

APPENDIX C: Universal Precautions and Infectious Diseases

- ◆ Universal Precautions
- ◆ Selected Infectious Diseases

Universal Precautions for Handling Blood/Body Fluids in School

Authorization

Occupational Safety and Health Administration (OSHA) Final Bloodborne Pathogens Standard. The following guidelines are designed to protect persons who may be exposed to blood or body fluids of students or employees in a school. Please refer to the Occupational Safety and Health Administration (OSHA) Final Bloodborne Pathogens Standard for the most recent requirements.

Overview

Anticipating Potential Contact. Anticipating potential contact with infectious materials in routine and emergency situations is the most important step in preventing exposure to and transmission of infections. Use universal precautions and infection control techniques in all situations that may present the hazard of infection. Diligent and proper handwashing, the use of barriers (e.g., latex or vinyl gloves), appropriate disposal of waste products and needles, and proper care of spills are essential techniques of infection control.

Applying the Concept of Universal Precautions. When applying the concept of universal precautions to infection control, all blood and body fluids are treated as if they contain bloodborne pathogens, such as the human immunodeficiency virus (HIV) and hepatitis B virus (HBV). HIV and HBV can be found in:

- ◆ blood
- ◆ spinal fluid
- ◆ synovial fluid
- ◆ vaginal secretions
- ◆ semen
- ◆ pericardial fluid
- ◆ breast milk
- ◆ peritoneal fluid
- ◆ amniotic fluid
- ◆ pleural fluid

Hepatitis B Virus (HBV). HBV (not HIV) is also found in saliva and other body fluids such as urine, vomitus, nasal secretions, sputum, and feces. It is not possible to know whether these body fluids contain bloodborne pathogens therefore, **all body fluids should be considered potentially infectious.** Thus universal precautions should be observed by all students and staff when handling or coming into contact with any blood or body fluids.

Handwashing

Diligent and proper handwashing are essential components of infection control. Hands should be washed:

- ◆ Immediately before and after physical contact with a student (e.g., diaper changes, assisting with toileting, assisting with feeding).
- ◆ Immediately after contact with blood or body fluids or garments or objects soiled with body fluids or blood.
- ◆ After contact with used equipment (e.g., stethoscope, emesis basin, gloves).
- ◆ After removing protective equipment, such as gloves or clothing.

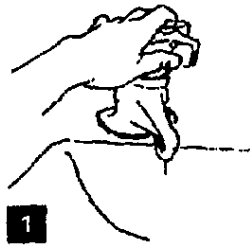
Procedure.

1. Remove jewelry and store in a safe place prior to initial handwashing (replace jewelry after final handwashing).
2. Wash hands vigorously with soap under a stream of running water for approximately 10 seconds.
3. Rinse hands well with running water, and thoroughly dry with paper towels.
4. If soap and water are unavailable, bacteriostatic/bactericidal wet towelettes, “handi-wipes,” or instant hand cleaner may be used.

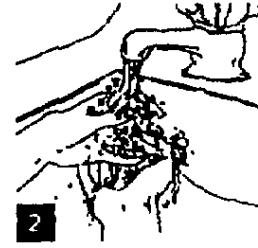
Please see detailed instructions in Figure 5., Eight Steps to Proper Handwashing, for detailed handwashing instructions.

Figure 5. Eight Steps to Proper Handwashing ¹³³

¹³³ From *Resource Manual for the Prevention of HIB/HBV Viruses* by Maryland State Department of Education, 1991.



1 Open faucet



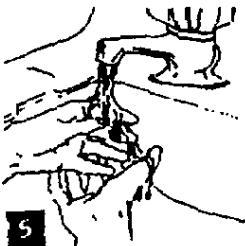
2 Wet hands thoroughly



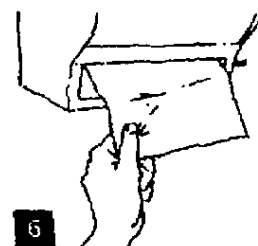
3 Apply soap



4 Rub vigorously
10 seconds or more



5 Rinse thoroughly



6 Dry hands with
disposable towel



7 Use towel to turn off faucet

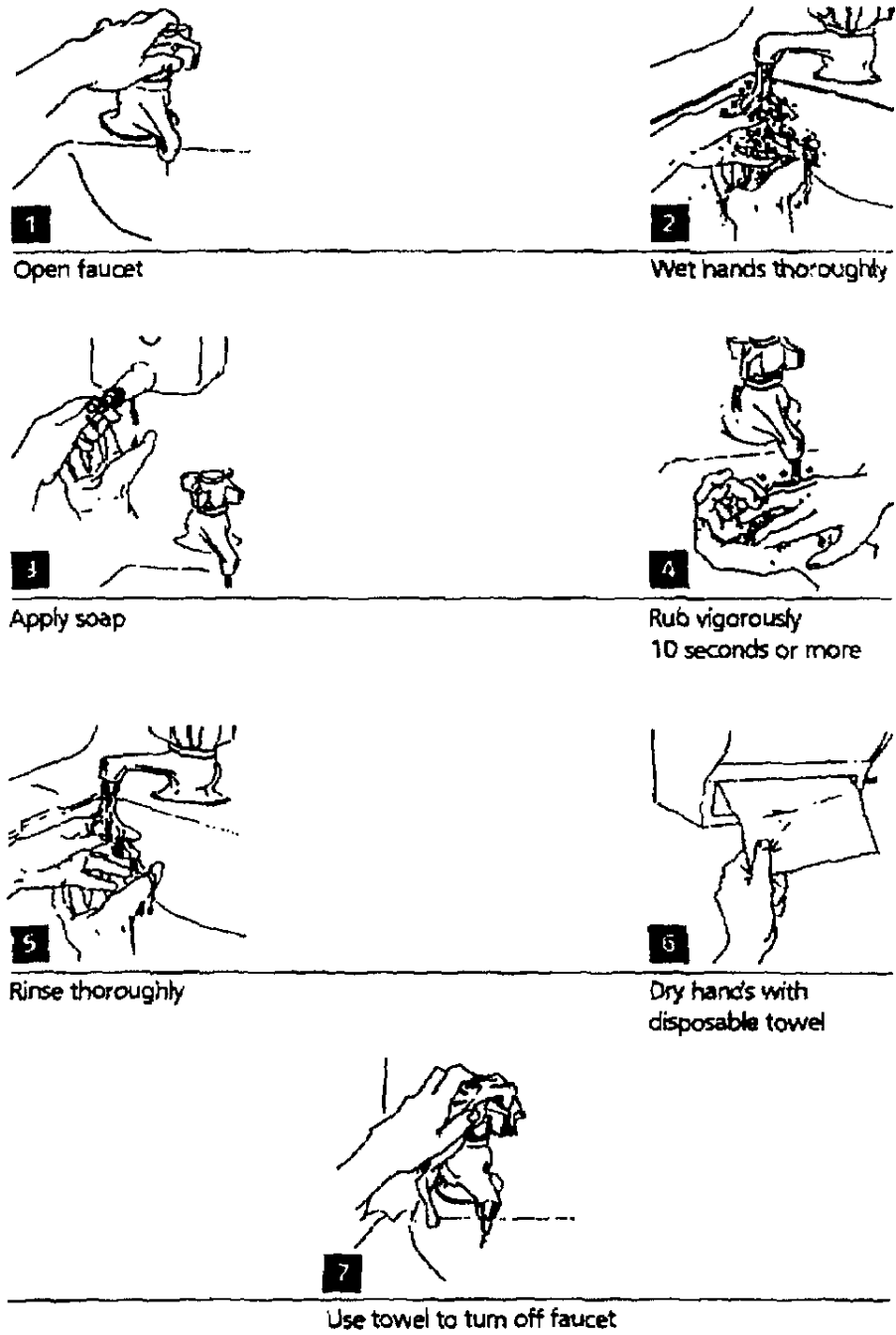
Ways to Avoid Contact with Body Fluids

Gloves. When possible, avoid direct skin contact with body fluids. Disposable single use, waterproof, latex, or vinyl gloves should be available in school clinics. Vinyl gloves should be used with students who have a latex allergy or a high potential for developing a latex allergy, such as students with spina bifida. The use of gloves is intended to reduce the risk of contact with blood and body fluids

for the caregiver as well as to control the spread of infectious agents from student to employee, employee to student, or employee to employee.

Gloves should be worn when direct care may involve contact with any type of body fluids. Incidents when gloves should be worn include (but are not limited to): caring for nose bleeds, changing a bandage or sanitary napkins, cleaning up spills or garments soiled with body fluids, disposing of supplies soiled with blood, or any procedure where blood is visible. Gloves should also be worn when changing a diaper, catheterizing a student, or providing mouth, nose or tracheal care.

Do Not Reuse Gloves. After each use, gloves should be removed without touching the outside of the glove and disposed of in a lined waste container. After removing the gloves, the hands should be washed according to the handwashing procedure. (See Figure 6., Proper Removal of Gloves.)

Figure 6. Proper Removal of Gloves ¹³⁴

¹³⁴ From *Resource Manual for the Prevention of HIB/HBV Viruses* by Maryland State Department of Education, 1991.

Protective Clothing. If spattering of body fluids is anticipated, the clothing of the caregiver should be protected with an apron or gown and the face protected with a face mask and eye goggles or face shield. The apron or gown should be laundered or disposed of after it is used and should not be used again until it is clean. The goggles and mask should be disposed of properly.

Shield for Rescue Breathing. If it is necessary to perform Rescue Breathing, a one-way mask or other infection control barrier should be used. However, Rescue Breathing should not be delayed while such a device is located.

Disposal of Infectious Waste

Contaminated Supplies. All used or contaminated supplies (e.g., gloves and other barriers, sanitary napkins, Band-Aids), except syringes, needles, and other sharp implements, should be placed into a plastic bag and sealed. This bag can be thrown into the garbage, out of reach of children or animals.

Used Needles, Syringes, And Other Sharp Objects. Make arrangements to dispose of used needles, syringes, and other sharp objects at a local medical facility or health department. Needles, syringes, and other sharp objects should be placed **immediately after use** in a metal or other puncture-proof container that is leak proof on the bottom and sides. To reduce the risk of a cut or accidental puncture by a needle, NEEDLES SHOULD NOT BE RECAPPED, BENT, OR REMOVED FROM THE SYRINGE BEFORE DISPOSAL. Once it is full, the container should be sealed, bagged, and kept out of the reach of children until it can be disposed of properly.

Body Waste. Body waste (e.g., urine, vomitus, and feces) should be disposed of in the toilet. If such body fluids as urine and vomitus are spilled, the body fluids should be covered with an absorbent sanitary material, gently swept up, and discarded in plastic bags.

Clean-Up

Spills of blood and body fluids should be cleaned up immediately with an approved disinfectant cleaner.

Procedure.

1. Wear gloves. (See “Ways to Avoid Contact with Body Fluids” on previous page.)
2. Mop up spill with absorbent material.

3. Wash the area well, using the disinfectant cleaner supplied in the clinics or a 1:10 bleach solution (mix 1 part household bleach, sodium hypochlorite, in ten parts of water). Replace solution daily.
4. Dispose of gloves, soiled towels, and other waste in sealed plastic bags and place in garbage, as already indicated.
5. WASH HANDS.

Routine Environmental Clean-Up Facilities. Routine environmental clean-up facilities (e.g., clinic and bathrooms) do not require modification unless contaminated with blood or body fluids. If so, the area should be decontaminated using the procedure outlined. Regular cleaning of non-contaminated surfaces, such as toilet seats and table tops, can be done with the standard cleaning solutions or the 1:10 bleach solution described above. Regular cleaning of obvious soil is more effective than extraordinary attempts to disinfect or sterilize surfaces.

Cleaning Tools. Rooms and dustpans must be rinsed in disinfectant. Mops must be soaked in disinfectant, washed, and thoroughly rinsed. The disinfectant solution should be disposed of promptly down the drain.

Laundry. Whenever possible, disposable barriers (e.g., disposable gloves and gowns) should be used if contamination with blood or body fluids is possible. If sheets, towels, or clothing become soiled, they should not be handled more than necessary. Wash contaminated items with hot water and detergent for at least 25 minutes. Presoaking may be required for heavily soiled clothing. The most important factor in laundering clothing contaminated in the school setting is elimination of potentially infectious agents by soap and hot water.

Soiled student clothing should be rinsed using gloves, placed in a plastic bag, and sent home with appropriate washing instructions for the parents.

Accidental Exposure

Accidental exposure to blood, body products, or body fluids places the exposed individual at risk of infection. The risk varies depending on the type of body fluid (e.g., blood vs. respiratory vs. feces), the type of infection (e.g., salmonellae vs. haemophilus influenzae virus vs. HIV), and the integrity of the skin that is contaminated.

Procedure.

- 1) Always wash the contaminated area **immediately** with soap and water.

- 2) If the mucous membranes (i.e., eye or mouth) are contaminated by a splash of potentially infectious material or contamination of broken skin occurs, irrigate or wash area thoroughly.
- 3) If a cut or needle injury occurs, wash the skin thoroughly with soap and water.

In instances where broken skin or mucous membranes, or a needle puncture occur, the caregiver should document the incident. The student's parent or guardian should also be notified. The person who was exposed to the infection should contact his/her health care provider for further care as outlined in the recommendations by the Centers for Disease Control and Prevention (CDC).

Pregnant Women

Pregnant women are at no higher risk for infection than other caregivers, as long as appropriate precautions are observed. There is, however, the possibility of in utero transmission of viral infections, such as cytomegalovirus (CMV), HIV, or HBV to unborn children.

Guidelines for Exposure Policy Development

As of 1992, all school divisions, should have an exposure policy as mandated in the Virginia Department of Labor and Industry's *Occupational Exposure to Bloodborne Pathogens; Final Rule (1992)*. For assistance concerning an exposure policy, contact the Virginia Department of Labor and Industry's Regional Office.

Department of Labor and Industry
Powers-Taylor Building
13 South Thirteenth Street
Richmond, VA 23219
Telephone: (804) 371-2327
Fax: (804) 371-2324
TDD: (804) 786-2376
E-mail: jap@doli.state.va.us

Resources

Virginia Department of Health and Virginia Department of Education. (1992). Universal Precautions for Handling Blood Body Fluids in School. In *Virginia School Health Guidelines* (pp. 195-202).

Bradley, B. (1994). *Occupational Exposure to Bloodborne Pathogens, Implementing OSHA Standards in the School Setting*. Scarborough, Maine: National Association of School Nurses, Inc.

Selected Infectious Diseases

The diseases described in the following sections are arranged alphabetically.

- ◆ Campylobacteriosis
- ◆ Chicken Pox and Shingles (Varicella Zoster)
- ◆ Cold
- ◆ Conjunctivitis (Pink Eye)
- ◆ Cytomegalovirus (CMV) Infection
- ◆ Diphtheria
- ◆ Fifth Disease (Erythema Infectiosum)
- ◆ Giardiasis
- ◆ Group A Streptococcal Infections (Strep Throat, Scarlet Fever)
- ◆ Haemophilus Influenzae Type B (Hib), Invasive
- ◆ Hand, Foot, and Mouth Disease (Coxsackievirus)
- ◆ Hepatitis A
- ◆ Hepatitis B
- ◆ Hepatitis C
- ◆ Hepatitis E
- ◆ Herpes Simplex Infection
- ◆ HIV Infection and AIDS
- ◆ Impetigo
- ◆ Influenza
- ◆ Lyme Disease
- ◆ Measles
- ◆ Meningococcal Illness
- ◆ Mononucleosis, Infectious
- ◆ Mumps
- ◆ Otitis
- ◆ Pediculosis (Head Lice)
- ◆ Pertussis (Whooping Cough)
- ◆ Pinworm Infection
- ◆ Polio
- ◆ Rabies
- ◆ Rocky Mountain Spotted Fever
- ◆ Roseola
- ◆ Rotavirus
- ◆ Rubella
- ◆ Salmonellosis
- ◆ Scabies
- ◆ Sexually Transmitted Diseases
- ◆ Shigellosis
- ◆ Sports-Related Infectious Diseases
- ◆ Tetanus
- ◆ Tinea (Ringworm)
- ◆ Tuberculosis (TB)

Each subsection contains the following information pertaining to each disease.

- ◆ A brief description of the disease and those susceptible to the disease.
- ◆ Transmission.
- ◆ Diagnosis.
- ◆ Treatment.
- ◆ School Exclusion Recommendations (including communicability, case, and contacts).
- ◆ Reporting Requirements.
- ◆ Notification Guidelines.
- ◆ Prevention Guidelines.

Resources

◆ *Additional Information and Consultation*

*Virginia Department of Health
Office of Epidemiology
P.O. Box 2448
Richmond, VA 23218
Telephone: (804) 786-6261
<http://www.vdh.state.va.us>*

Local Health Department

◆ *List of Reportable Diseases*

Please see Appendix A “Reportable Diseases in Virginia” for the list of named diseases, toxic effects, and conditions to be reported.

◆ *Persons Required to Report*

Please see Appendix A “Reportable Diseases in Virginia” for a summary of persons who are required to report named diseases, toxic effects, and conditions.

◆ *Virginia Regulations*

Regulations for Disease Reporting and Control
*Commonwealth of Virginia
State Board of Health
January 1999
To order, call (804) 786-6261.*

◆ *Wall Chart*

Communicable Disease Reference Chart for School Personnel
*Virginia Department of Health
Office of Epidemiology
To order, call (804) 786-6261.*

◆ *Reference Book*

A more complete discussion of infectious diseases, toxic effects, and conditions may be found in Control of Communicable Disease Manual (1995) published by the American Public Health Association. To order, call (301) 893-0159.

Campylobacteriosis

Campylobacteriosis is an intestinal bacterial disease caused by *Campylobacter*. Symptoms include diarrhea with fever, stomach cramps, and vomiting in adults and children. The diarrhea may be severe and bloody. Usually, symptoms disappear without treatment in 1 to 7 days, but there may still be bacteria in the stool of infected individuals for several weeks. If treatment is not received,

convulsions develop in some young children in association with high fever (febrile seizure). *Campylobacter* is the most common bacterial cause of diarrheal illness in the United States.

Transmission

Bacteria that cause campylobacteriosis are transmitted by ingestion of the organisms in undercooked chicken and pork, contaminated food, water, or raw milk; from contact with infected pets (especially puppies and kittens) or infected farm animals or infected infants. Contamination of milk most frequently occurs from fecal-carrier cattle; people and food can be contaminated from poultry, especially from cutting boards. Outbreaks of campylobacteriosis diarrhea in school children have occurred after field trips to dairy farms during which students drank unpasteurized milk. Infected children may transmit infection to puppies or kittens, which may then expose other children. The incubation period is usually 2 to 5 days, with a range of 12 to 10 days, depending on dose ingested.

School Exclusion Guidelines

Communicable: Campylobacteriosis is transmissible as long as the bacteria are excreted in the stool of infected persons. Individuals not treated with antibiotics excrete organisms for as long as 2 to 7 weeks.

Case: Exclude from school until cessation of acute diarrhea. Stress importance of proper handwashing. Infected food handlers who are asymptomatic do not pose a risk for disease transmission and do not need to be excluded from work if proper hygiene measures are maintained.

Contacts: School exclusion and stool cultures are not indicated in the absence of symptoms. Consult local health department for suspected outbreaks.

Diagnosis

A stool culture must be performed to confirm a case of campylobacteriosis.

Treatment

Persons infected with *Campylobacter* will usually recover on their own. An antibiotic (e.g., erythromycin) can be given early on and shortens the duration of the illness and prevents relapse. Treatment with erythromycin usually eradicates the organism from the stool within 2 to 3 days.

Reporting Requirements

Campylobacter infection must be reported to the local health department within seven days of diagnosis.

Notification Guidelines

When campylobacteriosis occurs within the school population, school health personnel (e.g., school nurses or consulting physician), in consultation with school administrators and the local health department, should determine whether some or all parents should be notified.

Prevention Guidelines

1. Develop a policy, in consultation with local health department, for responding to cases of communicable diseases.
2. Refer to “Prevention Guidelines for Diseases Spread Through the Intestinal Tract” in Chapter III.
3. Family and household members in contact with a person with campylobacter diarrhea should be made aware of their possible exposure to the bacteria, especially if the individuals are involved in food preparation and handling.

Chickenpox (Varicella-Zoster)

Chickenpox (primary varicella) is an acute generalized disease caused by varicella-zoster virus, a member of the herpes virus group. The illness is characterized by a generalized, itchy, blister-like rash, with mild fever and fatigue. The rash appears as red bumps, which quickly become blistered, ooze and then crust over. New spots continue to appear for about three to four days. The spots will dry up and scab over before falling off. The disease is usually more serious in adults than in children.

A variety of complications can occur with chickenpox. These include infections ranging from impetigo to severe skin infections with toxic shock syndrome. Secondary pneumonia can occur. Less common complications can involve the blood, joints, brain, and kidney. Reyes Syndrome can follow chickenpox. Severe chickenpox can occur in newborn babies whose mothers develop chickenpox within five days before and two days after birth. Persons with weakened immune systems or who are taking drugs that suppress their immune systems are at increased risk of developing a severe form of chickenpox.

Once a person has been infected with the varicella-zoster virus and gets chickenpox, the virus remains (without symptoms) in the body's nerve cells. In some people, the virus reactivates later and is called shingles or zoster. With shingles, a red, often painful or itchy, blistering rash appears, usually in a line along one side of the body. There is no fever. The virus shed in the blisters of the rash can cause chickenpox in a person who has not had it, if that person had direct contact with the infected shingles blisters.

