

THE RHODE ISLAND  
SCHOOL NURSE TEACHERS  
INFECTIOUS DISEASE  
REFERENCE MANUAL

"SAFE AND HEALTHY LIVES IN SAFE AND  
HEALTHY COMMUNITIES"

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2003

**RHODE ISLAND DEPARTMENT OF HEALTH  
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(FOR DISEASES REPORTABLE IMMEDIATELY)

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<b>HIV/AIDS</b>	<b>222-2320</b>
<b>OCCUPATIONAL DISEASES</b>	<b>222-2438</b>
<b>SEXUALLY TRANSMITTED DISEASES</b>	<b>222-2577</b>
<b>TUBERCULOSIS</b>	<b>222-2577</b>
<b>VACCINE-PREVENTABLE DISEASES</b>	<b>222-2312</b>

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## INTRODUCTION

During this century there have been major accomplishments in the fight against infectious diseases in the United States. These are attributable to an improved standard of living, good sanitation, antibiotic therapy and widespread use of vaccines. In the US infant immunization has significantly reduced infections from *Diphtheria, Measles, Mumps, Pertussis, Rubella, Tetanus* and Haemophilus influenza type b disease.

Many new vaccines have been approved for routine infant immunization over the past ten years and many are in trials or awaiting approval. Some new vaccines include: *Hepatitis B, DTaP, and Varicella* vaccine. These are already on the Recommended Childhood Immunization Schedule. Other vaccines being discussed for routine use are Meningococcal Conjugate and Pneumococcal vaccine for children, as well as combination vaccines.

Despite our major public health victories we have also witnessed the emergence of new pathogens and re-emergence of some old ones. These infectious diseases include HIV/AIDS, *Hepatitis C, Drug Resistant Tuberculosis, Drug Resistant Streptococcus Pneumoniae, Avian influenza in Hong Kong in 1997.* Also in that year strains of *Staphylococcus aureus* with decreased susceptibility to vancomycin were reported in Japan and the United States. If new drugs are not produced to replace antibiotics that are no longer effective due to the spread of resistant strains of bacteria, some infectious diseases will become untreatable. We will face similar problems as those who preceded us encountered in the preantibiotic era. In 2003 SARS (Severe Acute Respiratory Syndrome) and Monkeypox imported via Gambian rats galvanized the public health world to act swiftly with control responses.

*Streptococcus pneumoniae* is a bacterium that causes invasive infections such as meningitis, bacteremia, and pneumonia and also common illness such as *conjunctivitis, otitis media, and sinusitis.* This organism is showing increasing resistance to certain antibiotics. Penicillin resistance was the first to be identified; now this bacteria has become increasingly resistant to other antibiotics. Some of these include: the sulfonamides, macrolides, quinolones, and cephalosporins. Every antibiotic prescribed selects for some bacterial resistance in our communities.

Every time an individual takes an antibiotic for illness, sensitive bacteria are killed but resistant bacteria are left to grow and multiply. Repeated use of antibiotics can cause an increase in resistant bacteria. Resistant strains, like all other pathogenic organisms, can spread from person to person. When to use antibiotics and when not to is best decided by a physician; the decision takes into account the specific diagnosis.

Healthcare providers, especially school nurse teachers, have many opportunities in the school setting to teach children and their families about the prevention and control of infectious diseases. This manual was written to provide school nurse teachers and school personnel with the information necessary to educate children and their families about infectious diseases and promote activities conducive to the control and prevention of these diseases. It is hoped that this manual will be read and be useful to all those involved in school health activities.

The manual is designed for the addition of sections pertaining to other school health issues. These sections will be provided as they become available. As changes occur, new pages will be provided along with instructions regarding the removal of old pages and placement of new material.

#### REPORTING REQUIREMENTS:

- Please note that the most recently amended [Rules and Regulations for the Reporting of Communicable, Environmental and Occupational Diseases](#) has wording recommending that school health personnel be reporters of disease. Guidelines to clarify the intent of the regulations are further amplified in the companion documents: 1. [Guidelines for Communicable Disease Prevention and Control](#) and
- 2. [Rhode Island Department Of Health Epidemiology And Laboratory Reporting And Surveillance Manual](#)

For all current reporting information see  
[http://www.health.ri.gov/disease/communicable/providers\\_rep.htm](http://www.health.ri.gov/disease/communicable/providers_rep.htm)

## **REPORTABLE DISEASES**

### **ACQUIRED IMMUNODEFICIENCY DISEASE**

#### **HUMAN IMMUNODEFICIENCY VIRUS**

*Acquired immunodeficiency disease* (AIDS) is a serious disease of the immune system. Currently, there is effective treatment but no cure. AIDS is caused by the *human immunodeficiency virus* (HIV) and is transmitted through virus in blood, semen, vaginal fluids or breast milk from an infected individual to an uninfected individual. The virus attacks the immune system, crippling the body's ability to fight off diseases caused by common organisms that normally exist in the environment.

It is not unusual for an infected person to feel healthy for a very long time, sometimes up to or beyond 10 years after infection. Even though he or she is symptom free and looks and feels healthy an infected individual can still transmit the virus to other people.

In time, an HIV-infected person may develop symptoms that a physician may determine to be HIV-related. Such symptoms signal the serious deterioration of the immune system. He or she still may not have a diagnosis of AIDS. It is only when an individual displays signs of very severe immune deficiency and/or one of a set of very specific clinical conditions that he or she is diagnosed with AIDS. Only a trained healthcare professional can make such a diagnosis.

#### ***Transmission***

HIV **can** be transmitted from one person to another in the following ways:

- ◆ Unprotected sexual intercourse, including anal intercourse (regardless of the gender or sexual orientation of the partner), vaginal intercourse, or oral intercourse. HIV is transmitted through semen (including pre-ejaculatory fluid), vaginal fluids (including menstrual blood, cervical discharge and the natural fluids that lubricate the vagina) and blood.
- ◆ From a pregnant or birthing woman to her fetus (maternal-fetal transmission) at or before birth, and to newborns through breast-feeding.

HIV **cannot** be transmitted by:

- ◆ Casual contact, such as kissing or hugging. There are no confirmed cases of HIV transmission involving saliva, sweat or tears.
- ◆ Being bitten by mosquitoes or other bugs.
- ◆ Being bitten by an animal.

- ◆ Eating food handled, prepared, or served by a person with HIV infection.
- ◆ Sharing toilets, telephones, or clothes.
- ◆ Sharing forks, spoons, knives, or drinking glasses.
- ◆ Touching, hugging, or kissing a person with HIV infection.
- ◆ Attending school or other public places with HIV-infected people.

### ***Diagnosis***

The HIV antibody test is not a test for AIDS but rather a test to determine the presence of HIV antibodies in the blood. The HIV antibodies form in response to the presence of HIV virus. Thus the HIV test detects the antibody, not the virus itself. Presence of the antibody is indicative of infection, not just exposure. By Rhode Island law, HIV testing requires written, informed consent and cannot be done as a routine blood test.

If someone's blood test is reported as positive for antibody to HIV it means that two tests have been done. The ELISA (enzyme linked immuno-sorbent assay) and the Western blot. The ELISA is performed first. If the ELISA is positive, it is repeated twice. If any two of the three ELISA tests are positive, a Western blot test is done. When a positive ELISA is confirmed by the Western blot, both HIV antibody tests provide accurate results more than 99% of the time.

### ***Treatment***

Because early diagnosis, counseling, and treatment may improve the length of life for some and can improve the quality of life for individuals with HIV, it is important for those who may be infected to be evaluated by their physician as early as possible. Medical care and immune system monitoring should begin soon after infection. The HIV antibody can be detected in most infected individuals within 3 months to 6 months from the time of initial infection. The presence of antibody is always considered evidence of infection.

If an HIV antibody test is negative, no antibodies were found at the time of the test. Individuals should be re-tested in 3 to 6 months if the last high risk exposure was less than 6 months prior to the test date. If no high risk exposures have occurred in the prior 6 month period there is little or no chance of seroconversion.

Testing HIV negative today does not mean a person will remain negative if an individual engages in risky sexual behavior or injection drug use. Even after a negative test, an individual who puts him or herself at risk may become infected with HIV. Hence 6 monthly testing may be required for those who cannot control their high risk behaviors.

***Adolescent HIV counseling and testing***

The Office of HIV/AIDS issued its Adolescent HIV Counseling and Testing Policy in December 1990. This policy recognizes that adolescents may put themselves at risk for HIV infection through specific sexual and injection drug use behaviors. The policy recommends that medical professionals do the following:

- ◆ complete a psychosocial history before proceeding with antibody testing
- ◆ assist the adolescent in identifying an appropriate individual (or identify an individual if the youth cannot do so) to be supportive before, during and after the testing process
- ◆ conduct multiple confidential pre and post-test counseling sessions
- ◆ ensure that counseling sessions are sensitive, culturally specific and developmentally appropriate.

Under the provisions of state public health law (RI 23-8-1.1) minors may consent to their own communicable disease testing, including HIV.

***HIV/AIDS Prevention and Risk Reduction***

HIV infection is preventable. The following protective measures are recommended:

- ◆ The only sure way to prevent sexual transmission of HIV is through abstinence.
- ◆ Individuals should think and talk about HIV and other STD prevention before deciding whether or not to have sex.
- ◆ Sexual behaviors that do not involve the exchange of body fluids may reduce the risk of HIV. Examples of non-intercourse sexual behavior include hugging and massage.
- ◆ In the case of anal or vaginal intercourse, or oral sex, a latex condom should be used properly every time. Condoms are not reusable. Water-based lubricants such as K-Y, are acceptable in conjunction with condom use. Vaseline, grease, or oils should not be used because they cause breakdown of latex condoms.
- ◆ During sexual activity, contact with semen, vaginal fluids, or blood should be avoided.
- ◆ The use of alcohol and other drugs that impair judgment should be avoided because they may lead to unsafe sexual practices.
- ◆ Abstain from injection drug use; it is a major method of HIV transmission.
- ◆ If drugs are injected, needles or works including cotton, syringe, and cookers should never be shared. Use only new needles and syringes or needles and syringes cleaned with full-strength bleach and rinsed several times with water. Counseling

regarding substance abuse and drug addiction rehabilitation is strongly advised.

*The Rhode Island Department Of Health administers an anonymous and confidential needle exchange, outreach and education program called ENCORE (education, needle exchange, counseling, outreach and referral).*

ENCORE is an anonymous and confidential program administered by the Rhode Island Department of Health. The purpose of the ENCORE program is to prevent HIV, AIDS, Hepatitis C and other blood borne diseases by giving people some tools to protect themselves:

- clean syringes;
- bleach with information on how to clean syringes;
- alcohol swabs, cookers and cotton with information on skin care;
- condoms and how to use them; and
- counseling and referrals to drug treatment, social services and medical care.

Clients are given a code that is written on an enrollment card. Because this is an anonymous program, the code written on the ENCORE enrollment card is the only means of identifying who is in the program. The code is the **first three letters** of the client's mother's first name and the client's **birth date**.

The rules of the **ENCORE program** are simple:

- It is a one-for-one plus one exchange. We will give one syringe for every used syringe brought to an exchange site plus one more.

For example, if 10 used syringes come in, 10 plus one or 11 new syringes are given out.

- Clients must be 18 years old to exchange.
- Clients must have a syringe to exchange syringes. Anyone can go to an ENCORE site for other harm reduction tools such as condoms, cookers and alcohol swabs.

## **ENCORE Sites**

Wednesday and Saturday 2:00 - 4:00 pm in the Atlantic Mills on Manton Avenue, Providence. Enter the tower on the left and follow the signs to the first floor ENCORE site.

Tuesday and Thursday, 6:00 - 8:00 pm, at Broad Street Medical Building at 557 Broad Street, Providence. A variety of other services are available at the Broad Street site such as medical care and clothing.

For more information contact Rachel Harper at 273-1888 or 781-0665 or call the Health Department at 222-2320.

Women considering pregnancy should seek counseling to determine their HIV status, risk of exposure and any potential risks for their children.

There are ways to prevent HIV infection. To learn more about condom use and other protective measures, contact the AIDS Hotline: (800) 726-3010.

Youth at risk may need to face both their own fears and anxieties regarding HIV as well as the responsibility of caring for family, friends, or other loved ones who are infected or affected by HIV. Because HIV infection is very personal and emotionally challenging, education about HIV/AIDS prevention and infection control protocols should be provided for all staff. School policy should be sensitive and supportive of students and school personnel who may be infected or affected by HIV.

### ***Schools and HIV/AIDS Prevention Education***

Comprehensive health education is an effective means of preventing HIV infection. The Rhode Island Department of Elementary and Secondary Education (RIDOE) and the Rhode Island Department Of Health have a policy on HIV infected students and employees. See guidelines for the development of a policy on HIV infected students and employees.

In addition, school districts may develop HIV/AIDS policies and programs in accordance with the Rhode Island Department Of Education/Department Of Health existing policies for HIV infected students/employees. Because of the need for community participation on this important topic, it is recommended that a school district establish a school-community task force to advise and educate regarding local and/or potential HIV/AIDS issues. For assistance in training and policy development, call the Rhode Island Department Of Education at 401-222-4600

### ***School Attendance Guidelines***

Students with AIDS or HIV infection pose no risk of transmission of HIV infection through the kind of casual contact that typically occurs in a school setting. The Rhode Island Department Of Education/Department Of Health policy covers this issue stating that students with HIV/AIDS have the same right to attend classes or participate in school programs and activities as any other student. The only exception is in a very rare set of situations where a student has a bleeding or clotting disorder resulting in prolonged bleeding from routine cuts and scrapes or nosebleeds. In such a case, the student should not have routine contact with other individuals in a school setting. Universal blood and body fluid precautions should apply as a public health measure.

### ***Disclosure and Confidentiality***

No one except the student and/or the student's parent(s) or guardian(s) necessarily needs to know of a student's AIDS diagnosis or HIV infection. They are not obligated to disclose this information. As with any other medical information, the diagnosis of AIDS is confidential. Since individuals with AIDS or HIV infection typically pose no public health threat to others by their presence in the school, their medical information must be treated in a very confidential manner.

The privacy of students with HIV or AIDS is protected under the general state privacy law, which protects against unwarranted invasion of privacy.

If a healthcare provider or facility discloses a student's HIV antibody test result without specific, informed, written consent, that provider or facility violates state law and possibly faces a civil suit brought by the student or the student's parent(s) or guardian(s). Other school staff may be held liable for violating the privacy of an AIDS diagnosed or HIV infected student under the general privacy law and may be open to being sued by the student or the student's family.

### ***Reasons to Disclose***

There are several medical reasons that a student and/or his or her parent/guardian may wish to disclose the diagnosis to the school nurse or school physician, even though they are not obligated to do so:

- ◆ A student who is HIV infected and presents evidence (to school health authorities) of having the HIV virus may be at a greater risk of contracting infections. If there is an occurrence of a contagious disease in school such as chickenpox or influenza, the school nurse or physician who is aware of a student's HIV status may be able to alert the student's parent(s) or guardian(s), who then may consult their personal care physician for preventive treatment or a recommendation to keep their child at home.
- ◆ A young person with HIV infection may be taking medications that should be administered by a healthcare professional, or he or she may require immunizations (vaccines) different from those of other students. Schools are bound by state law to manage certain medications taken in school and to determine whether a student has had certain immunizations. (See first section in this chapter on immunization requirements.) Therefore, parents may decide that knowledge of HIV infection will help the school nurse or school physician meet the child's medical needs.

If the parents or guardians, in consultation with the student's primary care physician, decide to inform certain school personnel, particularly the school nurse and school physician, about the student's AIDS/HIV status, the Rhode Island Department Of Education/Department Of Health recommends the following guide lines for disclosure:

1. The student's parent(s) or guardian(s) or the students themselves, under certain circumstances, may inform the school nurse or school physician directly.
2. The student's parent(s) or guardian(s) may request that their child's personal care physician make the disclosure. In this case, specific, informed, written consent of the student's parent(s) or guardian(s) is required before the physician may disclose the information.
3. Further disclosure of a student's HIV status by the school nurse or school physician to other school personnel requires the specific, informed, written consent of the student's parent(s) or guardian(s).

Note that a student and the student's parent(s) or guardian(s) may also decide to inform the student's teacher(s), counselor, school principal or other staff members, but they are not obliged to do so. This is their decision alone. Given the privacy protection of the state law, all school personnel are under a similar duty to protect the confidentiality of the information. If and when informed, written consent is obtained which enables school staff to disclose to others in the school, the form or letter giving this consent should spell out specifically which individuals should be told. It should specify the names of individuals, not their titles or roles in the school. Staff titles and positions change, and a student's family may not want a new person holding the position to be informed.

## ANTHRAX

Anthrax is an infectious disease caused by the spore producing bacterium, *Bacillus anthracis*. It occurs in wild and domestic lower vertebrates such as cattle, sheep, goats, camels, antelopes and other herbivores. There are three types of anthrax that affect humans: cutaneous, inhalational and gastrointestinal.

Cutaneous anthrax starts as a raised itchy bump and develops into what looks like an insect bite. Within 1-2 days it becomes a painless ulcer about 1-3 cm in diameter with a black dying center. During this time persons may have swollen lymph glands. There is a 20% fatality rate for cutaneous anthrax. Inhalational anthrax initially resembles the common cold or influenza with symptoms like sore throat, mild fever, muscle ache, and general discomfort. After a few days patients experience severe breathing difficulties and shock. Inhalational anthrax is usually fatal. Gastrointestinal anthrax is characterized by acute inflammation of the intestinal tract, preceded by nausea, loss of appetite, vomiting, fever, abdominal pain and diarrhea. This type of anthrax is 25-60% fatal.

### ***Transmission***

There are three modes of transmission that determine what type of anthrax the patient has. Cutaneous anthrax is contracted through infection of a cut or abrasion on the skin. Such cuts generally happen after handling contaminated wool, hides, leather or goat hair. Gastrointestinal anthrax is contracted after eating meat of an infected animal. Inhalational anthrax is contracted if persons inhale aerosolized anthrax, usually in a deliberate attack.

### ***Diagnosis and Treatment***

Anthrax is diagnosed by isolating the *Bacillus anthracis* organism from blood, skin lesion or respiratory secretions and also by measuring antibodies in the serum. Invasive anthrax is a serious illness and requires hospitalization, intensive care and antibiotic treatment.

### ***Prevention***

There is a vaccine that has been developed against anthrax. However, it is only widely available to military services and to those considered at high risk. High-risk individuals include those who work with animal furs and hides under substandard conditions and laboratory technicians who work directly with the spores. If persons are exposed to anthrax, doses of ciprofloxacin and doxycycline for 60 days will prevent illness.

***School Attendance Guidelines***

Once contracted, anthrax is not contagious to others; it is not necessary to exclude the infected if they are feeling well.

***Reporting Requirements***

All cases of anthrax must be reported to the Department of Health immediately upon suspicion.

***Notification Guidelines***

If there is a case of anthrax within the school population, the school nurse and school physician shall determine, in consultation with the Department of Health and school administrators what notifications should be made.

## **BOTULISM**

Botulism is a rare, paralytic disease caused by a nerve toxin produced by the bacteria *Clostridium botulinum*. There are three kinds of botulism: food borne, usually from home-canned foods; wound botulism, from infected wounds; and infant botulism, contracted from consuming spores that grow in the intestines and release the toxin. All cases of botulism are considered medical emergencies.

The disease is characterized by double vision, blurred vision, drooping eyelids, slurred speech difficulty swallowing, dry mouth, and muscle weakness. Infants are usually lethargic, feed poorly, constipated, have a weak cry and poor muscle tone. Symptoms may appear 18-36 hours after eating but could be as early as 6 hours or as late as 10 days.

### ***Transmission***

Botulism is primarily contracted from consuming improperly canned food with low acid content (asparagus, green beans, beets, corn). Botulism is one of the agents of bioterrorism and intentional aerosol releases may lead to clusters of cases in a locality or from exposures at one location.

### ***Prevention***

Persons doing home canning should follow strict hygienic procedures as defined by the US Department of Agriculture. Botulism is killed under high temperatures so persons consuming home-canned foods should consider boiling foods for 10 minutes before eating. Also, oils saturated with garlic or herbs should be refrigerated. Potatoes that have been baked in aluminum foil should be kept hot until served, or refrigerated. Honey can sometimes contain the *Clostridium botulinum* bacteria and should therefore not be fed to infants under the age of one; honey is safe for persons over the age of one. Wound botulism is preventable by seeking immediate medical attention and not using injection street drugs.

### ***Diagnosis***

Botulism is diagnosed by examining a patient's history and a physical examination. In order to rule out "look alike" diseases, tests like a brain scan, spinal fluid examination, or nerve conduction tests may be performed. Certain labs may elect to inject the patient's serum or stool into mice and look for signs of botulism in the mice. For infant and food borne botulism the bacteria can be isolated from stool. Newer blood tests are being developed.

### ***Treatment***

In the severest case the patient may need to be placed on a ventilator if there is respiratory failure or paralysis. These patients will require rigorous medical and nursing care. Food and wound botulism are treatable

with antitoxins that stop the toxins from circulating in the blood.  
Recovery usually takes a few weeks.

***School Attendance Guidelines***

Botulism is not known to be communicable from person to person. As such, there is no need to isolate students or staff with botulism as long as they are feeling well.

***Reporting Requirements***

All cases of botulism must be reported to the Department of Health immediately upon suspicion of disease.

***Notification Guidelines***

If there is a case of botulism within the school population, the school nurse and school physician shall determine, in consultation with the Department of Health and school administrators what notifications should be made.

## BRUCELLOSIS

Brucellosis is an infectious disease caused by various species of the bacterium *Brucella*. It primarily affects animals like sheep, goat, cattle, deer, elk, pigs, dogs and other animals. Brucellosis infects about 100-200 people a year in the US. Countries without effective public health and domestic animal health programs have higher rates.

Symptoms of brucellosis include fever, sweats, headache, back pain, physical weakness and chronic symptoms include recurrent fever, joint pain, and fatigue.

### *Transmission*

Transmission of brucellosis occurs via three methods: ingestion, inhalation, and through skin wounds. Consuming milk or milk products of infected animals can cause infection in humans. Rarely, and usually in laboratory workers, brucellosis can be contracted through inhalation of the culture. Open, untreated skin wounds also pose a threat for transmission. Those working in slaughterhouses, meat packers and veterinarians are most at risk for contracting brucellosis this way. There have been documented cases of brucellosis being transmitted from an infected mother to her child through breast milk. In another case brucellosis was spread through sexual contact from an infected person to his/her partner. In both cases, if the at risk person begins antibiotics then the risk of infection is eliminated within three days.

Brucellosis is one of the agents of bioterrorism and intentional aerosol releases, or contamination of food sources may lead to clusters of cases in a locality or from exposures at one location.

### *Diagnosis*

Brucellosis is diagnosed by doing blood tests to find organisms in blood or bone marrow. These blood tests look for antibodies. There should be two samples taken two weeks apart.

### *Treatment*

Brucellosis is treated with antibiotics such as doxycycline and rifampin for six weeks so as to prevent recurrence. This particular bacterial disease has a low mortality rate but those deaths that do occur are associated with endocarditis.

### *Prevention*

It is possible to prevent brucellosis in humans by taking the correct precautions. Do not consume milk or milk products that are not pasteurized. Hunters, herdsman and any other person cutting wild animals

should use gloves when working with animals. There is no vaccine for brucellosis.

***School Attendance Guidelines***

Since brucellosis is not known to spread from human to human except through sexual intercourse and breast milk (in rare cases), it is not necessary to exclude children or adults with this disease as long as they are feeling well.

***Reporting Requirements***

All cases of brucellosis must be reported to the Department of Health immediately upon suspicion of disease.

***Notification Guidelines***

If there is a case of brucellosis within the school population, the school nurse and school physician shall determine, in consultation with the Department of Health and school administrators what notifications should be made.

***Stop Spread Guidelines***

***Note for dog owners with dogs that have brucellosis***

Dogs may contract a different species of brucellosis that is not a risk for humans. However, immuno-compromised persons (cancer patients, persons with HIV/AIDS, transplant patients) should not handle dogs with brucellosis.

## CAMPYLOBACTER

*Campylobacter* is a family of bacteria that can cause diarrhea with fever, stomach cramps, and vomiting in adults and children. The diarrhea may be severe and bloody. *Campylobacter* infections occur 3 to 5 days after the bacteria are ingested. Usually symptoms disappear without treatment in 1 to 7 days, but there may still be bacteria in the stool for several weeks if treatment is not received.

### ***Transmission***

*Campylobacter* is spread from stool to mouth contact through unwashed hands or contaminated food. An individual must ingest a large number of these bacteria to become ill. The bacteria can also be spread through food (especially poorly cooked poultry products), unpasteurized milk, and contaminated water. When household pets such as puppies and kittens have these bacteria in their stool, they may infect people. Infected individuals are contagious until the bacteria are no longer in their stool, but they are most contagious when they have acute symptoms.

### ***Diagnosis***

A stool culture may be performed clinician. Up to 72 hours may be required for test results to be available

### ***Treatment***

Adults and students diagnosed with *Campylobacter* in their stool may be treated with medication. This will reduce the chance of spread to others. Treatment with erythromycin or other prescribed antibiotics usually is effective within 2 to 3 days.

### ***School attendance guidelines***

Refer to [Additional Information and Stop-Spread Guidelines](#) of this manual.

### ***Reporting requirements***

A case of *Campylobacter* must be reported to the Department Of Health, Office of Communicable Diseases within four days of recognition or strong suspicion of disease. Laboratory confirmation is not required prior to reporting a case of *Campylobacter*.

### ***Notification guidelines***

When a case of *Campylobacter* occurs in the school population, the school nurse and school physician should determine based on their medical judgment, whether any, some or all parents and staff should be notified. When necessary they may consult with the Department Of Health. Prior to parent notification it should be discussed with the school administrator.

Generally food service personnel with active diarrhea and all school children with active diarrhea should be excluded from school as a control measure. Once diarrhea subsides they may return to the school environment. The highest risk of transmission for most fecal oral agents is during the phase when stools are unformed.

Inform family and household members in contact with a person with *Campylobacter* diarrhea of their possible exposure to this bacterium, especially if they are involved in food handling or preparation. If they develop diarrhea, they should immediately see their healthcare provider and get a stool culture.

***Stop-Spread Guidelines***

Careful attention to good hygiene, hand washing, environmental cleaning and sanitation is very important in reducing spread. Since *Campylobacter* is very easily transmitted from person to person, staff and students should be instructed not to share food, drink, or eating utensils during an outbreak. It is essential to strictly follow the *Additional Precautionary Measures* outlined in the Additional Information and Stop-Spread Guidelines section of this manual. Monitored, enforced hand washing and properly supplied hand washing facilities are essential in limiting the spread of infection.

## SAMPLE LETTER TO PARENTS ABOUT DIARRHEAL DISEASES

Dear parent or guardian:

\_\_\_\_\_ A student at our school has a diarrheal disease.

\_\_\_\_\_ Your child may have been exposed to a diarrheal disease.

Please take the following precautions:

1. Watch your child and members of your family to see if they develop diarrhea, stomach cramps, gas and/or nausea.
2. If your child develops severe diarrhea, with fever or vomiting, or diarrhea with blood or mucus, do not send your child to school.
3. If your child develops mild diarrhea, please call us to discuss whether attendance is recommended.
4. In either case, we may ask your healthcare provider to do the tests for bacteria and parasites in the stool. We may ask you to get tests for your child and for other family members who develop diarrhea.
5. Be sure to remind your healthcare provider that there are other students with diarrhea at your child's school.
6. If your child's test is positive, keep your child home until any serious diarrhea or illness is over.
7. Keep us informed about how your child is doing and about any test results or treatment.

### INFORMATION ABOUT DIARRHEAL DISEASES:

#### *What are they?*

They are diseases caused by germs (bacteria, parasites, or viruses) that multiply in the intestines and are passed out of the body in the stool. Anyone can get diarrheal diseases, and they can be caught repeatedly. People with these germs in their stool may not actually have diarrhea or feel sick. Laboratory tests are the only way to tell if a particular stool contains germs.

Six diarrheal diseases commonly found in children and young adults are listed on the following page, along with their symptoms. The disease that may be causing illness at our school has been circled. If no disease has been circled, the specific cause of the diarrheal disease is not yet known.

**THE RHODE ISLAND SCHOOL NURSE TEACHERS  
INFECTIOUS DISEASE REFERENCE MANUAL**

<b>NAME</b>	<b>CAUSED BY</b>	<b>SYMPTOMS</b>
<b><i>Rotavirus</i></b>	A virus	Most cases of winter diarrhea are in children younger than 2 years but also occur in older children and adults; usually preceded or accompanied by vomiting and low-grade fever; may also have runny nose and cough
<b><i>Giardia</i></b>	Microscopic parasite	Mild to severe diarrhea, bad-smelling diarrhea, gas, stomach cramps, nausea, lack of appetite, and/or possible weight loss
<b><i>Shigella</i></b>	Microscopic bacteria	Mild to very severe diarrhea, fever, stomach pain, and/or diarrhea with blood or mucus
<b><i>Salmonella</i></b>	Microscopic bacteria	Mild to severe diarrhea, fever, and/or painful stomach cramps
<b><i>E. coli</i></b>	Microscopic bacteria	Mild to very severe diarrhea, watery diarrhea, fever, stomach pain, and/or diarrhea with blood
<b><i>Campylobacter</i></b>	Microscopic bacteria	Mild to severe or bloody diarrhea, fever, stomach cramps, and/or vomiting

***How do you catch diarrheal diseases?***

When people do not wash their hands well after going to the bathroom, changing diapers, or helping a child go to the bathroom, microscopic diarrhea germs stay on their hands and the children's hands. The germs can then spread to food, drink or other objects and, eventually, to other people's hands and mouth. The germs are then swallowed by the other people, multiply in their intestines, and cause an infection. Obviously, diarrheal diseases can spread easily among young children who normally get their hands into everything and may not wash their hands well.

***How do you know if you have a diarrheal disease?***

Some of these diseases can be diagnosed by examining the stool under a microscope, some by growing the germs in the laboratory, others by special chemical tests. Since the germs are usually passed in the stools off and on, stool samples taken on several days may need to be examined.

***How can you stop the spread of diarrheal diseases in your household?***

- ✓ Be sure everyone in the family thoroughly washes their hands after using the bathroom or helping a baby or child with diapers or toileting and before preparing or eating food. Babies and children need to have their hands washed too at these times.
- ✓ If someone in your family develops diarrhea ask your healthcare provider to consider doing a test for germs in the stool. This is critical for family or household members who handle or prepare food. Your healthcare provider will decide about treatment for your child and/or other family members who have diarrheal diseases.

## CHICKENPOX AND SHINGLES

*Chickenpox* is a very contagious disease caused by the varicella-zoster virus. It usually begins with a mild fever, symptoms of cold and an itchy rash. The rash appears with small, red bumps on the stomach or back and spreads to the face and limbs. These bumps rapidly become blistered, may ooze, then crust over. People may have only a few bumps or may be totally covered.

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

### ***Transmission***

Anyone who is exposed to the varicella-zoster virus and has not had chickenpox before will almost certainly get it. Chickenpox is most common in school-aged children, while shingles is most common in adults. Chickenpox is generally not considered to be a serious disease in otherwise healthy people. However, pregnant women and people on medications that suppress the immune system (e.g., individuals with cancer) and sometimes teenagers and adults tend to experience more severe symptoms from this virus.

Pregnant women and immune-compromised individuals who are susceptible to chickenpox should be referred to their physician **immediately** after exposure. Susceptible students and staff are those who do not know for sure that they have had chickenpox in the past or who have not had a blood test showing they had the disease and are now protected. Women who get chickenpox when pregnant are more likely to have serious complications. Individuals at risk can be given VZIG (varicella-zoster immune globulin) to prevent serious problems. For VZIG to work, it must be given within 4 days of exposure.

Individuals with chickenpox are contagious from 1 to 2 days *before* the rash appears until 5 days after the rash begins. The disease is spread by close contact (sharing breathing space or direct touching) with infected secretions from the nose, throat, or rash. It takes about 10 to 21 days from time of exposure until a person develops the symptoms of chickenpox (but typically 14 to 16 days).

### ***Diagnosis***

Chickenpox and shingles are usually diagnosed by the typical appearance of the rash.

### ***Treatment***

Healthy children are not usually treated for chickenpox. The symptoms may be treated with anti-itching medicine and lotions, medicine for fever control, fluids and rest. Scratching should be avoided because it can increase scarring. Recently a new antiviral drug called acyclovir was developed to minimize the severity of chickenpox. Immuno-compromised individuals, pregnant women, teenagers, and adults can consult their physicians about this medicine. The American Academy of Pediatrics does not recommend its use in healthy children. A vaccine to prevent chickenpox is now available and people should talk with their doctors about it.

*CAUTION: Aspirin (salicylate) containing products should not be used for fever control in children with chickenpox. There is a possible association between the use of aspirin and a rare but very serious disease called Reye syndrome (vomiting associated with liver problems and/or coma)*

### ***School attendance guidelines***

Students may return to school on the sixth day after the rash first appears (or when all blisters are crusted over and dry). In mild cases with only a few blisters, students may return to school sooner, if all lesions are crusted.

Students and staff with shingles carry the virus that causes chickenpox and could cause an outbreak. Therefore, *unless the shingles rash can be completely covered*, it is advisable that individuals with shingles stay home until the rash is crusted and dry. The person with shingles must be very careful about personal hygiene.

### ***Notification guidelines***

When a case of Chickenpox occurs in the school population, the school nurse and school physician shall determine, based on their medical judgment, whether any, some or all parents and/or staff should be notified. When necessary they may consult with the Department Of Health. Prior to parent notification, it should be discussed with the school administrator.

### ***Stop-spread Guidelines***

- ◆ Keep infected people away from school.
- ◆ Develop a system for immediate notification to parents and staff if a student or staff member develops chickenpox or shingles.

- ◆ Identify high-risk individuals (e.g., pregnant women, immunocompromised individuals), and refer them to their healthcare provider immediately.
- ◆ Keep a person with chickenpox (or shingles with a rash that cannot be completely covered) at home until the rash is *completely* dry or crusted.
- ◆ Watch closely for early symptoms in others for 3 weeks following the most recent case. If a student or staff member develops a rash, he/she should be referred to his/her healthcare provider.

## SAMPLE LETTER TO PARENTS ABOUT CHICKENPOX

Dear parent or guardian:

\_\_\_\_ A student or staff member at our school has chickenpox

\_\_\_\_ Your child may have been exposed to chickenpox.

### INFORMATION ABOUT CHICKENPOX:

#### ***What is it?***

Chickenpox is a very contagious infection caused by a virus. It usually begins with a mild fever and an itchy rash. The rash starts as small, red bumps that become blistery, may ooze, and then crust over. Most children recover without any problems. The disease can be more serious in individuals with weakened immune systems and pregnant women. It can also be severe in healthy susceptible adults and adolescents 15 years of age or older.

#### ***How is it spread?***

It is spread through exposure to infected fluids from the nose, throat, or skin rash of someone with chickenpox. This can occur either by sharing that person's breathing space or by directly touching the infected fluids from the skin. Chickenpox is contagious from 1 to 2 days before the rash starts until 5 days after the rash began. After exposure, it takes 10 days to 3 weeks before the rash appears. Usually it appears in 14 to 16 days.

#### ***Treatment***

Chickenpox is generally not a serious disease, and the symptoms can be treated with plenty of fluids, rest, anti-itching lotions and medicine for fever control. In certain circumstances, a drug called acyclovir might be prescribed by a healthcare provider.

*CAUTION: Aspirin (salicylate) containing products should not be used for fever control in children with chickenpox. There is a possible association between the use of aspirin and a rare but very serious disease called Reye syndrome (vomiting associated with liver problems and coma).*

#### ***What should you do about chickenpox?***

- ✓ Watch your child for the next 10 days to 3 weeks to see if the chickenpox rash develops.
- ✓ Do not send your child to school with a suspicious rash. Ask your healthcare provider to diagnose the illness and to give you anti-itching medicine or lotions if the itching is disturbing the child.

- ✓ If your child develops chickenpox, he or she can return to school on the sixth day after the rash began or when all the blisters are dried up and crusted over.
- ✓ If one of your children develops chickenpox, other people in the family who have not had it will probably get it too, because chickenpox is very easily spread.
- ✓ If you or anyone else in your household has a weakened immune system or is pregnant, and is susceptible to chickenpox, talk to your doctor immediately. You are susceptible if you do not know for sure that you had chickenpox in the past or have not had a blood test showing you have had the disease in the past and are thus now protected. Women who get chickenpox when they are pregnant are more likely than other adults to develop serious complications. Babies born to mothers with chickenpox near the time of delivery can develop high fever and other serious problems. Pregnant women and immunocompromised children and adults susceptible to chickenpox can be given VZIG (varicella-zoster immune globulin) to prevent serious complications. For VZIG to work, it must be given less than 96 hours (4 days) after exposure to chickenpox.

## CHLAMYDIA

Several conditions can result from *C. trachomatis* infection in women. They include urethritis and vaginitis in prepubertal females, cervicitis, endometritis, salpingitis, and perihepatitis in postpubertal females. Epididymitis can occur in males, and Reiter syndrome can occur in either sex. Chlamydial infections can persist for months or years and re-infection is common. In postpubertal females this infection can progress to acute or chronic pelvic inflammatory disease (PID) and result in ectopic pregnancy and infertility.

Men and women with chlamydial infections may experience abnormal genital discharge or pain during urination. These early symptoms of chlamydial infection may be absent or very mild. If symptoms occur they usually appear within 1 to 3 weeks after exposure.

People with chlamydia can be infected and transmit this disease, but be asymptomatic. This is particularly true for women. Anyone who thinks he or she has been exposed to an STD should see a healthcare provider immediately. Sexually active adolescents should be screened regularly for STDs. Infection with one STD may indicate the need to test for other STD infections.

### ***Transmission***

Sexually transmitted diseases, such as *chlamydia*, are transmitted when an infected person has unprotected sexual intercourse or other intimate physical contact with another person. Sexual intercourse includes when a penis is inserted into a vagina, as well as oral or anal intercourse. Individuals who have unprotected sex, especially with many partners, are at risk of exposure to STDs. Some STDs can also be transmitted directly from an infected person to another by sharing contaminated needles. Other forms of substance abuse (drinking, cocaine, etc.) increase the risk of exposure because they impair judgment. Some drugs, such as crack cocaine, may increase the sex drive and affect the number of partners and/or frequency of sex, thus increasing opportunities for unprotected sex with an infected person.

If untreated, STDs may cause serious physical and reproductive damage or even death. They are particularly dangerous to infants whose infected mothers are not treated during pregnancy. Infected infants may be born mentally retarded or physically deformed, or they may die. Infection with one STD indicates the need to test for other STD infections.

### ***Prevention***

Abstinence from vaginal, anal and oral sex will guarantee protection against STDs. For those who are sexually active, condom use is a very

important but not 100% guaranteed protection against being infected with an STD. Limiting the number of partners is important, as the chances of encountering an infected person increase with the number of partners.

Engaging in substance use may increase the chances of becoming infected. Thus, avoidance of substance use is critical to protecting against all STDs. Addicts should be provided with detoxification and recovery services, as well as with education and tools to prevent the transmission of STDs and HIV/AIDS.

### ***Diagnosis***

Three techniques are currently being used to diagnose *chlamydia*: gram stain, culture and urine testing.

### ***Treatment***

A 7-day course of antibiotics, such as tetracycline or doxycycline, is the recommended treatment for chlamydial infections. Other antibiotics are effective, however, and can be used when tetracycline cannot be taken.

An infected person may consult his or her own healthcare provider or the state health department-sponsored agency (Whitmarsh House) where comprehensive STD services are provided. This clinic is open to all, has highly trained and sensitive staff and there are no restrictions to access based on age, race, sex, ethnicity, ability to pay, town of residence, country of origin, or whether or not the person is in the United States legally.

The Whitmarsh House Specialty Clinic (444-0483) provides free screening and treatment services for all sexually transmitted diseases. The clinic is located at 557 Broad St in Providence, RI 02907.

### ***Reporting requirements***

STDs are reportable directly to the state health department within four days of recognition or strong suspicion of disease. The Department Of Health will not release the identity of any case and releases data in aggregate form only so that no individual can possibly be identified. The success of educational programs and disease prevention activities depends largely on the community trusting that all personal information is kept confidential. Refer to Rules & Regulations section of this manual for rules, regulation and reporting requirements regarding STDs.

## **COLDS AND INFLUENZA**

Colds are mild infections of the nose and throat that are caused by many different viruses. The most common of these are rhinovirus (nose virus). Cold symptoms include stuffy or runny nose, sore throat, coughing or sneezing, watery eyes, fluid in the ears, fever and general fatigue. Influenza is also caused by viruses (influenza A or B) and has symptoms of high fever, chills, congestion, coughing and muscle aches. Most people who get influenza feel too sick to go to school or work.

### ***Transmission***

Young children usually catch many colds each year and catch even more if they have younger siblings. The virus concentration in respiratory secretions is usually highest up to 7 days before a person develops symptoms of illness. Viruses continue to be present in respiratory secretions for 2 to 3 days after symptoms begin. As a result, infected students and staff have already spread the virus before they begin to feel ill. In fact, students and adults often have mild colds that may go undetected but still cause them to be contagious.

### ***Diagnosis***

These viral illnesses are usually diagnosed by their symptoms. The viruses can be grown in special cultures in laboratories, but this process is time consuming, expensive and usually unnecessary.

### ***Treatment***

No medicines or treatments can cure these viral illnesses. Healthcare providers usually suggest rest and plenty of fluids. Sometimes viral infections can be complicated by secondary bacterial infections (e.g., ear or sinus infections, pneumonia). An individual with high fever, persistent cough or ear ache should be evaluated by a healthcare provider to determine whether there is a bacterial infection that can be treated with an antibiotic. Children with chronic cardiac or respiratory conditions or those who are immunosuppressed should receive influenza vaccine every year. Children who share a household with an adult at high risk for influenza complications should also be vaccinated. In 2003 the FDA approved an influenza vaccine delivered as a nasal mist and it will shortly become available for regular use.

### ***School attendance guidelines***

There is no need to exclude students and staff as long as they feel well enough to attend, and have no fever.

## CONJUNCTIVITIS (PINKEYE)

*Conjunctivitis* (or pinkeye) is a mild inflammation of the eyes most often caused by a virus but occasionally caused by bacteria or allergies. With this inflammation, the white part of the eye becomes pink, and the eyes produce lots of tears and discharge. In the morning, discharge may make the eyelids stick together.

### ***Transmission***

*Conjunctivitis* is most common among children who may spread it to other children or to people taking care of them when pus gets into an uninfected individual's eyes. Individuals may pass the infection by rubbing their eyes, spreading discharge to their hands, and then touching someone or something else. *Conjunctivitis* may also be spread when washing, drying or wiping and individual's face and then using the same washcloth, towel, paper towel or tissue on another's face.

### ***Diagnosis***

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

### ***Treatment***

Often an antibiotic eye medication will be prescribed to shorten the length and severity of symptoms and decrease infectiousness. It is recommended that individuals with *conjunctivitis* be treated by rinsing out the eye and by using a prescribed antibiotic eye medicine to prevent the spread of infection.

### ***School attendance guidelines***

Individuals with *conjunctivitis* do not need to leave school in the middle of the day. Inform parents that the symptoms were noticed and permit infected students and staff to return the day after treatment has begun. Parents should notify the school if the healthcare provider decides not to prescribe a medicine.

### ***Notification guidelines***

When *conjunctivitis* occurs within the school population, the school nurse and school physician shall determine, based on their medical judgment, whether any, some or all parents and/or staff should be notified. When necessary they may consult with the Department Of Health. Prior to parent notification, it should be discussed with the school administrator.

*Stop-Spread Guidelines*

- ◆ Have affected individuals keep their eyes wiped free of discharge.
- ◆ Teach everyone to wash their hands after wiping their eyes.
- ◆ Be sure articles that may touch the children's eyes (e.g., prisms, binoculars, pieces of microscope, cameras) are washed well with soap and water at least once daily.
- ◆ The ocular pieces of microscopes need to be sanitized after use by individual students.
- ◆ Consideration should be given to avoid the use of such instruments during an outbreak.

## **SAMPLE LETTER TO PARENTS ABOUT CONJUNCTIVITIS**

Dear parent or guardian:

\_\_\_\_\_ A student at our school has conjunctivitis (also called pinkeye).

\_\_\_\_\_ Your child may have been exposed to conjunctivitis.

Please take these precautions:

1. Watch your child and family members for signs of pinkeye.
2. See your healthcare provider if your child develops pinkeye. Your child may need to be given an eye medication.
3. Do not send your child to school until the day after you start giving the medicine. If your healthcare provider decides not to prescribe an eye medicine, ask for a note to ensure your child's attendance.
4. Tell us if your child is being treated for pinkeye.

### **INFORMATION ABOUT CONJUNCTIVITIS:**

#### ***What is it?***

*Pinkeye* is an infection of the eyes. It is most often caused by a virus but can also be caused by bacteria. The white parts of the eyes become pink or red, the eyes may hurt or feel itchy or scratchy and the eyes may produce lots of tears and discharge. In the morning, the discharge (pus) may make the eyelids stick together. (Some children and adults have allergies that can cause everything listed here except pus). *Conjunctivitis* is a mild illness and is not dangerous. Doctors usually prescribe an antibiotic eye medication just in case it is due to bacteria.

#### ***How do you catch conjunctivitis?***

The discharge is infectious. If children rub their eyes, they get it on their hands. They can then touch someone else's eyes or hands or touch an object. If other children get discharge on their hands and then touch their own eyes, they can catch it. It can spread easily among young children, who touch their eyes and everything else and who do not know how (or forget) to wash their hands.

#### ***What should you do if your child has conjunctivitis?***

- ✓ Keep your child's eyes wiped free of discharge. Use paper tissues, and throw them away promptly.
- ✓ Always thoroughly wash your hands after wiping your child's eyes.
- ✓ Teach your children to wash their hands after wiping their eyes.
- ✓ Ask your healthcare provider if your child needs to receive eye medication.
- ✓ Be sure to wash anything that touches your child's eyes (such as washcloths, towels, binoculars, toys and cameras).

## CYTOMEGALOVIRUS (CMV) INFECTION

*Cytomegalovirus* is a very common infection typically affecting young children. In most cases, CMV causes no symptoms. Occasionally, children or adults with CMV will experience *Mononucleosis*-like symptoms such as fever, swollen glands and fatigue. Individuals infected with CMV may have the virus in their bodies for several years without symptoms. During this time, they continue to shed the virus in such body fluids as saliva, urine, genital fluids and (rarely) blood. Once people are infected with CMV, they develop antibodies that prevent them from getting new CMV infections.

CMV is of particular concern for individuals in the classrooms of young children and children with special healthcare needs because it can cause problems for pregnant women caring for these children. If a pregnant woman who has never had CMV becomes infected, especially during the first trimester, the fetus may also become infected. In rare cases, the fetus may suffer mental retardation, hearing loss, vision disturbances, or other serious problems. The mother may not realize she is sick or may suffer only a mild, flu-like illness. CMV can be a serious infection for immunocompromised children and adults, such as those with AIDS, certain cancers or those being treated with immunosuppressed drugs.

### ***Transmission***

CMV is shed in highest rates by children from the ages of 1 to 3 years. The virus can also spread to people who have regular, close physical contact with children's secretions. At any given time, 20% to 80% or more of children may have CMV but show no signs of illness. Spread of the virus requires direct contact with infected fluids (saliva and urine) that are then transferred to a mucous surface (inside the mouth, genital tract or lining of the eye) or into the bloodstream through a break in the skin, needle stick or blood transfusion. Spreading among children can occur by sharing mouthed objects that have infected saliva on them. In adolescents and adults, sexual transmission can occur. It can also be transmitted from mothers to newborns. The virus can survive several hours on surfaces outside the body.

### ***Diagnosis***

Most individuals with CMV are not diagnosed because they show no symptoms. Diagnosis of the CMV virus can be made from cultures of infected fluids or by blood tests for the CMV antibodies.

### ***School attendance guidelines***

Students who are known to have CMV may continue to attend school. Testing of students to detect CMV excretion is not recommended.

***Reporting requirements***

There is no requirement to report CMV infection. It is common and frequently occurs unrecognized and undiagnosed in the community.

***Stop-Spread Guidelines:***

- ◆ *Make sure that everyone* (especially pregnant women or women trying to become pregnant), *always wash his or her hands after contact with urine, saliva, stool or blood.*
- ◆ Women who work with young children or students with special healthcare needs and women who might become pregnant should be referred to their physician or Department Of Health for counseling regarding risk of infection in that setting. Counseling may include testing for immunity against CMV infection.

## DIPHTHERIA

*Diphtheria* is a very serious bacterial infection of the nose and throat. It causes a sore throat, swollen tonsils with a grayish covering and swollen neck glands. It can lead to severe throat swelling that can block breathing. The bacteria also produce a toxin (a type of poisonous substance) that can cause severe and permanent damage to the nervous system and heart. *Diphtheria* is treated primarily with an antitoxin, along with antibiotics. Antibiotics are also given to carriers of the *Diphtheria* bacteria.

### ***Transmission***

*Diphtheria* occurs primarily among un-immunized or inadequately immunized people. Some studies have shown that 40% to 60% of young adults are susceptible. Booster doses of *Diphtheria* toxoid every 10 years after finishing childhood primary immunization series are needed to maintain protection.

The bacteria are spread by direct contact with discharge from the nose, throat, skin, eyes or sores of infected person. Articles of food contaminated with discharge can also spread the bacteria.

### ***School attendance guidelines***

Patients and carriers of the *Diphtheria* bacteria should receive appropriate treatment, including immunization, and not return until two cultures, taken 48 hours apart, from nose, throat or skin sores, are negative for the bacteria. Cultures should be taken at least 48 hours after finishing treatment.

### ***Reporting requirements***

A case of *Diphtheria* must be reported immediately on the day of recognition or strong suspicion of disease. Laboratory confirmation is not required prior to the reporting of *Diphtheria*.

### ***Notification guidelines***

When *Diphtheria* occurs within the school population, the school nurse and school physician shall determine, based on their medical judgment, whether any, some or all parents and/or staff should be notified. When necessary they may consult with the Department Of Health, Immunization Program. Prior to parent notification, it should be discussed with the school administrator.

## ESCHERICHIA COLI 0157:H7

*E. coli O157:H7* is one of hundreds of strains of the bacterium *Escherichia coli*. Although most strains are harmless and live in the intestines of healthy humans and animals, this strain produces a powerful toxin and can cause severe illness.

*E. coli O157:H7* was first recognized as a cause of illness in 1982 during an outbreak of severe bloody diarrhea; the outbreak was traced to contaminated hamburgers. Since then, most infections have come from eating undercooked ground beef.

The combination of letters and numbers in the name of the bacterium refers to the specific markers found on its surface and distinguishes it from other types of *E. coli*.

### **Transmission**

The organism can be found on a small number of cattle farms and can live in the intestines of healthy cattle. Meat can become contaminated during slaughter, and organisms can be thoroughly mixed into beef when it is ground. Bacteria present on the cow's udders or on equipment may get into raw milk.

Eating meat, especially ground beef, that has not been cooked sufficiently to kill *E. coli O157:H7* can cause infection. Contaminated meat looks and smells normal. Although the number of organisms required to cause disease is not known, it is suspected to be very small.

Drinking unpasteurized milk and swimming in or drinking sewage-contaminated water can also cause infection.

Bacteria in diarrheal stools of infected persons can be passed from one person to another if hygiene or hand washing habits are inadequate. This is particularly likely among toddlers who are not toilet trained. Family members and playmates of these children are at high risk of becoming infected. Young children typically shed the organism in their feces for a week or two after their illness resolves. Older children rarely carry the organism without symptoms.

### **Diagnosis**

Infection with *E. coli O157:H7* is diagnosed by detecting the bacterium in the stool. Most laboratories that culture stool do not test for *E. coli O157:H7*, so it is important to request that the stool specimen be tested on sorbitol-MacConkey (SMAC) agar for this organism. All persons who suddenly have diarrhea with blood should get their stool tested for *E.coliO157:H7*.

***Treatment***

Most persons recover without antibiotics or other specific treatment in 5-10 days. There is no evidence that antibiotics improve the course of disease, and it is thought that treatment with some antibiotics may precipitate kidney complications. Anti-diarrheal agents, such as loperamide (Imodium), should also be avoided.

Hemolytic uremic syndrome is a life-threatening condition usually treated in an intensive care unit. Blood transfusions and kidney dialysis are often required. With intensive care, the death rate for hemolytic uremic syndrome is 3%-5%.

***School Attendance Guidelines***

Refer to Additional Information and Stop-Spread Guidelines on page 113 of this manual.

