Keeping the ‘Bugs’ out of Sports

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Disclosures

• None
Goals and Objectives

• Goal: To review the identification, management and prevention strategies for the treatment of infectious diseases in organized sports.

• Objectives:
  – Identify the different routes of transmission for infectious organisms in organized sports
  – Recognize how to treat different infectious diseases in organized sports
  – Determine when isolation of an athlete is needed and how to accomplish this for infectious diseases in organized sports
  – Describe various ways of preventing infectious diseases in organized sports
Routes of Transmission

• Physical contact
  – Sharing equipment
  – Sharing bathing facilities
  – Sharing towels
  – Sharing personal hygiene/cosmetic products

• Droplet
  – Particles of respiratory secretions ≥5 microns
  – Remain suspended in the air for a limited time
  – Exposure within 3-6 feet
• Airborne
  – Particles of respiratory secretions <5 microns
  – Remain suspended in the air for extended periods of time
  – Requires negative air pressure with 6 to 12 air changes per hour
  – Individuals must wear a respirator

• Contaminated Food/Water
  – Remain in the food or water for extended periods of time
  – May be very small amounts required to infect
  – Usually affects many people in the same environment

• Underimmunized
  – Non-immunized
  – Lack of heard immunity
Routes of Transmission
continued

• Physical Contact
  – MRSA
  – B. cereus
  – HSV
  – Molluscum contagiosum
  – Tinea capitis, corporis
  – Verruca vulgaris
  – S Scabiei
  – Pediculus capitis
  – Mono
  – Varicella

• Droplet
  – Measles
  – Mumps
  – Influenza
  – Pertussis
  – N Meningitidis
Routes of Transmission
continued

- Airborne
  - Varicella
  - Measles

- Contaminated Food / Water
  - B Cereus
  - Shigella
  - Giardia
  - Cryptosporidium
  - Norovirus
  - Leptospirosis
Affect of Illnesses on Athletes

• Febrile Illnesses
  – increase Oxygen consumption by 13% for every degree above 37°C (99°F)
  – Increase dehydration
  – Decrease coordination/concentration/endurance/strength

• Treatments
  – Antibiotics – diarrhea/GI upset
Approach to Diseases

- Major Presenting Symptoms
- Diagnosis
- Treatments
- When and How to Isolate
- Prevention
Skin Diseases
MRSA

- Folliculitis, Skin Abscess, Cellulitis, Impetigo
- Presentation, Culture, Gram Stain
- Drain abscess
- Antbx – Bactrim, Clindamycin, Bactroban
- Lesions need to be completely covered – 72 hrs treatment minimum
- Good hygiene, no sharing of equipment
Skin Diseases
HSV

- Cropped Vesicles, hx of previous outbreaks
- Viral PCR of skin lesion, typical presentations
- Antivirals - valacyclovir
- Avoid contact – remain covered if possible contact – 72 hrs no new lesions for wrestling with fully crusted lesions
- Antiviral suppression for the individual – cleaning of equipment
Skin Diseases
Molluscum Contagiosum

- Pearly papule with central umbilication
- Clinical
- Watch, cryotherapy, curettage
- Avoid contact – if covered may wrestle right away
- Avoid sharing towels etc.
Skin Diseases
Tinea (Versicolor, Corporis)

- Scaly plaque, alopecia
- KOH prep, culture
- Oral antifungals, topical if limited area
- Oral or topical tx for 72 hrs for skin, oral tx for 2 weeks for scalp
- Contact avoidance, in high infection rates consider fluconazole prophylaxis (100 mg daily x 3 d at season onset and repeat in 6 weeks)
Skin Diseases
Warts

- Firm hyperkeratotic papules, painless
- Clinical
- Time, curettage, liquid nitrogen, laer removal, salicylic acid
- Avoid contact but no specific restrictions
- Avoid contact, no sharing of equipment or towels, wearing rubber soled flip-flops or sandals in communal showers
Pruritic rash, interdigital webs
Clinical, scraping
Topical permethrin 5% cream to whole body below the neck (remove by bathing after 8-14 hrs), oral ivermectin – 2 doses 1 week apart
24 hrs after treatment – itching may take weeks to subside and does not indicate treatment failure
Avoid contact
Skin Diseases
Lice

- Visible lice on hair shaft, pruritus
- Clinical, seeing nits, nymphs, or adult lice
- Combing out nits, OTC 1% permethrin lotion, Ivermectin 0.5% topical (if resistance is reported)
- 24 hrs after treatment after examination confirms clearance
- Avoid sharing combs, brushes, hats, etc.
Skin Diseases
Chicken Pox

- Crops of papules, vesicles, crusts
- PCR of vesicular fluid, clinical (difficult – lack of experience)
- Oral valacyclovir
- No new lesion for 72 hrs, all crusted over
- Immunization, avoid close contact – including prolonged airborne contact
Skin Diseases
Measles

- Febrile prodrome, morbilliform rash – difficult to recognize (lack of experience)
- PCR of urine and nasopharyngeal specimens, Rubeola serology
- Supportive treatment
- Needs to stay home through 4 days of rash onset – incubation period 6-21 days
- Immunization
Skin Diseases
Hand, Foot and Mouth

- Mouth or throat pain, Fever, enanthem (mouth), exanthem (hands/feet)
- Clinical
- Supportive
- Avoid contact, no wrestling but may play other sports if lesions covered.
- Hand hygiene
Febrile Illnesses
Mononucleosis

- Exudative pharyngitis, splenomegaly, fatigue
- Monospot, Antibody titer
- Supportive
- No need to isolate, avoid close contact
- Avoid sharing drinks, utensils
Febrile Illnesses
Mumps

- Parotitis, fever, orchitis, oophoritis
- PCR of saliva, serology
- Supportive
- No need to isolate once symptomatic – incubation period 16-18 days
- Immunization
Febrile Illnesses
Strep Throat

- Sore throat, fever
- Rapid strep test, Throat culture
- Antibiotics to prevent rheumatic fever - Penicillin
- No isolation
- Avoid sharing drinks utensils, change tooth brush after 3 days of treatment and before treatment complete
Febrile Illnesses
Pharyngitis

- URI symptoms (rhinorrhea, conjunctivitis with sore throat
- Clinical, elimination of other causes
- Supportive
- No need to isolate
- Avoid sharing drinks, utensils, etc
Febrile Illnesses
Otitis Media

- Ear pain, sore throat, fever
- Clinical
- Antibiotic
- Not need to isolate
- If viral avoid close contact otherwise not required
Febrile Illnesses
Pneumonia

- Fever, fatigue, SOB, cough
- Chest Xray, Chest Xray, Chest Xray
  All pneumonia is walking pneumonia unless the patient is dead – no such thing – simply means that the symptoms do not interfere much with daily activity but still needs to be seen on xray
- Antibiotics, Antifungals, may not work if viral (25%)
- No need to isolate typical pneumonias
- Depend on the cause but good hygiene.
Febrile Illnesses
Meningitis

- Fever, shock, purpura, neck pain
- Gram Stain, Culture, Lumbar Puncture
- IV antibiotics
- No contact until treatment completed
- Avoid close contact, Immunization
Febrile Illnesses
Influenza vs Cold

- Fever, Aches, Chills, Headache, Cough, sudden onset
- Clinical, nasopharyngeal swab
- Supportive – if high risk then tamiflu
- Avoid contact when febrile
- Avoid close contact, good hand hygiene

- Sneezing, Stuffy nose, sore throat, gradual onset
- Clinical
- Supportive
- No isolation
- Avoid close contact, good hand hygiene
Nasal congestion, maxillary tooth pain, facial pain, fever, fatigue, ear pressure, headache. Typically viral – if over 10 days may be bacterial

Clinical – bacterial to be considered of high fever, lasting more than 10 days without improvement, biphasic pattern

Supportive if viral – antibiotics for bacterial

No isolation

Avoid close contact, good hand hygiene
Febrile Illnesses
Bronchitis

• Cough for 5 days, no symptoms of pneumonia (no fever, tachypnea, rales, negative chest xray)
• Clinical, Chest xray to rule out pneumonia
• Supportive – usually viral
• No isolation needed
• Avoid close contact, hand hygiene
Abdominal Illnesses
Shigella

• Diarrhea (often bloody), Abdominal pain, fever, vomiting
• Stool Culture
• Supportive and antibiotics base on susceptibility
• Isolate until diarrhea resolves
• Good hand hygiene, no sex for 2 weeks after diarrhea resolves because of continued shedding
Abdominal Illnesses
Giardia

- Watery diarrhea, cyclical fever, abdominal pain
- Stool antigen test
- Metronidazole
- Isolate until diarrhea subsides
- Good hand hygiene
Abdominal Illnesses
Cryptosporidium

- Watery diarrhea
- Stool examination
- Supportive treatment, For Severe cases Nitazoxanide
- Isolate for severe diarrhea
- Good hand hygiene
Abdominal Illnesses
Norovirus

- Abrupt onset of vomiting, watery diarrhea
- Clinical, RT-PCR
- Supportive
- Isolate until diarrhea resolves
- Good hand hygiene – no alcohol products, must use soap and water, must disinfect surfaces with bleach or other clinically tested products.
Abdominal Illnesses
Leptospirosis

• Fever, headaches, myalgia (can mimic flu), conjunctival suffusion
• Clinical, serology
• Antibiotics (Doxycycline or Azithromycin)
• No isolation
• Avoiding contaminated water, protect clothing
Abdominal Illnesses
Food Poisoning

- Vomiting, nausea, abdominal pain, diarrhea, fever
- Clinical
- Supportive care, sometimes antibiotics (usually avoided as it may prolong illness)
- Isolate for vomiting and diarrhea
- Good hand hygiene, proper storage and cooking of food
Other Illnesses
Conjunctivitis

- Eye discharge, watery eyes, nasal congestion, bacterial with pus not typical exudate/crust
- Clinical – bacteria is usually a purulent discharge throughout the day
- Viral – none, bacterial – eye drops or oral medication
- No daytime drainage if viral, bacterial needs to be on antibiotics for 24 hours and no drainage.
- Good hand hygiene
Other Illnesses
Myocarditis / Pericarditis

- Fatigue, chest pain, palpitations, arrhythmias, and unfortunately sudden cardiac death
- Excessive fatigue, chest pain, unexplained sinus tachycardia, new cardiomegaly, new S3, S4 or gallop on hear auscultation
- Treat symptoms such as heart failure, arrhythmias, usually requires initial hospitalization, other treatments depend upon cause
- No isolation needed
- Good hand hygiene
Sources

• Harris, Mark D. Infectious Diseases in Athletes, Current Sports Medicine Reports. 2011; 10 (2):84-89


Questions?