Transmission

Chickenpox is transmitted from person to person by direct contact, droplet, or airborne spread of vesicle fluid or secretions of the respiratory tract of chicken pox cases. Chickenpox is also transmitted by handling articles that are freshly soiled by the infected person's chickenpox lesions. The incubation period is from 2 to 3 weeks, usually 13 to 17 days; may be prolonged after passive immunization against varicella and in the immunodeficient.

School Exclusion Guidelines

Communicable: A person is communicable for as long as 5 days (usually 1 to 2 days) before an eruption of vesicles and for not more than 5 days after the appearance of the first crop of vesicles.

Case: Exclude from school for at least 5 days after eruptions first appear or until vesicles become dry. Avoid exposure of women in early pregnancy who have not had chickenpox and/or varicella vaccine. Students and staff with *shingles* carry the virus that causes chickenpox and could cause an outbreak. Therefore, unless the

shingles rash can be completely covered, it is advisable that individuals with shingles remain out of school until the rash is crusted over and dry.

Contacts: On appearance of symptoms, exclude from school.

Diagnosis

Chickenpox can be presumptively diagnosed by the signs and symptoms. The virus can be isolated from a blister-like lesion during the first three to four days of the eruption for microscopic evaluation.

Treatment

Individuals with chickenpox and shingles should discuss treatment options with their health care provider.

Reporting Requirements

Chickenpox must be reported to the local health department within seven days of diagnosis.

Notification Guidelines

When a case of chickenpox (varicella) occurs in the school population, school health personnel (e.g., school nurses or consulting physician), in consultation with school administrators and the local health department, should determine whether some or all parents should be notified.

Prevention Guidelines

1. Develop a policy, in consultation with local health department, for responding to cases of communicable diseases.
2. Make sure all students and staff exhibiting symptoms associated with the illness are excluded from school based on guidelines described earlier.
3. Identify high risk individuals (e.g., pregnant women, immunocompromised individuals) and refer them to their health care provider immediately.
4. Watch closely for early symptoms in others for 3 weeks following the most recent case.

5. Advise parents and staff of the availability of varicella vaccine. Suggest they discuss the appropriateness of receiving this vaccine with their health care provider.

Colds (Acute Viral Rhinitis)

The common cold is a mild viral infection of the upper respiratory tract (nose and throat) caused by many different viruses. Rhinovirus infection is the most frequent cause of the common cold. (Rhinoviruses may also be involved in bronchitis, sinusitis, otitis media, and lower respiratory tract disease in children.) Cold symptoms include stuffy or runny nose, sore throat, coughing, sneezing, watery eyes, fluid in the ears, and general fatigue. (Note: Fever associated with colds is uncommon in children over 3 years old and rare in adults.)

Transmission

The viruses that cause the common cold are transmitted presumably by direct person-to-person contact or by inhalation of airborne droplet. More importantly, the viruses are transmitted indirectly by hands and articles freshly soiled by discharges of the nose and throat of an infected person. Rhinovirus and probably other similar viruses are transmitted by contaminated hands carrying viruses to the mucous membranes of the eye or nose. The virus concentration in respiratory secretions is usually highest up to 7 to 10 days before a person develops symptoms of illness. Viruses continue to be present in respiratory secretions for 2 to 3 days after symptoms begin. Students and staff have already spread viruses before they begin to feel ill.

Diagnosis

Diagnosis is generally presumptive based on symptoms. Laboratory tests are available but are expensive and generally not indicated.

Treatment

Treatment is aimed at relieving the symptoms. There is no medication to cure viral illnesses. Health care providers generally suggest rest and plenty of fluids. If a cold persists for greater than 10 to 14 days and is accompanied by high fever, persistent cough, and/or complaint of ear pain, the individual may have a secondary bacterial infection and should be advised to see their health care provider to determine if additional treatment is required. Parents should be advised that aspirin or products containing salicylate should **never** be administered to children for fever control in viral infections because of the rare association with Reyes Syndrome, a serious illness.

School Exclusion Guidelines

Communicable. The period of communicability varies, but correlates with the shedding of virus in the nose and mouth secretions, which is about 7 to 10 days (as long as 3 weeks).

Case. School exclusion is not indicated as long as a student or staff member feels well enough to attend school.

Contact. School exclusion is not indicated.

Reporting Requirements

The common cold is not a reportable disease.

Prevention Guidelines

1. Develop a policy, in consultation with local health department, for responding to cases of communicable diseases.
2. Hand washing and cleanliness are essential to stop the spread of all respiratory tract diseases.
3. Refer to “Prevention Guidelines for Disease Spread Through the Respiratory Tract” in Chapter III.

Conjunctivitis (Pink-Eye)

Conjunctivitis (or pink-eye) is an inflammation of the mucous membranes that line the eyelids, most often caused by a virus but occasionally caused by bacteria or allergies. With this inflammation, the white part of the eye becomes pink and the eye produces lots of tears and discharge. In the morning, discharge may make the eyelids stick together.

Transmission

Organisms that cause conjunctivitis are transmitted by direct contact with discharge from the conjunctivae (mucous membranes that line the eyes) or upper respiratory tracts of infected people. The organisms are also transmitted from contaminated fingers, clothing, or other articles (e.g., shared eye makeup, washcloths, towels, or paper towels). Children under 5 are most often affected. The organisms may be mechanically transmitted by eye gnats or flies in some areas. The incubation period is usually 24 to 72 hours.

School Exclusion Guidelines

Communicable: Conjunctivitis is transmissible during the course of active infection.

Case: Exclude from school while symptomatic or until 24 hours of antibiotic treatment has been completed.

Contacts: School exclusion is not indicated.

Diagnosis

Conjunctivitis is diagnosed by the typical appearance of the eye(s). However, it is often difficult to tell if the cause is bacterial or viral. Occasionally, the doctor will examine the discharge under a microscope or culture it.

Treatment

Parents of students who have symptoms of conjunctivitis and staff who have symptoms of conjunctivitis should be advised to contact their health care provider to decide whether medication is needed.

Reporting Requirements

Conjunctivitis is not a reportable disease.

Notification Guidelines

When conjunctivitis occurs within the school population, school health personnel (e.g., school nurses or consulting physician), in consultation with school administrators and the local health department, should determine whether some or all parents should be notified.

Prevention Guidelines

1. Develop a policy, in consultation with local health department, for responding to cases of communicable diseases.
2. Have affected individuals keep their eyes wiped free of discharge.
3. Teach everyone to wash their hands after wiping their eyes.
4. Be sure articles that may touch the students' eyes (e.g., prisms, binoculars, pieces of microscope, cameras) are cleaned appropriately. Consideration should be given to avoiding the use of such instruments during an outbreak.

Cytomegalovirus (CMV) Infection

While infection with cytomegalovirus (CMV) is very common, it rarely produces symptoms in children. When the manifestations of CMV infection do occur, they vary with the age and immunocompetence of the host. Occasionally, children or adults with CMV will experience infectious mononucleosis-like syndrome with prolonged fever, mild hepatitis, swollen glands, and fatigue.

Although unrecognized exposure to individuals asymptotically shedding CMV virus is likely to be frequent, concern arises when immunocompromised or pregnant women (especially in the first trimester) are exposed to children with clinically recognizable CMV infection. The fetus of the pregnant woman may become infected, and in rare cases, the fetus may suffer mental retardation, hearing loss, vision disturbances, or other serious problems.

Immunocompromised children and adults, such as those with human immunodeficiency virus (HIV) or those being treated with immunosuppressive drugs, infected with CMV virus may experience pneumonia (inflammation of the lungs) and retinitis (inflammation of the retina in the eye).

Transmission

Infection in humans is caused almost entirely by human CMV. Human CMV is everywhere and transmitted by direct person-to-person contact with virus-containing secretions and from mother to infant before or after birth. Young children can transmit CMV to their parents and other caregivers. In adolescents and adults, sexual transmission also occurs. Spread of the virus requires direct contact with infected fluids (saliva, urine, seminal and cervical fluids) that are then transferred to a mucous surface (inside the mouth, genital tract, or lining of the eye) or into the bloodstream through a break in the skin, needle stick, or blood transfusion. Spreading among children can occur by sharing mouthed objects that have infected saliva on them. The incubation period following a transplant or transfusion with infected blood begins within 3 to 8 weeks. Infection acquired during birth is first demonstrated 3 to 12 weeks after delivery.

School Exclusion Guidelines

Communicable: Transmission is person-to-person by direct contact with infected body fluids. The virus can survive several hours on surfaces outside the body.

Case: School exclusion is not indicated.

Contact: Pregnant personnel and immunocompromised staff and students who may be in contact with CMV infected persons should be urged to contact their health care providers for counseling about the potential risks of acquisition.

Diagnosis

Most individuals with CMV infection are not diagnosed because they show no symptoms. Diagnosis of CMV virus can be made from culture of infected fluids or blood tests.

Treatment

Since infection is largely asymptomatic, no treatment is offered. There is a special treatment offered for symptomatic immunocompromised patients.

Reporting Requirements

CMV infection is not a reportable disease.

Notification Guidelines

Notify pregnant personnel and immunocompromised staff and students who may be in contact with CMV infected persons so they can contact their health care providers for counseling about the potential risks of acquisition.

Prevention Guidelines

1. Develop a policy, in consultation with local health department, for responding to cases of communicable diseases.
2. Refer to “Prevention Guidelines for Diseases Spread Through the Respiratory Tract” in Chapter III.
3. Make sure that everyone (especially women trying to become pregnant, pregnant women, and immunocompromised persons) use universal precautions. (See previous section on “Universal Precautions.”) If any individuals have contact with urine, saliva, stool, or blood and are not wearing gloves, they should wash their hands immediately.

4. All women who work with young children with special health care needs and who might become pregnant should be referred to their health care provider or the health department for information as to the risk of infection with CMV in that setting.

Diphtheria

Diphtheria is a rare, very serious bacterial disease, caused by *Corynebacterium diphtheriae*, involving primarily the nose and throat. Occasionally, other mucous membranes, skin, conjunctivae, or genitalia may be involved. Diphtheria causes a sore throat, swollen tonsils, with a characteristic patch or patches of an adherent grayish covering and swollen neck glands. It can lead to severe throat obstruction that can block breathing. The bacteria also produce a toxin (a type of poisonous substance) that can cause severe and permanent damage to the nervous system and heart.

Transmission

The bacteria that cause diphtheria are transmitted by contact with a patient or carrier. More rarely, the organism is transmitted by contact with articles soiled with discharges from lesions of infected people. Raw milk has served as a transmission vehicle. The incubation period is usually 2 to 5 days, occasionally longer.

School Exclusion Guidelines

Communicable: Communicability in untreated persons usually lasts for 2 weeks or less, and seldom more than 4 weeks. The rare chronic carrier may shed organisms for 6 months or more. Effective antibiotic therapy promptly terminates shedding.

Case: Exclusion from school is mandatory until documentation of two cultures—taken not less than 24 hours apart and not less than 24 hours after completion of antimicrobial therapy—fail to show presence of disease. If cultures are not possible, isolation may be ended after 14 days of appropriate antibiotic treatment.

Contacts: All close contacts (usually household members) irrespective of their immunization status should be:

1. Kept under surveillance for 7 days for evidence of disease.
2. Cultured and treated with a course of antibiotic from their health care provider. Immunization with DTaP, DT, or Td may be appropriate depending on the immunization status of the contact. (Please consult with the local health department or the patient's health care provider.)

Diagnosis

Diagnosis is made from cultures of the nose, throat, and any lesions.

Treatment

Diphtheria is treated primarily with an antitoxin, along with antibiotics. Antibiotics are given to the carriers of the diphtheria bacteria.

Reporting Requirements

Reporting of a person confirmed or suspected of having diphtheria must be made within 24 hours by the most rapid means available, preferable that of telecommunication, to the local health director or other professional employee of the local health department.

Notification Guidelines

When diphtheria occurs within the school population, school health personnel (e.g., school nurses or consulting physician), in consultation with school administrators and the local health department, should determine whether some or all parents should be notified.

Prevention Guidelines

1. Assure immunization compliance as required by the *Code of Virginia*, § 22.1-271.1, § 22.1-271.2, and § 32.1-46. Refer to “Immunization Requirements” in Chapter III.
2. Booster doses of diphtheria toxoid, every 10 years after finishing the childhood primary immunization series, are needed to maintain protection.
3. Develop a policy, in consultation with local health department, for responding to cases of communicable diseases.
4. Make sure all staff and students exhibiting symptoms associated with the illness consult a health care provider and the local health department is notified if another person develops diphtheria.

Fifth Disease (Erythema Infectiosum)

Fifth disease (erythema infectiosum) is a mild viral disease caused by human parvovirus B19. It is called “fifth disease” because it was the fifth of six similar rash-causing illnesses. The illness may begin with mild systemic symptoms (low grade fever in 15 to 30 percent of people), followed by a few days without symptoms. The next stage is the appearance of a bright red rash on the cheeks that gives a “slapped cheek” appearance, which fades and recurs. This may be followed by a “lacy” rash on the trunk, arms and legs. The rash last 3 to 7 days but may reappear over 1 to 3 weeks in response to environmental changes (e.g., sunlight, temperature, and stress).

Arthralgia (joint pain) and arthritis (inflammation of a joint) is rare in children but common in adults. The disease is usually mild with children and adults recovering without problems. People with blood disorders, such as sickle cell anemia, and other hemoglobinopathies and those with weakened immune systems may develop more severe symptoms. Women who develop fifth disease during pregnancy may pass the infection to their unborn fetus, causing miscarriages and stillbirths.

Transmission

The virus that causes fifth disease is thought to be transmitted primarily through contact with infected respiratory secretions; also from mother to fetus, and rarely by transfusion of blood products. Outbreaks frequently occur in elementary and middle schools in spring months. Secondary spread among susceptible household members—adults or children—is common, occurring in about 50 percent of contacts. The incubation period is variable; 4 to 20 days to development of rash or symptoms of aplastic crisis.

School Exclusion Guidelines

Communicable: This illness is most transmissible before the onset of symptoms. After the appearance of the rash and other symptoms the individual is unlikely to be infectious. However, people with blood disorders and immunosuppressive illnesses who are ill with fifth disease may be infectious for a longer period of time.

Case: Exclusion from school is not indicated.

Contacts: Exclusion from school is not indicated. Note: Exposed pregnant women and immunosuppressed persons should seek medical advice.

Diagnosis

The diagnosis in children can be presumptively based on symptoms and skin findings. For those at high risk, a laboratory test can detect newly formed antibodies to the parvovirus B19, documenting current or recent disease.

Treatment

There is no specific treatment for fifth disease; care is supportive.

Reporting Requirements

Fifth disease is not a reportable disease.

Notification Guidelines

When fifth disease occurs within the school population, school health personnel (e.g., school nurses or consulting physician), in consultation with school administrators and the local health department, should determine whether some or all parents should be notified.

Prevention Guidelines

1. Develop a policy, in consultation with local health department, for responding to cases of communicable diseases.
2. Careful hand washing, especially after handling discharge from the nose and throat and before eating or handling food, is the most effective deterrent to spreading this illness.

Special Note for Pregnant Women. Although still being studied, fifth disease is not known to cause birth defects. Miscarriages and stillbirths have been reported, rarely, in women who developed fifth disease during pregnancy. Recent evidence suggests that the risk of adverse effect during pregnancy is extremely low. However, women who develop fifth disease during pregnancy should be followed closely by their obstetrician.

The decision to try to decrease any person's risk of infection by not attending a school environment where there is an outbreak should be made by the person after discussion with family members, health care providers, public health officials, and employers. A policy to routinely exclude members of high risk groups is not recommended.

Giardiasis

Giardiasis is a parasitic infection principally of the upper small intestine caused by *Giardia lamblia*. It is a fairly common cause of diarrheal illness. Infections with *giardia* may vary from no symptoms to mild, severe, or chronic diarrhea accompanied by cramping and bloating of the abdomen, pale and foul smelling stools, weight loss, and fatigue.

Transmission

The parasite that causes giardiasis is transmitted person to person by hand-to-mouth transfer of the organism from the feces of an infected individual (usually due to poor handwashing practices), especially in institutions and day-care centers; this is the principal mode of spread. Localized outbreaks may occur from ingestion of the organism in fecally contaminated water and less often from fecally contaminated food. The incubation period is usually 3 to 25 days or longer; median 7 to 10 days.

School Exclusion Guidelines

Communicable: Transmission occurs as long as the infected person excretes the *giardia* in the feces, often months.

Case: Exclude from school until cessation of acute diarrhea. Stress importance of proper handwashing.

Contacts: School exclusion and stool cultures are not indicated in the absence of symptoms. Contact local health department for advice during suspected school outbreaks.

Diagnosis

Giardiasis diagnosis can be difficult and more than one stool specimen may be needed. Special stool testing as well as stool microscopy are employed.

Treatment

Individuals with giardiasis who are ill and/or have diarrhea should receive medication prescribed by their health care provider. Infected individuals who do not have symptoms are not routinely treated. Many people recover on their own. Treatment of asymptomatic carriers is not recommended except possibly for

prevention of household transmission by toddlers to pregnant women and in patients with hypogamma-globulinemia or cystic fibrosis.

Reporting Requirements

Giardiasis must be reported to the local health department within seven days of diagnosis.

Notification Guidelines

When giardiasis occurs within the school population, school health personnel (e.g., school nurses or consulting physician), in consultation with school administrators and the local health department, should determine whether some or all parents should be notified.

Prevention Guidelines

1. Develop a policy, in consultation with local health department, for responding to cases of communicable diseases.
2. Refer to “Prevention Guidelines for Diseases Spread Through the Intestinal Tract” in Chapter III.

Group A Streptococcal Infections (*Streptococcus Pyogenes*)

Group A *Streptococci* (GAS) are bacteria commonly found in the throat and on the skin. GAS can be present in the throat or on the skin and cause no symptoms of disease, but the organisms may also cause diseases that range from mild to severe and even life threatening. Invasive GAS infections occur when the bacteria get past the defenses of the person who is infected. A brief description of four invasive GAS diseases—impetigo, streptococcal throat, scarlet fever, and rheumatic fever—are presented below.

Impetigo. Streptococcal skin infection is a common skin infection. (See Impetigo.)

Strep Throat. Streptococcal sore throat is typically characterized by sudden onset, fever, sore, beefy red throat, and tender and swollen lymph nodes (called glands by some people). In school-age children, strep throat may be accompanied by headache, nausea, abdominal pain, and vomiting. Rheumatic fever can result when strep throat is untreated or incompletely treated.

Scarlet Fever. Scarlet fever is a form of streptococcal disease characterized by a skin rash. Clinical characteristics may include all those symptoms associated with strep throat. The rash appears 12 to 48 hours after the onset of fever. The rash begins in areas of warmth and pressure (neck, chest, groin, inner surfaces of the knees, thighs, and/or elbows), spreads rapidly to involve the entire body below the chin, and reaches its maximum in 1 to 2 days. The rash usually consists of fine red bumps with sandpaper-like texture, and fades with pressure. The rash is followed, at the beginning of the second week, by a peeling of the skin, beginning at the fingertips. The tongue appears coated at first, peeling and then beefy red.

Rheumatic Fever. Rheumatic fever may occur as a complication following infection with Group A *streptococci*. Rheumatic fever is the most common cause of symptomatic, acquired childhood heart disease (abnormalities of the heart valves and inflammation of the joints), caused by untreated Group A Beta Hemolytic Strep. Specific guidelines (Jones Criteria) have been developed for the diagnosis of this illness.

Transmission

Group A *streptococci* are transmitted person-to-person by direct contact with microscopic respiratory secretions, rarely by indirect contact through hands or objects. Nasal carriers are particularly likely to transmit disease. Casual contact rarely leads to infection. If untreated, uncomplicated cases are transmittable for 10 to 21 days; in untreated cases with runny noses, cough or other respiratory symptoms with discharge, the illness is transmittable for weeks to months. With appropriate treatment the individual is no longer infectious after 24 hours of antibiotic therapy.

Strep throat can occur at any age, but is most common among school-age children, occurring during the colder months and in crowded situations. If one person in a family develops strep throat, other family members may develop it.

School Exclusion Guidelines

Communicable: Untreated strep infections can be transmissible for weeks to months.

Case: Exclude from school until 24 hours of antibiotic treatment has been completed.

Contacts: Exclusion from school is not indicated. Observe carefully for symptoms.

Diagnosis

Throat cultures are used to diagnose strep infections. Rapid strep tests that test for the presence of the strep germ are available. The rapid tests are reliable when positive (a throat culture is not needed). A throat culture should be done when the rapid strep test is negative since the sensitivity of the rapid test is low.

Treatment

Strep infections are treated with oral antibiotics. A student should be expected to show improvement within 48 hours of antibiotics and is no longer contagious after 24 hours of antibiotic therapy if the student does not have a fever.

Reporting Requirements

Group A streptococcal infections are not reportable diseases.

Notification Requirements

When strep infections occur within the school population, school health personnel (e.g., school nurses or consulting physician), in consultation with school administrators and the local health department, should determine whether some or all parents should be notified.

Prevention Guidelines

1. Develop a policy, in consultation with local health department, for responding to cases of communicable diseases.
2. Follow the “Prevention Guidelines for Diseases Spread Through the Respiratory Tract” in Chapter III.
3. If there is a case of strep throat in school, refer students and staff with sore throats to their health care providers for evaluation.
4. Be alert to an outbreak. If there are any cases associated with rheumatic fever, kidney disease or toxic shock, consult with the local health department about having all students and staff cultured.

