sexual activities if have bumps in genital area

Control Measures for Sports Teams

- Proper hygiene
- Cover all growths with clothing or a watertight bandage.
- Do not share towels, clothing, or other personal items.
- Do not shave or have electrolysis on areas with bumps.
- Maintain clean environment in the athletic training facility, locker rooms, and all athletic venues.

Herpes simplex

- Common
- Lifetime infection with recurrence
- Spread by direct contact with virus shed from:
 - Symptomatic primary infection >
 - Symptomatic reactivation >
 - Asymptomatic reactivation
- Incubation 2 days to 2 weeks

Herpes simplex and Herpes gladiatorum



HSV Control measures

- Regular classroom: no exclusion
- Preschool: exclude children with primary infection who cannot control secretions

Return to Contact Sports Guidelines for Athletes with HSV

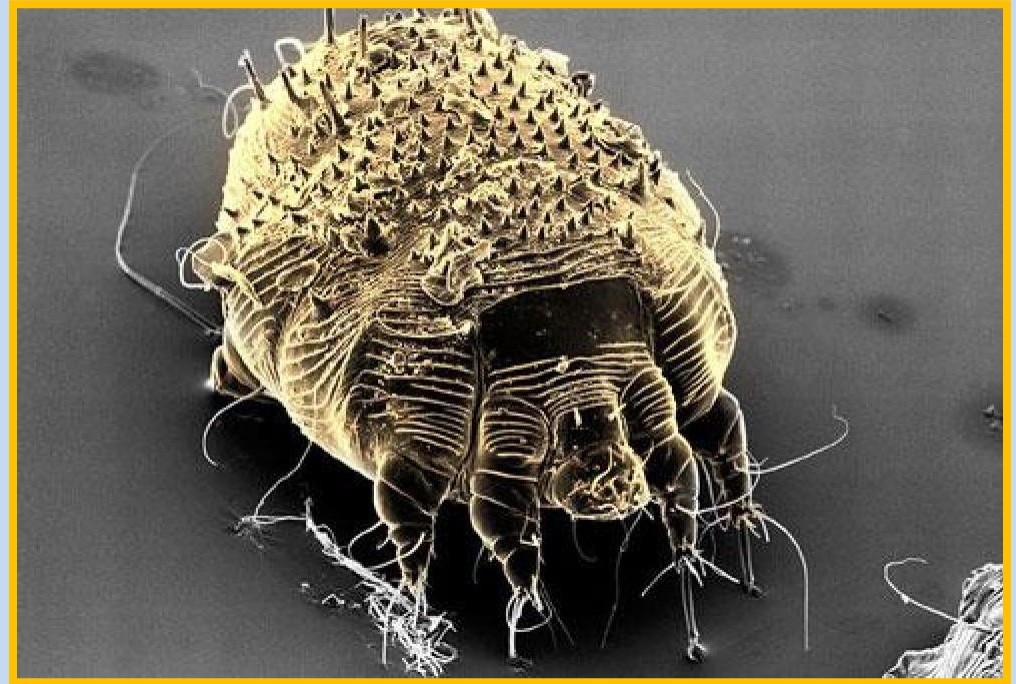
- No systemic symptoms, such as fever, malaise
- No new blisters for 72 hours.
- All lesions must have a firm adherent crust.
- Athlete must have completed a minimum of 120 hours of systemic antiviral therapy.
- Active lesions cannot be covered to allow participation.

HSV Contacts

- HSV-1 may spread prior to vesicle formation
- Anyone who had contact with the index case FROM 3 days prior to onset TO index case is cleared to return:
 - Exclude from contact sports for eight days
 - Examine daily for suspicious skin lesions

SCABIES

- Infestation
- Humans only
- Mite survival:
 - 1-2 months in a person
 - not more than 2-3 days away from human skin
 - die at 122°F for 10 min.