***Reporting requirements***

A case of *E. Coli* must be reported to the Department Of Health, Office of Communicable Diseases within four days of recognition or strong suspicion of disease. Laboratory confirmation is not required prior to reporting a case of *E. Coli*.

***Notification guidelines***

When a case of *E. Coli* occurs in the school population, the school nurse and school physician should determine based on their medical judgment whether any, some or all parents and staff should be notified. When necessary they may consult with the Department Of Health. Prior to parent notification it should be discussed with the school administrator.

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

***Stop Spread Guidelines***

Careful attention to good hygiene, hand washing, environmental cleaning and sanitation is very important in reducing spread. Since *E. coli* is very easily transmitted from person to person, staff and students should be instructed not to share food, drink, or eating utensils during an outbreak. It is essential to strictly follow the *Additional Precautionary Measures* outlined in the Additional Information and Stop-Spread Guidelines section on page 113 of this manual. Monitored, enforced hand washing and properly supplied hand washing facilities are essential in limiting the spread of infection.

**SAMPLE LETTER TO PARENTS ABOUT DIARRHEAL DISEASES**

Dear parent or guardian:

\_\_\_\_\_ A student at our school has a diarrheal disease.

\_\_\_\_\_ Your child may have been exposed to a diarrheal disease.

Please take the following precautions:

1. Watch your child and members of your family to see if they develop diarrhea, stomach cramps, gas and/or nausea.
2. If your child develops severe diarrhea, with fever or vomiting, or diarrhea with blood or mucus, do not send your child to school.
3. If your child develops mild diarrhea, please call us to discuss whether attendance is recommended.
4. In either case, we may ask your healthcare provider to do the tests for bacteria and parasites in the stool. We may ask you to get tests for your child and for other family members who develop diarrhea.
5. Be sure to remind your healthcare provider that there are other students with diarrhea at your child's school.
6. If your child's test is positive, keep your child home until any serious diarrhea or illness is over.
7. Keep us informed about how your child is doing and about any test results or treatment.

**INFORMATION ABOUT DIARRHEAL DISEASES:**

***What are they?***

They are diseases caused by germs (bacteria, parasites, or viruses) that multiply in the intestines and are passed out of the body in the stool. Anyone can get diarrheal diseases, and they can be caught repeatedly. People with these germs in their stool may not actually have diarrhea or feel sick. Laboratory tests are the only way to tell if a particular stool contains germs.

Six diarrhea diseases commonly found in children and young adults are listed on the following page, along with their symptoms. The disease that may be causing illness at our school has been circled. If no disease has been circled, the specific cause of the diarrheal disease is not yet known.

**THE RHODE ISLAND SCHOOL NURSE TEACHERS  
INFECTIOUS DISEASE REFERENCE MANUAL**

<b>NAME</b>	<b>CAUSED BY</b>	<b>SYMPTOMS</b>
<b><i>Rotavirus</i></b>	A virus	Most cases of winter diarrhea are in children younger than 2 years but also occur in older children and adults; usually preceded or accompanied by vomiting and low-grade fever; may also have runny nose and cough
<b><i>Giardia</i></b>	Microscopic parasite	Mild to severe diarrhea, bad-smelling diarrhea, gas, stomach cramps, nausea, lack of appetite, and/or possible weight loss
<b><i>Shigella</i></b>	Microscopic bacteria	Mild to very severe diarrhea, fever, stomach pain, and/or diarrhea with blood or mucus
<b><i>Salmonella</i></b>	Microscopic bacteria	Mild to severe diarrhea, fever, and/or painful stomach cramps
<b><i>E. coli</i></b>	Microscopic bacteria	Mild to very severe diarrhea, watery diarrhea, fever, stomach pain, and/or diarrhea with blood
<b><i>Campylobacter</i></b>	Microscopic bacteria	Mild to severe or bloody diarrhea, fever, stomach cramps, and/or vomiting

***How do you catch diarrheal diseases?***

When people do not wash their hands well after going to the bathroom, changing diapers, or helping a child go to the bathroom, microscopic diarrhea germs stay on their hands and the children's hands. The germs can then spread to food, drink or other objects and, eventually, to other people's hands and mouth. The germs are then swallowed by the other people, multiply in their intestines, and cause an infection. Obviously, diarrheal diseases can spread easily among young children who normally get their hands into everything and may not wash their hands well.

***How do you know if you have a diarrheal disease?***

Some of these diseases can be diagnosed by examining the stool under a microscope, some by growing the germs in the laboratory, others by special chemical tests. Since the germs are usually passed in the stools off and on, stool samples taken on several days may need to be examined.

***How can you stop the spread of diarrheal diseases in your household?***

- ✓ Be sure everyone in the family thoroughly washes their hands after using the bathroom or helping a baby or child with diapers or toileting and before preparing or eating food. Babies and children need to have their hands washed too at these times.
- ✓ If someone in your family develops diarrhea ask your healthcare provider to consider doing a test for germs in the stool. This is critical for family or household members who handle or prepare food. Your healthcare provider will decide about treatment for your child and/or other family members who have diarrheal diseases.

## FIFTH DISEASE

*Fifth disease*, also known as *erythema infectiosum*, is a mild rash illness that occurs most commonly in children. It is called *Fifth disease* because it was the fifth of six similar rash-causing illnesses to be described. *Fifth disease* is caused by parvovirus B19, which lives in the nose and throat and can be spread from person to person. Clusters or outbreaks of illness among children in school and early childhood programs are not unusual.

The first stage of illness consists of headache, body ache, sore throat, low-grade fever and chills. These symptoms last about 2 to 3 days and are followed by a second stage, lasting about a week, during which the person has no symptoms at all. In children, the third stage involves bright red rash on the cheeks, which gives a “slapped cheek” appearance. This may be followed by a “lacy” rash on the trunk and arms and legs. The rash begins 17 to 18 days after exposure. The rash may appear on and off for several weeks with changes in temperature, sunlight and emotional stress.

Adults may not develop the third-stage rash, but may experience joint pain, particularly in the hands and feet. The disease is usually mild, and both children and adults recover without problems. In rare situations, some people, especially those with blood disorders such as Sickle Cell anemia, other hemoglobinopathies or those with weakened immune systems, may develop more severe symptoms.

### ***Transmission***

Parvovirus B19 can be spread by the respiratory route in close contacts such as in households, schools, day care and pre-school. When an infected person coughs, sneezes or speaks, the virus is sprayed into the air. Contaminated droplets can then be inhaled or touched by another person. Women who develop *Fifth disease* during pregnancy may pass the infection to the unborn fetus. In rare situations, miscarriages and stillbirths have been associated with *Fifth disease* during pregnancy. Other persons at high risk for complications include those with certain blood disorders and those with deficient immune systems.

Individuals with *Fifth disease* are most infectious before the onset of their illness. They are unlikely to be infectious after the appearance of the rash and other symptoms. However, people with blood disorders and those with weakened immune systems who are ill with *Fifth disease* may be infectious for a longer period of time.

Outbreaks typically begin in late winter or early spring and may continue until June. In outbreak situations, 10% to 60% of the children may develop *Fifth disease*. Many people have already caught this disease before they have reached adulthood. It is estimated that about half of the

adults in the United States have been infected with parvovirus B19 and are now immune. This level of protection may be higher among early-childhood program staff.

***Diagnosis***

The diagnosis in children is based on the clinical symptoms of the facial rash. For those at higher risk, a laboratory test can detect newly formed antibodies to the parvovirus B19, documenting current or recent disease.

***Treatment***

There is no specific treatment for *Fifth disease*. Healthcare providers may suggest treatment to relieve some symptoms.

***School attendance guidelines***

Students or staff with *Fifth disease* should continue to attend school. By the time they are diagnosed with the rash, they are no longer contagious.

***Notification guidelines***

When *Fifth disease* occurs within the school population, the school nurse and school physician shall determine, based on their medical judgment, whether any, some or all parents and/or staff should be notified. When necessary they may consult with the Department Of Health. Prior to parent notification, it should be discussed with the school administrator.

***Prevention***

Careful hand washing (especially after handling discharge from the nose or throat and before eating or handling food) is the first line of defense. Currently, there is no vaccine against *Fifth disease*.

***Special note for pregnant women***

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

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

**SAMPLE LETTER TO PARENTS ABOUT FIFTH DISEASE**

Dear parent or guardian:

\_\_\_\_ A student in our school has *Fifth disease*.

\_\_\_\_ Your child may have been exposed to *Fifth disease*.

**INFORMATION ABOUT FIFTH DISEASE:**

***What is it?***

*Fifth disease* is a mild rash illness that usually affects children. It is caused by a Parvovirus B19, that lives in the nose and throat and can be spread from person to person.

The first stage of illness consists of headache, body ache, sore throat, low-grade fever, and chills. These symptoms last about 2 to 3 days and are followed by a second stage, lasting about a week, during which the person has no symptoms at all. Individuals are most infectious before the beginning of their symptoms. In children, the third stage involves a bright red rash on the cheeks, which gives a "slapped cheek" appearance. This may be followed by a "lacy" rash on the trunk and arms and legs. The rash begins 17 to 18 days after exposure. The rash may appear on and off for several weeks with changes in temperature, sunlight, and emotional stress.

Adults may not develop the third-stage rash but may experience joint pain, particularly in the hands and feet. The disease is usually mild, and both children and adults recover without problems. In rare situations some people, especially those with blood disorders such as sickle cell anemia or other hemoglobinopathies and those with weakened immune systems, may develop more severe symptoms. These people may also be infectious for a longer period of time.

***Who gets it and how?***

Children and adults can get parvovirus B19. When an infected person coughs, sneezes, or speaks, the virus is sprayed into the air. These contaminated droplets can then be inhaled or touched by another person. Women who develop *Fifth disease* during pregnancy may pass the infection to their unborn fetus. In rare situations, miscarriages and stillbirths have been associated with *Fifth disease* during pregnancy. Other persons at high risk for complications include those with certain blood disorders and those with deficient immune systems.

***How is it diagnosed?***

The diagnosis in children is based on the clinical symptoms of the facial rash. A laboratory test that can detect newly formed antibodies to the parvovirus B19 may be used for pregnant women, persons with blood disorders, and people with deficient immune systems who may be at higher risk for complications from *Fifth disease*.

***How is it treated?***

There is no specific treatment for *Fifth disease*. Healthcare providers may suggest treatment to relieve some symptoms. There is no vaccine to prevent *Fifth disease*.

***Must your child stay home?***

Children with *Fifth disease* do not have to stay home. By the time they are diagnosed with the rash, they are no longer contagious.

***What should you do?***

- ✓ Watch for the symptoms of *Fifth disease* and tell us if your child had *Fifth disease*.
- ✓ If you are pregnant or have a blood disorder or weakened immune system, tell your healthcare provider about your possible exposure.
- ✓ Always be careful about hand washing, especially after touching discharge from the nose and throat and before eating or handling food.

## GENITAL HERPES

*Genital Herpes* is a viral infection that is a member of the same family of viruses that cause chickenpox, shingles and *Mononucleosis*. Herpes simplex virus is generally divided into two types, HSV type I – which is generally the virus that causes oral herpes, and HSV type II – which generally causes genital herpes.

The first symptoms of herpes may include burning, tingling or itching sensation. After these symptoms occur, if they do at all, varying numbers of blister-like bumps will appear near the genital area. These will usually last 14-28 days. Often present with the first infection are enlarged lymph nodes in the groin, fever, fatigue or headache.

After initial sores heal, the herpes virus hides in the nerve cells of the body and tends to reoccur 1-6 times per year, although attacks will become less frequent with time.

People with genital herpes can be infected and transmit this disease, but be asymptomatic. This is particularly true for women. Anyone who thinks he or she has been exposed to an STD should see a healthcare provider immediately. Sexually active adolescents should be screened regularly for STDs. Infection with one STD may indicate the need to test for other STD infections.

### ***Transmission***

It is generally accepted that genital herpes is transmitted through direct sexual contact with a sore, but transmission can occur when any body surface, such as the hand, makes contact with a herpes sore and then transfers the virus to the mouth or the genitals. Usually an active sore is necessary for a person to be contagious, but in a small percentage of cases, men and women with the herpes virus in their bodies may be contagious even though they do not have any signs of sores at the time.

Individuals who have unprotected sex, especially with many partners, are at risk of exposure to STDs. Some STDs can also be transmitted directly from an infected person to another by sharing contaminated needles. Other forms of substance abuse (drinking, cocaine, etc.) increase the risk of exposure because they impair judgment. Some drugs, such as crack cocaine, may increase the sex drive and affect the number of partners and/or frequency of sex, thus increasing opportunities for unprotected sex with an infected person.

If untreated, STDs may cause serious physical and reproductive damage or even death. They are particularly dangerous to infants whose infected mothers are not treated during pregnancy. Infected infants may be born

mentally retarded or physically deformed, or they may die. Infection with one STD indicates the need to test for other STD infections.

### ***Prevention***

Abstinence from vaginal, anal and oral sex will guarantee protection against STDs. For those who are sexually active, condom use is a very important but not 100% guaranteed protection against being infected with an STD. Limiting the number of partners is important, as the chances of encountering an infected person increase with the number of partners.

Engaging in substance use may increase the chances of becoming infected. Thus, avoidance of substance use is critical to protecting against STDs. Addicts should be provided with detoxification and recovery services, as well as with education and tools to prevent the transmission of STDs and HIV/AIDS.

### ***Diagnosis***

Observation of symptoms and history of symptoms is used by many physicians as a means for diagnosis. Others prefer to take a sample of the sores and perform tissue cultures in the laboratory.

### ***Treatment***

There are no cures for viral infections such as genital herpes, although the symptoms of herpes may be treated with a drug called acyclovir.

An infected person may consult his or her own healthcare provider or the state health department-sponsored agency (Whitmarsh House) where comprehensive STD services are provided. This clinic is open to all, has highly trained and sensitive staff and there are no restrictions to access based on age, race, sex, ethnicity, ability to pay, town of residence, country of origin, or whether or not the person is in the United States legally.

The Whitmarsh House Specialty Clinic (444-0483) provides free screening and treatment services for all sexually transmitted diseases. The clinic is located at 557 Broad St, Providence, RI. 02907.

### ***Reporting requirements***

STDs are reportable directly to the state health department within four days of recognition or strong suspicion of disease. The Department Of Health will not release the identity of any case and releases data in aggregate form only so that no individual can possibly be identified. The success of educational programs and disease prevention activities depends largely on the community trusting that all personal information is kept confidential. Refer to Rules & Regulations section of this manual for rules, regulations and reporting requirements regarding STDs.

## GENITAL WARTS

Genital warts are caused by a virus called Human Papilloma Virus (HPV), which is very similar to the virus that causes warts on other parts of the body. Many individuals are unaware that they have HPV infection because certain types of HPV cause no visible signs or symptoms.

Genital warts begin as small lumps often with an irregular cauliflower-like surface. The shape and color vary depending on their location. In women, the vulva and the perineum (area between vaginal opening and anus) are most frequently affected, but warts also occur in the vagina, cervix (inside the vagina), anus and rectum. In men, the glans, foreskin, thigh, and urethral opening are most commonly affected, followed by the shaft of the penis, scrotum, anus and rectum. Men sometimes have small shiny spots called "pearly papules" on the glans which are normal and should not be confused with warts. The first symptoms usually appear within 2 to 3 months after infection, but may occur anywhere between 1-20 months.

People with genital warts can be infected and transmit this disease, but be asymptomatic. This is particularly true for women. Anyone who thinks he or she has been exposed to an STD should see a healthcare provider immediately. Sexually active adolescents should be screened regularly for STDs. Infection with one STD may indicate the need to test for other STD infections.

### *Transmission*

Individuals who have unprotected sex, especially with many partners, are at risk of exposure to STDs. Some STDs can also be transmitted directly from an infected person to another by sharing contaminated needles. Other forms of substance abuse (drinking, cocaine, etc.) increase the risk of exposure because they impair judgment. Some drugs, such as crack cocaine, may increase the sex drive and affect the number of partners and/or frequency of sex, thus increasing opportunities for unprotected sex with an infected person.

If untreated, STDs may cause serious physical and reproductive damage or even death. They are particularly dangerous to infants whose infected mothers are not treated during pregnancy. Infected infants may be born mentally retarded or physically deformed, or they may die. Infection with one STD indicates the need to test for other STD infections.

### *Prevention*

Abstinence from vaginal, anal and oral sex will guarantee protection against STDs. For those who are sexually active, condom use is a very important but not 100% guaranteed protection against being infected with

an STD. Limiting the number of partners is important, as the chances of encountering an infected person increase with the number of partners.

Engaging in substance use may increase the chances of becoming infected. Thus, avoidance of substance use is critical to protecting against STDs. Addicts should be provided with detoxification and recovery services, as well as with education and tools to prevent the transmission of STDs and HIV/AIDS.

### ***Diagnosis***

Genital warts are diagnosed by their typical appearance. They may be raised or flat, single or multiple, small or large, or even cauliflower-like. One of the most widely used tools to diagnose genital warts in women is colposcopy, which uses a magnifying scope to look at the interior of the vagina. Colposcopy also enables the physician to see the skin much more closely.

### ***Treatment***

Treatment for external warts is podophyllin or Imiquimod cream. Alternative treatment includes: cryotherapy (freezing) with liquid nitrogen, burning with electrocautery or laser surgery. If many warts are present, surgery may be necessary using local anesthetic. Imiquimod, podophyllin, and Podofilox should not be used during pregnancy.

An infected person may consult his or her own healthcare provider or the state health department-sponsored agency (Whitmarsh House) where comprehensive STD services are provided. This clinic is open to all, has highly trained and sensitive staff and there are no restrictions to access based on age, race, sex, ethnicity, ability to pay, town of residence, country of origin, or whether or not the person is in the United States legally.

The Whitmarsh House Specialty Clinic (444-0483) provides free screening and treatment services for all sexually transmitted diseases. The clinic is located at 557 Broad Street in Providence, RI 02907.

### ***Reporting requirements***

STDs are reportable directly to the state health department within four days of recognition or strong suspicion of disease. The Department Of Health will not release the identity of any case and releases data in aggregate form only so that no individual can possibly be identified. The success of educational programs and disease prevention activities depends largely on the community trusting that all personal information is kept confidential. Refer to Rules & Regulations section of this manual for rules, regulation and reporting requirements regarding STDs.

## GIARDIA LAMBLIA

*Giardia lamblia* is an intestinal parasite in the small bowel that may cause chronic diarrhea, stomach cramping, bloating, pale and foul-smelling stools, weight loss and fatigue. Even when asymptomatic, many people who have *Giardia* still pass *Giardia* cysts in their stools and are infectious if untreated.

### **Transmission**

*Giardia* is very common, between 1% and 20% of all people have it at a given time. It spreads quickly in environments or settings where individuals are not continent of stool or where surfaces have been contaminated by stool. Microscopic *Giardia* cysts are spread by contact with stool, drinking untreated water and sometimes by drinking water in areas where the water supplies are contaminated. Cysts can be shed in stool for many weeks, and people are infectious as long as they are excreting cysts.

### **Diagnosis**

Stool must be examined under a microscope to identify *Giardia* cysts. Because *Giardia* is present in stools only sporadically, several examinations over time are required.

### **Treatment**

Individuals with *Giardia* who are ill and/or have diarrhea should receive medication. Infected individuals who do not have symptoms should not be treated routinely. Although there is no medical consensus regarding treatment for asymptomatic *Giardia* infection, treatment of asymptomatic infection should be considered based on the potential for transmission or re-infection.

### **School attendance guidelines**

Refer to Additional Information and Stop-Spread Guidelines of this manual.

### **Reporting requirements**

A case of *Giardia* must be reported to the Department Of Health, Office of Communicable Diseases within four days of recognition or strong suspicion of disease. Laboratory confirmation is required prior to the reporting of *Giardia*.

### **Notification guidelines**

When a case of *Giardia* occurs in the school population, the school nurse and school physician shall determine, based on their medical judgment, whether any, some or all parents and/or staff should be notified. When

necessary they may consult with the Department Of Health. Prior to parent notification, it should be discussed with the school administrator.

Inform family and household members in contact with a person with *Giardia* diarrhea of their possible exposure to this parasite, especially if they are involved in food handling or preparation. If they develop diarrhea, they should immediately see their healthcare provider and get a stool test.

***Stop-spread guidelines***

Careful attention to good hygiene, hand washing, environmental cleaning and sanitation is very important in reducing spread. Since *Giardia* is very easily transmitted from person to person, staff and students should be instructed not to share food, drink, or eating utensils during an outbreak. It is essential to strictly follow the *Additional Precautionary Measures* outlined in the Additional Information and Stop-Spread Guidelines section of this manual. Monitored, enforced hand washing and properly supplied hand washing facilities are essential in limiting the spread of infection.

**SAMPLE LETTER TO PARENTS ABOUT DIARRHEAL DISEASES**

Dear parent or guardian:

\_\_\_\_\_ A student at our school has a diarrheal disease.

\_\_\_\_\_ Your child may have been exposed to a diarrheal disease.

Please take the following precautions:

1. Watch your child and members of your family to see if they develop diarrhea, stomach cramps, gas and/or nausea.
2. If your child develops severe diarrhea, with fever or vomiting, or diarrhea with blood or mucus, do not send your child to school.
3. If your child develops mild diarrhea, please call us to discuss whether attendance is recommended.
4. In either case, we may ask your healthcare provider to do the tests for bacteria and parasites in the stool. We may ask you to get tests for your child and for other family members who develop diarrhea.
5. Be sure to remind your healthcare provider that there are other students with diarrhea at your child's school.
6. If your child's test is positive, keep your child home until any serious diarrhea or illness is over.
7. Keep us informed about how your child is doing and about any test results or treatment.

**INFORMATION ABOUT DIARRHEAL DISEASES:**

***What are they?***

They are diseases caused by germs (bacteria, parasites, or viruses) that multiply in the intestines and are passed out of the body in the stool. Anyone can get diarrheal diseases, and they can be caught repeatedly. People with these germs in their stool may not actually have diarrhea or feel sick. Laboratory tests are the only way to tell if a particular stool contains germs.

Six diarrhea diseases commonly found in children and young adults are listed on the following page, along with their symptoms. The disease that may be causing illness at our school has been circled. If no disease has been circled, the specific cause of the diarrheal disease is not yet known.

**THE RHODE ISLAND SCHOOL NURSE TEACHERS  
INFECTIOUS DISEASE REFERENCE MANUAL**

<b>NAME</b>	<b>CAUSED BY</b>	<b>SYMPTOMS</b>
<b><i>Rotavirus</i></b>	A virus	Most cases of winter diarrhea are in children younger than 2 years but also occur in older children and adults; usually preceded or accompanied by vomiting and low-grade fever; may also have runny nose and cough
<b><i>Giardia</i></b>	Microscopic parasite	Mild to severe diarrhea, bad-smelling diarrhea, gas, stomach cramps, nausea, lack of appetite, and/or possible weight loss
<b><i>Shigella</i></b>	Microscopic bacteria	Mild to very severe diarrhea, fever, stomach pain, and/or diarrhea with blood or mucus
<b><i>Salmonella</i></b>	Microscopic bacteria	Mild to severe diarrhea, fever, and/or painful stomach cramps
<b><i>E. coli</i></b>	Microscopic bacteria	Mild to very severe diarrhea, watery diarrhea, fever, stomach pain, and/or diarrhea with blood
<b><i>Campylobacter</i></b>	Microscopic bacteria	Mild to severe or bloody diarrhea, fever, stomach cramps, and/or vomiting

***How do you catch diarrheal diseases?***

When people do not wash their hands well after going to the bathroom, changing diapers, or helping a child go to the bathroom, microscopic diarrhea germs stay on their hands and the children's hands. The germs can then spread to food, drink or other objects and, eventually, to other people's hands and mouth. The germs are then swallowed by the other people, multiply in their intestines, and cause an infection. Obviously, diarrheal diseases can spread easily among young children who normally get their hands into everything and may not wash their hands well.

***How do you know if you have a diarrheal disease?***

Some of these diseases can be diagnosed by examining the stool under a microscope, some by growing the germs in the laboratory, others by special chemical tests. Since the germs are usually passed in the stools off and on, stool samples taken on several days may need to be examined.

***How can you stop the spread of diarrheal diseases in your household?***

- ✓ Be sure everyone in the family thoroughly washes their hands after using the bathroom or helping a baby or child with diapers or toileting and before preparing or eating food. Babies and children need to have their hands washed too at these times.
- ✓ If someone in your family develops diarrhea ask your healthcare provider to consider doing a test for germs in the stool. This is critical for family or household members who handle or prepare food. Your healthcare provider will decide about treatment for your child and/or other family members who have diarrheal diseases.

## GLANDERS

Glanders is an infectious disease caused by the bacterium *Burholderia mallei*. There have been no cases in the US since 1945 though it is widespread in Africa, Asia, Middle East, Central and South America. It primarily affects horses, donkeys, mules, goats, dogs, and cats. When contracted, glanders is characterized by a pus-forming cutaneous infections; also pulmonary and bloodstream infections. Other symptoms include fever, muscle aches, chest pains, muscle tightness, headache, tearing of the eyes, sensitivity to light, diarrhea and chronic infections.

### ***Transmission***

The disease is transmitted through direct contact with infected animals with organisms entering through the nasal, oral or mucous membranes. Also, glanders is transmittable through inhalation or lacerated skin. In rare cases it has been spread from human to human through sexually. At particular (but still extremely small) risk are veterinarians, horse caretakers and laboratory personnel.

### ***Diagnosis***

The *Burholderia mallei* bacterium can be isolated in a lab setting from blood, urine, and sputum or skin lesion pus.

### ***Treatment***

There is limited information about the effectiveness of antibiotics on Glanders because the incidence is so low. However, Glanders is sensitive to sulfadiazine, tetracyclines, ciprofloxacin, streptomycin, novobiocin, gentamicin, imipenem, ceftazidime, and the sulfonamides. Reportedly, chloramphenicol is effective as well.

### ***Prevention***

There is no known vaccine for Glanders. However, in healthcare settings, transmission may be prevented by following basic blood and body fluid safety procedures.

### ***School Attendance Guidelines***

Since Glanders is not known to spread from human to human except through sexual intercourse (in rare cases), it is not necessary to exclude children or adults with this disease as long as they are feeling well.

### ***Reporting Requirements***

All cases of Glanders must be reported to the Department of Health within four days of recognition or strong suspicion of disease.

***Notification Guidelines***

When Glanders occurs within the school population, the school nurse and school physician shall determine, based on their medical judgment, whether any, some or all parents and/or staff should be notified. When necessary they may consult with the Department of Health. Prior to parent notification, it should be discussed with the school administrator.

***Stop Spread Guidelines***

## GONORRHEA

Gonorrhea is a sexually transmitted infection caused by the bacteria *Neisseria gonorrhoeae*, which can infect men, women and infants. An estimated 1 million cases of gonorrhea are reported each year while at least that same number go unreported.

The early symptoms of *Gonorrhea* are often mild, and most women who are infected have no symptoms. If symptoms develop, they will usually appear within 2 to 10 days after exposure. The initial symptoms in women include painful or burning sensation when urinating or abnormal vaginal discharge. More advanced symptoms include abdominal pain, bleeding between menstrual periods, vomiting or fever. Men usually have a discharge from the penis and a burning during urination that may be severe.

People with gonorrhea can be infected and transmit this disease, but be asymptomatic. This is particularly true for women. Anyone who thinks he or she has been exposed to an STD should see a healthcare provider immediately. Sexually active adolescents should be screened regularly for STDs. Infection with one STD may indicate the need to test for other STD infections.

### ***Transmission***

Individuals who have unprotected sex, especially with many partners, are at risk of exposure to STDs. Some STDs can also be transmitted directly from an infected person to another by sharing contaminated needles. Other forms of substance abuse (drinking, cocaine, etc.) increase the risk of exposure because they impair judgment. Some drugs, such as crack cocaine, may increase the sex drive and affect the number of partners and/or frequency of sex, thus increasing opportunities for unprotected sex with an infected person.

If untreated, STDs may cause serious physical and reproductive damage or even death. They are particularly dangerous to infants whose infected mothers are not treated during pregnancy. Infected infants may be born mentally retarded or physically deformed, or they may die. Infection with one STD indicates the need to test for other STD infections.

### ***Prevention***

Abstinence from vaginal, anal and oral sex will guarantee protection against STDs. For those who are sexually active, condom use is a very important but not 100% guaranteed protection against being infected with an STD. Limiting the number of partners is important, as the chances of encountering an infected person increase with the number of partners.

Engaging in substance use may increase the chances of becoming infected. Thus, avoidance of substance use is critical to protecting against STDs. Addicts should be provided with detoxification and recovery services, as well as with education and tools to prevent the transmission of STDs and HIV/AIDS.

***Diagnosis***

Three techniques are currently used to diagnose *gonorrhoea*, gram stain, culture, and urine testing.

***Treatment***

Gonorrhoea is treated with penicillin or other antibiotics in pill form or by injection. All strains of gonorrhoea are curable but this disease is becoming more and more resistant to many standard medications.

If a person is not treated for gonorrhoea, there is a good chance complications will occur. Women frequently suffer from pelvic inflammatory disease (PID), a painful condition that occurs when the infection spreads throughout the reproductive organs. PID can lead to sterilization in females. Men may suffer from swelling of the testicles and penis. Both sexes may suffer from arthritis, skin problems and other organ infections caused by the spread of gonorrhoea within the body.

An infected person may consult his or her own healthcare provider or the state health department-sponsored agency (Whitmarsh House) where comprehensive STD services are provided. This clinic is open to all, has highly trained and sensitive staff and there are no restrictions to access based on age, race, sex, ethnicity, ability to pay, town of residence, country of origin, or whether or not the person is in the United States legally.

The Whitmarsh House Specialty Clinic (444-0483) provides free screening and treatment services for all sexually transmitted diseases. The clinic is located at 557 Broad Street in Providence, RI 02907.

***Reporting requirements***

STDs are reportable directly to the state health department within four days of recognition or strong suspicion of disease. The Department Of Health will not release the identity of any case and releases data in aggregate form only so that no individual can possibly be identified. The success of educational programs and disease prevention activities depends largely on the community trusting that all personal information is kept confidential. Refer to Rules & Regulations section beginning on page 114 of this manual for rules, regulation and reporting requirements regarding STDs.

## HAEMOPHILUS INFLUENZA TYPE B ILLNESS (HIB DISEASE)

*Haemophilus influenzae* type B (Hib) causes serious, and sometimes fatal, illnesses, most often in young children. Some of the diseases it can cause are:

- ◆ Meningitis—infection of the coverings of the brain.
- ◆ Epiglottitis—infection of the upper throat and entrance to the windpipe.
- ◆ Cellulitis—infection of the deep skin, especially of the face and neck
- ◆ Arthritis—infection and swelling of the joints.
- ◆ Pneumonia—infection of the lung.
- ◆ Bacteremia—bloodstream infections.

### ***Transmission***

These illnesses are primarily seen in children under 5 years of age. Epiglottitis occurs most commonly in children 3 to 5 years old, and the other diseases are most common in children under 2 years. Children in a group care setting are at a greater risk of catching these illnesses than others. Older children and adults rarely develop these illness, however, they can be carriers and transmit them to younger individuals.

As with Meningococcal infections, *Hib disease* requires relatively close contact to spread from person to person. Spread is more likely among children under age 4 years, with the highest risk in children under age 2. It appears that in a household or group care center where there are young children and everyone is in close contact, there is an increased risk of a second child becoming infected.

The bacteria are passed from person to person by breathing in infected droplets of nose or throat fluids scattered in the air, through direct contact (e.g. kissing) with infected fluids, or by sharing eating utensils, drinking cups, straws, etc. They can also be passed if infected secretions are touched by people who then put their hands in their mouth, nose, or eyes. The bacteria do not live on environmental surfaces.

Like meningococcus, some people carry these bacteria in their nose or throats for a period of time without symptoms of illness. However, a carrier may still spread the bacteria to another person, who may then become ill. In a household or classroom where Hib infection has occurred, the number of individuals with nose or throat carriage is greatly increased. Thus, the risk of serious disease is also increased.

### ***Diagnosis***

These illnesses are diagnosed by culturing an infected person's blood, spinal fluid or other infected fluid. It may take up to 72 hours to grow and identify the bacteria. Sometimes a doctor can make an early diagnosis by looking at the infected fluid under the microscope.

### ***Treatment***

People sick with these infections generally require hospitalization for treatment. The carriage of these bacteria in the nose and throat of healthy children and adults may be reduced and perhaps eliminated when a person takes the medicine rifampin by mouth. In order to reduce the risk of spread within a household, both the sick persons and the other people living in the same house should take this medicine. Rifampin is an antibiotic that is used as a preventive treatment in the preschool and day care environment or among household contacts. Rifampin treatment can also be considered for contacts in the kindergarten setting. Preventive treatment is not generally recommended in schools where all individuals are 5 years of age or older.

Careful observation for Hib disease in the childcare setting is essential. Children who develop illnesses with fever should receive prompt medical evaluation. When there is exposure to a child with Hib infection in a group of children less than 2 years of age and the group members are in close contact for 24 or more hours a week (thus like household contact), rifampin treatment should be given to children and staff regardless of immunization status. Rifampin treatment is not required if there is only one case in a childcare program or if all contacts are older than 2 years.

When two or more cases of serious *Hib disease* have occurred among children from any age group within a 60-day period, an antibiotic such as rifampin is indicated for all children (regardless of age or immunization status) and staff. Children enrolled within 1 week of the last case should also receive rifampin. When rifampin treatment is used, *all children enrolled*, regardless of age or Hib immunization status, should receive treatment. In multi-classroom settings, only classroom contacts need rifampin. Because therapy for systemic *Hib disease* does not prevent people from carrying Hib bacteria in their nose or throats, a child treated for *Hib disease* should be given rifampin treatment before returning to the childcare program.

A recently licensed vaccine to prevent Hib infections is now required for children beginning at 2 months of age. The vaccine takes several doses to provide some protection. *Although it is very effective, (not even four doses are 100% protective) it does not prevent a child from becoming a carrier.* Therefore, even immunized children need to take antibiotics prescribed by their licensed provider.

***School attendance guidelines***

Children and staff who are not ill with *Hib disease* may return to school as soon as rifampin has begun. Children or staff who are ill should be excluded while they are ill and until they have taken rifampin for 4 days. Exclude any children who do not receive rifampin for 1 week after onset of the last case. Children with Hib illness should not return until they are well and after they have finished taking rifampin for 4 days.

The school physician and school nurse, collaborating with the Department Of Health, should decide when children and staff should be required to take rifampin or other prescribed antibiotic after one case or after two cases of Hib occur in the school.

***Reporting requirements***

A case of *Haemophilus influenzae* must be reported to the Department Of Health within four days of recognition or strong suspicion of disease. Laboratory confirmation is not necessary prior to filing a report.

***Notification guidelines***

When Hib occurs within the school population, the school nurse and school physician shall determine, based on their medical judgment, whether any, some or all parents and/or staff should be notified. When necessary they may consult with the Department Of Health, Immunization program. Prior to parent notification, it should be discussed with the school administrator.

***Stop-Spread Guidelines:***

- ◆ Develop a system for responding to a case of *Hib disease*.
- ◆ Develop a policy regarding the use of rifampin or other prescribed antibiotic. (Children less than 2 years old are at greatest risk of catching serious Hib illness.)
- ◆ Notify the Department Of Health.
- ◆ Inform parents and staff that rifampin does not give 100% protection against disease. Therefore, any child or adult who becomes ill with fever, headache, or stiff neck should be seen promptly by a healthcare provider.
- ◆ Monitor the situation closely for 2-3 weeks. Make sure all ill children, particularly those with fever, headache, stiff neck, and other symptoms associated with the illness, are seen by their doctor and that the school is notified if another person develops Hib infection. The time of greatest risk of others becoming ill is the first week following the first case, but some risk exists for up to 2 months.
- ◆ Require all attending children to be appropriately immunized with Hib vaccine.
- ◆ Notify parents of any new child enrolled in the school within 2 months of the last case.

**SAMPLE LETTER TO PARENTS ABOUT HIB DISEASE**

Dear Parent or Guardian:

A child in school has a serious infectious illness caused by a bacteria named Haemophilus influenzae, type B. A short way of writing the name is Hib. Hib spreads from person to person either by sharing breathing space or by being in close physical contact (i.e. kissing or sharing eating utensils, drinking cups, straws etc.). It is not at all related to the regular flu.

Hib can cause very serious illnesses such as meningitis (infection of the coverings of the brain), pneumonia, arthritis, epiglottitis (infection of the upper throat), blood infections, and skin infections, all of which need hospital treatment and intravenous (IV) antibiotics.

The bacteria can spread from child to child in a school and can cause serious illness but there is a medicine that can be taken to help eliminate the bacteria from someone else who has been exposed. At this time, however, only people who are considered to be close contacts of the ill person need to take this medication. Those individuals will be required to receive this medication before returning to school.

**Your child is not believed to be a close contact of the ill person.** If you feel, however, that your son or daughter has shared any of the exposures outlined above with the ill person in the 7 days previous to their becoming ill, please notify your healthcare provider or the school health office. In either case, watch your child for signs of illness, particularly fever, headache, stiff neck or other symptoms associated with the illness described above. If your child becomes ill, take him or her to your healthcare provider. Watch carefully for 2 months, but especially in the next week.

If your child is under 5 years of age, check with your healthcare provider to make sure your child has completed the 3 or 4 dose series of Hib vaccinations.

The school will also be very watchful over the next 2 months. If another child comes down with this illness, we will notify you.

**SAMPLE LETTER TO PARENTS OF CLOSE CONTACTS ABOUT HIB  
DISEASE**

Dear Parent or Guardian:

A child in our school has a serious infectious illness caused by a bacteria named *Haemophilus influenzae*, type B. A short way of writing the name is Hib and it spreads from person to person either by sharing breathing space or by being in close physical contact (i.e. kissing or sharing eating utensils, drinking cups, straws etc.). It is not at all related to the regular flu.

Hib can cause very serious illnesses such as meningitis (infection of the coverings of the brain), pneumonia, arthritis, epiglottitis (infection of the upper throat), blood infections, and skin infections, all of which need hospital treatment and intravenous (IV) antibiotics.

The bacteria can spread from child to child in a school but there is a medicine called rifampin that can be taken to help eliminate the bacteria from someone else who has been exposed. When only one case of Hib occurs only people who have had close contact with the ill person in the seven days before the ill person got sick need to take this preventive medication.

Occasionally more than one case of Hib may occur in a classroom. Officials then recommend that all classroom contacts need to take preventive medicine.

**We feel that your child has had close contact with the ill person. Please take the following steps:**

- ✓ Tell your healthcare provider that your child was exposed to another child who has come down with an illness caused by *Haemophilus influenzae*, type B (Hib). Bring this letter to discuss the fact that your child is being considered to have had close contact with the ill person (e.g., classroom, play group, or other shared activities, kissing or sharing eating utensils, drinking cups, straws etc.)
- ✓ Explain that as a close contact of the ill person, our health consultant recommends that your child take rifampin (unless there is a reason why your child cannot take this medicine) once a day for 4 days. Rifampin can help eliminate the bacteria from the person who has been exposed. Even exposed children who have received the vaccine need to take Rifampin.
- ✓ Because your child is a close contact, he or she may not return to school until rifampin has been started. If your child will not be taking this medication, then he or she must not return to school for one week.

- ✓ **Watch your child for signs of illness**, particularly fever, headache, stiff neck or other symptoms associated with the illness described above. If your child becomes ill, take him or her to your healthcare provider. Watch carefully for 2 months, but especially in the next week.
- ✓ If your child is under 5 years of age, check with your healthcare provider to make sure your child has completed the 3 or 4 dose series of Hib vaccinations. The school will also be very watchful over the next 2 months. If another child comes down with this illness, we will notify you.

## **HAND, FOOT AND MOUTH DISEASE**

Hand, foot, and mouth disease (HFMD) is a common illness of infants and children. It is characterized by fever, sores in the mouth, and a rash with blisters. HFMD begins with a mild fever, poor appetite, malaise ("feeling sick"), and frequently a sore throat. One or 2 days after the fever begins, sores develop in the mouth. They begin as small red spots that blister and then often become ulcers. They are usually located on the tongue, gums, and inside of the cheeks. The skin rash develops over 1 to 2 days with flat or raised red spots, some with blisters. The rash does not itch, and it is usually located on the palms of the hands and soles of the feet. It may also appear on the buttocks. A person with HFMD may have only the rash or the mouth ulcers.

### ***Transmission***

The virus is spread by direct contact with nose and throat discharges and feces of infected people.

### ***Diagnosis***

HFMD is one of many infections that result in mouth sores. Another common cause is oral herpes virus infection, which produces an inflammation of the mouth and gums (sometimes called stomatitis). Usually, the physician can distinguish between HFMD and other causes of mouth sores based on the age of the patient, the pattern of symptoms reported by the patient or parent, and the appearance of the rash and sores on examination. A throat swab or stool specimen may be sent to a laboratory to determine which enterovirus caused the illness. Since the testing often takes 2 to 4 weeks to obtain a final answer, the physician usually does not order these tests.

### ***Treatment and Prevention***

No specific treatment is available for this infection. Symptomatic treatment is given to provide relief from fever, aches, or pain from the mouth ulcers. Preventive measures include frequent hand washing, especially after diaper changes, disinfection of contaminated surfaces by household cleaners and washing soiled articles of clothing. Children are often excluded from childcare programs, schools, or other group settings during the first few days of the illness. These measures may reduce the spread of infection, but they will not completely interrupt it.

### ***School attendance guidelines***

There is no need to exclude anyone well enough to attend school. Because the virus is contagious before symptoms begin, other students and staff have already been exposed

***Stop-Spread Guidelines***

Follow strict hand washing and personal hygiene procedures. Always wash hands, especially after using the bathroom or diapering or assisting a student in the bathroom, and before eating or handling food. Also, careful attention to environmental cleaning and sanitation is very important in reducing spread. For additional guidelines refer to section on Additional Information and Stop-Spread Guidelines on page 113 of this manual.

## HEPATITIS A

*Hepatitis A* is an infection of the liver caused by the *hepatitis A* virus. Although the virus causes a total body illness, it is spread through the intestines and stools. The illness often occurs from 2 to 8 weeks after the virus is ingested. Adults who have *hepatitis A* often suffer from fatigue, loss of appetite, nausea, abdominal pain, fever, and jaundice (yellowing of the skin and whites of the eyes, as well as dark brown urine and light colored stools). These symptoms usually last from 1 to 2 weeks, although some adults may be sick for several months. Most young children who catch the virus have only a mild flu-like illness without jaundice or have no symptoms at all.

### ***Transmission***

Anyone can get this infection, which spreads quickly in groups of children who do not yet use the toilet and cannot wash their own hands well. Because most young children with *hepatitis A* do not become ill, often the first sign of the infection is a jaundiced parent or staff member. *Hepatitis A* virus is passed out of the body in the stool and is spread by the stool-to-mouth method. It is found only briefly in the blood. Contact with stool-contaminated food, drink, or environmental surfaces can also spread the infection. A person is most contagious during the 2 weeks before the illness begins, when there are the most virus particles in the stool. Usually within a week after the illness starts, the virus disappears from the stool.

### ***Diagnosis***

*Hepatitis A* is diagnosed by a blood test that indicates if a person has ever had the infection, regardless of presence of symptoms.

### ***Treatment***

There is no treatment that cures *hepatitis A*. However, because the incubation period is so long, the illness can be made milder or prevented by giving persons a protective shot of immune globulin (IG) within 2 weeks of exposure to the virus.

### ***School attendance guidelines***

Children and adults with acute *hepatitis A* should be excluded from school for 1 week after the onset of illness and until jaundice has disappeared. The Department of Health will advise of you what the exact dates for exclusion should be.

### ***Reporting requirements***

A case of *hepatitis A* must be reported to the Department Of Health, Office of Communicable Diseases within four days of recognition or strong suspicion of disease. Laboratory confirmation is not required prior to reporting a case of *hepatitis A*.

***Notification guidelines***

When *Hepatitis A* occurs within the school population, the school nurse and school physician shall determine, based on their medical judgment, whether any, some or all parents and/or staff should be notified. It is strongly recommended that they consult with the Department Of Health. Prior to parent notification, it should be discussed with the school administrator.

***Stop-spread guidelines***

Schoolroom exposure generally does not pose a significant risk of infection, and IG is not usually indicated. However, IG may be given to those who have close personal contact (e.g., sharing food, eating or drinking utensils, or toilet facilities) with infected individuals.

If a case of *hepatitis A* occurs in a kindergarten, first grade, or pre-school class where hygiene may not be optimal or in a group of students who may not be continent of stool, more stringent control measures including the use of IG may be indicated. The Department Of Health, Office of Communicable Diseases, can provide IG and recommendations regarding who should receive IG.

***Other stop-spread guidelines include:***

- ◆ Strictly enforce hand washing and cleanliness rules and ensure that all bathrooms are properly supplied with soap, paper towels, and toilet paper.
- ◆ Request that all parents and staff notify the school if any person in their household is diagnosed with *hepatitis A*.
- ◆ If a household member comes down with *hepatitis A*, all other members should contact their healthcare provider. An injection of IG is usually recommended. The Department of Health makes IG available to all appropriate contacts free of charge.

## **SAMPLE LETTER TO PARENTS ABOUT HEPATITIS A**

Dear parent or guardian:

\_\_\_\_\_ A student or staff member at our school has been diagnosed with Hepatitis A

\_\_\_\_\_ Your child may have been exposed to Hepatitis A

### **INFORMATION ABOUT HEPATITIS A:**

#### ***What is It?***

*Hepatitis A* is an infection of the liver caused by a virus. It can cause tiredness, fever, lack of appetite, nausea, and jaundice (yellowing of the skin and whites of the eyes, with darkening of the urine). The illness usually lasts 1 to 2 weeks. Young children do not usually become jaundiced, however, and may have only a flu-like illness, or nothing at all.

#### ***How is it spread?***

The virus lives in the intestines and is passed out of the body in the stool. The virus is microscopic, so you cannot see it. A person is most contagious during the 2 weeks before the illness begins, when there are the most virus particles in the stool. If people do not wash their hands well after using a bathroom or after helping a child in the bathroom, the virus can be spread to other people, food, drink, or environmental surfaces such as door knobs etc.. The germs can then be swallowed by another person, multiply in the intestines, and cause illness 2 to 8 weeks later. If a person may have swallowed some germs, the illness may be prevented by a shot of immune globulin.

#### ***How is it treated?***

There is no treatment that cures *hepatitis A*. However, because the incubation period is so long, the illness can be made milder or prevented by giving persons a protective shot of immune globulin (IG) within 2 weeks of exposure to the virus.

#### ***What should you do about hepatitis A?***

- ✓ Be sure all members of your household thoroughly wash their hands after going to the toilet, helping a child go to the toilet, or changing a diaper. They must wash the children's hands, too. These are the most important things to do! Hands should also be washed before touching food, eating, or feeding. Encourage your children not to share food or eating or drinking utensils with their friends at school

- ✓ If anyone in your household develops signs of *hepatitis A*, ask your healthcare provider to do a blood test. Tell us if it is positive.
- ✓ If it is positive ask your healthcare provider to give your child a shot of immune globulin. The immune globulin may be available free of charge to your physician from the state or the health department. Ask your healthcare provider to give immune globulin shots to the other people in your household.

## HEPATITIS B

*Hepatitis B* is an infection of the liver. Symptoms of infection include fever, loss of appetite, nausea, abdominal pain, light-colored stools and jaundice (yellowing of the skin and whites of the eyes and dark-colored urine). Occasionally it may cause pain in the joints and a hive-like skin rash. Illness can range from infection without symptoms, to mild symptoms without jaundice, to severe illness with jaundice, to the very rare event of rapid liver failure and death. As with *hepatitis A* infection, young children are less likely to be jaundiced or show symptoms of illness. Approximately 50% of adults will be symptomatic, with one-quarter being jaundiced.

Unlike *hepatitis A* infection, *hepatitis B* can cause chronic infection with persistent "shedding" of the virus into body fluids, including blood, in up to 10% of those infected. The younger the age of infection, the more likely an infected individual is to become a carrier. Individuals with such chronic infections are virus "carriers" and remain infectious for years, sometimes for life. Such individuals can develop chronic liver disease. Cirrhosis with liver failure, and liver cancer can occur years after infection. An infected mother can pass on the infection to her newborn infant. Up to 90% of infants born to infected mothers will become infected themselves. Although such infants often show no obvious symptoms of *hepatitis B*, they have a high likelihood of becoming carriers.

### **Transmission**

Individuals who have not been previously infected with *hepatitis B* and have not been vaccinated are susceptible to *hepatitis B*. Unlike *hepatitis A* (which is spread through infected stool), *hepatitis B* is spread when blood or body fluids containing the virus get onto broken skin or onto mucous membranes inside the mouth, eyes, rectum, or genital tract. *Hepatitis B* infection, therefore, is quite difficult to pass from one person to another.

Although the virus has been found in almost all body fluids, only blood, genital fluids, and, to a lesser extent, saliva has been found to be infectious. Virus spread requires contact with the infected fluid through the skin (needlestick, contamination of a cut, blood transfusion) or through a broken mucous surface (as might occur during sexual contact or shared salivary contact). Environmental transmission from contaminated surfaces, such as sharing toys that children put in their mouths, is possible but unlikely.

Infection with *hepatitis B* is most common in individuals who have contact with other people's blood, such as healthcare providers or laboratory technicians who may accidentally puncture their skin with a blood-contaminated needle, or intravenous drug abusers who share

needles. Individuals who have *hepatitis B* can spread the infection to their sexual contacts via contact with infected genital tract fluids. Infants born to mothers with *hepatitis B* infection are at high risk of becoming infected unless they are vaccinated at birth. Adolescents who live in areas where there are increased rates of parental drug abuse, teenage pregnancy, and sexually transmitted diseases are at increased risk for *hepatitis B* infection. In addition, spread of infection in a household setting may occur in situations where there is frequent sharing of personal items such as toothbrushes or razors that may be contaminated with infected blood.

Spread of *hepatitis B* in schools is rare. The risk of spread is higher from an infected person with behavioral and/or medical problems such as biting behavior that draws blood or oozing skin sores. These behaviors may increase the possibility of transfer of infected fluid. Because an individual who is a carrier may not have signs of illness, hand washing after any contact with blood or body fluids is the best preventive measure. If *hepatitis B* were to spread in a school setting, it is most likely to occur through direct blood contact via bites or scratches that break the skin and allow the virus to enter the bloodstream of a non-infected person. Because saliva contains much less virus than blood, the potential to spread the virus by saliva is much lower than through blood.

### ***Diagnosis***

*Hepatitis B* infection is diagnosed with a blood test.

### ***Treatment***

Usually the body's defense system successfully fights off the infection, and the individual becomes immune. However, medical follow-up is important to monitor for complications and the occurrence of chronic infection. Interferon has been recently approved for treatment of some forms of chronic hepatitis.

### ***Primary prevention***

A safe and effective vaccine to prevent *hepatitis B* is available and given in three doses over 6 to 18 months. *Hepatitis B* vaccine is now recommended for all infants and, as of Fall 1996, will be required for entry into kindergarten for children born since January 1, 1992. Older children and adolescents at increased risk of *hepatitis B* infection also should be immunized.

Risk of exposure to *hepatitis B* in a school setting is not considered high, even when there is a known carrier in a school setting. Vaccination is not considered necessary for children or staff in contact with *hepatitis B* carriers unless specific risk factors noted above are present.

Studies have shown that staff of residential programs for the developmentally disabled have a risk of infection comparable to that of healthcare workers and therefore vaccination is recommended. In a nonresidential setting, the risk of infection for other students appears to be lower than that for staff. However, to reduce the risk of infection, vaccination may be recommended for students in such settings. If a classmate who is a *hepatitis B* carrier behaves aggressively or has special medical problems (such as exudative dermatitis or open skin lesions) that increase the risk of exposure to his or her blood or serous secretions, vaccination of contacts is strongly recommended. *Hepatitis B* vaccine is required by the U.S. Occupational Safety and Health Administration (OSHA) for all non-public employees who may come in contact with blood or body fluids during the performance of their job. In some states, including Rhode Island, OSHA regulations do not apply to city, town, or state government. Nevertheless, the OSHA guidelines serve to define the standard of practice. To the extent that the guidelines are not followed, and the failure to comply results in transmission of a blood borne illness, there is a significant risk of liability. Accordingly, it seems highly advisable for cities and towns to comply with all pertinent provisions of the guidelines in order to properly safeguard their employees and reduce the risk of liability. Employers or employees of cities and towns concerned with liability should consult their own legal counsel.

### ***Secondary Prevention***

If an individual is known to have been exposed to *hepatitis B*, such as by a needle stick, a bite that has drawn blood, or sexual contact with an acutely infected person, a special immune globulin, given by injection soon after exposure, can prevent infection. If the exposed person has not already been vaccinated, it is recommended that the vaccine series be given following the immune globulin injection.

