INFECTIOUS DISEASE

IN SCHOOL SETTINGS

GUIDELINES FOR
SCHOOL NURSES AND PERSONNEL

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and Environment

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(diseases in **bold** are reportable conditions in Colorado)
(* indicates a vaccine preventable disease)

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Acknowledgments: Staff at the Colorado Department of Public Health and Environment created the current version of these guidelines. We would also like to acknowledge the Colorado Department of Education, Tri-County Health Department, Weld County Health Department, The Children's Hospital School Health Program, and Aurora Public Schools for their comments and assistance in reviewing these guidelines.

DISEASES GROUPED BY TYPE OF SPREAD

INFECTIOUS DISEASE IN SCHOOLS

Infectious diseases are caused by organisms like bacteria, viruses, and parasites. Some infectious diseases can potentially be spread from one person to another. Illness caused by an infectious disease is a common occurrence in students. School nurses should be aware of infectious diseases that affect students and be familiar with how to minimize their spread. Since school nurses may or may not be on-site at the school, the designated staff member who handles illness issues should consult with the school nurse regularly. These guidelines address infectious diseases often seen in students. Most cases of illness are isolated to one student, but occasionally an outbreak of a particular disease can occur in a school. **Suspected outbreaks should be reported to the state or local public health agency immediately.**

These guidelines are based on current health information. Recommendations for handling infectious disease issues in schools may change as new information becomes available. The Communicable Disease Epidemiology Program at the Colorado Department of Public Health and Environment (CDPHE) is available to assist school nurses and personnel when infectious disease issues arise, and can be reached at (303) 692-2700. Local public health agencies are available for consultation on infectious disease issues as well.

Disease control guidelines for developmentally disabled or immunocompromised students may be different than the guidelines presented in this document. In situations where a developmentally disabled or immunocompromised student has an infectious disease or is exposed to another student with an infectious disease, the school nurse should be consulted. The state or the local public health agency is also available for consultation.

Child care settings have separate infectious disease guidelines due to the age of the children attending these facilities. The CDPHE document titled "Infectious Disease in Child Care Settings" addresses infectious disease issues commonly seen in child care settings, such as diaper changing and toilet training. These guidelines can be found on the CDPHE website: http://www.cdphe.state.co.us/dc/epidemiology/dc_guide.html

EXCLUSION GUIDELINES

School attendance is important for students. The decision to exclude students who have an infectious disease from school should be made in conjunction with the school nurse, the state or local public health agency, health care professionals, and/or parents/guardians. These guidelines contain exclusion recommendations for each disease or condition. Guidance on exclusion for certain symptoms can be found on page 57. Students should be allowed to return to school once the exclusion period is met, or a health care provider clears the student. Generally, if any of the following conditions apply, exclusion from school should be considered:

- If the student does not feel well enough to participate comfortably in usual activities.
- If the student requires more care than school personnel are able to provide.
- If the student has a high fever, behavior changes, persistent crying, difficulty breathing, lack of energy, uncontrolled coughing, or other signs suggesting a severe illness.
- If the student is ill with a potentially contagious illness and exclusion is recommended by a health care provider, the state or local public health agency, or these guidelines.

In cases where unvaccinated students are exposed to a vaccine preventable disease (such as measles, mumps, rubella, and pertussis), the state or local public health agency should be consulted in order to determine if exclusion of unvaccinated students is necessary.

Occasionally school personnel become ill with an infectious disease. When this occurs, the affected staff member should consult with the school nurse, school administration, the state or local public health agency, and/or a health care provider to determine if they can work. If ill with diarrhea or vomiting, school personnel should not work until the illness is over. This is especially important for staff that work in the cafeteria or handle food in any manner.

REPORTING REQUIREMENTS

Colorado law requires persons treating or having knowledge of a reportable disease, whether the disease is suspected or confirmed, to report the case to the state or local public health agency. In most cases, health care providers or laboratories report diseases. In certain circumstances, school nurses and personnel should report diseases, such as when a student is suspected of having measles, chickenpox, a serious infectious disease, or when an outbreak occurs. It is important to remember that only qualified health care providers can diagnose an illness. A list of diseases and conditions reportable in Colorado is available at: http://www.cdphe.state.co.us/dc/dceedhom.asp

Regarding confidentiality, the Family Rights and Privacy Act prohibits sharing of health-related information except in certain well-defined circumstances, including, but not limited to: specified officials for audit or evaluation purposes, and appropriate officials in cases of health and safety emergences. Notifying the state or local public health agency of a reportable disease does not breach confidentiality laws.

When a case is reported, public health agencies may conduct an investigation to confirm the diagnosis, treatment, and cause of the illness, and determine the appropriate methods of disease control. **Group outbreaks resulting from any cause, including foodborne outbreaks, must be reported to the state or local public health agency within 24 hours.** In an outbreak situation, the goal of the public health agency is to assist the school in preventing further spread of the illness and to try to determine the cause of the outbreak.

To report a disease or outbreak, contact your local public health agency, or CDPHE at (303) 692-2700 or 1-800-866-2759 (after-hours (303) 370-9395). To the extent it is available, the following information should be reported: diagnosis, patient's name, date of birth, sex, race, ethnicity, address, phone number, name and address of the responsible health care provider, and pertinent laboratory test results (if applicable).

HOW ILLNESS SPREADS

Infectious diseases can be spread in a variety of ways, referred to as transmission routes.

DROPLET TRANSMISSION / INFECTIOUS DISCHARGES

Diseases with respiratory tract symptoms (runny nose, cough, sore throat) are often spread by droplets containing viruses or bacteria or by surfaces contaminated with nose/throat discharges.

Droplets are generated during coughing, sneezing, or talking. These "large" droplets travel less than three feet before falling to the ground and do not remain suspended in the air. Before falling to the ground, droplets may be deposited on the mucous membranes of the eye, nose, or mouth of another person within three feet, resulting in disease transmission. In addition, sick students will often contaminate their hands and other objects with infectious nose/throat discharges. When another student comes in contact these objects and then touches their eyes, mouth, or nose, they can become infected. This type of transmission route is common in school settings. Some of the infections passed in this way are the common cold, chickenpox, influenza, meningitis (viral and bacterial), mumps, rubella, pink eye (conjunctivitis), strep throat, and whooping cough (pertussis),

AIRBORNE TRANSMISSION

This mode of transmission is rare and only a few diseases are spread by this route (measles, tuberculosis). Airborne transmission occurs when an infected person coughs, sneezes, or talks and generates very small respiratory particles (droplet nuclei) containing virus or bacteria. These small particles remain suspended in the air for long periods and can be widely dispersed by air currents. When another person inhales these small particles, they can potentially become ill.

FECAL→ORAL

Intestinal tract infections are often spread through oral ingestion of viruses, bacteria, or parasites found in the stool of an infected person or animal. This type of transmission happens when objects contaminated with microscopic amounts of human or animal feces are placed in the mouth. In school settings, the sites most frequently contaminated with feces are hands, classroom floors, faucet handles, toilet flush handles, toys and tabletops. Fecal→oral transmission can also occur when food or water is contaminated with microscopic amounts of human or animal feces and are then ingested. Organisms spread by this transmission route include: *Campylobacter, Cryptosporidium, E. coli* O157:H7, *Giardia,* hepatitis A, *Salmonella, Shigella,* and a variety of intestinal viruses. Other infections like hand, foot and mouth disease and viral meningitis can also be spread through the stool of an infected person.

SKIN CONTACT / DIRECT CONTACT

Some infections can be spread directly by skin-to-skin contact or indirectly by contact with contaminated surfaces like clothing. Chickenpox (varicella), shingles (herpes zoster), impetigo, head lice, ringworm, and scabies are all spread this way.

BLOOD / BODY SECRETIONS CONTACT

Some infections are transmitted when a cut or mucous membranes (linings of various body parts and internal organs) comes in contact with an infected person's blood or other body secretions like saliva, urine, and seminal and cervical fluids. This type of transmission is very rare in school settings. Diseases such as hepatitis B, hepatitis C, and the human immunodeficiency virus (HIV) can be spread by contact with infected blood. Infected students can possibly transmit these infections through biting if there is visible blood mixed with their saliva (i.e. from bleeding gums). CMV (cytomegalovirus) can be spread by body secretions like urine and saliva, and mononucleosis can be spread by saliva.

SEXUALLY TRANSMITTED DISEASES
These diseases are most commonly transmitted by sexual contact, including genital-to-genital, oral-to-genital, or genital-to-anal contact. HIV and AIDS, chlamydia, genital herpes, genital warts, gonorrhea, hepatitis B, nongonococcal urethritis, pelvic inflammatory disease, pubic lice (crabs), syphilis, and trichomonas can be spread in this way.

PREVENTION: HANDWASHING

Handwashing is one of the best tools for controlling the spread of infections. All students and staff should perform effective handwashing, which will reduce the amount of illness in schools.

HANDWASHING TECHNIQUE
- Use SOAP and warm RUNNING WATER.
- Rub hands vigorously as you wash them.
- Wash ALL surfaces including the backs of hands, wrists, between fingers and under fingernails.
- Rinse hands well.
- Dry hands with a paper towel or air dryer.
- If using paper towels, turn off the water using a paper towel instead of bare hands.

State health regulations for schools require that soap and paper towels or air dryers be available for all bathroom facilities. Schools often have a problem keeping the restrooms stocked with soap and paper towels due to students playing with the items and clogging toilets or making messes. It is suggested that schools try to find solutions to these problems rather than removing soap and paper towels from the restrooms.

WHEN TO WASH YOUR HANDS
- After coughing, sneezing, wiping your nose, and cleaning up messes.
- After using the toilet.
- Before eating or drinking.
- After handling animals.
- Whenever hands are dirty.
- Food handlers should wash hands before handling food and when hands are soiled.
- Students who are unable to wash their own hands should have assistance from staff.

Sanitizing hand gels have increased in popularity. It is recommended that these products be used in addition to regular handwashing and not in place of handwashing unless facilities are not readily available.

TEACHING HANDWASHING
Because students often learn by watching adults, it is important that school personnel use good handwashing technique. When young students are not washing their hands properly, it is necessary to show them proper technique in addition to telling them. It is also good to remind students that handwashing will stop the spread of germs that might cause illness.

PREVENTION: IMMUNIZATIONS

CHILDHOOD IMMUNIZATIONS

Immunizations help prevent serious illnesses. State health regulations require students attending out-of-home school settings to be up to date on all immunizations or have a valid exemption (either a medical, religious or personal exemption). Required immunizations include: diphtheria, tetanus, whooping cough (pertussis), polio, measles, mumps, rubella, hepatitis B, and chickenpox (varicella). Hepatitis A, influenza, and bacterial meningitis vaccines are available but not required for school attendance. Schools should have documentation of the immunization status of all students on file. Information on immunization requirements and forms can be found at the following website: http://www.cdphe.state.co.us/dc/Immunization/immhom.asp

ADULT IMMUNIZATIONS

It is strongly recommended that school personnel be vaccinated (or show laboratory evidence of immunity) against diphtheria, tetanus, mumps, measles, polio, chickenpox (varicella), and rubella (German measles). It is especially important for women of childbearing age to be immune to rubella as this infection can cause complications for the developing fetus.

PREVENTION: THE SCHOOL ENVIRONMENT

CLEANING AND SANITIZING

The facility operations/custodial services staff are usually responsible for most of the cleaning that occurs in schools. Individual classrooms can also take steps to clean and sanitize to help prevent transmission of infectious diseases. In classrooms with young children, toys should be cleaned and sanitized regularly, especially if the toys are soiled or placed in a child's mouth. Common areas, desks/tables, doorknobs and handles, and drinking fountains are examples of areas that should be kept clean and periodically sanitized.

Most facility operations/custodial services have some type of sanitizing solution available, and should be consulted if a classroom wishes to use sanitizer. A solution of unscented household chlorine bleach is also an appropriate sanitizer. Generally, a bleach solution made with one capful or one tablespoon of bleach per one gallon of water (a 50 to 200 parts per million (ppm) solution) is sufficient for sanitizing surfaces and is not toxic to humans. Bleach solutions may need to be made every couple of days because the concentration declines with time. Quaternary ammonia sanitizing solutions prepared per the container's label instructions (usually at a concentration of 200 ppm) are also effective. Test strips are available to test the strength of the bleach and quaternary ammonia sanitizers. Sanitizing solutions should be stored in a labeled container out of reach of students.

ANIMALS / PETS AT SCHOOL

Animals in the classroom can be beneficial in the education process, however some animals can transmit infectious diseases to humans. For example, many animals, especially reptiles, shed *Salmonella* bacteria in their feces without being sick themselves. People can contaminate their hands with feces when they handle or clean up after the animal, and disease can spread through the fecal→oral route explained above. Some animals are not appropriate for the classroom, such as: poisonous animals (like poisonous spiders, snakes, and insects); wild, stray, or aggressive

animals; or animals from an unknown source. To minimize the risk of students and staff acquiring an infectious disease from animals, simple precautions should be taken:

- Animal cages or enclosures should be kept clean and in good repair. If students assist in cleaning the cage(s), they should be supervised and should wash their hands afterwards.
- Students and staff should always wash their hands after any contact with animals, and after visiting places with animals such as zoos or farms.
- Students should never "kiss" animals or have them in contact with their faces.

APPROPRIATE ANTIBIOTIC USE

Antibiotics are important drugs that fight infections caused by bacteria. Over recent decades, bacteria have developed resistance to these drugs, partially due to antibiotic misuse and overuse. While antibiotics should be used to treat bacterial infections, they are not effective and should not be used with viral infections like the common cold, most sore throats, and influenza. Antibiotic-resistant infections may be more difficult to treat and may result in more serious illness if not initially treated with appropriate antibiotics.

SYMPTOMS OF ILLNESS

Schools have a role in assessing the health of students. School personnel should be trained to monitor student's behavior and note any symptoms of illness.

SYMPTOMS TO WATCH FOR

- Severe coughing (student gets red or blue in the face, makes high-pitched croupy or whooping sound after coughing, has coughing "fits", vomits after coughing)
- Breathing trouble
- Yellowish skin or eyes
- Pink eye (redness of eye; watering or discharge from the eye)
- Unusual spots or rashes
- Infected skin sores (crusty, bright yellow, dry or moist areas of skin)
- Fever
- Unusual behavior (student is cranky or less active than usual, won't eat, or seems unwell)
- Frequent scratching of the scalp or skin
- Diarrhea
- Gray or white stool
- Blood or mucous in the stool
- Dark, tea-colored urine
- Sore throat or trouble swallowing
- Headache
- Vomiting
- Loss of appetite

WHAT TO DO WHEN A STUDENT HAS SYMPTOMS

- Inform the school nurse or designated staff.
- Inform the student's parents/guardians.
- Separate the student from the other students.
- Take the student's temperature.
- If a student is coughing or sneezing, remind her/him to cover her/his mouth and to wash her/his hands afterwards.
- After you touch a student who might be sick, avoid touching other students until you have washed your hands.