Scabies mite
(*Sarcoptes scabiei* var. *hominis*)

Scabies skin lesion

Incubation Period

- New disease: 4-6 wks.
- Recur: 1-4 days

Infectious period:

- From incubation till treated

Symptoms:

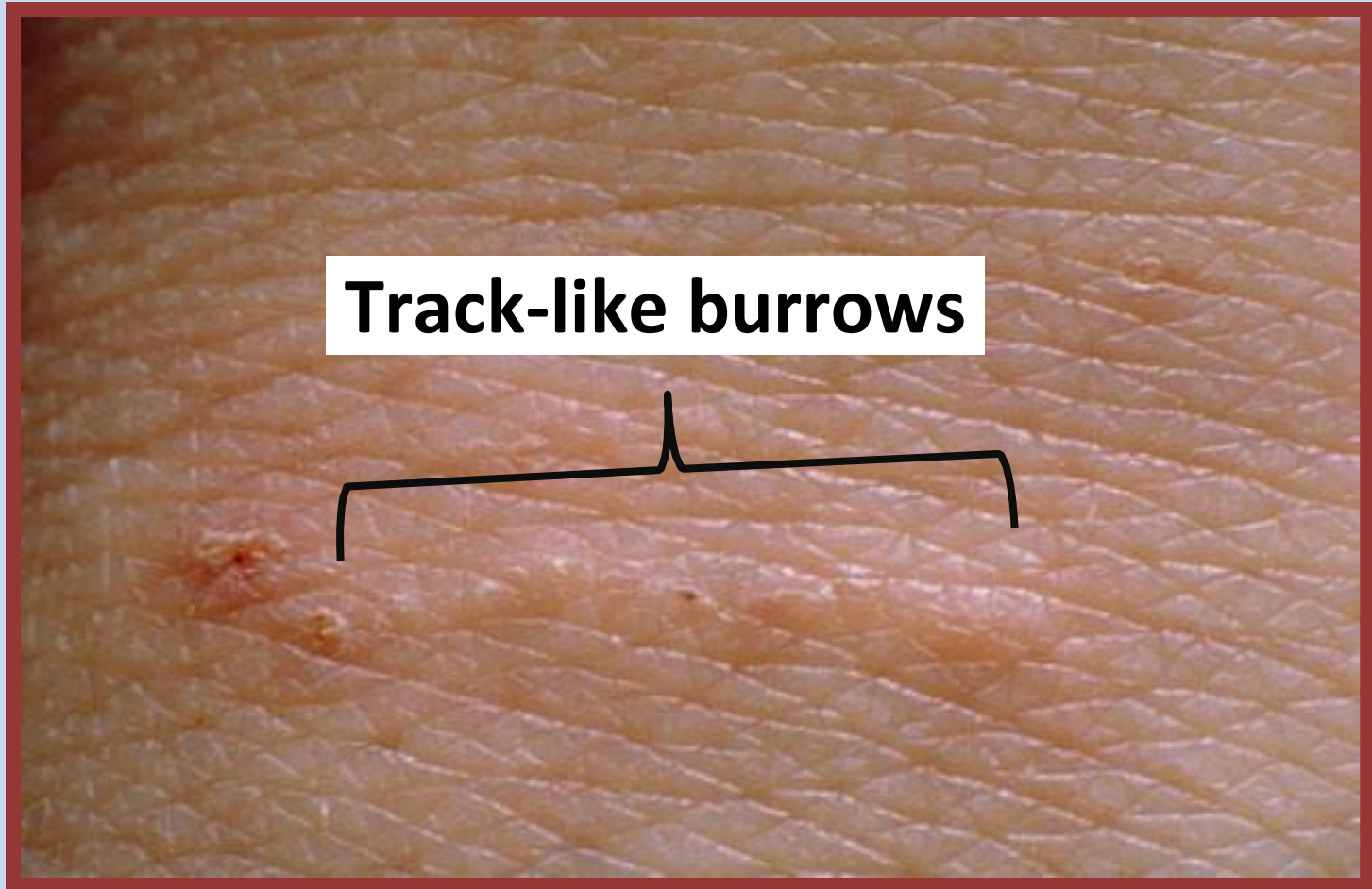
- Intense itching
- Pimple-like rash
- Sores due to scratching