***Haemophilus Influenza* Type B (Hib), Invasive**

Haemophilus Influenzae Type B (Hib) bacteria are one of the most important causes of serious bacterial infection in young children. Hib bacteria may cause a variety of diseases. The incidence of Hib disease has decreased as a result of immunization with either H influenza type B conjugate vaccines and combination H influenza type-B conjugate-DTP in the United States as of December 1993. (See Appendix A for Immunization Schedule, vaccine type and dose requirements.)

Haemophilus Influenzae type B can cause:

- ◆ Meningitis (inflammation of the coverings of the brain).
- ◆ Epiglottitis (inflammation of the upper throat and entrance to the windpipe).
- ◆ Cellulitis (inflammation of the deep skin, especially of the face and neck).
- ◆ Septic arthritis (inflammation and swelling of the joints).
- ◆ Pneumonia (inflammation of the lungs).
- ◆ Pericarditis (inflammation of the sac enclosing the heart).
- ◆ Osteomyelitis (inflammation of bone, especially marrow).
- ◆ Septicemia (infection of the bloodstream).

These illnesses caused by Hib disease are primarily seen in children under 6 years old. Children in a group care setting are at a greater risk of developing these illnesses than others. Older children and adults rarely develop these illnesses; however, they can be carriers and transmit them to younger individuals.

Transmission

The bacteria that cause Hib disease are transmitted presumably person to person, by direct contact (e.g., kissing) with infected fluids, or by sharing eating utensils, drinking cups, straws, and so forth, since the bacteria may persist for hours (particularly in the cold and low humidity). Bacteria can also be passed if infected secretions are touched by people who then put their hands in their mouth, nose, or eyes. It is also spread by breathing in infected droplets of respiratory secretions containing the organisms. Airborne spread occurs predominantly among crowded populations in enclosed spaces, such as school buses. The exact period of

communicability is unknown but may be for as long as the organism is present in the upper respiratory tract. The incubation period is unknown but probably is short—2 to 4 days.

Spread is more likely among children under age 4 years. Disease is most common in children 3 months to 3 years of age. In a household or group care center where there are young children and everyone is in close contact, there is an increased risk of a second infection following a first case. Unvaccinated children, particularly those younger than 4 years of age who are in prolonged close contact (such as in a household) with a child who has developed invasive disease caused by H influenzae type B, are at increased risk for serious infection from this organism. Other factors predisposing an individual to invasive H influenzae type B include sickle cell disease, asplenia, and certain immunodeficiency syndromes, including HIV infection and malignancies.

School Exclusion Guidelines

Communicable: The exact period of communicability is unknown but may be as long as the organism is present in the respiratory tract.

Case: Students with Hib disease should not return to school until they are well and after they have finished taking the antibiotic for 1 to 2 days.

Contacts: Students who are not ill with Hib disease may return to school when antibiotic treatment has begun. Students or staff who are ill should be excluded while they are ill and until they have taken the antibiotic for 1 to 2 days. Exclude any asymptomatic students from school who do receive the antibiotic for 1 week after onset of the last case.

The school health personnel, collaborating with the local health department, should decide when students and staff should be required to take a prescribed antibiotic when one case of Hib disease occurs in school.

Diagnosis

These illnesses are diagnosed by culturing an infected person's blood, spinal fluid, middle ear fluid, or other infected fluid. It may take up to 72 hours to grow and identify the bacteria. Early diagnosis may be able to be made by examination of the infected fluid under a microscope.

Treatment

People sick with invasive Hib disease generally require hospitalization for treatment with an appropriate antimicrobial agent. The carriage of these bacteria in the nose and throat of healthy children and adults may be reduced and perhaps eliminated when a person takes an appropriate antibiotic by mouth. An antibiotic is used as a preventive treatment among household contacts and in preschool and day care environments. The antibiotic treatment can also be considered for contacts in the kindergarten setting. Preventive treatment is not generally recommended in schools where all individuals are 5 years of age or older.

Students who have been vaccinated with any *Haemophilus influenzae* vaccine as well as susceptible, unvaccinated students should receive prophylaxis. Only students who have been appropriately vaccinated should be permitted to enter the group during the time prophylactics are given and for 2 months after onset of the case. For students younger than 12 months, only those who have completed their primary vaccination series should be permitted to enroll in the group.

When antibiotic treatment is used, all students enrolled, regardless of age or Hib immunization status, should receive treatment. In multi-classroom settings, only classroom contacts need the antibiotic.

A licensed vaccine to prevent Hib infection is now required beginning at 2 months of age. The vaccine takes several doses to provide some protection. The vaccine does not prevent a child from becoming a carrier. Therefore, even immunized students need to take antibiotics as prescribed by their health care provider.

Reporting Requirements

Reporting of a person confirmed or suspected of having Haemophilus influenzae infection, invasive, must be made within 24 hours by the most rapid means available, preferable that of telecommunication, to the local health director or other professional employee of the local health department.

Notification Guidelines

When Hib disease occurs within the school population, school health personnel (e.g., school nurses or consulting physician), in consultation with school administrators and the local health department, should determine whether some or all parents should be notified.

Prevention Guidelines

1. Require all students attending school to be appropriately immunized with Hib vaccine. (For children through 30 months of age, Hib conjugate vaccine should be administered as recommended by the American Academy of Pediatrics and the U.S. Public Health Service.)
2. Develop a policy, in consultation with local health department, for responding to cases of communicable diseases.
3. Inform parents and staff that antibiotics do not give 100 percent protection against disease. Therefore, any child or adult who becomes ill with fever, headache, or stiff neck, should be seen promptly by a health care provider. (Children less than 2 years old are at greatest risk of developing serious Hib disease.)
4. Monitor the situation closely for 2 to 3 weeks. Make sure all ill students—particularly those with fever, headache, stiff neck, and other symptoms associated with the illness—are seen by their health care provider and that the school is notified if another person develops Hib infection.
5. The time of greatest risk of others becoming ill is the first week following the first case. Some risk exists for up to 2 months.
6. Notify parents of any new student enrolled in the school within 2 months of the last case.

Hand, Foot, and Mouth Disease (Coxsackievirus)

Hand, foot, and mouth disease is a mild viral disease caused by coxsackievirus. Symptoms may include fever, sore throat, stomach pain and diarrhea, and a rash of tiny blisters on the palms of the hands, soles of the feet, and in the mouth (lasting 7 to 10 days). This illness is most commonly seen in the summer and fall.

Transmission

The virus that causes hand, foot, and mouth disease is transmitted by direct contact with nose and throat discharges and feces of infected people (who may be asymptomatic) and aerosol droplet spread. Adults and children are susceptible; however, incidence is highest in young children. A person can be a source of infection as long as the virus is shed in the stool, usually several weeks (as long as 8 to 12 weeks). The incubation period is 3 to 6 days.

School Exclusion Guidelines

Communicable: The virus is contagious before symptoms begin and continues to be transmissible as long as the virus is shed in the stool.

Case: School exclusion is not indicated if the person is well enough to attend school.

Contacts: School exclusion is not indicated.

Diagnosis

Diagnosis is usually presumptively made, based on symptoms. Specimens for viral isolation can be obtained from the site of clinical involvement.

Treatment

No specific anti-viral treatment is available. Care is supportive.

Reporting Requirements

Hand, foot, and mouth disease is not a reportable disease.

Notification Guidelines

When hand, foot, and mouth disease occurs within the school population, school health personnel (e.g., school nurses or consulting physician), in consultation with school administrators and the local health department, should determine whether some or all parents should be notified.

Prevention Guidelines

1. Develop a policy, in consultation with local health department, for responding to cases of communicable diseases.
2. Particular attention should be given to handwashing and personal hygiene as well as environmental cleaning and sanitation.

Hepatitis A

Hepatitis A (formerly infectious hepatitis) is a viral infection of the liver caused by the hepatitis A virus (HAV). The disease is fairly common. The symptoms of hepatitis A may appear 2 to 6 weeks after exposure (usually within 4 weeks) and in adults include fatigue, loss of appetite, nausea, fever, and jaundice.

Urine may become darker in color, and then jaundice (a yellowing of the skin and the whites of the eyes) may appear. These symptoms usually last from 1 to 2 weeks. In infants and pre-school children, most infections are either asymptomatic or cause mild non-specific symptoms without jaundice. Not everyone who is infected with hepatitis A will have all of the symptoms. An individual who has recovered from hepatitis A is immune for life and does not continue to carry the virus.

Transmission

The hepatitis A virus is transmitted person to person by the fecal-oral route. The hepatitis A virus enters through the mouth, multiplies in the body, and is passed in the feces (stool). The virus can then be carried by an infected person's hands and can be spread by direct contact or by consuming food or drink that has been handled by the individual. Outbreaks from one common source have been related to contaminated water; food contaminated by food handlers, including sandwiches that are not cooked or are handled after cooking; raw or undercooked mollusks harvested from contaminated waters; and contaminated produce such as lettuce and strawberries. Although rare, instances have been reported of transmittal by transfusion of blood/blood products. Since most young children with hepatitis A do not become ill, the first sign of infection in a school, daycare, or baby-sitting setting is often a jaundiced parent or staff member. The incubation period is from 15 to 50 days, depending on dose; average 28 to 30 days.

School Exclusion Guidelines

Communicable: Viral shedding and probably the contagious period lasts 1 to 3 weeks. The stools of infected people are the most highly contagious 1 to 2 weeks before the onset of illness, during which time patients are most likely to transmit infections. Communicability decreases from this point.

Case: Exclude from school until health care provider advises return. Convalescence maybe prolonged.

Contacts: School exclusion is not indicated. Stress importance of handwashing. School room exposure generally does not pose a significant risk of infection, and contacts need not be excluded from school. However, IG (immune globulin) may be given to those who have close personal contact with the infected person.

Diagnosis

Hepatitis A is diagnosed by a blood test that indicates if a person has ever had the infection, regardless of presence of symptoms. Note: Anti-HAV Igm antibody positive indicates current infection.

Treatment

There is no specific anti-viral treatment for hepatitis A. Care is supportive. Administering IG (immune globulin) to household members and close contacts can minimize the chances of their becoming ill, if given within 2 weeks of exposure to the case.

Reporting Requirements

Reporting of a person confirmed or suspected of having hepatitis A must be made within 24 hours by the most rapid means available, preferable that of telecommunication, to the local health director or other professional employee of the local health department.

Notification Guidelines

When hepatitis A occurs within the school population, school health personnel (e.g., school nurses or consulting physician), in consultation with school administrators and the local health department, should determine whether some or all parents should be notified.

Prevention Guidelines

1. Develop a policy, in consultation with local health department, for responding to cases of communicable diseases.
2. If a case of hepatitis A occurs in a kindergarten, first grade, or pre-school class where hygiene may not be optimal (e.g., handwashing is poor, diapering may be needed), more stringent control measures, including the use of IG (immune globulin), may be indicated. The local health department can provide recommendations.
3. Good sanitation and personal hygiene, particularly careful handwashing and sanitary disposal of feces (stool), are important general measures.
4. For students and staff at increased risk for Hepatitis A, the Hepatitis A vaccine may be recommended.

Hepatitis B

Hepatitis B (formerly serum hepatitis) is a viral infection of the liver caused by the hepatitis B virus (HBV). The disease is fairly common. HBV infection in children is symptomatic in less than 10 percent of cases. When it is symptomatic the typical signs and symptoms include fever, loss of appetite, nausea, abdominal pain, light-colored stools, dark colored urine, and jaundice (yellowing of the skin and whites of the eyes). Pain in joints and rashes can occur early in the course of the infection. Illness can range from infection without symptoms, to mild symptoms with jaundice to severe illness with jaundice to rapid liver failure and death.

Hepatitis B virus can cause chronic infection with persistent shedding of the virus into body fluids including blood in up to 90 percent of infants who become infected by perinatal transmission (from mother to fetus during pregnancy or birth) and 6 to 10 percent of older children, adolescents, and adults who acquire HBV infection. Chronically infected persons are at increased risk for developing chronic liver disease (e.g., cirrhosis, chronic active hepatitis, and chronic persistent hepatitis) or liver cancer later in life. Persons infected as infants or young children appear to be at higher risk of death from liver disease than those infected as adults.

Transmission

The hepatitis B virus is transmitted through blood or body fluids, such as infected discharge from a wound, semen, cervical secretions, and saliva. Blood and serum contain the highest quantities of virus; saliva contains the least. HBV is spread when blood or body fluids containing the virus get into broken skin or onto mucous membranes inside the mouth, eyes, rectum, or genital tract. HBV spread requires contact with infected fluid through the skin via a needle stick, contamination of a cut, blood transfusion (now rare in the United States as the result of current donor screening practices), sharing or reusing of unsterilized needles, and sexual activities. HBV can survive in the dried state for 1 week or longer. Therefore, contact of exposed skin and mucous membranes with contaminated inanimate objects may transmit infection. HBV is not transmitted by the fecal-oral route. The incubation period is usually 45 to 180 days; average 60 to 80 days.

Most infected persons in the United States acquire their infection as adolescents or adults. Infection is associated with other sexually transmitted diseases, including syphilis. Groups at highest risk for infection with HBV include users of intravenous drugs, persons with multiple heterosexual partners, and homosexual men. Others at increased risk include those with occupational exposure to blood or body fluids, staff of institutions and nonresidential child care programs for the

developmentally disabled, persons receiving hemodialysis, and sexual or household contacts of persons with an acute or chronic infection. The incubation period is from 45 to 160 days with an average of 120 days.

Spread of HBV in schools is rare. All children born on or after January 1, 1994, are required to have 3 doses of hepatitis B vaccine prior to entering school (*Code of Virginia* § 32.1-46). In addition, the Advisory Committee on Immunization Practices (ACIP), The American Academy of Pediatrics (AAP), the American Academy of Family Physicians (AAFP), and the Recommended Childhood Immunization Schedule, United States recommend children between 11 and 12 years of age receive the hepatitis B series. (See Appendix A for the Recommended Childhood Immunization Schedule, United States, January-December 1999.)

School Exclusion Guidelines

Communicable: HBV infection is transmitted by direct contact with infected body fluids, not casual contact. The virus can survive, dried up, for 1 week on inanimate objects.

Case: Persons with acute HBV infection are advised to follow the advice of their primary health care provider or local health department. Exclusion from school of HBV carriers is not indicated. The risk of HBV spread in a school setting is considered very low and does not justify exclusion of the hepatitis B carrier or routine screening of children prior to enrollment. However, in schools the risk of spread is higher from an infected person with behavior and/or medical problems, such as biting behavior that draws blood, or oozing skin sores. These behaviors may increase the possibility of transfer of infected fluid. A student or staff member with chronic HBV who has open, oozing sores that cannot be covered should remain at home until the skin sores are healed.

Contacts: School exclusion is not indicated (See the following prevention and treatment guidelines for recommendations for post-exposure treatment.)

Diagnosis

Hepatitis B infection is diagnosed with a blood test.

Treatment

No specific treatment for acute HBV infection is available. Supportive care and bed rest are advised in uncomplicated cases. Medical follow-up care is important to monitor for complications and the occurrence of chronic infection. In chronic

liver disease from adult acquired HBV infection, alpha interferon has been demonstrated to have limited results in resolving chronic infection, but the drug has been less effective for chronic infections acquired in early childhood. Hepatitis B immune globulin is indicated for persons (who have not received the full hepatitis B vaccine series) exposed to the hepatitis B virus. It helps prevent hepatitis B if given within two weeks of exposure.

Reporting Requirements

Hepatitis B must be reported to the local health department within seven days of diagnosis.

Notification Guidelines

Parents should be encouraged to notify the school nurse if their child is a known hepatitis B carrier. Parents of other students attending the school do not need to be informed. When hepatitis B occurs within the school population, school health personnel (e.g., school nurses or consulting physician), in consultation with school administrators and the local health department, should determine whether some or all parents should be notified.

Prevention Guidelines

1. Assure immunization compliance as required by the *Code of Virginia*, § 22.1-271.1, § 22.1-271.2, and § 32.1-46. Refer to “Immunization Requirements” in Chapter III. (Be sure that all students born on or after January 1, 1994, have had 3 doses of hepatitis B vaccine prior to entering school in accordance with the *Code of Virginia*.)
2. Develop a policy, in consultation with local health department, for responding to cases of communicable diseases.
3. Advise parents of the national vaccine recommendations and where the vaccine can be obtained. (See Appendix A.)
4. Use universal precautions. (See previous section on “Universal Precautions.”) Make sure all staff receive regular training on prevention of bloodborne disease. Age-appropriate education should be provided to students on transmission of bloodborne diseases, including sexual transmission and procedures for handwashing and cleanliness at school. (*Code of Virginia*, § 22.1-271.3, requires that “Every school board shall ensure that all school personnel having direct contact with students receive appropriate training in the etiology, prevention, transmission modes, and effects of blood-borne pathogens, specifically, hepatitis B and human immunodeficiency viruses...”)

5. Do not permit sharing of personal items that may become contaminated with blood or body fluids, such as toothbrushes, razors, eating utensils, or any other object that can be mouthed.
6. Cover skin lesions.
7. If an individual is known to have been exposed to hepatitis B (such as by a needle stick, a bite that has drawn blood, or sexual contact with an acutely infected person), hepatitis B immune globulin (HBIG) should be given. If the exposed person has not already been vaccinated, it is recommended they also receive the vaccine series after the immune globulin injection. Contact the local health department and health care provider for immediate advice.
8. Place disposable items contaminated with blood or body fluids in plastic bags in covered containers. (See previous section on “Universal Precautions.”)
9. Store clothing or other washable items stained with blood and/or body fluids separately in a plastic bag, and send them home with the owner for appropriate cleaning. Clothing stained with blood or other body fluids should be washed with hot water in a regular cycle wash.
10. Wash and sanitize surfaces of toys contaminated with blood or body fluids with a dilute solution of 1/4 cup chlorine bleach in 1 gallon of water freshly made up on a daily basis or disinfect objects by boiling them for 10 minutes.
11. Discourage aggressive behavior (e.g., biting, scratching) at the school and supervise closely to avoid these behaviors.

Hepatitis C

Hepatitis C (formerly Hepatitis Non-A Non-B) is a viral infection of the liver caused by the hepatitis C virus (HCV). It often has signs and symptoms indistinguishable from hepatitis A or B infection. In most cases the signs and symptoms are not as severe. Acute disease tends to be mild, with slow onset. In children most infections are asymptomatic. For those adults or children who do display illness, symptoms include loss of appetite, stomach pain, nausea, and vomiting. Jaundice (yellowing of the skin, whites of the eyes, mucous membranes, and other body fluids) occurs in only 25 percent of persons with HCV. Approximately 65 to 70 percent of individuals with HCV become chronic (long-term) carriers of the virus. These carriers may or may not display symptoms.

Transmission

The hepatitis C virus is spread by exposure to blood from an infected person and blood products from HCV-infected people. Other body fluids contaminated with infected blood also can be sources of infection (IV drug users, sexual contacts). Transmission of the virus from mother to fetus is 5 percent. Breastfeeding is not currently contraindicated secondary to maternal HCV infection. The incubation period ranges from 2 weeks to 6 months; most commonly 6 to 9 weeks.

School Exclusion Guidelines

Communicable: Infected persons can spread the virus beginning 1 or more weeks before the onset of symptoms and throughout the course of the disease. Chronic carriers may spread the virus indefinitely.

Case: School exclusion is not required. Persons who have hepatitis C should be educated about their carrier status and observe universal precautions.

Contacts: School exclusion is not indicated. All students and staff should adhere to universal precautions.

Diagnosis

HCV is diagnosed by screening the blood for antibodies to hepatitis C in those who have symptoms and abnormal liver function tests suggestive of hepatitis. Some individuals will test positive for hepatitis C but will not display symptoms. These individuals can still spread the disease.

Treatment

There is no specific anti-viral treatment for hepatitis C. Care is supportive. (Alpha interferon is the only treatment currently available for chronic HCV infection in adults. However, few patients have experienced a sustained response and this drug is not approved by the Food and Drug Administration [FDA] for children under 18 years of age.)

Reporting Requirements

Hepatitis C must be reported to the local health department within seven days of diagnosis.

Notification Guidelines

Parents should be encouraged to notify the school nurse if their child is a known hepatitis C carrier. Parents of other students attending the school do not need to be informed. When hepatitis C occurs within the school population, school health personnel (e.g., school nurses or consulting physician), in consultation with school administrators and the local health department, should determine whether some or all parents should be notified.

Prevention Guidelines

1. Develop a policy, in consultation with local health department, for responding to cases of communicable diseases.
2. All students and staff should adhere to strict universal precautions. (See previous section on “Universal Precautions.”)
3. Students and staff who have hepatitis C should be aware that their blood and possibly other body fluids may carry the virus and should take care not to expose others through sharing of needles, razors, toothbrushes, or other items that may be contaminated.
4. Students and staff who might be exposed to blood in their job need to wear gloves and follow strict universal precautions.

Hepatitis E (Enterically Transmitted Non-A, Non-B Hepatitis)

Hepatitis E virus (HEV) is the major causative organism of enterically transmitted non-A, non-B hepatitis. HEV is an acute illness, presenting with jaundice (yellowing of the skin, whites of eyes, mucous membranes, and body fluids), fatigue, anorexia, fever, abdominal pain, and arthralgia (pain in a joint).

Transmission

The hepatitis E virus is transmitted via contaminated water and probably from person to person by the fecal-oral route. HEV infection is more common in adults than children and has an unusually high case-fatality rate in pregnant women. HEV infection is not endemic to the United States, but cases have occurred in travelers from the United States to endemic areas (including Asia, Africa, and Mexico) usually related to contaminated water. The incubation period is approximately 2 to 8 weeks.