RESOURCES

The following resources may be helpful when dealing with infectious disease issues in schools:

American Academy of Pediatrics (AAP): http://www.aap.org/

Antibiotic Resistance Information: http://www.getsmartcolorado.org/

Bloodborne Pathogens: contact CDPHE at (303) 692-2700

Centers for Disease Control and Prevention (CDC): http://www.cdc.gov/

The Children's Hospital - Denver: http://www.thechildrenshospital.org/
School Health Program: (303) 281-2790

Colorado Department of Education (CDE): http://www.cde.state.co.us/index_home.htm
School Health Services Principal Consultant: Judy Harrigan, RN, MSN (303) 866-6779

Colorado Department of Public Health and Environment (CDPHE):
http://www.cdphe.state.co.us/cdphehom.asp Main Phone: (303) 692-2000 or 1-800-866-7689
Child and Adolescent Health: http://www.cdphe.state.co.us/sub/childhealthsub.asp
Child Health Nurse Consultant: Cathy White, RN, MSN (303) 692-2328
Communicable Disease Epidemiology Program: http://www.cdphe.state.co.us/dc/dceedhom.asp
Hepatitis Program: http://www.cdphe.state.co.us/dc/Hepatitis/hep_home.asp
Immunization Program: http://www.cdphe.state.co.us/dc/Immunization/immhom.asp
Sexually Transmitted Diseases Program: http://www.cdphe.state.co.us/dc/hivstdprogs.asp
Tuberculosis Program: http://www.cdphe.state.co.us/dc/tb/tbhome.html

Local health departments, public health nursing services, and/or environmental health services: http://www.cdphe.state.co.us/as/locallist.asp

Rocky Mountain Poison and Drug Center: http://www.rmpdc.org/ Phone: 1-800-222-1222

Publications: "The Red Book" – published by the American Academy of Pediatrics
"Control of Communicable Diseases Manual" – published by the American Public Health Association

ANIMAL BITES / RABIES

DESCRIPTION

Animal bites, especially dog and cat bites, occur frequently. Bites can result in psychological and physical trauma, transmission of disease, and occasionally death. Rabies is a fatal viral disease that affects the nervous system of humans and other mammals. The virus is shed in the saliva of infected mammals, and appears in saliva around the time of symptom onset. On average, one or two people die of rabies each year in the United States. As of 2004, the last human case of rabies in Colorado was in 1931. The majority of animal rabies cases in the United States occur in four wild animals species: raccoons, skunks, bats, and foxes. Rabies in domestic animals (like cats and dogs), rodents, and lagomorphs (hamsters, guinea pigs, squirrels, and rabbits) is infrequent. In Colorado, the primary reservoir for rabies is the bat.

INCUBATION PERIOD

Rabies: 9 days to 7 years (usually 3 to 8 weeks)

HOW CAN THE INFECTION BE SPREAD?

Rabies is transmitted through the saliva of infected mammals, primarily through a bite. Animals are contagious as long as symptoms are present.

SCHOOL / NURSE RESPONSIBILITY

1. REPORTING: Report the animal bite incident to the local animal control agency, state or local public health agency, or police department within **24 hours**.
2. The parents/guardians of a student bitten by an animal must be notified.
3. A student with an animal bite should receive immediate medical treatment.
4. Occasionally students are found touching or playing with live or dead bats. If this occurs, the state or local public health agency must be notified immediately and the bat must be submitted to the CDPHE laboratory for rabies testing.

CONTROL OF SPREAD

1. EXCLUSION: Exclusion of a student involved in an animal bite is not necessary.
2. Students should be instructed not to approach or attempt to pet strange animals, or approach or handle any wild animal.
3. All dogs, cats, and ferrets should be vaccinated against rabies.
4. A dog, cat, or ferret involved in a human bite must be observed for 10 days following the bite. The local animal control agency or police/sheriff department usually enforces this observation period.

TREATMENT

Animal bite treatment includes thorough cleaning of the wound and tetanus prophylaxis if appropriate (see page 54). Occasionally antibiotics are prescribed to treat bacterial infections associated with animal bites. There is no treatment for rabies after symptoms appear. Rabies vaccine can provide immunity when administered after an exposure. The treating health care provider and state or local public health agency will evaluate each bite incident to determine if rabies vaccine is needed. In general, skunks, raccoons, foxes, and bats have rabies until proven otherwise. In Colorado, dog and cat bites usually do not require rabies vaccine.

CHICKENPOX (Varicella), SHINGLES (Herpes zoster)

AGENT: Varicella-zoster virus (VZV), a member of the herpesvirus family.

DESCRIPTION
Chickenpox is a highly contagious viral illness characterized by fever, fatigue, and an itchy rash. The rash begins as small flat spots, becomes blister-like for 3 or 4 days, and then scabs over. Several crops of blisters will appear over a 2 to 4 day period. The rash tends to occur more on the trunk than on the extremities and may appear on the scalp and inside the mouth. The virus remains inactive in the person's nerve cells after chickenpox resolves, and reactivation can occur later in life resulting in shingles.

INCUBATION PERIOD
Chickenpox: 10 to 21 days (usually 14 to 16 days); Shingles: variable

HOW CAN THE INFECTION BE SPREAD?
Chickenpox is spread through direct contact with the rash or nose/throat discharges of infected people. A person is contagious one to two days before the rash appears until all the blisters have crusted over (usually 5 days after rash onset). Contact with shingles blisters can cause chickenpox in individuals who have never had chickenpox.

SCHOOL / NURSE RESPONSIBILITY
1. REPORTING: Report cases of chickenpox to the state or local public health agency within 7 days of a suspected or confirmed diagnosis. Shingles cases do not need to be reported.
2. Referral to a health care provider is optional unless symptoms are severe.

CONTROL OF SPREAD
1. EXCLUSION: Students with chickenpox should be excluded from school until all blisters have crusted over. Students with shingles may attend school if the blisters are covered.
2. Properly dispose of articles soiled with nose/throat discharges.
3. A single dose of varicella vaccine is recommended for children aged 12 to 18 months. Susceptible adolescents (aged 13 years and older) should receive two doses. Starting in 2003, children aged 18 months through third grade must be vaccinated, have a history of chickenpox, or a vaccine exemption in order to attend child care or school. Each school year an additional grade level will be added to the requirement until 2013 when all grades (K-12) will be included.
4. Varicella vaccine administered within 3 to 5 days of exposure may prevent the disease.
5. The CDPHE chickenpox website contains information on: chickenpox vaccine, including guidance for vaccine effectiveness during outbreaks and guidance for students who develop a rash following vaccination; a sample letter to notify parents/guardians that there is a chickenpox case at the school; and reporting and disease control guidelines and forms. The website is: http://www.cdphe.state.co.us/dc/epidemiology/Varicella

TREATMENT
ASPIRIN SHOULD BE AVOIDED because it increases the risk of Reye's Syndrome, a serious disorder that can lead to coma and death. If a medicine to lower temperature or reduce discomfort is necessary, acetaminophen-containing medicines (like Tylenol) are recommended.

CMV (CYTOMEGALOVIRUS)

AGENT: A virus that is a member of the herpesvirus family.

DESCRIPTION

Cytomegalovirus (CMV) infection is most common in children under the age of five years. Most infections cause no symptoms or mild symptoms such as a low-grade fever. The disease can be more serious in persons with impaired immune systems. The virus is a frequent cause of post-transplant and post-transfusion infections. Most people have been exposed to CMV by the time they are adults and are immune to it. Infants can be infected before they are born. A small percentage of these infants will develop illness, while most will not have symptoms and will be immune to subsequent infections.

INCUBATION PERIOD

About 3 to 12 weeks

HOW CAN THE INFECTION BE SPREAD?

CMV is spread by contact with body secretions of infected individuals (in children, primarily saliva and urine). Infection requires close contact with a person excreting the virus. People are contagious as long as the virus is in body secretions, which can be months or years.

SCHOOL / NURSE RESPONSIBILITY

1. REPORTING: Individual cases are not reportable. The school nurse should be consulted for specific concerns, or consultation with the state or local public health agency is available.
2. Referral to a health care provider is optional unless symptoms are severe.

CONTROL OF SPREAD

1. EXCLUSION: Exclusion is not necessary.
2. Women of childbearing age working with young children should pay close attention proper handwashing procedures (especially those who work with developmentally disabled students).
3. Encourage frequent handwashing and proper hygiene techniques.

TREATMENT

There is no treatment for CMV infection in healthy individuals. However, immunocompromised individuals should consult a health care provider regarding appropriate treatment.

COMMON COLD

AGENT: At least 100 different viruses.

DESCRIPTION

The common cold is an upper respiratory illness characterized by runny or stuffy nose, sneezing, coughing, watery eyes, mild sore throat, chills, and fatigue lasting two to seven days. Fever is uncommon in children over 3 years of age and is rare in adults.

INCUBATION PERIOD

About 1 to 3 days (usually 48 hours)

HOW CAN THE INFECTION BE SPREAD?

The common cold is spread through contact with droplets (produced by coughing and sneezing) and infectious discharges from an infected person. Contact with hands, tissues, and other articles contaminated with nose/throat discharges of ill people can spread the virus. People are contagious one day before the onset of symptoms until five days afterwards.

SCHOOL / NURSE RESPONSIBILITY

1. REPORTING: Individual cases are not reportable. The school nurse should be consulted for specific concerns, or consultation with the state or local public health agency is available.
2. If the student develops more severe symptoms or experiences ongoing symptoms, he/she should be referred to a health care provider to be checked for secondary complications (such as bronchitis, sinus infections, middle ear infections, and laryngitis).

CONTROL OF SPREAD

1. EXCLUSION: Exclusion is not necessary, unless the student is displaying severe symptoms like fever accompanied by behavior change, or difficulty breathing.
2. Encourage frequent handwashing and proper hygiene techniques.
3. Teach students to cover their mouth when coughing and sneezing.
4. Properly dispose of articles soiled with nose/throat discharges, such as tissues.

TREATMENT

There is no specific treatment for the common cold. Acetaminophen-containing medicines (such as Tylenol), cough suppressants, and decongestants may be used in children older than 3 months in order to relieve symptoms. ASPIRIN SHOULD BE AVOIDED because it increases the risk of Reye's Syndrome, a serious disorder that can lead to coma and death. Antibiotics should not be used for viral infections such as the common cold.

DIARRHEAL ILLNESSES: CAMPYLOBACTERIOSIS

AGENT: *Campylobacter*, a bacterium.

DESCRIPTION
Campylobacter infection causes an intestinal illness referred to as camplyobacteriosis. Symptoms include diarrhea (sometimes bloody), low-grade fever, malaise, and abdominal pain. Campylobacteriosis is the most commonly reported bacterial intestinal illness in the United States.

INCUBATION PERIOD
1 to 10 days (usually 2 to 5 days)

HOW CAN THE INFECTION BE SPREAD?
Transmission is through the fecal→oral route and can occur when a person drinks contaminated water or unpasteurized milk, eats contaminated food (it is commonly found in raw poultry) or comes into contact with animals that are infected (including pets and farm animals). Transmission can occur from person-to-person through the fecal→oral route, but this is not common. *Camplyobacter* can be spread as long as the bacteria are in the stool. A person may be contagious for a few days after symptoms are gone, but is most contagious while having diarrhea.

SCHOOL / NURSE RESPONSIBILITY
1. REPORTING: Report the infection to the state or local public health agency within 7 days of diagnosis.
2. It is recommended that suspect cases be referred to a health care provider.

CONTROL OF SPREAD
1. EXCLUSION: Exclude the affected student until diarrhea has resolved. Exclude affected individuals from food preparation until cleared by the state or local public health agency.
2. Encourage frequent handwashing, especially after animal contact, after using the toilet, and before eating.
3. Serve only pasteurized milk, juice, and dairy products.
4. Poultry products should be cooked to an internal temperature of at least 165°F.
5. Minimize cross-contamination with raw meat juices.
6. Promptly sanitize contaminated surfaces. If food or water is thought to be contaminated, it should be discarded.

TREATMENT
Treatment with antibiotics shortens the duration of the illness and prevents relapse when given early in the infection. Antibiotic treatment is typically 5 to 7 days, and usually eradicates the organism from the stool within 2 or 3 days.

DIARRHEAL ILLNESSES: CRYPTOSPORIDIOSIS

AGENT: *Cryptosporidium parvum*, a parasite.

DESCRIPTION
Cryptosporidium infection causes an intestinal illness referred to as cryptosporidiosis. In children, symptoms often begin with loss of appetite and vomiting. The most common symptom is frequent non-bloody watery diarrhea. Other common symptoms include abdominal cramping and general malaise. Some people can be infected without showing any symptoms. The infection can be more severe in people with weakened immune systems. Healthy children usually get better on their own. The illness usually lasts an average of 10 days, but can possibly last up to 20 days.

INCUBATION PERIOD
1 to 12 days (usually 7 days)

HOW CAN THE INFECTION BE SPREAD?
People are contagious as long as they have the parasite in their intestine, and are most contagious while they have diarrhea. The parasite may be present in the stool for several weeks after symptoms subside. Fecal→oral transmission occurs by ingesting the parasite from the stool of infected people or animals. People can be exposed to this parasite when they swim in or drink contaminated water, eat contaminated food, or visit a petting zoo where animals are infected. The parasite can survive outside the body for 2 to 6 months in moist surroundings.

SCHOOL / NURSE RESPONSIBILITY
1. REPORTING: Report the infection to the state or local public health agency within 7 days of diagnosis.
2. Affected individuals should not swim in pools or other recreational water until 2 weeks after their diarrhea has resolved.
3. It is recommended that suspect cases be referred to a health care provider.

CONTROL OF SPREAD
1. EXCLUSION: Exclude the affected student until diarrhea has resolved. Exclude affected individuals from food preparation until cleared by the state or local public health agency.
2. Encourage frequent handwashing and proper hygiene techniques.
3. Chlorine sanitizers (such as bleach) do not kill this organism. A non-chlorine sanitizer should be used to sanitize contaminated articles (such as a 5% ammonia solution or 3% hydrogen peroxide solution for ten minutes). Heat (140°F for two minutes) will also destroy the organism.
4. Untreated water (such as water from lakes, ponds, springs, rivers, and streams) should not be used as drinking water unless it is boiled for at least one minute or adequately filtered. Chemical disinfectants such as chlorine and iodine are not effective at killing *Cryptosporidium*.

TREATMENT
There is no specific treatment for cryptosporidiosis. Affected students should be given plenty of fluids to prevent dehydration.

DIARRHEAL ILLNESSES:
E. COLI O157:H7 & OTHER SHIGA TOXIN PRODUCING BACTERIA

AGENT : Certain types of *Escherichia coli* bacteria (especially O157:H7 serotype) that produce shiga toxin.

DESCRIPTION
E. coli O157:H7 can cause illness ranging from mild intestinal symptoms to severe kidney complications. In most cases, the illness is mild and lasts one to three days. Typical symptoms are a sudden onset of bloody diarrhea and abdominal cramps with little or no fever. Sometimes vomiting and watery (non-bloody) diarrhea are present. Occasionally, young children develop hemolytic uremic syndrome (HUS) as a result of this infection. HUS is a serious condition where red blood cells are destroyed and the kidneys fail.