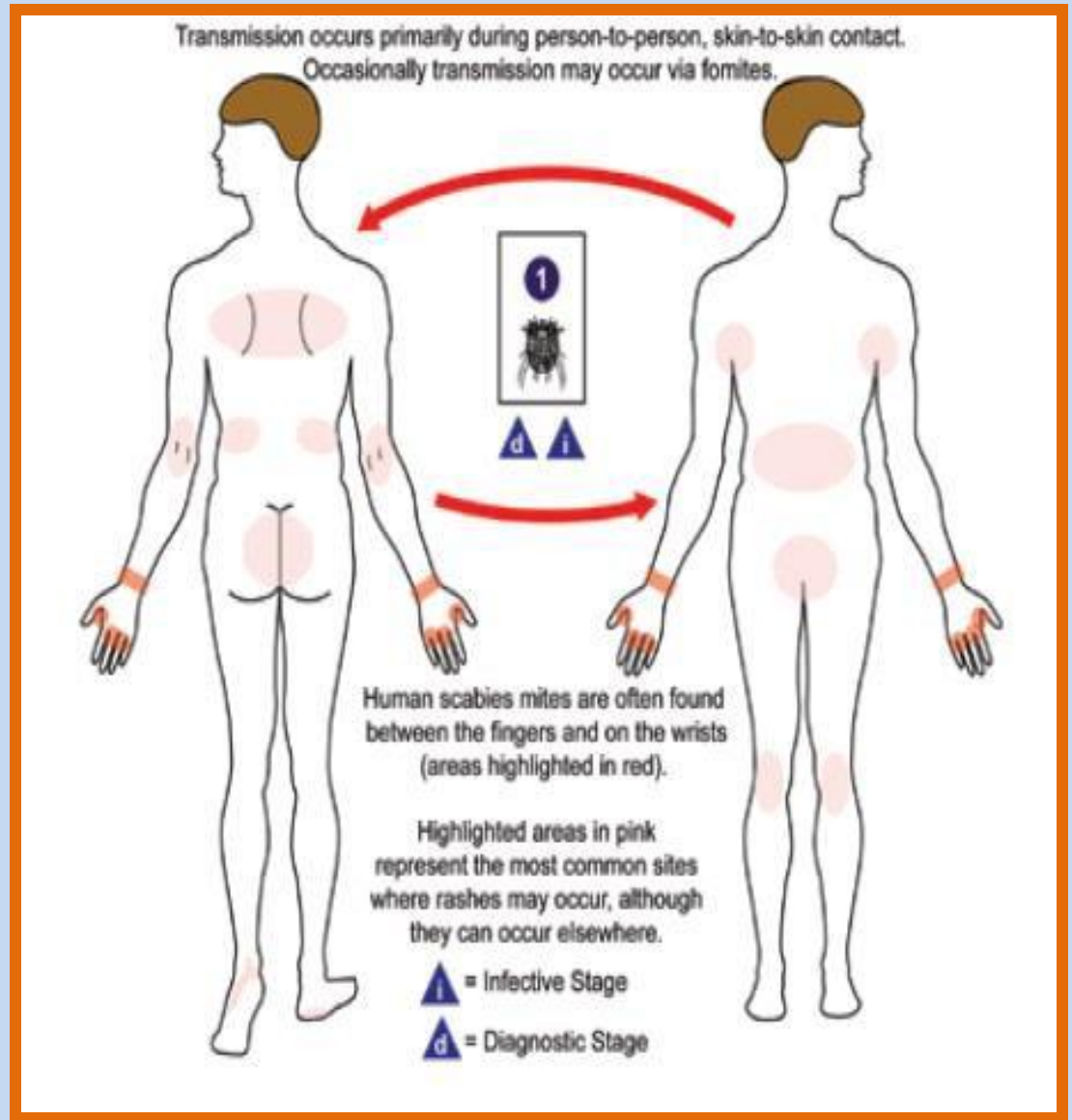
Differential Diagnosis



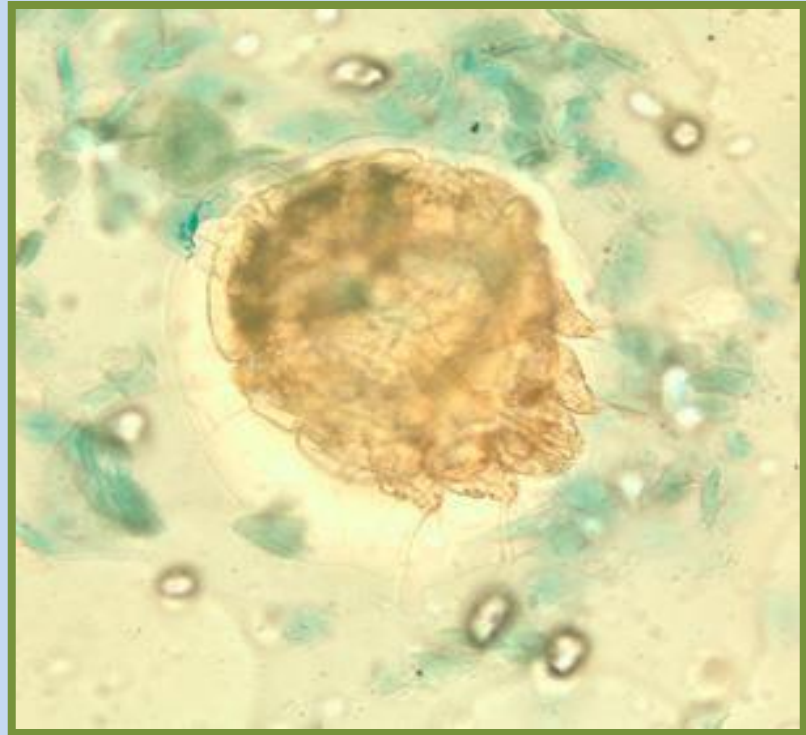
Scabies Burrows



Areas of the body commonly affected by scabies



Scabies Diagnosis



Sarcoptes scabiei mite
(skin scraping with stain)



Skin-to-skin contact

Sharing of personal items





NOT thru pets

Household contacts



Features:

- Crusted scabies
- Very contagious
- Not show usual signs of scabies
- Quick, aggressive treatment



1. Early detection
2. Treatment
3. Implementation of appropriate isolation
4. Infection control practices

- High index of suspicion
- Screen student/athlete for any skin condition

2. Treatment

- Treat patient and close contacts at the same time
- Use prescribed scabicides
- OTC products not tested or approved for man

3. Isolate patients

- Avoid skin-to-skin contact with infested person or with items used by infested person
- Avoid skin-to-skin contact for at least 8 hours after treatment

4. General Infection Control

- Shower with soap and water
- Wear clean clothes after treatment
- Don't share personal items

Scabies Control Measures

Control Measure	For Schools	For Sports Teams
Exclusion	From school until treatment is completed	From activity until treatment is completed
Screening	-	Screen team members daily
<p>Items used during the 3 days prior to treatment:</p> <ul style="list-style-type: none"> • Machine-wash in hot water and dried in hot dryer • Dry-clean • Sealed plastic bag 		
Environmental cleaning	vacuum furniture and carpets	vacuum equipment and carpets