Because it is unlikely that a bite from a person whose *hepatitis B* status is unknown will result in transmission, testing either the biter or the victim is not necessary. In addition, risks from these types of exposures will decrease as more and more children are routinely vaccinated against *hepatitis B*.

### ***School attendance guidelines***

Adults and children ill with *hepatitis B* should stay home until they feel well and symptoms such as fever and jaundice are gone. A staff member or student with chronic *hepatitis B* infection who has open, oozing sores that cannot be covered should not attend the school until the skin sores are healed. Therefore, unless a staff member or student has uncovered open, oozing sores, there is no reason to exclude such a person from employment or attendance after recovery from acute infection.

***Based on all research at this time, the risk of disease spread in a school setting is considered very low and neither justifies exclusion of a hepatitis B carrier nor routine screening of children prior to enrollment.***

Admission of a known *hepatitis B* carrier with specific risk factors such as biting, frequent scratching, generalized open skin rashes or sores, or bleeding problems should be assessed on a case-by-case basis by the child's physician, the school, and responsible public health authorities.

### ***Reporting requirements***

A case of *Hepatitis B* (acute disease or chronic) is to be reported to the Department of Health, Office of Communicable Diseases, within four days of recognition or strong suspicion of disease. Laboratory confirmation is not required prior to reporting a case of *hepatitis B*.

### ***Notification guidelines***

Parents of children with behavioral issues should be encouraged to inform the school nurse if their child is known to be chronically infected with *hepatitis B*. These children may present a problem as a result of their behavior issues. Notification of the school nurse allows for proper precautions to be taken and for assessment of behavior issues that could facilitate transmission. The Department Of Health will provide consultation as needed. Parents of other children attending the school do not need to be informed.

### ***Stop-spread guidelines***

Whether or not individual *hepatitis B* carriers have been identified, it is important that all school staff receive regular training on the prevention of blood borne disease. All students should receive age-appropriate instruction regarding the potential dangers of contact with the blood and other body fluids of other individuals. Some standard precautions include:

- ◆ Follow all procedures for hand washing and cleanliness at the school.
- ◆ Always treat all blood as a potentially dangerous fluid - carefully observe universal precautions.
- ◆ Do not permit sharing of personal items that may become contaminated with blood or body fluids such as toothbrushes, eating utensils or any other object that may be mouthed.
- ◆ Cover open skin lesions.
- ◆ Place disposable items contaminated with blood or body fluids in plastic bags in covered containers.
- ◆ Store clothing or other washable items stained with blood and/or body fluids separately in a plastic bag, and send them home with

the owner for appropriate cleaning. Clothing stained with blood or other body fluids should be washed with hot water in a regular cycle wash.

- ◆ Wash and sanitize surfaces of toys contaminated with blood or body fluids with a dilute solution of 1/4 cup chlorine bleach in 1 gallon of water freshly made up on a daily basis or disinfect objects by boiling them for 10 minutes
- ◆ Discourage aggressive behavior (biting, scratching) at the school and supervise closely to avoid these behaviors.
- ◆ Provide age-appropriate education to adolescents and young adults about sexuality and the means of preventing *hepatitis B* transmission.
- ◆ If there is a specific infectious exposure to a person with *hepatitis B* (such as a bite that causes bleeding), refer them urgently to a healthcare provider for immediate advice; the exposed person may need to receive a preventive immune globulin injection and the vaccine series or other medication.

## HEPATITIS C

*Hepatitis C* virus infection (HCV), referred to in the past as non A non B, Hepatitis is the most common chronic blood borne infection in the U.S. HCV is an infection in the liver. Symptoms of infection include anorexia, vague abdominal discomfort, nausea and vomiting, progressing to jaundice less frequently than *hepatitis B*. Illness can range from infection without symptoms, to mild symptoms without jaundice, and rarely to severe illness with jaundice. It is usually less severe in the acute stage, but chronicity is common occurring much more than *hepatitis B* in adults.

### **Transmission**

*Hepatitis C* is spread by direct contact with human blood. Individuals may have become infected if they:

- ◆ Received blood, blood products, or solid organs prior to 1992 from a donor who was HCV positive.
- ◆ Were ever on long-term kidney dialysis due to unknowingly sharing supplies/ equipment that was contaminated with someone else's blood.
- ◆ Have ever been/or is currently a healthcare workers with frequent contact with blood on the job, especially accidental needle sticks.
- ◆ Had a mother who was HCV positive at the time she gave birth. During the birth process the mother's blood came in contact with the baby's.
- ◆ Have ever injected street drugs. The equipment used to inject may be contaminated when "works " are shared among drug users.
- ◆ Have ever had sex with a partner infected with HCV.
- ◆ Have lived with someone who was infected with HCV and shared items such as tooth brushes or razors that could have been contaminated with the persons blood.

*Hepatitis C* has been found in blood, solid organs/tissues and semen. Virus spread requires contact with the infected blood through the skin (needle stick, contamination of a cut, blood transfusion) or through a broken mucous surface blood to blood (which might occur during sexual contact). Environmental transmission from contaminated surfaces, such as sharing toys that children put in their mouths, may be possible, but at this time there is no data regarding the issue.

Infection with *hepatitis C* is most common in individuals who have contact with other people's blood such as healthcare providers or laboratory technicians who may accidentally puncture their skin with a blood-contaminated needle, or intravenous drug abusers who share needles. Individuals who have *hepatitis C* can spread the infection to their

sexual contacts, however the risk is lower than it is with *hepatitis B*. Infants born to mothers with *hepatitis C* infection are at low (5%) risk of becoming infected. Adolescents who live in areas where there are increased rates of parental drug abuse, teenage pregnancy, and sexually transmitted diseases are at increased risk for *hepatitis C* infection. In addition, spread of infection in a household setting may occur in situations where there is sharing, of personal items such as toothbrushes or razors that may be contaminated with infected blood.

Spread of *hepatitis C* in schools is rare. Because an individual who is chronically infected may not have signs of illness, hand washing after any contact with blood or body fluids is the best preventive measure. If *hepatitis C* were to spread in a school setting, it is most likely to occur through direct blood to blood contact (touching blood from another person if you have open areas on the skin) which allow the virus to enter the bloodstream of a non-infected person.

### ***Diagnosis***

*Hepatitis C* infection is diagnosed with a blood test.

### ***Treatment***

The body's defense system produces antibodies to *hepatitis C*, however, these are not protective against the virus so you can be re-infected. Medical follow-up is important for those infected with this virus because most people who become infected go on to be chronic carriers. Interferon and Ribavirin have been approved for treatment of chronic *hepatitis C*.

### ***Primary prevention***

There is no vaccine to prevent *hepatitis C*. Risk of exposure to *hepatitis C* in a school setting is not considered high, even when there is a known chronically infected student in a school setting.

In Rhode Island, OSHA regulations apply to cities and towns. These recommendations serve to define the standard of practice. To the extent that the guidelines are not followed, and the failure to comply results in transmission of a blood borne illness, there is a significant risk of liability. Accordingly, it seems highly advisable for cities and towns to comply with all pertinent provisions of the guidelines in order to properly safeguard their employees and reduce the risk of liability. Employers or employees of cities and towns concerned with liability should consult their own legal counsel.

### ***School attendance guidelines***

Adults and children ill with *hepatitis C* should stay home until they feel well and symptoms such as fever and jaundice are gone. A staff member or student with chronic *hepatitis C* infection who has open, oozing sores

that cannot be covered should not attend the school until the skin sores are healed. Therefore, unless a staff member or student has uncovered open, oozing sores, there is no reason to exclude such a person from employment or attendance after recovery from acute infection.

***Based on all research at this time, the risk of disease spread in a school setting is considered very low and neither justifies exclusion of a student with chronic hepatitis C nor routine screening of children prior to enrollment.***

Admission of a person known to have chronic *hepatitis C* with specific risk factors such as open skin sores, or bleeding problems should be assessed on a case-by-case basis by the child's physician, the school, and responsible public health authorities.

### ***Reporting requirements***

A case of *hepatitis C* (acute disease) is reportable to the Department Of Health within four days of recognition or strong suspicion of disease. Chronic cases (previously known to have hepatitis C) need not be reported by clinical providers of care. Such cases are reported by laboratories when they are tested.

### ***Notification guidelines***

OSHA guidelines address issues related to blood borne pathogens. These also apply to *hepatitis C*. The Department Of Health will provide consultation as needed. Parents of other children attending the school do not need to be informed.

### ***Stop-spread guidelines***

Whether or not an individual with chronic *hepatitis C* has been identified, it is important that all school staff receive regular training on the prevention of blood borne disease. All students should receive age-appropriate instruction regarding the potential dangers of contact with the blood and other body fluids of other individuals. Some standard precautions include:

- ◆ Follow all procedures for hand washing and cleanliness at the school.
- ◆ Always treat all blood as a potentially dangerous fluid - carefully observe universal precautions.
- ◆ Do not permit sharing of personal items that may become contaminated with blood or body fluids such as toothbrushes, eating utensils or any other object that may be mouthed.
- ◆ Cover open skin lesions
- ◆ Place disposable items contaminated with blood or body fluids in plastic bags in covered containers
- ◆ Store clothing or other washable items stained with blood and/or body fluids separately in a plastic bag, and send them home with

the owner for appropriate cleaning. Clothing stained with blood or other body fluids should be washed with hot water in a regular cycle wash.

- ◆ Wash and sanitize surfaces of toys contaminated with blood or body fluids with a dilute solution of 1/4 cup chlorine bleach in 1 gallon of water freshly made up on a daily basis or disinfect objects by boiling them for 10 minutes
- ◆ Provide age-appropriate education to adolescents and young adults about sexuality and the means of preventing *hepatitis C* transmission
- ◆ If there is a specific infectious exposure to a person with *hepatitis C*, contact the Department Of Health for recommendations and a healthcare provider for immediate advice.

## HERPES SIMPLEX INFECTION

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

*HSV type 1* is extremely common. The first infection typically occurs in childhood. It is mild, and often goes unnoticed. It may come in the form of *gingivostomatitis* – fever accompanied by widespread painful ulceration's (sores) in the mouth. HSV usually recurs as cold sores – single or multiple blisters around the lip. In rare cases, HSV may be spread by direct contact and cause infection on a finger (*herpetic whitlow* – painful, recurrent ulceration's of the cornea) or other places on the skin.

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

Herpes of the newborn is most often caused by *HSV type 2* and occurs when a newborn infant passes through an infected birth canal. The resulting illnesses range in severity from skin blisters to total body disease resulting in severe brain damage or death. An infant who survives may have recurrent skin blisters due to HSV.

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

### **Transmission**

*HSV type 1* is most common in young children; *HSV type 2* (due to its sexual transmission) is more common in adults. *HSV type 2* may be diagnosed in children in unusual circumstances or as a result of sexual abuse. HSV is shed in the secretions of the blisters and ulcers. Spread of both HSV 1 and 2 requires direct of virus-containing secretions with a mucous membrane inside the mouth, lining of the eyes, rectum, or genitals

or with broken skin such as cuts. Transmission may also occur in sports with skin-to-skin contact.

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

### ***Diagnosis***

Diagnosis is usually made based on the distinctive appearance of the blisters or sores. A doctor may also examine material under a microscope or do a special viral culture.

### ***Treatment***

Antiviral therapy for HSV infections has recently become available. Generally this therapy is useful only for serious HSV infections (such as in the newborn, for infections of the brain or eye, or for certain cases of genital herpes). There is no evidence that these medicines are of any benefit to the common HSV infections in the mouth.

### ***School attendance guidelines:***

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

### ***Reporting requirements***

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

### ***Stop-Spread Guidelines:***

- ◆ Make sure that staff who may come in contact with blisters on students wear latex gloves during diapering, or changing of a dressing.
- ◆ To control spread of herpes gladiatorum, educate athletes and trainers about the risk, conduct routine examinations before wrestling contacts, exclude wrestlers with suspicious lesions, and refer them for diagnosis and treatment. Sanitizing of mats with a dilute bleach solution (1 tablespoon bleach to 1 quart of water) and airing of mats is also recommended as a standard precaution.

## IMPETIGO

*Impetigo* is a very common skin infection caused by streptococcal (“strep”) or staphylococcal (“staph”) bacteria. The first indication of infection may be discharge at an injured spot on the skin such as an insect bite, cut or burn that can be spread easily by the individual’s hands to other areas of the skin. *Impetigo* most commonly occurs on the face. The red, rounded, and “oozing” rash may have a flat, honey-colored crust and may be itchy. *Impetigo* caused by either strep or staph bacteria sometimes display blisters that break easily leaving raw, red, “oozing” skin exposed. *Impetigo* caused by strep bacteria may induce the development of kidney disease under rare circumstances. *Impetigo* most commonly occurs during warm summer months.

### ***Transmission***

Ordinarily, the skin protects the body from bacteria. When the skin is broken (cut, scraped, bitten, scratched), bacteria may get under the surface, multiply, and cause an infection. Children often have multiple cuts and scrapes on their bodies that make them more vulnerable to *Impetigo* than adults. Most individuals contract *Impetigo* at least a few times during childhood. *Impetigo* bacteria are found all over infected skin, on the crust, and in the discharge. As long as lesions exist, bacteria can be spread to another person who had direct contact with the skin or a surface contaminated by discharge or crusts.

### ***Diagnosis***

*Impetigo* is typically diagnosed by appearance. Bacterial cultures are not usually needed. Strep and staph *Impetigo* may look the same, although staph tends to cause blisters more often.

### ***Treatment***

Typically some combination of a special soap, an antibiotic ointment, and occasionally an oral antibiotic is prescribed.

### ***School attendance guidelines***

Students and staff do not need to be sent home in the middle of the day if a suspected *Impetigo* rash is noticed. Wash the rash area with soap and water and cover it lightly. *Those who touch the rash should wash their hands immediately.* Affected students and staff may return to school after using medicine for 24 hours. The sores should be kept lightly covered until they have dried up completely. Close contact with other children during this time should be avoided, if possible.

### ***Notification guidelines***

When *Impetigo* occurs within the school population, the school nurse and school physician shall determine, based on their medical judgment,

whether any, some or all parents and/or staff should be notified. When necessary they may consult with the Department Of Health. Prior to parent notification, it should be discussed with the school administrator.

***Stop-Spread Guidelines***

- ◆ When students suffer an injury that causes a break in the skin, wash the area *thoroughly* with soap and water and dry it carefully.
- ◆ When there is a risk of *Impetigo*, wash the rash with soap and water and cover it loosely with gauze, a bandage or clothing.
- ◆ Be sure those who touch the rash wash their hands well.
- ◆ Dispose of any soiled tissues or bandages carefully, and keep any possibly contaminated clothing in a plastic bag.
- ◆ Instruct the parents to have the student examined by their healthcare provider.
- ◆ Be alert to an outbreak. If there are any cases associated with rheumatic fever, kidney disease or toxic shock, consult with the school physician about having students and staff cultured.

## **SAMPLE LETTER TO PARENTS ABOUT IMPETIGO**

Dear Parent or Guardian:

\_\_\_\_\_ A student at our school has *Impetigo*.

\_\_\_\_\_ Your child may have been exposed to *Impetigo*.

Please take these precautions:

1. Check your child's skin for an *Impetigo* rash
2. Take your child to your healthcare provider if you suspect your child has an *Impetigo* rash so that medicine may be prescribed
3. Tell us if your child is treated for *Impetigo*
4. If your child has *Impetigo*, return her or him to the school after 24 hours of treatment has been given.

### **INFORMATION ABOUT IMPETIGO:**

#### ***What is it?***

*Impetigo* is a skin infection common in young children. It is seen mostly on the face and around the mouth but can occur any place on the skin. In *Impetigo* infections, the skin becomes red and \_\_\_\_\_ may ooze. There may be small bumps clustered together or larger red areas. These areas may have honey-colored crusts or blisters. *Impetigo* spreads quickly and is often itchy. Children may scratch the crusts off and cause a little bleeding.

#### ***What causes it?***

*Impetigo* is caused by common skin germs (such as strep and staph). These germs usually cause infection only when the skin gets injured (scraped, cut or scratched). *Impetigo* can spread easily among young children.

#### ***How is Impetigo diagnosed and treated?***

Your healthcare provider can tell you if your child has *Impetigo*. Usually it is treated with some combination of a special soap, an antibiotic ointment, and sometimes an oral antibiotic.

#### ***What should you do about Impetigo?***

Keep the *Impetigo* rash clean and dry. You may want to cover it lightly so the ooze and crusts cannot be spread to other people. People who touch the rash should wash their hands very well.

## LYME DISEASE

Several diseases are spread to people by the bite of an infected tick. Lyme disease, Babesiosis, and Erlichiosis are all bacterial infections that can be transmitted to humans by the bite of an infected deer tick. Early symptoms of Lyme disease can begin with a skin rash characterized by a large red area with a clear center. The rash, erythema migrans, often appears at or near the site of the tick bite and is commonly referred to as a “bull’s eye” rash. Sometimes multiple rash sites appear. Other symptoms are similar to those of flu: headache, fever, chills, fatigue, muscle aches, stiff neck, swollen lymph nodes and or joint pain. Symptoms generally appear from 3 days to 1 month following a tick bite. Some patients, even if untreated, will recover from Lyme disease without complications. However, approximately half of all Lyme disease patients develop a chronic form of the disease and have repeated episodes of painful swelling in the joints. Other symptoms that may develop weeks to months after a tick bite include Bell’s Palsy, heart problems, and recurrent pain and swelling of the large joints. Early diagnosis and treatment of Lyme disease is important to prevent complications that may occur in the latter stages. It is possible to get re-infected with Lyme disease. Therefore proper precautions should always be taken to prevent a tick bite.

### *Transmission*

Anyone who is bitten by an infected tick can get Lyme disease. Ticks are most commonly found in bushy, wooded, or tall grassy areas. They are not found on open sandy beaches but can be found in the brush or grass near beaches. The deer tick is very small, no larger than the size of a period on a printed page. During the deer tick’s life cycle, it may feed on an infected animal, usually a mouse. In later stages of the cycle, it clings to vegetation and is spread by direct contact to the skin of a passing animal or person. The bite of the tick can then spread the bacteria to the new host. The greatest chance of being infected is while walking barelegged through brush or tall grass from May through August. Not all ticks carry Lyme disease. Ticks come in contact with people from the tips of grass and shrubs. They then crawl from the lower parts of the body to the upper parts, they do not fly or jump. Thus, a tick bite does not necessarily mean that disease will follow, and prompt removal of a tick will lessen any chance of disease transmission. Presumptive treatment with antibiotics, after a tick bite but before symptoms develop, is not recommended.

### *Diagnosis*

Many of the symptoms of Lyme disease are similar to those of other diseases. Diagnosis of Lyme disease should take into account the following:

- ✓ History of possible exposure to ticks in areas where Lyme disease is known to occur.

- ✓ Signs and symptoms of Lyme disease.
- ✓ The results of blood tests used to detect whether the patient has antibodies to the Lyme disease bacterium.

***Treatment***

Oral antibiotic treatment is helpful early in the illness and often prevents late complications.

***Vaccine***

There is no vaccine currently available to prevent Lyme disease.

***School attendance guidelines***

There is no need to exclude either students or adults.

***Reporting requirements***

All cases of Lyme disease should be reported to the Rhode Island Department Of Health.

***Notification guidelines***

If a tick-borne disease has occurred, the school nurse and school physician shall determine, based on their medical judgment, whether any, some or all parents and/or staff should be notified. When necessary they may consult with the Department Of Health. Prior to parent notification, it should be discussed with the school administrator.

If a student is bitten by a tick during the day, remove it as outlined below. Notify the parents of that student so they can inform their healthcare provider. Tell them what the tick looked like. If the student develops the symptoms described, particularly a skin rash and/or flu-like symptoms, ask the parents to see a healthcare provider promptly for evaluation and treatment. **Always remember prevention guidelines should be practiced to avoid a tick bite.**

***Prevention Guidelines***

Schools should incorporate tick bite prevention education into the health curriculum and have policies in place to practice tick bite prevention during the summer months for all at risk activities in the school setting. School yard environments should be evaluated and managed for tick control.

- ◆ When spending time outdoors in areas where ticks are more likely to be found, wear long-sleeved shirts and long pants. Keep shirts tucked securely into pants and pant legs tucked tightly into socks. Tape the area where pants and socks meet.
- ◆ Wear sneakers or hiking boots instead of open sandals. Wear light-colored clothing (Ticks are dark in color and will be easier to see

against a light background.) Walk in the center of trails to avoid contact with overgrown grass and brush found at trail edges.

- ◆ Upon coming in from the outdoors, remove clothing and wash and dry it at high temperatures. Conduct daily tick checks. Ticks removed within 24 hours of attachment are unlikely to transmit Lyme disease. Ticks are most often found on the thigh, flank, arms, underarm, and legs, and are very small. Look for new "freckles."
- ◆ If you find a tick, remove it *immediately*. Deer ticks are very small and hard, about the size of a pinhead. They are orange red or black depending on their stage of growth, and prefer to attach themselves to a human host under the hair. Dog ticks are larger, ranging from 1/10 to 1/4 inch in length. They are brown and also prefer to attach themselves under the hair or on protected parts of the body.
- ◆ To remove attached ticks use fine tipped tweezers, grasp the tick by the mouth parts as close to the skin as possible and pull straight back with a slow steady force. Be careful to avoid crushing the tick's body. If using fingers, place a protective covering between your fingers and the tick, and wash your hands afterward. Wash the bitten area with soap and water.

Insect repellents containing DEET can be effective against ticks but should be used cautiously especially when applied to children (refer to Lyme fact sheet for percentages to be used on children). The pesticide permethrin is available as a clothing spray; it is not to be used on the skin. A combination of DEET and permethrin-treated clothes may provide the best protection against tick and mosquito bites.

***Follow these guidelines:***

- ✓ Use repellents no more than one to two times per day
- ✓ Do not treat skin under clothing.
- ✓ Particularly with children, avoid using high concentrations of DEET products.
- ✓ Never use on damaged skin.
- ✓ Avoid inhaling the product. Keep out of eyes, and do not apply to parts of children's hands that are likely to have contact with their eyes or mouth.
- ✓ After returning indoors, wash treated skin with soap and water.
- ✓ If you suspect that a child is reacting to an insect repellent, wash treated skin and call the child's doctor.

There are several other tick borne diseases that warrant mention in this section. They are Babesiosis, Ehrlichiosis, and Rocky Mountain spotted fever (RMSF).

**BABESIOSIS** is caused by a bacteria transmitted by the bite of an infected deer tick. Babesiosis is a malaria like illness characterized by

fever, chills, sweats, nausea and vomiting, fatigue, myalgia, arthralgia and jaundice caused by hemolytic anemia. Symptoms usually appear in 1-9 weeks, following the bite of an infected deer tick. More severe, prolonged illness is found in asplenic patients, in older patients and those who are immunocompromised such as persons with HIV infection. Asymptomatic infections have been known to occur. Babesiosis is not transmitted from person to person, except in rare cases through blood transfusion. This disease is treated with combination antibiotic therapy. Some patients have a mild clinical illness and recover without antibiotic therapy.

**EHRlichiosis** is a bacterial infection spread to humans through the bite of an infected deer tick. Symptoms occur 1-3 weeks after exposure to an infected deer tick. The most common symptoms are high fever, chills, muscle aches, weakness and severe headache. Patients may also experience nausea and vomiting, joint pain and confusion. Infection usually produces mild to moderately severe illness, but may occasionally be life-threatening or even fatal. Appearance of a rash is present in only about 40% of cases. There is no evidence that ehrlichiosis is transmitted from person to person. Early diagnosis is important. Ehrlichiosis is treated with antibiotics.

**ROCKY MOUNTAIN SPOTTED FEVER (RMSF)** is carried by the large and more readily seen dog tick. Persons at increased risk for acquiring the organism that produces RMSF are those with occupational or recreational exposure such as pet owners, animal handlers, and outdoor persons. RMSF is caused by an intracellular pathogen called *Rickettsia rickettsii*. Symptoms occur within 2-14 days following a tick bite. They include a characteristic onset of rash which first appears on the wrists and ankles, spreading to other parts of the body. Other symptoms include high fever, chills, nausea and vomiting, severe headache, myalgia, anorexia and confusion. RMSF is not transmitted person to person. Early diagnosis and treatment with antibiotics can reduce the risk of fatality in persons with this disease.

***Reporting requirements***

All cases of Babesiosis, Ehrlichiosis and RMSF should be reported to the Rhode Island Department Of Health.

***Prevention Guidelines***

Follow guidelines as they are listed for Lyme disease.

## MEASLES

*Measles* is the most communicable viral illness and one of the most serious of the common childhood diseases. Usually it causes a brownish-red blotchy rash, which begins on the face and spreads down the body over 3 days, accompanied by high fever, cough, runny nose, and watery eyes. The illness lasts 1 to 2 weeks and can be complicated by ear infections, pneumonia, or encephalitis (inflammation of the brain). It can also cause miscarriages or premature delivery in pregnant women.

### ***Transmission***

All people are at risk for *Measles*, but those most at risk are generally limited to four groups: (1) children less than 15 months of age (those who are too young to have been immunized), (2) un-immunized preschoolers, (3) those refusing vaccination, and (4) adolescents and young adults who many have received an earlier ineffective *Measles* vaccine prior to 1968 or who are unimmunized because they graduated from school prior to mandatory *Measles* vaccination. Adults born prior to 1957 are generally considered immune. The groups most at risk for complications are infants less than 12 months of age, pregnant women, and individuals with weakened immune systems.

*Measles* is spread by large, infected droplets or direct contact with the nasal or throat fluids of infected individuals. It is also airborne and can be spread by inhaling air that has tiny infectious droplets from sneezes and coughs. *Measles* can be acquired by entering a room where an infectious individual has been for up to 1½ hours after that person has left the room. The communicable period is greatest 4 days before and 4 days after rash onset.

### ***Diagnosis***

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

### ***School attendance guidelines***

A student or staff member with *Measles* should not return until at least 4 days after the appearance of the rash. If there is one case of *Measles*, susceptibles must be excluded from days 5 through 19 after exposure to the case during its infectious period. After exposure, “susceptible” means all those born after 1956 without documentation of at least two doses of vaccine, with the *second* dose having been administered within 72 hours of exposure. Immunization within this time period often prevents disease. If there are multiple cases, exclude all susceptible children and adults for 14 days after exposure to the last case during its infectious period or after

the date of rash onset of the last case. ***Measles is one of the few diseases that can be prevented through prompt immunization after exposure.*** If a case is reported or suspected, all susceptible students and staff who are without contraindication to vaccine should be immunized *within 72 hours* of exposure.

Immune globulin (IG), if given within 6 days of exposure, may decrease the severity of illness and should be offered to all those under 12 months of age, pregnant women, individuals who have weakened immune systems, or those with other contraindications to the vaccine. *Those who receive IG can still become infectious and should be excluded for 14 days after exposure.*

***Reporting requirements***

A case of *Measles* must be reported immediately on the day of recognition or strong suspicion of disease. Laboratory confirmation is not required prior to the reporting of *Measles*.

***Notification guidelines***

When *Measles* occurs within the school population, the school nurse and school physician shall determine, based on their medical judgment, whether any, some or all parents and/or staff should be notified. When necessary they may consult with the Department Of Health, Immunization program. Prior to parent notification, it should be discussed with the school administrator.

## MENINGOCOCCAL ILLNESSES

Bacteria called *Neisseria meningitides* can cause meningococcal illnesses that are serious and sometimes fatal. The most common of these illnesses is *meningitis*, an inflammation of the covering of the brain. People with this type of meningitis *must* be hospitalized immediately and receive intravenous antibiotics. The disease usually starts suddenly with fever, chills, lethargy and a rash of fine red freckles or purple splotches. Older children and adults may experience severe headache, neck pain and stiffness.

### ***Transmission***

Although children younger than age 6 months are often most affected, older children and adolescents are the next most commonly affected group. Adults can become ill as well. The bacteria are passed between people by direct contact of secretions. Bacteria can be spread by sharing: eating utensils, drinking cups, water bottles and by kissing. Although household contacts are the highest risk of contracting this illness, others sharing these exposures are at risk as well.

Many people can be carriers and have these bacteria normally in their nasal passages, throats or mouths without symptoms of illness. Both sick people and carriers can pass the germs to others. These bacteria, however, cannot live on environmental surfaces. Usually illness occurs 1 to 4 days after a person has been exposed, although incubation can take up to 10 days. If one infection occurs at a school, this may indicate that there may be more than the usual number of carriers, and the risk of disease spread is, therefore, greatly increased. Individuals remain infectious for approximately 24 hours after beginning effective antibiotics.

### ***Diagnosis***

Individuals showing signs and symptoms of this disease are diagnosed by obtaining cultures from their blood or spinal fluid. It may take up to 72 hours to grow and identify the bacteria. Sometimes a doctor can make an earlier diagnosis by looking at a person's spinal fluid under a microscope.

### ***Treatment***

Individuals with these infections require hospitalization for special care and a closely supervised program of antibiotics. Sick people *and* anyone they have had close contact with (e.g., household members and friends sharing eating and drinking utensils, such as water bottles, or kissing) *in the 10 days prior to their onset* of symptoms should also take an oral antibiotic (in most cases this medicine will be rifampin) to decrease the risk of the spread of the disease to others. Preventive treatment of all close contacts should be implemented up to the first 2 weeks after onset of the first case but preferably *as soon as possible within the first 24 hours*.

If only one case occurs in a classroom, prescribing antibiotic treatment for the entire classroom is not currently recommended unless the members meet the definition of “close contact.” However, if more than one case should occur in a school or classroom, after consultation with the Department Of Health, the recommendation on who should receive preventive treatment with antibiotics, e.g., rifampin, might be expanded.

***Note:** Exposed pregnant women and individuals with liver disease should consult with their healthcare provider to determine which preventive antibiotic is safest for them.*

### ***School attendance guidelines***

Individuals with meningococcal disease are too ill to attend school. They may return when they are well (after hospital treatment) and after they have taken rifampin or other effective prescribed antibiotic for 2 days. All individuals who have been determined to be a close contact with a person who has meningococcal disease should not return to school until their treatment with antibiotics is started. If antibiotics are not taken, contacts should be excluded for 1 week after onset of last case.

### ***Reporting requirements***

A case of meningococcal illness must be reported immediately to the Department Of Health, Office of Communicable Diseases on the day of recognition or strong suspicion of disease. Laboratory confirmation is not required prior to reporting a case of meningococcal disease.

### ***Notification guidelines***

When a meningococcal illness occurs in the school population, the school nurse and school physician shall determine, based on their medical judgment, whether any, some or all parents and/or staff should be notified. When necessary they may consult with the Department Of Health. Prior to parent notification, it should be discussed with the school administrator.

Due to the seriousness of this illness, there is often a great deal of concern among parents and the community. Providing information about the number of cases, the symptoms, and recommended precautions often allays community concern.

The Rhode Island Department Of Health has developed the a policy for the use of meningococcal vaccine. [See page 172 for ACIP recommendations.](#)

**Surveillance:** It is essential to monitor the incidence of invasive meningococcal disease in Rhode Island. The Department Of Health will work closely with physicians, emergency rooms, urgent care centers, and laboratories to continue active surveillance. We encourage physicians to obtain

appropriate cultures prior to initiating antibiotic therapy when meningococcus is suspected, to report positive cultures and suspected cases to the Department Of Health and to verify the immunization status of any suspected case.

***Stop-spread guidelines***

- ◆ The best way to prevent spread of meningococcal disease is to alert the appropriate individuals that a case has occurred so that appropriate preventive treatment can begin for close contacts.
- ◆ Instruct exposed staff and the parents of exposed students to contact their healthcare providers immediately.
- ◆ Anyone having had *close contact* with the ill person (e.g., household members and friends sharing eating and drinking utensils, sharing water bottles, or kissing) *in the 2 weeks prior to the onset of symptoms* should take antibiotics, e.g., rifampin, per licensed prescriber's order, to lower the risk of the spread of the disease to others.
- ◆ This treatment of all close contacts should be done within the first few days of diagnosis of the first case, but preferably *e within the first 24 hours*. Deciding who is a close contact can be established by consulting with the school nurse, school physician, and/or the Health Department.
- ◆ Inform parents and staff that antibiotics do *not* provide absolute protection against disease. *Therefore, any student or adult who develops symptoms such as fever or headache* requires prompt evaluation by a healthcare provider.
- ◆ Be vigilant for the next 2 to 4 weeks. Make sure all ill students and staff are seen by their doctors and that the school is notified if another person develops meningococcal disease.

**SAMPLE GENERAL LETTER TO PARENTS ABOUT MENINGOCOCCAL  
ILLNESSES**

Dear Parent or Guardian:

A student or staff member in our school has a serious meningoccal illness caused by bacteria named *Neisseria meningitidis*. Although children younger than 5 are most often affected, older children and adolescents are the next group most commonly affected. Adults can become ill as well. The bacteria can be spread between persons who are in close physical contact through exchange of saliva, kissing, or the sharing of eating and drinking utensils such as drinking cups and water bottles. While household contacts are at the highest risk of contracting this illness, others sharing the above exposures are at risk as well.

There are medications that can be taken to reduce the risk of infection. These medicines can help eliminate the bacteria from someone else who has been exposed. However, at this time, only people who are considered to be close contacts of the ill person need to take this medication. Those individuals will be required to receive this medication before returning to school.

Many people can carry the *Neisseria meningitidis* bacteria in their nose, throat, and mouth without getting sick. In most cases, carriage of the organism does not pose a danger. However, both sick people and carriers can pass these germs to others. The time from exposure to illness can be from 1 to 10 days, but is usually 1 to 4 days.

Your child is not believed to be a close contact of the ill person. If you feel, however, that your son or daughter has shared any of the exposures outlined above with the ill person in the 10 days previous to their becoming ill, please notify your healthcare provider or the school health office. In either case, watch your child for signs and symptoms of illness such as headache, stiff neck, fever, or vomiting for the next 3 weeks. If your child becomes ill, take him or her to a doctor immediately. *Neisseria meningitidis* can cause meningitis, an infection of the coverings of the brain, that is often fatal if not treated with antibiotics. Symptoms of meningitis include headache, stiff neck, fever and chills, vomiting, and occasionally a skin rash with fine red "freckles" or purple splotches.

Remember that our school will be very watchful during the next 3 weeks. We will notify you if anyone else becomes ill or if our recommendations change. If you have any questions or concerns about your child, contact your physician or the school health office.

**SAMPLE LETTER TO PARENTS OF CLOSE CONTACTS ABOUT  
MENINGOCOCCAL ILLNESSES**

Dear Parent or Guardian:

A student or staff member in our school has a serious illness caused by bacteria named *Neisseria meningitides*. The bacteria can spread between persons who are in close physical contact with exchange of saliva, for example, kissing and the sharing of eating and drinking utensils such as drinking cups and **water bottles**. There are medications that can be taken to reduce the risk of infection. However, only people who are considered to be close contacts of the ill person need to take preventative medication.

**We feel that your child has had close contact with the ill person. Please take the following steps:**

1. Tell your healthcare provider that your child was exposed to another student or staff member who has come down with a meningococcal illness. Bring this letter to discuss the fact that your child is being considered to have had close contact with the ill person (e.g., close enough to have shared eating or drinking utensils such as water bottles or drinking cups or to have been kissing) in the 10 days prior to their becoming ill.
2. As a close contact of the ill person, our health consultant recommends that your child take an antibiotic. This preventative treatment can help eliminate the bacteria from the person who has been exposed.
3. **Because your child is a close contact, he or she may not return to school until preventive antibiotic treatment has been started.**
4. Watch your child for signs and symptoms of illness such as headache, stiff neck, fever, and vomiting for the next 3 weeks. If your child becomes ill, take her or him to a doctor immediately, whether or not antibiotics were given. The medicine is not always 100% effective. *Neisseria meningitides* can cause meningitis, an infection of the coverings of the brain that is often fatal if not treated with antibiotics. Symptoms of meningitis include headache, stiff neck, fever and chills, vomiting, and a rash.

Our school will be very watchful during the next 3 weeks. We will notify you if anyone else becomes ill.

## MONONUCLEOSIS

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

### ***Transmission***

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

### ***Diagnosis***

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

### ***Treatment***

More than 95% of patients will recover without any treatment. Individuals with this disease can be as active as they feel they are able. Contact sports or heavy lifting should be avoided during the first 2 or 3 weeks of illness.

### ***School attendance guidelines***

Since the spread of the virus requires close contact, there is no need to exclude students or adults with this disease as long as they are feeling well. Proper hand washing measures should be in place to help prevent spread.

## MUMPS

*Mumps* is a viral infection that causes fever, headache, and swelling and tenderness of the salivary glands, particularly the gland at the angle of the jaw, causing the cheeks to swell. Possible complications include meningitis (inflammation of the coverings of the brain and spinal cord), encephalitis (inflammation of the brain), deafness, and, particularly in adolescent or adult males, inflammation of the testicles. There is no firm evidence to suggest that mumps during pregnancy causes congenital malformations. Yet, some evidence suggests that mumps infection during the first trimester of pregnancy may increase the rate of spontaneous abortion.

### ***Transmission***

Most adults born before 1957 have been infected naturally and are probably immune. *Mumps* may be seen in un-immunized children or adolescents and young adults who graduated from school prior to laws requiring *Mumps* immunizations or may have received an earlier, less effective vaccine. At risk for complications are children under the age of 12 months, pregnant women, persons who have weakened immune systems, and susceptible adolescents and adult males.

The *Mumps* virus is found most often in saliva. It is transmitted by direct contact or by droplet spread of the virus in the air through sneezes or coughs. The virus may also be found in urine. *Mumps* is most infectious 48 hours *prior* to the onset of symptoms and may be communicable for as long as 6 days before swelling (parotitis) and up to 9 days after swelling.

### ***Diagnosis***

The illness can be presumptively diagnosed by the signs and symptoms. However, it *must* be confirmed by a blood test to look for antibodies that are evidence of recent infection.

### ***School attendance guidelines***

Exclude a student or staff member until 9 days after the onset of swelling, or until the swelling has subsided, whichever is sooner. However, unlike *Measles*, prompt immunization after exposure will not prevent disease. If there is only one case of *Mumps*, all susceptibles, including those just immunized, should be excluded from days 12 through 26 after exposure to the case during its infectious period. If multiple cases occur, susceptibles must be excluded for 21 days after the last case.

### ***Reporting requirements***

A case of *Mumps* must be reported immediately on the day of recognition or strong suspicion of disease. Laboratory confirmation is not required prior to the reporting of *Mumps*.

***Notification guidelines***

When *Mumps* occurs within the school population, the school nurse and school physician shall determine, based on their medical judgment, whether any, some or all parents and/or staff should be notified. When necessary they may consult with the Department Of Health, Immunization program. Prior to parent notification, it should be discussed with the school administrator.

## OTITIS MEDIA (MIDDLE EAR INFECTION)

*Otitis media* is an infection of the part of the ear behind the eardrum. There is a small passageway (the eustachian tube) from inside the throat to the middle ear. Bacteria and/or viruses can travel from the throat area through the eustachian tube to the middle ear and cause an infection. When infection occurs, pus develops, pushes on the eardrum, and causes pain and often fever. Sometimes the pressure is so great that the eardrum bursts, and the pus drains out into the ear canal. Although, this can frighten a parent, the child feels better, and the hole in the eardrum will heal.

Untreated ear infections can spread to the mastoid bone just behind the middle ear and cause mastoiditis. Before antibiotics were available for treatment, mastoiditis was a serious problem. Today the biggest problem from *otitis media* is the potential for hearing loss. Fluid may remain in an ear for as long as 6 months after an infection is gone, a condition called *serous otitis media*.

### ***Transmission***

Middle ear infections are common in children between the ages of 1 month and 6 years and most common before age 3 years. Some children develop ear infections a few days after a cold starts. Some children have one infection after another; others never have any. The tendency to have infections typically runs in families. The bacteria and viruses that cause *otitis media* start out in the throat. About half of the cases of otitis are bacterial and about half viral. It is impossible to tell which germ is causing the infection without inserting a sterile needle through the eardrum, pulling out some of the pus or fluid, and culturing it. This is somewhat difficult and done only for special reasons. In general, all middle ear infections are treated with antibiotics as if they were bacterial.

### ***School attendance guidelines***

Because ear infections themselves are not contagious, there is no reason to exclude students. **Special care notes for students with frequent ear infections:**

- ◆ Never use cotton swabs and never put anything smaller than a finger into a child's ear. Do not allow the child to do so either.
- ◆ Be especially alert for any sign of hearing or speech problems. Refer the child to the family's healthcare provider or other community resources.

### **Special care notes for students with ear tubes:**

- ◆ An ear tube creates a hole in the eardrum so fluid and pus may drain out and fluid will not build up. It usually stays in for 3 to 6 months.

- ◆ Since pus can drain out, water from the outside (that has germs in it) can also run into the middle ear easily. Therefore, students with tubes must be very careful not to get water in their ears. This usually means no swimming unless there are special earplugs provided and permission to swim obtained from the primary care provider.
- ◆ Watch for any sign of hearing or speech problems.

## **PEDICULOSIS (HEAD LICE)**

*Head lice* are tiny insects that live only on people's scalps and hair. Head lice hatch from small eggs, called nits, that are firmly attached to individual hairs near the scalp and cannot be easily moved up or down the hair (as could specks of dandruff). Nits may be found throughout the hair but are most often located at the back of the scalp, behind the ears, and at the top of the head. Eggs hatch in about 10 days, with new lice reaching adulthood in about 2 weeks. The female louse, about the size of a sesame seed, typically lives for 20 to 30 days and lays about 6 eggs a day. Lice can survive up to 8 hours between feeding and can survive off the body, although generally not for more than 48 hours.

The major symptom of head lice is itching caused by the bite of the louse. Persistent scratching of the head and back of the neck should be cause for concern. Red bite marks and scratch marks may be observed on the scalp and neck, and a secondary bacterial infection can occur, causing oozing or crusting. Swollen neck glands may also develop.

### ***Transmission***

Head lice should not be considered a sign of unclean individuals or homes. They may affect individuals of any age or sex. Anyone who has close contact with an infested individual or shares personal items can become infested. Lice are spread *only* when they crawl from person to person directly or crawl onto shared personal items, such as combs, brushes, head coverings, clothing, bedding, or towels. An infested individual can transmit head lice to others continuously until undergoing treatment to kill the insects and eggs.

### ***Diagnosis***

Diagnosis is usually made by detecting nits, tiny pearl-gray, oval-shaped specks attached to the hair near the scalp. Use a magnifying glass and natural light when searching for them on the hair at the back of the neck, behind the ears, and at the top of the head.

### ***Treatment***

Treatment consists of getting rid of the lice from infested individuals, their surroundings, and their personal items. All household members and individuals with close personal contact should be examined for lice and treated with one of the recommended shampoos or hair rinses. Pyrethrin products, which are now sold over-the-counter, are often recommended. Some healthcare providers may routinely recommend simultaneous treatment of the members of a household.

***For individuals suspected of having head lice:***

1. Refer them to their healthcare provider for proper diagnosis and treatment. *Medications should be used very carefully. A physician must be consulted before treating infants, pregnant or nursing women, or people with extensive cuts or scratches on the head or neck.*
2. Treatment includes shampooing or rinsing the hair with medicine.
3. After appropriate treatment, removal of nits is not necessary to prevent spread. Sometimes, removal is desired for aesthetic reasons. This is a difficult and time-consuming process because nits typically have a firm grip on the hair. A solution of vinegar and water may help loosen nits so they can be removed more easily with a special, fine-toothed, nit-removal comb.
4. Check for nits daily for the next 10 days. If new nits or newly hatched lice appear, treatment may need to be repeated. *Treatment is typically repeated in 10 days to kill newly hatched lice even when an ovicidal preparation is used.*

***To Treat Personal Items and Surroundings in the School Environment:***

1. Machine wash all washable and possibly infested items in *hot* water. Dry them in a *hot* dryer.
2. Put non-washable items (furry toys, pillows) in a hot dryer for 20 minutes or dry clean them.
3. Place items that cannot be washed or dried in a tightly sealed plastic bag for 10 days (the life cycle of a louse).
4. Soak combs and brushes for 10 minutes, or wash them with a shampoo approved to kill lice.
5. Thoroughly vacuum rugs, upholstered furniture, and mattresses.
6. Do not use insecticide sprays in an attempt to stop the spread because they can be harmful to people and animals.

***School attendance guidelines***

Individuals found to have an active case of head lice should be treated immediately. Notify parents that the student may not return to school until treated. Other close contacts should be checked to determine if there are other cases. (see Head Lice – Principles that should Guide School Policies in Rules & Regulations section of this manual).

Removal of nits is difficult and the majority of nits will be killed by the appropriate treatment. “No Nit” policies have not been demonstrated to be effective in controlling head lice. However, the school, in consultation with the school nurse and/or physician, should decide on the best policy for the school and the parents.

***Notification guidelines***

When *Pediculosis* occurs within the school population, the school nurse and school physician shall determine, based on their medical judgment,

whether any, some or all parents and/or staff should be notified. When necessary they may consult with the Department Of Health. Prior to parent notification, it should be discussed with the school administrator.

***Stop-Spread Guidelines:***

- ◆ Teach parents to recognize nits and to check family's hair periodically. Because outbreaks of head lice occur periodically in almost all schools and because parental concern may exceed the threat of head lice to health, this is a prime area for preventive education and information.
- ◆ A well-organized and prompt response to the first few cases prevents a widespread problem and avoids the spread of misinformation.
- ◆ If a case is identified, follow recommended treatment procedures closely. If a parent finds nits, it should be reported to the school nurse who can check contacts.

## **SAMPLE LETTER TO PARENTS ABOUT HEAD LICE**

Dear parent or guardian:

\_\_\_\_\_ A student in our school has head lice.

\_\_\_\_\_ Your child may have been exposed to head lice.

Please do not be alarmed, as this is a common occurrence in schools. Head lice are not a sign of unclean people or homes.

Please take these precautions:

1. Check your child's hair for eggs (also called nits).
2. If you suspect your child has head lice, ask your healthcare provider to diagnose the problem and recommend appropriate treatment.
3. Tell us if your child is diagnosed as having head lice.
4. If head lice are diagnosed, do not return your child to school until she or he has been treated.

### **INFORMATION ABOUT HEAD LICE:**

#### ***What are they?***

*Head lice* are tiny insects that live only on people's scalp and hair. They hatch from small eggs (nits) that are firmly attached to the individual hairs near the scalp and cannot be easily moved up or down the hair (as can specks of dandruff). They look like grains of sand. Nits may be found throughout the hair but are most often located at the back of the scalp, behind the ears, and at the top of the head. The eggs hatch in about 10 days, with new lice reaching adulthood in about 2 weeks. The female louse, about the size of a sesame seed, can live for 20 to 30 days and can lay about six eggs a day. The lice live by biting and sucking blood from the scalp. Lice can survive up to 8 hours between feedings and can do so off the body. Until a person with head lice is treated they can transmit them to others.

#### ***How should you check for head lice?***

You probably will not see the lice, only the eggs. These are tiny, pearl-gray, oval shaped specks attached to the hair near the scalp. Look carefully, using a magnifying glass and natural light. Search for nits at the back of the neck, behind the ears and at the top of the head.

#### ***How does a person get head lice?***

Anyone who has close contact with an infested person or shares personal items can become infested. Lice are spread only by crawling from person to person directly or onto shared personal items, such as combs, brushes, head coverings, clothing, bedding or towels.

***What should you do about head lice?***

If your child does have head lice, your healthcare provider may want to treat every one in your family. Everyone should be checked and anyone with nits should definitely be treated.

### TO GET RID OF HEAD LICE

1. Use a medicine that your healthcare provider prescribes or recommends. Use any of these products very carefully and consult a physician before treating infants, pregnant or nursing women, or people with extensive cuts or scratches on the head or neck.
2. After appropriate treatment, removal of nits is not necessary to prevent spread, although sometimes removal is done for aesthetic reasons. Removal is a difficult and time-consuming process because nits have such a firm grip on the hair. A solution of vinegar and water may help loosen nits so you can remove them with a special, fine-toothed, nit-removal comb.
3. Check for nits daily for the next 10-14 days. Then repeat the treatment to kill any newly hatched lice.
4. Clean personal items and surroundings:
  - ✓ Machine wash all washable and possibly infested items in **hot** water. Dry them in a **hot** dryer.
  - ✓ Put non-washable items (furry toys or pillows) in a **hot** dryer for 20 minutes or dry clean them.
  - ✓ Seal items that cannot be washed or dried in a plastic bag for 10 days (any eggs or lice present will die in this time.)
  - ✓ Soak combs and brushes for 10 minutes, or wash them with a shampoo approved to kill lice.
  - ✓ Thoroughly vacuum rugs, upholstered furniture, and mattresses.
  - ✓ Do not use insecticide sprays because they can be harmful to people and animals.

#### *When can your child return?*

Your child may come back as soon as the shampoo has been used, you have removed as many nits as possible from your child's hair, and you have cleaned or stored personal items. Remember that you must keep checking your child's hair for new nits for at least 2 weeks. **(N.B.: Insert your school's policy on return if different from this statement.)**

## **PERTUSSIS (WHOOPIING COUGH)**

*Pertussis* is a very contagious bacterial infection of the respiratory tract. The disease begins with cold symptoms, and over 1 to 2 weeks develops into repeated attacks of severe coughing that can last 1 to 2 months. The classic “whoop” sound (which gets its name from the sound a person makes when she or he tries to draw a breath after a coughing spell) may not occur, especially in young infants, adolescents, and adults. During the severe coughing stage, seizures or even death can occur, particularly in young infants, due to lack of oxygen supply. In school-aged children and adults, *Pertussis* is less serious and resembles chronic bronchitis. The whoop is usually absent. The cough may be worse at night or may be associated with paroxysms or vomiting after coughing.

Antibiotic treatment will reduce the infectiousness of an ill person but may not improve symptoms once a person has developed a severe cough. However, antibiotics are crucial in making people noninfectious and preventing illness in contacts.

### ***Transmission***

The bacteria are spread by direct contact with discharge from the nose or throat of an infected person or by breathing in infected droplets in the air when an infected person coughs. The period of greatest risk of spread is the early “cold” stages and during the first 1 to 2 weeks of the “cough” stage.

### ***Diagnosis***

The illness can be presumptively diagnosed by signs and symptoms. It should be confirmed by a culture or special smear taken from the back of the person’s nose or by a blood test.

### ***School attendance guidelines***

Exclude a student or staff member until 3 weeks after the onset of cough or 5 days after the starting of appropriate antibiotic therapy. Make sure that individuals who have direct contact with a case of *Pertussis* receive antibiotic treatment to prevent the development or spread of the disease. Exclude anyone who refuses antibiotics for 21 days after exposure or 21 days after the last case has been reported.

### ***Reporting requirements***

A case of *Pertussis* must be reported immediately on the day of recognition or strong suspicion of disease. Laboratory confirmation is not required prior to the reporting of *Pertussis*.

### ***Notification guidelines***

When *Pertussis* occurs within the school population, the school nurse and

school physician shall determine, based on their medical judgment, whether any, some or all parents and/or staff should be notified. When necessary they may consult with the Department Of Health, Immunization program. Prior to parent notification, it should be discussed with the school administrator.

## **PINWORMS**

*Pinworms* are tiny worms that infect humans (but not animals) and live in the lower intestine. Female worms (resembling short, white threads less than ½ inch long) come out through the anus at night and lay their microscopic eggs around the opening. In some cases, this causes intense itching. Contrary to commonly held beliefs, pinworms do not cause teeth grinding or bed-wetting and are not dangerous, just irritating.

### ***Transmission***

It is estimated that 5 to 15% of individuals in the United States have pinworms. Members of an infected person's household can be infected and re-infect a treated individual. When children or adults scratch their irritation, microscopic pinworm eggs may be transferred to someone else's mouth or food via the fingers. Eggs may be ingested that will hatch into worms in the intestines. Individuals may be re-infected by ingesting eggs on their own hands. Pinworms can be indirectly spread through contact with clothing or bedding that has been contaminated with eggs. The period of infectivity lasts as long as eggs are being discharged around the anus. Eggs remain infective in an indoor environment for 2 to 3 weeks.

### ***Diagnosis***

The worms crawl out at night to lay their eggs while the child lies still and sleeps. The easiest way to find them is to inspect a 1 inch circular area around the child's anus about 1 hour after the child has gone to sleep. By spreading the buttocks and looking with a flashlight, a parent can see the worms crawling toward the opening of the anus. A healthcare provider can make the diagnosis by having the parent apply the sticky side of transparent tape around the anal area so eggs will stick to it. The best time is upon awakening in the morning, before bathing. The tape is then placed sticky side down on a slide and examined under a microscope.

### ***Treatment***

Several medications are available for treatment of this infection. Often the healthcare provider will treat the whole family if one person in the home is infected and may repeat treatment 2 weeks later.

### ***School attendance guidelines***

Students and adults do not need to be excluded from school.

### ***Notification guidelines***

When pinworm infection occurs within the school population, the school nurse and school physician shall determine, based on their medical judgment, whether any, some or all parents and/or staff should be notified. When necessary they may consult with the Department Of Health. Prior to parent notification, it should be discussed with the school administrator.

***Stop-spread guidelines***

Follow hand washing and cleanliness procedures. Careful attention to good hygiene, hand washing, and environmental cleaning and sanitation is very important in reducing spread.

## **PLAGUE**

Plague is an infectious disease caused by the bacterium *Yersinia pestis*. The only reported cases have been in the western United States. Symptoms of lung infection with plague include fever, weakness, fast developing pneumonia, shortness of breath, chest pain, cough, and bloody or watery sputum. Without early treatment symptoms may also be respiratory failure, shock and rapid death.

### ***Transmission***

Plague is transmitted to humans from rodent or fleabites, or close contact with an infected animal. It is also possible to produce plague in an aerosol form to be purposely released and inhaled.

### ***Diagnosis***

Initial diagnosis is conducted by a healthcare evaluation. It is possible to test blood, sputum, lymph node aspirates in the lab. Preliminary results should be available within two hours with confirmatory results within two days.

### ***Prevention and Treatment***

Plague has a high mortality but can be prevented effectively by administering antibiotics such as Doxycycline or Cipro as soon after exposure as possible.. Treatment of plague involves hospitalization, intensive care and parenteral antibiotics.

### ***School Attendance Guidelines***

Since plague is communicable through respiratory droplets, children and adults should not return to school until well. The Department of Health will make recommendations on what a school would need to do in such a situation.

### ***Reporting Requirements***

All cases of plague must be reported to the Department of Health within four days of recognition or strong suspicion of disease.

### ***Notification Guidelines***

If there is plague within the school population, the school nurse and school physician shall determine, based on their medical judgment, whether any, some or all parents and/or staff should be notified. When necessary they may consult with the Department of Health. Prior to parent notification, it should be discussed with the school administrator.

## **POLIO**

*Polio* is an illness caused by a virus. It ranges in severity from a mild, unnoticed febrile illness to meningitis (inflammation of the coverings of the brain and spinal cord) to paralysis or even death.

### ***Transmission***

Today, *Polio* cases occur mainly among un-immunized individuals or those with weakened immune systems in contact with another individual who is receiving oral *Polio* vaccine. It also occurs among un-immunized persons and members of groups that refuse immunization after traveling to countries where *Polio* is still common.

The virus is spread by eating food or drinking water contaminated by the virus and direct contact with infected stool and throat secretions (phlegm, mucus). Persons are most infectious during the first few days before and after the onset of symptoms. However, the virus can be shed in the stool for up to 8 weeks.

### ***School attendance guidelines***

Individuals with *Polio* are infectious for up to 8 weeks. Those with weakened immune systems may excrete the virus for a longer period. Due to the seriousness of this disease, it is unlikely they will return before then. Persons exposed to *Polio* should get a booster if it has been 10 years since their last dose of live oral Poliovirus vaccine (OPV) or enhanced inactivated *Polio* vaccine (EIPV) or 5 years since their last dose of inactivated poliovirus vaccine (IPV). If they have never been immunized, a vaccination series should be initiated. See ACIP guidelines.

### ***Reporting requirements***

A case of *Polio* must be reported immediately on the day of recognition or strong suspicion of disease. Laboratory confirmation is not required prior to the reporting of *Polio*.

### ***Notification guidelines***

When *Polio* occurs within the school population, the school nurse and school physician shall determine, based on their medical judgment, whether any, some or all parents and/or staff should be notified. When necessary they may consult with the Department Of Health, Immunization program. Prior to parent notification, it should be discussed with the school administrator.

## Q FEVER

Q Fever is a zoonotic disease caused by the bacteria *Coxiella burnetii*. Animals like cattle, sheep, and goats are the primary reservoirs of the disease. *Burnetii* organisms found to be secreted in the milk, urine, and feces of infected animals and are also shed in large numbers in the amniotic fluid of the placenta. These organisms are resistant to heat, drying and disinfectants and can therefore survive for long periods of time in various environments. There are two types of Q Fever: Phase I (highly infectious) and Phase II (not infectious).

Symptoms of Q Fever include the following: high fever (104-105°F) for 1-2 weeks, severe headache, muscle pain, general bodily discomfort, confusion, sore throat, chills, sweats, non-productive cough, nausea, vomiting, diarrhea, abdominal pain, or chest pain. About 30-50% of cases will contract pneumonia. Also, those with Q Fever will have abnormal results on liver function tests. Q Fever can accelerate from the acute stage to a chronic state if there is infection for more than 6 months. Chronic Q Fever may develop very soon or very long afterwards.

### ***Transmission***

Q Fever is transmitted by inhalation of organisms from air contaminated by infected animals. The air might contain barnyard dust with dried placental material, birth fluids or the excretions of the infected animals. It is also transmitted through the ingestion of contaminated milk products. In rare cases the disease is transmitted by tick bites. Human to human transmission is extremely rare.

### ***Diagnosis***

Since Q Fever has symptoms similar to a variety of ailments, it is necessary to perform both suggestive and confirmatory tests. One suggestive test would be a platelet count because those with Q Fever often have low platelet counts. Confirmatory tests include a serologic test to detect the presence of antibodies and what kind and how many there are. Another method, the indirect immunofluorescence assay (IFA) method that labels serum with a compound that glows green. Finally, an immunohistochemical staining will trace the organism by labeling the antibodies with a colored deposit. High Phase I antibodies indicate that the case is chronic.

### ***Treatment***

Within the first three days of illness, antibiotics like doxycycline and quinolones are most effective. Doxycycline is administered orally two times a day for 15-21 days. For chronic Q Fever, a combination of doxycycline and quinolones are administered for 4 years followed by hydroxychloroquine for 1.5-3 years.

***Prevention***

If an animal is infected, it is possible to prevent disease in humans. Q Fever is best prevented by education of the public about the sources of infection. It is crucial that placenta, birth products and fetal membranes of sheep and goats be properly disposed. Also, restrict access to places that house infected animals. Imported animals should be quarantined and holding areas should be far away from humans. Use only pasteurized milk products. Use proper procedure for bagging, autoclaving, and washing of lab clothes. Finally, airflow to humans around infected animals should be tightly controlled.

***School Attendance Guidelines***

Since Q Fever is not known to spread through any human-to-human contact, there is no need to exclude students or adults with this disease as long as they are feeling well.

***Reporting Guidelines***

All cases of Q Fever should be reported to the Department of Health within four days of recognition or strong suspicion of disease.

***Notification Guidelines***

When Q Fever occurs within the school population, the school nurse and school physician shall determine, based on their medical judgment, whether any, some or all parents and/or staff should be notified. When necessary they may consult with the Department of Health. Prior to parent notification, it should be discussed with the school administrator.

## RABIES

*Rabies* is a viral illness of the central nervous system (brain and spinal cord) that is almost always fatal. It can affect any mammal, including humans. Animals with *rabies* often behave strangely after the virus attacks their brains. Rabid animals may attack people or other animals for no real reason, or they may lose their fear of people and seem to be unnaturally friendly. Not all rabid animals act this way; some may act normally.

### ***Transmission***

All mammals, including humans, can get *rabies*. Worldwide, there are over 20,000 human deaths per year from *rabies*. In Rhode Island, as in all other areas with *rabies*, the risk to children is of special concern because children are bitten more frequently by animals and may not be reliable reporters of their own experience.

Although, there are only a few human deaths from *rabies* in this country, the risk of exposure to *rabies* is increasing with the spread of *rabies* in wildlife. At present, there are major outbreaks in the United States among skunks, foxes, bats, and raccoons. An outbreak of *rabies* in raccoons spread into Rhode Island in 1994 and has been documented in most towns and cities across the state.

Raccoons and bats are the species most commonly affected by *rabies* in Rhode Island; however, *rabies* does spill over into other wild and domestic animals such as skunks, foxes, and woodchucks. Cats, dogs, bats and livestock also get *rabies* and can spread it to people if these animals do not have special shots (with the exception of bats) to protect them. Free-roaming dogs and cats have a high risk of encountering rabid raccoons. *Rabies* is very rare among small rodents like squirrels, rats, mice, and chipmunks. Birds, fish, snakes, lizards, turtles, and insects cannot spread *rabies*.

The *rabies* virus lives in saliva and other tissues of infected animals and is spread when the infected animal bites or scratches another animal or human. The virus can be spread if saliva or infected tissues touch broken skin or mucous membrane (lining the mouth, nose or eyes). *Rabies* is not spread through the air.

### ***Diagnosis***

*Rabies* is diagnosed in animals through testing a sample of brain tissue after they are dead. In humans suspected of having *rabies*, special tests are done on the blood, spinal fluid and brain.

### ***Reporting Requirements***

Reporting of animal bites involving human exposure within 24 hours is required by all Physicians licensed by the state of Rhode Island. All animal bites should be reported to The Department Of Health, Division of Disease Control and Prevention, Epidemiology Program at 222-2577.

### ***Notification guidelines***

When a student is bitten or scratched by any animal, school personnel should notify the student's parents. Parents should be advised to contact a physician for evaluation of the exposure and notify the Department Of Health for exposure case management.

### ***Prevention***

There is an effective vaccine for dogs, cats, and certain other domestic animals to prevent them from getting *rabies*. Pets serve as a bridge between rabid wild animal and humans, and should be vaccinated. There is also a very safe and effective series of *rabies* vaccines for people who are exposed. Students and staff receiving the series of *rabies* vaccines for a *rabies* exposure should not be considered potentially infectious.

### ***Prevention guidelines:***

- ◆ Avoid contact with wildlife and strays.
- ◆ If a sick or strange-acting animal is noticed around the school, the local animal control official should be called immediately for assistance.
- ◆ If anyone is bitten or scratched by any animal, wash the wound immediately with warm, soapy water for 10 minutes and contact a physician and the local board of health. Children should be taught that if they are bitten or scratched by an animal, they should wash the wound immediately and contact a parent, teacher, or other responsible adult immediately.
- ◆ If a student is bitten or scratched by any animal, school personnel should administer the proper first aid and notify the school nurse, the student's parents and the Department Of Health. Advise the parents to consult with a physician or emergency room for evaluation of the exposure.
- ◆ Vaccinate cats and dogs against *rabies*, and do not allow pets to roam free.
- ◆ Discourage wild animals from depending on humans for food and shelter. Fasten trashcan lids tightly. Cap chimneys (common nesting sites for raccoons) and seal openings into houses, barns and garages.
- ◆ If a pet has been bitten or scratched by any other animal, wash the wounds promptly with soap and water. Gloves should be worn to avoid potential exposure to infected saliva or tissue. A veterinarian should be contacted.

- ◆ Animal control officials, veterinarians and their assistants, and others who have frequent contact with strays or wildlife should consider getting routine *rabies* vaccinations as a precautionary measure against exposure to the virus.

Rabies prevention information can be obtained from the Department Of Health, Division of Disease Control and Prevention at 222-2577. Other information about rabies can be found on the DOH website [www.health.ri.gov/](http://www.health.ri.gov/) .

## **RICIN POISONING**

Ricin poison comes from the waste “mash” of processed castor beans. It comes in the form of a powder, mist or pellet and can be dissolved in water or a weak acid. Potency is not affected by extreme conditions. Exposure is only possible if it is a deliberate attempt and accidental exposure is highly unlikely. Ricin poisoning has been associated with the Iran-Iraq war of the 1980s and was found in Al Qaeda caves.

Ricin poisoning has varied symptoms depending on how the patient was exposed. If inhaled the symptoms include coughing, chest tightness, difficulty breathing, nausea, muscle aches, severely inflamed lungs, and sometimes, blue skin and excess fluid in the lungs. If ingested, some symptoms will be internal bleeding of stomach and intestines, vomiting, diarrhea and liver, spleen and kidney failure. If injected, ricin will cause the muscles and lymph nodes near the injection site to die. The spleen, kidneys and spleen stop functioning and there will be internal bleeding of the stomach and intestines. In such cases, death is usually caused by multiple organ failure.

Death results within 36-48 hours after initial exposure. If the patient lives longer than 5 days after exposure, then s/he will probably survive.

### ***Transmission***

There are three modes of transmission for ricin poisoning: inhalation, ingestion and injection. Each mode is not contagious to others once contracted but yields rapid results in the infected individual. Only 500 micrograms of ricin is needed in an injection to be 100% lethal while much larger quantities would be necessary for infection through ingestion or inhalation.

### ***Diagnosis***

There is no test to prove if a patient has ricin poisoning. However, a good measure of causation is if a number of people close to each other contract the same symptoms.

### ***Treatment***

There is no known antidote for ricin poisoning. Medical care such as ventilation, intravenous fluids and medications may be administered to ease swelling though do not constitute a cure.

### ***School Attendance Guidelines***

If a student or staff develops symptoms of ricin poisoning, that person is not contagious to other humans. However, it is imperative to contact all people who were in the same location as the infected and to evaluate if others have been intentionally exposed and how and if they are sick.

***Notification Guidelines***

When ricin poisoning occurs within the school population, the school nurse and school physician shall determine, based on their medical judgment, whether any, some or all parents and/or staff should be notified. When necessary they may consult with the Department of Health. Prior to parent notification, it should be discussed with the school administrator.

***Reporting Guidelines***

All cases of ricin poisoning must be reported to the Department of Health within four days of recognition or strong suspicion of disease.

***Stop Spread Guidelines***

## **RINGWORM (TINEA)**

*Ringworm* (or tinea) is a mild infection of the skin or nails caused by several different fungi. Ringworm infections are not serious and are easily treated. On the skin, ringworm appears as a flat, growing, ring-shaped rash. The edges of the circle are usually reddish and may be raised, scaly, and itchy; the center of the circle is often clear. Another type of ringworm fungus causes skin color to become lighter in flat patches, especially on the trunk and face. On the scalp, infection typically begins as a small bump and spreads outward, leaving scaly patches of temporary hair loss. Scales, cracks, and blisters may be seen on the skin between the toes. A chronic infection of the nails may cause thickening, discoloration, and brittleness.

### ***Transmission***

Ringworm is spread when infected skin comes in direct contact with healthy skin or when infected broken nails or skin flakes fall on the floor, or get into hair scissors or clothes and are touched by other people. A person with ringworm is infectious as long as the fungus is present in the infected area.

### ***Diagnosis***

Ringworm infections are frequently diagnosed by their typical appearance. Sometimes a special lamp is used to examine the body for ringworm. Occasionally, scrapings of suspicious skin may be examined under a microscope or cultured to see if any ringworm fungus is present.

### ***Treatment***

An antifungal ointment is typically applied to the skin for several weeks. Occasionally, oral antifungal medicine is prescribed, particularly if the diagnosis is ringworm of the scalp.

### ***School attendance guidelines***

Refer individuals with a suspicious rash to their healthcare providers for appropriate diagnosis and treatment, and permit them to return to school 24 hours after treatment has been initiated.

### ***Notification guidelines***

If more than one person in the class develops ringworm, the school nurse and school physician shall determine, based on their medical judgment, whether any, some or all parents and/or staff should be notified. When necessary they may consult with the Department Of Health. Prior to parent notification, it should be discussed with the school administrator. Observe school and family contacts for infection.

*Stop-Spread Guidelines*

- ◆ Keep the environment as clean, dry, and cool as possible since ringworm fungi grow easily on moist, warm surfaces.
- ◆ Follow general cleanliness and hand washing guidelines.
- ◆ Keep affected areas of the body loosely covered with gauze, bandage, or clothing to prevent shedding of infected scales.

## **ROSEOLA (SIXTH DISEASE)**

*Roseola* is a viral infection that starts with a high fever (103° F or above) and lasts 3 to 4 days. Soon after the fever ends, the infected person develops a lacelike rash over the whole body but begins to feel well again.

### ***Transmission***

Most cases of roseola occur in children ages 6 to 24 months. Infection is rare before 3 months or after 4 years of age, but can occur in older children. Roseola does not appear to spread easily, and, although occasional outbreaks have been reported, it is not known how it spreads. The greatest number of cases tends to occur in spring and summer. The period of communicability is not known but is probably greatest during the febrile period, before the appearance of the rash. The estimated incubation period is 5 to 15 days from exposure.

### ***Diagnosis***

There is no diagnostic test available. Diagnosis is made on the basis of clinical symptoms.

### ***Treatment***

There is no specific treatment for roseola other than supportive care to make the child more comfortable.

### ***School attendance guidelines***

Students may attend school when they feel well enough.

## RUBELLA

*Rubella* (also called German *Measles*) is a viral illness that is usually very mild and causes a slight fever and a flat, red rash that often begins on the face. Over 24 hours, the rash rapidly generalizes to the rest of the body. There is swelling of the glands of the neck, in particular, the glands on the back of the neck. The illness lasts about 3 days. Adolescent and adult women may have swelling and aching of the joints for about a week or so. Rarely, encephalitis (inflammation of the brain) or a temporary bleeding disorder (purpura) can occur, more commonly in adults. As many as half of the infections may occur without rash.

The most serious problem with *Rubella* is that if a pregnant woman becomes infected, the developing infant can become infected. Stillbirth or miscarriage can occur, or serious birth defects such as heart defects, deafness, blindness, or mental retardation can occur in the infant. This group of problems in infants born to infected women is called congenital *Rubella* syndrome (CRS). Over the past few years, its incidence has increased in the United States.

### ***Transmission***

Approximately 15% to 25% of young adults remain susceptible to *Rubella* due to lack of proper immunization. *Rubella* is most often seen in unimmunized children and in a susceptible adolescent and young adult group that graduated prior to enactment of *Rubella* vaccination laws and regulations. Those at risk for complications include individuals with weakened immune systems and *susceptible women of childbearing age due to risk of CRS*. The virus is spread by large droplets spread through the air by a sneeze, a cough, or by direct contact with infected nasal or saliva secretions.

### ***Diagnosis***

The signs and symptoms can presumptively diagnose the illness. However, it *must* be confirmed by a blood test to look for antibodies that are evidence of recent infection.

### ***School attendance guidelines***

A student or staff member with *Rubella* may return 7 days after the onset of the rash. All individuals who are susceptible (those without written documentation or immunization or serologic evidence of immunity) should be immunized. However, unlike *Measles*, prompt immunization after exposure to *Rubella* will *not* prevent disease. If only one case of *Rubella* occurs, susceptibles, including those just immunized, must be excluded from days 7 through 21 after exposure to the case during its infectious period. If there are multiple cases, susceptibles must be excluded for 21 days after exposure to the infectious case. Un-immunized

persons must also be excluded until 21 days after the date of rash onset in the last case.

***Reporting requirements***

A case of *Rubella* must be reported immediately on the day of recognition or strong suspicion of disease. Laboratory confirmation is not required prior to the reporting of *Rubella*.

***Notification guidelines***

When *Rubella* occurs within the school population, the school nurse and school physician shall determine, based on their medical judgment, whether any, some or all parents and/or staff should be notified. When necessary they may consult with the Department Of Health, Immunization program. Prior to parent notification, it should be discussed with the school administrator.

## SALMONELLA

*Salmonella* is a family of bacteria that causes diarrhea accompanied by stomach cramps, pain, and fever. These symptoms usually develop in less than 24 hours after bacteria are ingested but may not develop until 72 hours and may disappear untreated in 2 to 5 days. Bacteria may be present in the stool for several weeks after the diarrhea is gone. Although rare, *Salmonella* may cause a blood-stream infection or infect a part of the body such as a joint. People who do not have diarrhea but are passing *Salmonella* bacteria in their stools are considered carriers of the infection.

### **Transmission**

Anyone can get *Salmonella*, but children younger than age 5 years and adults older than age 70 get it most often. *Salmonella* can cause severe infections in those with underlying diseases, such as sickle cell anemia or cancer. *Salmonella* can be transmitted from person to person via the fecal-oral route. *Salmonella* can be shed in the stool for many weeks. Individuals with this illness are infectious until the bacteria are no longer present in their stool. A very large number of *Salmonella* bacteria must be ingested to cause illness.

*Salmonella* can also be spread by ingesting contaminated food or drink and is sometimes found on eggshells and in undercooked meat or poultry. Therefore, all foods—especially eggs, poultry products, and beef—must be cooked thoroughly, and any leftovers refrigerated. Do not use unpasteurized (raw) milk or raw eggs because they are frequently contaminated with *Salmonella* bacteria. Pet reptiles and iguanas can be carriers of *Salmonella* as well.

### **Diagnosis**

A stool culture must be performed. Up to 72 hours may be required to grow bacteria from a stool sample.

### **Treatment**

Medication is not usually prescribed for *Salmonella*. In fact, medication can actually lengthen the time the bacteria are found in the stool.

### **School attendance guidelines**

Refer to [Additional Information and Stop-Spread Guidelines](#) section beginning on page 113 of this manual.

### **Reporting requirements**

A case of *Salmonella* must be reported to the Department Of Health, Office of Communicable Diseases within four days of recognition or strong suspicion of disease. Laboratory confirmation is not required prior to reporting a case of *Salmonella*.

***Notification guidelines***

When a case of *Salmonella* occurs in the school population, the school nurse and school physician shall determine, based on their medical judgment, whether any, some or all parents and/or staff should be notified. When necessary they may consult with the Department Of Health. Prior to parent notification, it should be discussed with the school administrator.

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

Individuals without symptoms do *not* need to be cultured except during outbreaks. Treatment with medication is not recommended for infected persons, those with mild diarrhea, or contacts with infected persons.

***Stop-spread guidelines***

Careful attention to good hygiene, hand washing, environmental cleaning and sanitation is very important in reducing spread. Since *Salmonella* is very easily transmitted from person to person, staff and students should be instructed not to share food, drink, or eating utensils during an outbreak. It is essential to strictly follow the *Additional Precautionary Measures* outlined in the Additional Information and Stop-Spread Guidelines of this manual. Monitored, enforced hand washing and properly supplied hand washing facilities are essential in limiting the spread of infection.

**SAMPLE LETTER TO PARENTS ABOUT DIARRHEAL DISEASES**

Dear parent or guardian:

\_\_\_\_\_ A student at our school has a diarrheal disease.

\_\_\_\_\_ Your child may have been exposed to a diarrheal disease.

Please take the following precautions:

1. Watch your child and members of your family to see if they develop diarrhea, stomach cramps, gas and/or nausea.
2. If your child develops severe diarrhea, with fever or vomiting, or diarrhea with blood or mucus, do not send your child to school.
3. If your child develops mild diarrhea, please call us to discuss whether attendance is recommended.
4. In either case, we may ask your healthcare provider to do the tests for bacteria and parasites in the stool. We may ask you to get tests for your child and for other family members who develop diarrhea.
5. Be sure to remind your health provider that there are other students with diarrhea at your child's school.
6. If your child's test is positive, keep your child home until any serious diarrhea or illness is over.
7. Keep us informed about how your child is doing and about any test results or treatment.

**INFORMATION ABOUT DIARRHEAL DISEASES:**

***What are they?***

They are diseases caused by germs (bacteria, parasites, or viruses) that multiply in the intestines and are passed out of the body in the stool. Anyone can get diarrheal diseases, and they can be caught repeatedly. People with these germs in their stool may not actually have diarrhea or feel sick. Laboratory tests are the only way to tell if a particular stool contains germs.

Six diarrhea diseases commonly found in children and young adults are listed on the following page, along with their symptoms. The disease that may be causing illness at our school has been circled. If no disease has been circled, the specific cause of the diarrheal disease is not yet known.

<b>NAME</b>	<b>CAUSED BY</b>	<b>SYMPTOMS</b>
<b><i>Rotavirus</i></b>	A virus	Most cases of winter diarrhea are in children younger than 2 years but also occur in older children and adults; usually preceded or accompanied by vomiting and low-grade fever; may also have runny nose and cough
<b><i>Giardia</i></b>	Microscopic parasite	Mild to severe diarrhea, bad-smelling diarrhea, gas, stomach cramps, nausea, lack of appetite, and/or possible weight loss
<b><i>Shigella</i></b>	Microscopic bacteria	Mild to very severe diarrhea, fever, stomach pain, and/or diarrhea with blood or mucus
<b><i>Salmonella</i></b>	Microscopic bacteria	Mild to severe diarrhea, fever, and/or painful stomach cramps
<b><i>E. coli</i></b>	Microscopic bacteria	Mild to very severe diarrhea, watery diarrhea, fever, stomach pain, and/or diarrhea with blood
<b><i>Campylobacter</i></b>	Microscopic bacteria	Mild to severe or bloody diarrhea, fever, stomach cramps, and/or vomiting

***How do you catch diarrheal diseases?***

When people do not wash their hands well after going to the bathroom, changing diapers, or helping a child go to the bathroom, microscopic diarrhea germs stay on their hands and the children's hands. The germs can then spread to food, drink or other objects and, eventually, to other people's hands and mouth. The germs are then swallowed by the other people, multiply in their intestines, and cause an infection. Obviously, diarrheal diseases can spread easily among young children who normally get their hands into everything and may not wash their hands well.

***How do you know if you have a diarrheal disease?***

Some of these diseases can be diagnosed by examining the stool under a microscope, some by growing the germs in the laboratory, others by special chemical tests. Since the germs are usually passed in the stools off and on, stool samples taken on several days may need to be examined.

***How can you stop the spread of diarrheal diseases in your household?***

- ✓ Be sure everyone in the family thoroughly washes their hands after using the bathroom or helping a baby or child with diapers or toileting and before preparing or eating food. Babies and children need to have their hands washed too at these times.
- ✓ If someone in your family develops diarrhea ask your healthcare provider to consider doing a test for germs in the stool. This is critical for family or household members who handle or prepare food. Your healthcare provider will decide about treatment for your child and/or other family members who have diarrheal diseases.

## SCABIES

*Scabies*, a common skin infection, is caused by a microscopic parasite, a mite, that infects only humans. The female mite burrows under the skin to lay her eggs which hatch and start the infestation cycle. An infected person typically has only 10 to 12 mites on the body.

Symptoms of *scabies* generally do not appear until 2 to 6 weeks after initial exposure. Upon re-exposure, symptoms may appear within days. *Scabies* symptoms include an intensely itchy rash with red bumps and burrows - short, wavy, dirty-looking lines in the skin. An infected individual's scratch marks may cover up the typical appearance of the rash. The rash typically appears on the sides of the fingers and finger-webs, wrists, elbows, underarms and belt lines. In infants, the head, neck, palms, soles and buttocks may also be involved.

### ***Transmission***

Anyone who has contact with the mite may become infested with *scabies* through skin-to-skin contact or skin contact with clothes or bedding. Mites typically survive only 3 days off the body and cannot jump or fly. To be spread, there must be direct contact with skin. *Scabies* can be transmitted until all mites and eggs are destroyed by treatment.

### ***Diagnosis***

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

### ***Treatment***

*Scabies* is usually treated with one of several prescription mite-killing creams or lotions applied once to the skin and then washed off after a specified period of time. Medication to relieve the itching is often necessary as well. Even after effective therapy, itching may persist for up to 4 weeks. Some doctors treat all household members (even those without symptoms) to prevent the likelihood of spread within a household.

### ***School attendance guidelines***

Students or staff does not need to leave school in the middle of the day if a rash that appears to be *scabies* is noticed. Ask parents to take infected children to their healthcare provider for diagnosis and treatment. Infected individuals may return the day after treatment is started.

### ***Notification guidelines***

When *scabies* occurs within the school population, the school nurse and school physician shall determine, based on their medical judgment, whether any, some or all parents and/or staff should be notified. When

necessary they may consult with the Department Of Health. Prior to parent notification, it should be discussed with the school administrator.

***Stop-Spread Guidelines***

- ◆ Wash and rinse on the *hot* cycle all washable items that have come into contact with an infected individual's skin during the 72 hours prior to treatment. Use a *hot* dryer for 20 minutes.
- ◆ Store difficult-to-wash items such as stuffed toys and pillows in tightly closed plastic bags for 1 to 2 weeks before using again.
- ◆ Thoroughly vacuum all carpets and upholstered furniture.
- ◆ Talk with the school physician if there seems to be a major problem with *scabies* because it may be prudent and necessary to treat all students and adults in the group once.
- ◆ Do *not* use pesticide sprays in an attempt to stop the spread as they can be harmful to people and animals.

## **SAMPLE LETTER TO PARENTS ABOUT SCABIES**

Dear Parent or Guardian:

\_\_\_\_\_ A student or staff member at our school has *Scabies*  
\_\_\_\_\_ Your child may have been exposed to *Scabies*

### **INFORMATION ABOUT SCABIES:**

#### ***What is it?***

*Scabies*, a common skin infection, is caused by microscopic parasite, a mite that infects only humans. The female mite burrows under the skin to lay her eggs that hatch and start the infestation cycle. An infected person typically has only 10 to 12 mites on the body.

#### ***How is it Spread?***

Anyone who has contact with the mite may become infested with *scabies* through skin-to-skin contact or skin contact with clothes or bedding. Mites typically survive only 3 days off the body and cannot jump or fly. To be spread, there must be direct contact with skin. *Scabies* can be transmitted until all mites and eggs are destroyed by treatment.

Symptoms of *scabies* generally do not appear until 2 to 6 weeks after initial exposure. Upon re-exposure, symptoms may appear within days. *Scabies* symptoms include an intensely itchy rash with red bumps and burrows - short, wavy, dirty-looking lines in the skin. An infected individual's scratch marks may cover up the typical appearance of the rash. The rash typically appears on the sides of the fingers and finger-webs, wrists, elbows, underarms, and belt lines. In infants, the head, neck, palms, soles, and buttocks may also be involved.

#### ***How is it Treated?***

*Scabies* is usually treated with one of several prescription mite-killing creams or lotions applied once to the skin and then washed off after a specified period of time. Medication to relieve the itching is often necessary as well. Even after effective therapy, itching may persist for up to 4 weeks. Some doctors treat all household members (even those without symptoms) to prevent the likelihood of spread within a household.

#### ***What should you do about scabies?***

- ✓ Watch your child for the next 2 to 6 weeks for signs and symptoms of *scabies*.
- ✓ Do not send your child to school with a suspicious rash. Ask your healthcare provider to diagnose the illness and to give you anti-itching lotions if the itching is disturbing the child.
- ✓ If your child develops *scabies*, he or she may return to school the day after treatment has begun.

## **SEVERE ACUTE RESPIRATORY SYNDROME (SARS)**

SARS is a new respiratory corona virus that has emerged in Asia, North America and Europe. Symptoms include a fever greater than 100.4°F, headache, overall discomfort, body ache, and mild respiratory symptoms (cough or shortness of breath). About 2-7 days after onset of illness, patients will develop a dry, non-productive cough and have difficulty breathing. SARS has a 2-7 day incubation period.

### ***Transmission***

SARS is mostly transmitted by close person-to-person contact with an infected person. In most cases those newly infected were people living with or caring for an infected person. SARS is mainly transmitted through respiratory secretions such as droplets from coughing or sneezing. If such droplets land on objects touched by others and a healthy person touches the object and then touches his eye, nose or mouth, that person can become infected.

### ***Diagnosis***

SARS is diagnosed through a series of laboratory tests. A chest radiograph showing signs of pneumonia will support a diagnosis of SARS. Also, pulse oximetry, blood cultures, sputum Gram stain and culture, and testing for viral respiratory pathogens, specifically influenza A and B, will help determine if a case of SARS exists. It is necessary to take samples 21 days after onset of illness to detect SARS-CoV antibodies as confirmation.

### ***Treatment***

There is no set treatment regimen in place for curing SARS. However, ribavirin, oseltamivir, steroids, and other antimicrobials have been effective but not confirmed methods of curing SARS. Testing is still being done to determine the best route.

### ***Prevention***

The Centers for Disease Control and Prevention have placed travel advisories and alerts for several countries with numerous SARS cases. Any unnecessary travel should be postponed. However, if it is absolutely necessary to travel to one of these locations, it is important that travelers wash their hands often and be aware of sick individuals in the surroundings.

### ***School Attendance Guidelines***

Persons with SARS are contagious until fully recovered. They should not return to school unless cleared by a doctor and feeling well.

***Reporting Requirements***

All cases of SARS must be reported to the Department of Health within four days of recognition or strong suspicion of disease.

***Notification Guidelines***

If there is a case of SARS within the school population, the school nurse and school physician shall determine, based on their medical judgment, whether any, some or all parents and/or staff should be notified. When necessary they may consult with the Department of Health. Prior to parent notification, it should be discussed with the school administrator.

***Stop Spread Guidelines***

## SHIGELLA

*Shigella* is a family of bacteria that causes symptoms ranging from mild diarrhea to diarrhea with blood and mucus. In severe cases, it can cause dehydration, fever, severe cramps, vomiting, headache, and even convulsions (in young children). Illness generally begins 1 to 4 days after ingesting the bacteria. Although symptoms usually disappear even without treatment after 4 to 7 days, bacteria may still be passed out in the stool for several more weeks.

### ***Transmission***

*Shigella* is most common in children younger than age 5 years and can be a significant problem in other close groups or in settings where individuals are not continent of stool. It is transmitted when diarrheal stool gets on hands or objects and is spread to others' hands or mouths. It can also be spread through stool-contaminated food, drink, or water. As few as ten bacteria can cause ingested *Shigella* infection. People with this illness are infectious until the bacteria are no longer present in their stools.

### ***Diagnosis***

A stool culture must be performed. Up to 72 hours may be required to grow the bacteria from a stool sample.

### ***Treatment***

Children and adults who have *Shigella* in their stool are usually given antibiotic medication that shortens both duration of the illness and length of time that bacteria are passed in stool.

### ***School attendance guidelines***

Refer to [Additional Information and Stop-Spread Guidelines](#) section of this manual.

### ***Reporting requirements***

A case of *Shigella* must be reported to the Department Of Health, Office of Communicable Diseases within four days of recognition or strong suspicion of disease. Laboratory confirmation is not required prior to the reporting of *Shigella*.

### ***Notification guidelines***

When a case of *Shigella* occurs in the school population, the school nurse and school physician shall determine, based on their medical judgment, whether any, some or all parents and/or staff should be notified. When necessary they may consult with the Department Of Health. Prior to parent notification, it should be discussed with the school administrator.

Inform family and household members in contact with a person with *Shigella* diarrhea of their possible exposure to this bacterium, especially if they are involved in food handling or preparation. If they develop diarrhea, they should immediately see their healthcare provider and get a stool culture.

***Additional necessary measures during outbreaks***

Careful attention to good hygiene, hand washing, environmental cleaning and sanitation is very important in reducing spread. Since *Shigella* is very easily transmitted from person to person, staff and students should be instructed not to share food, drink, or eating utensils during an outbreak. It is essential to strictly follow the *Additional Precautionary Measures* outlined in the Additional Information and Stop-Spread Guidelines section of this manual. Monitored, enforced hand washing and properly supplied hand washing facilities are essential in limiting the spread of infection.

**SAMPLE LETTER TO PARENTS ABOUT DIARRHEAL DISEASES**

Dear parent or guardian:

\_\_\_\_\_ A student at our school has a diarrheal disease.

\_\_\_\_\_ Your child may have been exposed to a diarrheal disease.

Please take the following precautions:

1. Watch your child and members of your family to see if they develop diarrhea, stomach cramps, gas and/or nausea.
2. If your child develops severe diarrhea, with fever or vomiting, or diarrhea with blood or mucus, do not send your child to school.
3. If your child develops mild diarrhea, please call us to discuss whether attendance is recommended.
4. In either case, we may ask your healthcare provider to do the tests for bacteria and parasites in the stool. We may ask you to get tests for your child and for other family members who develop diarrhea.
5. Be sure to remind your healthcare provider that there are other students with diarrhea at your child's school.
6. If your child's test is positive, keep your child home until any serious diarrhea or illness is over.
7. Keep us informed about how your child is doing and about any test results or treatment.

**INFORMATION ABOUT DIARRHEAL DISEASES:**

***What are they?***

They are diseases caused by germs (bacteria, parasites, or viruses) that multiply in the intestines and are passed out of the body in the stool. Anyone can get diarrheal diseases, and they can be caught repeatedly. People with these germs in their stool may not actually have diarrhea or feel sick. Laboratory tests are the only way to tell if a particular stool contains germs.

Six diarrhea diseases commonly found in children and young adults are listed on the following page, along with their symptoms. The disease that may be causing illness at our school has been circled. If no disease has been circled, the specific cause of the diarrheal disease is not yet known.

**THE RHODE ISLAND SCHOOL NURSE TEACHERS  
INFECTIOUS DISEASE REFERENCE MANUAL**

NAME	CAUSED BY	SYMPTOMS
<i>Rotavirus</i>	A virus	Most cases of winter diarrhea are in children younger than 2 years but also occur in older children and adults; usually preceded or accompanied by vomiting and low-grade fever; may also have runny nose and cough
<i>Giardia</i>	Microscopic parasite	Mild to severe diarrhea, bad-smelling diarrhea, gas, stomach cramps, nausea, lack of appetite, and/or possible weight loss
<i>Shigella</i>	Microscopic bacteria	Mild to very severe diarrhea, fever, stomach pain, and/or diarrhea with blood or mucus
<i>Salmonella</i>	Microscopic bacteria	Mild to severe diarrhea, fever, and/or painful stomach cramps
<i>E. coli</i>	Microscopic bacteria	Mild to very severe diarrhea, watery diarrhea, fever, stomach pain, and/or diarrhea with blood
<i>Campylobacter</i>	Microscopic bacteria	Mild to severe or bloody diarrhea, fever, stomach cramps, and/or vomiting

***How do you catch diarrheal diseases?***

When people do not wash their hands well after going to the bathroom, changing diapers, or helping a child go to the bathroom, microscopic diarrhea germs stay on their hands and the children's hands. The germs can then spread to food, drink or other objects and, eventually, to other people's hands and mouth. The germs are then swallowed by the other people, multiply in their intestines, and cause an infection. Obviously, diarrheal diseases can spread easily among young children who normally get their hands into everything and may not wash their hands well.

***How do you know if you have a diarrheal disease?***

Some of these diseases can be diagnosed by examining the stool under a microscope, some by growing the germs in the laboratory, others by special chemical tests. Since the germs are usually passed in the stools off and on, stool samples taken on several days may need to be examined.

***How can you stop the spread of diarrheal diseases in your household?***

- ✓ Be sure everyone in the family thoroughly washes their hands after using the bathroom or helping a baby or child with diapers or toileting and before preparing or eating food. Babies and children need to have their hands washed too at these times.
- ✓ If someone in your family develops diarrhea ask your healthcare provider to consider doing a test for germs in the stool. This is critical for family or household members who handle or prepare food. Your healthcare provider will decide about treatment for your child and/or other family members who have diarrheal diseases.

## **SMALLPOX**

Smallpox is caused by variola virus and is a serious infectious disease. The last case in the US was in 1949 and the virus has since been eliminated from the world through a successful vaccination program. However, the risk has come up again because of the use of smallpox as a terrorist biological weapon. Humans are the only hosts and so insects or animals are not a risk.

Smallpox begins with high fever (101-104°F) and a general discomfort. Next, a rash develops as small red spots on the tongue, mouth and throat. This will spread to the skin starting with the face and moving to arms, legs, hands, and feet. The rash consists of raised bumps that fill with an opaque fluid with a depression that looks like a bellybutton. This depression is one of the distinguishing characteristics of smallpox. The bumps will crust and scab. Persons are considered infectious until the last scab falls off. There is a 30% fatality rate though most recover fully.

### ***Transmission***

Smallpox is transmitted to others by prolonged, direct, face-to-face contact with an infected person. Humans are the only possible host so there is no risk from animals or insects.

### ***Diagnosis***

Diagnosis of smallpox is done by symptoms evaluation and the onset of the rash on the tongue, mouth and throat.

### ***Treatment***

While still in testing, cidofovir has worked to treat smallpox. Supportive therapy such as administering intravenous fluids, fever or pain medications and antibiotics for secondary infections can ease the disease process.

### ***Prevention***

There is a vaccine containing “live” virus that is known to prevent smallpox; it does not cause disease. The vaccine provides 3-5 years of immunity and promises 95% prevention. However, there are numerous side effects and it is not safe for many people. In case of a bioterrorism smallpox event a major public health response for prevention and control would be initiated with isolation of sick persons, quarantine and ring vaccination of all exposed contacts and other control measures as warranted by the circumstances.

### ***School Attendance Guidelines***

Persons with smallpox are extremely contagious and should not attend school until the last scab falls off.

***Reporting Requirements***

All cases of smallpox must be reported to the Department of Health immediately upon suspicion of disease.

***Notification Guidelines***

If there is a case of smallpox within the school population, the school nurse and school physician shall determine, in consultation with the Department of Health and school administrators what notifications should be made.

***Stop Spread Guidelines:*** The Department of Health will provide guidance and resources for all control activities in the school setting.

## **SPORTS RELATED INFECTIOUS DISEASES**

The spread of contagious illnesses among students in the school setting is a problem shared by all educational institutions. Contact in the classroom, the cafeteria or the schoolyard can facilitate the spread of infectious diseases. In addition to the exposures that students face in these common situations, student athletes may contract or spread infectious diseases while participating in sporting activities. Teachers, coaches and athletic staff, school/team physicians, school nurses and others responsible for the health and safety of athletes need to be aware of the infectious disease spread that can occur during training, competition or even during physical education class activities. There may be risk of exposure for the individual athlete, the team, and spectators.

Transmission of infectious diseases in sports settings usually occurs via direct contact, the fecal-oral route, common-source exposure or airborne and/or droplet spread. In some cases, disease transmission is unavoidable due to infectiousness before symptoms become apparent. In other cases the spread of disease occurs as a result of many people congregating together or sharing water bottles or other eating/drinking utensils. The following chart lists some infectious diseases that have occurred due to sports-related activities.

<i><b>Disease</b></i>	<i><b>Mode of Transmission</b></i>	<i><b>Sport(s) involved</b></i>
Herpes simplex virus (HSV) (herpes gladiatorum)	Direct contact	Wrestling, rugby, sumo wrestling, basketball, football
Staphylococcus aureus Group A streptococci , fungi Enteroviruses (coxsackievirus, echoviruses)	Common source or fecal / oral	Team sports
Pseudomonas aeruginosa	Common-source	Swimming
Meningococcal illnesses	Saliva exchange	Team sports
Measles	Airborne or droplet	Tournaments involving gymnastics, basketball, wrestling, other indoor sports

Some concern has been raised about the possibility of sports-related transmission of blood- borne pathogens. To date, this type of transmission has not been implicated in HIV infection and studies have concluded that

such risk is remote. Organizations such as The Committee on Sports Medicine and Fitness have addressed concerns about this issue by publishing recommendations or guidelines for standard precautions.

Team physicians, trainers, school nurses, physical education teachers and others involved with the health of the student athlete should not only be able to recognize and manage acute problems, but should also institute policies for the prevention of disease transmission. These policies (taken from Goodman et al.) should include, but not be limited to, the following:

1. Students diagnosed with skin infections should be cautioned about their participation in sports involving close physical contact. Players with open lesions that cannot be covered should not be permitted to participate in sports where they could transmit disease to others.
2. All athletic equipment in contact with student's skin or secretions should be routinely cleaned after use. This would include, but not be limited to, gymnastic and wrestling mats, mouth guards and other protective equipment.
3. All students must be vaccinated against communicable diseases as described in the section on immunizations.
4. When airborne diseases occur, a mechanism should be in place to inform everyone exposed, including athletes, staff and spectators.
5. Athletes with symptoms of an infectious disease should not be permitted to participate in sports activities until they have been evaluated by their health care provider and are no longer infectious.
6. Public health officials should be immediately notified of a case or a suspected case of a reportable disease in an athlete. Timely reporting of even a suspect case of an infectious disease may help to prevent further spread among athletes, spectators, and the community.
7. Any outbreaks of infectious disease occurring in the school, regardless of cause, should be reported to public health officials to ensure prompt investigation and institution of control measures. General stop-spread recommendations can be found throughout this chapter as they pertain to particular modes of disease transmission.

In order to decrease transmission of diseases spread by mucous membrane contact or the fecal-oral route, coaches, trainers and physical education instructors should be educated about the need to prevent exposures of athletes sharing water bottles and pails during sports-related activities

## STAPHYLOCOCCAL ENTEROTOXIN B POISONING

Staphylococcal enterotoxin B (SEB) is an intoxication by poisons or toxins produced by the bacterium *Staphylococcus aureus*. It is expected to be used as an agent of bioterrorism in the form of an aerosol that might be sprayed on food products therefore contaminating the food, resulting in symptoms similar to food poisoning.

Symptoms include sudden fever for 2-5 days, chills, headache, myalgia, nonproductive cough for 4 weeks, shortness of breath, and retrosternal chest pain. If SEB is swallowed then the person may experience nausea, vomiting and diarrhea. It has been known to cause nonmenstrual toxic shock syndrome (TSS) in rare cases. SEB is usually not considered lethal unless exposure occurs to large amounts of toxin. Exposure to high levels may result in septic shock and death. SEB is worse for those in high stress positions, like soldiers.

### ***Transmission***

Exposure to SEB usually comes from an intentionally released aerosol. Sometimes it is sprayed on foods to contaminate them. There is a 1-6 hour incubation period followed by illness that clears within 24 hours. When a person is infected with SEB, that person is not contagious.

### ***Diagnosis***

SEB is diagnosed through urine and precipitin tests. There is a SMART Ticket test only available to US armed forces. After infection and recovery it might be useful to do a serum test to detect any antibodies.

### ***Treatment***

There is no antibiotic or vaccine to cure or prevent SEB. Patients may be put on a ventilator to ease breathing or cough suppressants. It is important to monitor hydration as dehydration may cause death for those with SEB.

### ***Prevention***

Protective masks are the only method of prevention as there is no vaccine fully developed.

### ***School Attendance Guidelines***

Since SEB is not known to spread from human to human, it is not necessary to exclude children or adults with this disease as long as they are feeling well.

### ***Reporting Requirements***

All cases of SEB must be reported to the Department of Health immediately upon suspicion of disease.

***Notification Guidelines***

If there is a case of SEB within the school population, the school nurse and school physician shall determine, in consultation with the Department of Health and school administrators what notifications should be made.

***Stop Spread Guidelines:*** The Department of Health will provide guidance and resources immediately upon report.

## STREPTOCOCCAL INFECTIONS

A variety of infections, including strep throat, scarlet fever, rheumatic fever, and *Impetigo*, are caused by Group A streptococci bacteria.

**Strep throat** infections are characterized by a very red, painful throat often accompanied by fever, tender and swollen lymph nodes (called glands by many people), headache, and stomachache. Sometimes a strep throat will be accompanied by coughing, or less often, a runny nose. The vast majority of sore throats in children and adults are caused by viruses, *not* strep bacteria.

**Scarlet fever** is a type of streptococcal infection characterized by a skin rash. The rash is caused by a toxin produced by this special strain of strep. The rash usually consists of fine, red bumps that feel sandpapery and usually appear on the neck, chest, groin, and/or inner surfaces of the knees, thighs, and elbows. It may last only a few hours. Other symptoms are flushed cheeks, paleness around the mouth, and a red tongue that resembles the surface of a strawberry. It is not any more serious than a regular strep throat infection.

**Rheumatic fever** (abnormalities of the heart valves and inflammation of the joints) can develop 5 to 6 weeks after the occurrence of any type of strep infection that goes untreated. In rare instances, kidney disease can also follow an untreated strep infection. These are immune complex mediated diseases and not a result of actual infection in the heart or kidneys. Therefore, it is very important that all cases of suspected strep infections be referred to healthcare providers for treatment. People with persistent sore throats without a runny nose should have a throat culture.

### ***Transmission***

Strep throats can occur at any age, but are most common among school-aged children, during the colder months, and in crowded situations. If one person in a family gets strep throat, other family members may also get it. The Group A streptococci are transmitted from one person to another through microscopic respiratory secretions. The incubation period lasts 2 to 5 days. People with strep throat are generally not infectious until their symptoms appear. They continue to be infectious until they have received treatment for 24 hours..

### ***Diagnosis***

Throat cultures are used to diagnose strep infections. Rapid tests are now available through healthcare providers. Although the accuracy of these tests is generally high, sensitivity may vary. Therefore, negative rapid test results should be followed by a culture, if indicated.

***Treatment***

Strep infections are usually treated with an oral antibiotic, starting either at the onset of symptoms or after throat culture results are received. A single, long-lasting injection may also be used to treat strep.

***School attendance guidelines***

People who are only mildly ill can continue to attend school while awaiting the results of a strep culture, *if* the doctor has not begun antibiotic treatment. (If the culture proves to be positive, send them home.) Individuals who have positive strep cultures should stay home until after they have had *at least* 24 hours of antibiotic medicine and the fever is gone. Antibiotics should be taken for the full course of prescribed treatment.

***Notification guidelines***

When strep infections occur within the school population, the school nurse and school physician shall determine, based on their medical judgment, whether any, some or all parents and/or staff should be notified. When necessary they may consult with the Department Of Health. Prior to parent notification, it should be discussed with the school administrator.

***Stop-spread guidelines***

- ◆ Follow the stop-spread guidelines for respiratory tract diseases. Enforce exclusion from school until 24 hours or 3 doses of antibiotics have been administered.
- ◆ If there is a case of strep in the school, refer students or staff with sore throats to their healthcare providers for throat cultures.
- ◆ Be alert to an outbreak. If there are many cases of strep consult Health for guidelines to prevent and control further cases. Similarly if there are any cases associated with rheumatic fever, kidney diseases, or toxic shock, consult with the school physician and Health.

## SAMPLE LETTER TO PARENTS ABOUT STREP THROAT

Dear parent or guardian:

\_\_\_\_ A student at our school has strep throat.

\_\_\_\_ Your child may have been exposed to strep throat.

Please take these precautions:

1. Watch your child for signs of a sore throat and other signs of strep (headache, fever, stomachache, swollen and tender neck glands).
2. If your child develops a sore throat and any of these other signs, please see your healthcare provider, tell her or him that another child in the program has strep, and ask to have your child tested for strep throat. If strep is found, your child should receive treatment.

### **INFORMATION ABOUT STREP THROAT:**

#### ***What is strep throat?***

Strep throat is a sore throat caused by Streptococcus bacteria that are passed around through nose and mouth droplets. It is very common in children. Most sore throats, however, are caused by viruses and are not treated with antibiotics.

#### ***Why is it important that your child receive treatment?***

There are three main reasons:

1. Treatment reduces spread. If not treated or not treated long enough, your child may continue to spread the infection to other members of your family or to other children.
2. Treatment with antibiotics can usually prevent rheumatic fever. Rarely, some children with strep throat later develop rheumatic fever abnormalities of the heart valves and inflammation of the joints.
3. Treatment will also prevent other rare, but possibly dangerous, complications.

#### ***When can your child come back to school?***

Children with strep infections may return to school after taking medicine for at least 24 hours (or 3 doses) and fever is gone.

#### ***What should you do to prevent the spread of strep throat.***

- ✓ Thoroughly wash your hands and your child's hands after wiping noses and before eating or preparing food
- ✓ Wash dishes carefully in hot, soapy water or a dishwasher
- ✓ Do not allow the sharing of food or allow children to share cups, spoons, or toys that are put into the mouth.

## SYPHILIS

The first sign of *syphilis* is usually a sore(s) that is painless and appears at the site of initial contact. It may be accompanied by swollen glands, which develop within a week after the appearance of the initial sore. The sore will last from one to five weeks, and will disappear by itself even if no treatment is received. Approximately six weeks after the sore first appears, a person will enter the second stage of the disease. The most common symptom during this stage is a rash that may appear on any part of the body: trunk, arms, legs, palms, soles, etc. Other, more generalized symptoms may also occur. These include tiredness, fever, sore throat, headaches, hoarseness, loss of appetite and swollen glands. These signs and symptoms will last two to six weeks, and will disappear in the absence of adequate treatment. After the second stage of the disease, the only way *syphilis* can be detected is through a blood test, although secondary symptoms may occasionally recur. Late *syphilis* (*syphilis* of over four years' duration) may involve illness in the skin, bones, central nervous system and heart, and may shorten life, impair health and limit occupational efficiency.

Symptoms can appear from 10 to 90 days after a person becomes infected, but usually within three to four weeks. Symptoms are often not noticed or are thought to be minor abrasions or heat rash and medical care is not sought.

*Syphilis* is considered to be communicable for a period of up to two years, though most commonly in the first year after infection if not treated. The extent of communicability depends on the existence of infectious lesions (sores) which may or may not be visible.

People with syphilis can be infected and transmit this disease, but be asymptomatic. This is particularly true for women. Anyone who thinks he or she has been exposed to an STD should see a healthcare provider immediately. Sexually active adolescents should be screened regularly for STDs. Infection with one STD may indicate the need to test for other STD infections.