INCUBATION PERIOD
2 to 10 days (usually 3 to 4 days)

HOW CAN THE INFECTION BE SPREAD?
Exposure to *E. coli* can occur from eating contaminated food products, including undercooked ground beef, unpasteurized fruit juice, contaminated produce, and raw milk. People having contact with farm animals or petting zoos have also been infected. *E. coli* is highly contagious and can spread person-to-person through the fecal→oral route. Transmission is possible as long as the bacteria are present in the stool. Typically, the duration of bacterial shedding in the stool is one to three weeks.

SCHOOL / NURSE RESPONSIBILITY
1. REPORTING: Report the infection to the state or local public health agency within 7 days of diagnosis.
2. Suspect cases or students with bloody diarrhea should be referred to a health care provider.

CONTROL OF SPREAD
1. EXCLUSION: Exclude the affected student until diarrhea has resolved. Exclude affected individuals from food preparation until cleared by the state or local public health agency. Students who wear diapers should be excluded until they have two consecutive negative stool samples collected 24 hours apart.
2. Cook ground beef until it reaches an internal temperature of at least 155°F, is no longer pink, and the juices run clear. Minimize cross-contamination with raw meat juices.
3. Serve only pasteurized milk, juice, and dairy products.
4. Encourage frequent handwashing, especially after animal contact, after using the toilet, and before eating.
5. Promptly sanitize contaminated surfaces. If food or water is thought to be contaminated, it should be discarded.

TREATMENT
For mild illness, antibiotics have <u>not</u> been shown to shorten the duration of symptoms and may increase complications in some people.

DIARRHEAL ILLNESSES:
GIARDIASIS

AGENT: *Giardia lamblia*, a parasite.

DESCRIPTION
Giardia causes an intestinal infection in people and animals referred to as giardiasis. Symptoms may include diarrhea, foul-smelling stools, abdominal cramping, excess gas or bloating, fatigue, nausea, and sometimes vomiting and weight loss. Fever and bloody stools are not usually seen with *Giardia* infections. Many people infected with *Giardia* have no symptoms.

INCUBATION PERIOD
3 to 25 days or longer (usually 7 to 10 days)

HOW CAN THE INFECTION BE SPREAD?
Giardia is spread by the fecal→oral route and may result from drinking fecally contaminated water or eating contaminated food. Transmission from person-to-person does occur. Cases are contagious as long as the organism is present in the stool, which can be months. Cases with diarrhea are more likely to spread the infection than those who are infected but do not have symptoms.

SCHOOL / NURSE RESPONSIBILITY
1. REPORTING: Report the infection to the state or local public health agency within 7 days of diagnosis.
2. It is recommended that suspect cases be referred to a health care provider.

CONTROL OF SPREAD
1. EXCLUSION: Exclude the affected student until diarrhea has resolved. Exclude affected individuals from food preparation until cleared by the state or local public health agency.
2. Encourage frequent handwashing, especially after animal contact, after using the toilet, and before eating.
3. Promptly sanitize contaminated surfaces. If food or water is thought to be contaminated, it should be discarded.
4. Untreated water (such as water from lakes, ponds, springs, rivers, and streams) should not be used as drinking water unless it is boiled for at least one minute, adequately filtered, or adequately treated with chemical disinfectants like chlorine or iodine.

TREATMENT
Several prescription drugs are available to treat giardiasis. Testing and treatment of students with no symptoms is usually not necessary.

DIARRHEAL ILLNESSES:
HEPATITIS A

AGENT: Hepatitis A virus (HAV).

DESCRIPTION
Hepatitis A is a viral infection that causes inflammation of the liver. Symptoms may include abdominal pain, loss of appetite, nausea, low-grade fever, fatigue, yellow skin and eyes (jaundice), dark urine, pale stools, and diarrhea. The disease ranges from a mild illness lasting one to two weeks to a severe disease lasting several months. Older children and adults are more likely to have symptoms, while young children may have mild symptoms or no symptoms at all. A blood test for hepatitis A antibodies (IgM) is needed to diagnose this infection.

INCUBATION PERIOD
15 to 50 days (usually 25 to 30 days)

HOW CAN THE INFECTION BE SPREAD?
A person is most contagious in the two weeks before symptoms begin, and slightly contagious for a week after jaundice begins. The disease is spread through the fecal→oral route (through consumption of contaminated food and water or through person-to-person transmission) and can be spread by people who do not have symptoms.

SCHOOL / NURSE RESPONSIBILITY
1. REPORTING: Report the infection to the state or local public health agency within **24 hours** of a suspected or confirmed diagnosis.
2. Consult with the local public health agency to evaluate whether anyone should receive immune globulin (IG), which may prevent illness or lessen the severity of symptoms. Parents/ guardians, siblings, or close playmates may need IG. However, in most instances, teachers and classmates are not at risk of becoming infected.
3. Notify the state or local public health agency if the hepatitis A case prepares food for others.
4. It is recommended that suspect cases be referred to a health care provider.

CONTROL OF SPREAD
1. EXCLUSION: Exclude the affected student from school until one week after onset of symptoms or jaundice. Exclude affected individuals from food preparation until cleared by the state or local public health agency.
2. Encourage frequent handwashing, especially before handling food, before eating, and after using the toilet.
3. Hepatitis A vaccine is recommended for all children over the age of two years. Vaccine given after exposure may not prevent infection, however it may provide protection against future exposure. Unvaccinated people can be given IG during the first two weeks after exposure.
4. Promptly sanitize contaminated surfaces. If food or water is thought to be contaminated, it should be discarded.

TREATMENT
No specific treatment is available.

DIARRHEAL ILLNESSES:
SALMONELLOSIS

AGENT: Various serotypes of *Salmonella*, a bacterium.

DESCRIPTION
Salmonella infection can cause an intestinal illness referred to as salmonellosis. Symptoms include diarrhea, abdominal pain, nausea, vomiting and sometimes blood or mucus in the stool. Fever is usually present. Infections with *Salmonella* serovar Typhi (Typhoid Fever) are treated and investigated differently than other *Salmonella* infections, and the state or local public health agency should be notified immediately.

INCUBATION PERIOD
6 to 72 hours (usually 12 to 36 hours)

HOW CAN THE INFECTION BE SPREAD?
Salmonella is spread by the fecal→oral route through eating contaminated food, drinking, contaminated water, or putting contaminated objects in the mouth. *Salmomella* is also spread from person-to-person and from animals to people (especially reptiles and chicks). Food items that have been associated with infection include undercooked meat/poultry or eggs, unpasteurized milk, and produce. Cases are contagious throughout the period of illness and for a variable time after the symptoms have gone away, however people who are having diarrhea are more likely to spread the illness than those whose symptoms have resolved.

SCHOOL / NURSE RESPONSIBILITY
1. REPORTING: Report the infection to the state or local public health agency within 7 days of diagnosis.
2. It is recommended that suspect cases be referred to a health care provider.

CONTROL OF SPREAD
1. EXCLUSION: Exclude the affected student until diarrhea has resolved. Exclude affected individuals from food preparation until cleared by the state or local public health agency.
2. Encourage frequent handwashing, especially after animal contact, after using the toilet, and before eating.
3. Serve only pasteurized milk, juice, and dairy products.
4. Poultry products should be cooked to an internal temperature of 165°F.
5. Minimize cross-contamination with raw meat juices.
6. Restrict reptiles or the handling of reptiles in the classroom.
7. Promptly sanitize contaminated surfaces. If food or water is thought to be contaminated, it should be discarded.

TREATMENT
People are not given antibiotics for mild cases of salmonellosis because antibiotics do not shorten the duration of illness and may prolong shedding of the bacteria in the stool.

DIARRHEAL ILLNESSES:
SHIGELLOSIS

AGENT: *Shigella*, a bacterium.

DESCRIPTION
Shigella infection causes an intestinal illness referred to as shigellosis. Symptoms include diarrhea (sometimes with blood or mucus), fever, vomiting, and abdominal cramps. Most infections resolve in 2 to 3 days. Sometime people can be infected and not show any symptoms. Animals do not carry or spread this bacteria.

INCUBATION PERIOD
1 to 7 days (usually 1 to 3 days)

HOW CAN THE INFECTION BE SPREAD?
Shigella is highly contagious and spreads easily from person-to-person. *Shigella* is spread by the fecal→oral route through direct contact with infected people, by coming into contact with contaminated surfaces, or by eating food contaminated by infected persons. Cases are contagious as long as the organism is present in the stool, which can be weeks. Cases with diarrhea are more likely to spread it than those who are infected but do not have symptoms.

SCHOOL / NURSE RESPONSIBILITY
1. REPORTING: Report the infection to the state or local public health agency within 7 days of diagnosis.
2. It is recommended that suspect cases be referred to a health care provider.

CONTROL OF SPREAD
1. EXCLUSION: Exclude the affected student until diarrhea has resolved. Exclude affected individuals from food preparation until cleared by the state or local public health agency. Students who wear diapers should be excluded until they have two consecutive negative stool samples collected 24 hours apart.
2. Encourage frequent handwashing, especially after using the toilet, and before eating.
3. Promptly sanitize contaminated surfaces. If food or water is thought to be contaminated, it should be discarded.

TREATMENT
Antibiotics can be used to treat infections, but some antibiotics will not eliminate these bacteria. Antibiotic treatment is recommended for cases with severe disease or underlying immunosuppressive conditions. Some *Shigella* bacteria have become resistant to certain antibiotics. Laboratory tests can determine which antibiotics are effective for a specific *Shigella* case.

DIARRHEAL ILLNESSES:
VIRAL GASTROENTERITIS (such as Norovirus)

AGENT: A variety of viruses, including: rotavirus, adenovirus, calicivirus, astrovirus, and norovirus.

DESCRIPTION
Often referred to as "stomach flu" (a misnomer, as it is not caused by the influenza virus), symptoms of viral gastroenteritis include low-grade fever, nausea, vomiting, diarrhea, abdominal cramps, and headache. Viral gastroenteritis is seen more often in the winter months.

INCUBATION PERIOD
10 hours to 4 days (usually 1 to 2 days)

HOW CAN THE INFECTION BE SPREAD?
Viral gastroenteritis is highly contagious and is spread mainly through the fecal→oral route, either by consumption of fecally contaminated food or water, or by direct person-to-person spread. It may also be spread by inhaling virus particles that have been released into the air when an infected person vomits or has diarrhea. People with vomiting or diarrhea are most likely to spread the virus, however it can be spread for several days after symptoms have resolved.

SCHOOL / NURSE RESPONSIBILITY
1. REPORTING: Individual cases are not reportable. The school nurse should be consulted for specific concerns, or consultation with the state or local public health agency is available. Clusters of illness (such as two or more people ill with similar symptoms closely grouped in terms of time and place) should be reported to the state or local public health agency immediately.
2. Persons with severe or prolonged diarrhea (lasting longer than 2 to 3 days) or who have a high fever or bloody diarrhea should be referred to a health care provider.

CONTROL OF SPREAD
1. EXCLUSION: Exclude the affected student until diarrhea and vomiting has resolved. Exclude affected individuals from food preparation until cleared by the state or local public health agency.
2. Encourage frequent handwashing, especially after using the toilet and before eating.
3. Promptly sanitize contaminated surfaces with a bleach-based or other appropriate sanitizer. If food or water is thought to be contaminated, it should be discarded.

TREATMENT
There is no specific treatment for viral gastroenteritis. Fluids are important to prevent dehydration. No immunization is available.

FIFTH DISEASE

AGENT: Human parvovirus B19.

DESCRIPTION
Fifth disease is a common and mild childhood illness. Symptoms may begin with a fever and face rash, producing a "slapped-cheek" appearance, followed by a lace-like rash on the trunk, arms, and legs. A child may also have swollen glands, red eyes, sore throat, diarrhea, and a blister or bruise-like rash. Joint swelling and pain can occur in older children. Infection without symptoms is common as well. Infection leads to long-term immunity. Over 50% of adults are immune to the disease. For women who have never been infected, there is a small risk of miscarriage if they become infected while they are pregnant. Infection is not a proven cause of birth defects.

INCUBATION PERIOD
4 to 21 days

HOW CAN THE INFECTION BE SPREAD?
Fifth disease is spread from person-to-person through contact with nose/throat discharges. Sneezing and coughing is a major mode of transmission. Contaminated utensils and drinking glasses can spread the infection as well. A child is most likely to spread the virus during the week before the rash formation. Once the rash appears a person is unlikely to be contagious.

SCHOOL / NURSE RESPONSIBILITY
1. REPORTING: Individual cases are not reportable. The school nurse should be consulted for specific concerns, or consultation with the state or local public health agency is available.
2. Inform parents/guardians of outbreaks since the disease is highly contagious.
3. Referral to a health care provider is optional unless symptoms are severe.

CONTROL OF SPREAD
1. EXCLUSION: Exclusion is not necessary since the student is no longer contagious by the time the disease is recognizable.
2. Routine exclusion of pregnant staff members when fifth disease is occurring is not recommended. However, pregnant staff members may choose to avoid exposure during an outbreak. A pregnant woman exposed to fifth disease is advised to contact a health care provider regarding counseling and antibody testing.
3. Encourage students to cover their mouths and noses when sneezing or coughing.
4. Dispose of tissues soiled with nose/throat discharges.
5. Wash hands after contact with any item soiled with nose/throat discharges.

TREATMENT
There is no specific treatment. Most infections are mild enough that they do not require medicine.

HAND, FOOT AND MOUTH DISEASE

AGENT: Strains of enteroviruses, such as coxsackieviruses and echoviruses.

DESCRIPTION

Hand, foot and mouth disease (HFMD) is a common and mild childhood illness. The most common symptoms are fever, poor appetite, malaise, sore throat, and the appearance of small blistering sores. The sores appear in the mouth, on the palms of the hands, and on the soles of the feet. The sores fade without treatment in 7 to 10 days. Since several different types of viruses can cause HFMD, people can develop the disease more than once if exposed to a different virus type. HFMD is most common in children under 10 years of age.

INCUBATION PERIOD

Usually 3 to 6 days

HOW CAN THE INFECTION BE SPREAD?

Infection is spread from person-to-person through direct contact with nose/throat discharges or stool of infected persons. An infected person is most contagious during the first week of the illness. However, the virus can be present in the stool for 4 to 6 weeks.

SCHOOL / NURSE RESPONSIBILITY

1. REPORTING: Individual cases are not reportable. The school nurse should be consulted for specific concerns, or consultation with the state or local public health agency is available.
2. Referral to a health care provider may be necessary to ensure that the student does not have a more serious disease (such as measles).

CONTROL OF SPREAD

1. EXCLUSION: Exclusion is not necessary unless the student has mouth sores and is drooling uncontrollably.
2. Encourage students to cover their mouths and noses when sneezing or coughing.
3. Dispose of tissues soiled with nose/throat discharges.
4. Encourage frequent handwashing, especially after contact with any item soiled with nose/throat discharges and after going to the bathroom.
5. Sanitize contaminated surfaces.