School Exclusion Guidelines

Communicable: The period of communicability after acute infection is unknown, but virus shedding in the stool and the presence of virus in the blood occurs for about 2 weeks. Chronic infection does not occur.

Case: Persons diagnosed with HEV should be excluded from school until symptoms have resolved.

Contacts: School exclusion is not indicated. Students and staff should adhere to careful sanitation and hygiene practices.

Diagnosis

Diagnosis is established by exclusion of Hepatitis A, B, C, D, and other viral causes of acute hepatitis. No diagnostic test is available.

Treatment

There is no anti-viral medication available for the treatment of HEV. Care is supportive.

Reporting Requirements

Hepatitis E must be reported to the local health department within seven days of diagnosis.

Notification Guidelines

When hepatitis E occurs within the school population, school health personnel (e.g., school nurses or consulting physician), in consultation with school administrators and the local health department, should determine whether some or all parents should be notified.

Prevention Guidelines

1. Develop a policy, in consultation with local health department, for responding to cases of communicable diseases.
2. Promote hand washing after using the bathroom and before preparing food.
3. Ensure that bathrooms have an adequate supply of soap, running water, paper towels, and toilet paper.
4. Staff caring for students in diapers should be sure to use universal precautions. (See previous section on “Universal Precautions.”)
5. Pay attention to environmental cleaning and sanitation.
6. Refer to “Prevention Guidelines for Diseases Spread Through the Intestinal Tract” in Chapter III.

Herpes Simplex Infection

Herpes simplex viral (HSV) infections are characterized by skin blisters or sores that can be very itchy and painful. Once a person is infected, these viruses remain in nerve cells, and HSV tends to recur at the same places on the body again and again. There are two types of herpes simplex virus: HSV type 1 (usually found in the mouth) and HSV type 2 (usually found on the genitals).

HSV type 1 is extremely common. The first infection typically occurs in childhood. It is mild and often goes unnoticed. It may come in the form of gingivostomatitis—fever accompanied by wide-spread painful ulcerations (sores) in the mouth. HSV usually recurs as cold sores—single or multiple blisters around the lip. In rare cases, HSV may be spread by direct contact and cause infection on a finger (herpetic whitlow—painful, recurrent blisters of a finger) or in the eye (herpetic keratitis—recurrent ulcerations of the cornea) or other places on the skin. HSV-1 dermatitis/conjunctivitis (herpes gladiatorum) has been diagnosed in wrestlers and other contact-sport participants. (Refer to “Prevention of Sports Related Infectious Diseases” in Chapter III.)

HSV type 2 is the cause of most cases of genital herpes. It is sexually transmitted. First infection is often characterized by painful genital blisters and ulcers accompanied by fever and can last 2 weeks. Recurrence is common, usually as localized, less painful ulcers that go away in 7 to 10 days and are not accompanied by fever. Recurrence may also be asymptomatic.

Herpes of the newborn occurs when the infant passes through an infected birth canal. The resulting illnesses range in severity from skin blisters to total body disease resulting in severe brain damage or death.

Herpes infection in children is generally caused by HSV type 1, and while uncomfortable, is rarely serious. People who have severe eczema (atopic dermatitis) or immune system problems may experience more severe symptoms of herpes infection. Children should be cautious about HSV spread to hands and eyes. Touching lesions should be discouraged as much as possible. Young children with HSV lesions also need to be monitored to avoid spread to newborn infants.

Transmission

HSV type 1 is probably transmitted mostly by contact with the virus in the saliva of carriers. HSV type 1 is most common in young children. HSV type 2 is usually transmitted by sexual contact. HSV type 2 (due to its sexual transmission) is more common in adolescents and adults. HSV type 2 may be diagnosed in children in unusual circumstances or as a result of sexual abuse. Both HSV type 1 and 2 may be transmitted to various sites by oral-genital, oral-anal, or anal-genital contact. The incubation period is from 2 to 12 days.

Because herpes viruses can survive as long as 4 hours on any surface, mouthed objects contaminated by virus-containing saliva may transmit infections of the mouth.

School Exclusion Guidelines

1. Students or staff with open, oozing skin sores (including herpetic whitlow) that cannot be covered should not attend school.
2. If individuals typically put their fingers in their mouth, they should be excluded until the lesions are crusted over.
3. In the case of students who are drooling or have biting behavior, permit them to return to school settings when blisters are crusted over.
4. Students or staff with skin blisters that cannot be covered should be permitted to return when the blisters are crusted over.
5. Do not exclude students or staff with mouth sores or skin blisters that can be covered or those with genital herpes.
6. Students or staff with herpetic whitlow should be permitted to attend school if lesions are covered.

Diagnosis

Diagnosis is usually made based on the history and distinctive appearance of the blisters or sores. Microscopic exam and/or viral cultures are available.

Treatment

Anti-viral therapy for HSV infections is available. Treatment is given for genital herpes and more serious HSV disease, such as infections of the brain or eye. Anti-viral therapy may shorten the length of some less serious HSV infections (e.g., cold sores).

Reporting Requirements

There is no requirement to report HSV infections either type 1 or type 2 unless they occur in newborn babies.

Notification Guidelines

None.

Prevention Guidelines

1. Develop a policy, in consultation with local health department, for responding to cases of communicable diseases.
2. Make sure that staff who may come in contact with blisters on students wear gloves and use universal precautions during diapering or changing of a dressing. (See previous section on “Universal Precautions.”)
3. Refer to “Prevention Guidelines for Diseases Spread Through Direct Skin Contact” and “Prevention Guidelines for Diseases Spread During Sexual Activity” in Chapter III.
4. To control spread of herpes gladiatorum, educate athletes and trainers about the risk, conduct routine examinations before wrestling contacts, exclude wrestlers with suspicious lesions, and refer them for diagnosis and treatment. Sanitizing of mats with a dilute bleach solution (1 tablespoon bleach to 1 quart of water) and airing of mats is also recommended as a standard precaution.

HIV Infection and AIDS

Authorization

Code of Virginia. Section 22.1-271.3 Guidelines for School Attendance for Children Infected with Human Immunodeficiency Virus. The *Code of Virginia* provides guidelines for school attendance for students who are infected with the human immunodeficiency virus (HIV). These guidelines include requirements for training of school personnel and requirements for notification of school personnel in certain cases of students with HIV infection.

Excerpt: See Appendix A for *Code of Virginia* § 22.1-271.3.

Superintendent’s Memo, No. 255, November 29, 1989. The memo provides “Model Guidelines for School Attendance for Children with Human Immunodeficiency Virus.”

Excerpt: See Appendix A for Superintendent’s Memo, No. 255, November 29, 1989.

Overview

HIV/AIDS. Human immunodeficiency virus (HIV) is the virus that causes the acquired immunodeficiency syndrome (AIDS). Human immunodeficiency virus type-1 (HIV-1) infection in children attacks the immune system, resulting in a progressive deterioration of the immune system. Ultimately, this impairment of the body’s defense system leads to opportunistic infections (any infection that results from a defective immune system that cannot defend against bacteria normally found in the environment), malignancies, and other conditions associated with acquired immunodeficiency syndrome (AIDS)—the most severe disease state caused by HIV. The incubation period is variable.

Cases of AIDS. AIDS is a severe, life-threatening clinical condition, first recognized as a distinct syndrome in 1981. By early 1995, about 500,000 cases of AIDS had been reported in the United States. Over the past decade in the United States, a shift in the distribution of AIDS cases by risk behaviors or factors has occurred with the largest rate of increase in reported AIDS cases occurring among women and minority populations, including adolescents. This shift has a significant impact on children, as the increase in the number of reported cases of AIDS in children (less than 13 years old) is tied to the increase of diagnosis of this illness in women.

Signs and Symptoms. It is not unusual for an HIV-infected person to feel healthy for a long time, without displaying signs and symptoms of illness. However, this individual can still transmit the virus to other people. The appearance of symptoms may signal deterioration of the immune system and the onset of a progressive course of HIV infection.

Signs/Symptoms of HIV. Signs/symptoms of HIV infection may include:

- ◆ Generalized lymphadenopathy (disease of the lymph nodes).
- ◆ Hepatomegaly (an enlargement of the liver).
- ◆ Splenomegaly (enlargement of the spleen).
- ◆ Failure to thrive.
- ◆ Oral candidiasis also called thrush (a yeast infection of the oral mucous membranes).
- ◆ Recurrent diarrhea.
- ◆ Parotitis (inflammation of the parotid gland).
- ◆ Nephropathy (disease of the kidney).
- ◆ Central nervous system (CNS) disease (including developmental delay, which may be progressive).
- ◆ Lymphoid interstitial pneumonia.
- ◆ Recurrent invasive bacterial infections.
- ◆ Opportunistic infections.
- ◆ Specified malignancies.

Clinical Manifestations in Children with Perinatally Acquired HIV. In children who have acquired HIV perinatally, the most common early clinical manifestations include:

- ◆ Failure to thrive or wasting.
- ◆ Chronic or recurrent diarrhea without specified cause.
- ◆ Generalized lymphadenopathy.
- ◆ Hepatosplenomegaly (enlargement of the liver and spleen);

- ◆ Persistent or recurrent oral candidiasis.
- ◆ A variety of recurrent infections, including otitis media, pneumonia, and meningitis (usually of bacterial origin but may be caused by viral, fungal, or parasitic microorganisms).

Infections in HIV-Infected Children. In older children, acute and complicating infections may be interspersed with periods during which the child functions relatively normally. As the disease progresses, involvement of multi-organ systems and the occurrence of multiple infections are as common as it is in younger children.

Pneumocystis carini pneumonia (PCP) is the most common, serious opportunistic infection in children with HIV infection and is associated with high mortality. This illness most frequently occurs in infants between 3 to 6 months who acquired the disease before or at birth, and can occur as early as 4 to 6 weeks of age. Other common opportunistic infections in children include:

- ◆ Candida esophagitis (inflammation of the esophagus caused by a fungus).
- ◆ Disseminated cytomegalovirus infection.
- ◆ Chronic disseminated herpes simplex.
- ◆ Varicella zoster virus infections.

Less common infections in children include:

- ◆ Mycobacterium tuberculosis.
- ◆ Mycobacterium avium complex (MAC) infection.
- ◆ Chronic enteritis caused by cryptosporidium or other agents.
- ◆ Cryptococcal or toxoplasma gondii infection. (Malignancies associated with HIV-infected children are relatively uncommon, affecting only 2 percent of HIV infected children developing Non-Hodgkin's Lymphoma.)

CNS Disease. The degree of CNS disease associated with HIV infection correlates with the severity of the disease. In the infant or young child CNS disease may present as developmental delay or loss of milestones. Older children may show evidence of learning disabilities or attention deficit disorders.

AIDS. Acquired immunodeficiency syndrome (AIDS) is the "late stage" of infection with the human immunodeficiency virus (HIV). Separate disease

classifications have been developed by the Centers for Disease Control and Prevention (CDC) for both children and adults that relate clinical and immunological status and describe the parameters of disease.

An understanding of HIV infection and AIDS by school health personnel can promote a comprehensive approach by various school disciplines to ensure each student receives the appropriate education testing, academic, and when necessary, mental health services to ensure an optimum educational experience.

Civil Rights Laws. Federal civil rights laws, particularly Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990 (ADA), protect the rights of people with disabilities and prohibit discrimination. The U.S. Congress has defined HIV infection, with or without symptoms, as a disability. Section 504 regulations mandate that every student with a disability be provided a “free, appropriate public education.” It is incumbent upon school personnel to work with families and students with HIV infection to ensure these students receive the appropriate and mandated services.

Education of Staff and Students. The *Code of Virginia*, § 22.1-271.3, requires that “Every school board shall ensure that all school personnel having direct contact with students receive appropriate training in the etiology, prevention, transmission modes, and effects of blood-borne pathogens, specifically, hepatitis B and human immunodeficiency viruses...” In addition, education of staff and students about HIV infection and AIDS can promote implementation of prevention strategies, and provide personal and professional approaches for all individuals whose lives are touched by a student or staff member with this illness.

The National Association of State Boards of Education has made available a publication entitled *Someone at School Has AIDS: A Complete Guide to Education Policies Concerning HIV Infection*. The publication provides school divisions with a variety of information including:

- ◆ Sample school policy guidelines.
- ◆ Education and prevention program ideas.
- ◆ Legal requirements and responsibilities.
- ◆ Addressing specific issues (e.g., infection control, HIV and athletics).
- ◆ Resources.

Schools are encouraged to use this publication in conjunction with the information provided in this section.

Transmission

Routine social or community contact with an HIV-infected person carries no risk of transmission; only sexual exposure and exposure to blood or tissues carries a risk. The routes of transmission of HIV are analogous to those of Hepatitis B virus (HBV).

Epidemiological evidence indicates that HIV can be transmitted person to person through sexual contact, the sharing of HIV-contaminated needles and syringes, and transfusion of infected blood or its components. While the virus has on occasion been found in saliva, tears, urine, and bronchial secretions, transmissions after contact with these secretions has not been reported.

From 15% to 30% of infants born to HIV-infected mothers are infected before, during, or shortly after birth; treatment of pregnant women results in marked reduction of infant infections. Breastfeeding by HIV-infected women can transmit infection to their infants.

After direct exposure of healthcare workers to HIV-infected blood through injury with needles and other sharp objects, the rate of seroconversion is less than 0.5%, much lower than the risk of HBV infection (about 25%) after a similar exposure.

In summary, established modes of transmission in the U.S. are via:

- ◆ Blood-to-blood contact, by use of HIV-contaminated needles during intravenous drug injection.
- ◆ A mucous membrane exposure.
- ◆ A penetrating injury with a needle or sharp object containing HIV-infected blood.
- ◆ Tissue or organ transplantation.
- ◆ Blood transfusion. (Transfusion of blood, blood components, or clotting factor concentrates is now rarely a mode of HIV transmission in the U.S. because of exclusion of infected donors, viral inactivation treatment of clotting factor concentrates, and the availability of recombinant clotting factors.)
- ◆ Unprotected sexual intercourse, including anal intercourse (regardless of the gender or sexual orientation of the partner), vaginal intercourse, or oral intercourse. HIV is transmitted through semen (including pre-ejaculatory fluid), vaginal fluids (including menstrual blood, cervical discharge, and the natural fluids that lubricate the vagina), and blood.

- ◆ Mother-to-infant, before or around the time of birth and during breast feeding.

HIV has been isolated from blood and other body fluids, such as cerebrospinal fluid, pleural fluid, human milk, semen, cervical secretions, saliva, urine, and tears. However, only blood, semen, cervical secretions, and human milk are implicated in the transmission of the infection.

HIV is **not** transmitted through:

- ◆ Casual contact, such as touching, kissing, and hugging a person with HIV.
- ◆ Animal or bug bites.
- ◆ Eating food handled, prepared, or served by a person with HIV infection.
- ◆ Sharing toilets, telephones, or clothes.
- ◆ Sharing forks, spoon, knives, or drinking glasses.
- ◆ Attending school or other public places with persons infected with HIV.

Note: Biting is a common behavior in young children. Although HIV has been isolated from saliva of some infected persons, transmission to another person from saliva is not known to have occurred.

School Exclusion Guidelines

Communicable: Transmission of HIV is by direct contact with infected blood or body fluids.

Case: Follow the advice of the student's health care provider and local health department. The need for a more restricted environment for some infected children should be evaluated on a case-by-case basis with consideration of conditions that pose an increased risk to others, such as an aggressive biting behavior or presence of exudative, weeping lesions that can not be covered. These conditions may increase the possibility of transfer of infected fluid. A student or staff member with HIV who has open, oozing sores that cannot be covered should remain at home until the skin sores are healed.

Contacts: School exclusion is not indicated.

Diagnosis

The diagnosis of symptomatic HIV and AIDS is based on the clinical, serologic (blood), and immunologic findings and exclusion of other causes of immunodeficiency (a depressed immune system). Other than infants born of infected mothers, persons infected with HIV usually develop serum antibody to HIV 6 to 12 weeks after infection. Tests for HIV include:

- ◆ Enzyme immunoassays (EIA) widely used to screen for serum HIV antibody. Although this test is highly sensitive and specific, repeat testing of the initial reactive specimens is required to reduce the likelihood of laboratory error.
- ◆ Western blot or immunofluorescent antibody tests should be used for confirmation.

A positive HIV antibody test in a child 18 months of age or older usually is indicative of infection. If an HIV antibody test is negative, no antibodies were found, and the person does not have antibodies at the time of the test, individuals should refrain from all risky behavior to be sure of their sero-negative status and be retested in 3 to 6 months. Even after a negative test, an individual who puts himself or herself at risk may become infected with HIV.

Treatment

Children with HIV infection need close medical supervision with monitoring of their clinical, neurologic, and immunologic status. The child with HIV infection should receive routine childhood care, including immunizations (exceptions below), and should be evaluated promptly if infection or fever occurs. Therapy for HIV infection includes prophylaxis against pneumocystis carinii and other infections, antiretroviral therapy, and in certain instances, intravenous gamma globulin.

The American Academy of Pediatrics (AAP) and the Centers for Disease Control and Prevention (CDC) have published recommendations for immunization of children with HIV infection against other diseases. Current recommendations for immunizations and treatment of HIV-infected children, published in the *1997 Red Book*¹³⁵ should be reviewed by school personnel. Detailed information related to household members and contacts of an HIV-infected person is also available in this reference.

¹³⁵ American Academy of Pediatrics (1997). *1997 Red Book: Report of the Committee on Infectious Diseases* (24th Edition). American Academy of Pediatrics, Elk Grove Village, Ill.

Briefly symptomatic children with HIV infection or AIDS should not receive live-virus (e.g., oral polio-virus, varicella) vaccines and live bacteria (e.g., bacillus calmette-guerin) vaccines, except for measles-mumps-rubella (MMR) vaccine which should be given to these children. Other routinely recommended vaccines (DTAP /DTP, hepatitis B, Haemophilus influenza type b conjugate, and inactivated poliovirus [IPV]) should be given according to the usual immunization schedule.

In addition, pneumococcal vaccine is indicated for HIV-infected children 2 years and older and should be given every 3 to 5 years thereafter as they are at increased risk of invasive pneumococcal disease. Influenza vaccine is recommended annually for HIV-infected children 6 months and older.

HIV-infected students are expected to be in compliance with an immunization schedule (*Code of Virginia* § 22.1-271.2). Students who are HIV infected or have AIDS, may get an exemption from complying with the requirements provided for in the *Code of Virginia* § 22.1-271.2 C.

Reporting Requirements

Acquired immunodeficiency syndrome (AIDS) and human immunodeficiency virus (HIV) infection must be reported to the local health department within seven days of diagnosis.

Disclosure and Confidentiality

No one except the student and/or student's parent(s) or guardian(s) necessarily need to know of a student's HIV or AIDS diagnosis. They are not obligated to disclose this information to anyone in the educational system. Although it is difficult for some people to accept, there is no reason school authorities must know if a student or staff member has HIV or AIDS. School policy should respect the privacy of people with HIV infection and their families to:

- ◆ Protect them from potentially hurtful stigma or hostility if the information becomes public.
- ◆ To prevent harmful distractions to learning due to misinformation and rumors.
- ◆ To promote an environment in which families, students and staff with HIV or AIDS may come forward to discuss private matters with school officials if that becomes necessary.
- ◆ To respect the decisions of parents who may have chosen to withhold information about an HIV or AIDS diagnosis from a student who they feel has not reached a level of maturity to understand their illness.

- ◆ To promote an environment in which confidentiality is the norm so that those in need of antibody testing, especially adolescents, will be more likely to be tested as they will not fear exposure.
- ◆ Because the information is not needed to promote safety.

Prevention through strict enforcement of infection guidelines, use of universal precautions, and education is a more effective policy than the need to disclose confidential information.

Disclosure. Since individuals with HIV infection and AIDS who do not engage in high-risk behavior are of no risk to others in the school, their medical information must be treated in a very confidential manner. Voluntary disclosure to the school superintendent, principal, or school health personnel can benefit the person with HIV infection. Upon learning a student is HIV infected or has AIDS, school personnel should consult with the family, their health care provider, and/or a person from the local health department to determine whether the student is well enough to attend school. These professionals are in a position to coordinate with others to provide necessary services.

Confidentiality. School physicians, school nurses, and school administrators, if made aware of a student's HIV or AIDS diagnosis, can inform others in the school of the situation on a **“Need to Know” basis with written consent of the parent/guardian**. For further information, refer to the *Code of Virginia* § 32.1-36.1, Confidentiality of test for human immunodeficiency virus, civil penalty, individual action for damages or penalty. (**Note:** A civil penalty of not more than \$5000 may be recovered if it is determined that a person willfully or through gross negligence made an unauthorized disclosure of this confidential information. In addition, any person who is the subject of the unauthorized disclosure may be entitled to recover damages and attorney's fees.)

Nationally, the Family Educational Rights Privacy Act of 1974 (FERPA), also known as the Buckley Amendment, places certain privacy restrictions on student records maintained by schools that receive federal funds. School personnel should consult this document when developing school policy.

Staff Members as Resource Person. Staff members who are well briefed on confidentiality and record keeping policies should be consulted on handling situations in which someone unexpectedly discloses HIV infection. Staff members may be approached by a student disclosing the positive HIV status of a family member, an adolescent might share results of recent HIV testing or fears related to the testing, or a special education planning team could find out about HIV infection from a medical evaluation. A staff member in this situation may be an invaluable resource to the person sharing this type of information. In this situation, a staff member may:

- ◆ Discuss the ramifications of further disclosure.