Who else needs to know about
this and ... why?

Who Needs to Know?	Why?
Principal	Leadership to assure student and team safety
Sports team members	Preventive measures Assist with early detection Learn to help with environmental cleaning
Coaches	Enforce preventive measures Assist with early detection Enforce restrictions
Parents	Facilitate and enforce preventive measures Assist with early detection Advocate for child health
Custodians	Environmental cleaning

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Infection Prevention Your Best Friend

- Personal hygiene
- Environmental cleaning
- Athlete monitoring (skin surveillance)

Personal Hygiene

- Shower with soap and water after practice or competition
- Regular hand hygiene
- Launder clothing daily after practice
- Don't share personal items: soap, towels, clothing, protective gear, hats ...
- No cosmetic shaving
- Disinfect braces, protective gear after use

- Use a EPA-registered broad-spectrum disinfectant
 - Bactericidal
 - Fungicidal; and
 - Virucidal efficacy
- Follow label directions
 - Contact time

- Daily disinfectant use:
 - Weight room
 - Shower room and locker room
 - Wrestling room
- More frequently in season
 - Wrestling mats

(Skin Surveillance)

- Daily skin evaluation before practices or matches by coach / athletic trainer
- Refer to physician immediately for evaluation
 - Ideal: A single physician to evaluate and manage *all* skin lesions
- Train athletes to report skin lesions

Your legal responsibilities

WV Reportable Disease Rule

64CSR7

TITLE 64
LEGISLATIVE RULE
BUREAU FOR PUBLIC HEALTH
DEPARTMENT OF HEALTH AND HUMAN RESOURCES

SERIES 7
REPORTABLE DISEASES, EVENTS AND CONDITIONS

- Legislative rule 64CSR7
- Lists diseases and conditions....that must be reported to the Bureau for Public Health (BPH)
- Establishes responsibility of individuals and facilities in controlling communicable diseases
- Legal basis for surveillance, prevention and control activities
- Enforced by Bureau Commissioner

Who are required to report

Section 14.3: Administrators of schools, camps, daycares....shall:

- 14.3.a.1 Report any reportable disease, outbreak....occurring in the school, camp, facility...;**
- 14.3.a.2 Assist PH officials in finding additional cases...**
- 14.3.a.3 Assist PH officials in case and outbreak investigation and management...**
- 14.3.a.4 Follow method of control found in WV Reportable Disease Manual**

WV Reportable Disease Rule and FERPA

Section 14.3.b: For schools – public health investigation of a case or outbreak is a **Health and Safety Emergency under FERPA**, thus **allows release of information to public health.**

- Define the outbreak
- Report the outbreak
- Make a diagnosis
- Implement appropriate control measures
- Monitor for resolution

Define the outbreak

Report the outbreak

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Define the Outbreak

- Two or more cases of the same skin infection in a (contact) sports team within an 8 day period

Notify the Local Health Department

- “Health and safety emergency” under FERPA
- Immediate reporting required (64CSR-7)
- LHD listings:
<http://www.dhhr.wv.gov/localhealth/pages/map.aspx>
- Outbreak toolkit:
<http://www.dhhr.wv.gov/oeps/disease/ob/Pages/SkinInfectionToolkit.aspx>

Make a Diagnosis

- Team physician, ideal:
 - ✓ One physician for the team
 - ✓ Dermatology specialty
 - ✓ Aware of the outbreak
 - ✓ Knowledgeable about diagnosis and control
- Laboratory diagnosis is highly desirable

{LHD Letterhead}

{Date}

TO: {Name of Healthcare Provider}
{Name of Healthcare Facility}

FROM: {Local Health Officer}
{Name of Local Health Department}

RE: Evaluation of {Name of Team} Members for Skin Infections

Thank you for agreeing to evaluate {Name of Team} members for skin infections. To assist you in the evaluation, we are including:

- A completed line list so you can see the history of skin infections on this team, to date; and
- The "National Athletic Trainers' Association Position Statement: Skin Diseases." Also found at: http://www.dhr.wv.gov/oeps/disease/AtoZ/Documents/NATA_position-statement-skin-disease_2010.pdf

Accurate diagnosis is important for adequate management of the team member and others who have had direct skin-to-skin contact with the individual(s) you are evaluating. General guidelines are summarized in the table below. Additional information is available in the National Athletic Trainers' Association guidelines.

Table Summary of National Athletic Trainer's Association Guidelines

Disease/Causative Agent	Diagnostic Procedures	Return to Play Guidelines	Guidelines for Exposed Athletes
Herpes Gladiatorum or Herpes Simplex Virus Type 1 (HSV-1).	Viral culture of lesion scraping or PCR	No systemic symptoms of viral infection No new lesions for at least 72 h All lesions must be covered with a firm, adherent crust Minimum 120 h systemic antiviral therapy Active lesions cannot be covered to allow participation	Anyone in contact with the infected individual during the three days prior to rash onset <u>must be isolated from any contact activity for eight days</u> and be examined daily for suspicious skin lesions
Bacterial infection, e.g., Impetigo, folliculitis, MRSA, etc.	Bacterial culture and sensitivity	No new lesions for at least 48 h Minimum 72 h antibiotic therapy No moist, exudative, or draining lesions Active lesions cannot be covered to allow participation	All team members should be carefully screened daily for similar infections
Fungal infections (Ringworm, Tinea Corporis)	Culture of lesion scrapings	Minimum of 72 h oral or topical antifungal medications Clearance by a physician May be covered with a bio occlusive dressing	All team members should be carefully screened daily for similar infections

Implement Control Measures

http://www.dhhr.wv.gov/oeps/disease/ob/Documents/Guideline%20for%20Skin%20Infection%20outbreaks - Windows Internet Explorer

http://www.dhhr.wv.gov/oeps/disease/ob/Documents/Guideline%20for%20Skin%20Infection%20outbreaks%20in%20sports%20teams.pdf

File Edit Go To Favorites Help

http://www.dhhr.wv.gov/oeps/disease/ob/Docu...