TREATMENT

There is no specific treatment. Over-the-counter medications can provide some degree of relief from fever or aches and pains associated with the sores.

HEAD LICE (Pediculosis)

AGENT: *Pediculus humanus capitis*, the head louse.

DESCRIPTION

Head lice are common among children in all socioeconomic groups, and are not a health hazard or a sign of uncleanliness. Lice are the size of a sesame seed and feed on small amounts of blood. Lice lay oval-shaped eggs (nits) that are firmly attached to hair close to the scalp. Itching behind the ears and above the neck is the main symptom, however most people have no symptoms. Animals do not carry lice that can spread to humans, and human lice do not live on animals.

INCUBATION PERIOD

Nits hatch in 10 to 14 days. Adults live 3 to 4 weeks.

HOW CAN THE INFECTION BE SPREAD?

Head lice are spread by direct contact with the head of an infested person, or by contact with items used by an infested person (such as combs, brushes, and hats). Lice cannot hop or fly. A person is contagious as long as they are infested with live lice.

SCHOOL / NURSE RESPONSIBILITY

1. REPORTING: Individual cases are not reportable. The school nurse should be consulted for specific concerns, or consultation with the state or local public health agency is available.
2. Referral to a health care provider may be necessary, especially if the infestation continues after treatment which may indicate that the lice are resistant to the treatment.
3. Notify parents/guardians of students found to have an active infestation.
4. Provide educational materials to teachers, students, and parents/guardians.

CONTROL OF SPREAD

1. EXCLUSION: Exclude a student with an active infestation **from the end of the school day** until after the first treatment. Students who have completed their first treatment should not be excluded from school if nits are present ("no-nit" policies are discouraged). Nits found on the hair shaft more than a quarter inch from the scalp are likely already hatched or dead.
2. Students likely to have had direct head-to-head contact with an infested student should be checked for lice preferably by their parents/guardians at home, and treated if live lice are found. Checking entire classrooms or schools has not shown to be effective at controlling spread.
3. Parents/guardians of infested students should be instructed about in-home control measures and should check other household members for lice.
4. Students clothing and personal items should be stored separately (hooks, cubbie holes, etc.).

TREATMENT

Over-the-counter and prescription treatments are available. **Treatment instructions should be followed closely. Flammable or toxic substances, such as gasoline or kerosene, should never be used.** Nits can survive treatment, so a second treatment is often needed 7 to 10 days after the first treatment. Removing nits from the hair using a nit comb is often recommended, however this can be difficult in children with long hair.

HEPATITIS B (Serum Hepatitis)

AGENT: Hepatitis B virus (HBV).

DESCRIPTION
Hepatitis B virus infects the liver. It is impossible to distinguish between hepatitis A and B based on symptoms. Symptoms include nausea, fatigue, lack of appetite, and jaundice (yellowing of the skin and whites of the eyes). The onset of hepatitis B is generally less abrupt than hepatitis A. Hepatitis B virus can cause lifelong infection, cirrhosis (scarring) of the liver, liver cancer, liver failure, and death.

INCUBATION PERIOD
2 to 6 months (usually 2 to 3 months)

HOW CAN THE INFECTION BE SPREAD?
Hepatitis B is transmitted by direct inoculation of infective blood or body fluids into fresh cuts, wounds, or mucous membranes, or by intimate sexual contact. It can also be spread by sharing nonsterilized needles or syringes, or from a pregnant mother to her infant in the womb. Persons are contagious as long as the virus is in the blood, which can be several weeks before the onset of symptoms, throughout the clinical course of the illness, and in some cases, into a carrier state that may last for many years.

SCHOOL / NURSE RESPONSIBILITY
1. REPORTING: Report the infection to the state or local public health agency within 7 days of diagnosis.
2. Referral to a health care provider is mandatory.

CONTROL OF SPREAD
1. EXCLUSION: Exclusion is not necessary.
2. Surfaces contaminated with blood should be cleaned and sanitized while wearing medical exam quality gloves, then sanitized with a bleach-based or other appropriate sanitizer. Dispose of soiled items in plastic bags.
3. The hepatitis B vaccine is recommended for all children who do not have a contraindication to any component of the vaccine (see the vaccine package insert for additional information on contraindications). The vaccine typically requires three doses. More than 95% of individuals that complete the three dose series will have protective antibodies. Boosters are not recommended. The Colorado School Immunization Rules requires students to be vaccinated against hepatitis B or have an appropriate exemption.
4. Hepatitis B virus is not spread through casual contact in a typical school setting.

TREATMENT
There is no specific treatment for acute hepatitis B infections. There are treatment options for cases with chronic hepatitis B.

HEPATITIS C

AGENT: Hepatitis C virus (HCV).

DESCRIPTION
Hepatitis C virus infects the liver. The onset of hepatitis C is usually less abrupt than hepatitis A, but symptoms are similar. Disease severity ranges from inapparent infection to severe cases and is rarely fatal. Chronic liver disease may develop. Most children do not have symptoms.

INCUBATION PERIOD
2 weeks to 6 months (usually 6 to 7 weeks)

HOW CAN THE INFECTION BE SPREAD?
Hepatitis C is transmitted by direct inoculation of infective blood or blood products. It can also be spread by sharing nonsterilized needles or syringes, or from a pregnant mother to her infant in the womb. Cases are contagious one or more weeks before onset of symptoms and as long as the virus is present in the blood. A person can be contagious for life.

SCHOOL / NURSE RESPONSIBILITY
1. REPORTING: Report the infection to the state or local public health agency within 7 days of diagnosis.
2. Referral to a health care provider is mandatory.

CONTROL OF SPREAD
1. EXCLUSION: Exclusion is not necessary.
2. Surfaces contaminated with blood should be cleaned and sanitized while wearing medical exam quality gloves, then sanitized with a bleach-based or other appropriate sanitizer. Dispose of soiled items in plastic bags.
3. No vaccine is available. Immune globulin (IG) is not useful in preventing hepatitis C.
4. Hepatitis C virus is not spread through casual contact in a typical school setting.

TREATMENT
There are treatments available for people with chronic hepatitis C.

HERPES (Cold Sores, Fever Blisters)

AGENT: Herpes simplex virus (HSV) types 1 and 2. Type 1 usually causes cold sores/fever blisters, and type 2 usually causes genital herpes (see page 47).

DESCRIPTION
Herpes is a common infection that causes fluid-filled sores on the face or lips. Sometimes herpes infections are referred to as cold sores or fever blisters, although herpes is not related to having a cold or a fever. The sores can be painful, and usually heal within several days. After the initial outbreak, the virus is usually dormant in the skin or in the nerves until something triggers another eruption. In some people, overexposure to sunlight, fever, physical or emotional stress, hormonal changes, or certain foods and drugs seem to reactivate the virus. In rare cases, the herpes virus can infect the brain and other parts of the nervous system. This complication is usually seen only in immunocompromised individuals.

INCUBATION PERIOD
2 to 12 days

HOW CAN THE INFECTION BE SPREAD?
Herpes is spread by direct contact with infected skin, such as kissing. Less commonly, it can be spread through articles contaminated by the fluid from the sores, or by drinking out of the same glass or using the same eating utensils as someone who has sores. Cases are contagious until the sores heal.

SCHOOL / NURSE RESPONSIBILITY
1. REPORTING: Individual cases are not reportable. The school nurse should be consulted for specific concerns, or consultation with the state or local public health agency is available.
2. Referral to a health care provider is optional and usually not warranted.

CONTROL OF SPREAD
1. EXCLUSION: Exclusion is not necessary unless the student has open sores and is drooling uncontrollably. In this case, the student should be excluded until there are no open sores or the drooling subsides.
2. A person with sores should wash their hands often and avoid touching their eyes after touching the sore.

TREATMENT
There is no cure for herpes. Over-the-counter medications can help reduce the irritation while the sores heal. The antiviral drug acyclovir has been shown to reduce shedding of the virus, diminish pain, and accelerate healing time. The virus may be shed intermittently for years and possibly lifelong.

IMPETIGO

AGENT: Streptococcal or staphylococcal bacteria.

DESCRIPTION
Impetigo can occur in people of any age but is more common in children. Impetigo can affect skin anywhere on the body, although it most often occurs on the face. Areas of itchy skin with tiny blisters develop, especially around the mouth and nose. Blisters will eventually burst to reveal areas of red skin that may weep fluid. Gradually, a tan or yellowish-brown crust will cover the affected area, making it look as if it is coated with honey or brown sugar.

INCUBATION PERIOD
Streptococcal: 7 to 10 days for Streptococcal; Staphylococcal: variable

HOW CAN THE INFECTION BE SPREAD?
Infections may be spread by direct contact with infected skin. Less commonly, it can be spread through direct contact with articles (such as clothing, bedding, towels, etc.) that have come in with the rash. Cases are contagious as long as there is discharge from affected areas.

SCHOOL / NURSE RESPONSIBILITY
1. REPORTING: Individual cases are not reportable. The school nurse should be consulted for specific concerns, or consultation with the state or local public health agency is available. Group outbreaks of the disease should be reported to the state or local public health agency.
2. Referral to a health care provider is recommended, especially if antibiotic treatment does not seem to be effective.

CONTROL OF SPREAD
1. EXCLUSION: Exclude affected students until 24 hours after beginning treatment.
2. Sharing of towels, clothing, and other personal articles should be discouraged.
3. Cleanliness and prompt attention to minor wounds will help prevent impetigo.
4. Encourage frequent handwashing.

TREATMENT
Antibiotics may be prescribed to treat impetigo. Antibiotics will decrease spread of disease and the risk of secondary infections, and speed healing. An over-the-counter antibiotic ointment (such as Polysporin) may be applied to the affected areas.

INFLUENZA

AGENT : There are 3 types of influenza virus: A, B and C.

DESCRIPTION
Influenza is an upper respiratory infection characterized by abrupt onset of fever, cough and muscle aches. Headache and sore throat are common. In children, nausea and vomiting may also occur, and some children may only have a fever. In general, healthy children tolerate influenza well and suffer only a few days of discomfort. Persons most at risk for complications from influenza are the elderly, the chronically ill, and infants.

INCUBATION PERIOD
1 to 4 days (usually 2 days)

HOW CAN THE INFECTION BE SPREAD?
Influenza is spread person-to-person through droplets and infectious discharges, and tends to occur in noticeable epidemics. People are contagious for probably 3 to 4 days, from slightly before the onset of symptoms to about the third day of illness.

SCHOOL / NURSE RESPONSIBILITY
1. REPORTING: Single cases of influenza who are not hospitalized do not need to be reported. Report influenza-associated hospitalizations to the state or local public health agency within 7 days of diagnosis. An influenza-associated death in a child under the age of 18 years must be reported to the state or local public health agency within 7 days. Outbreaks of influenza can cause large increases in absenteeism rather suddenly. Schools should report significant increases in school absenteeism resulting from influenza-like illness to the state or local public health agency. Consultation with the state or local public health agency is available in these situations.
2. Refer exceptionally severe cases to a health care provider.

CONTROL OF SPREAD
1. EXCLUSION: Exclusion is not necessary.
2. School closure is not indicated to control spread.
3. Vaccine is available for current strains each year. Recommendations for who should receive the vaccine are revised yearly. In general, anyone who does not wish to contract influenza may receive vaccine. High-risk children should be vaccinated every year (i.e. children with chronic lung disease like asthma or cystic fibrosis, diabetes, immunosuppressive disorders, kidney disease, heart disease, or children who regularly take aspirin). Persons who are in close contact with high-risk children should consider receiving vaccine as well.

TREATMENT
In certain circumstances, a health care provider may prescribe antiviral medications. These medications may reduce symptoms and duration of illness, as well as the amount of virus found in nose/throat discharges. Acetaminophen-containing medicines (such as Tylenol) can be used to lower temperature or reduce discomfort. ASPIRIN SHOULD BE AVOIDED because it increases the risk of Reye's Syndrome, a serious disorder that can lead to coma and death. Antibiotics should not be used for viral infections such as influenza.

MEASLES (Rubeola)

AGENT: The measles virus, a paramyxovirus.

DESCRIPTION
Measles is a highly contagious illness that is currently very rare in this country. Measles begins with fever usually greater than 100°F, fatigue, cough, runny nose, and red, watery eyes. The rash, characteristically red raised and flat spots, begins on the face along the hairline and behind the ears. Over the next 3 days the rash becomes generalized and is usually gone after 6 days. Measles can result in serious complications, such as ear infections, pneumonia, seizures, brain damage and death.

INCUBATION PERIOD
7 to 18 days (usually 10 to12 days)

HOW CAN THE INFECTION BE SPREAD?
Measles is a highly contagious disease spread primarily through the airborne route. The virus may remain infectious in the air for up to two hours. A person is contagious from 4 days before rash onset through the first 5 days of rash.

SCHOOL / NURSE RESPONSIBILITY
1. REPORTING: Report the infection to the state or local public health agency within **24 hours** of a suspected or confirmed diagnosis.
2. Refer suspected cases to a health care provider. Inform the provider that the patient should be evaluated in isolation with airborne precautions by individuals who are immune to measles.

CONTROL OF SPREAD
1. EXCLUSION: Exclude the case from school until 5 days after rash onset. Case should be isolated at home during these 5 days.
2. If a measles exposure occurs within a school, all susceptible students and staff refusing measles-containing vaccine or lacking proof of immunity to measles will be excluded from school until the outbreak is over (i.e. until 17 days after the onset of rash in the last reported case). Discuss school exclusion with the state or local public health agency.
3. Review student's vaccination records for two measles immunizations and staff's vaccination records for measles immunity status. Measles vaccine administered within 72 hours of exposure may prevent disease.
4. Measles virus vaccine, in combination with mumps and rubella (MMR), is routinely given at 12 to 15 months of age and confers greater than 95% immunity. A second MMR is recommended at age 4 to 6 years or at age 11 to 12 years. The Colorado School Immunization Rules requires students in certain grades to have 2 measles immunizations (MMR). After July 1, 2006, all students (grades K-12) will be required to have two measles vaccinations.

TREATMENT
There is no specific treatment for measles.

MENINGITIS:
BACTERIAL MENINGITIS

AGENT: Various bacteria such as *Neisseria meningitidis* (meningococcal), *Haemophilus influenzae* (H. flu; serotype B is of special concern), *Streptococcus pneumoniae* (pneumococcal).

DESCRIPTION

Bacterial meningitis is an inflammation of the tissues surrounding the brain and spinal cord and is a medical emergency. Symptoms may include high fever, severe headache, nausea, vomiting, loss of appetite, chills, sleepiness, stiff neck, rash, and being disoriented, irritable or confused. A person's blood may also be infected with the bacteria.

INCUBATION PERIOD

Meningococcal: 1 to 10 days (usually less than 4 days);
H. flu: unknown (probably about 2 to 4 days)
Pneumococcal: 1 to 3 days

HOW CAN THE INFECTION BE SPREAD?