- ◆ Help locate an HIV/AIDS resource organization, teen crisis center, or hotline for the individual.
- ◆ Explain the positive health care advantages of informing school health personnel or school administrators, while stressing that disclosure is a personal decision and that confidentiality is mandatory.

The staff member who has become aware of this type of information may wish to talk to a counselor themselves, without revealing the identity of the person who has confided in them, in order to cope with their own feelings.

Prevention Guidelines

1. Develop a policy, in consultation with local health department, for responding to cases of communicable diseases.
2. Use of universal precautions. (See previous section on “Universal Precautions.”)
3. Educate students, according to school policy, about preventing HIV infection and AIDS.

Resources

The Virginia Department of Education, funded by the Centers for Disease Control and Prevention, published *HIV/AIDS Prevention Education Curriculum Guide* to provide teachers with guidance in offering instruction in HIV/AIDS prevention education to students in public and non-public schools in Virginia. Students in grades K-12 can receive information designed specifically for their developmental and educational level. The curriculum provided in this publication is designed to be used in conjunction with the Standards of Learning Objectives for Health Education, Family Life Education, and “I am Always Special,” drug education programs. In addition, the publication *Someone at School Has AIDS: A Complete Guide to Education Policies Concerning HIV Infection* provides information on sample programs for HIV prevention education.

Other publications include:

Massachusetts Department of Public Health. (1995). *Comprehensive School Health Manual*. Boston, Mass.: Author.

American Academy of Pediatrics (1997). *1997 Red Book: Report of the Committee on Infectious Diseases* (24th Edition). Elk Grove Village, Ill.: American Academy of Pediatrics.

Benenson, A.S. Editor (1995). *Control of Communicable Diseases Manual* (16th Edition). Washington, D.C.: American Public Health Association.

Bogden, J. F. (1996). *Someone at School Has AIDS: A Complete Guide to Education Policies Concerning HIV Infection*. National Association of State Boards of Education.

Donowitz, L.G. (1996). *Infection Control in the Child Care Center and Preschool* (3rd Edition). Baltimore, Md.: Williams and Wilkins.

Influenza

Influenza (commonly referred to as the “flu”) is a viral disease of the respiratory tract. There are two main types of influenza virus: A and B. Each type includes many different types that change each year. Illness is usually characterized by sudden onset with symptoms of high fever or chills, headache, congestion, muscle aches, and a dry cough. Some individuals may experience stomach pain, nausea, vomiting, and conjunctivitis (inflammation of the lining of the eyes). Most people are ill with the “flu” for a week or less. Individuals with lung disease, heart disease, cancer, emphysema, diabetes, or those with weakened immune systems may have more serious illness and at times, may need to be hospitalized. Influenza occurs most often in the late fall and winter months.

Transmission

The viruses that cause influenza are highly communicable—the organisms are readily transmitted from one individual to another through contact with droplets from the nose and throat of an infected person during coughing and sneezing.

Individuals are most infectious in the 24 hours before the onset of symptoms and during the period of peak symptoms. The virus is shed in the secretions up to 7 days after the onset of symptoms, but it may last longer in young children and those with weakened immune systems. Infection with the “flu” does not make a person immune. The viruses that cause influenza frequently change, and people may be infected with a new strain. The incubation period is short, usually 1 to 3 days.

Diagnosis

Diagnosis is generally made presumptively based on symptoms. However, laboratory tests can be obtained to confirm this diagnosis.

Treatment

Health care providers generally advise individuals with influenza to drink plenty of fluids and get plenty of rest. Prescription medications are available to treat and prevent (after exposure) influenza A in children and adults. These medications are not effective against influenza B infection and are not approved for use in children less than one year of age.

School Exclusion Guidelines

Communicable. Children probably transmit influenza virus for up to 7 days. Adults probably transmit the virus for 3 to 5 days.

Case. School exclusion is not indicated as long as a student or staff member feels well enough to attend school.

Contact. School exclusion is not indicated. High risk populations (see listing below) should be advised to consult with their health care provider for possible treatment with prophylaxis antibiotics.

Reporting Requirements

Influenza (by type, if available) must be reported as number-of-cases-only to the local health department.

Notification Requirements

None.

Prevention Guidelines

1. Develop a policy, in consultation with local health department, for responding to cases of communicable diseases.
2. Refer to “Prevention Guidelines for Spread of Disease Through the Respiratory Tract” in Chapter III.
3. The following groups are at increased risk for serious illness with the flu and should receive influenza vaccine yearly:
 - ◆ Adults and children with long-term heart or lung problems.
 - ◆ Individuals with kidney disease, cystic fibrosis, diabetes, anemia, severe asthma, cancer, or weak immune systems and other medical conditions for which they are under the close supervision of a health care provider.
 - ◆ All people 65 years of age and older.
 - ◆ Health care personnel and household contacts of high-risk persons.

Note. Many communities set up flu vaccine programs and encourage all residents to participate.

Impetigo

Impetigo is a common skin infection caused by streptococcal (“strep”) or staphylococcal (“staph”) bacteria. The first indication of infection may be discharge from an open, injured spot on the skin, such as an insect bite, cut or burn, where the bacteria are introduced. These bacteria can be easily spread by the individual’s hands to other areas of their skin. The skin lesions usually begin as small blisters and red, fluid filled, rounded bumps that ooze and may have a flat honey-colored crust and may be itchy. The blisters may break easily leaving raw, red “oozing” skin exposed. Secondary infection with staphylococci bacteria is common. Serious but rare complications from secondary staphylococcal infection include cellulitis (inflammation of the skin, spreading through the tissue) and kidney disease.

Transmission

The bacteria that cause impetigo are transmitted by contact with a person who has a draining lesion or who is an asymptomatic (usually nasal) carrier of a pathogenic strain of bacteria. The role of contaminated objects has been overstressed; the hands are the most important instrument for transmitting infection. Airborne spread is rare. The incubation period is variable, often 1 to 3 days.

School Exclusion Guidelines

Communicable: As long as purulent lesions continue to drain or the carrier state persists. See above under “Transmission.”

Case: Exclude from school until lesions are healed or 24 hours of antibiotic treatment has been completed

Contacts: Exclusion from school is not indicated. Observe carefully for symptoms.

Diagnosis

Impetigo is diagnosed by history and exam. Culture can be obtained to support the diagnosis.

Treatment

Impetigo treatment consists of appropriate skin care and antibiotic ointment, and/or oral antibiotic.

Reporting Requirements

Impetigo is not a reportable disease.

Notification Guidelines

When impetigo occurs within the school population, school health personnel (e.g., school nurses or consulting physician), in consultation with school administrators and the local health department, should determine whether some or all parents should be notified.

Prevention Guidelines

1. Develop a policy, in consultation with local health department, for responding to cases of communicable diseases.
2. When students and staff suffer an injury that causes a break in the skin, wash the area thoroughly with soap and water and dry it carefully.
3. When there is a risk of impetigo, wash the rash with soap and water and cover it loosely with gauze, a bandage, or clothing.
4. Be sure those who touch the rash wash their hands well. Dispose of any soiled tissues or bandages carefully, and keep any possibly contaminated clothing in a plastic bag.
5. Contact the student's parents and advise them to have the student examined by their health care provider.

Lyme Disease

Lyme disease is a bacterial illness that some people get after being bitten by ticks which are infected with the organism *Borrelia burgdorferi*. In most people, the first symptom of Lyme disease is a skin lesion called erythema migrans (EM) or “bull’s eye” rash—a red bump that expands to form a large red ring, with partial central clearing—at the site of a recent tick bite. The presentation of EM can vary in size and shape, appearing anywhere from 3 to 32 days after being bitten by an infected tick. Multiple secondary circular lesions, red blotches and circles, and conjunctivitis and swelling around the eye can develop. Fever, fatigue, headache, mild neck stiffness, and joint pain may occur as the illness progresses. These symptoms occur intermittently during a period of several weeks in untreated individuals. In some cases, those first symptoms do not occur. If this happens, or if the early disease is untreated, weeks to months after the tick bite other problems may develop involving joints, eyes, and the cardiac and nervous system as mentioned above.

Transmission

The bacteria that cause Lyme disease are spread by ticks. Transfer of the Lyme disease bacteria from the bite of an infected tick to a person probably does not occur until the tick has been attached for 24 hours. A person cannot get Lyme disease from animals or other persons. The incubation period for EM (erythema migrans) is from 3 to 32 days after tick exposure; however, the early stages of the illness maybe asymptomatic, and the person may present with later manifestations.

School Exclusion Guidelines

Communicable: Lyme disease is transmitted by the affected ticks that carry the *Borrelia burdorferi* bacteria. There is no evidence of natural transmission from person to person.

Case: School exclusion is not indicated

Contact: School exclusion is not indicated.

Diagnosis

Diagnosis is made clinically on the basis of history and physical examination findings. It is sometimes confirmed by laboratory tests.

Treatment

Treatment includes antibiotics and supportive measures.

Reporting Requirements

Lyme disease must be reported to the local health department within seven days of diagnosis.

Notification Guidelines

If Lyme disease has occurred, school health personnel (e.g., school nurses or consulting physician), in consultation with school administrators and the local health department, should determine whether some or all parents and staff should be notified so that they will watch for ticks as well.

If a student is bitten by a tick during the day, remove it as outlined below. Notify the parents of that student so that they can inform their health care provider. Tell them what the tick looked like. If the student develops the symptoms described, particularly a skin rash and/or flu- like symptoms, ask the parents to see a health care provider promptly for evaluation and treatment.

Prevention Guidelines

1. Develop a policy, in consultation with local health department, for responding to cases of communicable diseases.
2. Advise persons who spend time outdoors in an area with ticks to (1) wear long-sleeved shirts and long pants, (2) keep shirts tucked securely into pant legs and pant legs tucked into socks, (3) wear sneakers or hiking boots instead of open sandals, and (4) wear light-colored clothing. (Ticks are dark in color and will be easier to see against a light background.)
3. Conduct a daily tick check. Ticks removed within 24 hours of attachment are unlikely to transmit Lyme disease. Ticks are most often found on the thigh, flank, arms, underarm, and legs, and are very small. Look for new “freckles.”
4. If a tick is found on a person, remove it immediately. Deer ticks are very small and hard, about the size of a pinhead. They are orange-red or black, depending on their stage of growth, and prefer to attach themselves to a human host under the hair. Dog ticks are larger, ranging from 1/10 to 1/4 inch in length. They are brown and also prefer to attach themselves under the hair or on protected parts of the body.
5. To remove a tick:

- ◆ Wear gloves. Use universal precautions. (See previous section on “Universal Precautions.”)
 - ◆ Using tweezers, grasp tick as close to the skin as possible and gently, but firmly pull tick straight out. Avoid any jerking or twisting motion that may break off the mouth parts in the skin.
6. Insect repellents containing diethyltoluamide (DEET[®], Autan[®]) applied to skin can be effective against ticks but should be used cautiously. The pesticide permethrin is available as a clothing spray; it is not to be used on the skin. A combination of diethyltoluamide applied to skin and permethrin-treated clothes may provide the best protection against tick and mosquito bites. Follow these guidelines:
- ◆ Use repellents no more than one to two times per day. Do not treat skin with permethrin under clothing.
 - ◆ Particularly with children, avoid using high concentrations of diethyltoluamide products. Never use on damaged skin.
 - ◆ Avoid inhaling the product. Keep out of eyes, and do not apply to parts of student’s hands that are likely to have contact with their eyes or mouth.
 - ◆ After returning indoors, wash treated skin with soap and water.
 - ◆ If a student is suspected to be having a reaction to an insect repellent, wash skin and call the student’s parents and advise them to contact their health care provider for follow-up care.

Measles (Rubeola)

Measles is a highly communicable viral disease. The disease is more severe in infants and adults than young children. The initial stage of the disease is characterized by fever, cough, runny nose, conjunctivitis, and small red spots with blue-white centers in the mouth in the region of the molars (Koplik spots). A characteristic red, blotchy rash appears on the third to seventh day, beginning on the face, and spreading down the body, lasting 4 to 7 days. The illness lasts 1 to 2 weeks and can be complicated by ear infections, bronchopneumonia, croup, diarrhea, encephalitis, and rarely, death. Measles can also cause miscarriages or premature delivery in pregnant women.

Transmission

The virus that causes measles is transmitted airborne by droplet spread or direct contact with nasal or throat secretions of infected people and less commonly, by utensils freshly soiled with nose and throat secretions. Measles is one of the most highly communicable infectious diseases.

The incubation period is about 10 days, varying from 7 to 18 days from exposure to onset of fever, usually 14 days until rash appears; rarely longer or shorter. IG, given for passive protection later than the third day of the incubation period, may extend the incubation instead of preventing the disease.

School Exclusion Guidelines

Communicable: The period of communicability is from 1 to 2 days before the onset of symptoms (3 to 5 days before the rash) through 4 days after the appearance of the rash.

Case: Exclude from school until at least 4 days after the appearance of the rash. (The rash should be fading and the infected person should be without fever.)

Contacts: Check immunization records. Measles vaccine, if given within 72 hours of exposure, may provide protection. Immunoglobulin may be used within 6 days of exposure for susceptible household or other contacts for whom risk of complications is very high (particularly contacts under 1 year of age, pregnant women or immunocompromised persons) or for whom measles vaccine is contraindicated. Students and staff should be excluded from school immediately with signs of initial stages of the disease.

Diagnosis

Illness can be presumptively diagnosed by the signs and symptoms; however, a blood test, to look for antibodies that are evidence of recent infection, is required in order to confirm a preliminary diagnosis of measles.

Treatment

No specific anti-viral treatment is available. Vitamin A treatment should be considered on an individual basis by person's health care provider.

Reporting Requirements

Reporting of a person confirmed or suspected of having measles (Rubeola) must be made within 24 hours by the most rapid means available, preferable that of telecommunication, to the local health director or other professional employee of the local health department.

Notification

When measles occurs within the school population, school health personnel (e.g., school nurses or consulting physician), in consultation with school administrators and the local health department, should determine whether some or all parents should be notified.

Prevention Guidelines

1. Assure immunization compliance as required by the *Code of Virginia*, § 22.1-271.1, § 22.1-271.2, and § 32.1-46. Refer to "Immunization Requirements" in Chapter III.
2. Develop a policy, in consultation with local health department, for responding to cases of communicable diseases.
3. All reports of suspected measles cases should be investigated promptly. A measles outbreak exists in a community whenever one case of measles is confirmed. Once this occurs, preventing the spread of measles depends on prompt vaccination of susceptible persons.
4. A program of re-vaccination with MMR vaccine is recommended during outbreaks in childcare centers; elementary, middle, junior, and senior high schools; and colleges and other institutions of higher education in those students without a prior documented case of measles or in those students who have received only one dose of the vaccine.

5. Make sure all students and staff exhibiting symptoms associated with the illness are seen by their health care provider and the school is notified if another person develops measles. Advise parents of the time of greatest risk of others becoming ill.

Meningococcal Infection (*Neisseria Meningitidis*)

Meningococcal infection is caused by the bacteria *Neisseria meningitidis*. Invasive meningococcal infections usually result in meningococemia (blood infection) and meningococcal meningitis (an inflammation of the covering of the brain). Many people carry the *Neisseria meningitidis* bacteria in their nose and throat without any illness, while others become seriously ill rapidly and die within hours. A rash with petechiae (fine red-purple bruising) and/or purpurae (larger red-purple splotches) is characteristic. The disease occurs most often in children less than 5 years of age; the peak is in the 3- to 5-month age group. Even today, the morbidity is significant.

Transmission

Transmission of the bacteria is person-to-person by direct contact, including respiratory droplets from nose and throat of an infected person. This occurs between people who are in close contact through coughing, sneezing, nasal discharge, saliva, and touching of infected secretions. It can be spread by sharing eating utensils, drinking cups, water bottles, and kissing. The bacteria do not survive for more than a few minutes on environmental surfaces (e.g., tables, chairs, clothing).

The bacteria are transmissible from the time a person is first infected until the organism is no longer present in the nose or throat. Symptoms may appear 2 to 10 days after exposure (usually within 5 days).

School Exclusion Guidelines

Communicable: Individuals are considered infectious for 24 hours after beginning antibiotics. The bacteria are transmissible until they are no longer present in discharges from the nose and mouth.

Case: Exclude from school during acute illness. Case is noncommunicable after 24 hours of appropriate drug therapy.

Contact: School exclusion is not indicated. Observe carefully for symptoms, especially fever. Parents of day care/nursery school contacts should be advised to check with their child's health care provider concerning prophylactic treatment with rifampin. Discuss with local health department. Certain contacts should

receive prophylactic antibiotics from their health care provider or the local health department as soon as possible—preferably within 24 hours of the diagnosis of the primary case. See the following table for more information. (Note: Contacts who develop fever and/or severe headache should be referred for prompt medical evaluation regardless of whether they have received prophylaxis.)

Disease Risk for Contacts of Index Cases of Invasive Meningococcal Disease¹³⁶

High-risk: Chemoprophylaxis recommended

- Household contact: especially young children.
- Child care or nursery school contact in previous 7 days.
- Direct exposure to index patient’s secretions through kissing or sharing toothbrushes or eating utensils.
- Mouth-to-mouth resuscitation, unprotected contact during endotracheal intubation in 7 days before onset of the illness.
- Frequently sleeps or eats in same dwelling as index patient.

Low-risk: Chemoprophylaxis is not recommended

- Casual contact: no history of direct exposure to index patient’s oral secretions (e.g., school or work mate).
- Indirect contact: only contact is with a high-risk contact, no direct contact with index patient.
- Medical personnel without direct exposure to patient’s oral secretions.

In outbreak or cluster

- Chemoprophylaxis for persons other than those at high-risk should be given only after consultation with the local public health authorities.
-

Diagnosis

Cultures of blood and cerebrospinal fluid (CSF) are indicated in persons with suspected invasive meningococcal diseases.

¹³⁶ American Academy of Pediatrics (1997). *1997 Red Book. Report of the Committee on Infectious Diseases*, 24th Edition. American Academy of Pediatrics, Elk Grove Village, Ill.

Treatment

Individuals with these infections require hospitalization for antibiotics and special care.

Reporting Requirements

Reporting of a person confirmed or suspected of having meningococcal infection must be made within 24 hours by the most rapid means available, preferable that of telecommunication, to the local health director or other professional employee of the local health department.

Notification Guidelines

School health personnel (e.g., school nurses or consulting physician), in consultation with the local health department and school administrators, should develop a system for immediate notification of parents, staff, and the proper health authorities, if a student or staff member becomes ill with meningococcal illness.

Prevention Guidelines

1. Develop a policy, in consultation with local health department, for responding to cases of communicable diseases.
2. The best way to prevent spread of meningococcal disease is to alert everyone that a case has occurred so that appropriate preventive measures can begin.
3. Monitor the situation closely. Make sure all ill students and staff are seen by their health care provider and that the local health department is notified if another person develops the illness.

Mononucleosis, Infectious

Infectious mononucleosis is an acute viral syndrome caused by the Epstein-Barr virus. Its symptoms include sore throat, tiredness, fever, enlarged lymph nodes, and sometimes enlargement of abdominal organs (liver and/or spleen). It occurs most frequently in adolescents or young adults. While infants and young children can be affected by the disease, they frequently have no symptoms. Individuals with this disease can experience symptoms ranging from no illness or mild illness to severe illness. Infection can occasionally be accompanied by a rash. Most cases of infectious mononucleosis go away by themselves over 2 to 3 weeks. During the course of the illness, patients often have days when they feel well, alternating with days when they feel ill.

Transmission

Both children and adults can get infectious mononucleosis. The virus is transmitted from person to person through saliva. Young children may be infected by saliva on the hands of caregivers. Spread between children can also occur by sharing mouthed objects, drinking cups, or toys that have infected saliva on them. Kissing can increase spread among young adults. Infectious mononucleosis is common in group settings of adolescents, such as in schools. Spread may also occur via blood transfusions. The disease is not seasonal, and the shedding of the virus can occur for many months after infection. The incubation period is estimated to be 4 to 6 weeks, but the time an individual is contagious is unknown.

School Exclusion Guidelines

Communicable: Spread of this virus is person-to-person through saliva. The time an individual is contagious is unknown.

Case: School exclusion is not required. However, the student or staff member may be advised to remain home while feeling ill and not able to participate in their daily routine.

Contact: School exclusion is not indicated.

Diagnosis

The diagnosis of this illness is based on symptoms and laboratory blood tests.

Treatment

More than 95 percent of patients will recover without any treatment. Individuals with this disease can be as active as they feel they are able. Students and staff may return to contact sports or heavy lifting upon the recommendation of their health care provider.

Reporting Requirements

Infectious mononucleosis is not a reportable disease.

Notification Guidelines

None.

Prevention Guidelines

1. Develop a policy, in consultation with local health department, for responding to cases of communicable diseases.
2. Make sure all toys and objects that are potentially infectious due to children placing them in their mouths are properly washed.

Mumps

Mumps is a systemic viral disease, characterized by swelling of the salivary glands. (Approximately one-third of infections do not cause clinically apparent salivary gland swelling.) Complications include meningitis (inflammation of the coverings of the brain and spinal cord), encephalitis (inflammation of the brain), deafness, and particularly in adolescent or adult males, orchitis (inflammation of the testicles). Incidence rates are higher in school-age children. Mumps infection during the first trimester of pregnancy can increase the rate of spontaneous abortion (miscarriage).

Transmission

The mumps virus is transmitted by droplet spread and by direct contact with the saliva of an infected person. The period of communicability is usually 1 to 2 days but has been reported as many as 7 days before the onset of parotid swelling, and is usually 5 days (although occasionally as many as 9 days) after onset. The incubation period is about 12 to 25 days, commonly 18 days.