### ***Transmission***

Individuals who have unprotected sex, especially with many partners, are at risk of exposure to STDs. Some STDs (HIV, HBV, HCV) can also be transmitted directly from an infected person to another by sharing contaminated needles. Other forms of substance abuse (drinking, cocaine, etc.) increase the risk of exposure because they impair judgment. Some drugs, such as crack cocaine, may increase the sex drive, affect the number of partners and/or frequency of sex, thus increasing opportunities for unprotected sex with an infected person.

If untreated, STDs may cause serious physical and reproductive damage or even death. They are particularly dangerous to infants whose infected mothers are not treated during pregnancy. Infected infants may be born mentally retarded or physically deformed, or they may die. Infection with one STD indicates the need to test for other STD infections.

### ***Prevention***

Abstinence from vaginal, anal and oral sex will guarantee protection against STDs. For those who are sexually active, condom use is a very important but not 100% guaranteed protection against being infected with an STD. Limiting the number of partners is important, as the chances of encountering an infected person increase with the number of partners. Engaging in substance use may increase the chances of becoming infected. Thus, avoidance of substance use is critical to protecting against STDs. Addicts should be provided with detoxification and recovery services, as well as with education and tools to prevent the transmission of STDs and HIV/AIDS.

### ***Diagnosis***

A physical examination including inspection, blood tests and/or cultures will assist in diagnosis.

### ***Treatment***

*Syphilis* is treated with penicillin or tetracycline. The amount of treatment depends on the stage of *syphilis* the patient is in. Pregnant women with a history of allergic reaction to penicillin should undergo penicillin desensitization followed by appropriate penicillin therapy.

An infected person may consult his or her own healthcare provider or the state health department-funded STD specialty clinic (Whitmarsh House), which provides comprehensive STD services. These clinics, open to all, have highly trained and sensitive staff, and there are no restrictions to access based on age, race, sex, ethnicity, ability to pay, town of residence, country of origin, or whether or not the person is in the United States legally.

The Whitmarsh House Specialty Clinic (444-0483) provides free screening and treatment services for all sexually transmitted diseases. The clinic is located at 557 Broad Street in Providence, RI 02907.

### ***Reporting requirements***

STDs are reportable directly to the state health department within four days of recognition or strong suspicion of disease. The Department Of Health will not release the identity of any case and releases data in aggregate form only so that no individual can possibly be identified. The

success of educational programs and disease prevention activities depends largely on the community trusting that all personal information is kept confidential. Refer to Rules & Regulations section of this manual for rules, regulation and reporting requirements regarding STDs.

## TETANUS

*Tetanus* bacteria that live in soil can enter the body through a cut or wound, producing a poisonous substance that causes the muscles to go into spasms. Paralysis and even death can result. *Tetanus* is sometimes called lockjaw.

### ***Transmission***

*Tetanus* occurs almost exclusively in un-immunized or inadequately immunized persons. Some studies have shown that 10% of young adults are susceptible. Booster doses of *Tetanus* toxoid every 10 years after finishing childhood primary immunization series are necessary to maintain protection. Unlike the other vaccine-preventable diseases, *Tetanus* is not spread from person to person. It occurs when bacteria in soil or dust are introduced into the body through a wound. Make sure all cuts, scrapes, and puncture wounds are cleaned well with soap and water; individuals who have sustained deep or severe wounds should be referred for medical attention. Older individuals who may not be up-to-date on their immunizations should consult with their physician about treatment.

### ***School attendance guidelines***

Students and staff should stay home until they feel well.

### ***Reporting requirements***

A case of *Tetanus* must be reported to the Department Of Health within 4 days of recognition or strong suspicion of disease. Laboratory confirmation is not necessary prior to the reporting of *Tetanus*.

### ***Notification guidelines***

Even though *Tetanus* is not spread person-to-person, if a case occurs, officials may want to use this as an opportunity to remind others to check their immunization records and get boosters if necessary. When *Tetanus* occurs within the school population, the school nurse and school physician shall determine, based on their medical judgment, whether any, some or all parents and/or staff should be notified. When necessary they may consult with the Department Of Health, Immunization program. Prior to parent notification, it should be discussed with the school administrator.

## TUBERCULOSIS

*Tuberculosis* (TB) is a disease that usually affects the lungs causing cough, fever, fatigue, weight loss, and night sweats. TB disease starts with TB infection, a small number of TB germs (bacteria) living in the body without causing harm. Most individuals with TB *infection* never become ill with TB *disease*.

As long as the immune system remains healthy, TB germs are walled up in hard capsules where they cannot cause illness or be spread to others. However, TB bacteria remain alive in these capsules and may overcome the body's immune system to cause disease. Therefore, individuals with TB *infection* remain at risk of developing TB *disease* throughout their lifetime.

### **Transmission**

A person gets TB infection when live TB germs are inhaled deeply into the lungs. TB infection is *not* easy to get because airways trap germs, preventing them from entering the lungs. Tiny airborne particles containing TB germs may be produced by the cough or sneeze of persons with TB lung disease. A person with TB lung disease able to spread TB germs is referred to as “contagious” or “infectious”. Individuals most at risk of getting TB infection either live, work, or are otherwise in contact with a contagious person, sharing indoor air for a prolonged time. TB germs *cannot* be spread by handling food, sharing eating utensils or objects (pencils, books, clothing, etc.)

### **Diagnosis**

A positive TB skin test indicates TB infection but not necessarily the disease. The skin test is determined to be positive when there is a significant amount of swelling at the skin test site 48 to 72 hours after the test is placed. TB *disease* is diagnosed by symptoms and additional clinical tests. Typical symptoms are fever, night sweats, weight loss, fatigue, and cough. Individuals with these symptoms should seek attention from a health professional who will check for an abnormal chest x-ray and/or perform other clinical tests.

### **Treatment**

Individuals with TB *infection*, may be treated with oral anti-TB medication to prevent the *infection* from progressing to *disease*. Medication is usually taken once daily for 6 to 12 months.

To cure TB *disease*, several different medications are prescribed for 6 to 12 months. Medications must be taken according to instructions, or TB germs may become drug resistant making treatment difficult or even impossible. Recent media attention has focused on this problem, often

referred to as “multi-drug-resistant (MDR) TB.” MDR TB is no more likely to cause infection or disease than ordinary TB bacteria, but MDR TB infection and disease are more difficult to treat.

***School attendance guidelines***

Students or staff diagnosed with suspected or confirmed TB disease **cannot** attend or work in schools until they have begun taking prescribed anti-TB medications and their healthcare provider states, in writing, that they are not contagious.

Students or staff who have a positive TB skin test only (with a normal chest x-ray and have no symptoms) do *not* have disease, are *not* contagious, and should *not* be restricted in any way. They may be advised to take anti-TB medicine to prevent the possibility of developing TB disease.

***Reporting requirements***

A case of TB is reportable to the Department Of Health, TB Program within four days of recognition or strong suspicion of disease. Laboratory confirmation is not required prior to reporting a case of TB disease. Those with a positive skin test reaction (including persons with a history of BCG vaccination) require medical evaluation generally consisting of a physical examination and chest X-ray. Medical evaluation and treatment for TB infection or disease is available by referral to the State TB Specialty Clinic.

***Notification guidelines***

When TB disease occurs within the school population, the school nurse and school physician shall determine, based on their medical judgment, whether any, some or all parents and/or staff should be notified. When necessary they may consult with the Department Of Health. Prior to parent notification, it should be discussed with the school administrator.

***What School Administrators, Staff, and Parents Should Know About TB***

- ✓ Infants and young children under age 10 with TB lung disease are usually *not* contagious.
- ✓ Students or staff who have a positive TB skin test only (with a normal chest x-ray and have no symptoms) do *not* have disease, are *not* contagious, and should *not* be restricted in any way. They may be advised to take anti-TB medicine to prevent the possibility of developing TB disease.

## TULAREMIA

Also known as “rabbit fever,” *Tularemia* is a vector borne infectious disease caused by the bacterium, *Francisella tularensis*. Tularemia is a naturally occurring rural disease that resides in water and soil. The disease is usually found in wild animals (rodents, rabbits, hares) and pet animals (cats).

Tularemia is characterized by sudden fever, chills, headaches, muscle aches, joint pain, dry cough, progressive weakness, and sometimes pneumonia. Also, depending on how the individual was exposed, symptoms may include skin ulcers, swollen and painful lymph glands, swollen and painful eyes and severe sore throat. These symptoms will appear 3-5 but no more than 14 days after exposure to the bacterium.

Tularemia is on the list of agents suitable for aerosol dissemination for purposes of terrorism.

### ***Transmission***

Tularemia is most commonly transmitted by tick or deerfly bites. It can also be contracted by eating contaminated food or drinking contaminated water.

### ***Diagnosis***

Tularemia is diagnosed through examination of stool cultures with initial results as soon as 2 hours later and confirmatory tests 1-7 days later.

### ***Treatment***

A course of antibiotics for 10-14 days cures Tularemia.

### ***School Attendance Guidelines***

Tularemia is not known to be communicable from person to person. As such, there is no need to isolate students or staff with Tularemia.

### ***Reporting Requirements***

All cases of Tularemia must be reported to the Department of Health immediately upon suspicion of disease.

### ***Notification Guidelines***

If there is a case of Tularemia within the school population, the school nurse and school physician shall determine, in consultation with the Department of Health and school administrators what notifications should be made.

All cases of Tularemia must be reported to the Department of Health immediately upon suspicion of disease.

*Notification Guidelines*

If there is a case of Tularemia within the school population, the school nurse and school physician shall determine, in consultation with the Department of Health and school administrators what notifications should be made.

## **VIRAL HEMORRHAGIC FEVERS**

Generally speaking, viral hemorrhagic fevers (VHFs) are severe syndromes that affect multiple organ systems. VHFs include the viruses Ebola, Lassa, Hantavirus, pulmonary syndrome and hemorrhagic fever with renal syndrome (HFRS). It is usually animal borne and affects a variety of animals, but rodents and arthropods are the most common. Geographically each virus is limited by the location of the host animal.

VHFs are best characterized by a damaged vascular system and the body's inability to regulate itself. Symptoms include fever, dizziness, fatigue, muscle ache, loss of strength, and exhaustion. With certain viruses there is bleeding under the skin, in internal organs and from body orifices like mouth, eyes or ears. The severely ill will suffer shock, nervousness, system malfunction, coma, delirium and seizures.

### ***Transmission***

VHFs are transmitted to humans from infected animals through close contact with an infected animal's urine, fecal matter, saliva or other excretions. Ebola, Lassa, and Marburg spread from person to person through close contact or bodily fluids.

### ***Diagnosis***

The presence of VHF is established from symptom analysis.

### ***Treatment***

There is no known vaccine or antibiotic to prevent or cure most VHFs. Ribovarin has been effective for Lassa or HFRS.

### ***School Attendance Guidelines***

Most VHFs are not transmissible from person to person; it is not necessary to exclude the infected if they are feeling well. However, those with Ebola, Lassa or Marburg are extremely contagious during illness and ill persons should not attend school until the virus has passed and they are feeling well.

### ***Reporting Requirements***

All cases of VHF must be reported to the Department of Health immediately upon suspicion of disease.

### ***Notification Guidelines***

If there is a case of VHF within the school population, the school nurse and school physician shall determine, in consultation with the Department of Health and school administrators what notifications should be made.

All cases of VHF must be reported to the Department of Health immediately upon suspicion of disease.

**ADDITIONAL INFORMATION AND STOP-SPREAD  
GUIDELINES**

## DISEASES SPREAD THROUGH BLOOD CONTACT

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Three serious viral infections are spread by contact with infected blood: *hepatitis B*, HIV (human immunodeficiency virus) infection, which causes AIDS (acquired immune deficiency syndrome) and *hepatitis C*. Other infections such as *syphilis* occasionally are spread by contact with infected blood as well.

The viruses that cause *hepatitis B*, *C* and AIDS can spread when blood that contains the virus enters the bloodstream of another person. This can happen through the accidental or intentional puncture of the skin by a contaminated needle. Spread can also occur if infected blood comes in contact with a broken surface of skin or of mucous membranes such as the inside lining of the mouth, eyes, nose, rectum, or sex organs. An infected mother can pass on these infections to her newborn infant. *Hepatitis B* and HIV infections are also sexually transmitted diseases.

Once these viruses enter the body, they may stay for months or years, even if the person appears healthy. These infections are much more difficult to "catch" or to transmit from one person to another than any of the other diseases discussed in this manual. General measures for the prevention of these diseases are the same as those for other diseases caused by direct contact.

Because it is not always possible to know when someone is infected with germs spread by blood contact, all blood and body fluids (drainage from open skin lesions such as eczema or Impetigo, sexual fluids, and saliva contaminated with blood) should be treated as infectious.

Because any blood can potentially contain these three viruses, all blood spills and blood-contaminated surfaces should be cleaned and disinfected with a solution of 1-tablespoon bleach per 1-quart of water.

Disposable latex gloves should be used when contact with blood or blood-containing body fluids is anticipated, particularly if hands have open cuts or abrasions, or when surfaces have been contaminated with blood or other body fluids.

Hands should be washed thoroughly after exposure to all blood or body fluids, including occasions when gloves are used.

## DISEASES SPREAD THROUGH THE INTESTINAL TRACT

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Diseases that are caused by organisms (viruses, bacteria, or parasites) that multiply in the intestines and are passed out of the body in the stool can be caught by anyone, and they can be caught repeatedly (except for *hepatitis A*). Should stool containing these organisms get on hands or objects, it can inadvertently be ingested. Swallowing as few as 10 *Shigella* or *Giardia* organisms may cause an intestinal tract infection. *Salmonella* and *Campylobacter* organisms must be ingested in larger quantities to cause illness.

Students or staff who have hand-stool contact may facilitate transmission. Students or staff with disease-causing organisms in their stool may not act or feel sick or have diarrhea. Laboratory tests are the only means of confirming the presence of this organism in particular stool, and may be performed as part of an effort to control an outbreak of disease.

When cases of infectious diarrhea, pinworm, or *hepatitis A* are diagnosed among students or staff, the school nurse and school physician should determine, based on their medical judgment, whether some or all of the parents and staff should be notified. Notification should always be discussed with the school administrator. In addition, both infectious diarrhea and *hepatitis A* must be reported to the Department Of Health, Office of Communicable Diseases.

Because students and staff who have intestinal tract diseases do not always feel sick or have diarrhea, the best method for preventing spread of disease is to have a constant prevention program in place. *In the school setting the best prevention program is to promote hand washing after using the bathroom and before preparing or eating food. In addition, it is important to ensure that bathrooms have an adequate supply of soap (preferably liquid), running water, paper towels, and toilet paper.*

## VACCINE PREVENTABLE DISEASES

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Vaccine-preventable diseases are a group of diseases that include *Measles*, *Mumps*, *Rubella*, *Polio*, *Pertussis*, *Diphtheria*, *Tetanus*, Hib, *Varicella* and *hepatitis B*. Prior to the implementation of immunizations programs, these diseases were a major cause of widespread illness, often leading to permanent medical complications or even death. These diseases caused problems especially in children, although adults were also affected. Recently new vaccines have been licensed to prevent *Haemophilus influenzae* type B infections and *hepatitis B*.

Some people believe that these diseases are no longer a problem in the United States or that children cannot get them anymore. This is not true; cases of these diseases still occur, particularly in un-immunized or inadequately immunized children and adults. Incidence of many of these diseases is on the rise.

*Children in schools and school staff are especially at risk.* Schools that have a relatively young staff (born after the late 1950's and early 1960's) are at particular risk because they are too young to have gotten natural immunity from disease during the days before widespread vaccination, and they graduated high school before vaccination for all these diseases was required. In addition, protection against *Pertussis* (whooping cough) decreases over time and is non-existent 12 years after the last dose, which is usually given between the ages of 2 months and 7 years of age. Many outbreaks of *Pertussis* have recently occurred?

Children should be immunized as completely as possible for their age, in accordance with regulations. See [Immunization Resources](#) for a schedule of required immunizations. The Rhode Island immunization requirements also apply to student visitors from other states and nations. All adults working in schools (including volunteers) should have immunity to *Measles*, *Mumps*, *Rubella*, *Tetanus*, and *Diphtheria*. Acceptable evidence of immunity in adults can be provided in several ways, which vary by the age of the adult and the specific disease.

*If a documented case of Measles, Mumps, Rubella, Polio, Diphtheria, Tetanus, Pertussis, Hib, or hepatitis B occurs in the school, the Rhode Island Department Of Health must be notified.* They will assist in starting any necessary identification and vaccination of susceptible children and adults, and provide instruction on procedures for closely monitoring the school for additional cases and for notifying parents.

The Rhode Island Department Of Health has developed the following policy for the use of meningococcal vaccine:

**Initial Immunization:** The Rhode Island Department Of Health makes meningococcal vaccine available without charge for all two-year-olds and to children up through age 18 who have never been immunized.

Vaccine may be appropriate for un-immunized students entering Rhode Island colleges, especially those living in dormitories. There are brochures available to guide the discussion of risks of meningitis and risks and benefits of immunization for college students. However, the Department Of Health does not provide free vaccine for these individuals. The Rhode Island Department Of Health does not require meningococcal vaccine for any child. No child should be excluded from school, childcare, or other activities because he or she has not been immunized against meningococcus.

**Re-immunization:** The Rhode Island Department Of Health recommends against re-immunizing children in the absence of a documented outbreak or cluster. The risks of adverse effects associated with re-immunization against meningococcus outweigh the possible benefits. The limited studies available raise concern that re-immunization could reduce protection. Free vaccine is not available for re-immunizing children.

**Surveillance:** It is essential to monitor the incidence of invasive meningococcal disease in Rhode Island. The Department Of Health will work closely with physicians, emergency rooms, urgent care centers, and laboratories to continue active surveillance. We encourage physicians to obtain appropriate cultures prior to initiating antibiotic therapy when meningococcus is suspected, to report positive cultures and suspected cases to the Department Of Health and to verify the immunization status of any suspected case.

## GENERAL INFECTIONS AND SYSTEMIC INFECTIONS

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Infections such as cytomegalovirus, *hepatitis A*, *hepatitis B*, *hepatitis C*, herpes simplex infection, infectious *Mononucleosis*, and sexually transmitted diseases are transmitted by direct contact and can be serious. Individuals with these infections may experience symptoms ranging from no illness or mild illness (such as cold sores) to total body illness. Some infections, such as *syphilis*, are treatable; others, such as cytomegalovirus, are not. What they have in common is the way they are spread from person to person.

These infections may be contracted by anyone, and individuals can carry the germs in their body secretions for months or even years without symptoms. Germs that cause these infections are spread when infected bodily secretions penetrate the skin, blood stream or mucous membrane of another person, enter the other person's body and multiply. This process can occur when germs come in contact with skin that is broken, cut, or scraped or contact mucosal surfaces such as the inside lining of the mouth, eyes, nose, rectum, or sex organs. These infections may also be transmitted from an infected mother to her newborn infant.

### ***Stop-Spread Guidelines:***

- ◆ Assume that all body secretions are potentially contagious.
- ◆ Insist that staff and students wash their hands well after any contact with blood, saliva, urine, stool, skin sores, or genital secretions.
- ◆ Make sure that staff and students place disposable items that come in contact with body secretions or blood (tissues, bandages, paper towels, sanitary napkins) in a lined, covered step-can that is kept away from food and materials.
- ◆ Store clothing and other personal items that come in contact with body secretions or blood separately in plastic bags, and send them home for separate laundering and bleaching.
- ◆ Wash and sanitize surface areas and objects that come in contact with body secretions or blood using a bleach solution. Clean or dispose of cleaning items (mops, rags, and towels) properly.
- ◆ Do not permit aggressive behavior such as biting and scratching that may result in injury or exposure to blood or bodily secretions.
- ◆ Do not permit sharing of personal items such as toothbrushes, razorblades, and washcloths that may have been contaminated with blood or other body fluids.

## DISEASES SPREAD THROUGH THE RESPIRATORY TRACT

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Respiratory tract diseases are spread through microscopic infectious droplets of the nose, eye, or throat, most of which are shared via hand contact with infect fluids and then contact with surfaces that uninfected people touch to pick up the germs. Airborne transmission of any disease spread is unclear. Respiratory tract diseases may be mild (viral colds and strep throat) or life threatening (bacterial meningitis, SARS).

When an infected person talks, coughs, sneezes, or blows his or her nose, infectious droplets get on objects such as hands, books, pencils, toys, pens, or food, and can be touched, mouthed, or eaten by others. When the germs in these infected droplets come in contact with the nose, eyes, or mouth of an infected person, they can multiply and cause infection. Students often fail to wash their hands after touching their noses or eyes and are in constant physical or oral contact with objects around them. Adults and students often put their hands around their eyes, mouth, and nose. As a result, respiratory tract diseases spread easily in a group setting.

### *Stop-spread guidelines*

Hand washing and cleanliness are essential to stop the spread of all respiratory tract disease. Encourage staff and students to wash their hands after wiping or blowing noses; after contact with any nose, throat, or eye secretions; and before preparing or eating food.

- ◆ Discourage the sharing of food.
- ◆ Air out classrooms daily, even in winter.
- ◆ Teach children and staff to cough or sneeze toward the floor or to one side, away from people. If they sneeze or cough into a hand or tissue, they must properly dispose of the tissue and wash their hands.
- ◆ Keep a supply of disposable towels and tissues in each classroom, and encourage their use.
- ◆ Dispose of towels or tissues contaminated with nose, throat, or eye fluids in a step-can with a plastic liner. Keep them away from food and classroom materials.

**CAUTION:** *Aspirin (or products containing salicylate) should never be used for fever control of any viral illness, but particularly if influenza or chickenpox is suspected because of the suspected rare association with Reye syndrome (vomiting, liver problems, and/or coma) and these types of illnesses.*

## DISEASES SPREAD THROUGH DIRECT CONTACT

### *Superficial and Skin Infections*

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*Superficial infections and skin infections* - including *Impetigo*, ringworm, *conjunctivitis*, *scabies*, and *Pediculosis* - are caused by superficial bacterial or viral infections or parasitic infestations. They are common and are not serious. They are spread by direct contact with infected secretions, infected skin areas, or infected objects or articles. Because students are constantly touching their surrounding and the people around them, these infections are easily spread among students and staff - for example:

- ◆ A student's arm has sores with discharge. During interaction, this discharge gets on another individual's arm and into a cut or scratch.
- ◆ A hat belonging to a student with head lice is used by another student. A louse from the hat crawls onto the head of the second student.
- ◆ A student with runny eyes rubs them with his or her hands before picking up a book, pen, or pencil, contaminating them with eye discharge. Other students become infected by picking up those objects and then rubbing their own eyes with contaminated hands.

#### ***Stop-Spread Guidelines:***

- ◆ Follow hand washing and cleanliness guidelines that include:
  - ✓ Making sure staff and students thoroughly wash their hands after contact with any possible infectious secretions.
  - ✓ Using *free-flowing water* for hand washing.
  - ✓ Using liquid soap dispensers whenever possible.
  - ✓ Always using disposable tissues or towels for wiping and washing.
  - ✓ Never using the same tissue or towel for more than one student
  - ✓ Disposing of used tissues and paper towels in a lined and covered container that is kept away from food and materials.
  - ✓ Washing or vacuuming frequently used surfaces such as tables, counters, furniture, and floors daily.
- ◆ Do not permit students to share personal items such as combs, brushes, hats, or clothing.
- ◆ Provide adequate *individual* areas for students to keep their outer clothing items such as coats, hats, scarves, and mittens.
- ◆ Wash and cover sores, cuts, and scrapes promptly, and keep infected eyes wiped dry.

- ◆ Report rashes, sores, running eyes, and severe itching to a student's parents so they may contact their healthcare provider for diagnosis and appropriate treatment.

## **GENERAL GUIDELINES FOR DIARRHEAL DISEASES: Giardia, Shigella, E. Coli, Salmonella And Campylobacter**

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People have diarrhea when they have more stools than normal for them and the stools are loose, watery, and unformed.

*Infectious diarrhea* is caused by viruses, parasites, or bacteria and can be spread quickly from person to person. *Non-infectious diarrhea* can be caused by toxins (e.g., certain types of food poisoning), chronic disease (e.g., cystic fibrosis), or antibiotics (e.g., ampicillin) and does not spread from person to person.

Infectious diarrhea caused by *Giardia*, *Shigella*, *E. coli*, *Salmonella*, and *Campylobacter* are discussed in other sections of this manual. Other infectious diarrheal agents, including parasites (e.g. cryptosporidium, amoeba), other bacteria (e.g., *Yersinia*, *E. coli O157:H7*), and other viruses (e.g., Rotavirus) are not discussed in detail, but the general “stop-spread” instructions apply to all these diseases.

### ***School Attendance Guidelines:***

- ◆ When students or staff have uncontrolled diarrhea and fever or vomiting (or have severe or bloody diarrhea), or if diarrhea cannot be contained in diapers (in those students using them), exclude them until fever and diarrhea are gone and the individuals have been treated if necessary.
- ◆ When students or staff who do not prepare food or feed students are found to have infectious diarrheal germs in their stool (positive stool cultures) but have no diarrhea or illness symptoms, take special precautions but do not exclude them. (Also make sure they receive appropriate management.) During outbreaks a negative stool culture may be required.
- ◆ When staff who normally prepare food or feed children have positive stool cultures, do not permit them to prepare food or feed students until they have one negative stool culture taken 48 hours after medication is completed, if antibiotics are used. During outbreaks, two consecutive negative stool cultures may be required.

### ***Return Guidelines***

- ◆ Excluded students and staff may come back to school after treatment and when severe diarrhea is gone. During outbreaks, negative stool cultures may be required for students and staff.

### ***To Stop Spread of Infectious Diarrheal Diseases***

- ◆ Strictly enforce all hand washing, using the bathroom, diapering, and cleanliness procedures.

- ◆ Attention to environmental cleaning and sanitation.
- ◆ Keep track of the number of cases of diarrhea.
- ◆ If there is an increase in the number of cases expected in the school, call the Department Of Health and take the following *additional precautions*.

***Additional Precautionary Measures***

- ◆ Instruct students and staff *not to share food, drink, or eating/drinking utensils*.
- ◆ Monitor enforced hand washing for students and staff. Everyone should wash his or her hands upon arrival at school, after using the bathroom, before eating or preparing food, or after contact with other body fluids.
- ◆ Staff, including volunteers, should take care to wash hands upon arrival, after using the bathroom themselves or toileting a child, before eating or preparing food, before feeding a child, or after contact with other body fluids.
- ◆ Monitor bathrooms daily to ensure an adequate supply of soap (preferably liquid), running water, paper towels, and toilet paper. Bathrooms should be thoroughly cleaned and sanitized daily, or more often if indicated.
- ◆ Give attention to environmental cleaning and sanitation in all settings.
- ◆ Symptomatic students and non-food handling staff may be required by state health officials to submit negative stool culture before returning to school. Depending on the circumstances, asymptomatic food-handling staff may be required to submit one or two negative stools; and symptomatic food handlers submit two negative stools in order to return to food-handling duties.

**RULES, REGULATIONS, POLICIES AND GUIDELINES**

# INSTRUCTIONS FOR PHYSICIAN REPORTING OF COMMUNICABLE, ENVIRONMENTAL AND OCCUPATIONAL DISEASES

Rhode Island Department of Health  
3 Capitol Hill – Room 106  
Providence, Rhode Island 02908-5097



*Phone: (401) 222-2577 After Hours: (401) 272-5952*  
Fax: (401) 222-2477; (401) 222-2488  
AUGUST 2002

All reporters listed in Section 2.0<sup>1</sup> are required to report the diseases listed below. Case identity is required except in HIV-1 or HIV-2 infection. The EPI- 2002 reports may be mailed, faxed, received by phone or by electronic methods to the Department of Health, Room 106, 3 Capitol Hill, Providence, RI 02908-5097, phone number: (401) 222-2577. After hours and weekends for diseases reportable immediately, report to the MD on call at (401) 272-5952.

**USE OTHER FORMS TO REPORT:**

HIV and AIDS Use the HIV/AIDS REPORTING FORM or call (401) 222-2320.	Sexually Transmitted Diseases Use the CONFIDENTIAL REPORT FOR SEXUALLY TRANSMITTED DISEASES form or call (401) 456-4302.	Tuberculosis Use the TUBERCULOSIS REPORTING FORM or call (401) 222-2577.
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Diseases in **BOLD** must be reported **IMMEDIATELY** by telephone on the day or recognition or strong suspicion of disease. Laboratory confirmation is not necessary prior to report being filed. State Laboratory can assist with specimen collection and handling (401-222-5600). All other disease listed must be reported by mail, telephone, or electronically within four days of recognition or strong suspicion of disease.

<u>ACQUIRED IMMUNODEFICIENCY SYNDROME (AIDS)</u>	<u>EHRlichiosis</u>	Listeriosis <sup>3</sup>	<b>Staphylococcal enterotoxin B poisoning</b>
	<u>ENCEPHALITIS (PRIMARY INCLUDING ARBOVIRAL OR PARAINFECTIOUS)</u>	Lyme Disease	
<u>AMEBIASIS</u>		Lymphogranuloma venereum	Streptococcal Toxic Shock
<u>ANIMAL BITES</u>	<u>ENTEROHEMORRHAGIC E. COLI</u> including <i>E. coli</i> O157:H7	Malaria	<b>Syphilis: primary, secondary, early latent</b>
<u>ANTHRAX</u>	Giardiasis	<b>Measles</b>	Syphilis: late latent
<u>BABESIOSIS</u>	<b>Glanders</b>	Meningitis (aseptic, bacterial, fungal or viral)	Tetanus
<u>BOTULISM</u>	Gonorrhea	<b>Meningococcal Disease</b> <sup>3</sup>	Toxic Shock Syndrome (TSS)
<b>Brucellosis</b>	Group A Streptococcal Disease <sup>3</sup>	<b>Mumps</b>	Transmissible spongiform encephalopathies (including Creutzfeldt Jakob Disease)
Campylobacteriosis	Group B Streptococcal Disease <sup>3</sup>	Ornithosis (psittacosis)	Trichinosis
Chancroid	Granuloma inguinale	Pelvic Inflammatory Disease	<u>TUBERCULOSIS DISEASE (ALL SITES)</u> PPD + in children < 6 years
Chlamydia infections-genital	<u>H. INFLUENZAE DISEASE</u> <sup>3</sup>	<b>Pertussis</b>	<b>Tularemia</b>
<b>Cholera</b>	<u>HANSEN'S DISEASE (LEPROSY)</u>	<b>Plague</b>	<b>Typhoid fever</b>
<b>Ciguatera, Paralytic shellfish or Scombroid poisoning</b>	<u>HANTAVIRUS PULMONARY SYNDROME</u>	<u>PNEUMOCOCCAL DISEASE</u> <sup>3</sup>	<b>Unexplained deaths possibly due to unidentified infectious causes</b>
<b>Clostridium perfringens epsilon toxin poisoning</b>	Hemolytic Uremic Syndrome	<b>Poliomyelitis</b>	Vancomycin resistant enterococcus ( <i>VRE</i> ) INFECTION <sup>2</sup>
<b>Clusters or Outbreaks</b> <sup>2</sup>	<u>HEPATITIS A</u> <sup>4</sup>	<b>Q-fever</b>	<b>Vancomycin resistant/intermediate Staphylococcus aureus (VRSA/VISA), any site</b>
Coccidioidomycosis	<u>HEPATITIS B, C, D, E AND UNSPECIFIED</u> viral hepatitis-- acute infections <sup>4</sup>	<b>Rabies (human)</b>	<b>Vibrio vulnificus or V. parahaemolyticus infection</b>
Cryptosporidiosis	Hepatitis B surface antigen (HBsAg) positive pregnant women	<b>Ricin poisoning</b>	<b>Viral hemorrhagic fevers</b>
Cyclosporiasis	<u>HISTOPLASMOSIS</u>	<u>ROCKY MOUNTAIN SPOTTED FEVER</u>	<b>Yellow fever</b>
Death resulting from complications of varicella	<u>HIV-1 OR HIV-2 INFECTION</u> <sup>5</sup>	<b>RUBELLA</b>	Yersiniosis
<u>DENGUE FEVER</u>	Legionellosis	<u>SALMONELLOSIS</u>	
<u>DIPHTHERIA</u>	Leptospirosis	<u>SHIGELLOSIS</u>	
		<b>Smallpox</b>	

<sup>1</sup> Rules and Regulations Pertaining to the Reporting of Communicable, Environmental and Occupational Diseases (R23-10-DIS).

<sup>2</sup> The number of cases indicating an outbreak or cluster will vary according to the infectious agent or the conditions/hazards, size and type of population exposed, previous experience or lack of exposure to the disease, and time and place of occurrence. A single case of a communicable disease long absent from a population or the first invasion by a disease not previously recognized in that area requires immediate reporting and epidemiologic investigation; two (2) cases of such a disease associated in time and place are sufficient evidence of transmission to be considered an outbreak. Outbreaks or clusters are therefore identified by significant increases in the usual incidence of the disease in the same area, among the specified population, at the same season of the year. Some examples of outbreaks are as follows: foodborne outbreak/poisoning, institutional outbreaks and waterborne outbreaks. A single case of rare and unusual diagnoses, such as smallpox, ebola, or human rabies is considered an outbreak. Outbreaks of unusual diseases or illness that may indicate acts of terrorism using biological agents, such as anthrax, botulism, ricinosis, epsilon toxin of *Clostridium perfringens*, and *Staphylococcus enterotoxin B* and any condition compatible with radiological or chemical terrorism events are also reportable.

<sup>3</sup> Invasive disease: confirmed by isolation from blood, CSF, pericardial fluid, pleural fluid, peritoneal fluid, joint fluid, or other normally sterile site.

<sup>4</sup> Report AST, ALT and bilirubin, also.

<sup>5</sup> Use unique identifier, not name of patient.

**THE RHODE ISLAND SCHOOL NURSE TEACHERS  
INFECTIOUS DISEASE REFERENCE MANUAL**

<b>VACCINES FOR CHILDREN (VFC) STATE SUPPLIED VACCINE POLICY</b>		
<b>Vaccine</b>	<b>Eligible Children</b>	<b>High Risk Groups</b>
<b>DTaP/DT</b>	2 months-6 years of age	
<b>Hib</b>	2 months-4 years of age	
<b>Hepatitis A</b>	Available to children and adolescents 2 -18 years of age in a <b>HIGH RISK</b> group	<ol style="list-style-type: none"> <li>1. Children traveling to countries with high or intermediate endemicity of infection.</li> <li>2. Children living in communities with high and intermediate rates of hepatitis A virus infection and periodic outbreaks.</li> <li>3. Sexually active homosexual and bisexual adolescents.</li> <li>4. Children who are users of injecting and noninjecting illegal drugs.</li> <li>5. Children with clotting factor disorders.</li> <li>6. Children with chronic liver disease.</li> </ol>
<b>Hepatitis B</b>	Birth-18 years of age	
<b>Influenza</b>	Available to children and adolescents 6 months-18 years of age in a <b>HIGH RISK</b> group	<ol style="list-style-type: none"> <li>1. Residents in chronic-care facilities that house persons of any age with chronic medical conditions.</li> <li>2. Children with chronic disorders of the pulmonary or cardiovascular systems, including children with asthma.</li> <li>3. Children who have required regular medical follow-up or hospitalization during the preceding year because of chronic metabolic diseases (including diabetes mellitus), renal dysfunction, hemoglobinopathies, or immunosuppression (including immunosuppression caused by medication or HIV).</li> <li>4. Children receiving long-term aspirin therapy and therefore may be at risk for developing Reye syndrome after influenza infection.</li> <li>5. Adolescent females who will be in the second or third trimester of pregnancy during the influenza season.</li> </ol>
<b>MMR</b>	12 months-18 years of age	
<b>Meningococcal</b>	2 years -18 years of age	
<b>Pneumococ</b>	2 –23 months of age	

**THE RHODE ISLAND SCHOOL NURSE TEACHERS  
INFECTIOUS DISEASE REFERENCE MANUAL**

<b>cal Conjugate (Pevnar)</b>	Available to Children 24-59 months of age in a <b>HIGH RISK</b> group	<b>HIGH RISK</b> 1. Children with sickle cell disease or anatomic asplenia, chronic illnesses, immunocompromising conditions, or HIV infection.
<b>Pneumococcal Polysaccharide</b>	Available to children and adolescents 2-18 years of age in a <b>HIGH RISK</b> group	1. Children with sickle cell disease or anatomic asplenia, chronic illnesses, immunocompromising conditions, or HIV infection. 2. Children of Alaskan Native or American Indian descent. 3. Children who have received a bone marrow transplant.
<b>Polio</b>	2 months-18 years of age	
<b>TD</b>	7years -18 years of age	
<b>Varicella</b>	12 months-18 years of age	

These guidelines were developed to reflect the recommendations of the Advisory Committee on Immunization Practices (ACIP). Please reference the *Recommended Childhood Immunization Schedule* for appropriate age(s) to administer vaccines.

[WWW.HEALTHRI.ORG/FAMILY/IMMUNIZATION/HOME.HTM](http://WWW.HEALTHRI.ORG/FAMILY/IMMUNIZATION/HOME.HTM)  
JANUARY 2002



**RECOMMENDATIONS ON THE PREVENTION AND CONTROL OF  
MENINGOCOCCAL DISEASE**

**September 26, 2000**

In the June 30, 2000 *MMWR*, the Advisory Committee on Immunization Practices (ACIP) published recommendations on the Prevention and Control of Meningococcal Disease and Meningococcal Disease in Children. The ACIP statement can be found on the Centers for Disease Control and Prevention (CDC) National Immunization Program web site at [www.cdc.gov/nip](http://www.cdc.gov/nip). Following that publication, **the Rhode Island Department of Health continues to recommend that children entering college for the first time who will be living in dormitories or group situations be vaccinated against meningitis.**

The Rhode Island Department of Health State Supplied Vaccine Program makes the polysaccharide meningococcal vaccine available free of charge for children aged **two through eighteen years**. The Department of Health recommends only one dose be given, and does not supply vaccine for re-vaccination, with the following exception:

- Because of the current epidemiological evidence that dormitory-dwelling college freshmen are at increased risk of disease, the Rhode Island Department of Health Immunization Program now makes state purchased vaccine available for boosters for those students aged 18 and younger who were immunized more than 3 years previously. In other words, **high school seniors who were immunized more than three years ago who are entering college and will be living in dormitories or group situations are eligible for state purchased meningococcal vaccine for a booster.**

Boosters for those who were immunized more recently are not recommended.

Boosters for those who are now sophomores or later, or who are freshmen but not living in dormitories, are not recommended.

Physicians who do not routinely carry meningococcal vaccine may request single doses through the Rhode Island Immunization Program.

Questions about obtaining vaccine can be directed to Paul McKiernan of the Rhode Island Immunization Program at (401) 222-4639. Questions about immunizations and vaccines can be answered by calling Pat Raymond, RN, at (401) 222-5921. Policy questions can be directed to Susan Shepardson at (401) 222-4603, or at [susans@doh.state.ri.us](mailto:susans@doh.state.ri.us).

**HEAD LICE - PRINCIPLES THAT SHOULD GUIDE SCHOOL POLICIES**

USEFUL INFORMATION	BASED ON CURRENT MEDICAL KNOWLEDGE, THE FOLLOWING STEPS ARE SAFE AND EFFECTIVE PROTOCOLS
<ul style="list-style-type: none"> <li>▪ One of the worst problems of head lice is adult attitudes.</li> </ul>	1. A single round of mass screening (lice checks) is recommended in Sept-Oct to detect children entering school with infestation,
<ul style="list-style-type: none"> <li>▪ Having head lice is not a serious medical condition.</li> </ul>	2. These children should be sent home at the end of the day with an educational pamphlet on lice and nits for the parent, and detailed instructions for two-step (optionally day 0 and day 7 to 10) home treatment and nit removal..
<ul style="list-style-type: none"> <li>▪ Over treatment with lice treatment shampoos is more serious than head lice.</li> </ul>	3. These children may return to school as soon as the first treatment is completed.
<ul style="list-style-type: none"> <li>▪ Irrational reactions to head lice can lead to fumigating classrooms, school, buses, etc.. This is expensive and unnecessary</li> </ul>	4. Do not check for nits (dead or alive) or enforce a no-nit policy for those who have been treated. It is not productive.
<ul style="list-style-type: none"> <li>▪ Much information about head lice is based on old, unproven information generated more than 80 years ago, some of it propagated by the companies who profit from the sale of lice shampoos and sprays</li> </ul>	5. Repeated rounds of mass screening are not recommended.
<ul style="list-style-type: none"> <li>▪ Direct physical head to head contact is the usual method of transmission.</li> </ul>	6. During the course of the school year, children will be brought to the notice of the school nurse as suspected cases of head lice from a variety of sources (teachers, students, other parents and affected children themselves). Repeat steps 2, 3, and 4 with these children.
<ul style="list-style-type: none"> <li>▪ Transmission via clothing, hats, furniture, carpets, school bus seats and other objects is not likely because of the biology of head lice.</li> </ul>	7. If a child does have live lice on his/her head, the possibility of transmission to others has already been present for at least a month before any symptoms or detection was possible. To <b>IMMEDIATELY EXCLUDE</b> that child, especially if the child will just be sitting somewhere else in the school,, <b>CANNOT BE JUSTIFIED</b> from either a medical, nursing or social perspective, and sends a negative message to the child.
<ul style="list-style-type: none"> <li>▪ Lice are fragile, and the chances of being passed on hats and combs are low.</li> </ul>	8. In the rare event of a major uncontrolled transmission situation, implement a protocol for aggressive control. Components of such a protocol should include notification of parents of all children in the school to educate them about lice and to watch their children for infestation. Implement environmental measures such as separating headgear and jackets. Ensure treatment is completed prior to having children return to school for diagnosed cases of infestation.
<ul style="list-style-type: none"> <li>▪ Carpets, furniture and pets are not sources of infestation</li> </ul>	9. Never tell a parent to treat “just in case”. The shampoos can be toxic and may cause real health problems.

**THE RHODE ISLAND SCHOOL NURSE TEACHERS  
INFECTIOUS DISEASE REFERENCE MANUAL**

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<b>USEFUL INFORMATION</b>	<b>BASED ON CURRENT MEDICAL KNOWLEDGE, THE FOLLOWING STEPS ARE SAFE AND EFFECTIVE PROTOCOLS</b>
<ul style="list-style-type: none"> <li>▪ There is no significant relationship between hair length or personal cleanliness and transmission.</li> </ul>	<p>10. Parents may have misconceptions and prejudices, which places pressure on school staff. As with any health condition, educating and supporting the child and parent with factual, non-judgmental information is better than having policies and practices driven by misinformation.</p>
<ul style="list-style-type: none"> <li>▪ It is unlikely that a nit on a stray hair shaft will hatch because the only optimal conditions exist on the human head.</li> </ul>	
<ul style="list-style-type: none"> <li>▪ Stray lice that fall off a head are either injured or dying and incapable of causing a new infestation.</li> </ul>	
<ul style="list-style-type: none"> <li>▪ In time, inbreeding of lice on a person's head causes them to die spontaneously, that's why kids do not become covered with them. It is a self-limiting condition.</li> </ul>	
<ul style="list-style-type: none"> <li>▪ It is possible to tell whether treatment has been successful by the appearance of the eggs.</li> </ul>	
<ul style="list-style-type: none"> <li>▪ <b>CONSIDERING THE AVERAGE CASE OF HEAD LICE IS 3-4 MONTHS OLD BEFORE IT IS DETECTABLE, A STRICT NO-NIT POLICY IS NOT NECESSARY OR EFFECTIVE AND ONLY DEPRIVES CHILDREN OF EDUCATIONAL TIME.</b></li> </ul>	
<ul style="list-style-type: none"> <li>▪ Although schools, day care centers, etc. are often blamed for head lice outbreaks, it is the family unit that maintains cases leading to outbreaks in schools.</li> </ul>	
<ul style="list-style-type: none"> <li>▪ African Americans rarely get hair lice.</li> </ul>	

## GUIDELINES FOR SCHOOL DEPARTMENTS RELATED TO SARS

### COMMUNICABLE DISEASES IN RHODE ISLAND SEVERE ACUTE RESPIRATORY SYNDROME (SARS)

Rhode Island Department of Health

June 2003

**BACKGROUND:** To date, all reported patients with Severe Acute Respiratory Syndrome (SARS) in the United States have been exposed and infected either through previous foreign travel to countries with community transmission of SARS or close contact (e.g., household members or healthcare workers) with SARS patients. The main geographic locations (and this will change with time), which are listed as SARS, affected areas are: China, Hong Kong, Taiwan, Hanoi, Singapore and Toronto. Casual contact with a SARS patient at schools, other institutions, or public gatherings (e.g., attending the same class or public gathering) has not resulted in reported transmission in the United States. People without symptoms cannot transmit SARS.

#### **Guidelines:**

1. Travelers returning from SARS affected areas are routinely given written instructions (from the Division of Quarantine at CDC) at disembarkation on what procedures to follow should they become ill. Students, teachers and other school personnel who are known to have returned from one of the above SARS related areas and who are not exhibiting any signs of illness (fever of 100.4 or greater, cough, shortness of breath) should have no restrictions on their activities or school attendance.
2. If school health personnel become aware of illness (fever of 100.4 or greater, cough, or shortness of breath) developing in the 10 day period after return from a SARS affected location, they should exclude the person from school pending medical and public health recommendations. If the illness develops during the course of the school day isolate the individual from other persons in the school environment (in a room or outdoors) and recommend that a healthcare provider evaluate them immediately. The parent or person affected must be advised to call ahead to the healthcare provider to inform them of the referral. At the same time the school health authorities (school nurse or school physician) should make a report to the Office of Communicable Diseases at 401 222 2577 (day), or 401 272 5952 (after hours). The Office of Communicable Diseases staff will provide expert guidance and support **all aspects**

of the school response when such a report is made. Such a response includes assessment of the case, assessment of risk for persons exposed, management of the case (including recommendations for mask use and isolation), management of close contacts identified in the school, and risk communication messages to parents, staff and the press. It is important that the school authorities coordinate their media/public information responses with the Department of Health.

3. In preparation for in-school management of cases pending pick up or transportation, it is advisable that school nurses offices are stocked with a few surgical masks and thermometers. Masks generally are to be used after the health department recommends how and by who they should be used on a case-by-case basis. Emergency contact information for students should be kept up to date. Exclusion from school of children and staff who are running fevers should be routinely enforced.
4. It is important to reinforce basic hygienic practices (cover nose/mouth while sneezing or coughing with a tissue rather than a bare hand, wash hands frequently and avoid sharing utensils). School rest rooms should be kept stocked with a supply of paper towels, soap and running hot water. Hand washing posters should be posted in rest rooms. On field trips and other situations where access to running water is a problem a supply of alcohol hand gels for dry cleaning is advisable. Classrooms should have a supply of tissues, and receptacles for their proper disposal. The school environment, including cafeteria and bathrooms should be cleaned regularly.
5. School authorities should keep up to date their knowledge of the most current Federal travel advisories and alerts in order to make informed decisions about scheduling school trips. See <http://www.cdc.gov/ncidod/sars/basics.htm> for updates or <http://www.health.ri.gov/>
6. Parents with questions can be referred to the CDC hotlines: 888-246-2675 (English) or 888-246-2857 (Spanish) or to the RI HEALTH Family Health Information Line at 1 800 942 7434.

*NOTE: The above guidelines can be adapted for all congregate environments where children are cared for during the day such as camps, after school programs, day care programs, summer programs etc.*

ADDITIONAL RESOURCES



## ANTIBIOTIC USE

The following are some simple facts to answer commonly asked questions, from the American Academy of Pediatrics, which may help teach parents about antibiotic use.

### ***What can I do to protect my child from antibiotic-resistant bacteria?***

Use antibiotics only when your doctor has determined that they might be effective. Antibiotics will not cure most colds, coughs, sore throats, or runny noses, children fight off colds on their own.

### ***If mucus from the nose changes from clear to yellow or green, does this mean that my child needs an antibiotic?***

Yellow or green mucus does not mean that your child has a bacterial infection. It is normal for the mucus to get thick and change color during a viral cold.

### ***Does this mean I should never give my child antibiotics?***

Antibiotics are very powerful medicines, and should be used to treat bacterial infections. If an antibiotic is prescribed, make sure you take the entire course and never save antibiotics for later use.

### ***How do I know if my child has a viral or bacterial infection?***

Ask your doctor. If you think that your child might need treatment, you should contact your doctor. But remember, colds are caused by viruses and should not be treated with antibiotics.

## TEN THINGS TO DO TO PREVENT INFECTIOUS DISEASES

1. **Keep immunizations up to date. Follow recommended immunizations for children and adults. And don't forget your pets.**
2. **Wash your hands often, especially during cold and flu season. Be sure to wash hands:**
  - ◆ **After using the bathroom**
  - ◆ **Before preparing or eating food**
  - ◆ **After changing a diaper**
  - ◆ **After blowing your nose or sneezing or coughing**
  - ◆ **After caring for a sick person**
  - ◆ **After playing with a pet**
3. **Be aware of what you eat, and be careful how you prepare it.**
  - ◆ **Keep hot foods hot and cold foods cold until eaten or cooked**
  - ◆ **Be sure temperature controls in refrigerators and freezers are working properly**
  - ◆ **Wash counters, cutting boards, and utensils frequently with soap and water, especially after preparing poultry or other meats**
  - ◆ **Wash fresh fruits and vegetables before eating**
  - ◆ **Cook ground beef until you can no longer see any pink**
4. **Use antibiotics exactly as prescribed. Take them for the full course prescribed by your doctor, but not for colds or other nonbacterial illnesses. Never self-medicate with antibiotics or share them with family or friends.**
5. **Report to your doctor any quickly worsening infection or any infection that does not get better after you take a prescribed antibiotic.**
6. **Be cautious around all wild and domestic animals that are not familiar to you. After any animal bite, immediately clean the skin with soap and water, and seek medical care.**
7. **Avoid areas of insect infestation. Use insect repellents on skin and clothing when in areas where ticks or mosquitoes are common. If you have visited wooded or wilderness areas and are now sick, your doctor needs all the details to diagnose both rare and common illnesses quickly.**
8. **Avoid unsafe, unprotected sex and injection drug use.**
9. **Stay alert to disease threats when you travel or visit undeveloped areas. Get all recommended immunizations, and use protective medications for**

travel, especially to areas with malaria. Don't drink untreated water while hiking or camping. If you become ill when you return home, tell your doctor where you've been.

10. When sick, allow yourself time to heal and recover. Be courteous to others: wash your hands frequently, and cover your mouth when you sneeze or cough.



**RESOURCES**

**HIV/AIDS**

The following Hotline will provide current information on testing and counseling sites:

**Phone:** 401-821-5522

**Toll Free:** 1-800-726-3010

**TTY/TDD:** 401-831-5693

**Hepatitis B**

A copy of OSHA's Blood borne Pathogen Standard is available from:

RI Department of Health  
Division of Environmental Health  
Office of Occupational Health

Tel: 401 222 2438

**Pediculosis**

For further information contact:

**National Pediculosis Association**

P.O. Box 149  
Newton, MA 02161  
(617) 449-NITS

**Rabies**

*Rabies* educational materials may be obtained by contacting the Division of Disease Prevention and Control at Department of Health, (401) 222-2577

**Sexually Transmitted**

For further information, data services, educational resources, and Diseases (STDs) clinic hours contact:

**The Whitmarsh House**

Broad Med Building  
557 Broad Street  
Providence, RI 02907  
(401) 444-0485

**National STD Hotline: 1-800-227-8922**

### **Tuberculosis**

For further information contact:

#### **Division of Disease Prevention and Control**

Department Of Health  
3 Capitol Hill  
Providence, RI 02908  
(401) 222-2320 (HIV/AIDS)  
(401) 222-2577 (Communicable Diseases)

### **Lyme Disease**

For information on Lyme disease and prevention contact the Rhode Island Health Department at (401) 222-2577 or review our extensive webresource at XXXXXXXXXXXXXXXX

## **WELCOME TO ENCORE**

**(EDUCATION, NEEDLE EXCHANGE, COUNSELING, OUTREACH AND  
REFERRAL)**

ENCORE is an anonymous and confidential program administered by the Rhode Island Department Of Health. The purpose of the ENCORE program is to prevent HIV, AIDS, Hepatitis C and other blood borne diseases by giving people some tools to protect themselves:

- ✓ clean syringes
- ✓ bleach with information on how to clean syringes
- ✓ alcohol swabs, cookers and cotton with information on skin care
- ✓ condoms and how to use them
- ✓ counseling and referrals to drug treatment, social services and medical care.

Clients are given a code that is written on an enrollment card. Because this is an anonymous program, the code written on the ENCORE enrollment card is the only means of identifying who is in the program. The code is the first three letters of the client's mother's first name and the client's birth date.

In Rhode Island, possessing an ENCORE card and ENCORE syringes protection clients from prosecution for carrying syringes. It does not provide protection from arrest for drug possession. If caught with drugs or unmarked syringes, clients can be arrested for possession of drugs and syringes. Clients can have their attorney contact the RI Department Of Health to verify enrollment in the program (222-2320)

The rules of the ENCORE program are simple:

- ✓ It is a one-for-one plus one exchange. We will give one syringe for every used syringe brought to an exchange site plus one more.

**For example, if 10 used syringes come in, 10 plus one or 11 new syringes are given out**

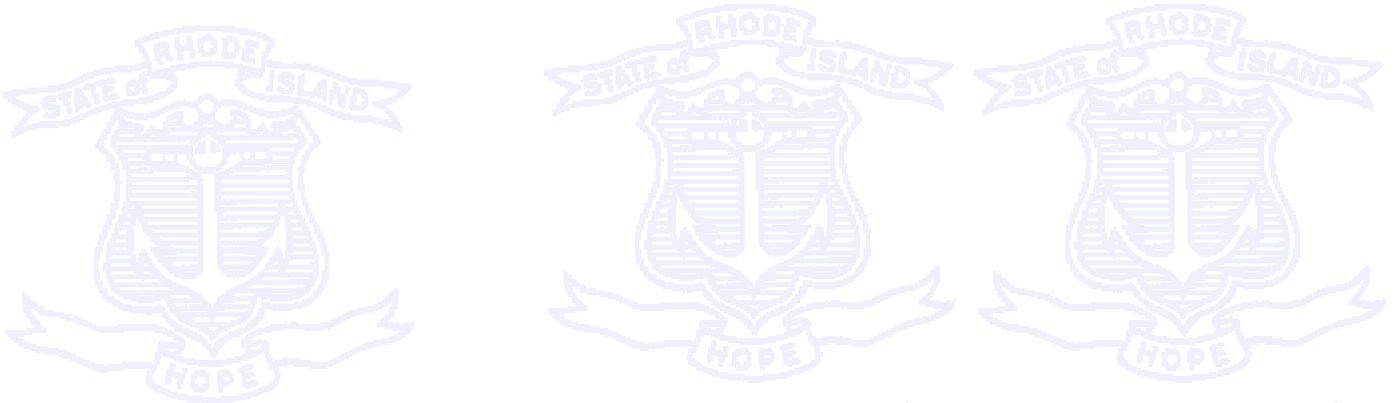
- ✓ Clients must be 18 years old to exchange.
- ✓ Clients must have a syringe to exchange syringes. Anyone can go to an ENCORE site for other harm reduction tools such as condoms, cookers and alcohol swabs.

***ENCORE SITES***

Wednesday and Saturday 2:00 - 4:00 pm in the Atlantic Mills on Manton Avenue, Providence. Enter the tower on the left and follow the signs to the first floor ENCORE site.

Tuesday and Thursday, 6:00 - 8:00 pm, at Broad Street Medical Building at 557 Broad Street, Providence. A variety of other services are available at the Broad Street site such as medical care and clothing.

For more information contact Rachel Harper at 273-1888 or 781-0665 or call the Health Department at 222-2320



## OPERATION CLEAN HANDS

**Operation Clean Hands** is a nationwide public health awareness initiative to educate Americans about health risks associated with poor hand washing habits. This outreach was initiated in partnership by the American Society for Microbiology and Bayer Corporation's Pharmaceutical Division at the 36th Annual Interscience Conference of Antimicrobial Agents and Chemotherapy (ICAAC) meeting in September 1996. The campaign is a continuing project of the partnership that will successfully target various specific segments of the population.

**Operation Clean Hands** was launched in response to survey findings that people do not wash their hands as often as they think they do, risking poor health and the spread of infection. Callers of **1-888-97-BAYER** can receive easy-to-understand information on hand washing, including the "Don't Get Caught Dirty Handed" brochure on the importance of hand washing and how and when to wash, as well as a hand washing reminder sticker for placement near sinks.

Hand washing is one of the "most important means of preventing the spread of infection," according to the Centers for Disease Control and Prevention (CDC). Although hand washing may seem trivial, failing to do so can have tragic, even deadly, consequences. Infectious diseases remain the leading cause of death and disease worldwide, as well as the third leading cause of death in this country.

Hand washing is really our first line of defense against many illnesses and can minimize a growing health concern called antibiotic resistance. The CDC estimates that the annual cost of treating infections caused by resistant bacteria -- bacteria that can mutate to protect themselves against an antibiotic -- may exceed an estimated \$4 billion in the United States alone. This treatment cost could be decreased if the spread of resistant bacteria were reduced by consistent and thorough hand washing.

**Operation Clean Hands** serves as a reminder to everyone that proper hand washing is critical in protecting ourselves and our families from illness. Operation Cleans Hands information and resources can be obtained by calling 1-888-97-BAYER or via mailed requests to Operation Clean Hands, 145 Hudson Street, New York, NY 10013.

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## **ADOLESCENT IMMUNIZATION**

### **Are there shots that protect against preventable diseases?**

Yes! Immunizations against hepatitis B, measles, mumps, rubella (German measles), tetanus, diphtheria, and chickenpox (varicella) are available for all adolescents. In addition, vaccinations against hepatitis A, flu (influenza) and pneumococcal disease are needed by some adolescents.

### **Should all adolescents be immunized?**

Yes. All adolescents require measles, mumps, rubella, tetanus, and diphtheria immunizations. All adolescents with diabetes and chronic heart, lung (including asthma), liver, or kidney disorders need protection against influenza and pneumococcal disease, and should consult their healthcare providers regarding their need for these shots. Chickenpox vaccine is recommended for those not previously vaccinated and who have no reliable history of the disease. Hepatitis B vaccine is indicated for all adolescents, ages 8-18 who have not been vaccinated previously.

Hepatitis A vaccine is recommended for adolescents traveling/working in countries where the disease is common, and those living in communities with outbreaks of the disease. It is also recommended for adolescents who have chronic liver disease or clotting-factor disorders, who use illegal drugs, or are male and have sex with other males.

### **How often do I need to be immunized?**

Hepatitis B vaccine is administered in 3 doses. Adolescents not previously vaccinated with 2 doses of MMR vaccine at age 12 months or older require a second dose. Shots for tetanus and diphtheria (Td vaccine) should be supplemented with a booster shot at ages 11-12 and every 10 years thereafter. One dose of chickenpox vaccine is recommended for adolescents ages 11-12 and 2 doses for those age 13 and older, if there is no proof of chickenpox. The flu shot should be administered yearly to adolescents who have any medical condition that places them at high risk for complications associated with the disease. Immunization for pneumococcal disease is administered once to adolescents with certain chronic diseases who are at increased risk for this disease or its complications. Hepatitis A vaccine is administered in 2 doses 6 to 18 months apart.

### **Are there side effects to these shots?**

Vaccines are among the safest medicines available. Some common side effects are a sore arm or low fever. As with any medicine, there are very small risks that serious problems could occur after getting immunized. However, the risks from the diseases are much greater than the risks from the vaccines.

## Should I carry a personal immunization record?

Yes! This record will help you and your healthcare provider ensure you are protected against vaccine-preventable diseases. Ask your provider for this document. Be sure to take it with you every time you visit your provider so it can be updated each time you are immunized.

**FACT:** Over 70% of the 100,000-140,000 new cases of hepatitis B each year strike adolescents and young adults. The hepatitis B virus is 100 times more infectious than HIV, the virus that causes AIDS.

**FACT:** Of the 575 measles patients in 1996 for whom age was known, one-third were ages 10-19.

**FACT:** About one-third of people infected with the mumps virus do not have any symptoms.

**FACT:** Forty to 50 cases of tetanus still occur each year, resulting in at least 5 deaths annually in the U.S.

**FACT:** Diphtheria, although no longer a very common disease in the U.S., is fatal in 1 out of every 10 cases.

**FACT:** In the United States, approximately 20% of adolescents ages 11-12 have not had chickenpox. Adolescents are 10 times more likely than children to develop severe complications when infected with this disease.

**FACT:** More than 8 million children and adolescents, ages 2-18 in the U.S. have at least one medical condition placing them at high risk for complications due to the flu.

**FACT:** Approximately 340,000 children and adolescents ages 2-18 have chronic illnesses placing them at increased risk for pneumococcal disease or its complications.

**FACT:** The highest rates of hepatitis A occur among children and adolescents ages 5-14, and most cases can be attributed to person-to-person transmission.

**FACT:** Vaccines are among the safest medicines available.

This fact sheet is for information only and is not meant to be used for self-diagnosis or as a substitute for consultation with a healthcare provider. If you have any questions about the disease described above or think that you may have a parasitic infection, consult a healthcare provider.

For more information please contact the Rhode Island Department of Health at 401-222-2577

## AIDS/HIV

### What is AIDS/HIV?

The cause of Acquired Immunodeficiency Syndrome (AIDS) is advanced infection with the Human Immunodeficiency Virus (HIV). HIV infection causes progressive damage to the immune system leaving the host susceptible to a number of infections and cancers resulting in AIDS.

### Who gets AIDS?

Anyone can get AIDS. AIDS cases have been reported from all age groups, all races, in virtually every country in the world. Behaviors which place a person at high risk for HIV infection include:

- ★ unprotected sex, particularly anal sex and/or sex with multiple partners;
- ★ needle sharing among injection drug users.

People also at risk for HIV transmission include infants born to infected mothers and people whose job places them in contact with blood or other body fluids such as health, emergency, and public safety workers.

Transfusion/transplant recipients have a very small risk of infection. Blood and tissues to be used for transplants have been screened for HIV since 1985. Since screening of blood and tissues began, the risk of HIV infection from the sources has been virtually eliminated.

### What are the symptoms of AIDS?

AIDS is a condition that leaves a person open to a number of different infections and cancers. There are nearly thirty indicator diseases of AIDS which each have their own symptoms. Some of the diseases often seen in AIDS patients are: *Pneumocystis carinii pneumonia* which affects breathing and often results in death, a skin cancer called *Kaposi's Sarcoma*, and *Cytomegalovirus retinitis*, a virus that causes loss of vision. People with AIDS may have a number of digestive problems leading to dramatic weight loss called *Wasting syndrome*.

### How soon do symptoms appear?

People infected with HIV may be free of clinical signs or symptoms for many months to years before the opportunistic infections and clinical symptoms of AIDS appear. As the immune system becomes more dysfunctional, more AIDS diseases develop and the severity of the diseases may increase.

Fifty percent of the people infected with HIV will develop the opportunistic infections and clinical symptoms characteristic of AIDS within 10 years of infection of HIV. The fatality rate of AIDS is very high; even with medical therapy, 80-90% of the patients with AIDS have died within 3-5 years after diagnosis with AIDS.

### **For how long is a person able to spread HIV?**

A person can spread the virus immediately after becoming infected with HIV. After becoming infected, a person is considered infected for the rest of their life.

### **What is the treatment for AIDS?**

There is no known cure or vaccine to prevent infection at this time. There are a number of drug treatments available to treat the numerous diseases of AIDS.

### **How can AIDS be prevented?**

Abstinence from sex and drugs is the surest way. Limit your number of sex partners, use a condom, don't have sex with someone with AIDS or HIV infection, don't share needles, and use protective equipment if occupied in a health, emergency, or public safety occupation.

This fact sheet is for information only and is not meant to be used for self-diagnosis or as a substitute for consultation with a healthcare provider. If you have any questions about the disease described above or think that you may have a parasitic infection, consult a healthcare provider.

**For more information please contact the Rhode Island Department of Health at 401-222-2320**

## **BABESIOSIS**

### **What is babesiosis?**

Babesiosis is a rare, severe and sometimes fatal tick-borne disease caused by an infection with a red blood cell parasite.

### **Who gets babesiosis?**

Babesiosis is seen most frequently in the elderly or in immunocompromised individuals. Cases of this disease have been reported during springs, summer and fall in coastal areas in the northeastern United States. Cases have also been reported in Wisconsin, California, Georgia and some European countries. Several cases of babesiosis can occur in people who have had their spleen removed.

### **How is babesiosis spread?**

Babesiosis is caused by *Babesia microti*, a parasite transmitted by the bite of an infected deer tick. Meadow voles, mice and deer carry the tick. Transmission to humans generally occurs from the bite of the nymph, while the adult tick generally feeds on deer. Transmission can also occur via contaminated blood transfusions.

### **What are the symptoms of babesiosis?**

The disease can cause fever, fatigue and hemolytic anemia lasting from several days to several months. Infections can occur without producing symptoms.

### **How soon do symptoms appear?**

It may take from one to 12 months for symptoms to appear; less time for immunocompromised people.

### **Does past infection with babesiosis make a person immune?**

It is not known whether past infection with babesiosis can make a person immune.

### **What is the treatment for babesiosis?**

Standardized treatments for babesiosis have not been developed. However, some drugs used in the treatment of malaria have been found to be effective in a few patients with babesiosis.

### **What can be done to prevent the spread of babesiosis?**

It is important to control rodents around human habitation and to use tick repellents. It is helpful to wear light colored clothing and to tuck pants into socks when walking through tick-infested areas.

This fact sheet is for information only and is not meant to be used for self-diagnosis or as a substitute for consultation with a healthcare provider. If you have any questions about the disease described above or think that you may have a parasitic infection, consult a healthcare provider.

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For more information please contact the Rhode Island Department of Health at 401-222-2577



## BACTERIAL MENINGITIS

### What is meningitis?

Meningitis is an infection of the fluid of a person's spinal cord and the fluid that surrounds the brain. People sometimes refer to it as spinal meningitis. Meningitis is usually caused by a viral or bacterial infection. Knowing whether meningitis is caused by a virus or bacterium is important because the severity of illness and the treatment differ. Viral meningitis is generally less severe and resolves without specific treatment, while bacterial meningitis can be quite severe and may result in brain damage, hearing loss, or learning disability. For bacterial meningitis, it is also important to know which type of bacteria is causing the meningitis because antibiotics can prevent some types from spreading and infecting other people. Before the 1990s, *Haemophilus influenzae* type b (Hib) was the leading cause of bacterial meningitis, but new vaccines being given to all children as part of their routine immunizations have reduced the occurrence of invasive disease due to *H. influenzae*. Today, *Streptococcus pneumoniae* and *Neisseria meningitidis* are the leading causes of bacterial meningitis.

### What are the signs and symptoms of meningitis?

High fever, headache, and stiff neck are common symptoms of meningitis in anyone over the age of 2 years. These symptoms can develop over several hours, or they may take 1 to 2 days. Other symptoms may include nausea, vomiting, discomfort looking into bright lights, confusion, and sleepiness. In newborns and small infants, the classic symptoms of fever, headache, and neck stiffness may be absent or difficult to detect, and the infant may only appear slow or inactive, or be irritable, have vomiting, or be feeding poorly. As the disease progresses, patients of any age may have seizures.

### How is meningitis diagnosed?

Early diagnosis and treatment are very important. If symptoms occur, the patient should see a doctor immediately. The diagnosis is usually made by growing bacteria from a sample of spinal fluid. The spinal fluid is obtained by performing a spinal tap, in which a needle is inserted into an area in the lower back where fluid in the spinal canal is readily accessible. Identification of the type of bacteria responsible is important for selection of correct antibiotics.

### Can meningitis be treated?

Bacterial meningitis can be treated with a number of effective antibiotics. It is important, however, that treatment be started early in the course of the disease. Appropriate antibiotic treatment of most common types of bacterial meningitis should reduce the risk of dying from meningitis to below 15%, although the risk is higher among the elderly.

## Is meningitis contagious?

Yes, some forms of bacterial meningitis are contagious. The bacteria are spread through the exchange of respiratory and throat secretions (i.e., coughing, kissing). Fortunately, none of the bacteria that cause meningitis are as contagious as things like the common cold or the flu, and they are not spread by casual contact or by simply breathing the air where a person with meningitis has been.

However, sometimes the bacteria that cause meningitis have spread to other people who have had close or prolonged contact with a patient with meningitis caused by *Neisseria meningitidis* (also called meningococcal meningitis) or Hib. People in the same household or day-care center, or anyone with direct contact with a patient's oral secretions (such as a boyfriend or girlfriend) would be considered at increased risk of acquiring the infection. People who qualify as close contacts of a person with meningitis caused by *N. meningitidis* should receive antibiotics to prevent them from getting the disease. Antibiotics for contacts of a person with Hib meningitis disease are no longer recommended if all contacts 4 years of age or younger are fully vaccinated against Hib disease (see below).

## Are there vaccines against meningitis?

Yes, there are vaccines against Hib and against some strains of *N. meningitidis* and many types of *Streptococcus pneumoniae*. The vaccines against Hib are very safe and highly effective. By age 6 months of age, every infant should receive at least 3 doses of an Hib vaccine. A fourth dose ("booster") should be given to children between 12 and 18 months of age.

There is also a vaccine that protects against four strains of *N. meningitidis*, but it is not routinely used in the United States and is not effective in children under 18 months of age. The vaccine against *N. meningitidis* is sometimes used to control outbreaks of some types of meningococcal meningitis in the United States. Meningitis cases should be reported to state or local health departments to assure follow-up of close contacts and recognize outbreaks. Although large epidemics of meningococcal meningitis do not occur in the United States, some countries experience large, periodic epidemics. Overseas travelers should check to see if meningococcal vaccine is recommended for their destination. Travelers should receive the vaccine at least 1 week before departure, if possible. Information on areas for which meningococcal vaccine is recommended can be obtained by calling the Centers for Disease Control and Prevention at (404)-332-4565.

A vaccine to prevent meningitis due to *S. pneumoniae* (also called pneumococcal meningitis) can also prevent other forms of infection due to

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*S. pneumoniae*. The pneumococcal vaccine is not effective in children under 2 years of age but is recommended for all persons over 65 years of age and younger persons with certain chronic medical problems.

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For more information please contact the Rhode Island Department of Health at 401-222-2577



## CAMPYLOBACTER

### What is campylobacteriosis?

Campylobacteriosis is an infectious disease caused by bacteria of the genus *Campylobacter*. Most people who become ill with campylobacteriosis get diarrhea, cramping, abdominal pain, and fever within 2 to 5 days after exposure to the organism. The diarrhea may be bloody and can be accompanied by nausea and vomiting. The illness typically lasts 1 week. Some persons who are infected with *Campylobacter* don't have any symptoms at all. In persons with compromised immune systems, *Campylobacter* occasionally spreads to the bloodstream and causes a serious life-threatening infection.

### How common is *Campylobacter*?

*Campylobacter* is the most common bacterial cause of diarrheal illness in the United States. Virtually all cases occur as isolated, sporadic events, not as a part of large outbreaks. Even though surveillance is very limited, over 10,000 cases are reported to the Centers for Disease Control and Prevention (CDC) each year, equaling approximately six cases for each 100,000 persons in the population. Many more cases go undiagnosed or unreported, and campylobacteriosis is estimated to affect over 2 million persons every year, or 1% of the population. Campylobacteriosis occurs much more frequently in the summer months than in the winter. The organism is isolated from infants and young adults more frequently than from other age groups and from males more frequently than females. Although *Campylobacter* doesn't commonly cause death, it has been estimated that approximately 500 persons with *Campylobacter* infections may die each year.

### What sort of germ is *Campylobacter*?

The *Campylobacter* organism is actually a group of spiral-shaped bacteria that can cause disease in humans and animals. Most human illness is caused by one species, called *Campylobacter jejuni*, but 1% of human *Campylobacter* cases are caused by other species. *Campylobacter jejuni* grows best at the body temperature of a bird, and seems to be well adapted to birds, who carry it without becoming ill. The bacterium is fragile. It cannot tolerate drying and can be killed by oxygen. It grows only if there is less than the atmospheric amount of oxygen present. Freezing reduces the number of *Campylobacter* bacteria present on raw meat.

### How is the infection diagnosed?

Many different kinds of infections can cause diarrhea and bloody diarrhea. Doctors can look for bacterial causes of diarrhea by asking a laboratory to culture a sample of stool from an ill person. Diagnosis of

*Campylobacter* requires special laboratory culture procedures, which doctors may need to specifically request.

### **How can campylobacteriosis be treated?**

Virtually all persons infected with *Campylobacter* will recover without any specific treatment. Patients should drink plenty of fluids as long as the diarrhea lasts. In more severe cases, antibiotics such as erythromycin or a fluoroquinolone can be used, and can shorten the duration of symptoms if they are given early in the illness. Your doctor will make the decision about whether antibiotics are necessary.

### **Are there long-term consequences?**

Most people who get campylobacteriosis recover completely within 2 to 5 days, although sometimes recovery can take up to 10 days.

Rarely, some long-term consequences can result from a *Campylobacter* infection. Some people may have arthritis following campylobacteriosis; others may develop a rare disease that affects the nerves of the body beginning several weeks after the diarrheal illness. This disease, called Guillan-Barré syndrome, occurs when a person's immune system is "triggered" to attack the body's own nerves, and can lead to paralysis that lasts several weeks and usually requires intensive care. It is estimated that approximately one in every 1000 reported campylobacteriosis cases leads to Guillan-Barré syndrome. As many as 40% of Guillan-Barré syndrome cases in this country may be triggered by campylobacteriosis.

### **How do people get infected with this germ?**

Campylobacteriosis usually occurs in single, sporadic cases, but it can also occur in outbreaks, when a number of people become ill at one time. Most cases of campylobacteriosis are associated with handling raw poultry or eating raw or undercooked poultry meat. A very small number of *Campylobacter* organisms (fewer than 500) can cause illness in humans. Even one drop of juice from raw chicken meat can infect a person. One way to become infected is to cut poultry meat on a cutting board, and then use the unwashed cutting board or utensil to prepare vegetables or other raw or lightly cooked foods. The *Campylobacter* organisms from the raw meat can then spread to the other foods. The organism is not usually spread from person to person, but this can happen if the infected person is a small child or is producing a large volume of diarrhea. Larger outbreaks due to *Campylobacter* are not usually associated with raw poultry but are usually related to drinking unpasteurized milk or contaminated water. Animals can also be infected, and some people have acquired their infection from contact with the infected stool of an ill dog or cat.

### **How does food or water get contaminated with *Campylobacter*?**

Many chicken flocks are silently infected with *Campylobacter*; that is, the chickens are infected with the organism but show no signs of illness.

*Campylobacter* can be easily spread from bird to bird through a common water source or through contact with infected feces. When an infected bird is slaughtered, *Campylobacter* can be transferred from the intestines to the meat. More than half of the raw chicken in the United States market has *Campylobacter* on it. *Campylobacter* is also present in the giblets, especially the liver.

Unpasteurized milk can become contaminated if the cow has an infection with *Campylobacter* in her udder or the milk is contaminated with manure. Surface water and mountain streams can become contaminated from infected feces from cows or wild birds. This infection is common in the developing world, and travelers to foreign countries are also at risk for becoming infected with *Campylobacter*.

### **What can be done to prevent the infection?**

There are some simple food-handling practices for preventing *Campylobacter* infections. Physicians who diagnose campylobacteriosis and clinical laboratories that identify this organism should report their findings to the local health department. If many cases occur at the same time, it may mean that many people were exposed to a common contaminated food item or water source that might still be available to infect more people. When outbreaks occur, community education efforts can be directed at proper food handling techniques, especially thorough cooking of all poultry and other foods of animal origin, and common sense kitchen hygiene practices.

Some data suggest that *Campylobacter* can spread through a chicken flock in their drinking water. Providing clean, chlorinated water sources for the chickens might prevent *Campylobacter* infections in poultry flocks and thereby decrease the amount of contaminated meat reaching the market place.

### **Some Tips for Preventing Campylobacteriosis:**

- Cook all poultry products thoroughly. Make sure that the meat is cooked throughout (no longer pink), any juices run clear, and the inside is cooked to 170°F (77°C) for breast meat, and 180°F (82°C) for thigh meat.
- If you are served undercooked poultry in a restaurant, send it back for further cooking.
- Wash hands with soap before handling raw foods of animal origin.
- Wash hands with soap after handling raw foods of animal origin and before touching anything else.
- Prevent cross-contamination in the kitchen:
  - ✓ use separate cutting boards for foods of animal origin and other foods.
  - ✓ carefully clean all cutting boards, countertops and utensils with soap and hot water after preparing raw food of animal origin.
- Avoid consuming unpasteurized milk and untreated surface water.

- Make sure that persons with diarrhea, especially children, wash their hands carefully and frequently with soap to reduce the risk of spreading the infection.
- Wash hands with soap after having contact with pet feces.

### **What are public health agencies doing to prevent or control campylobacteriosis?**

To learn more about how *Campylobacter* causes disease and is spread, CDC began a national surveillance program in 1982. A more detailed active surveillance system was instituted in 1996; this will provide more information on how often this disease occurs and what the risk factors are for getting it. CDC is also making an effort to inform the public about campylobacteriosis and ways to avoid getting this disease. The U.S. Department of Agriculture conducts research on how to prevent the infection in chickens. The Food and Drug Administration has produced the Model Food Code, which could decrease the risk of contaminated chicken being served in commercial food establishments.

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For more information please contact the Rhode Island Department of Health at 401-222-2577

## CONJUNCTIVITIS (PINKEYE)

### What Is Conjunctivitis?

Acute conjunctivitis, commonly known as “pink eye”, is an inflammation of the mucous membrane on the inside of the eyelid and upper eyeball. Symptoms include discomfort, discharge, red watery eyes, swelling, itching, blurred vision and light sensitivity.

### What Causes Conjunctivitis?

There are 3 main types of conjunctivitis:

- ☆ Infectious – caused by a virus or bacteria. Viral conjunctivitis is usually accompanied by a sore throat and is highly contagious among children, often spread by hand-to-eye contact.
- ☆ Allergic – this form of conjunctivitis is most common in spring and fall, but can occur anytime when and if one is allergic to pets, cosmetics, most dust, or any other allergens.
- ☆ Chemical - causes may include irritants like air pollution, noxious fumes and chlorine in swimming pools. Less frequent causes include irritation from wind, dust, or overexposure to sunlight.

### How Is Conjunctivitis Treated?

- ☆ If bacterial conjunctivitis is suspected, treatment generally consists of antibiotic drops and ointments.
- ☆ In cases of allergic or chemical conjunctivitis, try to avoid the irritant that is causing the condition.
- ☆ Viral conjunctivitis will not respond to antibiotics, and must be fought off by your body’s immune system.
- ☆ Prescription or over-the-counter eye drops may be recommended to relieve discomfort for any type of conjunctivitis.

### How Can I Prevent The Spread Of Contagious Conjunctivitis?

- ☆ Keep your hands away from your eyes;
- ☆ Thoroughly wash hands before and after applying eye medications;
- ☆ Do not share towels, washcloths, cosmetics, or eye drops;
- ☆ Promptly seek treatment.

If untreated, conjunctivitis can sometimes develop into a condition that can harm vision, so be sure to see your optometrist promptly for diagnosis and treatment.

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**For more information please contact the Rhode Island Department of Health at 401-222-2577**

## **CYTOMEGALOVIRUS (CMV)**

### **What is Cytomegalovirus (CMV)?**

Human CMV is a common virus that infects most people some time during their lives, but rarely causes illness. It is a member of the herpesvirus group and can be present in your body without causing illness; it can be reactivated later and cause illness.

### **Who gets CMV?**

Anyone. Many adults may have been infected at some time during their life.

### **How is CMV spread?**

CMV is spread from person to person by contact with urine, saliva, breast milk, blood, semen, and possibly other body fluids. The virus can spread from an infected mother to her fetus or newborn baby. CMV can also be spread by blood transfusion and organ transplants.

### **What are the symptoms of CMV infection?**

Most children and adults infected with CMV do not have symptoms. Those who do may have fever, swollen glands, and feel tired. Immunocompromised people (such as AIDS patients or those receiving cancer treatments) may have a more serious illness such as pneumonia or inflammation of the eye. The most severe form of the disease occurs when a mother infects her fetus. Most of these infections are without symptoms, however, about 10% of these babies later have some type of disability such as hearing loss, learning disabilities, or mental retardation.

### **How soon after infection do symptoms appear?**

Information about this is not exact. Illness following transfusion with infected blood begins three to eight weeks after the transfusion. Infections acquired during birth may occur three to twelve weeks after delivery. The time frame for onset of symptoms following person-to-person transmission is unknown, since most people never become ill.

### **How long can an infected person carry CMV?**

CMV may remain in the body throughout a person's lifetime. The virus may be found in the urine or saliva of infected people who may or may not be ill.

### **How is CMV diagnosed?**

Diagnosis is made by finding the virus in the blood, urine, saliva, semen, breast milk, or other body fluids or tissues.

### **What is the treatment for CMV infections?**

There is usually no treatment for CMV. However, patients with AIDS or cancer who have an eye infection may be treated with ganciclovir.

**Should an infected person be excluded from school or work?**

No.

**What precautions should pregnant women take?**

Pregnant women should be careful to wash their hands after changing diapers or having contact with urine or saliva. Those working in day care centers should not kiss babies or young children on the mouth. Pregnant women should ask their doctor about CMV infections.

**What can be done to stop the spread of CMV?**

Good hand washing is the best way to prevent infection with CMV. Healthcare workers should wear disposable gloves when handling sheets or clothes soiled with feces or urine.

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## DIPHTHERIA

### **What is diphtheria?**

Diphtheria is a disease caused by bacteria that usually affect the tonsils, throat, nose, or skin.

### **Who gets diphtheria?**

Diphtheria is a rare disease that is most likely to occur where people who have not been vaccinated live in crowded conditions.

### **How is diphtheria spread?**

Diphtheria is transmitted to others through close contact with discharge from an infected person's nose, throat, skin, and eyes.

### **What are the symptoms of diphtheria?**

There are two types of diphtheria. One type involves the nose and throat, and the other involves the skin. Symptoms include sore throat, low-grade fever and enlarged lymph nodes located in the neck. A membrane may form across the throat. Skin lesions may be painful, swollen and reddened. A person with diphtheria may have no symptoms.

### **How soon do symptoms appear?**

Symptoms usually appear two to five days after exposure, with a range of one to six days.

### **When and for how long is a person able to spread diphtheria?**

Untreated people who are infected with the diphtheria bacteria are usually contagious for up to two weeks, and seldom more than four weeks. If treated with appropriate antibiotics, the contagious period can be limited to less than four days.

### **Does past infection with diphtheria make a person immune?**

Lasting immunity does not always follow recovery from diphtheria.

### **Is there a vaccine for diphtheria?**

Diphtheria toxoid is usually combined with tetanus toxoid and pertussis vaccine to form a triple vaccine known as DTP. This vaccine should be given at two, four, six, and 15 months of age, and between four and six years of age. Everyone should also receive a combination of tetanus toxoid and diphtheria toxoid (Td) every 10 years to maintain immunity.

### **What is the treatment for diphtheria?**

Certain antibiotics, such as penicillin and erythromycin, can be prescribed for the treatment of diphtheria.

## **What can be the effect of not being treated for diphtheria?**

If diphtheria goes untreated, serious complications such as heart failure and nerve disorders may occur. Death occurs in about 5-10% of all cases.

## **How can diphtheria be prevented?**

The single most effective control measure is maintaining the highest possible level of immunization in the community. Other methods of control include prompt treatment of cases and a community surveillance program.

Anyone who has close contact with a person with diphtheria will be tested for the disease, given an antibiotic and an immunization, and possibly kept away from school or work until it is clear that they are free of the disease.

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For more information please contact the Rhode Island Department of Health at 401-222-2312

## EMERGING AND RE-EMERGING INFECTIOUS DISEASES FACT SHEET

New microorganisms capable of causing disease in humans continue to be detected (see examples in Table 1). Whether an emerging microorganism develops into a public health threat depends on factors related to the microorganism and its environment, or the infected human and his/her environment. Such factors include ease of transmission between animals and people and among people, potential for spread beyond the immediate outbreak site, severity of illness, availability of effective tools to prevent and control the outbreak, and ability to treat the disease. Some of the new agents detected in the past 25 years are now genuine public health problems on a local, regional or global scale. What are emerging infectious diseases?

*Emerging infectious diseases* result from newly identified and previously unknown infections that cause public health problems either locally or internationally. A recent example of an emerging disease is the new variant of Creutzfeldt-Jakob disease, which was first described in the United Kingdom in 1996. The agent is considered to be the same as that causing bovine spongiform encephalitis, a disease that emerged in the 1980s and affected thousands of cattle in the United Kingdom and some other European countries. Examples of emerging diseases associated with viruses and bacteria are:

### **Viruses:**

- ◇ ***Ebola virus:*** The first outbreaks occurred in 1976 and the discovery of the virus was reported in 1977. Indigenous cases have been confirmed in four countries in Africa (Côte d'Ivoire, Democratic Republic of Congo, Gabon and Sudan). Through June 1997, 1 054 cases had been reported to WHO, 754 of which proved fatal. Monkeys infected with an Asian strain of Ebola were imported from the Philippines into the United States of America in 1989 and 1990, and into Italy in 1992. This Asian strain, Ebola-Reston, does not appear to cause illness in humans.
- ◇ ***Human immunodeficiency virus (HIV):*** The virus which causes AIDS was first isolated in 1983. By the beginning of June 1998, the number of AIDS cases reported to WHO by national authorities since the beginning of the epidemic was close to 1.9 million. However, it is estimated that, since the start of the epidemic, 30.6 million people worldwide have become HIV infected and nearly 12 million have died from AIDS or AIDS-related diseases.
- ◇ ***Hepatitis C:*** Identified in 1989, this virus is now known to be the most common cause of post-transfusion hepatitis worldwide, with

approximately 90% of cases in Japan, the United States and western Europe. Up to 3% of the world population are estimated to be infected, among which 170 million are chronic carriers at risk of developing liver cirrhosis and/or liver cancer.

- ◇ ***Sin nombre*** (i.e., an unnamed) virus was isolated from cases of a local outbreak of a highly fatal respiratory disease in the southern United States in 1993. It has subsequently been diagnosed in sporadic cases across the country and in Canada and several South American countries.
- ◇ ***Influenza A (H5N1) virus***: This influenza virus is a well-known pathogen in birds but was isolated from human cases for the first time in 1997. The emergence of human influenza A (H5N1) initially followed a possible scenario of the expected next influenza pandemic but, in the event, the virus transmitted poorly and the spread of the virus appeared to have been contained in 1997.

**Bacteria:**

- ◇ ***Legionella pneumophila***: The detection of the bacterium in 1977 explained an outbreak of severe pneumonia in a convention centre in the USA in 1976 and it has since been associated with outbreaks linked to poorly maintained air conditioning systems.
- ◇ ***Escherichia coli O157:H7***: Detected in 1982, this bacterium is typically transmitted through contaminated food and has caused outbreaks of haemolytic uraemic syndrome in North America, Europe and Japan. A widespread outbreak in Japan in 1996 caused over 6 000 cases among school children, among whom two died. During a single outbreak in Scotland in 1996, 496 people fell ill, of whom 16 died.
- ◇ ***Borrelia burgdorferi***: Detected in the USA in 1982 and identified as the cause of Lyme disease, this bacterium is now known to be endemic in North America and Europe and is transmitted to humans by ticks.
- ◇ ***Vibrio cholerae* O139**: First detected in 1992 in India, this bacterium has since been reported in 7 countries in Asia. The emergence of a new serotype permits the organism to continue to spread and cause disease even in populations protected by antibodies generated in response to previous exposure to other serotypes of the same organism.

**Antimicrobial resistance:**

Another emerging public health issue is the rapidly growing number of bacteria becoming resistant to an increasing range of antibiotics. In many regions, the low cost, first choice antibiotics have lost their power to clear infections of *Escherichia coli*, *Neisseria gonorrhoea*, *Pneumococcus*, *Shigella*, *Staphylococcus aureus* - increasing the cost and length of

treatment of many common diseases including epidemic diarrheal diseases, gonorrhoea, pneumonia and otitis. Further problems stem from the use of antimicrobial substances in food animal production.

**What are re-emerging infectious diseases?**

Re-emerging infectious diseases are due to the reappearance of, and an increase in, the number of infections from a disease which is known, but which had formerly caused so few infections that it had no longer been considered a public health problem.

- ◇ **Cholera:** Cholera has been re-introduced into countries and continents where it had previously disappeared, and where it can spread because water and sanitation systems have deteriorated and food safety measures are not adequate. In 1991, the 7th cholera pandemic reached the Americas where cholera had not been registered for a century. In that year, over 390 000 cases were notified in over 10 South American countries, which altogether accounted for 2/3 of the number of cases notified in the world. In 1997, cholera outbreaks chiefly affected Eastern Africa and, while the overall numbers have declined since 1991, there were still over 147 000 cases reported globally in 1997. In 1998, the epidemic spread over eastern and southern Africa and new outbreaks occurred in South America.
- ◇ **Dengue fever:** Dengue fever has spread in many parts of South-East Asia since the 1950s and re-emerged in the Americas in the 1990s following deterioration in active mosquito control and spread of the vector into urban areas. Infection with dengue virus has often resulted in dengue haemorrhagic fever (DHF) in Asia, but rarely in the Americas until a severe outbreak in Cuba in 1981. Dengue hemorrhagic fever has since spread and during the epidemics in Central and South America in 1995-1997, DHF was reported in 24 countries.
- ◇ **Diphtheria:** Diphtheria re-emerged in the Russian Federation and some other republics of the former Soviet Union in 1994 and culminated in 1995 with over 50,000 cases reported. The re-emergence was linked to a dramatic decline in the immunization programs following the disruption of health services during the unsettled times immediately after the break-up of the Soviet Union. Since then immunization services have been re-established, reversing the upward trend: in 1996, 13 687 cases were reported in the Russian Federation.
- ◇ **Meningococcal meningitis:** Meningococcal meningitis occurs worldwide but devastating, large-scale epidemics have mainly been in the dry Sub-Saharan regions of Africa, designated the "African meningitis belt". Since the mid 1990s, epidemics in this area have been on an unprecedented scale and epidemic meningitis has also emerged in countries south of the "meningitis

belt". A new strain of *Neisseria meningitidis* (serogroup A clone III.1), which was first seen in the 1980s in Nepal and China, has spread west and has now been diagnosed in major meningitis outbreaks in Africa.

- ◇ **Rift Valley fever (RVF):** RVF is a zoonotic disease typically affecting sheep and cattle in Africa. Mosquitoes are the principal means by which RVF virus is transmitted among animals and to humans. Persons in contact with sick animals occasionally become infected. The disease in humans is typified by fever and myalgia but in some cases, progresses to retinitis, encephalitis or hemorrhage. Following abnormally heavy rainfall in Kenya and Somalia in late 1997 and early 1998, RVF occurred over vast areas, producing disease in livestock and causing haemorrhagic fever and death among the human population. The extent of the outbreak and the severity of the disease was probably due to many factors, including climatic conditions, malnutrition and, possibly, route of infection.
- ◇ **Yellow fever (YF):** YF is an example of a disease for which an effective vaccine exists but, because it is not widely used in many areas at risk, epidemics continue to occur. The threat of YF is present in 33 countries in Africa and eight in South America. Since the mid-1980s there has been a steady increase in the number of cases or countries reporting cases (up to 5 300 per year worldwide), yet the true number of cases occurring could be many times higher, as outbreaks in general occur in remote areas and miss the attention of health services. YF is typically a disease of the tropical forest areas where the virus survives in monkeys. Humans bring it back to their villages and if a suitable mosquito vector is present, the disease will spread quickly and kill a large proportion of the population, which has no immunity.

#### **What causes emergence or re-emergence of infectious diseases?**

Several factors contribute to the emergence and re-emergence of infectious diseases, but most can be linked with the increasing number of people living and moving in the world: rapid and intense international travel; overcrowding in cities with poor sanitation; substantially increased international trade in food, mass distribution of food and unhygienic food preparation practices; increased exposure of humans to disease vectors and reservoirs in nature; and alteration of the environment and climatic changes which have a direct impact on the composition and size of the population of insect vectors and animal reservoirs. Other factors include a deteriorating public health infrastructure that is unable to cope with the needs of the population. Travel has always been a vehicle to spread disease across the world. According to data from the World Tourism Organization, over 550 million travelers were counted at national borders in 1995 and over 117

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million of them had crossed continents to arrive at the destination. Luckily, the vast majority of infections brought along with travelers are common worldwide and the disease is more a nuisance to the traveler than to society.

**Table 1: Examples of pathogens recognized since 1973**

<b>Year</b>	<b>Microbe</b>	<b>Disease</b>
1973	Rotavirus	Major cause of infantile diarrhea globally
1976	Cryptosporidium parvum	Acute and chronic diarrhea
1977	Ebola virus	Ebola haemorrhagic fever
1977	Legionella pneumophilia	Legionnaires disease
1977	Hantaan virus	Haemorrhagic fever with renal syndrome
1977	Campylobacter jejuni	Enteric diseases distributed globally
1980	Human T-lymphotropic virus 1 (HTLV-1)	T-cell lymphoma-leukemia
1981	Toxin producing strains of Staphylococcus aureus	Toxic shock syndrome
1982	Escherichia coli O157:H7	Haemorrhagic colitis; haemolytic uraemic syndrome
1982	HTLV-II	Hairy cell leukemia
1982	Borrelia burgdorferi	Lyme disease
1983	HIV	AIDS
1983	Helicobacter pylori	Peptic ulcer disease
1988	Hepatitis E	Enterically transmitted non-A, non-B hepatitis
1990	Guanarito virus	Venezuelan haemorrhagic fever
1991	Encephalitozoon hellem	Conjunctivitis, disseminated disease
1992	Vibrio cholerae O139	New strain associated with epidemic cholera
1992	Bartonella henselae	Cat-scratch disease; bacillary angiomatosis
1994	Sabia virus	Brazilian haemorrhagic fever
1995	Hepatitis G virus	Parenterally transmitted non-A, non B hepatitis
1995	Human herpesvirus-8	Associated with Kaposi sarcoma in AIDS patients

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1996	TSE causing agent	New Variant Creutzfeldt-Jakob disease
1997	Avian Influenza [Type A (H5N1)]	Influenza

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## ESCHERICHIA COLI O157:H7

### What is *Escherichia coli* O157:H7 ?

*Escherichia coli* is a bacterium that is a common inhabitant of the gut of warm blooded animals, including man. Most strains of *E. coli* are harmless, however, some strains, such as *E. coli* O157:H7, can cause severe foodborne disease and are referred to as enterohaemorrhagic *E. coli* (EHEC). This pathogen produces toxins, known as verotoxins or Shiga-like toxins because of their similarity to the toxins produced by *Shigella dysenteriae*. The organism can grow from around 7-10C to 50C, with an optimum temperature of 37C. Some EHEC can grow in acidic foods, down to a pH of 4.4, and in foods with a minimum water activity (Aw) of 0.95. It is destroyed by thorough cooking of foods until all parts reach a temperature of 70C or higher. The designation "O157:H7" in the name of this bacterium refers to specific chemical compounds that are found on its surface that distinguishes it from other strains of *E. coli*.

### What illnesses does *E. coli* O157:H7 cause ?

Symptoms of the illness caused by *E. coli* O157:H7 include abdominal cramps and watery diarrhea that can develop into bloody diarrhea (haemorrhagic colitis). Fever and vomiting may also occur and most patients recover within 10 days. However, in a small proportion of patients, particularly young children and the elderly, the infection can result in life-threatening complications, such as haemolytic uremic syndrome (HUS), for example.

HUS is characterized by acute renal failure, haemolytic anemia and thrombocytopenia. It is estimated that up to 10% of patients with EHEC infection may develop HUS, with a case-fatality rate ranging from 3% to 5%. The incubation period for the illness can range from 3 to 8 days, with a median of 3-4 days.

### What are the sources of infection?

The reservoir of this pathogen appears to be mainly cattle. It is transmitted to man principally through consumption of contaminated foods, such as raw or undercooked ground meat products and raw milk. Fecal contamination of water and other foods, as well as cross-contamination during food preparation will also lead to infection. Examples of foods implicated in outbreaks of *E. coli* O157:H7 include hamburgers, fresh-pressed apple cider, yogurt, cheese, dried cured salami, and cooked maize. EHEC can survive and grow on salad vegetables.

Waterborne transmission has been reported, both from contaminated drinking water and from recreational waters. Person-to-person contact is an important mode of transmission through the oral-fecal route. An asymptomatic carrier state has been reported, where individuals show no clinical signs of disease but are capable of infecting others. The duration

of excretion of EHEC is about one week or less in adults, but can be longer in children

### **What can be done to prevent or control E. coli?**

The prevention of infection requires control measures at all stages of the food chain, from agricultural production on the farm, to processing, manufacturing and preparation of foods in both commercial establishments and the domestic environment.

There are insufficient data to recommend specific intervention methods on the farm in order to reduce the incidence of EHEC in cattle. Good hygienic slaughtering practices will reduce contamination of carcasses by feces but will not guarantee the absence of EHEC from products. Education in hygienic handling of foods for abattoir workers and those involved in the production of raw meat is essential to keep microbiological contamination to a minimum. Similarly, prevention of contamination of raw milk on the farm is virtually not feasible but education of farm workers in principles of good hygienic practice is necessary in order to keep contamination to a minimum. The only effective method of eliminating EHEC from foods is to introduce a bactericidal treatment, such as heating (e.g. cooking or pasteurization) or irradiation.

Preventive measures for of *E. coli* O157:H7 infection are similar to other foodborne diseases. However, some of the measures may need to be reinforced for this infection, particularly because of the importance of EHEC infection in vulnerable groups such as children and elderly.

### **Recommendations to the public and travelers:**

- ★ Make sure your food, particularly foods made with ground beef (e.g. hamburger) are properly cooked and are still hot when served;
- ★ Avoid raw milk and products made from raw milk. Drink only pasteurized or boiled milk;
- ★ Wash hands thoroughly and frequently using soap, in particular after having been to the toilet, or after contact with farm animals;
- ★ Wash fruits and vegetables carefully, particularly if they are eaten raw. If possible, vegetables and fruits should be peeled;
- ★ When the safety of drinking water is doubtful, boil it or if this is not possible, disinfect it with a reliable, slow release disinfectant agent. These are usually available at pharmacies.

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For more information please contact the Rhode Island Department of Health at 401-222-2577

## THE GOLDEN RULES FOR SAFE FOOD PREPARATION

### 1. Choose foods processed for safety

While many foods, such as fruits and vegetables, are best in their natural state, others simply are not safe unless they have been processed. For example, always buy pasteurized as opposed to raw milk and, if you have the choice, select fresh or frozen poultry treated with ionizing radiation. When shopping, keep in mind that food processing was invented to improve safety as well as to prolong shelf life. Certain foods eaten raw, such as lettuce, need thorough washing.

### 2. Cook food thoroughly

Many raw foods, most notably poultry, meats, and unpasteurized milk, are very often contaminated with disease-causing pathogens. Thorough cooking will kill the pathogens, but remember that the temperature of all parts of the food must reach at least 70°C. If cooked chicken is still raw near the bone, put it back in the oven until it's done -- all the way through. Frozen meat, fish, and poultry must be thoroughly thawed before cooking.

### 3. Eat cooked foods immediately

When cooked foods cool to room temperature, microbes begin to proliferate. The longer the wait, the greater the risk. To be on the safe side, eat cooked foods just as soon as they come off the heat.

### 4. Store cooked foods carefully

If you must prepare foods in advance or want to keep leftovers, be sure to store them under either hot (near or above 60°C) conditions. This rule is of vital importance if you plan to store foods for more than four or five hours. Foods for infants should preferably not be stored at all. A common error, responsible for countless cases of food borne disease, is putting too large a quantity of warm food in the refrigerator. In an overburdened refrigerator, cooked foods cannot cool to the core as quickly as they must. When the center of food remains warm (above 10°C) too long, microbes thrive, quickly proliferating to disease-producing levels.

### 5. Reheat cooked foods thoroughly

This is your best protection against microbes that may have developed during storage (proper storage slows down microbial growth but does not kill the organisms). Once again, thorough re-heating means that all parts of the food must reach at least 70°C.

### 6. Avoid contact between raw foods and cooked foods

Safely cooked food can become contaminated through even the slightest contact with raw food. This cross-contamination can be direct, as when raw poultry meat comes into contact with cooked foods. It can also be subtler. For example, don't prepare a raw chicken and then use the same unwashed cutting board and knife to carve the cooked bird. Doing

so can reintroduce all the potential risks for microbial growth and subsequent illness present prior to cooking.

**7. Wash hands repeatedly**

Wash hands thoroughly before you start preparing food and after every interruption -- especially if you have to change the baby or have been to the toilet. After preparing raw foods such as fish, meat or poultry, wash again before you start handling other foods. And if you have an infection on your hand, be sure to bandage or cover it before preparing food. Remember too, that household pets -- dogs, birds, and especially turtles -- often harbor dangerous pathogens that can pass from your hands into food.

**8. Keep all kitchen surfaces meticulously clean**

Since foods are so easily contaminated, any surface used for food preparation must be kept absolutely clean. Think of every food scrap, crumb or spot as a potential reservoir of germs. Cloths that come into contact with dishes and utensils should be changed every day and boiled before reuse. Separate cloths for cleaning the floor also require, frequent washing.

**9. Protect foods from insects, rodents, and other animals**

Animals frequently carry pathogenic microorganisms that cause food borne disease. Storing foods in tightly sealed containers is your best protection.

**10. Use pure water**

Pure water is just as important for food preparation as for drinking. If you have any doubts about the water supply, boil water before adding it to food or making ice for drinks. Be especially careful with any water used to prepare an infant's meal.

## **FIFTH DISEASE & PARVOVIRUS B19 INFECTION**

### **What is "fifth disease?"**

Fifth disease is a mild rash illness that occurs most commonly in children. The ill child typically has a "slapped-cheek" rash on the face and a lacy red rash on the trunk and limbs. Occasionally, the rash may itch. An ill child may have a low-grade fever, malaise, or a "cold" a few days before the rash breaks out. The child is usually not very ill, and the rash resolves in 7 to 10 days.

### **What causes fifth disease?**

Fifth disease is caused by infection with human parvovirus B19. This virus infects only humans. Pet dogs or cats may be immunized against "parvovirus," but these are animal parvoviruses that do not infect humans. Therefore, a child cannot "catch" parvovirus from a pet dog or cat, and a pet cat or dog cannot catch human parvovirus B19 from an ill child.

### **Can adults get fifth disease?**

Yes, they can. An adult who is not immune can be infected with parvovirus B19 and either have no symptoms or develop the typical rash of fifth disease, joint pain or swelling, or both. Usually, joints on both sides of the body are affected. The joints most frequently affected are the hands, wrists, and knees. The joint pain and swelling usually resolve in a week or two, but they may last several months. About 50% of adults, however, have been previously infected with parvovirus B19, have developed immunity to the virus, and cannot get fifth disease.

### **Is fifth disease contagious?**

Yes. A person infected with parvovirus B19 is contagious during the early part of the illness, before the rash appears. By the time a child has the characteristic "slapped cheek" rash of fifth disease, for example, he or she is probably no longer contagious and may return to school or childcare center. This contagious period is different than that for many other rash illnesses, such as measles, for which the child is contagious while he or she has the rash.

### **How does someone get infected with parvovirus B19?**

Parvovirus B19 has been found in the respiratory secretions (e.g., saliva, sputum, or nasal mucus) of infected persons before the onset of rash, when they appear to "just have a cold." The virus is probably spread from person to person by direct contact with those secretions, such as sharing drinking cups or utensils. In a household, as many as 50% of susceptible persons exposed to a family member who has fifth disease

may become infected. During school outbreaks, 10% to 60% of students may get fifth disease.

### **How soon after infection with parvovirus B19 does a person become ill?**

A susceptible person usually becomes ill 4 to 14 days after being infected with the virus, but may become ill for as long as 20 days after infection.

### **Does everyone who is infected with parvovirus B19 become ill?**

No. During outbreaks of fifth disease, about 20% of adults and children who are infected with parvovirus B19 do not develop any symptoms. Furthermore, other persons infected with the virus will have a non-specific illness that is not characteristic of fifth disease. Persons infected with the virus, however, do develop lasting immunity that protects them against infection in the future.

### **How is fifth disease diagnosed?**

A physician can often diagnose fifth disease by seeing the typical rash during a physical examination. In cases in which it is important to confirm the diagnosis, a blood test may be done to look for antibodies to parvovirus. Antibodies are proteins produced by the immune system in response to parvovirus B19 and other germs. If immunoglobulin M (IgM) antibody to parvovirus B19 is detected, the test result suggests that the person has had a recent infection.

### **Is fifth disease serious?**

Fifth disease is usually a mild illness that resolves on its own among children and adults who are otherwise healthy. Joint pain and swelling in adults usually resolve without long-term disability.

Parvovirus B19 infection may cause a serious illness in persons with sickle-cell disease or similar types of chronic anemia. In such persons, parvovirus B19 can cause an acute, severe anemia. The ill person may be pale, weak, and tired, and should see his or her physician for treatment. (The typical rash of fifth disease is rarely seen in these persons.) Once the infection is controlled, the anemia resolves. Furthermore, persons who have problems with their immune systems may also develop a chronic anemia with parvovirus B19 infection that requires medical treatment. People who have leukemia or cancer, who are born with immune deficiencies, who have received an organ transplant, or who have human immunodeficiency virus (HIV) infection are at risk for serious illness due to parvovirus B19 infection.

Occasionally, serious complications may develop from parvovirus B19 infection during pregnancy. For details, please see the CDC information sheet entitled, "Parvovirus B19 Infection and Pregnancy."

### **How are parvovirus B19 infections treated?**

Treatment of symptoms such as fever, pain, or itching is usually all that is needed for fifth disease. Adults with joint pain and swelling may need to rest, restrict their activities, and take medicines such as aspirin or ibuprofen to relieve symptoms. The few people who have severe anemia caused by parvovirus B19 infection may need to be hospitalized and receive blood transfusions. Persons with immune problems may need special medical care, including treatment with immune globulin (antibodies), to help their bodies get rid of the infection.

### **Can parvovirus B19 infection be prevented?**

There is no vaccine or medicine that prevents parvovirus B19 infection. Frequent hand washing is recommended as a practical and probably effective method to decrease the chance of becoming infected. Excluding persons with fifth disease from work, childcare centers, or schools is not likely to prevent the spread of the virus, since people are contagious before they develop the rash.

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**For more information please contact the Rhode Island Department of Health at 401-222-2577**

## GENITAL HERPES

### What is genital herpes?

Herpes is a sexually transmitted disease (STD) caused by the herpes simplex virus (HSV). HSV-type 1 commonly causes fever blisters on the mouth or face (oral herpes), while HSV-type 2 typically affects the genital area (genital herpes). However, both viral types can cause either genital or oral infections. Most of the time, HSV-1 and HSV-2 are inactive, or “silent,” and cause no symptoms, but some infected people have “outbreaks” of blisters and ulcers. Once infected with HSV, people remain infected for life.

### How is genital herpes spread?

HSV-1 and HSV-2 are transmitted through direct contact, including kissing, sexual contact (vaginal, oral, or anal sex), or skin-to-skin contact.

Genital herpes can be transmitted with or without the presence of sores or other symptoms. It often is transmitted by people who are unaware that they are infected, or by people who do not recognize that their infection can be transmitted even when they have no symptoms.

### How common is genital herpes?

Results of a recent, nationally representative study show that genital herpes infection is common in the United States. Nationwide, 45 million people ages 12 and older, or one out of five of the total adolescent and adult population, is infected with HSV-2.

HSV-2 infection is more common in women (approximately one out of four women) than in men (almost one out of five). This may be because male to female transmission is more efficient than female to male transmission. HSV-2 infection is also more common in blacks (45.9%) than in whites (17.6%). Race and ethnicity in the United States are risk markers that correlate with other more fundamental determinants of health such as poverty, access to quality healthcare, health-care seeking behavior, illicit drug use, and living in communities with high prevalence of STDs.

Since the late 1970s, the number of Americans with genital herpes infection (i.e., prevalence) has increased 30%. Prevalence is increasing most dramatically among young white teens; HSV-2 prevalence among 12- to 19-year-old whites is now five times higher than it was 20 years ago. And young adults ages 20 to 29 are now twice as likely to have HSV-2.

### Is genital herpes serious?

HSV-2 usually produces mild symptoms, and most people with HSV-2 infection have no recognized symptoms. However, HSV-2 can cause recurrent painful genital ulcers in many adults, and HSV-2 infection can be severe in people with suppressed immune systems. Regardless of

severity of symptoms, genital herpes frequently causes psychological distress among people who know they are infected.

In addition, HSV-2 can cause potentially fatal infections in infants if the mother is shedding virus at the time of delivery. It is important that women avoid contracting herpes during pregnancy, because a first episode during pregnancy creates a greater risk of transmission to the newborn. If a woman has active genital herpes at delivery, a cesarean-section delivery is usually performed. Fortunately, infection of an infant is rare among women with HSV-2 infection.

In the United States, HSV-2 may play a major role in the heterosexual spread of HIV, the virus that causes AIDS. Herpes can make people more susceptible to HIV infection, and can make HIV-infected individuals more infectious.

### **What happens when someone is infected with genital herpes?**

Most people infected with HSV-2 are not aware of their infection. However, if symptoms occur during the primary episode, they can be quite pronounced. The primary episode usually occurs within two weeks after the virus is transmitted, and lesions typically heal within two to four weeks. Other symptoms during the primary episode may include a second crop of lesions, or flu-like symptoms, including fever and swollen glands. However, some individuals with HSV-2 infection may never have lesions, or may have very mild symptoms that they don't even notice or that they mistake for insect bites or a rash.

Most people diagnosed with a primary episode of genital herpes can expect to have several symptomatic recurrences a year (average four or five); these recurrences usually are most noticeable within the first year following the first episode.

### **How is genital herpes diagnosed?**

The signs and symptoms associated with HSV-2 can vary greatly among individuals. Healthcare providers can diagnose genital herpes by visual inspection, by taking a sample from the sore(s) and by testing it to see if the herpes virus is present.

### **Is there a cure for herpes?**

There is no treatment that can cure herpes, but antiviral medications can shorten and prevent outbreaks for whatever period of time the person takes the medication.

### **How can people protect themselves against infection?**

The consistent and correct use of latex condoms is the best protection. However, condoms do not provide complete protection, because a herpes lesion may not be covered by the condom and viral shedding may occur. If you or your partner has genital herpes, it is best to abstain from sex when symptoms are present, and to use latex condoms

between outbreaks.

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**For more information please contact the Whitmarsh House at 401-456-4302**



## GIARDIASIS (GEE-ARE-DYE-UH-SIS)

### What is giardiasis?

Giardiasis is an illness caused *Giardia lamblia*, a one-celled, microscopic parasite that lives in the intestines of people and animals. During the past 15 years, *Giardia lamblia* has become recognized as one of the most common causes of waterborne disease in humans in the United States. This parasite is found in every region of the United States and throughout the world.

### What are the symptoms of giardiasis?

Diarrhea, abdominal cramps, and nausea are the most common symptoms of giardiasis. These symptoms may lead to weight loss and dehydration. However, not everyone infected has symptoms.

### How long after being infected do symptoms appear?

Symptoms usually appear 1-2 weeks after infection with the parasite.

### How long will symptoms last?

In otherwise healthy persons, symptoms may last 4-6 weeks. Occasionally, symptoms last longer.

### How can I get giardiasis?

- ☆ By putting anything into your mouth that has touched the stool of a person or animal with giardiasis.
- ☆ By swallowing water contaminated with *Giardia*. A person can swallow a *Giardia* cyst, the infectious stage of the parasite, by consuming water from swimming pools, lakes, rivers, springs, ponds, or streams contaminated with sewage or feces from humans or animals.
- ☆ By eating uncooked food contaminated with *Giardia* cysts. Thoroughly wash with safe water all vegetables and fruits you plan to eat raw.
- ☆ By touching and bringing to your mouth cysts picked up from surfaces (i.e., toys, bathroom fixtures, changing tables, diaper pails) contaminated with stool from an infected person.

### Who is at risk?

Persons at increased risk for giardiasis include childcare workers; diaper-aged children who attend day care centers; international travelers; hikers; campers; and others who drink untreated water from contaminated sources. Several community-wide outbreaks of giardiasis have been linked to drinking municipal water contaminated with *Giardia*.

### What should I do if I think I have giardiasis?

See your healthcare provider who will ask you to submit stool samples to see if you are harboring the parasite. Because *Giardia* can be difficult to

diagnose, your healthcare provider may ask you to submit several stool specimens over several days.

### **What is the treatment for giardiasis?**

Several prescription drugs are available to treat *Giardia*.

### **How can I prevent giardiasis?**

- ✓ Wash hands with soap and water after using the toilet and before handling food.
- ✓ Avoid water or food that may be contaminated.
- ✓ Wash and peel all raw vegetables and fruits before eating.
- ✓ Avoid drinking water from lakes, rivers, springs, ponds, or streams unless it has been filtered or chemically treated.
- ✓ During community-wide outbreaks caused by contaminated drinking water, boil drinking water for 1 minute to kill the *Giardia* parasite and make the water safe to drink.
- ✓ When traveling in countries where the water supply may be unsafe, avoid drinking un-boiled tap water and avoid uncooked foods washed with un-boiled tap water. Bottled or canned carbonated beverages, seltzers, or pasteurized fruit drinks, and steaming hot coffee and tea are safe to drink. You should check the label on bottled water to make sure it has been properly filtered before drinking.
- ✓ If you work in a childcare center where you change diapers, be sure to wash your hands thoroughly with plenty of soap and warm water after every diaper change, even if you wear gloves.
- ✓ Avoid swimming in pools if you or your child has *Giardia*. *Giardia* cysts are fairly chlorine resistant and are passed in the stools of infected people for several weeks after they no longer have symptoms.

### **My water comes from a well; should I have my well water tested?**

Consider having your well water tested if you answer **yes** to the following questions:

- ✓ *Are other members of your family or users of your well water ill?*  
If yes, your well may be the source of infection.
- ✓ *Is your well located at the bottom of a hill or is it considered shallow?*  
If so, runoff from rain or floodwater may be draining directly into your well causing contamination.
- ✓ *Is your well in a rural area where animals graze?*  
Well water can become fecally contaminated if animal waste seepage contaminates the ground water. This can occur if your well has cracked casings, is poorly constructed or is too shallow.

Tests specifically for *Giardia* are expensive, difficult, and usually require hundreds of gallons of water to be pumped through a filter. If you

answered yes to the above questions, consider testing your well for fecal coliforms instead of *Giardia*. Although fecal coliform tests do not specifically test for *Giardia*, testing will show if your well has fecal contamination. If it does, the water is likely to be contaminated with *Giardia*, as well as other harmful bacteria and viruses. Look in your local telephone directory for a laboratory or cooperative extension that offers water testing.

**My child was recently diagnosed as having giardiasis, but does not have any diarrhea. My healthcare provider says treatment is not necessary. Is this true?**

In general, the answer supported by the American Academy of Pediatrics is that treatment is not necessary. However, there are a few exceptions. If your child does not have diarrhea, but is having nausea, or is fatigued, losing weight, or has a poor appetite, you and your healthcare provider may wish to consider treatment. If your child attends a day care center where an outbreak is continuing to occur despite efforts to control it, screening and treatment of children without obvious symptoms may be a good idea. The same is true if several family members are ill, or if a family member is pregnant and therefore not able to take the most effective anti-*Giardia* medications.

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**For more information please contact the Rhode Island Department of Health at 401-222-2577**

## GONORRHEA

### **What is gonorrhea?**

Gonorrhea is a disease caused by bacteria called *Neisseria gonorrhoeae*, the gonococcus. The bacteria that cause gonorrhea are found in the mucous areas of the body (the vagina, penis, throat and rectum) and in semen or vaginal fluids. It is one of the most commonly reported sexually transmitted diseases (STD) in the United States.

### **Who gets gonorrhea?**

Any person who has sex can be infected with gonorrhea. Most often, gonorrhea is found in younger people (ages 15-30) who have multiple sex partners. Gonorrhea is reported more frequently from urban areas than from rural areas.

### **What are the symptoms of gonorrhea?**

Most men infected with gonorrhea will have burning while urinating and a yellowish white discharge from the penis. Most women do not have symptoms. Those few women with symptoms will have a discharge from the vagina and possibly some burning while urinating. Women may also have abdominal pain or abnormal bleeding. Infections in the throat and rectum cause few symptoms.

### **How soon do symptoms appear?**

Symptoms may be noticed 2 to 7 days after having sex with an infected person, but it can take as long as 30 days and often, there may be no symptoms, particularly in females.

### **How is gonorrhea diagnosed?**

Gonorrhea is diagnosed through laboratory examination of penile or vaginal discharges to see if bacteria are present. Specimens from the throat may also be examined.

### **How is gonorrhea spread?**

Gonorrhea is spread through sexual contact. This includes penis to vagina, penis to mouth, penis to rectum and mouth to vagina contact. Gonorrhea can also be spread from mother to child during birth.

### **What is the treatment for gonorrhea?**

Gonorrhea is treated with antibiotics in either injection (needle) or pill (by mouth) form. All strains of gonorrhea are curable, but this disease is becoming more and more resistant to many standard medications.

### **What happens if gonorrhea goes untreated?**

Without treatment, there is a good chance that complications will develop from gonorrhea infection. Women frequently develop pelvic inflammatory disease (PID), a painful condition that occurs when the infection spreads throughout the reproductive organs. PID can make women unable to have children or cause them to be at risk for ectopic pregnancy. Men may suffer

from swelling of the testicles and penis. Both sexes may suffer from arthritis, skin problems and other organ infections caused by the spread of gonorrhea within the body.

### **How can gonorrhea be prevented?**

Not having sex is the only sure way to avoid getting gonorrhea or any other STD. Otherwise, limiting the number of one's sexual partners reduces the chance of being exposed. Using condoms correctly with all partners will decrease the possibility of becoming infected. If you think you are infected, avoid any sexual contact until you have visited a doctor, hospital or STD clinic. If you are infected, notify your sex partners immediately so they can be tested and treated.

**For more information please contact the Whitmarsh House at 401-456-4302**



## HAEMOPHILUS INFLUENZAE TYPE B

### **What is Haemophilus influenzae type b (Hib) disease?**

Haemophilus influenzae type b is a bacterial disease which is serious and sometimes fatal. Haemophilus influenzae is the leading cause of bacterial meningitis (which is a swelling of the tissue that covers the brain and spinal cord) in children ages two months to five years of age in the United States. Another serious infection caused by this organism is epiglottitis, (an infection of the airway which may block the breathing passage and lead to suffocation). Haemophilus influenzae may also cause infections in the lungs, blood, joints, bones and covering of the heart. This bacteria does not cause the "flu" (influenza).

### **Who gets Hib disease?**

Hib disease is most common in children two months to three years of age, but can also occur in older children, and occasionally in adolescents and adults. Children who attend day-care may be at higher risk of getting Hib disease.

### **How is the disease spread?**

Hib disease spreads through the air when an infected person coughs or sneezes, especially if they do not cover their mouth.

### **What are the symptoms of Hib disease?**

Symptoms are fever, vomiting, nausea, tiredness, and possibly a stiff neck. Because the bacteria affects different parts of the body, other symptoms may occur.

### **How long can an infected person spread Hib disease?**

An infected person can spread Hib disease as long as the bacteria are present in the nose or throat, and sometimes after they appear to be well. After one to two days of treatment an infected person can no longer spread the disease.

### **Can a person get Hib disease again?**

Yes. One infection does not protect from getting Hib disease again.

### **What is the treatment for Hib disease?**

Antibiotics are used to treat serious infections.

### **Should people exposed to an infected person be treated?**

Household members, day-care center classmates and children less than four years old may need to take a medicine called Rifampin. Persons who have had casual contact such as occurs in a regular classroom, office or factory setting do not need treatment.

## **How can the spread of Hib disease be prevented?**

Vaccines are available to protect against Hib disease. The vaccine series should be given to children beginning at two months of age. This is especially true for children attending day-care centers.

For more information about the vaccine, contact the Rhode Island Department of Health at 401-222-2312.

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**For more information please contact the Rhode Island Department of Health at 401-222-2312**



## HAND, FOOT, & MOUTH DISEASE

### **What is hand, foot, and mouth disease?**

Hand, foot, and mouth disease (HFMD) is a common illness of infants and children. It is characterized by fever, sores in the mouth, and a rash with blisters. HFMD begins with a mild fever, poor appetite, malaise ("feeling sick"), and frequently a sore throat. One or 2 days after the fever begins, sores develop in the mouth. They begin as small red spots that blister and then often become ulcers. They are usually located on the tongue, gums, and inside of the cheeks. The skin rash develops over 1 to 2 days with flat or raised red spots, some with blisters. The rash does not itch, and it is usually located on the palms of the hands and soles of the feet. It may also appear on the buttocks. A person with HFMD may have only the rash or the mouth ulcers.

### **Is HFMD the same as foot-and-mouth disease?**

No. HFMD is a different disease than foot-and-mouth disease of cattle, sheep, and swine. Although the names are similar, the two diseases are not related at all and are caused by different viruses.

### **Is HFMD serious?**

Usually not. Nearly all people with HFMD recover without medical treatment. HFMD usually resolves in 7 to 10 days. There are no common complications. Rarely, this illness may be associated with aseptic or viral meningitis, in which the person has fever, headache, stiff neck, or back pain, and may need to be hospitalized for a few days.

### **What causes HFMD?**

Several different viruses cause HFMD. The most common cause is coxsackievirus A16; occasionally, other strains of coxsackievirus A or enterovirus 71 cause HFMD. The coxsackieviruses are members of a group of viruses called the enteroviruses. The enterovirus group includes polioviruses, coxsackieviruses, and echoviruses.

### **Is it contagious?**

Yes, HFMD is moderately contagious. Infection is spread from person to person by direct contact with nose and throat discharges or the stool of infected persons. A person is most contagious during the first week of the illness. HFMD is not transmitted to or from pets or other animals.

### **How soon will someone become ill after getting infected?**

The usual period from infection to onset of symptoms is 3 to 6 days. Fever is often the first symptom of HFMD.

### **Who is at risk for HFMD?**

HFMD occurs mainly in children under 10 years old, but adults may also be at risk. Everyone is susceptible to infection. Infection results in immunity to the specific virus, but a second episode may occur following infection with a different member of the enterovirus group.

### **When and where does HFMD occur?**

Individual cases and outbreaks of HFMD occur worldwide, more frequently in summer and early autumn.

### **How is HFMD diagnosed?**

HFMD is one of many infections that result in mouth sores. Another common cause is oral herpesvirus infection, which produces an inflammation of the mouth and gums (sometimes called stomatitis). Usually, the physician can distinguish between HFMD and other causes of mouth sores based on the age of the patient, the pattern of symptoms reported by the patient or parent, and the appearance of the rash and sores on examination. A throat swab or stool specimen may be sent to a laboratory to determine which enterovirus caused the illness. Since the testing often takes 2 to 4 weeks to obtain a final answer, the physician usually does not order these tests.

### **How is HFMD treated? Can it be prevented?**

No specific treatment is available for this infection. Symptomatic treatment is given to provide relief from fever, aches, or pain from the mouth ulcers. Preventive measures include frequent hand washing, especially after diaper changes; disinfection of contaminated surfaces by household cleaners; and washing soiled articles of clothing. Children are often excluded from childcare programs, schools, or other group settings during the first few days of the illness. These measures may reduce the spread of infection, but they will not completely interrupt it.

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**For more information please contact the Rhode Island Department of Health at 401-222-2577**

## HEAD LICE (PEDICULOSIS)

### What are head lice?

Also called *Pediculus humanus capitis* (peh-DICK-you-lus HUE-man-us CAP-ih-TUS), head lice are parasitic insects found on the heads of people. Having head lice is very common; as many as 6-12 million people worldwide get head lice each year.

### Who is at risk for getting head lice?

Anyone who comes in close contact with someone who already has head lice, contaminated clothing, and other belongings. Preschool and elementary-age children, 3-10, and their families are infested most often. Girls get head lice more often than boys, women more than men. In the United States, African-Americans rarely get head lice.

### What do head lice look like?

There are three forms of lice: the nit, the nymph, and the adult.

**Nit:** Nits are head lice eggs. They are hard to see and are often confused for dandruff or hair spray droplets. Nits are found firmly attached to the hair shaft. They are oval and usually yellow to white. Nits take about 1 week to hatch.

**Nymph:** The nit hatches into a baby louse called a nymph. It looks like an adult head louse, but is smaller. Nymphs mature into adults about 7 days after hatching. To live, the nymph must feed on blood.

**Adult:** The adult louse is about the size of a sesame seed, has 6 legs, and is tan to grayish-white. In persons with dark hair, the adult louse will look darker. Females lay nits; they are usually larger than males. Adult lice can live up to 30 days on a person's head. To live, adult lice need to feed on blood. If the louse falls off a person, it dies within 2 days.

### Where are head lice most commonly found?

On the scalp behind the ears and near the neckline at the back of the neck. Head lice hold on to hair with hook-like claws found at the end of each of their six legs. Head lice are rarely found on the body, eyelashes, or eyebrows.

### What are the signs and symptoms of head lice infestation?

- ☆ Tickling feeling of something moving in the hair.
- ☆ Itching, caused by an allergic reaction to the bites.
- ☆ Irritability.
- ☆ Sores on the head caused by scratching. These sores can sometimes become infected.

### How did my child get head lice?

- ☆ By contact with an already infested person. Contact is common during play at school and at home (slumber parties, sports activities, at camp, on a playground).
- ☆ By wearing infested clothing, such as hats, scarves, coats, sports uniforms, or hair ribbons.
- ☆ By using infested combs, brushes, or towels.
- ☆ By lying on a bed, couch, pillow, carpet, or stuffed animal that has recently been in contact with an infested person.

### **How is head lice infestation diagnosed?**

By looking closely through the hair and scalp for nits, nymphs, or adults. Finding a nymph or adult may be difficult; there are usually few of them and they can move quickly from searching fingers. If lice are not seen, finding nits close to the scalp confirms that a person is infested. If you find nits more than 1/4 inch from the scalp, the infestation is probably an old one. If you are not sure if a person has head lice, the diagnosis should be made by a healthcare provider, school nurse, or a professional from the local health department or agricultural extension-service.



## HEPATITIS A

### What is hepatitis A?

Hepatitis A is a highly contagious viral infection of the liver. The virus is found in the stool of infected people. It is usually spread by putting something in the mouth that was contaminated by the stool of a person with the disease.

### What are the symptoms of hepatitis A?

The effects of hepatitis A viral infection differ from person to person. The older the person, the more severe the symptoms. Symptoms include fever, nausea, vomiting, jaundice (yellowing of the skin and eyes), diarrhea, fatigue, abdominal pain, dark urine, and appetite loss. Respiratory symptoms, rash and joint pain may also develop. The average time between exposure to the hepatitis A virus (HAV) and the development of symptoms is about 28 days. Symptoms commonly last for about 4 weeks, but in 20% of people who catch the disease the symptoms may return and continue on and off for up to 15 months.

### How is hepatitis A prevented?

There is a vaccine to protect against HAV infection. Two doses are needed 6 to 12 months apart to ensure long-term protection. Travelers should get the first dose at least 4 weeks prior to departure.

### Who should get hepatitis A vaccine?

- ☆ People who share a household or have sexual contact with someone who is infected with the hepatitis A virus.
- ☆ Children and employees in childcare centers (especially centers that have children in diapers) where a child or an employee has a hepatitis A virus infection.
- ☆ Travelers visiting developing countries where hepatitis A is common and where clean water and proper sewage disposal are not available. These areas include, but are not limited to, Africa, Asia (except Japan), parts of the Caribbean, Central and South America, Eastern Europe, the Mediterranean Basin, and the Middle East.
- ☆ Persons who have chronic liver disease.
- ☆ Persons who have clotting-factor disorders, such as hemophilia.
- ☆ Residents and staff of institutions for disabled children where a resident or an employee has hepatitis A.
- ☆ Homosexual males.
- ☆ Illegal drug users.

### Is the vaccine safe?

The hepatitis A vaccine is very safe and effective. You cannot get hepatitis A from the vaccine. Side effects, when they occur, are minimal and may include soreness at the injection site or a headache. As with any medicine,

there are very small risks that serious problems, even death, could occur after getting a vaccine. However, the risks from the disease are much greater than the risks from the vaccine.

**FACT:** Hepatitis A can be prevented with a safe and effective vaccine.

**FACT:** Hepatitis A strikes an estimated 94,000 Americans every year.

**FACT:** Some people get so sick from hepatitis A they have to be hospitalized.

**FACT:** In rare cases, hepatitis A causes death.

**FACT:** As a result of contracting hepatitis A, on average each adult loses about one month of work, or \$2,600 in wages.

**FACT:** Hepatitis A is 1,000 times more common than cholera and 100 times more common than typhoid among travelers.

**FACT:** Hepatitis A is now recognized as the most common vaccine-preventable disease in travelers.

**FACT:** Hepatitis A is found throughout the world, but is especially common in developing countries with poor hygiene and sanitation. Most cases in the United States occur from person-to-person transmission, especially from children to adults.

**FACT:** The hepatitis A virus is easily spread under poor sanitary conditions and when poor personal hygiene is observed.

**FACT:** People can get hepatitis A by consuming contaminated water or ice; raw shellfish from sewage-contaminated water; and fruits, vegetables or other foods eaten uncooked that may have been contaminated during handling.

**FACT:** You cannot get hepatitis A from the vaccine.

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## KEY FACTS ABOUT HEPATITIS B

CAUSE	Hepatitis B is caused by infection with the hepatitis B virus.
TRANSMISSION	The hepatitis B virus is 100 times more contagious than HIV, the virus that causes AIDS. Hepatitis B is spread through blood and other bodily fluids. Common modes of transmission include sexual contact; maternal-fetal transmission at birth; sharing toothbrushes or razors; using unsterilized needles for injection drug use, body or earpiercing, tattooing, and acupuncture. Unlike the HIV virus, hepatitis B viral transmission can also occur in settings of continuous close personal contact, such as among family members living together. In approximately 30 to 40 percent of hepatitis B cases, patients cannot determine how or when they acquired the infection.
PREVENTION	The only way to ensure protection from hepatitis B is immunization. Three doses of the hepatitis B vaccine are required for full protection. They are usually administered over a four to six month period. The U.S. Centers for Disease Control and Prevention's (CDC) Advisory Committee on Immunization Practices has expanded its hepatitis B recommendations from routine infant immunizations to include vaccination of all adolescents 11 to 12 years of age. Thirteen states have already added hepatitis B to their lists of overall school-entry required vaccinations, and more are expected to do so in the near future. The Occupational Safety and Health Administration now requires employers to provide hepatitis B vaccination free of charge for all of their at-risk employees. As a sexually transmitted disease (STD), hepatitis B is the only STD preventable through vaccination. Persons with any STD should be routinely vaccinated against hepatitis B.
POPULATION	In the United States there are approximately 1.2 million people carrying the hepatitis B virus. Each year, 200,000 to 300,000 people are infected with the virus. Between 11 and 14 people die each day from hepatitis B-related illnesses such as cirrhosis and liver cancer. Over 70 percent of all cases strike adolescents and young adults between the ages of 15 and 39. Since 1985, the incidence of hepatitis B has been steadily declining among 15- to 39-year-olds.
SYMPTOMS	Symptoms of hepatitis B may include fatigue, fever, nausea, vomiting, abdominal pain, dark urine, jaundice (yellowing of the skin and eyes), loss of appetite, skin rashes, and arthritis. Between six and 10 percent of those infected become chronic carriers of the virus, most of whom show no signs or symptoms but are capable of passing the disease to others. Chronic carriers have a significantly higher risk of developing liver cancer than the general population and may eventually die from liver cancer or from severe damage to their liver.

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TREATMENT

There is no effective treatment for acute hepatitis B infection. Antiviral therapy, including interferon therapy and other drugs, are partially effective in treating chronic hepatitis B carriers.

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## HEPATITIS C

### What Is Hepatitis C?

Hepatitis C is a liver disease caused by the hepatitis C virus (HCV). It is found in the blood of people infected with hepatitis C virus. Hepatitis C was formerly called nonA-nonB hepatitis.

### How Is Hepatitis C Spread?

Spread occurs through exposure to blood infected with the hepatitis C virus. Studies indicate HCV is found in other body fluids, but it is not clear if the virus can be spread from these fluids, compared to blood.

### Who Is At Risk?

The following groups of persons are at risk for contracting the HCV:

- ☒ Persons with hemophilia treated with blood products made before 1987-Prior to 1987, there were no effective methods to test for HCV in clotting factor products.
- ☒ For recipients of blood transfusions or solid organ transplants prior to 1992 -Since 1992, all donor blood is screened for HCV. Any blood testing positive cannot be used, and is destroyed.
- ☒ Injecting drug users -transfer of HCV by sharing needles or drug preparation equipment contaminated with HCV-infected blood, even if you only experimented once or tried drugs in the past.
- ☒ Long-term hemodialysis patients.
- ☒ Sexual partners with hepatitis C virus or multiple sexual partners - the risk of transmission between steady (monogamous) partners appears to be quite low, and there is no current recommendation for changes in sexual practices for persons with a steady sexual partner.
- ☒ However, persons with multiple sexual partners may be at higher risk of becoming infected.
- ☒ Healthcare workers with frequent blood exposure or a history of accidental needle stick injury.
- ☒ Intranasal drug users (i.e. cocaine use) through sharing contaminated straws or other equipment used for snorting.
- ☒ Infants born to mothers who are infected with the hepatitis C virus.
- ☒ Household contacts (people living with a hepatitis C infected person) through sharing blood contaminated personal items, such as toothbrushes, and razors.

Hepatitis C virus is NOT spread through casual contact or in typical school, office, or food service settings. It is NOT spread by coughing, sneezing, or drinking out of the same glass or through toilet seats.

### What Are The Common Symptoms?

Most people who are infected with the hepatitis C virus have no symptoms, however they can still infect others. Individuals that are

infected with hepatitis C and become ill exhibit symptoms including loss of appetite, vague abdominal discomfort, nausea, vomiting, and sometimes yellowing of the skin and eyes (jaundice). Other symptoms may include feeling fever and very tired. Symptoms can range from mild to severe. Once infected, most persons will carry the virus in their blood for the rest of their life.

### **HOW SERIOUS IS HEPATITIS C?**

Hepatitis C is serious for some persons, but not others. A small number of people who become infected with HCV may actually clear the virus and have no long-term effects. A greater number of people carry the virus for the rest of their lives. Most of these persons have some liver damage but many do not feel sick from the disease. Some persons with liver damage due to hepatitis C may develop cirrhosis (scarring) of the liver, liver cancer, and liver failure, which may take as many as 10-30 years to develop.

### **HOW CAN I AVOID HEPATITIS C?**

If you are not infected with HCV:

- ☞ Don't ever shoot drugs! If you shoot drugs, stop and get into a treatment program. If you can't stop, never reuse or share syringes, water or drug works (ENCORE).
- ☞ The surest way to protect yourself against any sexually transmitted disease is not to have sex at all or to have sex only with one steady, uninfected partner.
- ☞ If you are having sex, but not with one steady partner, you should use a latex condom. Be sure to use it correctly and every time to help protect you and your partner from diseases spread by having sex.
- ☞ If you are a healthcare worker, always follow routine barrier precautions and safely handle needles and other sharps.
- ☞ Do not share toothbrushes, razors, or other personal care articles. They might have blood on them.

### **WHAT SHOULD I DO IF I AM INFECTED WITH THE HEPATITIS C VIRUS?**

- ☞ Do not donate your blood, body organs, other tissue, or sperm.
- ☞ Do not share toothbrushes, razors, or other personal care articles that might have blood on them.
- ☞ Cover your cuts or open sores. If you shoot drugs, stop and get into a treatment program. If you can't stop, never reuse or share syringes, water, or drug works (ENCORE).
- ☞ If you have one steady sex partner, there is a very low chance of giving HCV to that partner through sexual activity, and you do not need to change your sexual practices.
- ☞ If you want to lower the small chance of spreading HCV to your partner, you may want to use latex condoms.

- ☞ Ask your doctor about having your sex partner tested.
- ☞ If you are having sex, but not with one steady partner, you should use a latex condom correctly and every time to help protect you and your partners from diseases spread by having sex. The surest way to prevent the spread of any sexually transmitted disease is not to have sex at all.
- ☞ Get hepatitis A and hepatitis B vaccinations to protect your liver from these infections.
- ☞ Avoid drinking alcoholic beverages.

### **Is There Treatment For Hepatitis C?**

If you feel you may be at risk for hepatitis C infection, you should contact your doctor. Early diagnosis is important so you can be counseled about how to prevent transmission of HCV to others and you can be checked for liver disease and get treatment, if indicated.

The most important thing you can do if you test positive for hepatitis C virus is to contact your doctor about additional tests and treatment. There are two therapies available for the treatment of persons with long-term hepatitis C: interferon and a combination of interferon and ribavirin. You should check with your doctor to see if treatment would help you.

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## **HUMAN IMMUNODEFICIENCY VIRUS (HIV)**

### **What is Human Immunodeficiency Virus (HIV) and how is it spread?**

HIV is the virus that causes the acquired immunodeficiency syndrome (AIDS). You can become infected with HIV by the exchange of blood, semen and vaginal secretions with a person infected with the virus, such as by having sex or sharing needles. Pregnant women infected with HIV can also pass the virus to their babies at birth or shortly after through their breast milk. HIV attacks our body's immune system so that we are less able to fight off germs and diseases.

### **What are the symptoms of HIV?**

On the average, for the first 7 to 10 years of HIV infection, there are no symptoms. When symptoms first appear, they will vary from person-to-person. Some of the symptoms that many people experience in early HIV disease are: night sweats, fever, extreme unexplained weight loss, persistent diarrhea, fatigue (tiredness), nausea, vomiting, swollen lymph glands, headaches, and persistent dry cough. The last stage of HIV disease is AIDS, in which many life-threatening infections can cause serious disability and/or death. There is no cure for HIV infection.

### **How soon after exposure do symptoms appear?**

HIV may cause symptoms any time from the time of infection up to 10 years later or even longer. This will vary from person to person. Many people confuse the length of time HIV takes before causing symptoms with the length of time it takes for the HIV antibody test to become positive which is 3-6 months after exposure.

### **How long can an infected person carry the virus?**

A person infected with the virus will carry it in varying amounts in the body for the rest of his/her life.

### **How do you test for HIV?**

The test for HIV is a blood test that determines if the body has had an immune response to the virus. It takes a while for the body to produce such a response. Three months after infection, the test is 90% accurate. After 6 months, the test is 95% accurate. If you feel that you have been exposed to the virus, you may consider getting an HIV test after 3 months. For peace of mind, you could have another test done in another 3 months. If you are constantly putting yourself at risk, having a test done every 6 months is recommended.

### **How is HIV infection treated?**

Quite often no treatment is needed in the early stages. However, there are now a number of drugs used to slow down the disease. When a person has AIDS, there are many drugs used to treat the various diseases that can invade the body. A person with HIV infection should talk to a doctor or other healthcare provider about treatment options.

### **How can HIV infection be prevented?**

Since the virus is passed ONLY through four body fluids, the best way to prevent HIV infection is to not come in contact with the blood, semen, vaginal fluids, or breast milk of an infected person. Abstinence (not having sex, not sharing needles) is the only 100% sure way to prevent infection. There is no vaccine to prevent HIV. If abstinence is not practiced, monogamy with a person who does

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not have HIV infection is the best way to avoid becoming infected. Monogamy means having a long term, faithful sexual relationship with one partner who is also faithful to you. After these two ways, safer sex is best. Safer sex means using a condom for anal, oral, or vaginal sex. If you share needles (for drugs, steroids, tattoos, or body piercing), clean your needles. If you are infected, notify your sex partners and needle sharing partners immediately so they can be tested.

## IMPETIGO

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### What is impetigo?

Impetigo is a very common skin infection caused by Streptococcal or Staphylococcal bacterial. The germs enter the body where there is an opening on the skin caused by a cut, insect bite or a burn. The site will start oozing and may have a honey-colored crust. The infection can spread to other areas of the skin. Impetigo occurs most often on the face and arms and legs. In impetigo caused by strep bacteria, kidney disease can develop. Impetigo is most commonly seen in warm weather.

### How does impetigo spread?

Normally the skin protects the body from infection, but when there is a break in the skin bacteria can enter and cause an infection. Young children often have cuts and scrapes on their body making them more vulnerable to impetigo than adults. The infection is spread by direct contact with the skin surface of someone contaminated with the bacteria.

### How long are people with impetigo contagious?

The skin sores of impetigo develop in 7 to 10 days after the bacteria enter the skin.

### What can parents and childcare providers do?

- ★ Consult health provider for treatment plan.
- ★ Keep infected area clean by washing with soap and water.
- ★ Keep infected area covered loosely during the day to avoid coming in direct contact with other children/staff while allowing the sore to stay dry. Plastic backed bandages should be avoided.
- ★ Wash hands after direct contact with sores, disposing of bandages carefully.

### When must people with impetigo be excluded from a childcare facility?

If a suspected impetigo rash is noticed on staff or child during the day, wash the area with soap and water and cover it. Notify parents when they come to pick up the child. The staff or child can return after using medication for 24 hours.

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## INFLUENZA

### **What is influenza?**

Influenza, or "flu," is caused by viruses that infect the respiratory tract. It is spread through the air or by direct contact. Compared to the common cold, influenza infection often causes a more severe illness. Typical symptoms include fever and respiratory symptoms, such as cough, sore throat, runny or stuffy nose as well as headache, muscle aches and fatigue.

### **Who is at risk?**

Everyone is at risk for contracting influenza. Influenza and its complications can be especially harmful for people 65 years of age and older, and for those who suffer from diabetes, heart or kidney disease, or chronic lung problems (including asthma). The most common complication of influenza is pneumonia.

### **How significant is influenza?**

In the average year, influenza is associated with about 20,000 deaths nationwide and many more hospitalizations. According to the Centers for Disease Control and Prevention (CDC), it is estimated that during most flu seasons, approximately 10 to 20 percent of the population is infected with influenza, although rates of infection vary among different age groups and from one season to another. Approximately one percent of those infected will require hospitalization; among those as many as eight percent die.

### **Can influenza be prevented?**

The best protection against the flu is an annual influenza shot. Virtually anyone who wants to avoid contracting the flu can receive a shot.

### **When is the best time to get vaccinated?**

The best time to get vaccinated is early October to mid-November. However, if you miss your flu shot in November it is still not too late to obtain one. It takes approximately two weeks after vaccination to develop antibodies against the flu to provide protection. Flu season generally begins in December and peaks between January and March.

### **How has vaccination proved effective?**

According to the CDC, the influenza vaccine has been shown to reduce hospitalization by about 70 percent and death by about 85 percent in the free-living elderly. Among nursing home residents, vaccine can reduce the risk of hospitalization by about 50 percent, the risk of pneumonia by about 60 percent and the risk of death by 75 to 80 percent.

According to a recent study published in the *New England Journal of Medicine*, influenza immunization offers substantial benefits for healthy, working adults. Flu shots decreased upper respiratory illness by 43 percent, work absenteeism due to all illness by 36 percent, and physician office visits for upper respiratory illness by 44 percent. Based on these

outcomes, direct medical savings attributed to immunization were estimated at \$5.99 per person vaccinated, and indirect cost savings -- including work loss averted by immunization -- were estimated at \$40.86 per person vaccinated.

### **Why is it necessary to get a new vaccine every year?**

Different influenza strains circulate every flu season. Based on government recommendations, manufacturers develop each year's vaccine with the three strains of influenza that scientists have predicted to be most common in the coming flu season. The strains from one year's vaccine cannot offer immunity to the strains that predominate the following year. In addition, vaccine-induced immunity decreases after a few months. As a result, in order to be properly protected, it is necessary to get vaccinated every year.

### **Who should be vaccinated?**

Influenza vaccination is recommended for all persons 65 years and older and all persons who are considered to be at a high risk for developing complications from the disease. High risk groups include persons who have: chronic disorders of the pulmonary or circulatory systems, including asthma; a chronic medical condition that compromises the body's ability to fight infection; residents of nursing homes and other chronic care facilities housing patients with chronic medical conditions; and women who will be in the second or third trimester of pregnancy during a flu season.

Vaccination is recommended for groups that can transmit influenza to persons at high risk, such as healthcare workers and employees of nursing homes who have contact with patients or residents. In addition, vaccination is recommended for anyone who wishes to avoid flu.

### **What are the side effects of the vaccine?**

The most frequent side effect of vaccination is soreness at the injection site. Occasionally, some people experience a period of mild fever and fatigue for a day or two after the shot. Rarely, an allergic reaction may occur.

Since the vaccine is not a live vaccine, it is not possible to get influenza from the vaccine.

### **Who should not get the vaccine?**

Individuals with egg allergies or those who have had a previous vaccine-associated allergic reaction should avoid immunization.

Adults with acute febrile illnesses should usually wait until their symptoms abate before seeking vaccination. However, vaccine may be given in the presence of minor illnesses, with or without fever, particularly among children with mild upper respiratory tract infections or allergic rhinitis.

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## LYME DISEASE

### What is Lyme Disease?

Lyme disease is a bacterial infection caused by the bacteria *Borrelia burgdorferi*. Lyme disease may affect the skin, nervous system, heart and/or joints of an individual. Lyme disease can be serious if it is not treated, but it is not fatal.

### How is Lyme disease spread?

Lyme disease is spread through the bite of an infected deer tick. Ticks can become infected if they feed on small animals such as the white-footed mouse that carry the bacteria. People become infected when they are bitten by an infected deer tick. A deer tick must be attached to a person for at least 24 hours in order to spread the disease. Lyme disease cannot be spread from one person to another.

Not all deer ticks are infected with the bacteria that cause Lyme disease and being bitten by a deer tick does not necessarily mean a person will get the disease.

### How do I know if I have Lyme Disease?

Early symptoms of Lyme disease develop between 3 days and one month after being bitten by an infected deer tick. Some people (about 85%) who get Lyme disease will develop a red rash around or near the site of the tick bite. The rash starts as a small red area that spreads out, often clearing in the center. It is commonly referred to as a "bull's eye" rash because of its appearance. Sometimes multiple rash sites appear. Other early symptoms of Lyme disease include fever, headache, fatigue, malaise, stiff neck, and sore and aching muscles and joints.

If not treated, later symptoms of Lyme disease may develop weeks to months after becoming infected. Late symptoms occur in people who did not have early symptoms or did not recognize them. Symptoms of late disease may include multiple rash sites on the body, facial palsy (Bell's palsy), meningitis and conjunctivitis. If left untreated complications may develop that cause permanent damage to the nervous system, heart and/or joints.

Recurrent arthritis, swelling and pain in the large joints, particularly the knees, are common in late disease. Arthritis may occur even with no history of earlier symptoms of illness.

### How do I avoid getting Lyme disease?

It is important that a tick be removed as soon as it is discovered. The risk of acquiring infection is greatly reduced if the tick is removed within 24 hours of attachment.

A vaccine to prevent Lyme disease has been FDA approved. Contact your doctor for more information about the vaccine and whether or not you should receive it.

Other measures you can follow to avoid getting the disease include:

- ☆ Removal of leaves, leaf litter, and brush from around houses and lawn edges.

- ☆ Avoid tick-infested areas, especially when ticks are most active, from mid-May through mid-August.
- ☆ While outdoors wear light-colored clothing in order to spot ticks more easily.
- ☆ While outdoors wear long sleeves and long pants; tuck pant legs into socks and shirt into pants. Tape the area where pants and socks meet so ticks cannot crawl under clothing.
- ☆ Inspect yourself and your children for ticks after being outdoors. Perform tick checks daily if outdoors for prolonged periods of time.
- ☆ Use a repellent containing DEET to prevent tick attachment to skin and clothes. Repellents containing more than 30% DEET are unnecessary. NEVER USE REPELLENTS ON INFANTS AND AVOID GETTING IT IN CHILDREN'S EYES.
- ☆ Inspect pets for ticks routinely and before they come into the house. Remove any ticks promptly.

### **How is Lyme disease diagnosed?**

Lyme disease can be easily diagnosed if someone gets the "bull's eye" rash. Without the rash it is harder to diagnose because the symptoms mimic other diseases, such as the flu. To help with diagnosis, your physician may order a blood test to look for antibodies to the Lyme disease bacteria.

### **How is Lyme disease treated?**

Lyme disease is treated with antibiotics. To prevent late symptoms, disease and/or complications, if a person has any of the above symptoms he/she should contact their doctor. Prompt treatment of early symptoms can prevent more serious problems later on.

### **What can I do with a tick that I found on a family member or myself?**

If you are very worried about the possibility of Lyme disease, the Tick Laboratory at URI provides tick testing. They will test ticks for the presence of Lyme disease as well as determine if the tick is actually a deer tick.

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## KEY FACTS ABOUT MEASLES

CAUSE	Measles is caused by infection with the measles virus.
TRANSMISSION	Measles is the most contagious disease known to man. Measles is spread by respiratory droplets too small to be seen by the human eye. These droplets are inhaled and the virus attaches to the lining of the airways and begins multiplying--causing disease.
PREVENTION	Measles can only be prevented by vaccination against the virus. The vaccine is safe and effective. Persons who have severe allergic reactions to chicken eggs, who are immunosuppressed, or who are pregnant or planning a pregnancy should talk with their physician about the vaccine and whether it is safe to receive it.
POPULATION	<p>Many Americans are at risk of infection from the measles virus. School children, college students, adolescents, young adults, and healthcare workers are at particular risk of infection. For these individuals, two doses of vaccine are needed to fully protect against the disease.</p> <p>Unfortunately, the death rate among those who contract measles has risen recently in the United States from one in 1,000 cases to 3.2 in 1,000 cases. This higher death rate in people who contract measles seems to be due to infection of very young children who have not received the vaccine and older children and young adults who have not been fully vaccinated.</p> <p>Complications of measles infection such as inflammation of the brain, middle ear infections, and pneumonia can also result in hospitalization and disability.</p>
SYMPTOMS	Measles causes symptoms about 10 days following exposure. Symptoms include high fever, red irritated eyes, runny nose, cough, and a bumpy red rash which usually starts on the head or face and spreads to the trunk and arms.
TREATMENT	There is no definitive treatment for measles. Measles can only be prevented by vaccination.

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**For more information please contact the Rhode Island Department of Health at 401-222-2312**

## MIDDLE EAR INFECTION (OTITIS MEDIA)

### What is *Otitis Media*?

Otitis media is an infection which inflames the cells lining the middle ear cavity. It is usually caused by a virus, but may also be caused by bacteria. The disorder often develops when viruses from an infection of the nose and throat, such as a cold or measles, travel to the ear. Infection may also occur through a ruptured eardrum, or due to nasal allergy. **Serous** otitis media is accumulation of non-bacterial fluid in the middle ear space (usually from having a cold or allergies). **Purulent** otitis media is accumulation of fluid in the middle ear cavity due to bacteria.

### What are the signs and symptoms of *Otitis Media*?

With serous otitis media, symptoms may include a feeling of fullness in the ear, hearing loss and a snapping sensation when swallowing, yawning, or blowing the nose. With purulent otitis media, there is usually a feeling of fullness in the ear, followed by severe stabbing pain. Other symptoms are fever and hearing loss in the affected ear. If purulent otitis media is not treated, the pressure of pus within the middle ear may eventually burst the tympanic membrane (eardrum). This often produces a pus-like discharge.

### What risks are associated with *Otitis Media*?

Ear infections rarely become chronic or present serious risks. Purulent infections may occasionally spread to a portion of the bone behind the ear called the mastoid process.

### How is *Otitis Media* treated?

Serous otitis media usually resolves spontaneously therefore no specific therapy is necessary. For symptomatic relief try the following:

- ☆ Increase intake of fluids
- ☆ Increase room humidity
- ☆ Sleep with the head elevated
- ☆ Use decongestants (oral or nasal solution or spray)

In addition to the above, antibiotics are prescribed for purulent otitis media. Aspirin or Tylenol is also recommended as needed for discomfort. Symptoms will improve within 48 hours after starting the antibiotic, but the full course of treatment - usually seven days - is essential.

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**For more information please contact the Rhode Island Department of Health at 401-222-2577**

## MONONUCLEOSIS

### **What is infectious mononucleosis?**

Infectious mononucleosis is a viral disease that affects certain blood cells. It is caused by the Epstein-Barr virus (EBV), which is a member of the herpes virus family. Most cases occur sporadically. Outbreaks are rare.

### **Who gets infectious mononucleosis?**

While most people are exposed to the Epstein-Barr virus sometime in their lives, very few go on to develop the symptoms of infectious mononucleosis. In underdeveloped countries, people are exposed in early childhood where they are unlikely to develop noticeable symptoms. In developed countries such as the United States, the age of first exposure may be delayed to older childhood and young adult age when symptoms are more likely to result. For this reason, it is recognized more often in high school and college students.

### **How is infectious mononucleosis spread?**

The virus is spread by person-to-person contact, via saliva (on hands or toys, or by kissing). In rare instances, the virus has been transmitted by blood transfusion.

### **What are the symptoms of infectious mononucleosis?**

Symptoms include fever, sore throat, swollen glands and feeling tired. Sometimes, the liver and spleen are affected. Duration is from one to several weeks. The disease is very rarely fatal. Very young children may not have any symptoms after being infected.

### **How soon do symptoms appear?**

Symptoms appear from four to six weeks after exposure.

### **How long is a person able to spread infectious mononucleosis?**

The virus is shed in the throat during the illness and for up to one year after infection. After the initial infection, the virus tends to become dormant for a prolonged period and can later reactivate and be shed from the throat again.

### **What is the treatment for infectious mononucleosis?**

No treatment other than rest is needed in the vast majority of cases. People with severe sore throats should see their doctor.

### **Can a person get infectious mononucleosis again?**

People who get the illness rarely get it again.

### **What can a person do to minimize the spread of infectious mononucleosis?**

Avoid activities involving the transfer of body fluids (commonly saliva) with someone who is currently or recently infected with the disease. At present, there is no vaccine available to prevent infectious mononucleosis.

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INFECTIOUS DISEASE REFERENCE MANUAL**

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## MUMPS

### **What is mumps?**

Mumps is a disease caused by a virus that causes fever, swelling and tenderness of one or more of the salivary glands.

### **Who gets mumps?**

People who do not receive the mumps vaccine are the most likely to get this disease. The greatest risk of infection occurs among older children, adolescents, and adults. Mumps is more common during the winter and spring.

### **How is mumps spread?**

Mumps is spread by direct contact with saliva and discharges from the nose and throat of infected persons.

### **What are the symptoms of mumps?**

Symptoms of mumps include fever and swelling and tenderness of one or more of the salivary glands, usually the parotid gland (located just below the front of the ear). About one-third of infected people do not have any symptoms.

### **How soon after infection do symptoms occur?**

Symptoms usually appear within 18 days after exposure, but may appear any time within 12 to 25 days.

### **What complications have been associated with mumps?**

Swelling of the testicles occurs in 20-30% of infected males. Mumps can cause central nervous system disorders such as encephalitis (inflammation of the brain) and meningitis (inflammation of the covering of the brain and spinal column). Other complications include arthritis, kidney involvement, inflammation of the thyroid gland and breasts, and deafness.

### **When and for how long is a person able to spread mumps?**

Mumps is contagious from seven days before through nine days after the onset of symptoms. A person is most contagious 48 hours before symptoms begin.

### **Does past infection with mumps make a person immune?**

Yes. Immunity acquired after contracting the disease is usually permanent.

### **Is there a vaccine for mumps?**

Yes. Mumps vaccine is given on or after a child's first birthday, and is usually administered in combination with measles and rubella vaccine. A second vaccination is recommended again in combination with measles and rubella vaccine at 4-6 years of age.

### **What can be done to prevent the spread of mumps?**

The single most effective control measure is maintaining the highest possible level of immunization in the community. Children with mumps should not attend school, and adults should not work, while they are contagious.

THE RHODE ISLAND SCHOOL NURSE TEACHERS  
INFECTIOUS DISEASE REFERENCE MANUAL

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For more information please contact the Rhode Island Department of Health at 401-222-2312



## **PERTUSSIS (WHOOPIING COUGH)**

### **What is pertussis?**

Pertussis is a respiratory disease caused by the bacteria *Bordetella pertussis*. The disease can be very serious in infants (less than 1 year old) where it can lead to pneumonia and, less often, seizures or inflammation of the brain. In rare cases (1 out of 200), pertussis can result in death (especially in children less than 1 year of age).

### **Who gets pertussis?**

Pertussis affects people all over the world and can occur at any age. It is most commonly found in young children but can also occur in older children and adults, where it usually causes a milder illness that is often not diagnosed. Young children can get the disease from an older brother or sister or an adult with the mild form of the disease.

### **How is pertussis spread?**

The bacteria that causes pertussis is found in the nasopharyngeal region of the nose in infected people. The bacteria are spread through the air in droplets produced during sneezing and/or coughing. Persons in the early stage of illness are the most contagious. Antibiotics will shorten the length of time the illness can be spread. Children with pertussis who are in day care should be kept out of day care until they have been treated with antibiotics for at least 5 days or longer and are medically well enough to return.

### **How soon after exposure do symptoms appear?**

The appearance of symptoms is usually 6 to 20 days after exposure. If a person is exposed to pertussis, certain antibiotics may help prevent or lessen the disease.

### **What are the symptoms of pertussis?**

The symptoms of pertussis usually occur in stages. The first stage begins like a cold, with a runny nose, sneezing, low grade fever and cough. The cough lasts one to two weeks and then becomes worse. The second stage of pertussis includes uncontrolled coughing spells followed by a whooping noise when a person breaths in air. During these severe coughing spells, a person may vomit, or their lips or face may look blue from a lack of oxygen. Between coughing spells a person may appear well. This stage may last four to six weeks. The last stage is the recovery stage where the symptoms begin to disappear.

### **How is pertussis diagnosed?**

A physician may suspect pertussis when someone has the symptoms described above. To confirm the diagnosis, a culture must be done where a swab of the back of the nose, taken during the early stage of the illness, is tested for growth of the *Bordetella* bacteria.

### **What is the treatment for pertussis?**

Certain antibiotics may make the illness less severe if started in the early stage of the disease but infants younger than 6 months of age and persons with severe cases may need to be hospitalized. Severe cases may require oxygen

and mild sedation to help control the coughing spells.

### **How can pertussis be prevented?**

Pertussis can be prevented by immunizing children in early infancy. Pertussis vaccine is given at 2, 4, 6, and 15 months of age, and again when a child enters school. At least 4 doses are necessary to protect a child from pertussis.

Household members and close contacts (such as other children in day care settings) of a person with pertussis should be treated with antibiotics, whether or not they have been immunized. If started early enough, this should either prevent illness or make it less severe. Close contacts less than 7 years old who are either unimmunized or who have received fewer than four doses of the pertussis vaccine should begin the immunization process immediately. Children who develop respiratory symptoms within 20 days of exposure should see a physician immediately and be tested for pertussis.

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## **PINWORM INFECTION (ENTEROBIASIS)**

### **What is pinworm infection?**

This infection is caused by a small, white intestinal worm called *Enterobius vermicularis* (EN-ter-O-be-us ver-MIK-u-lar-is), which is about the length of a staple and lives in the rectum of humans. While an infected person sleeps, female pinworms leave the intestines through the anus and deposit eggs on the surrounding skin.

### **What are the symptoms of a pinworm infection?**

Itching around the anus, disturbed sleep, and irritability are common symptoms. If the infection is heavy, symptoms may also include loss of appetite, restlessness, and insomnia. Symptoms are caused by the female pinworm laying her eggs. Most symptoms of pinworm infection are mild, and many infected people have no symptoms.

### **Who is at risk for pinworm infection?**

Pinworm is the most common worm infection in the United States. School-age children, followed by preschoolers, have the highest rates of infection. In some groups nearly 50% of children are infected. Infection often occurs in more than one family member. Adults are less likely to have pinworm infection, except mothers of infected children. Institutional settings, including day care facilities, often harbor cases of pinworm infection.

### **How is pinworm infection spread?**

Pinworm eggs are infective within a few hours after being deposited on the skin. They can survive up to 2 weeks on clothing, bedding, or other objects. Infection is acquired when these eggs are accidentally swallowed.

### **How is pinworm infection diagnosed?**

If pinworms are suspected, transparent adhesive tape or a pinworm paddle (supplied by your healthcare provider) is applied to the anal region. The eggs adhere to the sticky tape or paddle and are identified by examination under a microscope. Because bathing or having a bowel movement may remove eggs, the test should be done as soon as you wake up in the morning. The exam may require several samples for diagnosis. Since scratching of the anal area is common, samples taken from under the fingernails may also contain eggs. Eggs are rarely found during lab examinations of stool or urine. At night, the adult worms can sometimes be seen directly in bedclothes or around the anal area.

### **What if the pinworm infection occurs again?**

The infected person should be treated with the same two-dose treatment. Close family contacts should also be treated. If the infection occurs again, you should search for the source of the infection. Playmates, schoolmates, close contacts outside the house, and household members should be considered. Each infected person should

receive the usual two-dose treatment. In some cases it may be necessary to treat with more than two doses. One option is four to six treatments spaced 2 weeks apart.

### **How can I prevent pinworm infection?**

- ☆ Bathe when you wake up to help reduce the egg contamination.
- ☆ Change and wash your underwear each day. Frequent changing of night clothes are recommended.
- ☆ Change underwear, nightclothes, and sheets after each treatment. Because the eggs are sensitive to sunlight, open blinds or curtains in bedrooms during the day.
- ☆ Personal hygiene should include washing hands after going to the toilet and before eating. Trim fingernails short. Don't bite your nails or scratch bare anal areas. These practices help reduce the risk of continuous self-reinfection.

Measures such as cleaning and vacuuming the entire house or washing sheets every day are probably not necessary or effective. Screening for pinworm infection in schools or institutions is rarely recommended. Children may return to day care after the first treatment dose, after bathing, and after trimming and scrubbing nails.

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## **POLIOMYELITIS (POLIO, INFANTILE PARALYSIS)**

### **What is polio?**

Polio is a disease that is caused by a virus that may affect the central nervous system. Since polio immunization has become widespread, cases of polio are very rare.

### **Who gets polio?**

Persons who do not receive the polio vaccine are most likely to get the disease. Polio is very rare in the United States, occurring mostly in persons who bring the disease in from another country. In very, very rare cases, oral polio vaccine can cause paralytic polio in a person who receives the vaccine or in a person who is a close contact of someone who received the vaccine.

### **How is polio spread?**

Polio is usually spread through the feces (stool). That is, an infected person may spread the virus to others by not washing his/her hands after using the bathroom.

### **What are the symptoms of polio?**

There is a wide range of disease. Some people do not have any symptoms. Others get a mild disease with fever, malaise, headache, nausea and vomiting. Some experience severe muscle pain and stiffness in the neck and back. In the most severe cases, paralysis and even death may occur.

### **How soon after infection do symptoms appear?**

The incubation period is usually 7 to 14 days for paralytic cases, with a range of 3 to 35 days.

### **When and for how long is a person able to spread polio?**

Patients are most infectious from 7 to 10 days before and after the onset of symptoms. However, patients are potentially contagious as long as the virus is present in the throat or feces. The virus persists in the throat for approximately one week after the onset of illness and is excreted in the feces for several weeks or, occasionally, months.

### **Does past infection with polio make a person immune?**

There are three types of polio virus. A person who has a certain type of polio will be immune from that type for life, but may still get polio from a different type of polio virus.

### **What is the treatment for polio?**

There is presently no cure for polio. Treatment involves supportive care to help relieve symptoms.

### **What are the complications associated with polio?**

Complications include paralysis, most commonly of the legs. Paralysis of the muscles needed for breathing and swallowing can be fatal.

### **Is there a vaccine for polio?**

Two types of polio vaccine are available -- trivalent oral polio vaccine (OPV) and inactivated polio vaccine (IPV). Multiple doses are required for each type of vaccine. Sometimes a combination of both types is used. Your doctor or health department may give you more information about the different types of vaccine.

### **How can polio be prevented?**

Maintaining high levels of polio immunization in the community is the single most effective preventive measure.

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## **RABIES**

### **What is Rabies?**

Rabies is a deadly disease caused by a virus that attacks the brain, spinal cord, and nerves. It is one of the most terrifying diseases known to man, since there is no cure. With rare exception, rabies is always fatal. Rabies is transmitted from infected mammals to humans.

### **What animals can get Rabies?**

Any warm-blooded mammal can get rabies. However, some animals are more susceptible to getting rabies than others. For example, skunks, foxes, raccoons, bats, wolves, and coyotes are highly susceptible. Animals rarely affected by rabies include rats, mice, squirrels, opossums, hamsters, guinea pigs, gerbils, chipmunks, and rabbits. Cats, dogs, and ferrets are in-between in their susceptibility and can catch rabies easily (if unvaccinated) by being bitten by wild animals.

### **How is Rabies spread?**

The virus, which is found in the saliva of infected animals, is usually transmitted through a bite or a break in the skin (such as a scratch or cut). The virus is not always present in the saliva of an infected animal, and therefore, exposure to a rabid animal does not necessarily mean that the virus was transmitted.

### **How do I know if I have Rabies?**

The symptoms of rabies include irritability, fatigue, lack of appetite, headache, fever, and possibly itching/tingling or pain at the site of the exposure. The disease progresses into hyperactivity, disorientation, hallucinations, inability to swallow, convulsions, paralysis, delirium, and death. The last case of human rabies in Rhode Island occurred in 1940.

### **How do I know if an animal has Rabies?**

It is not always possible to determine if an animal has rabies just by looking at it, however, some symptoms strongly indicate rabies. The stereotypical "foaming at the mouth" isn't necessarily the clearest indicator that an animal has rabies. Animals can exhibit "dumb" (paralytic) rabies and "furious" rabies. Animals with "dumb" rabies appear depressed, lethargic, and uncoordinated. Gradually they become completely paralyzed. When their throat and jaw muscles are paralyzed, the animals will drool and have difficulty swallowing. Animals with "furious" rabies exhibit the classic "mad dog" symptoms. Without provocation, they will act extremely vicious and violent, often snapping at real or imaginary objects. Also, hind limb paralysis with limping is a common symptom of rabies.

### **How is Rabies diagnosed?**

Because rabies moves through the body inside nerve tissue rather than in the blood, there is no antibody response and the virus cannot be diagnosed in the early stages through a simple blood test. Although

symptoms may suggest that a person or animal has rabies, the only accurate way to diagnose rabies is by a biopsy of skin from the nape of the neck or brain tissue.

### **How do I avoid getting rabies?**

People can protect themselves and their pets from rabies by taking a few simple precautions:

- ★ Make sure all of your companion animals are up to date on their rabies vaccinations. They should always wear their rabies tags.
- ★ Supervise your pets to prevent exposure. Obey leash laws and keep your pets restrained.
- ★ Wear gloves to tend to your pets after an encounter with wildlife or stray pets.
- ★ If another person's pet bites you or your pet try to find the owner. Contact your veterinarian, doctor, the animal control officer at the police department, and the Department of Health immediately (222-2577).
- ★ Teach your children to stay away from wild animals or animals they don't know.
- ★ If raccoons or other wild animals are lurking around your yard and acting sick or abnormal, call the Department of Environmental Management (DEM) (222-2284 during business hours, or 222-3070 for emergencies after hours).
- ★ Avoid attracting or handling wild animals: Feed your pets indoors and do not toss table scraps into your yard.
- ★ Keep your property free of exposed garbage, pet food, and bird feed. If trash must be outside at night, put it in sturdy, tightly closed containers.
- ★ Keep your home in good repair to prevent animals from entering through cracks and crevices. Use strong metal mesh to cover potential entryways, such as chimneys, dryer vents, and holes in eaves.

### **Is there treatment for Rabies exposure?**

Since rabies is not treatable after disease develops, postexposure treatment is necessary. The anti-rabies treatment is proven to be 100% effective if received within 7 days of the bite or scratch. Treatment has been only five relatively painless shots in the arm and treatment with rabies immunoglobulin.

The biting animal must be captured. If the attacking animal is a cat, dog, or ferret, it will be quarantined for 10 days, and if it remains healthy, no further treatment is necessary. If the biting animal is a raccoon, skunk, or other wildlife and it escapes capture, post-exposure treatment should begin immediately. If the animal is captured, it should be euthanized and tested. If it tests positive, treatment should be started.

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## RHEUMATIC FEVER

### **What is rheumatic fever?**

Rheumatic fever is a delayed consequence of an untreated upper respiratory infection with group A streptococci (streptococcal pharyngitis or "strep throat"). The disease can cause serious, debilitating damage to the heart and involve other tissues.

### **Who gets rheumatic fever?**

A small percentage, probably less than 0.3 percent, of all people who have streptococcal pharyngitis will develop acute rheumatic fever.

### **What are the symptoms of rheumatic fever?**

Initially, rheumatic fever is acute. The major symptoms of rheumatic fever are: carditis, polyarthritis, chorea, subcutaneous nodules, and a rash called erythema marginatum.

Carditis is the most significant manifestation of rheumatic fever because it may cause permanent organ damage or death. Carditis is frequently mild or asymptomatic and therefore difficult to detect. Although not fully understood, a person's immune system response to a streptococcal infection appears to cause tissue degeneration, most frequently heart valve tissue, and subsequently, cardiac disability or death.

Polyarthritis is arthritis in a number of joints at a time. Chorea is a neurologic syndrome that may appear after a latent period of several months. Chorea is seen as rapid, purposeless, involuntary movements in the extremities and the face. Subcutaneous nodules are firm, painless lesions that occur over bony surfaces just under the skin. Erythema marginatum is a rash that appears mostly on the trunk and extremities.

### **How soon after exposure do symptoms appear?**

The peak age of incidence for rheumatic fever is 5 to 15 years, but cases do occur in adults. Acute rheumatic fever is rare in children less than 4 years of age.

There is a latent period of 1 to 5 weeks (average 19 days) between streptococcal pharyngitis and the initial episode of acute rheumatic fever. The average duration of an attack of acute rheumatic fever is 3 months or longer. After the acute attack has subsided, many people are left with damaged heart valves (rheumatic heart disease). Some people will have recurrent acute attacks of rheumatic fever, frequently causing more damage to the heart valves.

### **How is it diagnosed?**

May be difficult to diagnose. There are no specific laboratory tests to diagnose acute rheumatic fever. In general, rheumatic fever can be diagnosed with documentation of a recent infection with group A streptococcal infection and observation of one or more of the major symptoms (described above).

### **What is the treatment for rheumatic fever?**

Antibiotics will not modify an acute rheumatic fever attack nor affect the subsequent development of carditis. However, a recommended regimen of antibiotics prescribed for treatment of streptococcal pharyngitis is recommended to eradicate any group A streptococci remaining in the patient, and in part, to prevent spread of the organism to close contacts.

### **What precautions should the person take who has had rheumatic fever?**

Those people who have already suffered a rheumatic fever attack are extremely susceptible to a recurrence if they are again infected with group A streptococci. Patients who have experienced a documented acute rheumatic fever attack should receive continuous antibiotic prophylaxis to prevent streptococcal infections at least until reaching adulthood or at least 5 years after their most recent attack. Patients whose acute rheumatic fever attack has left them with damaged heart tissue may need lifelong antibiotic prophylaxis. Invasive dental or surgical procedures may require additional antibiotic prophylaxis for patients with rheumatic valvular heart disease.

### **How can rheumatic fever be prevented?**

Prevention of rheumatic fever involves prompt, accurate diagnosis and effective treatment of streptococcal pharyngitis especially in school-aged children and others who live in crowded conditions such as the military and large households.

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## RINGWORM (TINEA)

### **Ringworm is an infection of the skin, hair, or nails**

It gets its name from its appearance on the skin-it typically looks like a ring-shaped rash.

### **Ringworm is caused by several different types of fungus (mold):**

Other names for ringworm include tinea, dermatophytosis, athlete's foot (ringworm of the feet), and jock itch (ringworm of the groin). It is not caused by a worm!

### **You can get ringworm from people, animals, or places**

- ☆ People get it through contact with a person who has ringworm, or by using items such as clothing, towels, or hairbrushes that someone with a ringworm infection has used.
- ☆ Pets can carry the fungus on their fur without showing signs of ringworm infection.
- ☆ Places like gyms, shower stalls, and floors can transmit fungus if used by someone with ringworm. Other people can catch the fungus if exposed to these places.

### **Ringworm is easily diagnosed and treated**

A doctor can do some simple tests to determine whether a rash is caused by a fungus. Treatment is usually an antifungal cream applied to the site of infection, or pills taken by mouth (griseofulvin) may be prescribed by your doctor.

### **If you have ringworm, you can avoid spreading it to others by:**

- ☆ Following your doctor's advice for proper treatment for the right length of time
- ☆ Keeping your skin, hair, and nails clean and dry
- ☆ Washing towels and clothing in hot water and soap to destroy the fungus
- ☆ Staying away from common areas such as community pools and gyms until your infection goes away

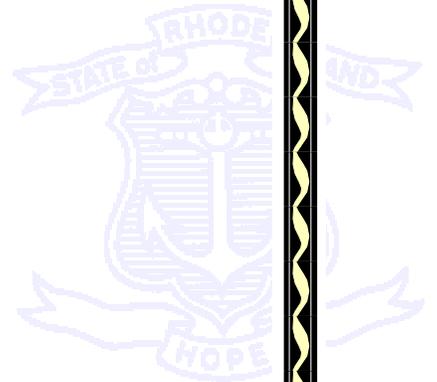
### **Ringworm can be prevented by:**

- ☆ Keeping common-use areas clean
- ☆ Using a floor and bath cleaner that contains a fungus-killing (called "fungicidal") agent

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## ROCKY MOUNTAIN SPOTTED FEVER

### **What is rocky mountain spotted fever?**

Rocky mountain spotted fever (RMSF) is a disease caused by a rickettsial organism transmitted to humans by the bite of an infected American dog tick, *Dermacentor variabilis*, and frequently by other tick species.

### **Who gets RMSF?**

In the eastern United States, children are infected most frequently, while in the western United States, disease incidence is highest among adult males. Disease incidence is directly related to the exposure to tick-infested habitats or to infested pets.

### **How is RMSF spread?**

RMSF is spread by the bite of an infected tick (the American dog tick, the lone-star tick or the wood tick), or by contamination of the skin with tick blood or feces. Person to person spread of RMSF does not occur.

### **What are the symptoms of RMSF?**

RMSF is characterized by a sudden onset of moderate to high fever (which can last for two or three weeks), severe headache, fatigue, deep muscle pain, chills and rash. The rash begins on the legs or arms and may include the soles of the feet or palms of the hands and may spread rapidly to the trunk or rest of the body.

### **How soon do symptoms appear?**

Symptoms usually appear within two weeks of the bite of an infected tick.

### **Does past infection with RMSF make a person immune?**

One attack probably provides permanent immunity.

### **What is the treatment for RMSF?**

Certain antibiotics such as tetracycline or chloramphenicol may be effective in treating the disease.

### **What can be done to prevent the spread of RMSF?**

Frequent checking of clothing and skin when in infested areas is extremely useful in reducing potential incidence of disease. Tick repellents applied to legs and clothing may be helpful to prevent tick attachment. Due to the nature of American dog ticks, local populations may be effectively controlled with applications of pesticides to vegetation along trails; mowing grass frequently in yard and outside fences also helps to reduce tick populations.

### **How should a tick be removed?**

To remove an attached tick, grasp with tweezers or forceps as close as possible to attachment (skin) site, and pull upward and out with a firm and steady pressure. If tweezers are not available, use fingers shielded with tissue paper or rubber gloves. Do not handle with bare hands. Be careful not to squeeze, crush or puncture the body of the tick which may contain infectious fluids. After removing the tick, thoroughly disinfect the bite site and wash hands. See or call a physician if there is concern about incomplete tick removal. It is important that a tick be removed as soon as it is discovered. Check after every two or three hours of outdoor activity for ticks attached to clothing or skin. If removal occurs within three hours after attachment, the risk of tick-borne infection is reduced.

THE RHODE ISLAND SCHOOL NURSE TEACHERS  
INFECTIOUS DISEASE REFERENCE MANUAL

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## ROTAVIRUS

### **What is rotavirus?**

Rotavirus is the most common cause of severe diarrhea among children 6 months to 2 years of age in the United States. By 4 years of age, most persons have been infected and have acquired long-term immunity to the severe dehydrating syndrome of rotavirus infection. Throughout life, asymptomatic or minimally symptomatic reinfection can occur. The elderly and others with decreased immunity may be susceptible to severe disease.

### **Who gets rotavirus infection?**

Most children under age 4 have been infected. One-third of parents whose children are infected with rotavirus become ill. Travelers to developing countries, the elderly, and people with debilitating or immunosuppressive conditions may develop rotavirus diarrhea. In the U.S., rotavirus activity is most common in the cooler months of the year (October-April).

### **What are the symptoms of rotavirus infection?**

The incubation period from exposure to symptoms is approximately 2 days followed by vomiting for 3 days and watery diarrhea for 3-8 days. Fever and abdominal pain occur frequently. Without adequate fluid replacement, the syndrome can result in severe dehydration and death.

In the United States, there are approximately 3.5 million rotavirus cases each year. A child has a 2% lifetime chance of being hospitalized for rotavirus diarrhea. There are an estimated 75-125 childhood deaths annually in the U.S. associated with rotavirus caused diarrhea and resulting dehydration. In developing countries, where medical care is least available and malnutrition is most prevalent, rotavirus infection is estimated to cause 1 million deaths each year.

### **How is rotavirus spread?**

Rotavirus is most often transmitted from person to person, through the fecal-oral route. The infective dose in a child can be very small. Contaminated food or water can be a source of infection and there is some airborne transport possible.

Most outbreaks are self-limited; however, factors such as a closed environment (day-care, nursing home, pediatric section of a hospital), a constantly renewing population of susceptible persons (children at camp), and persons at special risk (elderly) can prolong an outbreak.

Rotavirus can be detected with a lab test the day before diarrhea starts in half of all infected children and among some children for up to a week after symptoms end. Many children shed rotavirus and never become ill.

### **What is the treatment for rotavirus infection?**

Oral rehydration therapy for children who lose a large amount of fluid. Hospitalization and treatment with intravenous fluids may be required for severe dehydration. For adults, good hydration is also important, particularly among the elderly.

**Should an infected person be excluded from work, school, or daycare?**

Rotavirus outbreaks at daycare centers and in pediatric sections of hospitals are common. Hands that have been contaminated directly or from soiled surfaces may be the most important means by which enteric viruses such as rotavirus are transmitted. Employees are at highest risk for transmitting disease because of their many contacts with ill persons. Any staff member with symptoms should be excluded from contact with susceptible persons for at least 2 days after resolution of illness.

Food handlers with symptoms should not be involved in preparing food for the same period of time.

Health-care providers and staff of day-care centers should wear disposable plastic gloves when coming in contact with ill persons. Hands should be washed after each contact. Soiled linens and clothes should be handled as little as possible, promptly washed and machine dried.

Bathrooms and rooms occupied by ill persons should be kept clean on a routine basis; soiled surfaces should be disinfected with a commercial.

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**For more information please contact the Rhode Island Department of Health at 401-222-2312**

## **RUBELLA (GERMAN MEASLES)**

### **What is rubella?**

Rubella (German Measles) is a relatively mild, three day illness that seldom leads to complications in children. However, when pregnant women get the disease during their first few months of pregnancy, it can become serious. The rubella virus can cause babies to be born with defects such as cataracts, deafness, heart defects, and mental retardation, or the pregnancy can end in a miscarriage or stillbirth.

### **What is the difference between rubella (German Measles) and measles (Rubeola)?**

As stated above, rubella (German Measles) is generally a mild, three day infection that may cause birth deformities in babies born to mothers who are infected with it during pregnancy. Measles (rubeola) is a more serious disease and is sometimes called "hard", "red", or "seven day measles". Individuals infected with measles frequently suffer from ear infections and/or pneumonia.

### **What are the symptoms of rubella?**

Rubella is usually a mild illness, with a slight fever, swelling of the lymph glands (especially those in the back of the neck), and a rash that lasts for three days. Children may sometimes have no symptoms, but adults may have a low-grade fever, headache, weakness, runny nose, and red eyes. Some people also get temporary swelling and pain in the joints.

### **How soon do symptoms appear?**

Symptoms usually appear 16 to 18 days after exposure, with a range of 14 to 23 days.

### **How is rubella spread and how long can a person spread the disease?**

The rubella virus is found in the noses and throats of infected people. Direct contact with nose/throat secretions or exposure to the cough or sneeze of an infected person can spread the disease. People infected with rubella are contagious from about one week before the appearance of the rash through 5-7 days after the appearance of the rash.

### **How is rubella diagnosed?**

Rubella is often confused with measles and scarlet fever, so a doctor will need to check for rubella-specific antibodies in a person's blood to be sure the illness is really rubella.

### **Who is at risk of getting rubella?**

Persons who do not receive the rubella vaccine are the most likely to get this disease. Although rubella is most common among children and

young adults, people of all ages can develop the disease. Ten percent of young adults may be susceptible to rubella in the United States. Rubella is especially dangerous in women infected during the first few months of pregnancy because the virus can severely damage the unborn baby.

### **Is there a test for rubella immunity?**

Blood tests are used to measure the amount of rubella antibodies in a person's blood. If a test shows antibodies are present, a person is immune. If no rubella antibodies are present, a person is not protected against rubella.

### **Is the rubella vaccine safe?**

The rubella vaccine has an excellent record for safety. A fever, rash, or swelling of the lymph glands in the neck could happen one to two weeks after getting the rubella vaccine. Mild pain or stiffness in the joints lasting three days may happen one to three weeks after getting the shot. Women known to be pregnant should not receive the vaccine.

### **How can rubella be prevented?**

- ☞ By ensuring that children are immunized at appropriate ages.
- ☞ People with rubella should be separated from non-immune people. This includes exclusion from public settings such as day-care centers, schools, or work for 7 days after onset of rash.
- ☞ Pregnant females who have contact with a person with rubella during their first few months of pregnancy should have their blood tested for infection or immunity, and should be advised accordingly.
- ☞ Susceptible women should be immunized before marriage and advised to delay becoming pregnant for at least three months following immunization.
- ☞ Both male and female healthcare workers should be immunized against rubella, unless they can provide evidence of immunization or disease.

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## SALMONELLOSIS

### **What is salmonellosis?**

Salmonellosis is an infection with a bacterium called *Salmonella*. Most persons infected with *Salmonella* develop diarrhea, fever, and abdominal cramps 12 to 72 hours after infection. The illness usually lasts 4 to 7 days, and most persons recover without treatment. However, in some persons the diarrhea may be so severe that the patient needs to be hospitalized. In these patients, the *Salmonella* infection may spread from the intestines to the blood stream, and then to other body sites and can cause death unless the person is treated promptly with antibiotics. The elderly, infants, and those with impaired immune systems are more likely to have a severe illness.

### **What sort of germ is *Salmonella*?**

The *Salmonella* germ is actually a group of bacteria that can cause diarrheal illness in humans. They are microscopic living creatures that pass from the feces of people or animals, to other people or other animals. There are many different kinds of *Salmonella* bacteria. *Salmonella* serotype Typhimurium and *Salmonella* serotype Enteritidis are the most common in the United States. *Salmonella* has been known to cause illness for over 100 years. They were discovered by an American scientist named Salmon, for whom they are named.

### **How can *Salmonella* infections be diagnosed?**

Many different kinds of illnesses can cause diarrhea, fever, or abdominal cramps. Determining that *Salmonella* is the cause of the illness depends on laboratory tests that identify *Salmonella* in the stools of an infected person. These tests are sometimes not performed unless the laboratory is instructed specifically to look for the organism. Once *Salmonella* has been identified, further testing can determine its specific type, and which antibiotics could be used to treat it.

### **How can *Salmonella* infections be treated?**

*Salmonella* infections usually resolve in 5-7 days and often do not require treatment unless the patient becomes severely dehydrated or the infection spreads from the intestines. Persons with severe diarrhea may require re-hydration, often with intravenous fluids. Antibiotics are not usually necessary unless the infection spreads from the intestines, then it can be treated with ampicillin, gentamicin, trimethoprim/sulfamethoxazole, or ciprofloxacin. Unfortunately, some *Salmonella* bacteria have become resistant to antibiotics, largely as a result of the use of antibiotics to promote the growth of feed animals.

### **Are there long term consequences to a *Salmonella* infection?**

Persons with diarrhea usually recover completely, although it may be several months before their bowel habits are entirely normal. A small number of persons who are infected with *Salmonella*, will go on to develop pains in their joints, irritation of the eyes, and painful urination. This is called Reiter's syndrome. It can last for months or years, and can lead to chronic arthritis which is difficult to treat. Antibiotic treatment does not make a difference in whether or not the person later develops arthritis.

### **How do people catch *Salmonella*?**

*Salmonella* live in the intestinal tracts of humans and other animals, including birds. *Salmonella* are usually transmitted to humans by eating foods contaminated with animal feces. Contaminated foods usually look and smell normal. Contaminated foods are often of animal origin, such as beef, poultry, milk, or eggs, but all foods, including vegetables may become contaminated. Many raw foods of animal origin are frequently contaminated, but fortunately, thorough cooking kills *Salmonella*. Food may also become contaminated by the unwashed hands of an infected food handler, who forgot to wash his or her hands with soap after using the bathroom.

*Salmonella* may also be found in the feces of some pets, especially those with diarrhea, and people can become infected if they do not wash their hands after contact with these feces. Reptiles are particularly likely to harbor *Salmonella* and people should always wash their hands immediately after handling a reptile, even if the reptile is healthy. Adults should also be careful that children wash their hands after handling a reptile.

### **What can a person do to prevent this illness?**

There is no vaccine to prevent salmonellosis. Since foods of animal origin may be contaminated with *Salmonella*, people should not eat raw or undercooked eggs, poultry, or meat. Raw eggs may be unrecognized in some foods such as homemade hollandaise sauce, caesar and other salad dressings, tiramisu, homemade ice cream, homemade mayonnaise, cookie dough, and frostings. Poultry and meat, including hamburgers, should be well-cooked, not pink in the middle. Persons also should not consume raw or unpasteurized milk or other dairy products. Produce should be thoroughly washed before consuming. Cross-contamination of foods should be avoided. Uncooked meats should be kept separate from produce, cooked foods, and ready-to-eat foods. Hands, cutting boards, counters, knives, and other utensils should be washed thoroughly after handling uncooked foods. Hands should be washed before handling any food, and between handling different food items.

People who have salmonellosis should not prepare food or pour water for others until they have been shown to no longer be carrying the *Salmonella* bacterium. People should wash their hands after contact with animal feces. Since reptiles are particularly likely to have *Salmonella*, everyone should immediately wash their hands after handling reptiles. Reptiles (including turtles) are not appropriate pets for small children and should not be in the same house as an infant.

### **How common is salmonellosis?**

Every year, approximately 40,000 cases of salmonellosis are reported in the United States. Because many milder cases are not diagnosed or reported, the actual number of infections may be twenty or more times greater. Salmonellosis is more common in the summer than winter. Children are the most likely to get salmonellosis. Young children, the elderly, and the immunocompromised are the most likely to have severe infections. It is estimated that approximately 1,000 persons die each year with acute salmonellosis.

### **What else can be done to prevent salmonellosis?**

It is important for the public health department to know about cases of salmonellosis. It is important for clinical laboratories to send isolates of *Salmonella* to the City, County, or State Public Health Laboratories so the specific type can be determined and compared with other *Salmonella* in the community. If many cases occur at the same time, it may mean that a restaurant, food or water supply has a problem which needs correction by the public health department.

Some prevention steps occur everyday without you thinking about it.

Pasteurization of milk and treating municipal water supplies are highly effective prevention measures that have been in place for many years. In the 1970s, small pet turtles were a common source of salmonellosis in the United States, and in 1975, the sale of small turtles was halted in this country. Improvements in farm animal hygiene, in slaughter plant practices, and in vegetable and fruit harvesting and packing operations may help prevent salmonellosis caused by contaminated foods. Better education of food industry workers in basic food safety and restaurant inspection procedures, may prevent cross-contamination and other food handling errors that can lead to outbreaks. Wider use of pasteurized egg in restaurants, hospitals, and nursing homes is an important prevention measure. In the future, irradiation or other treatments may greatly reduce contamination of raw meat.

### **What is the government doing about salmonellosis?**

The Centers for Disease Control and Prevention (CDC) monitors the frequency of *Salmonella* infections in the country and assists the local and State Health Departments to investigate outbreaks and devise control measures. CDC also conducts research to better identify specific types of *Salmonella*. The Food and Drug Administration inspects imported foods, milk pasteurization plants, promotes better food preparation techniques in restaurants and food processing plants, and regulates the sale of turtles. The FDA also regulates the use of specific antibiotics as growth promotants in food animals. The US Department of Agriculture monitors the health of food animals, inspects egg pasteurization plants, and is responsible for the quality of slaughtered and processed meat. The US Environmental Protection Agency regulates and monitors the safety of our drinking water supplies.

### **How can I learn more about this and other public health problems?**

You can discuss any medical concerns you may have with your doctor or other health care provider. Your local City or County Health Department can provide more information about this and other public health problems that are occurring in your area. General information about the public health of the nation is published every week in the "Morbidity and Mortality Weekly Report", by the CDC in Atlanta, GA. Epidemiologists in your local and State Health Departments are tracking a number of important public health problems, investigating special problems that arise, and helping to prevent them from occurring in the first place, or from spreading if they do occur.

## **What can I do to prevent salmonellosis?**

Cook poultry, ground beef, and eggs thoroughly before eating. Do not eat or drink foods containing raw eggs, or raw unpasteurized milk.

If you are served undercooked meat, poultry or eggs in a restaurant, don't hesitate to send it back to the kitchen for further cooking.

Wash hands, kitchen work surfaces, and utensils with soap and water immediately after they have been in contact with raw meat or poultry.

Be particularly careful with foods prepared for infants, the elderly, and the immunocompromised.

Wash hands with soap after handling reptiles or birds, or after contact with pet feces.

Avoid direct or even indirect contact between reptiles (turtles, iguanas, other lizards, snakes) and infants or immunocompromised persons.

Don't work with raw poultry or meat, and an infant (e.g., feed, change diaper) at the same time.

Mother's milk is the safest food for young infants. Breast-feeding prevents salmonellosis and many other health problems.

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For more information please contact the Rhode Island Department of Health at 401-222-2577

## SHIGELLOSIS

### **What is shigellosis?**

Shigellosis is a bacterial infection affecting the intestinal tract. It is a fairly common disease usually seen in the summer and early fall and may occur as single cases or outbreaks.

### **Who gets shigellosis?**

Anyone can get shigellosis but it is recognized more often in young children. Those at greater risk include children in day care centers, foreign travelers to certain countries, and persons living in institutions.

### **Where are Shigella bacteria found?**

Shigella bacteria are found in the feces (stool) of infected persons.

### **How are Shigella bacteria spread?**

An infected person may contaminate food or water. For example, infected persons can spread Shigella by not washing their hands after going to the bathroom and then handling food that other people will eat. Another way to get shigellosis is by direct oral contact with feces from an infected person. This could unintentionally happen while diapering children, for example.

### **What are the symptoms?**

People with Shigella may experience mild or severe diarrhea, often with fever and traces of blood or mucus in the stool. Some infected people do not show any symptoms.

### **How soon do symptoms appear?**

The symptoms usually appear within one to three days after exposure.

### **How long is a person able to spread shigellosis?**

Most people pass Shigella in their feces (stool) for one to two weeks. Certain antibiotics may shorten the time Shigella is present.

### **Should infected people be excluded from work or school?**

Most infected people may return to work or school when their diarrhea ceases. Foodhandlers, day care staff, and healthcare workers usually cannot return to work until two negative stool specimens are obtained.

### **How is shigellosis treated?**

Most people with shigellosis will recover on their own. Persons with diarrhea should drink plenty of fluids. Antibiotics are occasionally used to treat severe cases or to shorten the time the bacteria are present in the stool, particularly for food handlers, children in day care or institutionalized individuals.

### **What can be done to prevent the spread of shigellosis?**

Since Shigella is passed in feces, the single most important prevention activity is careful hand washing after using the toilet or changing diapers and before and after food preparation.

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## GROUP A STREPTOCOCCUS

What is group A streptococcus?

Group A streptococcus (GAS) is a bacterium commonly found on the skin and in the throat.

### **What kinds of disease does GAS cause?**

The most common disease caused by GAS is "strep throat." Skin infections like impetigo or pyoderma can also be due to GAS. Less commonly GAS causes life threatening infections such as septicemia (infection of the blood), cellulitis (infection in and under the skin), necrotizing fasciitis (destruction of fat and muscle), and rarely, streptococcal toxic shock syndrome (STSS). These severe forms are often referred to as "invasive GAS."

Complications from untreated strep throat and GAS skin infections can occur 1 to 5 weeks after the infection. The use of antibiotics to treat GAS infections has reduced the occurrence of complications like rheumatic fever (inflammation of the heart, joints and other tissues) and kidney disease which used to be common. GAS can also be carried in the throat or on the skin of a person without causing any symptoms.

### **How do people get infected with GAS?**

By direct contact with persons who are sick or are carrying the germ, probably from discharges from the nose or throat. Casual contact rarely leads to infection. Food, especially dairy products and egg dishes, can become contaminated by infected people and cause outbreaks of strep throat.

### **How long does it take for illness to develop?**

Usually it only takes 1 to 3 days for illness to develop.

### **How can spread of the germ be reduced?**

By washing hands frequently, especially after coughing or sneezing, before preparing food, and before and after taking care of persons with wounds or sore throats. Persons with severe sore throats or infected wounds should see a physician. There is no vaccine to protect from GAS infections.

### **Why do some people get mild infection while others get severe GAS infections?**

There are different strains of GAS organisms. Some strains are more likely than others to cause severe infections. Also, there are differences between individuals that affect the severity of the infection that they get.

### **How common are severe GAS infections?**

Data on the number of Group A strep infections are not officially collected in Virginia or nationally. The Centers for Disease Control and Prevention estimates that 10,000 to 15,000 severe infections occur every year in this country, resulting in 2,000 to 3,000 deaths annually.

### **Who is more likely to get invasive GAS?**

Persons who have a break in the skin from a surgical or other wound or an underlying disease such as chickenpox, diabetes, chronic disease of the heart or lungs, alcoholism, or who abuse IV drugs are more likely to develop severe infection. In the past ten years, severe GAS infections have also been seen in

young, healthy people.

### **What is strep throat?**

"Strep throat" is most common in children 5 -15 years old, but can occur at any age. People with strep throat have a fever, sore throat, loss of energy, headache, and swollen lymph nodes. When strep throat is accompanied by a rash, it is often called scarletina or scarlet fever.

### **What is strep toxic shock syndrome?**

Although rare, STSS progresses very rapidly from infection of a minor injury to high fever, collapse and shock (drop in blood pressure) followed by failure of many organs such as the brain, kidneys, liver, and lungs.

### **What is necrotizing fasciitis?**

Necrotizing fasciitis results when the infection causes the death of fat and the tissue surrounding muscle. Other signs of illness that often occur with fasciitis are shock, septicemia and organ failure. Death may occur in 20-30% of patients with necrotizing fasciitis. Other patients may require surgery, possibly amputation.

### **What can I do to prevent necrotizing fasciitis?**

Necrotizing fasciitis can occur in persons with wounds due to surgery or injury that become infected. Persons with any kind of wound should take appropriate measures to keep the wound clean and should seek medical attention if signs of infection occur such as pain, swelling, or purple/blue coloration around the wound. The infection can be treated with common antibiotics.

### **How are severe strep infections treated?**

Rapid treatment of invasive GAS is necessary to reduce the risk of death. Penicillin is the antibiotic of choice for GAS. For people who are allergic to penicillin, erythromycin is used. Because some strains of GAS may be resistant to erythromycin, physicians may prescribe other antibiotics. In addition to antibiotics, surgery is usually needed in cases of necrotizing fasciitis.

### **Are contacts of cases of invasive GAS at increased risk?**

People who have been in close contact with someone who has GAS may be at risk for becoming infected. Whether or not severe disease results will vary from one individual to another. In families where more than one case has occurred, the same strain of bacteria has caused severe infection in one family member and mild or no disease in others.

### **What is the appropriate management of contacts of invasive GAS infection?**

Persons who have had close contact with someone who is diagnosed with invasive GAS should see their doctor. The physician may do a culture for strep. If there is a suspicion of GAS infection, treatment may be started immediately.

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## SYPHILIS

What is syphilis?

Syphilis is an infection spread through direct contact with a person who has the disease, almost always during sexual contact. It is one of the most dangerous sexually transmitted diseases (STDs). A pregnant woman who is infected can also spread syphilis to her baby either before or during birth.

### **Who gets syphilis?**

Any person who has sex with a person infected with syphilis can get the disease.

### **What are the symptoms of syphilis?**

The first sign of syphilis is usually a sore, called chancre, which is painless and appears on or near the genitals, though it can show up somewhere else, such as the mouth or anus. It may be accompanied by swollen glands, which develop within a week after the appearance of the initial sore. When the sore is present, a person is said to have the primary stage of syphilis. The sore may disappear by itself within 1 to 5 weeks, even without treatment, but the disease stays in the body.

The secondary stage of syphilis begins approximately 7 weeks after the sore first appears. The most common symptom during this stage is a rash which may appear on any part of the body: trunk, arms, legs, palms, soles, etc. Other symptoms may also occur which include tiredness, fever, sore throat, headaches, hoarseness, loss of appetite, and swollen glands. These signs and symptoms last 2 to 6 weeks, and will disappear even if no treatment is received. After the second stage, latent syphilis begins during which there are no apparent signs or symptoms of disease. This stage can occur anytime up until the disease is cured or the serious symptoms of late syphilis begin.

Late syphilis occurs when the disease goes untreated and may involve illness in the skin, bones, central nervous system and heart and can cause disability or death.

With proper treatment during the primary stage, the sores will go away and the later stages of the disease will be prevented.

### **How soon do symptoms appear?**

Symptoms can appear from 10 to 90 days after a person becomes infected, but usually within 3 to 4 weeks. Symptoms are often not noticed or are thought to be minor abrasions or heat rash and medical care is not sought right away.

### **How is syphilis diagnosed?**

In early syphilis, a sample of fluid can be taken from the sore (chancre) and checked for the organism. Later in the disease, blood testing is required.

### **How is syphilis spread?**

Syphilis is spread mainly through sexual contact in which there is contact to open sores or breaks in the skin.

### **What is the treatment for syphilis?**

Syphilis can be cured with antibiotics prescribed by a physician, usually penicillin, doxycycline, or tetracycline. The amount of treatment required depends on the stage of syphilis the patient is experiencing. Follow-up examination is very

important to make sure the treatment has cured the disease.

### **How can syphilis be prevented?**

Not having sex is the only sure way to avoid getting syphilis or any other STD. Otherwise, limiting the number of one's sexual partners reduces the chance of being exposed. Using condoms correctly with all partners will decrease the possibility of becoming infected. If you think you are infected, avoid any sexual contact until you have visited a doctor, hospital or STD clinic. If you are infected, notify your sex partners immediately so they can be tested and treated.

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**For more information please contact the Whitmarsh House at 401-444-0485**



## TETANUS (LOCKJAW)

### **What is tetanus?**

Tetanus, commonly called lockjaw, is a bacterial disease that affects the nervous system. Due to widespread immunization, tetanus is now a rare disease.

### **Who gets tetanus?**

Persons who have not been vaccinated adequately against tetanus are the most likely to get the disease. Tetanus occurs more often in older people who have not received adequate booster doses of vaccine and in agricultural workers where contact with animal manure is more likely.

### **How is tetanus spread?**

The tetanus bacteria enter the body through a wound that is contaminated with the bacteria. It is not spread from person to person.

### **Where are the tetanus bacteria found?**

The tetanus bacteria live throughout the environment and are commonly found in soil contaminated with manure.

### **What are the symptoms of tetanus?**

A common first sign of tetanus is muscular stiffness in the jaw (lockjaw), followed by stiffness of the neck, difficulty in swallowing, rigidity of abdominal muscles, and spasms.

### **How soon after infection do symptoms occur?**

The incubation period is usually ten days but may range from three days to three weeks. Shorter incubation periods are associated with more heavily contaminated wounds.

### **Does past infection with tetanus make a person immune?**

Recovery from tetanus may not result in immunity. A person who has had tetanus can get it again. A person should be immunized after recovering from tetanus.

### **What is the treatment for tetanus?**

Wounds should be thoroughly cleaned, and dead or devitalized tissue removed. If the patient has not had a tetanus toxoid booster in the previous 10 years, a single booster injection should be administered on the day of injury. For severe wounds, a booster may be given if the patient has not been previously immunized with a series of at least three doses of toxoid.

### **Is there a vaccine for tetanus?**

An effective vaccine called tetanus toxoid has been available for many years. Tetanus toxoid in combination with diphtheria toxoid and pertussis vaccine (DTP) is given at two, four, six and 15 months of age and between four and six years of age. Children who are seven years of age or older should receive (tetanus and diphtheria) toxoid. A tetanus booster shot is recommended every 10 years throughout life.

### **What can be done to prevent the spread of tetanus?**

The single most important preventive measure is to maintain a high level of

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immunization in the community. Another way to prevent tetanus is to thoroughly clean wounds.

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For more information please contact the Rhode Island Department of Health at 401-222-2312



# TUBERCULOSIS

What is tuberculosis (TB)?

TB is an infectious disease caused by bacteria named *Mycobacterium tuberculosis*. The disease most often affects the lungs, but can occur anywhere in the body.

## Who gets TB disease?

Anyone can catch TB! People most likely to get the disease are those who live with or have close contact with a person who has contagious TB and is not getting proper treatment. The disease usually develops within the first two years after infection (when TB bacteria first enter the body). After that, the risk of disease increases whenever the immune system is weakened by another medical condition, drug abuse, malnutrition or older age.

## How is TB spread?

TB is spread through the air. When a person with contagious TB coughs, bacteria are released into the air where they may remain for hours. Anyone who breathes air that contains TB bacteria may become infected. Persons with TB disease should cover their mouth and nose when coughing or sneezing to keep the TB germs from spreading to other people. TB bacteria are not spread by kissing or sharing drinking glasses, dishes, or other objects.

## What is the difference between infection and disease?

Persons who breathe air that contains TB bacteria may become infected. That means that the bacteria have entered their body. A skin test is used to identify infection. A person can be infected without having disease. Persons who have been infected with TB, but have not developed active TB disease, cannot spread the disease to others.

A person has TB disease if the bacteria start to become active. The person may develop symptoms and/or have an abnormal chest x-ray. A person with a positive skin test and/or symptoms of TB disease should have a chest x-ray. If the x-ray is normal, the person probably does not have active TB disease in the lungs. If the chest x-ray is abnormal, further tests will be done to see if disease exists.

## What are the symptoms of contagious TB disease?

The most common symptom is cough that lasts for more than a few weeks and sometimes results in coughing up mucous and/or blood. Other symptoms may include feeling weak, not wanting to eat, losing weight, having a fever, and/or sweating a lot at night. Chest pain may also occur. For TB disease outside the lungs, the symptoms vary by where the disease occurs. People can have TB disease without having any symptoms.

## What will happen if I have TB disease?

A doctor will prescribe as many as 4 types of medicine to treat the disease. In most cases, the medicine will quickly prevent you from being able to spread the bacteria to others, allowing you to return to work or school. Although you may feel cured, it will take 6 months or longer to completely treat the disease. It is VERY IMPORTANT that you take every dose of medicine as prescribed even if

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the symptoms of the disease have completely disappeared. If this is not done, the symptoms may come back and the TB bacteria may stop responding to the medication, making it harder to treat the disease. If this happens, you will have to be treated longer, the medicines used will not work as well, and you may experience serious side effects.

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For more information please contact the Rhode Island Department of Health at  
401-222-2577



## TUBERCULOSIS INFECTION

### **What is tuberculosis (TB)?**

TB is an infectious disease caused by bacteria named *Mycobacterium tuberculosis*. The disease most often affects the lungs, but can occur anywhere in the body.

### **How is TB spread?**

TB is spread through the air. When a person with contagious TB coughs, bacteria are released into the air where they may remain for hours. Anyone who breathes air that contains TB bacteria may become infected.

### **What is TB infection?**

Persons who breathe air that contains TB bacteria may become infected. This means that the bacteria have entered their body. Infection alone does not make people sick. Persons with TB infection do not necessarily have TB disease, but having the infection means that TB disease could develop at any time for the rest of their lives.

### **How is TB infection detected?**

A skin test is used to tell whether TB bacteria have entered the body. It is usually done on the arm and, within about 12 weeks after infection it will show a positive reaction in a person with TB infection. A healthcare worker needs to check the arm to see how you react to the test. Some people with TB infection may not react to the skin test due to other medical conditions, and may need other tests. You cannot catch TB from the skin test.

### **What if I have a positive skin test?**

You should have a chest x-ray. Other tests may also be performed to make sure your lungs have not been affected. Once a person has a positive skin test, he/she should not have any more skin tests.

### **Can people with TB infection spread it?**

Persons who have been infected with TB, but have not developed active TB disease, cannot spread the disease to others.

### **Do I need to take any medicine if I have TB infection without disease?**

A doctor may prescribe a medicine called isoniazid (INH) if you are young or at increased risk of developing TB disease. This drug will lessen your chances of developing TB disease. It must be taken for 6-9 months. If you don't take the medicine for the whole time, you could get sick from TB disease. If you feel sick from taking your medicine, you need to tell your healthcare worker.

### **How will I know if I develop TB disease?**

A person has TB disease if the bacteria start to become active. The person may develop symptoms and/or have an abnormal chest x-ray. A person with a positive skin test and/or symptoms of TB disease should have a chest x-ray. If the x-ray is normal, the person probably does not have active TB disease in the lungs. If the chest x-ray is abnormal, further tests will be done to see if disease exists.

The most common symptom is a cough that lasts more than a few weeks and sometimes results in coughing up mucous and/or blood. A person with TB

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disease may also feel weak, not want to eat, lose weight, have a fever, and/or sweat a lot at night. Chest pain may also occur. For TB disease outside the lungs, the symptoms vary by where the disease occurs. People can have TB disease without having any symptoms. Anyone who starts having symptoms of TB should see a doctor.

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## KEY FACTS ABOUT VARICELLA

CAUSE	Varicella-zoster virus (VZV) causes both varicella (chickenpox) and zoster (shingles). VZV is a member of the herpesvirus family, closely related but distinct from herpes simplex virus.
TRANSMISSION	Varicella spreads from individuals who have varicella and zoster. VZV is transmitted to others from the skin and respiratory tract of infected persons. After an incubation period of about two weeks during which time the virus is present in the bloodstream, the rash of varicella develops. Varicella usually occurs only once in the lifetime of an individual; second attacks are prevented by the presence of immunity in the bloodstream (antibodies). Vaccination stimulates production of antibodies without causing chickenpox itself.
PREVENTION	The live attenuated vaccine (Oka strain) was developed in 1974, by Takahashi and colleagues in Japan; it has been licensed in Japan for healthy children since 1989. In the United States clinical trials have been carried out in more than 9,000 healthy children, 1,600 healthy adolescents and adults, and 500 children with leukemia in remission. Varicella vaccine was licensed for use in healthy individuals by the Food and Drug Administration in 1995. It is now recommended for all healthy children 12 to 18 months of age as well as for older children and adults who are susceptible or who have not had chickenpox in the past. It is highly recommended for adolescents 11 to 12 years old who have not had varicella. About 20 percent of adolescents 11 to 12 years of age are susceptible to varicella.
POPULATION	There are about four million cases of varicella, mostly in children, occurring annually in the United States. About five percent of the American adult population is susceptible to varicella. Complications of varicella are estimated to be 25 times more severe in adults than in children. Complications include bacterial superinfections, encephalitis, pneumonia, and severe birth defects in two percent of offspring whose mothers have varicella in pregnancy. Zoster is due to reactivation of latent VZV acquired during varicella. About 15 percent of the U.S. population will develop zoster in a lifetime.
SYMPTOMS	These include a rash composed of small blisters that are intensely itchy and also fever, loss of appetite, and fatigue.

TREATMENT

The antiviral drug acyclovir given by mouth within 24 hours after onset of varicella shortens the illness by about one day but does not prevent complications of the illness. Antiviral therapy given by mouth is more effective for treatment of shingles.

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**For more information please contact the Rhode Island Department of Health at 401-222-2312**



## REFERENCES

American Academy of Pediatrics, **Red Book 2003, 26<sup>th</sup> ed.**, Report of the Committee on Infectious Diseases. PO Box 927, 141 Northwest Point Blvd, Elk Grove Village, IL, 60009-0927.

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Centers for Disease Control and Prevention. **Recommendations of the ACIP (Advisory Committee on Immunization Practices)**

<http://www.cdc.gov/nip/publications/ACIP-list.htm>

Chin, James. **Control of Communicable Diseases Manual, 17<sup>th</sup> ed.** 2000.

American Public Health Association, 800 I Street NW, Washington, DC 20001-3710.

## OTHER WEB SITE RESOURCES

For additional information about Infectious Diseases and other related topics you can visit the following Web Sites:

Rhode Island Department of Health [www.health.ri.gov](http://www.health.ri.gov).

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

Centers for Disease Control, Morbidity and Mortality Weekly Report

<http://www.cdc.gov/mmwr/>

Centers for Disease Control, Emerging Infectious Disease Journal

[www.cdc.gov/ncidod/eid/index.htm](http://www.cdc.gov/ncidod/eid/index.htm)

Centers for Disease Control and Prevention, National Center for Infectious Diseases, New, Reemerging and Drug Resistant Infections

<http://www.cdc.gov/ncidod/emergplan/index.htm>

CDC, National Immunization Program. <http://www.cdc.gov/nip/>

Food and Drug Administration [www.fda.gov](http://www.fda.gov)

Occupational Health and Safety Administration [www.osha.gov](http://www.osha.gov)

Associaton for Professionals in Infection Control and Epidemiology,  
Inc. <http://www.apic.org/>

State Health Departments search engine  
[http://www.cdc.gov/nchstp/od/cccwg/State\\_Departments\\_of\\_Public\\_Health.htm](http://www.cdc.gov/nchstp/od/cccwg/State_Departments_of_Public_Health.htm)

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

American Medical Association [www.ama-assn.org/](http://www.ama-assn.org/)

American Academy of Family Physicians [www.aafp.org/](http://www.aafp.org/)