Bacteria that cause meningitis can be spread by direct contact with saliva or nose/throat discharges of the infected person. Cases can be contagious until completing 24 hours of antibiotic treatment. Risk of acquiring bacterial meningitis in a classroom situation is minimal.

SCHOOL / NURSE RESPONSIBILITY

1. REPORTING: For meningococcal and H. flu, report the infection to the state or local public health agency within **24 hours** of a suspected or confirmed diagnosis. For pneumococcal, report the infection to the state or local public health agency within 7 days of diagnosis.
2. Suspected cases of meningitis should be referred to a health care provider immediately.
3. Contact the state or local public health agency for assistance if the school plans to notify parents/guardians about a case of meningitis in the school.

CONTROL OF SPREAD

1. EXCLUSION: Exclude the affected student until a health care provider releases the student, or until at least 24 hours after treatment with antibiotics.
2. **Antibiotic prophylaxis:** For meningococcal infections, close contacts (such as household members, boyfriend/girlfriend, and child care center contacts) should receive antibiotic prophylaxis. School classmates, teachers, and personnel do not routinely require antibiotic prophylaxis, unless they had prolonged exposure beyond the classroom. For H. flu serotype B (Hib) infections, household and possibly child care contacts of probable and confirmed cases should receive antibiotic prophylaxis. Typically, the state or local public health agency will notify close contacts if antibiotic prophylaxis is needed.
3. Vaccine is available for some causes of bacterial meningitis. Meningococcal vaccine is used in certain circumstances, and some colleges recommend or require that students have it. H. flu and pneumococcal vaccines are given to children starting at age 2 months.

TREATMENT

Cases of bacterial meningitis often require hospitalization, and are treated with antibiotics.

MENINGITIS:
VIRAL MENINGITIS (Aseptic Meningitis)

AGENT: Several different viruses.

DESCRIPTION
Viral meningitis is a relatively common illness but rarely is serious. Common symptoms include fever, severe headache, stiff neck, sensitivity to light, drowsiness, confusion, nausea, and/or vomiting. Causes of aseptic meningitis are numerous and include coxsackie virus, echoviruses, measles, chickenpox, mumps and herpes virus. In addition, many bacterial causes (such as tuberculosis and syphilis) can mimic viral meningitis. It is important to recognize symptoms and refer any suspect illness to the appropriate medical care provider in order to rule out bacterial meningitis. Increases in cases of aseptic meningitis occur regularly in the summer and fall and are not a cause for alarm.

INCUBATION PERIOD
Dependent on the virus involved (i.e. incubation for enterovirus is 3 to 6 days)

HOW CAN THE INFECTION BE SPREAD?
Viral meningitis is most often spread through direct contact with nose/throat discharges or the stool of an infected person. Contagiousness varies among the viruses that cause aseptic meningitis.

SCHOOL / NURSE RESPONSIBILITY
1. REPORTING: Report the infection to the state or local public health agency within 7 days of diagnosis.
2. Refer suspected cases to a health care provider immediately to be sure that illness is not bacterial meningitis.

CONTROL OF SPREAD
1. EXCLUSION: Exclusion is not necessary.
2. Encourage frequent handwashing. Eating and drinking utensils and articles soiled by the secretions of a case should be adequately sanitized.

TREATMENT
No specific treatment is available. Health care providers often recommend rest, plenty of fluids, and over-the-counter medications to relieve fever and headache.

MONONUCLEOSIS

AGENT: Epstein-Barr virus (EBV).

DESCRIPTION
Mononucleosis is characterized by swollen lymph glands, sore throat, and fever. Enlargement of the spleen can occur as well. 35% to 50% of adolescents who are infected develop symptoms. Many infected children do not have symptoms or develop very mild symptoms. The disease is most common in high school and college-aged students.

INCUBATION PERIOD
Usually 30 to 50 days

HOW CAN THE INFECTION BE SPREAD?
Mononucleosis is spread person-to-person through saliva. Individuals with mononucleosis can excrete the virus for more than a year after the initial infection. The virus can be present over the infected person's lifetime in throat or blood cells. Most people who have had a previous infection are not susceptible to a second infection.

SCHOOL / NURSE RESPONSIBILITY
1. REPORTING: Individual cases are not reportable. The school nurse should be consulted for specific concerns, or consultation with the state or local public health agency is available.
2. Refer students with severe tonsil and throat swelling to a health care provider.

CONTROL OF SPREAD
1. EXCLUSION: Exclusion is not necessary.
2. Dispose of tissues soiled with throat secretions.
3. Sanitize articles soiled with throat secretions.

TREATMENT
There is no specific treatment. Over-the-counter medications can provide some relief from fever or sore throat. A health care provider may prescribe steroids to control severe swelling of the tonsil and throat.

MRSA (Methicillin Resistant *Staphylococcus aureus*)

Staphylococcus aureus (often referred to as "staph") is a type of bacteria commonly carried on the skin or in the nose of healthy people. Staph is a common cause of minor skin infections, and occasionally causes serious infections like surgical wound infections and pneumonia. Most staph infections are treated with antibiotics, but over time, some staph bacteria have become resistant to some antibiotics. These resistant bacteria are called methicillin-resistant *Staphylococcus aureus*, or MRSA. MRSA infections occur more commonly in people who are hospitalized or spend time in health care settings. Occasionally MRSA will cause illness in persons outside of hospitals and health care facilities.

CDPHE and the "MRSA in Schools and Child Care Settings Working Group" have developed thorough recommendations for placement of children with MRSA in school. These recommendations can be found on the CDPHE website or can be obtained by calling the CDPHE Communicable Disease Epidemiology Program at (303) 692-2700. The website address is: http://www.cdphe.state.co.us/dc/epidemiology/dc_guide.html

REPORTING: A positive MRSA culture from a normally sterile site (such as blood or cerebral spinal fluid) is a reportable condition only for residents in the five county Denver metropolitan area (Adams, Arapahoe, Denver, Douglas and Jefferson counties). Report the infection to the state or local public health agency within 7 days of diagnosis.

MUMPS

AGENT: The mumps virus.

DESCRIPTION
The main symptom of mumps is the swelling of one or more salivary glands on one or both sides of the face. Usually, the parotid gland that lies just above the back angle of the jaw is swollen. Less commonly, other salivary glands may be involved. Mumps cases often have fever, headache and muscle aches. Symptoms generally resolve after 7 to 10 days. Mumps is more severe in adults. In post-pubertal males, the gonads may be swollen with testicular pain. Post-pubertal females may have lower abdominal pain. Mumps very rarely leads to sterility. Other complications may include meningitis, inflammation of the pancreas, and deafness (usually permanent). Approximately one-third of individuals infected with mumps do not develop apparent disease, but are contagious. Immunity from mumps is life-long.

INCUBATION PERIOD
12 to 25 days (usually 16 to 18 days)

HOW CAN THE INFECTION BE SPREAD?
Transmission is by nose/throat discharges and direct contact with saliva from an infected individual. Infected individuals who do not have symptoms can still infect others. A case is contagious from 7 days before to 9 days after swelling onset or until swelling subsides.

SCHOOL / NURSE RESPONSIBILITY
1. REPORTING: Report the infection to the state or local public health agency within 7 days of diagnosis.
2. Suspected mumps cases should be referred to a health care provider. Serology or viral testing is needed to confirm the diagnosis.

CONTROL OF SPREAD
1. EXCLUSION: The affected individual should be isolated for 9 days after swelling onset or until the swelling and other manifestations of the illness have subsided. Discuss possible exclusion of students and staff without proof of mumps immunity with the state or local public health agency.
2. Review student's vaccination records. Recommend mumps vaccination for students and staff without mumps immunization or positive immunity lab results. Post-exposure vaccination may not protect against the disease but may provide protection against future exposure.
3. A live mumps virus vaccine is routinely given at 12 to 15 months of age in combination with measles and rubella vaccine (MMR). A second MMR is recommended at age 4 to 6 years or at age 11 to 12 years. The Colorado School Immunization Rules requires students in certain grades to have two mumps immunizations. After July 1, 2006, all students (grades K-12) will be required to have two mumps immunizations.

TREATMENT
There is no specific treatment for mumps.

PINK EYE (Conjunctivitis)

AGENT: A variety of bacterial and viral pathogens, as well as allergies and chemical irritation.

DESCRIPTION

Pink eye is an irritation and sometimes an infection of the tissues lining the inside of the eyelid and the eye. One or both eyes can be affected. Symptoms include eye itchiness, eye pain, watery eyes, and an excess amount of blood in the whites of the eye and eyelid (giving the eye a pink appearance). When a bacterial or viral infection causes pink eye, there is usually discharge (white to yellow in color) from the eye. Sensitivity to light can accompany symptoms. Allergies and chemical irritation (such as after swimming) can also make eyes pink and swollen.

INCUBATION PERIOD

Bacterial: 24 to 72 hours
Viral: usually 1 to 12 days
Allergies: variable

HOW CAN THE INFECTION BE SPREAD?

Bacterial and viral pink eye can be spread by direct contact with discharge from the eye or by direct contact with objects contaminated with eye discharge. Contaminated fingers, clothing, towels, shared eye makeup applicators, etc. may spread the infection. Bacterial pink eye is contagious as long as a person has symptoms or until approximately 24 hours after beginning antibiotic eye drops or ointment. Some types of viral pink eye are contagious as long a person has symptoms. Pink eye caused by allergies and chemical irritation is not contagious.

SCHOOL / NURSE RESPONSIBILITY

1. REPORTING: Individual cases are not reportable. The school nurse should be consulted for specific concerns, or consultation with the state or local public health agency is available.
2. Refer students suspected of having viral or bacterial pink eye to a health care provider to determine whether treatment is necessary.

CONTROL OF SPREAD

1. EXCLUSION: Exclusion of a student with pink eye suspected of being caused by a viral or bacterial infection is suggested until the school nurse or health care provider evaluates the student and approves readmission. If antibiotic eye drops or ointment are prescribed, they need to be applied for 24 hours before the individual is no longer contagious and can return to school. Students with pink eye due to allergies or chemical irritation do <u>not</u> need to be excluded.
2. Encourage frequent handwashing.
3. Ensure good cleaning and sanitizing practices are being followed.
4. Dispose of soiled tissues in a sanitary manner.

TREATMENT

A health care provider may prescribe antibiotic eye drops or ointment to treat bacterial pink eye. There is usually no treatment for viral pink eye, or pink eye caused by chemicals or allergies.

RASHES

A rash involves a change in the color and/or texture of skin, and can have many different causes. It can be a symptom of a contagious or non-contagious disease. Contact dermatitis (an inflammation of the skin caused by direct contact with an irritating substance) can occur following an exposure to dyes and chemicals found in clothing, chemicals found in elastic and rubber products, cosmetics, poison ivy, and poison oak. This type of rash usually occurs where the irritating agent touches the skin. Eczema (a chronic hypersensitiviy reaction in the skin) can cause a scaly and itchy rash. Medications, foods, or insect bites that cause allergic reactions can also cause a rash. The table below outlines 12 different illnesses that can cause rashes.

ILLNESS	APPEARANCE	DISTRIBUTION	ITCHING	COMMENTS/EXCLUSION
Chickenpox - viral (Varicella)	Blister-like rash that scabs over.	More abundant on trunk than extremities	Yes	Highly contagious. Immunization is available. Exclude until blisters scab over.
Duke's Disease - viral (Entero-, Echo-, and Coxsackieviruses, Fourth Disease)	Flat to bumpy red rash with areas of confluence. May look like hives, blisters or red spots under the skin.	Usually generalized; occasionally palms and soles	Sometimes	No exclusion necessary.
Fifth Disease - viral (Erythema Infectiosum, Human Parvovirus)	Red cheeks ("slapped cheek"). Red, lace-like rash. May fade and then reappear.	Begins on cheeks, spreads to trunk and extremities	Slight, if any	No exclusion necessary.
Hand-Foot-Mouth - viral (Viral Exanthem)	Small blister-like sores.	Hands, feet, mouth and occasionally buttocks	No	No exclusion necessary.
Impetigo – bacterial	Small blisters that burst to reveal red skin.	Usually the face, but can occur anywhere	Yes	Exclude until 24 hours after appropriate treatment.
Measles - viral (Rubeola, Hard Measles)	Bumpy, blotchy red to purplish rash. Rash turns white on pressure.	Begins on face, spreads to trunk and extremities	Slight, if any	Highly contagious. Immunization is available. Exclude for 5 days after rash onset.
Ringworm – fungal (Tinea)	Small red bump that spreads outward.	A single area of skin	Yes	Exclude from the end of the day until after the first treatment.
Roseola - viral (Exanthem subitum, Sixth Disease)	Small, discrete pink spots. Almond shaped flat spots appear on trunk and neck.	Begins on chest and abdomen, spreads to entire body	No	Most common in children 6 to 24 months of age. No exclusion necessary in most cases.
Rubella - viral (German Measles)	Small pink spots. May become confluent but remains pink.	Begins on face, spreads to neck, trunk & extremities	No	Immunization is available. Exclude for 7 days after rash onset.
Scarlet Fever - bacterial (Group A streptococci)	Small red bumps. Rash turns white on pressure. Pigmented areas in skin creases.	Begins on neck and groin, spreads to rest of body	No	Strep throat symptoms are present. Exclude until 24 hours after appropriate treatment.
Shingles - viral (Herpes Zoster)	Blister-like rash that scabs over. Painful in affected area.	A single area of skin	Sometimes	Reactivation of the chickenpox virus. No exclusion necessary if blisters are covered.
Smallpox - viral	Deep-seated, hard, round, fluid-filled blisters.	Entire body	No	Highly contagious. Notify public health immediately.

RINGWORM (Tinea)

AGENT: Several types of fungi species like *Trichophyton*, *Microsporum,* and *Epidermophyton*.

DESCRIPTION

Ringworm is caused by a fungus, not a worm. It can occur on any part of the body, even the scalp. Ringworm begins as a small red bump or ring that spreads outward. Affected areas have a red, scaly outer ring with a clear central area, or the rash can be wet and crusty. The affected skin usually itches and can become infected if scratching is excessive. Ringworm on the scalp usually makes a bald patch of scaly skin. Animals (like dogs, cats, cows, goats, pigs, and horses) can have ringworm and can transmit it to people. Ringworm is not particularly dangerous, has no long-term consequences, and can be effectively treated.

INCUBATION PERIOD

Unknown

HOW CAN THE INFECTION BE SPREAD?

Ringworm is spread by direct contact with the rash on an affected human or animal, or by direct contact an object contaminated with the fungi. Cases are contagious as long as their skin is affected.

SCHOOL / NURSE RESPONSIBILITY

1. REPORTING: Individual cases are not reportable. The school nurse should be consulted for specific concerns, or consultation with the state or local public health agency is available.
2. The affected student should be referred to a health care provider if the ringworm is on the scalp or if prescription treatment is needed.

CONTROL OF SPREAD

1. EXCLUSION: Exclude the affected student from the end of the school day until after the first treatment.
2. Make sure all infected persons and pets get appropriate treatment.
3. Avoid contact with infected persons and pets.
4. Do not share personal items.
5. Keep common-use areas clean and periodically sanitized.