Most adults, particularly those born before 1957, are likely to have been infected naturally and may be considered immune, even if they did not have recognized disease. Mumps may be seen in unimmunized children or adolescents and young adults who graduated from school prior to laws requiring mumps immunizations or may have received an earlier, less effective vaccine. (The less effective vaccine, which was an inactivated mumps vaccine, was used from 1950 until its use was discontinued in the mid-1970s. The vaccine only produced short term immunity.) At risk for complications are children under the age of 12 months, pregnant women, persons who have weakened immune systems, and susceptible adolescent and adult males.

Diagnosis

The illness can be presumptively diagnosed by the signs and symptoms. However, it must be confirmed by a blood test to look for antibodies that are evidence of recent infection. Urine may be positive for as long as 14 days after onset of illness. Inapparent infections can be communicable.

Treatment

No specific anti-viral treatment is available. Care is based on symptoms and is supportive.

School Exclusion Guidelines

Communicable: The period of communicability can be as long as 7 days before onset of symptoms (usually 1 to 2 days) to 9 days after (usually 5 days).

Case: Exclude from school for 9 days after the onset of parotid swelling.

Contacts: School exclusion is not indicated. However, if a community outbreak of mumps occurs, exclusion of susceptible (non-immunized) students from both affected schools and schools judged by local health authorities to be at risk should be considered. Excluded students can be readmitted immediately after vaccination. Students who have been exempted because of medical, religious, or other reasons should be excluded until at least 26 days after the onset of gland swelling in the last person with mumps in the affected school.

Reporting Requirements

Mumps must be reported to the local health department within 7 days of diagnosis.

Notification

When mumps occur within the school population, school health personnel (e.g., school nurses or consulting physician), in consultation with school administrators and the local health department, should determine whether some or all parents should be notified.

Prevention Guidelines

1. Assure immunization compliance as required by the *Code of Virginia*, § 22.1-271.1, § 22.1-271.2, and § 32.1-46. Refer to “Immunization Requirements” in Chapter III.
2. Develop a policy, in consultation with local health department, for responding to cases of communicable diseases.
3. Make sure all students exhibiting symptoms associated with the illness are seen by their health care provider and that the school is notified if another person develops mumps. Advise parents of the time of greatest risk of others becoming ill.

Otitis (Ear Infection)

Note. Although otitis (i.e., otitis media and otitis externa) is not contagious, a description is included here because of the frequency of occurrence among school-age children.

Otitis Media (Middle Ear Infection). Otitis media is an inflammation of the middle ear (pea-sized, air-filled cavity behind the eardrum) that occurs as the result of a middle ear infection. Otitis media is caused by bacteria or viruses that enter from the nose or throat and ascend the eustachian tube to reach the middle ear. This occurs when the eustachian tube is not functioning properly, often because it is inflamed from a cold, sinus or throat infection, or allergy attack.

Otitis media can be acute, chronic, or recurrent. Symptoms of otitis media include ear pain, frequently accompanied by systemic symptoms, including fever, a runny nose, cough, difficulty sleeping, fatigue, decreased appetite, drainage from the ear, and diarrhea. If not treated, frequent otitis media can lead to hearing loss and delay in speech development. Parents should be educated as to this possibility and encouraged to seek treatment promptly when their child complains of ear pain.

Otitis Externa (Swimmer’s Ear). Otitis externa, also known as “swimmer’s ear,” is an inflammation of the outer ear canal, which extends from the eardrum to the outside. Otitis externa is usually caused by a bacterial infection but can be fungal. It can be caused by swimming in dirty water, frequent swimming in chlorinated pools, or too much moisture in the ear from any cause. A frequent problem is related to using cotton swabs to clean the ear canal, which could result in packed earwax. (Note: If a cotton swab [e.g., Q-tip®] is used to clean ears, use only as directed—stroke swab gently around the outer surface of the ear, **without entering the ear canal**). The most common symptom is pain. Other symptoms are pain when the earlobe is pulled, itching, drainage, or slight fever.

Transmission

Both forms of otitis are not communicable (“non-contagious”)—they cannot be transmitted directly or indirectly from one individual to another. Otitis media is often associated with colds, particularly in the pre-elementary age groups.

School Exclusion Guidelines

Communicable: Otitis media is not contagious.

Case: Staff and students with otitis media and otitis externa should not be excluded from school, unless they pose a risk to others due to uncontrolled drainage from the ear canal.

Contacts: School exclusion is not indicated.

(Other systemic symptoms that have previously been defined as contagious and are present with a diagnosis of otitis media should determine the need for school exclusion for cases and contacts.)

Diagnosis

Diagnosis of otitis media and otitis externa is made by physical examination by the person's health care provider. Cultures of the particular bacterial agent are usually reserved for cases of otitis resistant to usual antibiotic treatment.

Treatment

Oral antibiotics, pain medication, and other supportive measures are given for otitis media. Recurrent or chronic otitis media may require surgical placement of ear tubes.

Otitis externa is treated by gentle cleansing of the ear canal with application of medicated ear drops and pain medication.

Reporting Requirements

Otitis is not a reportable disease.

Notification Guidelines

None.

Special Care Notes for Students With Frequent Ear Infections and/or Ear Tubes

- ◆ Never put a cotton swab and anything else into a person's ear canal. Do not allow a student to put anything in their ear(s).
- ◆ Be especially alert for any signs of hearing or speech problems. Refer the student to their health care provider or other community resource if either of these conditions are present.
- ◆ Parents should inform the school of any specific care that is needed for a student who has ear tubes in place.

Pediculosis (Head Lice)

Pediculosis. Pediculosis is an infestation of the head, the hairy parts of the body, and clothing (especially along the seams of inner surfaces) with adult lice, nymphs, and nits (eggs), which results in severe itching and excoriation

(abrasion) of the scalp or both. Secondary infection may occur with ensuing regional lymphadenitis (inflammation of the lymph nodes), especially cervical. Crab lice usually infest the pubic area; they may also infest hair of the face (including eyelashes), axillae, and body surfaces. There are three types of lice: (1) *Pediculus humanus capitis*, the head louse; (2) *Pediculus h. corporis*, the body louse; and (3) *Phthirus pubis*, the crab louse.

Head Lice. Head lice are tiny insects (about 1/10 to 1/8 of an inch long) that live in human hair and feed on human blood. They multiply rapidly, laying little silvery-colored oval-shaped eggs (called nits) which they glue to the base of the hair, close to the scalp. Although it is hard to see head lice, a person can see the nits if they look closely. Nits are most often found in the hair behind the ears and at the back of the head and neck. Nits should not be confused with dandruff. Dandruff can easily be flicked off the hair; nits cannot because they are firmly attached to individual hairs. One telltale sign of head lice is a persistent itching of the scalp, which is caused by the bite of the louse, and that is sometimes accompanied by infected scratch marks or what appears to be a rash. A secondary bacterial infection can occur, causing oozing or crusting. Swollen neck glands may also develop.

Anyone can get head lice. They are not a sign of being dirty and should not be considered a sign of an unclean house. Head lice are easily spread from person to person by direct contact and are often found in school settings. Head lice do not spread any disease.

Transmission

Head lice have no wings and do not fly or jump; they crawl. They are transmitted through direct contact with an infested person or with shared items, such as combs, brushes, towels, pillowcases, hats, headphones, other headgear, and clothing. Shared lockers and wall hooks may permit the spread of head lice. Head lice need human blood to survive. They usually do not survive for more than 2 days away from the human body. The nits (louse eggs) cannot hatch at the lower temperatures found away from the scalp.

The life cycle is composed of three stages: eggs, nymphs (3 stages), and adults. The most suitable temperature for the life cycle is 89.6°F. Eggs of head lice do not hatch at temperature less than 71.6°F. Under optimal conditions, the eggs of lice hatch in 7 to 10 days. The nymphal stages last about 7 to 13 days depending on temperatures. The egg-to-egg cycle averages about 3 weeks.

School Exclusion Guidelines

Communicable: Transmission is possible as long as lice or eggs remain alive on the infected person or on articles. Head lice live for 7 to 10 days and their eggs for about 10 days away from a host (person).

Case: Exclude from school until treated.

Note: Some schools have a “no nit” policy.

Contacts: Close contacts should be checked to determine if they are infested. School exclusion is not indicated in the absence of infestation.

Diagnosis

Diagnosis is usually made by detecting nits, which appear as tiny, pearly-gray, oval-shaped specks attached to the hair near the scalp. Use a magnifying glass and natural light when searching for nits on the hair at the back of the neck, behind the ears, and on the top of the head. The diagnosis can be confirmed by using a microscope.

Treatment

Treatment consists of getting rid of the lice from infested individuals, their surroundings, and their personal items. All household members and individuals with close physical contact should be examined for lice and if infested, treated with one of the recommended shampoos or hair rinses. (Note: Some health care providers may routinely recommend simultaneous treatment of the members of a household.)

For individuals who have head lice:

1. Treatment should be given only to people who have active lice or viable eggs present.
2. The recommended treatment is a medicated shampoo that contains either pyrethrin (such as RID[®], A-200[®], XXX[®]) or permethrin (such as Nix[®]). These products are available without a prescription, should be used as instructed on the package, and may kill the lice but not their eggs.
3. After shampooing, the remaining eggs should be removed with a special nit comb or fine-tooth metal comb.

4. Lindane, Kwell[®] may be prescribed in certain instances when other treatments have failed but should be used only with extreme caution, carefully following the label.
5. None of these treatments are 100 effective, so retreatment maybe necessary after an interval of 7 to 10 days if eggs survive.
6. The hair should be carefully checked and nits removed every day for 2 weeks to be sure the infestation has been cured. Checking hair, a small section at a time, under a fluorescent light and using a magnifying glass makes the nits easier to find.
7. Kerosene, oil, or pet shampoo should NOT be used to treat a lice infestation. **Note:** More people are starting to report cases that might be resistant to treatment. Studies are underway to determine if some of the current remedies are no longer effective. In cases that do not seem to respond to treatment, manual removal of nits is the most important procedure to follow.

To Keep the Lice from Coming Back or Spreading to Others in the Household:

1. To prevent reinfestation, the hair of everyone in the household should be checked when anyone is found to have head lice.
2. Everyone with head lice in the same household should be treated on the same day.
3. Towels used to dry the hair after treatment with the lice shampoo should be washed immediately.
4. Clothing, bedding, and soft toys should be specially cleaned, such as by using hot water, hot dryers (for at least 20 minutes), or by dry cleaning. Items that cannot be washed should be sealed in a plastic bag for 2 weeks.
5. Floors, furniture, car seats and upholstery, and carpeting should be vacuumed. Insecticide sprays are not recommended.
6. Combs and brushes should be disinfected, then washed in hot water daily. Disinfecting is done by soaking them in lice shampoo for 4 minutes, soaking them in a 2% Lysol[®] solution for 1 hour, or boiling them in water for 10 minutes.
7. Hair inspection and manual removal of the nits is very important in preventing reinfestation. Nits found close to the scalp after treatment should be removed. Nits that have hatched or died, as well as empty egg casings, play no role in the spread of head lice. Nits that are seen more than 1/4 of an inch from the scalp are probably from an old infestation.

8. Children need to be told not to share headgear, coats, combs, and other articles at school.
9. Parents should routinely check their children's hair.

Reporting Requirements

Pediculosis is not a reportable disease.

Notification Guidelines

When pediculosis occurs within the school population, school health personnel (e.g., school nurses or consulting physician), in consultation with school administrators and the local health department, should determine whether some or all parents should be notified.

Prevention Guidelines

1. Develop a policy, in consultation with local health department, for responding to cases of infestation outbreaks.
2. Learn to recognize nits, and regularly check students' heads and hair when there is a case of head lice diagnosed in the classroom. Teach parents to recognize nits and to check family's hair periodically. Because outbreaks of head lice occur periodically in almost all schools and because parental concern may exceed the threat of head lice to health, this is a prime area for preventive education and information. A well-organized and prompt response to the first few cases can prevent a widespread problem and avoid the spread of misinformation.
3. If a case is identified, follow recommended treatment procedures closely. If a parent finds nits, it should be reported to the school nurse, who can check close contacts.
4. Remind students not to share combs, brushes, hair accessories, headphones, hats, helmets, towels, clothing, bedding, and so forth.

Pertussis (Whooping Cough)

Pertussis is a highly contagious bacterial disease involving the respiratory tract caused by *Bordetella pertussis*. It begins with mild cold symptoms and gradually progresses over 1 to 2 weeks into repeated attacks of severe coughing that can last 1 to 2 months or longer. The classic “whoop” sound may not occur in young infants, adolescents, and adults. Pertussis can occur at any age but is most often diagnosed in young children. The disease can be very serious in infants (less than 1 year old), where it can lead to pneumonia and, less often, seizures or inflammation of the brain. In rare cases (1 out of 200), pertussis can result in death (especially in children less than 1 year of age). In recent years in the United States, pertussis in adolescents and young adults has varied in severity. Many of these cases occur in previously immunized persons, indicating waning immunity. The total course of the disease is from 6 to 10 weeks.

Transmission

Pertussis is transmitted by direct contact with discharge from the nose or throat of an infected person or by breathing in infected droplets in the air where an infected person coughs. The incubation period is commonly 6 to 10 days.

School Exclusion Guidelines

Communicable: The period of greatest risk of spread is during the first week. Thereafter, communicability gradually decreases and becomes negligible in about 3 weeks for nonhousehold contacts.

Case: Exclude from school until a health care provider advises return (usually 5 days after initiation of erythromycin therapy). Discuss with local health department.

Contacts: Check immunization record. Exclude students or staff from school on first signs and symptoms of the illness.

Diagnosis

Diagnosis is based on identification of the pertussis germ through special tests and/or cultures obtained as early in the course as possible.

Treatment

Hospitalization may be required for supportive care and to manage complications. Antimicrobials begun in the early stage may ease the disease.

Reporting Requirements

Reporting of a person confirmed or suspected of having pertussis (Whooping cough) should be made within 24 hours by the most rapid means available, preferable that of telecommunication, to the local health director or other professional employee of the local health department.

Notification Guidelines

When pertussis occurs within the school population, school health personnel (e.g., school nurses or consulting physician), in consultation with school administrators and the local health department, should determine whether some or all parents should be notified.

Prevention Guidelines

1. Assure immunization compliance as required by the *Code of Virginia*, § 22.1-271.1, § 22.1-271.2, and § 32.1-46. Refer to “Immunization Requirements” in Chapter III.
2. Develop a policy, in consultation with local health department, for responding to cases of communicable diseases.
3. Make sure all staff and students exhibiting symptoms associated with the illness consult a health care provider and the local health department is notified if another person develops pertussis.
4. Preventive antibiotic is recommended for all household contacts and other close contacts irrespective of age and vaccination. School or classroom wide prophylaxis should be considered on a case-by-case basis with consultation from a physician and the health department.

Pinworm Infection (Enterobiasis)

Pinworm infection is caused by a small, white intestinal worm called *Enterbeasis vermicularis*, which is about the length of a staple and lives in the rectum of humans. In an infected person, female worms leave the intestine through the anus and deposit eggs on the surrounding skin. Symptoms include perianal itching (which ranges from mild to severe), disturbed sleep, irritability and sometimes secondary infection of the scratched skin. Contrary to commonly held beliefs, pinworms do not cause teeth grinding or bed-wetting and are generally not dangerous, just irritating.

Transmission

Pinworms are transmitted by direct transfer of infected eggs by hand from anus to mouth of the same person or another person, or indirectly through clothing, bedding, food, or other articles contaminated with eggs of the parasite.

The life cycle requires 2 to 6 weeks to be completed. Symptomatic disease with high worm burden results from successive reinfections occurring within months after initial exposure.

School Exclusion Guidelines

Communicable: Transmission is possible as long as gravid females are discharging eggs on perianal skin. Eggs remain infective in an indoor environment for about 2 weeks.

Case: Students and staff should be excluded from school until 24 hours after treatment is started.

Contacts: School exclusion is not indicated.

Diagnosis

The worms can sometimes be seen at night when they are laying their eggs on perianal skin. A health care provider can make the diagnosis by performing a “tape test” examination for pinworms.

Treatment

Several prescription medications are available for treatment of this infection (pyrantel pamoate or mebendazole; both given in a single dose and repeated in 2 weeks). The health care provider may choose to treat the whole family if one member of the family has pinworms. Families should be informed that recurrence is common due to a high incidence of reinfection.

Reporting Requirements

Pinworms are not a reportable disease.

Notification Guidelines

When pinworm infection occurs within the school population, school health personnel (e.g., school nurses and consulting physician), in consultation with school administrators and local health department, should determine whether some or all parents and staff should be notified so they may watch for symptoms in themselves and/or their children.

Prevention Guidelines

1. Develop a policy, in consultation with local health department, for responding to cases of communicable diseases.
2. Follow hand washing and cleanliness procedures. Careful attention to good hygiene, handwashing, and environmental cleaning and sanitation is very important in reducing the spread of this infection.
3. Refer to “Prevention Guidelines for Diseases Spread Through the Intestinal Tract” in Chapter III.

Polio (Poliomyelitis)

Poliomyelitis is a highly contagious viral infection caused by three types of polio virus. It is most often recognized by the acute onset of flaccid paralysis. Most polio infections are asymptomatic. Symptoms range in severity from a mild, nonspecific illness, with low grade fever and sore throat, to aseptic meningitis (inflammation of the covering of the brain and spinal cord) to paralysis and death. There have been no cases of natural (wild-type) polio in the Western Hemisphere since 1991. Rarely, polio can occur as vaccine-associated paralytic poliomyelitis (VAPP). Eight or nine cases of VAPP per year are reported in the United States. A single case of poliomyelitis is considered a public health emergency and needs to be given top priority.

Transmission

Polio is transmitted primarily by person-to-person spread, principally through the fecal-oral route and possibly through secretions (phlegm, mucus). Transmission of polio is possible as long as the virus is excreted. Cases are most infectious during the first few days before and after onset of symptoms. Certain immunodeficient individuals are more likely to acquire VAPP from another individual who has recently received oral polio vaccine. VAPP does not occur after the inactivated polio vaccine. The incubation period is commonly 7 to 14 days for paralytic cases, with a reported range of 3 to possibly 35 days.

School Exclusion Guidelines

Communicable: Polio is most infectious during the first few days before and after onset of symptoms. Although not precisely defined, transmission is possible as long as the virus is excreted.

Case: Individuals with polio can potentially excrete the virus in stool up to 8 weeks (usually several weeks). Those with weakened immune systems may excrete virus for prolonged periods of time.

Contacts: Persons exposed to polio should have their immunization records checked by a health care provider and subsequently undertake the recommendations for polio vaccine.

Diagnosis

Polio virus can be recovered from the stool, throat, urine, and rarely, from CSF (cerebral spinal fluid).

Treatment

There is no specific anti-viral therapy. Care is supportive.

Reporting Requirements

Reporting of a person confirmed or suspected of having poliomyelitis must be made within 24 hours by the most rapid means available, preferable that of telecommunication, to the local health director or other professional employee of the local health department.

Notification Guidelines

When polio occurs within the school population, school health personnel (e.g., school nurses or consulting physician), in consultation with school administrators and the local health department, should determine whether some or all parents should be notified.

Prevention Guidelines

1. Assure immunization compliance as required by the *Code of Virginia*, § 22.1-271.1, § 22.1-271.2, and § 32.1-46. Refer to “Immunization Requirements” in Chapter III.
2. Develop a policy, in consultation with local health department, for responding to cases of communicable diseases.
3. Make sure all students and staff exhibiting symptoms of the illness consult a health care provider and the local health department is notified if another person develops polio.

Rabies

Rabies is an acute viral infectious disease of mammals, especially carnivores, caused by a neurotropic virus often in the saliva of rabid animals. Rabid animals infected with rabies virus characteristically produce an acute illness with rapidly progressive central nervous system (brain and spinal cord) symptoms, including anxiety, dysphagia (difficulty swallowing), and convulsions, and almost invariably, progresses to death.

Animals with rabies often behave strangely after the virus attacks their brains. Rabid animals may attack people or other animals for no real reason, or they may lose their fear of people and seem to be unnaturally friendly. Not all rabid animals act this way; some may become withdrawn or may even act normally.

Transmission

The virus is transmitted where virus-laden saliva of a rabid animal is introduced by a bite or scratch (or, very rarely, into a fresh break in the skin or through intact mucous membranes). Transmission from person to person is theoretically possible since the saliva of the infected person may contain virus, but this has never been documented. All mammals, including humans, can get rabies. Wild animals in the United States (particularly skunks, bats, raccoons, and foxes) harbor rabies, and in some instances these wild animals infect domestic animals (dogs, cats, ferrets, and livestock). Raccoon rabies is established in all East Coast states.

In recent years, most cases of human rabies cases in the U.S. resulted from bat bites. Most dogs, cats, and ferrets show symptoms by the time they are shedding rabies virus in their saliva. Rarely do they appear healthy for several days while shedding the virus, but no case of rabies in the U.S. has been attributed to a dog or cat that has remained healthy throughout the standard 10-day period of confinement.

The incubation period is usually 3 to 8 weeks, rarely as short as 9 days or as long as 7 years; depends on the severity of the wound site, site of the wound in relation to the richness of the nerve supply and its distance from the brain, amount and strain of virus introduced, protection provided by clotting and other factors. Prolonged incubation periods have occurred in prepubertal individuals.

School Exclusion Guidelines

Communicable: Rabies virus is transmitted through a bite of a rabid animal or by getting the saliva or brain tissue of a rabid animal in a wound or in the eye or

mouth. In dogs and cats, the period of communicability is usually for 3 to 7 days before onset of clinical signs (rarely over 4 days) and throughout the course of the disease. In one study, bats shed virus for 12 days before evidence of illness, in another study, skunks shed virus for at least 8 days before onset of clinical signs.

Case: Consult with the person's health care provider or local health department.

Contacts: School exclusion is not indicated. Casual contact with an infected person (e.g., by touching a person with rabies) or contact with non-infectious fluids or tissue (e.g., urine or feces) does not alone constitute an exposure.

Diagnosis

Rabies is diagnosed in animals through testing a sample of brain tissue after they are dead. In humans suspected of having rabies, special tests are done of the blood, spinal fluid, and brain, but the diagnosis may not be confirmed until after death.

Treatment

Once symptoms have developed, no drug or vaccine improves the prognosis. Post-exposure treatment with RIG (rabies immune globulin) and rabies vaccine (HDCV, RVA, or Rabovert) is recommended for a person bitten by a wild or domestic animal that may be infected. Make sure the exposed individual is up to date on tetanus vaccine.

Exposures other than bites rarely result in infection. However, post-exposure treatment is recommended for persons who report having an open wound or mucous membrane contaminated with saliva or other potentially infectious material (e.g., brain tissue) from a rabid animal.

Reporting Requirements

Reporting of a person or an animal confirmed or suspected of having rabies, must be made within 24 hours by the most rapid means available, preferable that of telecommunication, to the local health director or other professional employee of the local health department.

Note. All animal bites should be reported to the local health department and the local animal control office for follow up. Dogs, cats, and ferrets that bite people must be observed for 10 days for signs of rabies.

Notification Guidelines

When a student is bitten or scratched by an animal, school personnel should notify the student's parents, the local health department, and local animal control office. Parents should be advised to contact a health care provider for evaluation of the exposure.

Prevention Guidelines

1. Develop a policy, in consultation with local health department, for responding to cases of communicable diseases.
2. There is an effective vaccine for dogs and cats and certain other domestic animals to prevent them from getting rabies. All pets should be vaccinated and not allowed to roam free.
3. Avoid contact with wildlife and strays.
4. If a sick or strange-acting animal is noticed around the school, the local animal control official should be called immediately.
5. If a person is bitten or scratched by any animal, wash the wound immediately with warm soapy water for 10 minutes and contact the person's health care provider and the local health department. Use universal precautions; wear gloves. (See previous section on "Universal Precautions.")
6. Discourage wild animals from depending on humans for food and shelter. Fasten trash can lids tightly. Cap chimneys (common nest-sites for raccoons) and seal openings into houses, barns, and garages.
7. If a pet has been bitten or scratched by another animal, wash the wounds promptly with soap and water. Use universal precautions; wear gloves. (See previous section on "Universal Precautions.") A veterinarian should be contacted.
8. Teach students about preventing bites from animals.
9. Do not allow common vectors for rabies to have direct contact with students in school projects and exhibits.

Rocky Mountain Spotted Fever

Rocky Mountain spotted fever (RMSF) is a systemic, febrile disease caused by the parasite *Rickettsia rickettsii*. RMSF has a characteristic petechial (small pinhead bruises) rash usually occurring before the sixth day, resulting from a bite of a dog tick infected with the bacteria *Rickettsia rickettsii*. The rash begins on the wrists and ankles and spreads to the trunk and the other areas of the body within hours. The palms and soles are typically involved. High fever, chills, headache, and muscle pain usually appear 3 to 10 days after the tick bite. In some cases, the rash fails to develop or develops only late in the illness. The disease can last as long as 3 weeks and can affect the central nervous system (brain and spinal cord), heart, lungs, kidneys, and other organs. In severe cases, disseminated intravascular coagulation illness and shock can occur, leading to death.

Transmission

Rocky Mountain spotted fever is transmitted ordinarily by the bite of an infected tick. At least 4 to 6 hours of attachment and feeding on blood by the tick are required before the rickettsii become reactivated and infectious for people. Contamination of breaks in the skin or mucous membranes with crushed tissues or feces of the tick may also lead to infection. The incubation period is from 3 to about 14 days.

School Exclusion Guidelines

Communicable: RMSF is not transmitted from person to person. It is transmitted by ticks carrying *Rickettsia rickettsii* bacteria. The tick remains infective for life, commonly as long as 18 months.

Case: School exclusion is not indicated

Contact: School exclusion is not indicated.

Diagnosis

Diagnosis is made by history and physical examination findings. It is confirmed by laboratory tests.

Treatment

Early treatment with antibiotics and supportive measures is based on clinical findings and geography. However, treatment should not be withheld due to lack of tick bite history.

Reporting Requirements

Rocky Mountain spotted fever must be reported to the local health department within seven days of diagnosis.

Notification Guidelines

When RMSF occurs within the school population, school health personnel (e.g., school nurses or consulting physician), in consultation with school administrators and the local health department, should determine whether some or all parents should be notified.

If a student is bitten by a tick during the day, remove it as outlined below. Notify the parents of that student so they can inform their health care provider. Tell them what the tick looked like. If the student develops the symptoms described, particularly a skin rash and/or flu-like symptoms, ask the parents to see a health care provider promptly for evaluation and treatment.

Prevention Guidelines

1. Develop a policy, in consultation with local health department, for responding to cases of communicable diseases.
2. Advise persons who spend time outdoors in area with ticks to (1) wear long-sleeved shirts and long pants, (2) keep shirts tucked securely into pant legs and pant legs tucked into socks, (3) wear sneakers or hiking boots instead of open sandals, and (4) wear light-colored clothing. (Ticks are dark in color and will be easier to see against a light background.)
3. Conduct a daily tick check. Ticks removed within 24 hours of attachment are unlikely to transmit RMSF disease. Ticks are most often found on the thigh, flank, arms, underarm, and legs, and are very small. Look for new “freckles.”
4. If a tick is found on a person, remove it immediately. Deer ticks are very small and hard, about the size of a pinhead. They are orange-red or black depending on their stage of growth, and prefer to attach themselves to a human host under the hair. Dog ticks are larger, ranging from 1/10 to 1/4 inch

in length. They are brown and also prefer to attach themselves under the hair or on protected parts of the body.

5. To remove a tick:
 - ◆ Wear gloves. Use universal precautions. (See previous section on “Universal Precautions.”)
 - ◆ Using tweezers, grasp tick as close to the skin as possible and gently, but firmly pull tick straight out. Avoid any jerking or twisting motion that may break off the mouth parts in the skin.
6. Insect repellents containing diethyltoluamide (DEET[®], Autan[®]) applied to skin can be effective against ticks but should be used cautiously. The pesticide permethrin is available as a clothing spray; it is not to be used on the skin. A combination of diethyltoluamide applied to skin and permethrin-treated clothes may provide the best protection against tick and mosquito bites. Follow these guidelines:
 - ◆ Use repellents no more than one to two times per day. Do not treat skin with permethrin under clothing.
 - ◆ Particularly with children, avoid using high concentrations of diethyltoluamide products. Never use on damaged skin.
 - ◆ Avoid inhaling the product. Keep out of eyes, and do not apply to parts of a person’s hands that are likely to have contact with their eyes or mouth.
 - ◆ After returning indoors, wash treated skin with soap and water.
 - ◆ If a student is suspected to be having a reaction to an insect repellent, wash skin and call the student’s parents and advise them to contact their health care provider for follow-up care.

Roseola (Roseola Infantum)

Roseola infantum (exanthem subitum) is an acute viral disease, usually in children under 4 (most common before 2 years of age), caused by human herpesvirus-6 (HHV-6). The illness starts with a high fever (103 degrees F.) and irritability, lasting 1 to 5 days (average 3 days). The fever then falls to normal and a rash appears, faint red in color, with flat spots, first appearing at the nape of the neck and behind the earlobes and spreading mainly to the trunk, rarely on the face, and disappears within 24 hours. Febrile seizures are an infrequent complication and are associated with the rapidly rising temperature. The disease occurs most often in the spring.

Transmission

The mode of transmission of roseola is unknown.

Infants and preschoolers are the most susceptible, with 95 percent of the cases seen between 6 months and 3 years of life. The period of communicability is not known but is probably the greatest during the febrile period, before the appearance of the rash. The incubation period is about 10 days and unrecognized infections occur.

School Exclusion Guidelines

Communicable: The period of communicability is not known but is probably greatest during the febrile period before the appearance of the rash.

Case: Students may attend school when they feel well enough.

Contacts: School exclusion is not indicated.

Diagnosis

Diagnosis is based mainly on clinical findings, particularly if other cases are present in the community.

Treatment

There is no specific treatment for roseola, other than supportive care.

Reporting Requirements

Roseola infantum is not a reportable disease.

Notification Guidelines

When a case of roseola occurs within the school population, school health personnel (e.g., school nurses or consulting physician), in consultation with school administrators and the local health department, should determine whether some or all parents should be notified.

Prevention Guidelines

1. Develop a policy, in consultation with local health department, for responding to cases of communicable diseases.
2. Students with roseola should not be exposed to other students while they are ill.
3. Hand washing and cleanliness are essential to stop the spread of all respiratory tract diseases.
4. Refer to “Prevention Guidelines for Diseases Spread Through the Respiratory Tract” in Chapter III.

Rotavirus (Rotavirus Enteritis)

Rotavirus enteritis is a sporadic or seasonal, often severe gastroenteritis of infants and young children, caused by rotavirus. The infection is characterized by diarrhea, often with vomiting and low-grade fever. The illness is a common cause of dehydration in young children, and can be fatal. Symptoms last for an average of 4 to 6 days.

Transmission

Rotavirus is probably transmitted by contact with infected persons through the fecal-oral route. Respiratory transmission is also thought to occur. Rotavirus is very common in young children. The incubation period is approximately 24 to 72 hours.

School Exclusion

Communicable. Person-to-person probably via fecal-oral and sometimes respiratory spread. The individual is communicable during the acute stage of disease, and later while virus shedding continues. Rotavirus is not usually detectable after about the eighth day of infection.

Case. School exclusion is appropriate during the period of diarrhea and vomiting.

Contacts. Contacts should continue in school unless they develop symptoms.

Diagnosis

Rotavirus infection can be confirmed by laboratory tests.

Treatment

No specific medication is available. Treatment includes supportive care with oral hydration techniques and sometimes hospitalization for intravenous fluids.

Reporting Requirements

Rotavirus enteritis is not a reportable disease.

Notification Guidelines

None.

Prevention Guidelines

1. Develop a policy, in consultation with local health department, for responding to cases of communicable diseases.
2. Refer to “Prevention Guidelines for Diseases Spread Through the Intestinal Tract” in Chapter III.

Rubella (German Measles)

Rubella is usually a mild viral disease, caused by Rubella virus (*Rubivirus*). The illness is characterized by a flat, red rash that often begins on the face or upper trunk and extends over the rest of the body. The rash usually lasts about 3 days and is often accompanied by a slight fever and lymph gland swelling in the back of the neck. As many as half of the rubella infections may occur without rash. There can be joint pain especially in children and adolescents.

The most serious problem with rubella is when a pregnant woman becomes infected because the developing fetus can become infected. Stillbirths, miscarriages, and serious birth defects can occur.

Transmission

Rubella is transmitted chiefly through direct or droplet contact with nasal or saliva secretions of infected persons. A significant number of young adults are susceptible to rubella. This degree of susceptibility in young adults is the result of lack of vaccination, not waning immunity in immunized persons.

The period of maximal communicability appears to be the few days before, and 5 to 7 days after, onset of rash. A small number of infants with congenital rubella syndrome continue to shed virus in nasal and saliva secretions and urine for 1 year or more and can transmit infection to susceptible contacts.

The incubation period is from 16 to 18 days with a range of 14 to 23 days.

School Exclusion Guidelines

Communicable: The period of communicability appears to be a few days before, and 5 to 7 days after, onset of rash.

Case: Exclude from school for 7 days after onset of rash. Avoid exposure to women in early pregnancy. Discuss with local health department. Students with congenital rubella syndrome should be considered contagious until they are 1 year old, unless they have two negative nasal and saliva cultures and urine cultures for rubella.

Contacts: Check immunization records of all students. Those who are pregnant and not immunized should be urged to seek medical advice.

Diagnosis

The illness can be presumptively diagnosed by the signs and symptoms. Serologic testing is useful in confirming the presence of infection. Other tests are available in specific situations.

Treatment

No specific anti-viral treatment is available. Care is based on symptoms and is supportive.

Reporting Requirements

Rubella (German measles), including congenial rubella syndrome, must be reported to the local health department within seven days of diagnosis.

Notification Guidelines

When rubella occurs within the school population, school health personnel (e.g., school nurses or consulting physician), in consultation with school administrators and the local health department, should determine whether some or all parents should be notified.

Prevention Guidelines

1. Assure immunization compliance as required by the *Code of Virginia*, § 22.1-271.1, § 22.1-271.2, and § 32.1-46. Refer to “Immunization Requirements” in Chapter III.
2. Develop a policy, in consultation with local health department, for responding to cases of communicable diseases.
3. Make sure parents of all students who exhibit symptoms associated with the illness consult a health care provider and that the local health department is notified if another person develops rubella.
4. Pregnant staff and pregnant students should notify and seek advice from their health care provider.

Salmonellosis

Salmonellosis is an enteric (intestinal) bacterial disease caused by numerous types of *Salmonella*. It usually affects the intestinal tract and occasionally the blood stream. *Salmonella* bacteria can cause outbreaks due to food poisoning. Symptoms include mild or severe diarrhea accompanied by stomach cramps, pain, fever, headache, and occasionally vomiting. These symptoms usually develop in less than 24 hours after bacteria are ingested but may not develop until 72 hours and may disappear untreated in 2 to 5 days. Age-specific attacks of *Salmonella* infection are highest in those younger than 5 years of age and older than 70 years of age, and peak in the first years of life. Invasive infections and mortality are more frequent in infants, the elderly, and those with an underlying disease, such as sickle cell disease, cancer, and illnesses causing suppression of the immune system.

Transmission

Salmonellosis is transmitted by ingestion of the organisms in food derived from infected food animals or contaminated by feces of an infected animal or person. This includes raw or undercooked (inadequate cooking time to a given temperature) eggs and egg products, raw milk and raw milk products, poultry and poultry products. In addition, pet turtles, iguanas, and chickens, and unsterilized pharmaceuticals of animal organs are potential sources of these bacteria.

Salmonella bacteria can be transmitted person-to-person via the fecal-oral-route. Infected persons can spread this disease by not washing their hands after going to the bathroom and then handling food that other people will eat.

Salmonella can be shed in the stool for many weeks. Individuals with the illness are infectious until the bacteria are no longer present in their stool. The excretion of *Salmonella* in the stool is longer in younger children than in older children and adults. The duration of excretion can be prolonged by antimicrobial therapy.

The incubation period is from 6 to 72 hours, usually about 12 to 36 hours.

School Exclusion Guidelines

Communicable: *Salmonella* is transmittable as long as the bacteria are shed in the stool of an infected person (several days to several weeks to as long as a few months).

Case: Students and staff with salmonellosis should be excluded from school until a health care provider advises return. In high risk situations—students in daycare

and adults involved in food handling and patient or child care—cases need to be excluded until cessation of diarrhea and negative stool cultures are obtained.

Contacts: School exclusion and stool culture are not indicated in asymptomatic persons.

Diagnosis

Diagnosis is made by a stool culture. Up to 72 hours may be required to grow bacteria from a stool sample.

Treatment

Antimicrobial therapy is usually not prescribed for uncomplicated salmonellosis. In fact, medication may actually lengthen the time the bacteria are in the stool. Antimicrobial therapy is warranted for *Salmonella* infection occurring in persons with an increased risk of invasive disease and other complications, including infants younger than 3 months of age; persons with sickle cell disease, cancer, acquired immune deficiency syndrome (AIDS), or other immunosuppressive illnesses; persons on immunosuppressive therapy; and persons with chronic gastrointestinal tract disease or severe colitis.

Reporting Requirements

Salmonellosis must be reported to the local health department within seven days of diagnosis.

Notification Guidelines

When salmonellosis occurs within the school population, school health personnel (e.g., school nurses or consulting physician), in consultation with school administrators and the local health department, should determine whether some or all parents should be notified.

Inform family and household members in contact with a person with *Salmonella* diarrhea of their possible exposure to the bacteria, especially if the people are involved in food handling or preparation. If they develop diarrhea, they should immediately see their health care provider and get a stool culture.

Prevention Guidelines

1. Develop a policy, in consultation with local health department, for responding to cases of communicable diseases.
2. Refer to “Prevention Guidelines for Diseases Spread Through the Intestinal Tract” in Chapter III.

Scabies

Scabies is a highly contagious parasitic disease of the skin caused by a mite called *Sarcoptes scabiei*, which infects only humans. The female mite burrows under the skin to lay her eggs, which hatch and start the infestation cycle. Symptoms include an intense itchy (worse at night) rash, with red bumps and characteristic mite burrows—gray or white, wavy, thread-like lines—that are generally obliterated by scratching long before the person sees the health care provider. In adults and older children, the mite burrows are typically seen between fingers and toes; in the flexor areas of the wrist; around the elbows; under the arms; and around the belt line, thighs, naval, penis, nipples, abdomen, and buttocks. In infants younger than 2 years of age, eruption is often blister-like and occurs on the head, neck, palms, and soles of feet. These areas are usually spared in older children and adults. Symptoms appear within 4 to 6 weeks of exposure in previously unexposed persons and 1 to 4 days in repeat exposures.

Transmission

Scabies is transmitted by direct skin-to-skin contact; it can be acquired during sexual contact. Transfer of parasites from undergarments and bedclothes occurs only if these have been contaminated by infested persons immediately beforehand. Mites can burrow beneath the skin in 2 ½ minutes. Scabies can be transmitted as long as the person remains infected and untreated, including the interval before symptoms develop.

The incubation period is from 2 to 6 weeks before onset of itching in people without previous exposure. People who have been previously infested develop symptoms 1 to 4 days after re-exposure.

School Exclusion Guidelines

Communicable: The mite survives only a few days off the human body. Transmission occurs most often by close personal contact. Scabies is transmittable until mites and eggs are destroyed by treatment, ordinarily after 1 or occasionally 2 courses of treatment, a week apart.

Case: Exclude from school until 24 hours of antibiotic treatment has been completed.

Contacts: Direct inspection of body. School exclusion is not indicated in the absence of infestation.

Diagnosis

Scabies is usually diagnosed by the typical appearance of the rash and accompanying symptoms and by examining skin scrapings under a microscope to detect the mite or its eggs.

Treatment

Scabies is usually treated with one of several prescriptions, mite-killing creams or lotions applied once to the skin and then washed off after a specified period of time. Medication to relieve the itching is often necessary as well. Even after effective therapy, itching may persist for up to 4 weeks. Prophylactic therapy is recommended for household members. All members of the family should be treated at the same time to prevent reinfection. Bedding and clothing worn next to the skin should be laundered in a washer with hot water and a hot dryer cycle. The parasites do not survive more than 3 to 4 days without contact with the skin. Clothing that can not be laundered should be removed from the person and stored for several days to a week or more to avoid reinfestation.

Reporting Requirements

Scabies is not a reportable disease.

Notification Guidelines

When scabies occurs within the school population, school health personnel (e.g., school nurses or consulting physician), in consultation with school administrators and the local health department, should determine whether some or all parents should be notified.

Prevention Guidelines

1. Develop a policy, in consultation with local health department, for responding to cases of infestation outbreaks.
2. Wash and rinse on the hot cycle all washable items that have come in contact with an infected individual's skin during the 72 hours prior to treatment. Use a hot dryer for at least 20 minutes.
3. Store difficult-to-wash items, such as stuffed toys and pillows, in tightly closed plastic bags for 1 to 2 weeks before using again.
4. Thoroughly vacuum all carpets and upholstered furniture.

5. Consult with the school health care personnel if there seems to be a major problem with scabies because it may be prudent and necessary to treat all students and adults in the group once.

Sexually Transmitted Diseases

The descriptions below define these illnesses and their symptoms primarily as they relate to infections in adolescents and adults. Sexual abuse must be suspected in all children diagnosed with a sexually transmitted disease. Infections are also possible in newborns due to transmission during birth from mother to newborn.

Overview

Sexually Transmitted Diseases. Sexually transmitted diseases are transmitted when an infected person has unprotected sexual intercourse or other intimate physical contact with another person. Sexual intercourse includes when a penis is inserted into a vagina, as well as oral and anal intercourse. The most common sexually transmitted diseases include syphilis, gonorrhea (GC), chlamydia, warts (condyloma), trichomonas, herpes simplex type 2 (genital herpes), HIV infection and AIDS, and hepatitis B. Symptoms may include, but are not limited to, those listed in the following chart. (For more detailed descriptions, refer to a standard infectious disease manual published by professional organizations, such as the American Academy of Pediatrics [AAP] or the Centers for Disease Control and Prevention [CDC]).

Symptoms Associated With Sexually Transmitted Diseases

Diseases	Symptoms
Chlamydia	May cause discharge or pain in males while urinating. For females, vaginal discharge, odor, or pain are common symptoms. Note: May be asymptomatic in both males and females.
Genital herpes	Painful, itchy sores on the genitals caused by the herpes simplex type 2 virus. (For additional information see Herpes Simplex Virus.)
Genital warts	These wartlike growths, caused by human papilloma virus (HPV), on the genitals are associated with cancer of the cervix in women. Some individuals complain of itching and pain accompanying genital warts.
Gonorrhea (GC)	For males, pain and discharge while urinating are common symptoms. Females may be asymptomatic or experience pain from urethritis (inflammation of the urethra), endocervicitis (inflammation of the mucous lining of the cervix uteri), and pelvic inflammatory disease (infection of the uterus, fallopian tubes, and adjacent pelvic structures), or have vaginal discharge and odor.
Hepatitis B	Weakness, abdominal pain, nausea, vomiting, dark urine, and jaundice are symptoms associated with this illness. (See Hepatitis B).

Symptoms Associated With Sexually Transmitted Diseases

Diseases	Symptoms
HIV infection and AIDS	Onset of illness includes swollen lymph nodes, weight loss, chronic diarrhea, fever, and fatigue. (See HIV Infection and AIDS.)
Syphilis (acquired)	Infection with acquired syphilis can be divided into three stages. The primary syphilis infection is accompanied by a painless sore (chancre) on or around the penis, vulva, vagina, perineum, mouth, or anus. The second stage is characterized by a generalized rash, most frequently on the palms and soles; fatigue; generalized enlargement of lymph nodes; sore throat; headache; joint pain; and a flat, gray, mucous like patch characteristic of syphilis around the external genitalia or anus (condylomata lata). The third stage may involve damage to the heart and central nervous system.
Trichomonas	Is primarily a sexually transmitted disease and frequently coexists with other infections, particularly gonorrhea. Females experience a frothy, vaginal discharge and itching. Pain when urinating and abdominal pain may occur. Infected males may experience pain while urinating, but the majority of males are asymptomatic.

Dangers Associated With Lack of Symptoms. People can be infected with an STD but be asymptomatic. Even so, the dangers of these diseases persist and the infection can still be transmitted. Anyone who thinks they may have been exposed to an STD should see a health care provider immediately. Infection with one STD may indicate the need to test for other STDs. If untreated, STDs may cause serious physical and reproductive damage or even death. STDs are particularly dangerous to infants whose infected mothers are not treated during pregnancy. Infected infants may be born mentally retarded or physically deformed, or they may die.

Transmission

Individuals who have unprotected sex, especially with many partners, are at risk of exposure to STDs. Some STDs can be transmitted directly from an infected person to another by sharing contaminated needles. Any mind-altering substance increases the chances that an individual will engage in behavior that places them at increased risk of exposure to harmful consequences.

Diagnosis

Diagnosis is made by physical examination, microscopic exam of genital secretions, cultures, and blood tests.

Treatment

Bacterial STDs (syphilis, GC, and chlamydia trichomonas) can be treated with antibiotics administered either orally or by intramuscular injections. There are several local treatments (chemical cryotherapy, laser) for treating warts. There are no cures for viral infections (such as hepatitis B, genital herpes, or AIDS), although hepatitis B may resolve itself. Hepatitis B can be prevented with a vaccine. Genital herpes may be treated with acyclovir.

An infected person may consult their health care provider or the state health department-sponsored agencies that provide comprehensive STD services. These clinics, open to all, have highly trained and sensitive staff, and there are no restrictions to access based on age, race, sex, ethnicity, ability to pay, residence, country of origin, or immigrant status. By law, minors can be treated in STD clinics without parental consent.

Reporting Requirements

Refer to “List of Reportable Diseases in Virginia” for specific sexually transmitted disease (STD), in Appendix A.

Notification Guidelines

None.

Prevention Guidelines

1. Develop a policy, in consultation with local health department, for responding to cases of communicable diseases.
2. The best way to prevent sexually transmitted diseases is to refrain from sexual intercourse and exposure to genital secretions. Students who are sexually active should be encouraged to discontinue this practice. These students should be referred to the local health department or their health care provider for evaluation, examination, and counseling.
3. Inform students who may not seek health care—for fear of information being given to their parents—of the law allowing them to be diagnosed and treated confidentially and without parental consent.
4. Educate students, according to school policy, about preventing STDs.

Shigellosis

Shigellosis is an acute bacterial disease involving the intestinal tract caused by *Shigella*. Symptoms range from mild diarrhea to diarrhea with blood and mucus. In severe cases, it can cause dehydration, high fever, severe cramps, vomiting, headache, and convulsions.

Transmission

Shigella is transmitted mainly by direct or indirect fecal-oral route from an infected person. This could unintentionally happen when diapering children. Other modes of transmission include ingestion of contaminated food or water and contact with a contaminated, inanimate object. Infection is most common in children ages 1 to 4. Persons at greatest risk for spreading the disease include food handlers, staff and attendees at child care centers or baby-sitting services, and persons providing direct patient care in hospitals, nursing homes, or institutions. As few as 10 bacteria can cause ingested shigella infection. People with this illness are infectious until the bacteria are no longer present in their stool. The incubation period is from 12 to 96 hours (usually 1 to 3 days); up to 1 week for *S.dysenteriae*.

School Exclusion Guidelines

Communicable: *Shigella* is communicable during acute illness and until the infectious agent is eliminated from the stool, usually within 4 weeks after illness.

Case: Students and staff with shigellosis should be excluded from school until the diarrhea stops.

Contacts: School exclusion is not indicated in asymptomatic persons. The stool of symptomatic (diarrheal stools) contacts who are high risk should be cultured. Exclusion from school is required until diarrhea stops.

Diagnosis

Diagnosis made by stool culture.

Treatment

Children and adults with *Shigella* in their stool are usually treated with an antimicrobial medication that shortens both the duration of the illness and length

of time that bacteria are passed in the stool. (Mild disease is often self limiting, lasting 48 to 72 hours. In these cases, treatment with an antimicrobial medication is directed toward limiting the spread.)

Reporting Requirements

Shigellosis must be reported to the local health department within seven days of diagnosis.

Notification Guidelines

When shigellosis occurs in the school population, school health personnel (e.g., school nurses or consulting physician), in consultation with school administrators and the local health department, should determine whether some or all parents should be notified.

Family and household members in contact with the person with shigellosis should be informed of possible exposure to the bacteria, especially if they are involved in food handling or preparation. If they develop diarrhea, they should immediately see their health care provider.

Prevention Guidelines:

1. Develop a policy, in consultation with local health department, for responding to cases of communicable diseases.
2. Refer to “Prevention Guidelines for Diseases Spread Through the Intestinal Tract” in Chapter III.

Shingles (Varicella-Zoster)

Note. See previous sub-section on Chickenpox.

Tetanus

Tetanus (lockjaw) is an acute infectious disease due to the toxin (poisonous substance) *Clostridium tetani* bacteria, which enters the body through a cut or wound. The toxin causes muscles to go into painful spasms. Spasm of the muscle that closes the mouth accounts for the name “lockjaw.” Paralysis and death can result.

Transmission

Tetanus is transmitted by introducing the organism into the body, usually through a puncture wound contaminated with soil, street dust, or animal or human feces; through lacerations, burns, and trivial or unnoticed wounds; or by injected contaminated street drugs. Tetanus is not transmissible from person to person.

The incubation period is usually 3 to 21 days, although it may range from 1 to several months, depending on the character, extent, and location of the wound; average 10 days. Most cases occur within 14 days. In general, shorter incubation periods are associated with more heavily contaminated wounds, more severe disease, and a worse prognosis.

School Exclusion Guidelines

Communicable: Tetanus is not directly transmitted from person to person.

Case: Infected persons should be excluded from school until they feel well.

Contacts: School exclusion is not indicated.

Diagnosis

The wound should be cultured. However, diagnosis is made clinically by excluding other possible diagnoses.

Treatment

See the following table from the *1997 Red Book*¹³⁷ for treatment recommendations:

Guide to Tetanus Prophylaxis in Routine Wound Management

History of Absorbed Tetanus Toxoid (Doses)	Clean, Minor Wounds		All Other Wounds †	
	Td ±	TIG ‡	Td ±	TIG ‡
Unknown or < 3	Yes	No	Yes	Yes
≥ 3μ	No §	No	No ¶	No

† Such as, but not limited to wounds, contaminated with dirt, feces, soil, and saliva; puncture wounds; avulsions; and wounds resulting from missiles, crushing, and frostbite.

± For children less than 7 years old, DTaP (or DTP) is recommended; if pertussis vaccine is contraindicated, DT is given. For persons 7 years of age or older, Td is recommended. Td indicates adult-use tetanus and diphtheria toxoids; TIG, tetanus immune globulin (human).

‡ Equine tetanus antitoxin should be used when TIG is not available.

μ If only 3 doses of fluid toxoid have been received, a fourth dose of toxoid, preferably an absorbed toxoid, should be given.

§ Yes, if more than 10 years since last dose.

¶ Yes, if more than 5 years since last dose. (More frequent boosters are not needed and can accentuate side effects.)

Reporting Requirements

Tetanus must be reported to the local health department within seven days of diagnosis.

Notification Guidelines

Even though tetanus is not spread person to person, if a case occurs, officials may want to use this opportunity to remind others to check their immunization records and if necessary, get boosters. After the initial immunization series (see immunization schedule in Appendix A), most persons are protected for 10 years. Boosters need to be given as soon as possible after injury, as determined by a health care provider.

¹³⁷ American Academy of Pediatrics (1997). *1997 Red Book: Report of the Committee on Infectious Diseases*, 24th Edition. American Academy of Pediatrics, Elk Grove Village, Ill.

When tetanus occurs within the school population, school health personnel (e.g., school nurses or consulting physician), in consultation with school administrators and the local health department, should determine whether some or all parents should be notified.

Prevention Guidelines

1. Assure immunization compliance as required by the *Code of Virginia*, § 22.1-271.1, § 22.1-271.2, and § 32.1-46. Refer to “Immunization Requirements” in Chapter III.
2. Develop a policy, in consultation with local health department, for responding to cases of communicable diseases.
3. Make sure all cuts, scrapes, and puncture wounds are cleaned well with soap and water; individuals who have sustained deep or severe wounds should be referred for medical attention.
4. Make sure all students and staff are up to date on the tetanus immunization.

Tinea (Ringworm)

Tinea and ringworm are general terms used to describe various fungal diseases that involve the scalp, body, feet, and groin. There are six types of tinea: (1) tinea capitis, ringworm of the scalp; (2) tinea corporis, ringworm of the body; (3) tinea cruris, ringworm of groin and perianal region; (4) tinea pedis, ringworm of the foot; (5) tinea barbae, ringworm of the beard; and (6) tinea unguium, ringworm of the nails.

Descriptions of tinea of the scalp, body, groin, and foot are presented on the following pages. The following school exclusion guidelines, reporting requirements, notification guidelines, and prevention guidelines are presented for all the tineaes.

School Exclusion Guidelines

Communicable: All tinea infections are transmissible as long as the fungus is present in the infected area. Viable fungus may persist on contaminated materials for long periods.

Cases: School exclusion is not indicated as long as infected area can be covered or student is being treated by a health care provider. Note: In tinea corporis, the student or staff should be excluded until 24 hours after drug therapy. During treatment, the student or staff should be excluded from the gym and swimming pools.

Contacts: Contacts should not be excluded from school. Examination of siblings and other household contacts for evidence of tinea capitis is recommended.

Reporting Requirements

Tinea infections are not reportable diseases.

Notification Guidelines

If more than one person in a class develops ringworm, school health personnel (e.g., school nurses or consulting physician), in consultation with school

administrators and the local health department, should determine whether some or all parents should be notified.

Prevention Guidelines

1. Develop a policy, in consultation with local health department, for responding to cases of communicable diseases.
2. Keep the environment as clean, dry, and cool as possible since ringworm fungi grow easily on moist, warm, surfaces.
3. Follow general cleanliness and hand washing guidelines.
4. Keep affected areas of the body loosely covered with gauze, bandage, or clothing to prevent shedding of infected scales.
5. Students and staff should be discouraged from sharing ribbons, combs, and brushes.
6. Students and staff with active athlete's foot (tinea pedis) should be discouraged from using swimming pools, locker rooms, and shower rooms without wearing footwear as these areas are conducive to transmission of this infection.

Tinea Capitis (Ringworm of the Scalp)

This fungal disease occurs most commonly in children 3 to 9 years of age.

Transmission

Tinea capitis is transmitted by direct skin-to-skin contact or indirect contact especially from the backs of theater seats, shared personal items (such as combs and hairbrushes) or clothing and hats contaminated with hair from infected persons or animals. The incubation period is from 10 to 14 days.

Diagnosis

Typically, the diagnosis is made by its appearance. Tinea capitis can appear as patchy areas of dandruff-like scaling; with either subtle or extensive hair loss; discrete areas of hair loss surrounded by the stubs of broken hairs—so called “black dot ringworm;” numerous individual fluid-filled abrasions with hair loss or scaling; or a boggy, fluctuant, inflammatory, puss-filled mass, with hair loss, called a kerion, which may be accompanied by fever, swollen lymph nodes (often called glands).

Treatment

The treatment consists of oral medication prescribed by a health care provider.

Tinea Corporis (Ringworm of the Body)

This fungal disease is most common from age 2 to 20.

Transmission

Tinea corporis is transmitted by direct or indirect contact with skin and scalp lesions of infected persons; lesions of animals; contaminated floors, shower stalls, and benches; and towels, bedding, clothing, and similar objects. The incubation period is from 4 to 10 days.

Diagnosis

Typically, the diagnosis is made by its appearance. Microscopic exam is used when there is a question. The lesions start as flat and ring-shaped. The edges of the circle are usually reddish and may be raised, scaly, and itchy. The center of the circle is often clear.

Treatment

Prescription and over-the-counter antifungal creams generally are efficacious. Unresponsive cases may require oral medication.

Tinea Cruris (Ringworm of Groin “Jock Itch”)

This condition is a fungal disease that rarely occurs before puberty, except in babies. Tinea cruris occurs predominantly in adolescents and adult males. Moisture, close-fitting garments, friction, and obesity are contributing factors

Transmission

Tinea cruris is transmitted by direct or indirect contact with skin lesions of infected persons; lesions of animals; contaminated floors, shower stalls, and benches; and towels, bedding, clothing and similar objects. It is transmissible as long as the infection is present. The incubation period is from 4 to 10 days.

Diagnosis

Typically, the diagnosis is made by its appearance. Microscopic exam is used when there is a question. Itchy, reddish, and scaly lesions occur in the groin, on the adjacent thighs, and sometimes around the anus and buttocks.

Treatment

Prescription and over-the-counter antifungal creams generally are efficacious. Unresponsive cases may require oral medication.

Tinea Pedis (Ringworm of the Foot “Athlete’s Foot”)

This condition is a fungal disease that rarely occurs before puberty. There are three types: (1) interdigital (between the toes), (2) vesicular (generally affects the instep), and (3) the moccasin type (both feet are affected by a widespread, scaling rash). This infection is aggravated by heat and sweating.

Transmission

Tinea pedis is transmitted by direct or indirect contact with skin lesions of infected persons or contaminated floors, shower stalls, and other articles used by infected persons. The incubation period is unknown.

Diagnosis

Typically, the diagnosis is made by its appearance. Microscopic exam is used when there is a question.

Treatment

Prescription and over-the-counter antifungal creams generally are efficacious. Unresponsive cases may require oral medication.

Tuberculosis

Tuberculosis (TB) is a bacterial disease caused by the organism tubercle bacillus. It can affect any organ of the body—although the respiratory tract is the most commonly involved. TB infection is defined by a positive tuberculin skin test in a person who has no physical findings of disease and a chest x-ray that is either normal or reveals only granulomas or calcification in the lung or surrounding lymph nodes. TB “disease” is defined as person with infection in whom signs, symptoms, and/or x-ray changes are apparent—disease may be limited to the lung and/or outside the lung. In adults, this distinction between disease and infection is fairly clear, but it is less so in children. The most common symptom is a cough, often one that lasts for weeks and can result in coughing up mucous blood. The disease may also cause chest pain, fever, weakness, loss of appetite, and night sweating. Extrapulmonary symptoms depend on the body part that is involved with the disease.

Transmission

TB is transmitted person to person through the air when the person with infectious TB coughs, sneezes, spits, or sings, and releases infected droplets of mucous. These droplets remain viable and suspended in the air for several hours. TB is not spread by kissing, sharing utensils, or other objects, such as books or clothing. Direct invasion of the TB germ through mucous membranes or breaks in the skin may occur but is rare.

Several factors determine how the germ is transmitted. The presence of cough and of sputum that is smear and culture positive for TB increases risk. Prolonged sharing of indoor air with a person who has infectious TB increases risk. Children younger than 12 generally are not infectious because they have little cough and sputum production. Therefore, childhood disease represents transmission from an adult or adolescent. The incubation period from exposure to either findings on exam or a positive skin test is 2 to 12 weeks. The risk of developing disease is highest in the first 2 years following infection. Infected persons with suppressed immune systems (HIV) have a higher risk for disease.

The incubation period, from infection to demonstrably primary lesion or significant tuberculin reaction, is about 4 to 12 weeks.

School Exclusion Guidelines

Communicable: Theoretically, a person is communicable as long as viable tubercle bacilli are being discharged from the sputum. Some untreated or inadequately treated persons may be sputum-positive intermittently for years.

Effective antimicrobial chemotherapy usually eliminates communicability within a few weeks, at least in the household setting. Children with primary tuberculosis are generally not infectious. See above under transmission.

Case: Adolescents and adults with TB disease are considered infectious until three consecutive negative sputum smears obtained on different days are negative, and they have begun taking prescribed anti-TB medications and their health care provider states, in writing, that they are not contagious. Children with TB infection or disease can return to school as soon as effective medical treatment has been instituted, adherence to therapy has been documented, clinical symptoms have disappeared, and an acceptable plan for completing the course of treatment has been developed.

Contacts: Contacts should be evaluated for level of exposure and treated as indicated by obtaining a history and physical examination, TB skin testing, and X-ray evaluation through the health care provider and/or the local health department.

Diagnosis

TB disease is diagnosed by a positive skin test, symptoms, and other test findings including X-ray.

TB Skin Testing. A positive TB skin test indicates TB infection but not necessarily TB disease. Standardized tuberculin skin testing (the intradermal Mantoux test is recommended by the Centers for Disease Control and Prevention [CDC], the American Thoracic Society [ATS], and the American Academy of Pediatrics [AAP]) to confirm a diagnosis in the presence of one or more of the following conditions: (1) history of contact with an individual with active tuberculosis, (2) contact with immigrants from an endemic area, (3) clinical and/or x-ray findings consistent with tuberculosis. All TB skin tests must be read by a health care professional 48 to 72 hours after placement. A reaction in the first 24 hours is not significant. The *1997 Red Book*¹³⁸ defines a positive TB skin test as:

Induration \geq 5 mm

Children in close contact with known or suspected infectious cases of TB:

- Households with active or previously active cases if treatment cannot be verified as adequate before exposure, treatment was initiated after the child's contact, or reactivation is suspected.

¹³⁸ American Academy of Pediatrics (1997). *1997 Red Book: Report of the Committee on Infectious Diseases*, 24th Edition. American Academy of Pediatrics, Elk Grove Village, Ill.

Children suspected to have TB:

- Chest roetgenogram consistent with active or previously active TB.
- Clinical evidence of TB. (Evidence on physical exam or laboratory assessment that would include TB in the working diagnosis; e.g., meningitis.)

Children receiving immunosuppressive therapy (including immunosuppressive doses of corticoid steroids) or with immunosuppressive conditions, including HIV infection.

Induration \geq 10 mm

Children at increased risk of disseminated disease:

- Young age: < 4 years of age.
- Other medical risk factors, including Hodgkin's disease, lymphoma, diabetes mellitus, chronic renal failure, or malnutrition.

Children with increased environmental exposure to TB:

- Born, or whose parents were born, in high-prevalence regions of the world.
- Frequently exposed adults who are HIV-infected, homeless, users of illicit drugs, residents of nursing homes, incarcerated or institutionalized persons, and migrant farm workers.
- Travel and exposure to high prevalence regions of the world.

Induration \geq 15 mm

Children \geq 4 years of age without any risk factors.

Note: Health care providers should consult the *1997 Red Book* for more extensive guidelines for skin test interpretation.

A negative Mantoux test never excludes TB infection or disease in the presence of symptoms, contacts, and suggestive chest X-ray. Interpretation of Mantoux test results in prior recipients of Bacillus Calmette Guerin Vaccine (BCG) can be difficult. Since reliable criteria for distinguishing a positive skin test result caused by BCG from that caused by TB infection are lacking, recommendations for interpreting Mantoux skin test results are generally the same as for those who have not received BCG.

Treatment

As many as four types of medicine are used to treat TB disease. Medication is usually taken for 6 to 12 months depending on the protocol used. Preventive

treatment to high-risk contacts and those with positive TB skin tests is given using current CDC recommendations.

Reporting Requirements

Reporting of persons confirmed or suspected of having tuberculosis disease must be made within 24 hours by the most rapid means available, preferable that of telecommunication, to the local health director or other professional employee of the local health department.

Tuberculosis infection in children age <4 years (Mantoux skin test reaction \geq 10 mm) must be reported to the local health department within seven days of diagnosis.

The local health department will contact the Virginia Department of Health, Division of Tuberculosis Control ([804] 786-6251) within 24 hours. The Division of Tuberculosis Control, in conjunction with the local health department, will help determine if screening of staff and students is required.

Notification Guidelines

When TB disease occurs within the school population, school health personnel (e.g., school nurses or consulting physician), in consultation with the local health department should determine whether some or all parents should be notified.

Prevention Guidelines

1. Develop a policy, in consultation with local health department, for responding to cases of communicable diseases.
2. Every effort should be made to adequately educate the community through a joint effort by the schools, local health department, and the Virginia Department of Health, Tuberculosis Control Program, when a case of TB disease occurs within the school population.