Guidelines for Skin Infection Outbreaks in Contact Sports

West Virginia Bureau for Public Health
Your Health. Your Safety. Our Purpose.

4) Implement appropriate control measures including:

- All team members should be evaluated by athletic training staff to identify additional cases and refer to a health-care professional
- Symptomatic players should be evaluated by a single health-care professional who should be informed about the outbreak
- Coaches, officials, and health-care professionals must follow the National Collegiate Athletic Association (NFHS) or state/local exclusion and return to play guidelines (See table below)
- Environmental cleaning should be reviewed, monitored and increased in frequency
 - Special attention should be paid to high touch areas such as wrestling mats, locker rooms, benches, etc.

5) Provide supplementary education to athletes, coaches, and custodial staff on hand hygiene, personal hygiene, and equipment sharing

Most Common Communicable Skin Diseases among Athletes in Contact Sports Teams by Causative Agents

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* While clinical diagnosis is often adequate for treatment of individual patient, laboratory diagnosis is crucial in outbreak management. For more information please see http://www.dhhr.wv.gov/oeps/disease/Atoz/Documents/NATA_position-statement-skin-disease_2010.pdf and http://www.dhhr.wv.gov/oeps/disease/Atoz/Documents/Sports_Related_Skin_Infections_Position_Statement_and_Guidelines.pdf

NOTE: These guidelines are not a substitute for literature review, professional judgment and consultation with experienced healthcare providers.
REMEMBER: Outbreaks are immediately reportable to your local health department! For further questions or information contact DIDE.

Division of Infectious Disease Epidemiology (DIDE) 350 Capitol Street, Room 125, Charleston, WV 25301-3715
Phone: 304.558.5358 Fax: 304.558.6335 www.dide.wv.gov

February 2013

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Monitor for Resolution

- ☐ Daily skin checks
- ☐ Line list any new cases
- ☐ Wait two incubation periods before closing the outbreak

RESOURCES

- Local Health Department

www.dhhr.wv.gov/localhealth/pages/map.aspx

- WVDHHR – Division of Infectious Disease Epidemiology at www.dide.wv.gov

tel: (800) 423-1271 toll-free in WV, or
(304) 558-5358 ext.1

<http://www.dhhr.wv.gov/oeps/disease/ob/Pages/OutbreakToolkits.aspx>

DHHR > Office of Epidemiology and Prevention Services > Infectious Disease Epidemiology > Outbreaks > Outbreak Toolkits

Outbreak Toolkits

Acute Respiratory Illness Outbreaks in Long-Term Care Facilities

Clostridium difficile Infections

Foodborne and Waterborne Diseases

Influenza

Multi-drug Resistant Organisms (MDROs) Outbreaks in Long-term Care Facilities

Meningitis

Methicillin Resistant Staphylococcus Aureus (MRSA)

Norovirus

Pertussis (Whooping Cough)

Scabies

Skin Infections in Sports Teams

Streptococcus Pharyngitis Line List - PDF Version

Varicella (Chickenpox)

RESOURCES

DHHR > Office of Epidemiology and Prevention Services > Infectious Disease Epidemiology > Outbreaks > Skin Infection in Sports Teams Toolkit

Skin Infection in Sports Teams Toolkit

Outbreak in School Athletics Team

- Line List for Sports Team Skin Infections **PDF**
- LHD Physician Letter for Evaluation of Skin Infection
- Guidelines for Skin Infection Outbreaks in Sports Teams

General Information on Sports Team Infections

- Sports Related Skin Infections Position Statement and Guidelines
- General Guidelines for Sports Hygiene
- National Athletic Trainers' Association Position Statement: Skin Diseases
- Preventing Skin Infections - A Guide for Athletes, Coaches and Parents

For Further Information On:

- Herpes Gladiatorum
- Staphylococcus Aureus