TREATMENT

Ringworm can be treated with antifungal (fungus-killing) medicine that can be taken in tablet or liquid form by mouth, or as a cream applied directly to the affected area. Some treatments require a prescription by a health care provider, and some topical creams can be purchased over-the-counter.

RSV (Respiratory Syncytial Virus)

AGENT: The respiratory syncytial virus.

DESCRIPTION
RSV causes respiratory tract illness in people of all ages. Symptoms are similar to those seen with the common cold, including fever, runny or stuffy nose, sneezing, coughing, and sometimes wheezing. Symptoms can last for 8 to 15 days. In infants and young children, RSV can cause a more serious illness like pneumonia. RSV is more common in the late fall, winter and early spring.

INCUBATION PERIOD
2 to 8 days (usually 4 to 6 days)

HOW CAN THE INFECTION BE SPREAD?
RSV is spread through contact with droplets (produced by coughing and sneezing) and infectious discharges from an infected person. Contact with hands, tissues, and other articles contaminated with nose/throat discharges of ill people can spread the virus. People are contagious for 3 to 8 days after onset.

SCHOOL / NURSE RESPONSIBILITY
1. REPORTING: Individual cases are not reportable. The school nurse should be consulted for specific concerns, or consultation with the state or local public health agency is available.
2. If the student develops more severe symptoms or experiences ongoing symptoms, they should be referred to a health care provider to be checked for secondary complications (like bronchitis or pneumonia).

CONTROL OF SPREAD
1. EXCLUSION: Exclusion is not necessary.
2. Encourage frequent handwashing.
3. Teach students to cover their mouth when coughing and sneezing.
4. Dispose of articles soiled with nose/throat discharges, such as tissues.

TREATMENT
There is no specific treatment for RSV, and it usually resolves on its own. Acetaminophen-containing medicines (such as Tylenol), cough suppressants, and decongestants may be used in children older than 3 months in order to relieve symptoms. ASPIRIN SHOULD BE AVOIDED because it increases the risk of Reye's Syndrome, a serious disorder that can lead to coma and death. Immunocompromised children or children with more a more severe RSV infection may require oxygen therapy and hospitalization. Antibiotics should not be used for viral infections such as the RSV.

RUBELLA (German Measles)

AGENT: The rubella virus.

DESCRIPTION

Rubella is a mild illness for children. Symptoms may include swollen glands, usually at the base of the skull and behind the ears, and a generalized rash. Fever and other symptoms are usually mild or absent. The rash usually consists of pink isolated spots which appear first on the face, then spread rapidly to the trunk, bicep and thigh areas of the extremities. Over about 2 days the rash fades from the face and trunk and spreads to the forearms, hands and feet. Approximately 20% to 50% of individuals infected with rubella will not have symptoms. Rubella may cause significant birth defects in infants whose susceptible mothers are exposed during the first 20 weeks of pregnancy.

INCUBATION PERIOD

12 to 23 days (usually 16 to 18 days)

HOW CAN THE INFECTION BE SPREAD?

Transmission is from nose/throat discharges of infected persons. Infected individuals who do not have symptoms can still infect others. Cases are contagious from 7 days before to 7 days after the rash onset.

SCHOOL / NURSE RESPONSIBILITY

1. REPORTING: Report the infection to the state or local public health agency within **24 hours** of a suspected or confirmed diagnosis.
2. Suspect rubella cases should be referred to a health care provider. Serology or viral testing is needed to confirm the diagnosis.
3. Determine if any exposed contacts are pregnant and provide names of pregnant contacts to the state or local health agency. Exposed pregnant women, especially those in the first trimester, should be counseled to get a test for rubella susceptibility and advised according to the results.

CONTROL OF SPREAD

1. EXCLUSION: Exclude cases of rubella until 7 days after the rash onset.
2. Discuss with the state or local public health agency possible exclusion of students and staff without proof of rubella immunity.
3. Review student's rubella immunization records and staff's rubella immunity status. Recommend rubella vaccine for persons without rubella immunity. Vaccine given after exposure will not prevent infection, however, it may provide protection against future exposure.
4. A live rubella virus vaccine is routinely given at 12 to 15 months of age in combination with measles and mumps vaccine (MMR). A second MMR is recommended at age 4 to 6 years or at age 11 to 12 years. The Colorado School Immunization Rules requires students in certain grades to have two rubella immunizations. After July 1, 2006, all students (grades K-12) will be required to have to two doses of rubella vaccine.

TREATMENT

There is no specific treatment for rubella.

SCABIES

AGENT: *Sarcoptes scabei*, a mite.

DESCRIPTION
Scabies is a skin infestation caused by a burrowing mite, and is common among children. The mites burrow into the skin and lay their eggs, which causes raised red bumps, streaks on the skin, and intense itching, particularly at night. Commonly affected areas include the wrists, armpits, buttocks, genitalia, elbows, and webbing between the fingers. A scabies infestation does not develop as a result of bad personal hygiene.

INCUBATION PERIOD
2 to 6 weeks for people who have never been infected; 1 to 4 days for people who have had scabies in the past

HOW CAN THE INFECTION BE SPREAD?
Scabies is transmitted by direct physical contact with an affected individual or through immediate contact with contaminated clothing or linens. Infested individuals can transmit the disease until the mites and eggs are destroyed, usually after the first or second treatment. Mites do not reproduce or survive without a human host, therefore, inanimate objects (like toys and desks) and surfaces are not important in the spread of scabies.

SCHOOL / NURSE RESPONSIBILITY
1. REPORTING: Individual cases are not reportable. The school nurse should be consulted for specific concerns, or consultation with the state or local public health agency is available.
2. Referral to a health care provider is necessary for diagnosis and treatment.
3. Provide educational materials to teachers, students, and parents/guardians outlining precautionary and control measures.

CONTROL OF SPREAD
1. EXCLUSION: Exclude a student with an active infestation from the end of the school day until after the first treatment.
2. The case's close contacts should be monitored for symptoms, or may be treated prophylactically.
3. Clothing and bedding used by the case should be dry-cleaned or laundered using hot settings on the washer and dryer.

TREATMENT
Lotions and creams containing permethrin or lindane are often used to treat scabies. Consecutive treatments should be done a week apart. Since the sores result from hypersensitivity to the mites, like an allergic reaction, itching may increase and continue several weeks after a successful treatment. Mites can be resistant to treatment.

SEXUALLY TRANSMITTED DISESASES (STDs)

DESCRIPTION

Over 16 infectious diseases are recognized as being STDs. The STD descriptions in this section of the guidelines cover only those most prevalent (i.e. situations school nurses and personnel are more likely to be confronted with). Other STDs not covered in this section include: chancroid, cytomegalovirus (see page 14), granuloma inguinale, hepatitis B (see page 27), lymphogranuloma venereum, molluscum contagiosum, scabies (see page 43), and some diarrheal illnesses. Teens, especially girls, have very high reported rates of STDs. There are several explanations for this. Given that many STDs do not show symptoms, partners (often male) do not know that they are infected and can spread the disease. The social stigma attached to STDs causes embarrassment and hesitance to be examined for fear that others will "find out" about the infection. In addition, there is a lack of knowledge about STDs and how they are transmitted. For example, many teens think that oral sex is different than "real" sex and do not realize that they can be infected with STDs in this way. The possibility of sexual abuse must be considered when infections occur in prepubertal children and must be reported to appropriate authorities.

HOW CAN THE INFECTION BE SPREAD?

STDs are transmitted through various forms of sexual contact: oral, anal, and vaginal. People with a STD are generally contagious until they receive treatment, although some STDs are potentially communicable for life (like HIV, genital herpes, and genital warts).

SCHOOL / NURSE RESPONSIBILITY

1. REPORTING: Chlamydia, gonorrhea and HIV/AIDS must be reported to the state or local public health agency within 7 days of diagnosis. Syphilis must be reported with **24 hours** of a suspected or confirmed diagnosis.
2. Referral to a health care provider or public health clinic is recommended when a student is concerned about or has symptoms of a STD. Parental consent is not required for minors to be examined and treated.

CONTROL OF SPREAD

1. EXCLUSION: No exclusions or environmental interventions are necessary since STDs require close intimate physical contact for transmission, virtually always of a sexual nature.
2. Cases should abstain from sex or use condoms to prevent future infections.
3. Cases should be examined and treated as soon as the diagnosis is confirmed to prevent complications. Every attempt to treat the partner(s) should be made to prevent the common occurrence of re-infection. Cases should seek medical care if symptoms persist or recur.
4. Sexual activity should be avoided until the case and partner(s) are treated and cured.
5. General education of STD prevention is advocated.
6. Additional information is available on the CDPHE website: http://www.cdphe.state.co.us/dc/hivstdprogs.asp

TREATMENT

There are no vaccines for STDs. Cases should be taught how to take prescribed medications correctly. For more information, see the 2002 Sexually Transmitted Diseases Treatment Guidelines published by the CDC: http://www.cdc.gov/STD/treatment/1-2002TG.htm

SEXUALLY TRANSMITTED DISEASES:
HIV AND AIDS

AGENT: Human immunodeficiency virus (HIV). There are two types: HIV-1 and HIV-2.

DESCRIPTION

Acquired Immune Deficiency Syndrome (AIDS) is the most severe manifestation of HIV infection. Children infected with HIV often have no symptoms for long periods of time (sometimes up to ten years or more), but may develop a weakened immune system leading to AIDS or other illnesses as the infection progresses. Children with HIV-related illness may have generalized lymphadenopathy (swollen lymph nodes all over their body), weight loss, chronic fever, chronic diarrhea, and/or fatigue. HIV infection is present for life.

INCUBATION PERIOD

The incubation period is variable. The time from HIV infection to the development of detectable antibodies is generally 1 to 3 months. The time from HIV infection to the diagnosis of AIDS can be less than one year to over 15 years.

HOW CAN THE INFECTION BE SPREAD?

HIV infection is spread by sexual contact, sharing injectable drug needles and syringes, transfusion of infected blood or blood products (which rarely occurs due to blood screening), transplantation of infected tissues or organs (also very rare), and from mother to child before or during birth, or through infected breast milk. All HIV infected persons can spread the disease by these routes and are contagious for life. HIV is not spread by casual social contact in the workplace or school. Sharing food, eating utensils, dishes, or toilet facilities does not spread the disease, nor is it spread through touching or insect bites. Most HIV infections in children are a result of the virus crossing the placenta from an infected mother to her unborn child or during the childbirth process. A smaller number have resulted from infected breast milk, blood transfusions and from receipt of clotting factors (mostly in boys with hemophilia). There have been no cases of children acquiring HIV infection through casual contact with other children or caretakers.

SCHOOL / NURSE RESPONSIBILITY

1. REPORTING: Report the infection to the state or local public health agency with 7 days of a suspected or confirmed diagnosis.
2. The identity of students with HIV or AIDS should be known only to the people providing direct care to the student. The penalties for a breach of confidentiality are severe.

CONTROL OF SPREAD

1. EXCLUSION: Ordinarily most students with HIV or AIDS should be able to attend school without special restrictions. Please contact the CDPHE Sexually Transmitted Diseases Program at (303) 692-2700 for further guidance on this issue.
2. School health education should stress that having unprotected sex and sharing drug paraphernalia increase the risk of HIV infection.

TREATMENT

Antiretroviral treatment is available.

SEXUALLY TRANSMITTED DISEASES:

See the "Sexually Transmitted Diseases" section on page 44 for information on HOW THE INFECTION IS SPREAD, SCHOOL / NURSE RESPONSIBILITY and CONTROL OF SPREAD.

CHLAMYDIA

AGENT: *Chlamydia trachomatis*, a bacterium.

DESCRIPTION
Chlamydial infections are the most frequent bacterial STD in the United States. The majority of infections do not show symptoms and are detected through screening tests. Symptoms of chlamydia, when present, are similar to those of gonorrhea. In fact, the two are often seen together as co-infections in the same patient and his or her partner(s). Women may have cervical discharge with swelling, redness and bleeding, or they may not have any symptoms. Complications of chlamydia in women include pelvic inflammatory disease (PID – see page 49) which can lead to ectopic pregnancy, infertility, and chronic pelvic pain. Men may have urethritis characterized by a whitish or clear discharge and painful or difficult urination, or they may not have any symptoms. Complications of chlamydia in men include epididymitis, infertility and reactive arthritis (Reiter's syndrome).

INCUBATION PERIOD
Probably 7 to 14 days or longer

TREATMENT
Treatment is with antibiotics. Concurrent treatment of sex partner(s) with same regimen is essential to prevent re-infection or spread of disease.

SEXUALLY TRANSMITTED DISEASES:

See the "Sexually Transmitted Diseases" section on page 44 for information on HOW THE INFECTION IS SPREAD, SCHOOL / NURSE RESPONSIBILITY and CONTROL OF SPREAD.

GENITAL HERPES

AGENT: Herpes simplex virus (HSV) types 1 and 2. Type 2 usually causes genital herpes.

DESCRIPTION
Genital herpes may be recurrent and has no cure. Single or multiple fluid-filled sores appear anywhere on the genitalia. Sores spontaneously rupture to form shallow ulcers that can be very painful. The ulcers resolve spontaneously with minimal scarring. The first occurrence lasts about 12 days. Subsequent, usually milder, occurrences last about 4 days. The interval between clinical episodes is called the latent period. Viral shedding occurs intermittently during latency and sexual transmission of HSV may occur at these times. When sores or ulcers are present in the genital area or a pattern of recurrence has developed, herpes infection is likely. Central nervous system involvement, development of sores at other sites, and fungal infections are the most frequently encountered complications.

INCUBATION PERIOD
Usually 2 to 14 days

TREATMENT
The antiviral drug acyclovir can reduce shedding of the virus, diminish pain and accelerate healing time. However, the virus may be shed intermittently for years and possibly lifelong.

GENITAL WARTS

AGENT: Human papilloma virus (HPV).

DESCRIPTION
Genital warts presents as single or multiple soft, fleshy, painless growths anywhere on or around the genitalia. Genital warts generally cause minor or no symptoms aside from their cosmetic appearance. A diagnosis may be made based on the typical clinical presentation. Some types of HPV are associated with cervical dysplasia and cancer; however these virus types do not usually cause genital warts.

INCUBATION PERIOD
1 month to several years (usually 2 to 3 months)

TREATMENT
The goal of treatment is removal of warts. Treatment does not eradicate HPV, however it will decrease the amount of virus available for transmission. Treatment regimens include cryotherapy, electrodessication, electrocautery or other topical treatments.

SEXUALLY TRANSMITTED DISEASES:

See the "Sexually Transmitted Diseases" section on page 44 for information on HOW THE INFECTION IS SPREAD, SCHOOL / NURSE RESPONSIBILITY and CONTROL OF SPREAD.

GONORRHEA

AGENT: *Neisseria gonorrhoeae*, a bacterium.

DESCRIPTION
Men and women with gonorrhea (gonococcal infection) may not have any symptoms. When symptomatic, men usually have painful or difficult urination, increased frequency of urination and urethral discharge within 3 to 5 days of transmission. Men are at risk for epididymitis. Women may have abnormal vaginal discharge, abnormal menses, or have painful or difficult urination. 10% to 20% of women develop pelvic inflammatory disease (PID – page 49). Anorectal and pharyngeal infections occur and an individual may or may not have symptoms. All infected untreated persons are rarely at risk for more serious complications like septicemia, arthritis, dermatitis, meningitis and endocarditis. Infection with chlamydia is common among patients diagnosed with gonorrhea.

INCUBATION PERIOD
Usually 2 to 7 days

TREATMENT
Gonorrhea is treated with antibiotics. Given high incidence of gonorrhea and chlamydia coinfection, treatment of gonorrhea should include treatment for chlamydia. Concurrent treatment of sex partner(s) is essential to prevent re-infection or spread of disease.

NONGONOCOCCAL URETHRITIS (NGU)

AGENTS: *Chlamydia* bacterial species; *Ureaplasma urealyticum*, a bacterium; assorted other agents such as herpes simplex virus.

DESCRIPTION
NGU is an inflammation of the urethra in males that is not caused by gonococcal infection. Men usually experience painful or difficult urination and urethral discharge, or they may not have symptoms. Untreated infections in men can result in narrowing of the urethra, prostatitis, or epididymitis. Female sexual partners of men with chlamydial NGU are likely to be infected with chlamydia.

INCUBATION PERIOD
This depends on the agent causing the infection.

TREATMENT
Antibiotic treatment is recommended for NGU. It is recommended that female partners be referred to a clinic for STD testing.

SEXUALLY TRANSMITTED DISEASES:

See the "Sexually Transmitted Diseases" section on page 44 for information on HOW THE INFECTION IS SPREAD, SCHOOL / NURSE RESPONSIBILITY and CONTROL OF SPREAD.

PELVIC INFLAMMATORY DISEASE (PID)

AGENT: *Neisseria gonorrhoeae* and *Chlamydia trachomatis* are implicated in the majority of cases. Microorganisms that can be part of the vaginal flora also can cause PID.

DESCRIPTION

PID is an inflammation of the female upper genital tract. The patient may present with lower back pain, and/or pain and tenderness in the lower abdomen, cervix, uterus and other female reproductive organs. These symptoms may be combined with fever, nausea, vomiting, irregular menstrual bleeding, vaginal discharge that may have a foul odor, painful intercourse, or painful urination. PID is difficult to diagnose because the symptoms at onset are often subtle and mild, and there are no precise diagnostic tests. Many episodes of PID go undetected. The diagnosis is more likely if the patient has multiple sexual partners, uses an intrauterine device (IUD), has a history of gonorrhea or chlamydia infections, or is in the first 5 to 10 days of her menstrual cycle. Women who have the typical clinical presentation are often presumed to have PID if other serious conditions such as appendicitis or ectopic pregnancy can be excluded. Potentially life-threatening complications include ectopic pregnancy and pelvic abscess. Other complications are infertility, recurrent PID, chronic PID, chronic abdominal pain, and pelvic adhesions.

INCUBATION PERIOD

PID tends to begin within one week of the onset of menstruation when it is caused by chlamydia or gonorrhea infections. However, the pain may be mild and tolerable for several weeks before seeking care.

TREATMENT

Prompt antibiotic treatment can prevent severe damage to pelvic organs. Because of the difficulty in identifying organisms infecting the internal reproductive organs and because more than one organism may be responsible, PID is usually treated with at least two antibiotics that are effective against a wide range of infectious agents. Treatment does not reverse any damage that has already occurred to the reproductive organs.

SEXUALLY TRANSMITTED DISEASES:

See the "Sexually Transmitted Diseases" section on page 44 for information on HOW THE INFECTION IS SPREAD, SCHOOL / NURSE RESPONSIBILITY and CONTROL OF SPREAD.

PUBIC LICE (Crabs)

AGENT: *Phthirus pubis*, the pubic or crab louse.

DESCRIPTION
Symptoms range from slight discomfort to intolerable itching. Cases also commonly notice lice on pubic hair. A presumptive diagnosis is made when a patient with a history of recent exposure to pubic lice has itchy red spots or bumps in the genital region.

INCUBATION PERIOD
The louse life cycle is composed of 3 stages (eggs, nymphs, adults). The average life cycle of the louse is 15 days.

TREATMENT
Treatment options are the same as used for head lice (see page 26). A second treatment 7 to10 days after the first treatment is recommended to kill any hatching eggs that were not killed by initial treatment. Bedding and clothing should be machine washed and dried using the hot settings.

SEXUALLY TRANSMITTED DISEASES:

See the "Sexually Transmitted Diseases" section on page 44 for information on HOW THE INFECTION IS SPREAD, SCHOOL / NURSE RESPONSIBILITY and CONTROL OF SPREAD.

SYPHILIS

AGENT: *Treponema pallidum*, a bacterium.

DESCRIPTION

Syphilis can affect the entire body, and has three stages: primary, secondary, and late. Symptoms vary and can be indistinguishable from other diseases. In primary syphilis, one or more sores (called chancres) appear at the site of exposure (usually around the mouth, vagina, anus). The sore is typically painless, small, round and hard. Transmission occurs during sexual exposure (oral, anal, and/or vaginal) to a chancre on a partner. The chancre(s) generally resolves after one to three weeks without treatment. If adequate treatment is not received, the infection progresses to the secondary stage. In this stage, a rash develops in one or more areas of the body. The rash can appear as the chancre is fading or can be delayed for weeks. The rash often appears both on the palms of the hands and on the bottoms of the feet. A rash may also appear on other parts of the body with different characteristics, some of which resemble other diseases. Sometimes the rash is so faint that it is not noticed. Even without treatment, the rash usually clears up within four weeks. In addition to the rash, second-stage symptoms can include fever, swollen lymph glands, sore throat, patchy hair loss, headaches, weight loss, muscle aches, and tiredness. In late stage syphilis (also called the latent stage), cases have positive serologic blood tests. Complications of late syphilis include neurosyphilis (dementia, paralysis, wasting, pain, visual and/or hearing loss, and neurologic signs), cardiovascular syphilis (thoracic aortic aneurysm, aortic insufficiency), and localized gumma formation (a soft, tumor-like growth of tissues). Every effort to identify and refer people suspected of having sexual contact with a person with infective chancres is key to preventing the spread of syphilis. Members of the bisexual community and men who have sex with men are of particular concern because of the potential for syphilis outbreaks and co-infection with HIV.

INCUBATION PERIOD

10 days to 3 months (usually 3 weeks)

TREATMENT

Treatment is with antibiotics. Late stage syphilis complications require more extensive antibiotic treatment.

SEXUALLY TRANSMITTED DISEASES:

See the "Sexually Transmitted Diseases" section on page 44 for information on HOW THE INFECTION IS SPREAD, SCHOOL / NURSE RESPONSIBILITY and CONTROL OF SPREAD.

TRICHOMONAS

AGENT: *Trichomonas vaginalis*, a protozoan.

DESCRIPTION
Women typically have a yellow-green, frothy vaginal discharge that has a foul odor. This is usually accompanied by vaginal itching. Symptoms are commonly more severe just before or after menstruation. Some women do not have any symptoms, and men usually do not have symptoms.

INCUBATION PERIOD
4 to 28 days (usually 7 days)

TREATMENT
Treatment is with prescription medication. Concurrent treatment of partner(s) is essential to prevent re-infection.

STREP THROAT (Streptococcal Sore Throat)

AGENT: *Streptococcus pyogenes* (Group A beta hemolytic streptococci), a bacterium.

DESCRIPTION

Symptoms of strep throat include a sudden onset of fever, sore throat, enlarged lymph nodes, and sometimes a headache, stomach ache, nausea or vomiting. The throat can appear red and there may be white pus on the tonsils. Not all sore throats are caused by streptococci bacteria, so only persons testing positive for Group A strep infection by rapid strep test or throat culture should be treated with antibiotics. Scarlet fever is the combination of strep throat and a skin rash caused by a toxin produced by the bacteria. The rash usually appears on the neck, chest, groin and underarm area. A rare complication of strep throat is rheumatic fever. Rheumatic fever is an inflammatory disease that can involve the heart, joints, skin, and brain. The risk or rheumatic fever is reduced by prompt treatment with appropriate antibiotics.

INCUBATION PERIOD

2 to 5 days

HOW CAN THE INFECTION BE SPREAD?

Strep throat is usually transmitted through droplets and infectious discharges. If treated with antibiotics, a case is contagious for less than 24 hours. Untreated cases will be contagious for 10 to 21 days

SCHOOL / NURSE RESPONSIBILITY

1. REPORTING: Individual cases are not reportable. The school nurse should be consulted for specific concerns, or consultation with the state or local public health agency is available. Report clusters of streptococcal illnesses to the state or local public health agency.
2. Students with a sore throat and fever, symptomatic students with positive strep test, and students with an unexplained fever over 101°F should be referred to a health care provider for assessment and/or treatment. In general, a student without symptoms should not be tested.

CONTROL OF SPREAD

1. EXCLUSION: A symptomatic student with a positive test should be excluded from school until 24 hours after beginning treatment. A student without symptoms, regardless of a positive test result, does not need to be excluded from school. A student who is ill enough to warrant testing should be excluded from school until they are tested or cleared by a health care provider.
2. Only symptomatic family or household contacts of a case should be tested. Exceptions to this are if there is a family history of rheumatic fever or if living conditions increase the chances of transmission (i.e. crowding).
3. A follow-up test is not necessary as long as the student receives adequate treatment. If there is evidence of suboptimal antibiotic therapy, a follow-up test may be indicated at the discretion of the health care provider.
4. Encourage frequent handwashing, especially after coughing and sneezing, and before preparing foods or eating.

TREATMENT

Typically, antibiotics (usually penicillin) are prescribed to treat strep throat. Treatment instructions should be followed closely in order to prevent rheumatic fever.

TETANUS

AGENT: *Clostridium tetani*, a bacterium.

DESCRIPTION

Clostridium tetani spores are found in soil and in animal and human feces. The spores enter the body through breaks in the skin, and grow under low oxygen conditions. The organisms excrete a potent neurotoxin into the bloodstream. When the toxin reaches the nervous system it causes painful and often violent muscular contractions (spasms). Usually the jaw and neck are first involved (causing lockjaw), and then the entire body. Tetanus is often fatal. There are very few cases of tetanus in the United States due to the availability of tetanus immunization.

INCUBATION PERIOD

2 days to several months (usually 8 to 14 days)

HOW CAN THE INFECTION BE SPREAD?

Tetanus is not contagious.

SCHOOL / NURSE RESPONSIBILITY

These guidelines are provided to assist school nurses in determining if tetanus prophylaxis (the tetanus shot) is needed. Instances where tetanus prophylaxis may be indicated include animal bites, cuts, burns, puncture wounds, and wounds contaminated with dirt, feces, soil or saliva. Consultation with the state or local public health agency is available.

GUIDE TO TETANUS PROPHYLAXIS IN ROUTINE WOUND MANAGEMENT

History of Absorbed Tetanus Toxoid (Doses)	Clean, Minor Wounds		All Other Wounds[1]	
	Td[2]	TIG[3]	Td[2]	TIG[3]
Less than 3 or unknown	Yes	No	Yes	Yes
3 or more[4]	No[5]	No	No[6]	No

Td indicates adult-type diphtheria and tetanus toxoids vaccine for persons 7 years of age or older.

TIG indicates Tetanus Immune Globulin (human).

1. Such as, but not limited to, wounds contaminated with dirt, feces, soil and saliva; puncture wounds; avulsions (the tearing away of a structure or part); and wounds resulting from missiles, crushing, burns and frostbite.
2. For children younger than 7 years of age, diphtheria and tetanus toxoids and acellular pertussis (DTaP) vaccine is recommended; if pertussis vaccine is contraindicated, diphtheria and tetanus toxoids (DT) vaccine is given.
3. Equine tetanus antitoxin should be used, if available, when TIG is not available.
4. If only 3 doses of fluid toxoid have been received, a fourth dose of toxoid, preferably an adsorbed toxoid, should be given. Although licensed, fluid tetanus toxoid rarely is used.
5. Yes, if more than 10 years since last dose.
6. Yes, if more than 5 years since last dose. More frequent boosters are not needed and can accentuate adverse effects.

TUBERCULOSIS (TB)

AGENT: *Mycobacterium tuberculosis*, a mycobacterium.

DESCRIPTION

Tuberculosis is a chronic disease that can affect all parts of the body, but most commonly affects the lungs. A primary infection usually goes unnoticed clinically, but sensitivity to tuberculin protein (skin tests) usually appears within 3 to 6 weeks following the primary infection. After primary infection, lung lesions may become inactive or progress to active pulmonary TB. Serious illness is more frequent in infants and young children than in older adults. An increasing number of persons are becoming infected with drug resistant strains of TB. In Colorado, the prevalence of TB, including multiple-drug resistant cases, appears to be low in the general population.

INCUBATION PERIOD

2 to 12 weeks, at which time the primary lung lesion appears. Some people can carry the bacteria in their bodies for many years without active disease.

HOW CAN THE INFECTION BE SPREAD?

Tuberculosis is transmitted through airborne droplets. Because of this, a person is contagious as long as living mycobacteria are being discharged, usually by coughing. Appropriate treatment can reduce contagiousness within several weeks.

SCHOOL / NURSE RESPONSIBILITY

1. REPORTING: Report active cases to the state or local public health agency within **24 hours** of a suspected or confirmed diagnosis. Positive TB skin test in students or workers exposed to active disease should be reported within 7 days.
2. Referral to a health care provider is mandatory for suspect or confirmed cases. Recent skin test converters should have a chest X-ray and consult a health care provider or public health agency as to whether treatment is indicated.
3. Consultation with the state or local public health agency is encouraged for situations that may arise. The CDPHE Tuberculosis Program can be reached at (303) 692-2638.

CONTROL OF SPREAD

1. EXCLUSION: Active cases should be under therapy and cleared by a health care provider or a public health official before returning to school. Students and/or staff who do not have symptoms should not be excluded from school solely based on a positive skin test.
2. No immunization is recommended in United States.

TREATMENT

Most cases can be treated with inexpensive antibiotics. Antibiotics are often recommended for infected persons who have no evidence of active disease.

WHOOPING COUGH (Pertussis)

AGENT: *Bordetella pertussis*, a bacterium.

DESCRIPTION

Pertussis is a respiratory infection that usually begins with cold-like symptoms and a cough. The cough progresses until the person develops coughing fits. Coughing spells may be followed by vomiting, breathlessness, change in facial color, and/or a high-pitched whoop. The cough may last as long as 3 months. Pertussis may be severe in infants and young children (especially those who have not had 3 doses of vaccine) resulting in hospitalizations, neurologic problems, and death. It may not be as severe in adults and in fully immunized children.

INCUBATION PERIOD

5 to 21 days (usually 7 to 10 days)

HOW CAN THE INFECTION BE SPREAD?

Transmission is by direct contact with nose/throat discharges of an infected person. A case is most contagious in the early stages. Individuals are virtually noncontagious after the third week of the cough, or after 5 days of appropriate antibiotic treatment.

SCHOOL / NURSE RESPONSIBILITY

1. REPORTING: Report the infection to the state or local public health agency within 7 days of diagnosis.
2. Suspect pertussis cases should be referred to a health care provider for diagnosis, testing, and treatment. Specimens for testing are collected from the nasal passages.

CONTROL OF SPREAD

1. EXCLUSION: Individuals with pertussis may return to school after 5 days of appropriate antibiotic treatment. If not treated, the individual should be excluded from school until 3 weeks after the onset of cough or until the cough has stopped, whichever period is shorter.
2. Review pertussis immunization records and recommend DTaP vaccine for under immunized children less than 7 years of age. Vaccine administered after exposure will not prevent infection, however, it may provide protection against future exposure.
3. Pertussis vaccine given in the recommended schedule is an effective means of preventing illness. Protection declines with time since the last dose. Vaccine is not currently licensed for persons over 6 years of age.
4. Consult with the school nurse or state or local public health agency about notifying parents/guardians of exposed classmates. Antibiotic prophylaxis is frequently recommended for preschool classroom contacts and occasionally recommended for elementary classroom contacts.
5. Household or other close contacts (regardless of immunization status) should receive appropriate antibiotics. If close contacts are symptomatic, they should be excluded from school until they have completed 5 days of antibiotics.
6. Information is available at: http://www.cdphe.state.co.us/dc/epidemiology/dc_guide.html

TREATMENT

Appropriate antibiotic treatment shortens the period of contagiousness, but does not reduce symptoms except when given during the incubation period or in the early stage of the disease.

SYMPTOM CHART

This chart lists common symptoms seen in ill children that could possibly be related to an infectious disease. The chart also indicates if it is necessary to exclude a student exhibiting a particular symptom from school. Parents should be notified when a student develops symptoms at school, and the student should be referred to a health care provider if symptoms are thought to be serious. As mentioned in the introduction of these guidelines, exclusion should be considered with any illness or symptom if any of the following conditions apply:

- If the student does not feel well enough to participate comfortably in usual activities.
- If the student requires more care than school personnel are able to provide.
- If the student has a high fever, behavior changes, persistent crying, difficulty breathing, lack of energy, uncontrolled coughing, or other signs suggesting a severe illness.
- If the student is ill with a potentially contagious illness and exclusion is recommended by a health care provider, the state or local public health agency, or these guidelines.

SYMPTOM	EXCLUSION GUIDELINES
Cough	Exclusion is recommended if the student is experiencing severe, uncontrolled coughing or wheezing, or having difficulty breathing.
Diarrhea (defined as stools that are more frequent and looser than usual)	Exclusion is recommended if any of the following conditions apply: the student has other symptoms along with the diarrhea (such as vomiting, fever, abdominal pain, etc.), the diarrhea cannot be contained in a toilet, there is blood or mucous in the stool, or the student is in diapers.
Earache	No exclusion is necessary.
Fever (defined as a temperature over 101°F orally)	Exclusion is recommended if the student has symptoms in addition to the fever, such as a rash, sore throat, vomiting, diarrhea, etc. Fever alone does not require exclusion.
Headache	No exclusion is necessary.
Mouth sores	Exclusion is recommended if they student is drooling uncontrollably.
Rash	Exclusion is recommended if the student has symptoms in addition to the rash such as behavior change, fever, joint pain, or bruising not associated with injury, or if the rash is oozing or causes open wounds. See page 39 for additional information on rashes.
Stomach ache / Abdominal pain	Exclusion is recommended if the pain is severe, if the pain appears after an injury, or if the student had symptoms in addition to the stomach ache (such as vomiting, fever, diarrhea, etc.)
Swollen glands	Exclusion is recommended if the student has symptoms in addition to the swollen glands such as difficulty breathing or swallowing, fever, etc.
Vomiting	Exclusion is recommended if the student has vomited more than two times in 24 hours, if the vomit appears green or bloody, if the student has a recent head injury, or if the student has symptoms in addition to the vomiting (such as fever, diarrhea, etc.).

INFECTIOUS DISEASE IN SCHOOL SETTINGS - SUMMARY CHART

As mentioned in the introduction of these guidelines, exclusion should be considered with any illness or symptom if any of the following conditions apply:

- If the student does not feel well enough to participate comfortably in usual activities.
- If the student requires more care than school personnel are able to provide.
- If the has a high fever, behavior changes, persistent crying, difficulty breathing, lack of energy, uncontrolled coughing, or other signs suggesting a severe illness.
- If the student is ill with a potentially contagious illness and exclusion is recommended by a health care provider, the state or local public health agency, or these guidelines.

DISEASE/AGENT	INCUBATION PERIOD	TRANSMISSION	CONTAGIOUS PERIOD	REPORT	EXCLUSION
Animal Bites/Rabies Rabies virus	Rabies: 9 days-7 years (usually 3-8 weeks)	Saliva of an infected animal	As long as symptoms are present	**Yes (24 hours for animal bites)**	None for animal bites
Campylobacteriosis *Campylobacter* bacteria	1-10 days (usually 2-5 days)	Fecal-oral spread, contaminated food/water, animals	While diarrhea is present; can spread for a few days after symptoms are gone	Yes (7 days)	Yes – until diarrhea resolves
Chickenpox (Varicella) Varicella-zoster virus	10-21 days (usually 14-16 days)	Droplet/infectious discharges, skin contact	1-2 days before the rash appears until all the blisters have crusted over	Yes (7 days)	Yes – until all blisters have crusted over
Chlamydia *Chlamydia trachomatis* bacteria	7-14 days or longer	Sexual transmission	Until treated	Yes (7 days)	None
CMV Cytomegalovirus	3-12 weeks	Body secretions (primarily saliva and urine)	As long as the virus is present in body secretions (months or years)	None	None
Common Cold A variety of viruses	1-3 days (usually 48 hours)	Droplet/infectious discharges	1 day before symptom onset until 5 days after	None	None unless symptoms severe
Cryptosporidiosis *Cryptosporidium parvum* parasite	1-12 days (usually 7 days)	Fecal-oral spread, contaminated food/water, animals	While diarrhea is present; can spread for several weeks after symptoms are gone	Yes (7 days)	Yes – until diarrhea resolves

DISEASE/AGENT	INCUBATION PERIOD	TRANSMISSION	CONTAGIOUS PERIOD	REPORT	EXCLUSION
E. coli O157:H7 and other Shiga Toxin Producing Bacteria *Escherichia coli* bacteria	2-10 days (usually 3-4 days)	Fecal-oral spread, contaminated food/water, animals	While diarrhea is present; can spread for 1-3 weeks after symptoms are gone	Yes (7 days)	Yes – until diarrhea resolves (diapered children need 2 negative stool tests)
Fifth Disease Human parvovirus B19	4-21 days	Droplet/infectious discharges	1 week before rash formation	None	None
Genital Herpes Herpes simplex virus	2-14 days	Sexual transmission	Potentially lifelong	None	None
Genital Warts Human papilloma virus	1 month-several years (usually 2-3 months)	Sexual transmission	Potentially lifelong	None	None
Giardiasis *Giardia lamblia* parasite	3-25 days (usually 7-10 days)	Fecal-oral spread, contaminated food/water	While diarrhea is present; can spread for months after symptoms are gone	Yes (7 days)	Yes – until diarrhea resolves
Gonorrhea *Neisseria gonorrhoeae* bacteria	2-7 days	Sexual transmission	Until treated	Yes (7 days)	None
Hand, Foot and Mouth Disease Strains of enteroviruses	3-6 days	Droplet/infectious discharges, fecal-oral spread	During the first week of illness; virus can be present in stool 4-6 weeks	None	None unless the student is drooling uncontrollably
Head Lice (Pediculosis) *Pediculus humanus*, the head louse	Nits hatch in 10-14 days, adults live 3-4 weeks	Direct contact with an infested person/object	As long as live lice are present	None	Yes – from end of school day until after first treatment
Hepatitis A Hepatitis A virus	15-50 days (usually 25-30 days)	Fecal-oral spread, contaminated food/water	Most contagious 2 weeks before symptom onset and slightly contagious 1 week after jaundice onset	**Yes (24 hours)**	Yes – until 1 week after symptom onset or jaundice
Hepatitis B Hepatitis B virus	2-6 months (usually 2-3 months)	Infective blood or body fluids, sexual transmission	Several weeks before symptom onset and throughout the illness, some people carry the virus for life	Yes (7 days)	None

DISEASE/AGENT	INCUBATION PERIOD	TRANSMISSION	CONTAGIOUS PERIOD	REPORT	EXCLUSION
Hepatitis C Hepatitis C virus	2 weeks-6 months (usually 6-7 weeks)	Infective blood	1 or more weeks before symptom onset and as long as the virus is present in the blood which can be lifelong	Yes (7 days)	None
Herpes (Cold Sores, Fever Blisters) Herpes simplex virus	2-12 days	Direct contact	As long as the sores are present	None	None unless the student is drooling uncontrollably
HIV and AIDS Human immunodeficiency virus	Variable	Infective blood	Lifelong	Yes (7 days)	None
Impetigo Streptococcal or staphylococcal bacteria	7-10 days	Skin contact/direct contact	As long as there is discharge from the affected areas	None	Yes – until 24 hours after beginning treatment
Influenza Influenza virus	1-4 days (usually 2 days)	Droplet/infectious discharges	From slightly before symptom onset to about day 3 of the illness	Yes (hospitalized cases or deaths in children < 18 years – 7 days)	None
Measles (Rubeola) Measles virus	7-18 days (usually 10-12 days)	Airborne	4 days before rash onset to 5 days after	**Yes (24 hours)**	Yes – until 5 days after rash onset
Meningitis (Bacterial) Bacteria such as *Neisseria meningitidis* (meningococcal), *Haemophilus influenzae* (H. flu), *Streptococcus pneumoniae* (pneumococcal)	Depends on the agent (usually 1-10 days)	Droplet/infectious discharges	Until completing 24 hours of antibiotic treatment	**Yes (24 hours for meningococcal and H. flu)** (7 days for pneumococcal)	Yes – until 24 hours after treatment
Meningitis (Viral) Several different viruses	Depends on the agent	Droplet/infectious discharges, fecal-oral spread	Depends on the agent	Yes (7 days)	None
Mononucleosis Epstein-Barr virus	30-50 days	Saliva	Up to a year after the initial infection	None	None

DISEASE/AGENT	INCUBATION PERIOD	TRANSMISSION	CONTAGIOUS PERIOD	REPORT	EXCLUSION
MRSA Methicillin-resistant *Staphylococcus aureus*	Variable	See CDPHE guidelines	See CDPHE guidelines	Yes (from sterile sites in Denver area residents – 7 days)	See CDPHE guidelines
Mumps Mumps virus	12-25 days (usually 16-18 days)	Droplet/infectious discharges, saliva	7 days before swelling onset to 9 days after	Yes (7 days)	Yes – until 9 days after swelling onset
Nongonococcal Urethritis Various bacteria and viruses	Depends on the agent	Sexual transmission	Depends on the agent, can be contagious until treated	None	None
Pelvic Inflammatory Disease Various bacteria	Depends on the agent	Sexual transmission	Depends on the agent, can be contagious until treated	None	None
Pink Eye (Conjunctivitis) Various bacteria and viruses, allergies, chemical irritation	Bacterial: 24-72 hours Viral: 1-12 days Allergies: variable Chemicals: variable	Bacterial and viral: infectious discharges Allergies and chemicals: not contagious	Bacterial: as long as symptoms are present or until 24 hours after treatment Viral: as long as symptoms are present	None	Yes – (bacterial or viral) until approved for return by a school nurse/health care provider or until 24 hours after treatment
Pubic Lice (Crabs) *Phthirus pubis,* the pubic louse	Average life cycle is 15 days	Sexual transmission	As long as lice are present	None	None
Ringworm (Tinea) Several fungi species	Unknown	Skin contact/direct contact	As long as skin is affected	None	Yes – from end of school day until after first treatment
RSV Respiratory Syncytial Virus	2-8 days (usually 4-6 days)	Droplet/infectious discharges	3-8 days after symptom onset	None	None
Rubella (German Measles) Rubella virus	12-23 days (usually 16-18 days)	Droplet/infectious discharges	7 days before rash onset to 7 days after	**Yes (24 hours)**	Yes – until 7 days after rash onset
Salmonellosis *Salmonella* bacteria	6-72 hours (usually 12-36 hours)	Fecal-oral spread, contaminated food/water, animals	While diarrhea is present; can spread for a variable period of time after symptoms are gone	Yes (7 days)	Yes – until diarrhea resolves

DISEASE/AGENT	INCUBATION PERIOD	TRANSMISSION	CONTAGIOUS PERIOD	REPORT	EXCLUSION
Scabies *Sarcoptes scabei*, a mite	2-6 weeks if never infected, 1-4 days if infected before	Skin contact/direct contact	Until the mites and eggs are destroyed	None	Yes – from end of school day until after first treatment
Shigellosis *Shigella* bacteria	1-7 days (usually 1-3 days)	Fecal-oral spread, contaminated food/water	While diarrhea is present; can spread for weeks after symptoms are gone	Yes (7 days)	Yes – until diarrhea resolves (diapered children require 2 negative stool tests)
Shingles (Herpes Zoster) Varicella-zoster virus	10-21 days (usually 14-16 days)	Skin contact	Until all the blisters have crusted over	None	No – as long as the blisters are covered
Strep Throat *Streptococcus pyogenes* bacteria	2-5 days	Droplet/infectious discharges	Until treated with antibiotics for 24 hours, or 10-21 days for untreated cases	None	Yes – until 24 hours after treatment
Syphilis *Treponema pallidum* bacteria	10 days-3 months (usually 3 weeks)	Sexual transmission	Until treated	**Yes (24 hours)**	None
Tetanus *Clostridium tetani* bacteria	2 days-months (usually 8-14 days)	Through breaks in the skin	Not contagious	Yes (7 days)	None
Trichomonas *Trichomonas vaginalis* protozoa	4-28 days (usually 7 days)	Sexual transmission	Until treated	None	None
Tuberculosis *Mycobacterium tuberculosis* mycobacterium	2-12 weeks	Airborne	As long as symptoms are present or until on treatment	**Yes (24 hours)**	Yes – (active cases) until on treatment and cleared by a health care provider
Viral Gastroenteritis Various viruses, such as norovirus	10 hours-4 days (usually 1-2 days)	Fecal-oral spread, contaminated food/water	While diarrhea or vomiting is present; can spread for several days after symptoms are gone	Yes (7 days)	Yes – until diarrhea and/or vomiting resolves
Whooping Cough (Pertussis) *Bordetella pertussis* bacteria	5-21 days (usually 7-10 days)	Droplet/infectious discharges	Until after the third week of coughing, or until after 5 days of treatment	Yes (7 days)	Yes – until 5 days after treatment or until 3 weeks after cough onset

Notes: