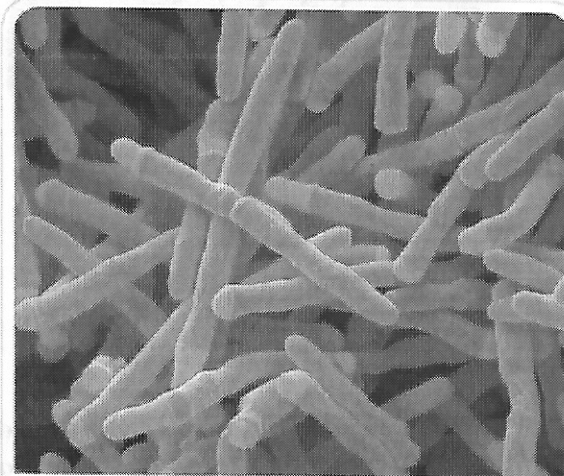


ing young children involves caring for them when illness occurs in school and centers as well as being proactive and using strategies to prevent the spread of infection.

Teachers such as Mary Beth become familiar with individual children and are able to recognize changes in the child's behavior or appearance that may be clues to sickness. They also know that they are responsible for assisting children when illness occurs, supporting families to get the medical help the child needs, and teaching children ways to stay healthy. To help in preparing for these important aspects of teaching, this chapter describes the basic process of **disease transmission** and ways to prevent illness from spreading. We discuss some of the symptoms of common diseases and how to manage them in the early childhood setting. Some children such as those who are internationally adopted or who have recently immigrated to the United States may face special health concerns. These needs are also discussed.

Throughout the chapter, when we refer to *disease*, we are talking about illnesses, infections, viruses, and other maladies that cause children to get sick. Teachers are not trained medical professionals and should not offer diagnoses or treatment for health care problems. However, the guidance provided here contributes to the skills that prepare teachers to care for children appropriately when illness occurs at school.



Steve Gschmeissner/Science Photo Library/Getty Images

Disease is caused by viruses, bacteria, fungi, and parasites—commonly referred to as germs.

disease transmission
process by which infections are spread to individuals

UNDERSTANDING THE INFECTIOUS DISEASE PROCESS

Infectious diseases are illnesses or conditions caused by germs, and they can cause symptoms related to many body systems. Usually, the body's immune system detects and fights off disease. In the process of fighting off infections, a child can become ill and show a wide array of symptoms in response to infections.

infectious diseases
diseases caused by microorganisms that are spread from person to person or animal to person

Infectious diseases are common in childhood and can interfere with classroom activities. Children rely on their teachers to comfort and nurture them, and their classmates depend on the teacher to help keep them from getting sick. Teachers need to understand the disease process and try to reduce the frequency of disease and minimize its impact.

The Causes of Infectious Diseases

Microscopic organisms are present in huge numbers throughout the environment and can cause diseases. These include viruses, bacteria, fungi, and parasites. Each of these organisms exists in one form or another virtually everywhere on earth. In an infectious form, each can cause illness. We commonly refer to these infectious agents as **germs**.

germ
an organism or infectious agent that can potentially cause disease

virus

a type of infectious germ that invades human tissue and causes illness

Viruses

A **virus** is a type of infectious germ that invades human tissue and causes illness. The body's immune system is highly effective at killing off most viruses. Illnesses caused by viruses include chicken pox, measles, the common cold, influenza, and human immunodeficiency virus (HIV). Usually diseases caused by viruses resolve on their own. Through this healing process, the body's systems develop a certain level of immunity to exposure in the future. Most viruses cause mild infections but can rarely cause serious medical complications.

bacteria

infectious germs that invade human tissue and cause illness; sometimes treated with antibiotics

Bacteria

Like viruses, **bacteria** are infectious germs that cause illness. Some bacteria are useful in digestion and in certain familiar processes such as making yogurt from milk, but other bacteria can cause disease. These harmful bacteria are the cause of many respiratory illnesses such as bacterial pneumonia and tuberculosis and other diseases such as pertussis and tetanus. Bacteria are a major cause of disease and death worldwide. Bacterial infections are often treated with antibiotics.

fungi

a type of germ that can commonly cause skin infections or allergic reactions

Fungi

Another germ, **fungi**, is the cause of common illnesses such as ringworm and athlete's foot. Other examples of fungi are mushrooms, mold, and baker's yeast. Other fungi are used to grow special molds for making cheese. The spores of some fungi can cause allergies.

parasite

infections that invade the body and live within human tissue for extended periods of time

Parasites

An infectious agent called **parasites** feed on or enter the body tissue. They can live on and within human tissue for extended periods of time. Examples of parasitic diseases include head lice; scabies; intestinal worms; malaria; and parasites such as *Giardia*, which are contracted from drinking contaminated water.

How Disease Is Spread

communicable diseases
infections that are spread from one person to another

Infectious diseases are spread from person to person or from an animal or insect to a person. The most frequent infections among young children are **communicable diseases**, which are spread from one person to another. The way in which a disease is spread is the **mode of transmission**. (See Figure 10-1.) Most infections are transferred by one of the four common modes of transmission, as discussed next.

mode of transmission
the route by which an infection is spread

Direct or Indirect Contact

This is the most common mode of transmission in the early childhood setting. Direct contact occurs by direct person-to-person contact, whereas indirect refers to transmission via a contaminated object or contaminated hands. This is the most common mode of transmission in early childhood.

Typical actions such as these occur in everyday play and provide the opportunity to spread disease. For example, Cherice, who is coming down with a cold, may sneeze directly on Aiden while they are playing with blocks. Or she may turn away and sneeze on some blocks that Karl, who has just joined the play, touches a few minutes later. When Karl picks up the blocks and later scratches his nose or puts his fingers in his mouth, the germs are indirectly transmitted to him. Most common respiratory and diarrheal infections are spread by direct or indirect contact.

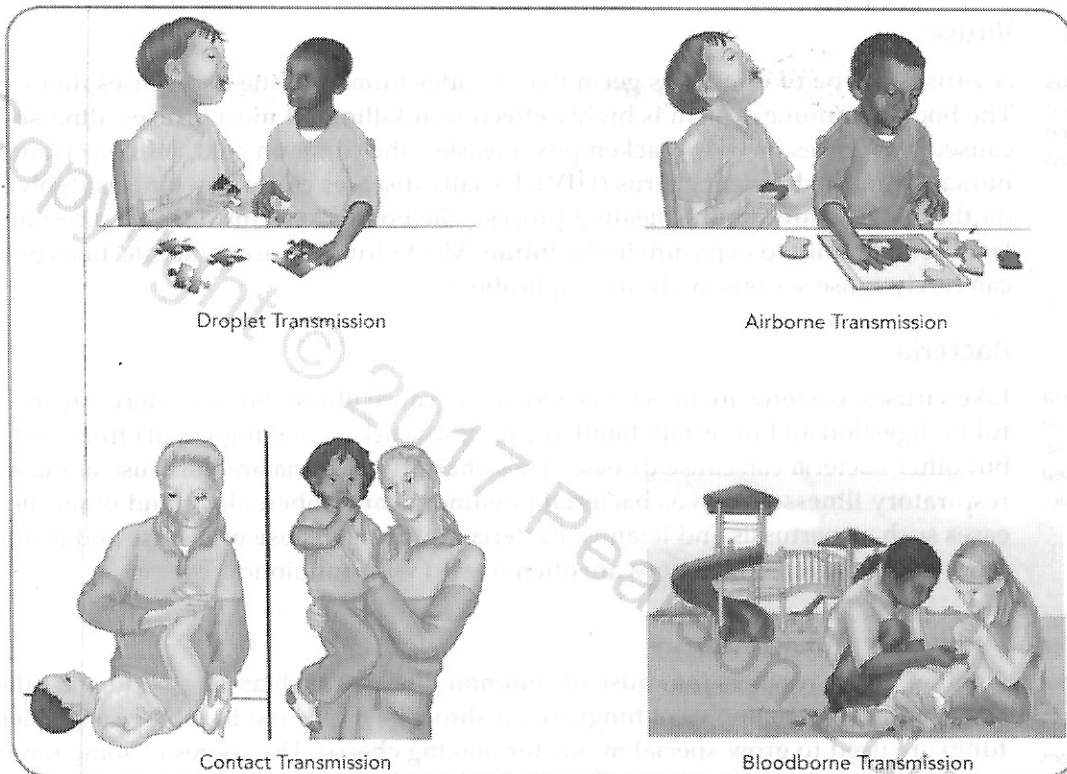


FIGURE 10-1
Common Modes of Transmission

Droplet Transmission

This occurs when a person coughs or sneezes, propelling droplets of contaminated fluid that land on another person's eyes, nose, or mouth. Examples of infections transmitted this way include influenza, whooping cough, and strep throat, which are all discussed later in the chapter.

Airborne Transmission

Similar to droplet transmission, **airborne transmission** involves much smaller microscopic droplets that travel through the air via air currents and over a longer distance. Examples include chicken pox, measles, and tuberculosis.

airborne transmission occurs when infected particles are sneezed or coughed into the air and inhaled by another person

Bloodborne Transmission

This type of spread of infection, **bloodborne transmission**, occurs through contact with contaminated blood or body fluids. In this situation, the infection can be transmitted only if the infected blood comes in contact with an uninfected person's bloodstream through a wound. This might happen if a child comes in contact with infected blood from a wound such as a bite, a nosebleed, blood from excessive scratching of irritated skin, or an injury (American Academy of Pediatrics, 2012). This mode of transmission is very uncommon in early childhood and school settings.

bloodborne transmission occurs when infections are spread by contamination with blood

The Incubation Period

Illness does not always occur immediately after contact with an infectious germ. Sometimes illness is not evident until a few hours, a few days, or even up to a few

incubation period

period of time between a child's first exposure to an infectious germ and the time the child's first symptom appears

months in rare cases. The time between the child's first exposure to an infectious agent and when the first symptom of illness appears is called the **incubation period**.

Each infectious agent has a typical incubation period. For some diseases, the incubation period is the time when the child can infect others. When an illness has been diagnosed, teachers who are knowledgeable about the illness's incubation period are then able to identify other children who may have been exposed to the disease. Knowing about incubation periods also helps teachers know how long to watch for the spread of the disease and to recognize when the potential risk for additional cases is likely to be over.

In the opening case scenario, Mary Beth understands that other children may have been exposed to strep throat. She takes steps to counteract the possible spread of the disease by teaching the children how to cover their mouths when they cough and wash their hands carefully. She also shares information with parents about the symptoms of strep throat. In addition, Mary Beth will also watch for signs of strep throat over the next two to five days, the typical incubation period for this disease.

The period of contagiousness can also vary and be different from or similar to the incubation period. Local health departments and health care providers can be excellent resources for teachers when potential outbreaks or questions arise. Table 10-1 outlines modes of transmission, incubation periods, and symptoms associated with the infectious diseases discussed in this chapter.

Symptoms of Disease

Understanding symptoms of illness can guide teachers to be watchful and ready to take appropriate action to care for a child. Symptoms that are frequently associated with disease include the following:

- *Fever*, which may be evident by the child's brightly flushed cheeks.
- *Cough*, especially if the cough is new.
- *Rash*, such as a newly emerging flush on the skin.
- *Vomiting*, especially when vomiting occurs with no other likely explanation.
- *Changes in the child's typical behavior*, such as being very quiet or not engaging in typical play.

In the opening scenario, it was Mark's atypical behavior that caught his teacher's attention. Following her observations and after talking with Mark, Mary Beth decided that it was highly likely he was becoming ill. She felt reasonably confident that it was in Mark's best interest to see the school nurse for further assessment.

Most children's programs do not have a nurse available to assist in determining a course of action for a child who gets sick at school. In these settings, teachers must use their best judgment to determine whether the child can be cared for in the setting or if the parent should be contacted.

A description of the symptoms the teacher observed provides helpful information for families and medical providers. It is not appropriate for the teacher to suggest a medical diagnosis or offer a plan of treatment. However, it is appropriate for



CLASSROOM CONNECTION

Watch this video that shows a teacher talking to a young girl who is feeling ill. How does the teacher evaluate the child's symptoms?

TABLE 10-1 Childhood Infections: Mode of Transmission, Incubation Period, and Symptoms

Infectious Disease	Mode of Transmission	Incubation Period	Symptoms
Chicken pox	Airborne, droplet	10–21 days	Fever, cough, rash
Common colds	Droplet	Variable	Fever, runny nose, cough, congestion
Conjunctivitis (pinkeye)	Droplet	Variable	Eye drainage, redness of eyes
Coxsackie virus (hand, foot, and mouth disease)	Droplet	3–5 days	Fever, blisters in the mouth, refusal to eat, rash on palms and soles, diaper rash
Croup	Droplet	Variable	Fever, barking cough, runny nose
Ear infections	Usually not communicable	Variable	Fever, earache
Fifth disease	Droplet	4–28 days	Fever, headache, muscle aches, rash
Group A strep (strep throat)	Droplet	Several hours to 4 days	Fever, sore throat, rash
<i>Haemophilus influenzae</i> type b (Hib)	Droplet	Unknown	Fever, upper respiratory infection, meningitis
Head lice	Direct contact	10–14 days	Itching of scalp
Hepatitis A	Direct or indirect contact	15–50 days	Fever, nausea, abdominal pain
Hepatitis B	Bloodborne	45–160 days	Inflammation of the liver
Hepatitis C	Bloodborne	6–7 weeks	Inflammation of the liver
Human immunodeficiency virus (HIV)	Bloodborne	12–18 months	Wide range of symptoms
Influenza	Airborne or droplet; depends on the strain	1–4 days	Fever, muscle aches, sore throat, cough, headache
Measles	Airborne, droplet	7–18 days	Fever, pinkeye, runny nose, rash
Methicillin-resistant <i>Staphylococcus aureus</i> (MRSA)	Direct contact	Variable	Skin infections
Pertussis (whooping cough)	Droplet	4–21 days	Initial: fever, runny nose, cough Later: Numerous bursts of cough, sometimes with the characteristic whoop
Pinworms	Direct or indirect contact	Variable	Itching around anus or genital area
Respiratory syncytial virus (RSV)	Droplet	2–8 days	Fever, runny nose, cough, difficulty breathing
Ringworm	Direct contact	Unknown	Rash
Rotavirus	Direct or indirect contact	1–2 days	Fever, vomiting, diarrhea
Scabies	Direct contact	4–6 weeks	Rash, itching
<i>Streptococcus pneumoniae</i>	Droplet	1–3 days	Ear infections, pneumonia, meningitis
Tetanus	Direct contact through open wound	4–21 days	Severe muscle contraction, spasm, seizures
Tuberculosis	Droplet, airborne	2–12 weeks	Chronic cough

Sources: American Academy of Pediatrics, 2012 and Centers for Disease Control and Prevention, 2012.

the teacher to provide a summary of the symptoms that were observed, to inform the family of the intensity of those symptoms, and to recommend that the parent seek medical evaluation. Symptoms provide clues to help medical providers diagnose the disease and create an appropriate treatment plan.

Symptoms of Common Infections

Among the many diseases that children may experience, three groups of infections are most common. These include infections with symptoms of diarrhea, respiratory illness, or skin infections and rashes.

Acute Infectious Diarrhea

diarrhea
the frequent and excessive
discharge of watery feces

Diarrhea is the frequent and excessive discharge of watery feces. Young children may have discomfort and soiled diapers and clothing or have a frequent need to use the bathroom. Viruses are the most common cause of infectious diarrhea. The infection is transmitted from person to person usually by direct or indirect contact. Infectious diarrhea outbreaks are more common among children who participate in early childhood group settings than among those who do not, especially in programs that include children in diapers. Therefore, periodic training of staff in hygiene and proper diapering and toileting may reduce the risk of outbreaks.

WHAT IF . . .

several children in your class developed diarrhea? What policies would you implement to minimize further spread of the illness? What resources in your community would you turn to for assistance if it became a large outbreak of infectious diarrhea?

Because of this frequency of occurrence and the potential for the spread of infectious diarrhea, its management and prevention are especially important. Frequent hand washing is essential for children and teachers. If a child develops diarrhea, the teacher should inform parents how many episodes the child experienced. It is particularly important to notice if any blood is present in the child's stool. Other symptoms such as fever, vomiting, or rash should also be reported.

Respiratory Tract Illnesses

pharyngitis
infection of the throat

sinusitis
sinus infection

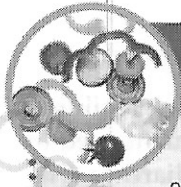
pneumonia
lung infection

Symptoms of respiratory tract illnesses involve the nose, sinuses, ears, throat, and lungs. Respiratory diseases are extremely common in young children. Familiar respiratory infections include the common cold, ear infections, **pharyngitis** (an infection of the throat), **sinusitis** (a sinus infection), and **pneumonia** (a lung infection).

These illnesses are usually spread by sneezing, coughing, or drainage from the nose. Symptoms of respiratory tract illness include fever, nasal congestion, runny nose, sore throat, ear pain, cough, or difficulty breathing. Some of these infections are associated with skin rashes as well. The incidence of respiratory infections is increased in children attending child care programs but can be reduced with consistent hand washing and appropriate cough etiquette (American Academy of Pediatrics, *Preventing the Spread of Illness in Child Care or School*, 5/5/15, retrieved 8/7/15 from <https://www.healthychildren.org/English/health-issues/conditions/prevention/Pages/Prevention-In-Child-Care-or-School.aspx>).

Families should be contacted and children should be referred to their medical provider if they exhibit symptoms such as uncontrolled coughing, difficulty breathing, or wheezing (American Academy of Pediatrics, American Public Health Association, National Resource Center for Health and Safety in Child Care and Early Education, 2011). During the initial days of respiratory illness, children may be uncomfortable or in pain. Although they may be receiving treatment and do not have a fever, they should stay home simply because they are not feeling well and are unable to participate in normal school activities.

The symptoms of runny nose and cough are not uncommon in young children, especially during the winter months. These symptoms alone should not exclude children from attending early childhood programs. If teachers have concerns, parents should be notified. Talking with a health care provider may be helpful to determine whether exclusion is necessary. Many of these children can be included safely. See this chapter's *Nutrition Note: Vitamin D and Infectious Diseases* for some interesting information regarding vitamin D and respiratory infections.



NUTRITION NOTE Vitamin D and Infectious Diseases

Every type of tissue in the body uses vitamin D for various purposes. Although it is not clear what levels of vitamin D are considered normal, it has been shown that low levels of vitamin D are associated with higher risk of respiratory infections, higher rates of asthma, eczema, and food allergies.

Over 90% of vitamin D in the body is produced by exposure to sunlight. It is difficult to ingest enough vitamin D from

the diet, so deficiency is common even in children. Because of the widespread deficiency, it is reasonable that all children receive supplementation with vitamin D, especially in areas where there is limited exposure to sunlight during certain seasons. This, of course, must be balanced with the risks of sun exposure: sunburn and skin cancer. Supplementation begins during infancy and should continue throughout the childhood years.

Source: Bozzetto, Carraro, Giordano, Boner, Boraldi, 2012.

Skin Infections and Contagious Rashes

Skin infections are caused by viruses, bacteria, and fungi. They are a common symptom of several diseases. Sometimes respiratory tract infections are associated with skin infections. Chicken pox is one example. Initially, the disease starts with mild respiratory symptoms, then progresses to the characteristic skin rash.

Inclusion or exclusion of children with skin rashes depends on the underlying cause. Teachers may need to rely on recommendations from the child's health care provider when determining whether exclusion is appropriate. Frequent hand washing helps minimize potential spread.



CHECK YOUR UNDERSTANDING 10.1

Click here to check your understanding of the infectious disease process.

PREVENTING AND CONTROLLING INFECTIOUS DISEASE

Because children participating in group settings have the potential to be exposed to a wider range of infections, it is especially important for teachers to be purposeful in implementing strategies to reduce the incidence of illness. Strategies include the following:

- Recognizing national and local public health policies.
- Complying with medical interventions such as required immunizations.
- Following recommended practices for the classroom that are provided by licensing and accreditation agencies.
- Establishing and practicing prevention strategies.

We now look at some of the more common prevention strategies: immunizations, health assessments for teachers, and classroom practices to reduce the spread of disease.

Immunizations

The immunizations that are required for entry and participation in early childhood and school settings are put in place to stop the spread of potentially dangerous diseases. Requirements for children's immunizations are typically regulated by federal or state agencies that have oversight for early childhood settings and schools.

A Matter of ETHICS

One of the families in your class has a philosophical opposition to giving their children vaccinations, so the child in your class has not received any. The family has completed the appropriate paperwork for an exemption. Do you have a personal bias for or against their decision? What specific issues are you be concerned about? How does the Code of Ethical Conduct guide you in this matter? Given your professional responsibilities, what plan might you establish with the family in case the child is exposed to a vaccine-preventable disease at preschool? What steps could you take to minimize exposure to disease for all the children in your class?

Immunization requirements are useful to teachers because they help in establishing healthful environments for young children. Immunizations have been proven to be the most effective method of prevention of infection in children.

Health Assessments for Teachers

Preemployment and ongoing health appraisals for teachers help reduce the potential for spread of disease between teachers and children and assist in keeping teachers healthy. Health assessments assist in detecting infectious disease that teachers may introduce into the classroom. For example, some infectious diseases such as tuberculosis can be “silent,” meaning the adult has no symptoms. The *National Health and Safety Performance Standards* recommend that teachers obtain a health assessment before employment, which may include the following items (American Academy of Pediatrics, American Public Health Association, National Resource Center for Health and Safety in Child Care and Early Education, 2011):

- *Health history*: to establish an understanding of the teacher’s general state of health.
- *Physical and dental exam*: to screen for illness and to determine if dental decay is evident. The germs that cause dental decay are infectious and can be communicated to young children.
- *Vision and hearing screening*: to identify the need for eyeglasses or hearing assistance.
- *Tuberculosis (TB) screening*: to identify whether the teacher is a potential carrier of TB. Standards related to TB screenings are specific to regional health recommendations depending on the risk of TB in the local area. Many programs require a TB test prior to employment and again if the teacher has a known exposure.
- *Review of occupational health hazards*: to clarify risks to the teacher in the children’s setting and to identify any accommodations that might be needed.
- *Assessment of limitations*: to identify issues that may require modifications in the workplace, such as regular break times for a teacher who needs to test and manage her own insulin treatment for diabetes.
- *Review of immunization*: to determine whether any are lacking or needed. Those of particular importance include hepatitis A, hepatitis B, tetanus (Tdap, influenza, chicken pox, measles, and pertussis).

Some infections, such as hepatitis A and chicken pox, are common among children and can easily be spread to an adult. These infections may be more serious for adults than children.

There is an increasing prevalence of whooping cough (pertussis) among older children and individuals whose immunity from previous vaccination is waning. For this reason, the tetanus booster vaccine for adults now includes pertussis vaccination (Tdap). Teachers should receive Tdap instead of the former tetanus booster (dT) (Centers for Disease Control and Prevention, 2012). Yearly influenza vaccination is recommended for staff caring for children of any age (American Academy of Pediatrics, American Public Health Association, National Resource Center for Health and Safety in Child Care and Early Education, 2011).

Teachers need to be concerned about their own health. Teachers who may be pregnant should be aware that some childhood illness can have negative impacts on the unborn child. The *Safety Segment* addresses these situations.



SAFETY SEGMENT Addressing the Risk of Infectious Disease During Pregnancy

Teachers need to be alert to their own health care. This is especially important for women who become pregnant while teaching young children.

Some common infectious diseases introduce risks to the growing fetus, including abnormal development and even death. Infections that spread from the mother to the unborn baby include chicken pox, hepatitis B, coxsackie virus (hand, foot, and mouth disease), herpes, and fifth disease.

Teachers who are pregnant or are planning to become pregnant should consult with their health care provider. A health history and record of immunizations will help the physician evaluate the need to update immunizations such as tetanus, diphtheria, and influenza. Teachers who are exposed to the above infectious diseases during pregnancy should contact their health care provider for guidance.

Finally, teachers not only are susceptible to infection, but also can spread infection, just as children can. When certain symptoms are present, such as fever or vomiting, teachers should stay home and avoid exposing others. If a specific diagnosis has been made, such as strep throat, teachers should follow the same recommendations that are made for children.

Classroom Practices for Controlling the Spread of Disease

Purposeful health practices that are routinely followed in children's settings can significantly decrease the frequency of infections. These include such practices as washing one's hands, conducting daily health checks, sanitizing toys and classrooms, following careful diapering and toileting policies, implementing universal precautions when needed, and teaching children preventive health practices.

Hand Washing

Hand washing is the single most important way to reduce the spread of disease. Unwashed or improperly washed hands are the primary source for the spread of disease. Studies have shown that proper hand washing can significantly reduce the spread of diarrheal and respiratory illnesses in child care programs (American Academy of Pediatrics, American Public Health Association, National Resource Center for Health and Safety in Child Care and Early Education, 2011).

When to Wash Hands All children and teachers should wash their hands at routine times during the day, such as upon arrival or before eating, as well as at other times when germs can be transmitted. Children and teachers should wash their hands at the following times (American Academy of Pediatrics, American Public Health Association, National Resource Center for Health and Safety in Child Care and Early Education, 2011):

- Upon arrival at school or when coming in from outdoor play.
- When moving from one classroom to another (for example, when a teacher moves from leading one group to another).
- Before:
 - Eating or feeding a child.
 - Handling food for a child or for themselves.
 - Giving medication to a child.
 - Playing in the water table or participating in other water play with one or more children.

epidemics
situations in which the incidence of disease is substantially higher than what is expected in that population

pertussis
a bacterial respiratory infection that is highly contagious and can be fatal to infants and young children; also called *whooping cough*

haemophilus influenzae type b (Hib)
a bacterial infection that can cause severe respiratory problems or meningitis

meningitis
severe infection of the membranes covering the brain

chicken pox
viral infection that causes fever and rash

Outbreaks of these diseases that do occur may result in clusters of individuals being struck with the illness. More expansive outbreaks are labeled **epidemics**. An epidemic is declared when the number of people with the infection is substantially higher than what would normally be expected in that population. Next, we provide brief summaries of these diseases to help teachers learn to recognize them in the rare event they occur in the children's setting.

Pertussis (Whooping Cough)

Pertussis, also known as *whooping cough*, is a highly contagious and dangerous bacterial disease, especially for infants. Symptoms include fits of uncontrolled coughing that create the characteristic "whooping" sound. During these coughing spasms, the child may turn blue and have severe respiratory distress.

The symptoms of pertussis often last several weeks or even months. Children diagnosed with pertussis should be excluded from school, and the community health authority should be notified. Vaccination offers protection against the disease but requires periodic booster shots. Teachers must remain current on vaccinations. Any teacher diagnosed with pertussis should be excluded from the classroom until a course of antibiotics has been completed. Here is an example scenario:

Amy is an observant teacher. She pays close attention to the health and well-being of the children in her class. On this day while working in the teacher's room, she surprises herself as she listens to her coworker cough. She remarks, "Michael, if I didn't know better, I would say that you are suffering from whooping cough!" This remark is enough to send Michael to get a checkup at the Immediate Care Clinic. He calls in later to report that he has been diagnosed with whooping cough.

Strong evidence demonstrates that protection provided by the pertussis vaccination wanes over time. In fact, older children or adults who have not received recent boosters are the source of most infections in children.

Haemophilus influenzae Type b *Haemophilus influenzae type b (Hib)* causes **meningitis**, a severe infection of the membranes covering the brain. It occurs most commonly among infants but infected children of any age can pass the infection to others. It can also cause other serious life-threatening respiratory infections.

- If a case of Hib infection is reported within an early childhood program, the families of each child should be notified as well as the local health authorities.
- Children who have not been immunized due to special exceptions should be excluded from school until health authorities determine that there is no longer a risk for infection (American Academy of Pediatrics, American Public Health Association, National Resource Center for Health and Safety in Child Care and Early Education, 2011).

Chicken Pox

Chicken pox is a common childhood condition, especially in unvaccinated children. The chicken pox rash usually progresses from the head to the toes. The majority of the pox or lesions appear on the trunk (Centers for Disease



Child with chicken pox

FIGURE 10-4 Sample Health Alert for Parents**HEALTH ALERT for Parents: Pinkeye**

Please observe your child for pinkeye (conjunctivitis).

Pinkeye has been identified in our classrooms. Pinkeye can be alarming because it may make the eyes extremely red and can spread rapidly. Pinkeye (conjunctivitis) can be caused by infections (such as bacteria and viruses), allergies, or substances that irritate the eyes. It is a fairly common condition and usually causes no long-term eye or vision damage. **But if your child shows symptoms of pinkeye, it's important to contact your doctor.**

Avoid the spread of pinkeye at home. Children get pinkeye by touching an infected person or something an infected person has touched, such as a used tissue. If pinkeye is diagnosed in one eye, it can also spread to the other eye by touching. Teach and help your child to wash his or her hands often with warm water and soap.

If you think your child has pinkeye, it's important to contact your doctor to try to determine what's causing it and to learn how to treat it.

Have Illness Notifications Available

When children are diagnosed with an infectious condition, teachers need to communicate with other families to alert them to the illness. These notices also guide families in how to monitor their own child for symptoms of the disease. Having basic health alert flyers on hand is an important time-saver for teachers who want to distribute correct information as soon as possible. Figure 10-4 provides a sample health alert for pinkeye.

**CHECK YOUR UNDERSTANDING 10.2**

Click here to check your understanding of how to prevent and control the spread of infectious diseases.

RECOGNIZING AND MANAGING INFECTIOUS DISEASE

Preventing and controlling infections in early childhood settings requires teachers to have a basic understanding of communicable diseases that are common among young children. It is also helpful for teachers to understand the basics of vaccine-preventable diseases even though they are uncommon. Although teachers are not responsible for diagnosing illnesses, those who are able to identify the symptoms of disease are better prepared to understand and control its spread. Rarely, teachers will care for a child who has a bloodborne disease. In this section, we briefly describe these diseases and offer insight into whether children should be excluded from the children's setting.

Vaccine-Preventable Diseases

Vaccine-preventable diseases are prevented by immunization. These diseases have decreased in prevalence during the past several decades because of efforts to increase the number of children who are immunized. For this reason, teachers may never see a child with one of the vaccine-preventable diseases. However, many vaccine-preventable diseases are highly contagious, and some can cause serious disability or death.



POLICY POINT

Epidemic? Pandemic? Who Sets Policy in Disease Emergencies?

Teachers know to call 911 when there's an emergency in the early childhood setting. But where do teachers get information when disease threat is widespread? Epidemics (situations where the incidence of disease is higher than expected) and pandemics (situations where infectious disease becomes geographically widespread) have the potential to impact programming in children's settings and schools. Emerging diseases can spread across the world with great speed. When this happens, health authorities must work quickly to identify the infectious agent, discover medical treatment to reduce its effect, and communicate methods to prevent spread of disease.

In recent years, concern about avian flu prompted health authorities to plan management strategies for a potential pandemic health crisis. The H1N1 flu (swine flu) outbreak of 2009 tested the strength of such plans. Early childhood programs have taken steps to model their own policies for disease prevention and communication after these efforts. However, when health crises are emerging, teachers and parents need to know where to turn for current information. Several important resources are available:

- The World Health Organization (WHO) monitors the worldwide incidence and spread of disease. The WHO provides updates as emergencies develop and offers guidance for individuals and communities.
- The Centers for Disease Control and Prevention is the national agency for up-to-date information on pandemic

disease. The CDC provides information about how to plan for pandemic health emergencies and guidance about what schools and child care programs need to do when pandemic disease is occurring.

- Local health authorities provide local updates and advice for an emergency response to health crises. During pandemic events, public health agencies make recommendations on prevention strategies and ultimately direct decisions related to program and school closures. Local health authorities also have personnel available to answer questions and provide individualized advice.

Children's programs also need to do their part by establishing program and school-level policies for health emergencies. Policies should include:

- How health crisis information will be communicated to families.
- How program or school-level decisions related to closures will be made.
- How families will be notified in the event of a school closure.
- How decisions related to reopening the program will be made.

Teachers who are prepared become part of the network of disease prevention efforts that is needed to protect the health of young children and their communities.

- Who provided care for the child.
- Who was contacted to pick up the child.
- Who picked up the child from care or school and when.

Be Prepared to Send Sick Children Home

A child's illness can cause disruption in the family work schedule. Some families may not have a backup plan to care for an ill child at home or may be stressed about losing their job if they take time off to care for their child. These are realistic concerns that families need to manage. It is helpful to orient families to the program policies related to sick children so that they are alerted in advance to the need to pick up and care for their child if illness occurs.

Teachers should be understanding about the challenges families face, but be firm when children are too ill to attend. If families bring a child back to school too soon following an illness, the daily health check assists teachers in recognizing whether the child is still too ill to attend school. Some programs have sufficient staff to receive children who are no longer contagious but still recovering from illness. Sometimes families request that their child rest in the classroom rather than go outside for recess or playtime. These decisions are made at the program level depending on the capacity to provide individualized supervision.



CLASSROOM CONNECTION

Watch this video to learn more about policies designed to control infections in early childhood settings. How might these policies help control the spread of disease?

with information about program health practices and ways that parents help keep children and classrooms healthy. Several practices support this effort:

- To begin the partnership, provide preenrollment information about immunization requirements and advise parents to obtain health and dental screenings for their child.
- Communicate the program's commitment to health and wellness in parent handbooks, bulletin boards, etc.
- Ensure that families provide contact information and let them know how they will be contacted in case their child becomes ill at school. This information should be updated regularly.
- Orient families to classroom health practices such as having children wash their hands upon arrival and conducting daily health checks. Tell families how they will be notified of illnesses in the classroom.
- Provide information about when to keep children home from school due to illness.
- Inform families about how the program will care for children who become ill at school.

Managing Challenges

Illness in the classroom can be disruptive as teachers work to continue the daily routine and activities while caring for a sick child. Being prepared for such situations is as important as a management strategy, but also to ensure that germs and disease are not spread unnecessarily. Obtaining supportive supplies in advance and having resources readily available are important ways to prepare to care for sick children appropriately. Programs should have policies that address situations such as epidemics or pandemics as discussed in this chapter's *Policy Point*.

Establish an Isolation Area

Sick children need to be removed from the general class group activities to prevent the spread of germs and to allow them to rest appropriately until a family member or an emergency contact person can come to get them. An isolation area should be identified in the program facility or in a quiet area of the classroom. A pad and blanket should be readily available to provide a comfortable place to rest. These items should be clean and ready for use, and they should be cleaned and sanitized after use. Ill children should be supervised at all times while they are resting. In some settings, this may mean that the isolation area is a corner of the room where the teacher can supervise the ill child as well as other children in the space. When children leave the class, they should be "signed out" on a sign-in/sign-out sheet to document who picked them up and when.

Record Illness Information

It is helpful to have a form available for immediate use that documents the child's illness and release from school. The teacher should follow the program or school protocol for recording the child's illness. Helpful information to record includes:

- Child's name.
- Date and time of day.
- Symptoms observed.

TEACHING WELLNESS Germ Stoppers

LEARNING OUTCOME Children will learn how germs spread and how to stop them.

INFANTS AND TODDLERS

- **Goal:** To introduce the child to the concept of germs.
- **Materials:** Paint, paintbrush, and paper; paint smocks.
- **Activity plan:** Make handprints on paper. Have the toddler paint his or her hand and pat it against a piece of paper. Keep making handprints until there is not enough paint to make a mark on the paper. Talk about how germs are so small that we cannot see them but that they stick to our hands like paint and spread to others. Have the child look at his or her hand to see if any paint can still be seen. Talk about how children can wash their hands to take away germs just as washing removes paint.
- **How to adjust the activity:** Have children carry a basket of small blocks ("germs") and "spread" them to places around the room. Tell them these are the germs. When all have been spread around the room, ask the children to "clean" the germs by gathering them back into their baskets.
- **Did you meet your goal?** Were children able to experience how germs can be spread like paint is spread? Listen to what children say about the activity to assess whether children are beginning to discover the concept of germs and their spread.

PRESCHOOLERS, KINDERGARTNERS, AND SCHOOL-AGE CHILDREN

- **Goal:** To learn how germs are spread and ways to stop them.
- **Materials:** Paint, paintbrush, paper towels.
- **Activity plan:** First, talk with children about how germs are spread by touching. Then have a small group of children stand in a line. Have one child paint his or her hand. Then ask that child to shake hands with the next child in line. Have this child shake hands with the third child in line, continuing until each child has shaken hands. Have the children compare their hands to see how many handshakes continued to pass along the paint. Review the concept of spreading germs by touching.
- **How to adjust the activity:** Have the children paint their hands, spreading the paint on generously. Then have the children wash their hands at the sink. Provide paper towel-ling for each child. Have the child bring their paper towels to the circle. Have each child show their paper towel. Do any show signs of paint? Talk about how much hand washing is needed to wash away germs appropriately and thoroughly.
- **Did you meet your goal?** Were children able to experience and understand how germs are spread through touching? Were children able to experience and understand how hand washing can reduce the spread of germs and that careful and thorough hand washing is needed to completely clean away germs?

prevention practices and ways that children can help reduce the spread of germs. Topics for teaching prevention messages include:

- How and when to wash my hands.
- How to blow my nose.
- How my body gets sick.
- How my body tells me I am sick.
- How to cover my cough.
- How to keep my sickness to myself.
- How to take care of myself when I am sick.

Topics such as these should be explored in different ways through literature and activities. They should be repeated at appropriate intervals to reinforce the ideas.

Partner with Families

Family members and guardians are also important participants in disease prevention and management. To be effective partners, they need teachers to provide them

as needed, remembering to wipe from front to back. Young children may need help arranging and fastening their garments. Then both the child and the teacher should thoroughly wash their hands. Sinks and toilets should be cleaned and sanitized daily.

Using Standard Precautions

The **Standard Precautions** are a set of guidelines developed by the CDC for use in health care settings that prevent the spread of infections from exposure to blood and body fluids. The basic principle is that all blood, body fluids, secretions, excretions (except sweat), nonintact skin, and mucous membranes potentially contain germs that can cause infections. Standard Precautions include two important practices relevant to early childhood settings (American Academy of Pediatrics, American Public Health Association, National Resource Center for Health and Safety in Child Care and Early Education, 2011):

1. Using barriers such as disposable gloves when caring for children when blood or body fluids as stated above may be present.
2. Cleaning and sanitizing surfaces to prevent the transmission of infections by touching surfaces that have been contaminated by blood.

Teachers should wear gloves whenever an injury involves blood, such as a cut, scrape, or bloody nose. Once the bleeding has been stopped, any surfaces that have been exposed to blood must be sanitized. Consider this scenario:

Tom is in the play yard bouncing a ball to Lena. He hears a crash and looks to see that Jimmy has tipped over on the trike. Tom moves quickly to Jimmy, who has crawled out from under the trike. He can see that Jimmy's lip is bleeding. As he hurries to Jimmy, Tom reaches into his pocket and pulls out a pair of disposable gloves. He puts them on as he arrives at Jimmy's side. "Hey Jimmy," Tom says as he crouches down to hug Jimmy gently. "That looked like a pretty big bump! Let's go inside and take a good look at it."

Tom was prepared, and he knew immediately to use Standard Precautions. Many teachers find it useful to put a pair of gloves in their pocket for emergencies such as this. Another strategy is to tape pairs of gloves at various locations on the classroom wall and in logical locations in outdoor play areas. Each classroom should have a ready supply of disposable gloves as well as disposable toweling and appropriate sanitizing solutions. Even when gloves are used to manage injuries that involve blood, hand washing is still crucial. After use, the gloves should be removed and discarded in a sanitary manner, and hands should be washed.

Teaching Children Preventive Health Practices

Teachers help children learn disease prevention by guiding them to develop self-help skills and by teaching age-appropriate and developmentally appropriate prevention practices. Teaching disease prevention practices has a dual purpose: It helps to reduce the spread of disease immediately and educates children about ways to improve their wellness in the future. The *Teaching Wellness* feature offers examples for the classroom.

Infusing the daily curriculum with health messages is the best way to engage and educate children about wellness. This includes offering activities that have a health focus. It also means purposefully teaching age-appropriate disease

WHAT IF . . .

a child in your class has just contracted a second bout of illness involving vomiting and diarrhea? The child's parent has called you to ask why her child is sick again. She wants to know why you have not stopped the spread of this illness. How would you respond?

Standard Precautions

a set of guidelines defined by the CDC for use in hospitals and other health care centers to prevent the spread of disease through blood and body fluids

equipment. It also means that teachers need to have a positive disposition toward what can sometimes be a tedious task: cleaning. Several approaches can help:

- Post a cleaning and sanitizing reminder chart to ensure that the schedule is achieved.
- Provide a “wash me” bucket for collecting toys that have been in children’s mouths. The toys in the bucket are then sanitized after class.
- Stock the cupboard with disposable towels for wiping doorknobs and cupboard handles.
- Obtain laundry bags for gathering dramatic play clothing at the end of each week so that the clothing can be laundered.
- Be prepared to increase the frequency of cleaning and sanitizing when the number of children with illness is unusually high.

Diapering and Toileting

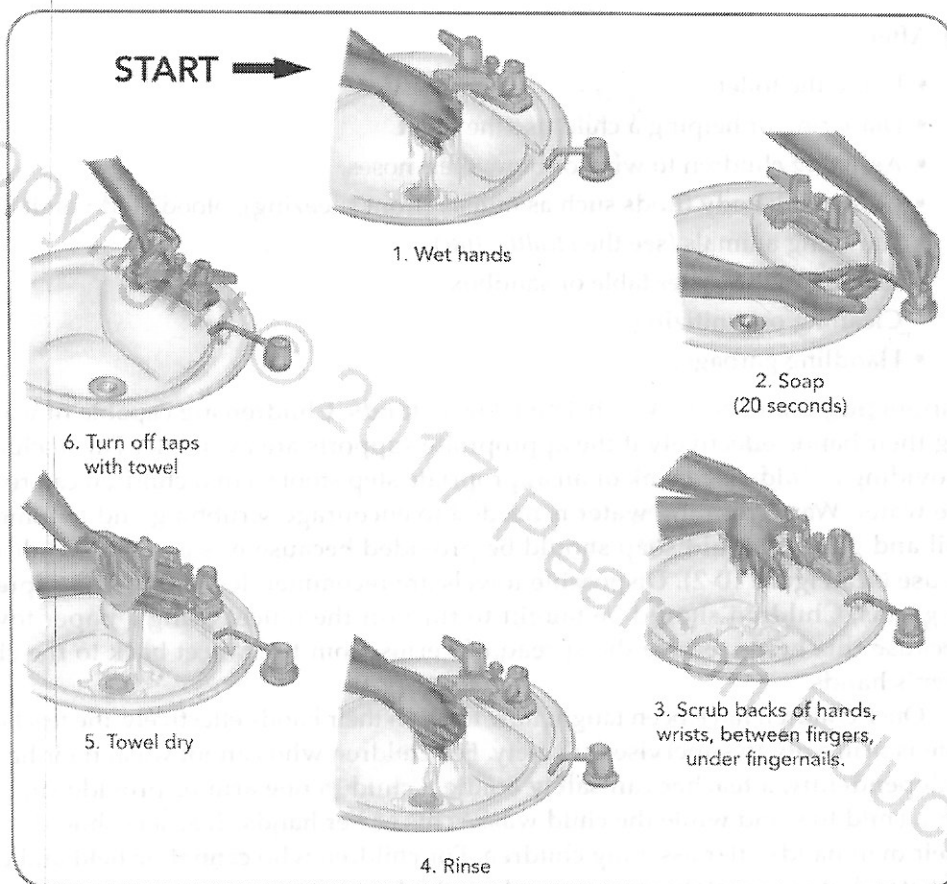
Sanitary practices are especially important when changing diapers or assisting children at the toilet. Settings that provide care for children who wear diapers typically require the use of disposable diapers. Exceptions may be made for children who have a medical reason, such as an allergic reaction to disposable diapers. Figure 10-3 describes appropriate diaper-changing procedures. This procedure should be posted in all diaper-changing areas. A child should *never* be left unattended on the changing table.

Settings that serve children who are learning to use the toilet are discouraged from using potty chairs (or non-flushable toilets) because sanitation is difficult. If potty chairs are used, they should be easy to sanitize, used only in the bathroom area, and used on a surface that does not absorb moisture and is easy to clean. They should also be used in areas where toilets and other potty chairs are out of reach and where a sink is designated to sanitize only potty chairs (American Academy of Pediatrics, American Public Health Association, National Resource Center for Health and Safety in Child Care and Early Education, 2011). Ideally, settings serving children ages 2 to 5 should provide child-sized toilets. This makes children more comfortable and helps them learn to manage their own toileting.

When assisting children with toileting, teachers should guide them in removing their garments and help them use the toilet. Teachers should assist with wiping

FIGURE 10-3 Diaper-Changing Procedures

1. **NEVER** leave the child unattended at the changing table.
2. Have all needed supplies available at the changing table. Wash hands.
3. Place the child on the changing table, avoiding contact of soiled diaper with surrounding surfaces and clean clothing.
4. Unfasten soiled diaper, leaving it under child. Clean the child’s diaper area and genitalia using appropriate wipes. Clean from front to back. Use a fresh wipe each time removing urine or stool.
5. Remove soiled diaper without contaminating surfaces. Enclose the diaper in a disposable bag.
6. Slide the fresh diaper under the child and fasten.
7. Wash the child’s hands and return the child to the supervised area.
8. Clean and sanitize the diaper changing area.
9. Wash your hands. Record diaper change in child’s daily log.

**FIGURE 10-2****Hand Washing Is the Single Most Important Way to Reduce the Spread of Disease**

Source: Based on steps from La Crosse County Environmental Health (n.d.).

of infectious diseases (American Academy of Pediatrics, American Public Health Association, National Resource Center for Health and Safety in Child Care and Early Education, 2011). For example, teachers should monitor the class group for two weeks (the incubation period) following a confirmed case of chicken pox. Teachers should document the findings from the daily health checks to assist in tracking and monitoring illnesses in the classroom.

Cleaning and Sanitizing

Cleaning and sanitizing are important actions in preventing the spread of disease. Young children touch and share many objects throughout the day. They deposit germs either directly onto others or indirectly onto surfaces and objects. Because of this, any surface that a child can reach, including floors, should be sanitized regularly to minimize contamination with infectious germs.

Cleaning products should be safe for use in the classroom setting. As discussed elsewhere in this text, the bleach and water solutions used for cleaning and sanitizing are appropriate for use in children's settings. More detailed recommendations for cleaning and sanitizing specific areas and items in early childhood settings are found in the *National Health and Safety Performance Standards*.

Teachers carry the primary responsibility for a healthy classroom environment.

This requires teachers' commitment to ensuring clean and sanitary spaces and

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- After:
 - Using the toilet.
 - Diapering or helping a child use the toilet.
 - Assisting children to wipe or blow their noses.
 - Contacting body fluids such as mucus (from sneezing), blood, and vomit.
 - Handling animals (see the *Health Hint*).
 - Playing in the water table or sandbox.
 - Cleaning or sanitizing.
 - Handling garbage.

Supporting Children to Wash Their Own Hands Children are capable of washing their hands effectively if the appropriate supports are available. This includes providing a child-sized sink or an appropriate step stool so that children can reach the water. Warm running water is needed to encourage scrubbing and to remove soil and germs. Liquid soap should be provided because it is easier for children to use (see Figure 10-2). Disposable towels are recommended to avoid the spread of germs. Children should be taught to turn off the faucet using a paper towel because this helps reduce the spread of germs from the faucet back to the children's hands.

Once children have been taught how to wash their hands effectively, the teacher's role is primarily to supervise for safety. For children who cannot wash their hands independently, a teacher can safely cradle a child in one arm or provide support for a child to stand while the child washes his or her hands. Teachers should wash their own hands after assisting children. For children who cannot be held and cannot stand, it is acceptable to use an alcohol-based hand sanitizer as an alternative (American Academy of Pediatrics, American Public Health Association, National Resource Center for Health and Safety in Child Care and Early Education, 2011).



CLASSROOM CONNECTION

Watch this video in which a teacher giving a lesson on hand washing. What do the children learn from this lesson?

Conducting Daily Health Checks

Daily health checks are an important way to prevent the spread of disease. Teachers should be prepared to conduct the daily health check as soon as possible after the children arrive. The purpose of the check is to identify children who are ill and who may need to be excluded from participation, which can reduce the transmission



HEALTH HINT Infections and Animals

Interaction with animals is a fun and valuable teaching tool, but animals can introduce certain types of infections. To minimize risk of infection:

- All animals should be fully vaccinated.
- Teachers and children should wash their hands after handling pets.
- Animal contact should occur in designated areas.
- No food should be allowed in animal contact areas.
- Classroom animals should not be allowed to roam or have contact with wild animals.
- Parents should be informed in advance about the presence of animals. Teachers should consult with parents about children's special health care needs, especially for children with immune problems. Cat allergies are common and can be particularly problematic.
- Aquariums and cages should not be cleaned in sinks that are used for food preparation.
- Children under the age of 5 should not have contact with baby chicks or ducks, reptiles, or ferrets because of increased risk for certain types of infections.

Control and Prevention, 2012). The rash is characterized by itchy red bumps that rapidly progress to fluid-filled lesions. Important points about chicken pox include:

- Children with chicken pox should be excluded from school until all lesions have dried and crusted over and there is no fever.
- Rarely, chicken pox can cause severe complications that require intense medical treatment.
- Teachers should inform parents that *aspirin not be used to treat infants and children for chicken pox influenza (or any other suspected viral illness)*. Aspirin use is associated with a serious complication called **Reye's syndrome**. Reye's syndrome can cause inflammation of the brain and liver and is potentially fatal.

Measles

Measles is an acute, highly contagious infectious disease. It is characterized by cough, runny nose, pinkeye, and rash. The measles rash begins on the face and head and spreads to the body. If a case of measles is confirmed, the child should be excluded from the classroom until a medical provider approves the child's return to the classroom.

Tetanus

The **tetanus** bacteria form spores that are deposited in soil where they can survive for months or even years. The spores are also found in the intestines and feces of many animals, including horses, sheep, cattle, dogs, cats, rats, guinea pigs, and chickens (Centers for Disease Control and Prevention, 2012). The bacteria usually enter the body through a puncture wound caused, for example, by stepping on a contaminated nail.

- Children should be guided to wash their hands after playing in the dirt and after visiting ranches, farms, and fairs where they may come into contact with infected animal feces.
- In case of injuries that cause puncture wounds or cuts, documentation of an updated tetanus vaccine should be confirmed.
- Teachers should periodically receive a tetanus booster to maintain their own immunity.

Influenza (The Flu)

Influenza, also called "the flu," is a highly contagious respiratory disease caused by a virus. Symptoms include fever, sore throat, muscle aches, cough, headache, and fatigue. Although school-aged children (ages 5 to 18) do not have an increased risk of complications of influenza, they have the highest attack rates and serve as a major source of transmission of influenza (Centers for Disease Control and Prevention, 2012).

- Children should be excluded until the symptoms of the flu resolve.
- Hand washing and sanitization practices in the classroom should be monitored.
- All persons older than 6 months of age should be vaccinated. If there is a vaccine shortage, focus will be on children 6 months to 4 years old and household contacts/caregivers of children younger than 5 years old.
- Teachers also should protect themselves from the disease by obtaining a yearly flu vaccination.



Child with measles.

Lowell Georgia/Science Source

Reye's syndrome

severe inflammation of the brain and liver caused by giving aspirin to children who have certain viral infections

measles

an acute, highly contagious infectious disease that causes fever, rash, and pinkeye

tetanus

a bacterial infection acquired when wounds or lacerations are contaminated with soil that contains the infectious germ

influenza

a highly infectious virus that causes fever, muscle aches, sore throat, cough, and headache

hepatitis A

a viral illness of the gastrointestinal tract that causes fever; malaise; nausea; abdominal pain; and, in some individuals, dark urine and jaundice

Hepatitis A

Hepatitis A is an acute infection of the liver. Symptoms include fever, diarrhea, abdominal pain, or yellow discoloration of the skin (jaundice). Some children may be exposed and infected with this disease and do not develop symptoms but can still transmit the infection (Centers for Disease Control and Prevention, 2012). These children are called *carriers* because they can expose others to the disease even though they do not display the symptoms. The use of standard policies for diapering and toileting when caring for children and following hand washing procedures helps to interrupt the spread of this hidden disease.

rotavirus

a common cause of infectious diarrhea in children; symptoms include fever, vomiting, and diarrhea

Rotavirus

Rotavirus is a virus that causes infectious diarrhea. Symptoms include fever, vomiting, and watery diarrhea. It is spread through **fecal-oral transmission**, making it especially contagious among children under the age of 2 and in settings in which children wear diapers. Children infected with rotavirus shed viral particles in the stool beginning 2 days before and during and up to 10 days after the onset of symptoms of the disease (Centers for Disease Control and Prevention, 2012).

fecal-oral transmission

occurs when microscopic amounts of infected feces are transferred to another person's mouth either directly or indirectly (surfaces, objects, etc.)

Streptococcus pneumoniae

a bacterium that causes respiratory infections that can lead to invasive or more serious infections such as pneumonia and meningitis

Streptococcus Pneumoniae

Streptococcus pneumoniae is a bacterium that commonly causes respiratory infections; ear infections; pneumonia; infection of the bloodstream; and, less commonly, meningitis in young children. The symptoms depend on the type of infection. It is transmitted by direct or indirect contact with respiratory secretions. The prevalence of disease has decreased since widespread vaccination was instituted in children in 2000.

Other Common Communicable and Infectious Diseases of Childhood

Many diseases of childhood are not vaccine-preventable. These infections are common in settings where children have frequent and prolonged contact with one another, such as child care, preschool, and classroom settings. Each of the common infectious diseases has its own set of characteristics and implications for management in the children's setting. Exclusion recommendations vary for each disease, as described in Table 10-2.

Common Colds**common colds**

upper respiratory infections that are generally caused by viruses and do not respond to treatment with antibiotics

Common colds are upper respiratory infections that are caused by more than 100 viruses. Viruses are spread by direct or indirect contact through respiratory secretions. People with colds often carry the virus on their hands and can infect others in this way for up to two hours. Children less than 6 years of age acquire six to eight colds per year. Colds can last up to 14 days. The most contagious period is in the first two to four days. Colds are not caused by cold weather (Pappas, 2013).

Teachers often experience frequent respiratory illnesses during the first few years they teach young children.

- The best way to interrupt the cycle of infection in the classroom is to wash hands frequently and to ensure that toys and surfaces are sanitized.
- Teachers should also wash their hands immediately when they return home to help reduce the spread of the cold virus.

TABLE 10-2 Exclusion Guidelines

Condition	Length of Time Child Should Be Excluded
Fever (>101 orally or >100 axillary)	When fever has ended or when health care provider recommends
Common colds	No exclusion required
Diarrhea not contained by child using toilet	When diarrhea resolves or when health care provider recommends
Cough without a fever and not associated with a communicable disease	No exclusion required
Vomiting illness	24 hours after last bout of vomiting; when health care provider recommends
Persistent or intermittent abdominal pain	When pain resolves; when health care provider recommends
Mouth sores with drooling	When health care provider recommends
Rash with fever or behavior change	When health care provider recommends
Purulent (draining) conjunctivitis (pinkeye)	After treatment is initiated
Head lice	No exclusion required
Scabies	After treatment is completed
Tuberculosis	When health care provider recommends
Impetigo	24 hours after treatment is initiated
Streptococcal infection (strep throat)	24 hours after treatment is initiated
Chicken pox	When all sores are dried and crusted
Pertussis (whooping cough)	5 days after treatment has been completed; when health care provider recommends
Mumps	5 days after onset of salivary gland swelling; when health care provider recommends
Hepatitis A	1 week after onset of jaundice and/or illness; when health care provider recommends
Measles	4 days after onset of rash; when health care provider recommends

Sources: American Academy of Pediatrics, 2012 and American Academy of Pediatrics, American Public Health Association, National Resource Center for Health and Safety in Child Care and Early Education, 2011.

Conjunctivitis (Pinkeye)

Conjunctivitis, also called *pinkeye*, is a condition in which the lining of the eye becomes inflamed. Causes include bacterial and viral infections, allergies, chemicals, or trauma. Bacterial and viral infections usually cause white or yellow discharge from the eye, which may cause the eyelids to stick together in the morning. When a child has symptoms of pinkeye, teachers should:

- Contact the child's parents and refer the child to a health care provider.
- Monitor other children and teachers for signs of pinkeye.
- Disinfect any contaminated articles.
- Notify parents to watch for signs of pinkeye.
- Ensure that proper hand washing procedures are being followed.
- Exclude children with symptoms until they are seen by a health care provider and are approved for readmission.

Croup

Croup is a common upper respiratory infection that causes fever; cough; and, in some cases, difficulty breathing. It can also

conjunctivitis

condition in which the lining of the eye becomes inflamed due to bacterial or viral infections, allergies, chemicals, or trauma; also called *pinkeye*

croup

a viral upper respiratory infection causing fever, runny nose, and barking cough



Pinkeye is a common infection among children.

Dorling Kindersley, Ltd.

stridor
noisy breathing

cause noisy breathing, called **stridor**. Many different types of viruses cause croup. Incubation periods vary according to the virus but will be in the typical range of one to three weeks. Its mode of transmission is droplet.

The cough associated with croup is very distinctive and described as *barky* or similar to the sound of a seal. Stridor and difficulty breathing most often occur during the night, but teachers should watch for these symptoms and notify families if they occur. Children should be excluded based only on the presence of fever or other reasons that prevent the child from participating comfortably, such as breathing difficulty.

Group A Strep Infections

group A strep infection
infection with bacteria that causes three common infections in childhood: strep throat, scarlet fever, and impetigo

A **group A strep infection** is caused by bacteria that cause three common infections in childhood: strep throat, scarlet fever, and impetigo. Transmission occurs by contact with infected respiratory secretions. The virus is most contagious when children are acutely ill. Symptoms generally include fever, sore throat, and possibly a rash. Children should be excluded from school until they have been treated with antibiotics for 24 hours and no longer have a fever (American Academy of Pediatrics, 2012). It is especially important to recognize strep throat because if left untreated, other complications can occur, such as **acute rheumatic fever**, a serious complication that affects the heart.

acute rheumatic fever
a serious complication of strep infection that affects the heart

scarlet fever
a type of strep infection characterized by fever, sore throat, and a scarlet rash that has a texture like sandpaper

Scarlet fever is a condition characterized by fever, sore throat, and a scarlet rash that has texture like sandpaper. Scarlet fever is often treated with antibiotics. **Impetigo** is a skin rash composed of blisters with honey-yellow scabs. Impetigo spreads in children's settings through direct contact with infected individuals or from toys. Children with impetigo should be excluded from the classroom or early childhood setting until 24 hours after treatment has started. Exposed lesions should be covered (American Academy of Pediatrics, 2012).

impetigo
a type of strep infection that causes a skin rash marked by pustular lesions

ear infections
infections of the eardrum

Ear Infections

Ear infections are common infectious diseases of childhood. Bacteria or viruses that infect the eardrum cause ear infections. Ear infections are not contagious. However, ear infections are often accompanied by upper respiratory infections, which are contagious. Therefore, children with ear infections do not need to be excluded from school unless they are too ill to participate in normal activities. If other symptoms such as fever are present, the child may have another illness that is contagious. The child should be separated from the group, and parents should be notified.

Fifth Disease

fifth disease
viral illness characterized by fever, headaches, and muscle aches followed by the skin rash

Fifth disease is so called because it is considered the "fifth" of the six common infectious childhood diseases causing a skin rash. The others include measles (first), scarlet fever (second), rubella (third), fourth disease (not recognized today), and roseola (sixth). Symptoms of fifth disease include fever, head and muscle aches, and the characteristic skin rash. Fifth disease is recognized by its intensely red rash, which appears on the cheeks. This is sometimes called "slapped-cheek" rash. As the illness progresses, the rash becomes more diffuse and has a lacy pattern that appears on the trunk. By the time the rash appears, the child is no longer contagious and should not be excluded from the early childhood setting (American Academy of Pediatrics, 2012).

Pinworms

Pinworm infection is a common intestinal parasitic infection in young children. Usually if a child is infected with **pinworms**, others in the family are infected as well. Transmission occurs by ingesting microscopic eggs by the fecal–oral route or by contact with contaminated objects such as toys, bedding, clothing, or toilet seats. Symptoms include itching around the anus, vulva, or genital area, although some children have no symptoms (American Academy of Pediatrics, 2012). Pinworm infections can be difficult to control in early childhood settings. Hand washing is the most effective way to prevent its spread.

Respiratory Syncytial Virus

Respiratory syncytial virus (RSV) is a viral upper respiratory infection that causes fever, runny nose, cough, and possibly wheezing in some children. Transmission is through contact with contaminated secretions. Contaminated droplets can live on surfaces for several hours. The incubation period is two to eight days. Most children have an initial RSV infection during their first year of life. It is common for children to become reinfected later (American Academy of Pediatrics, 2012). RSV in older children and adults looks more like a common cold. Most healthy children with RSV have an uncomplicated upper respiratory infection. Younger infants and premature infants are at higher risk for developing breathing difficulties and requiring hospitalizations for complications.

RSV occurs in epidemics during the winter and spring. Careful cleaning of surfaces and frequent hand washing are the best ways to prevent infection. Exclusion and notification of parents should occur in children with a fever or with breathing difficulties.

Tuberculosis

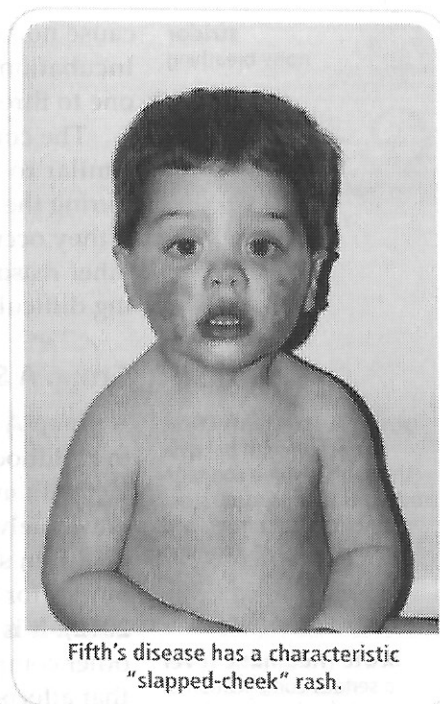
Tuberculosis (TB) is a potentially harmful lung infection. It is spread through respiratory and airborne transmission when tiny droplets are propelled through the air from coughing or sneezing. Symptoms include fatigue, fever, and chills. Children are most often exposed to TB from infectious adults. For this reason, many children's programs and schools require that teachers be screened for TB as a requirement of employment. It is a reportable disease, and treatment is often managed by local health authorities.

Infections and Acute Illnesses Involving the Skin

Some infections that are highly contagious in children's settings and schools affect primarily the skin. Head lice, scabies, and ringworm are examples of skin-related infectious diseases. Skin infections are often distinguished by the type and color of the rash they cause.

Head Lice

Head lice is an infestation of the hair and scalp that occasionally causes itching. It is transmitted by close person-to-person contact. It is rare for lice to be transmitted by sharing personal belongings such as combs, hairbrushes, and hats (Centers for Disease Control and Prevention, 2013).



Fifth's disease has a characteristic "slapped-cheek" rash.

John Kaprielian/Science Source

pinworms
a common intestinal parasitic infection in young children

respiratory syncytial virus (RSV)
a common upper respiratory infection that occurs in children and adults most commonly during the winter and spring months

tuberculosis (TB)
an infection that is transmitted by air droplets and can affect many different parts of the body, most commonly causing lung infections

head lice
an infestation of the hair and scalp that is transmitted most commonly by direct contact with the hair of infested people

Adult lice and nits (egg casings) are usually most visible behind the ears and near the nape of the neck. Itching is the most common symptom of head lice, but many children have no symptoms at all. Head lice should not be considered a health hazard and are not responsible for the spread of other diseases.

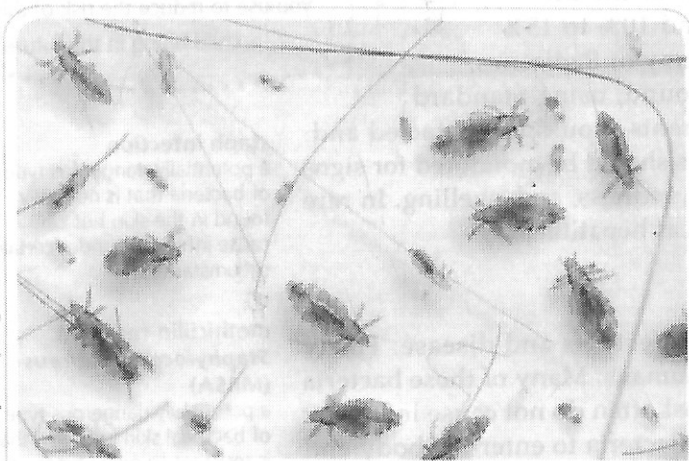
Although head lice do not represent a serious health problem, this infection often causes disruption in the classroom. When an incidence of head lice is discovered, teachers are faced with trying to contain the spread. Parents may respond with disgust when they learn of the presence of lice. To attain better control of this infection, some health authorities have recommended a *no-nit* policy for early childhood programs. This approach requires that children must stay out of school if they have any lice, eggs, or nits in their hair. Nits are the egg casings that may contain a developing louse, or they may be empty and not infectious. They can remain visible for up to six months on the hair shaft. Consequently, many children have been incorrectly diagnosed with an ongoing head lice infestation and excluded from the classroom. They also may have received unnecessary and potentially toxic repeat treatments of *delousing* pesticides. No-nit policies are ineffective in controlling head lice infestations and are not recommended (American Academy of Pediatrics, 2012). It is also important to remember that over-the-counter and prescription treatments for head lice can be quite toxic and are actually considered pesticides.

Rather than excluding children for head lice, early childhood programs and schools are gaining a new perspective on this annoyance. These thoughts are useful when establishing a policy related to head lice (Centers for Disease Control and Prevention, 2013a):

- Head lice are a health annoyance but do not spread disease.
- Head lice are not associated with poor hygiene and poverty. They are opportunistic, moving from head to head without regard to socioeconomic status.
- If head lice are discovered, children do not need to be sent home immediately; a few hours at school will not make a significant difference.
- Families of infected children should be notified. Treatment should be implemented only after infestation has been confirmed. All other families should be notified so that they can monitor their children for evidence of lice.
- Families can treat head lice with over-the-counter medications, and if problems persist, they can seek care with their health care provider.

scabies

a skin infection caused by adult female mites that burrow into the skin, causing an intensely itchy, red, bumpy rash that is seen in a snake-like pattern



Head louse and nit.

- Children can return to school when treatment has been completed.
- Nits that are more than a $\frac{1}{4}$ inch from the scalp are usually not viable and are unlikely to hatch.

Scabies

Scabies is a skin infection caused by adult female mites that burrow into the skin, causing an intensely itchy, red, and bumpy rash. The rash typically occurs between the fingers and on wrists and elbows, waistline, thighs, genitalia, and buttocks (American Academy of Pediatrics, 2012). Scabies is transmitted through prolonged personal contact such as household

contacts. Children should be excluded until they have received treatment. Any bedding and clothing the child has used should be washed, including dramatic play clothing. Family members often need treatment as well.

Ringworm

Ringworm is a skin infection caused by a common fungus. It appears as a red and scaly skin rash that has a raised circular shape with healthy skin in the middle. No worm is involved in this condition. It is the shape of the rash that gives the infection its name. Ringworm is transmitted by direct contact with infected humans, animals, or objects. It can occur on the scalp, causing hair loss. Treatment usually involves application of an antifungal cream for several weeks. Children infected with ringworm do not need to stay home from school. Washing hands and maintaining cleanliness in the environment are the most effective ways to prevent spread of the infection.



Ringworm rashes are circular, red, and flaky.

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ringworm
an infection of the skin caused by a fungus

Coxsackie Virus (Hand, Foot, and Mouth Disease)

The **coxsackie virus**, also called *hand, foot, and mouth disease*, causes blisters on the hands, feet, and mouth. It is spread through contact with hands and surfaces that are contaminated with infected droplets from the mouth and nose. Symptoms include fever, loss of appetite, and sore throat, followed by sores in the mouth and gums. A nonitchy rash appears first on the hands and soles of the feet.

The virus spreads easily. Children should stay home if there is a fever or if the symptoms are painful and they are not able to participate fully with the class. Washing hands and sanitizing surfaces are the most important management strategies.

coxsackie virus
a common childhood respiratory virus causing fever, mouth sores, and skin rash

Bite Wounds

Bite wounds are included here because of their potential to cause infection. Bite wounds are relatively common in children's settings. Bites that do not break the skin should be managed with comfort care and guidance to address the cause of the bite. Bites that break the skin are more serious. Around 10% to 15% of human bites become infected (American Academy of Pediatrics, 2012). Teachers should carefully wash the bite wound, using Standard Precautions, and monitor the child's behavior. Parents should be contacted and encouraged to seek medical evaluation. Bite wounds should be monitored for signs of infection, including increasing tenderness, pain, redness, and swelling. In rare cases, bite wounds can also transmit infections such as hepatitis B.

Staph Infections

Staph refers to a type of bacteria that can cause infections and disease. Thirty different types of *Staphylococci* (staph) can infect humans. Many of these bacteria are naturally found in the mouth and nose and most often do not cause infection. However, sometimes breaks in the skin allow the bacteria to enter the body and cause a **staph infection**. **Methicillin-resistant *Staphylococcus aureus* (MRSA)** is a

WHAT IF . . .

a child in your toddler group bit another child, creating a bloody wound on the skin? How would you respond to the child who did the biting? What strategies would you use to reduce the risk of this child biting in the future?

staph infection
a potentially dangerous type of bacteria that is normally found in the skin but can cause infections under certain circumstances

methicillin-resistant *Staphylococcus aureus* (MRSA)
a potentially dangerous type of bacterial skin infection that is resistant to many types of antibiotics

specific type of bacterial skin infection that is resistant to many types of antibiotics. It is spread mostly by having direct contact with an open wound and less commonly by touching items that have touched an infected wound (American Academy of Pediatrics, 2012).

MRSA skin infections are characterized by red, swollen, and painful pimples or boils that usually drain pus. Frequent skin-to-skin contact and potential for children to touch contaminated surfaces makes early childhood classrooms likely settings for the spread of infections such as MRSA.

- Teachers should be watchful for signs of infection on children's hands and arms.
- Any skin cuts and scrapes should be kept clean and dry. Infected wounds should be covered with clean, dry bandages.
- Children should not share clothing or other personal items if an infection is suspected.

Special attention to hand washing practices is important, and disposable towels should be used. Children who have an identified MRSA infection should not be excluded unless it is not possible to cover the wound.

Bloodborne Infections in the Early Childhood Setting

Bloodborne infections such as hepatitis B or C and HIV are not common in early childhood. The risk of transmission even with contact with blood is low. However, because of the seriousness of these diseases, teachers must have a general understanding of precautions for preventing transmission. Consider this scenario:

During the middle of the kindergarten year, a new child joins the class. Natasha has been teaching for many years, but this is the first time a child has been accompanied by the school nurse and two other people. They stay through the first full day and tend to drop in to observe the child now and then. The child also has a special health emergency protocol that requires Natasha to contact the school nurse and parents anytime a child in the class is diagnosed with a communicable illness. Natasha wonders if the child has some kind of serious disease. She feels uncomfortable but doesn't know why.

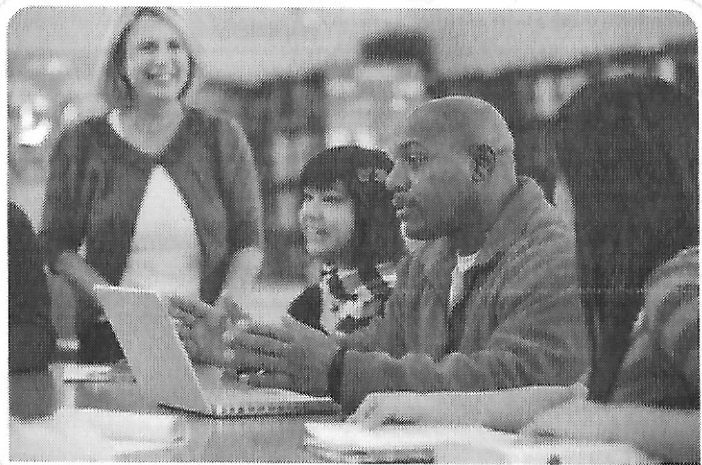
hepatitis B
a virus that causes chronic inflammation of the liver and can lead to cancer of the liver

Some diseases tend to cause a great deal of alarm. To address such concerns, teachers need to gather information and learn more about the risks of infection. Using Standard Precautions when managing injuries when blood is present is an

important way to increase safety and prevent the spread of bloodborne diseases. In this section, we discuss some of the bloodborne diseases that, although uncommon, may occur among young children in child care and school settings.

Hepatitis B

Hepatitis B is a virus that causes chronic inflammation of the liver and can lead to cancer of the liver. Some children who are infected with hepatitis B experience few symptoms but are carriers of the disease. This is more common in children who were not born in the United States.



Brend Images/Hill Street Studios/Getty Images

The virus is spread through contact with blood and body fluids. It can be transmitted from an infected mother to her baby through labor and delivery. Children infected with hepatitis B should not be excluded from the early childhood setting unless they demonstrate high-risk behaviors. Behaviors and situations that may cause spread of the virus include aggressive behaviors (frequent biting or scratching), generalized weeping skin lesions, or bleeding problems (American Academy of Pediatrics, American Public Health Association, National Resource Center for Health and Safety in Child Care and Early Education, 2011).

Parents of children who are infected with hepatitis B are not required to share information about their child's status. If a child is a known carrier or that fact is unknown and the child does exhibit high-risk behaviors, the program director together with a health care provider or local public health authority can determine the appropriateness of having the child participate in the early childhood setting.

Hepatitis C

Hepatitis C infection in children is very rare. It is a virus that causes chronic inflammation of the liver and it is transmitted through blood and body fluids. Exclusion of children from early childhood programs is not recommended (American Academy of Pediatrics, 2012). The risk of transmission by exposure through a skin wound is greater than that of hepatitis B but less than that of HIV (American Academy of Pediatrics, American Public Health Association, National Resource Center for Health and Safety in Child Care and Early Education, 2011).

hepatitis C

a virus that causes chronic inflammation of the liver that is transmitted through blood and body fluids

Human Immunodeficiency Virus

Human immunodeficiency virus (HIV) is a virus that is transmitted through blood and body fluids. Modes of transmission include sexual contact, use of contaminated needles, and mother-to-child transmission during pregnancy or the birth process (American Academy of Pediatrics, 2012). More than 90% of children with HIV in the United States acquired HIV through their mother. Child sexual abuse can be another way children are infected with HIV.

human

immunodeficiency virus (HIV)

a virus that is transmitted through blood and body fluids; most common form of transmission in children is from mother to fetus or baby

Children infected with HIV pose a challenge in the early childhood setting because management and treatment of their disease is often complex. The infected child is susceptible to infection, and steps should be taken to ensure the health and safety of all children so that transmission is prevented. The *National Health and Safety Performance Standards* recommend that the admission of children with HIV be considered on a case-by-case basis depending on the health, behavior, development, and immune status of the child (American Academy of Pediatrics, American Public Health Association, National Resource Center for Health and Safety in Child Care and Early Education, 2011). The American Academy of Pediatrics outlines the following specific recommendations for children with HIV in the school setting:

- School-age children should be allowed to participate without restrictions except in rare cases in which the child has an increased likelihood of exposing others. In these situations, children should be evaluated individually.
- The only people who need to know that the child has HIV are the parents, other guardians, and the physician. The number of people who are aware of the child's condition should be kept to a minimum. The parents have the right to decide whether to inform the school.
- All early childhood programs should adopt routine policies for handling blood and blood-contaminated fluids.



CHECK YOUR UNDERSTANDING 10.3

Click here to check your understanding of common infectious diseases and when children should be excluded from school or centers because of them.

refugees
non-citizen immigrants
who cannot return to their
country due to persecution

- Children with HIV are at increased risk for serious infections or complications from infectious diseases. The child's family should be notified immediately if the child is exposed to an infectious illness.
- More specific guidelines exist for children with HIV who participate in athletics.

Although adults with HIV may work with children, Standard Precautions should be taken. The affected adult should also be cautious about possible exposures to infectious diseases.

INFECTIOUS DISEASES IN IMMIGRANT AND INTERNATIONALLY ADOPTED CHILDREN

Each year, families adopt more than 12,000 children from all over the world (Centers for Disease Control and Prevention, 2014c). China is the leading country from which children are adopted, accounting for 30% of international adoptions (Centers for Disease Control and Prevention, 2014c). Other common countries include Ethiopia, South Korea, Ukraine, India, Philippines, Colombia, Taiwan, Uganda, Haiti, and Nigeria (Centers for Disease Control and Prevention, 2014c). In addition, a much smaller group of children came to the United States as **refugees**, immigrants who cannot return to their country due to persecution. Little may be known about the health histories of these children. However, these children may have unique risk factors for infectious disease.

Unknown Health History

Certain infectious diseases and illnesses should be ruled out in children with unknown health histories. Although children born in the United States may also have unknown health histories, the health history of children from international backgrounds is more often incomplete and sometimes unknown. Therefore, these children should have regular medical care during which common diseases can be evaluated and addressed.

Having an unknown health history can complicate entry into early childhood programs. Children who come to the United States through international adoption must have a medical examination in their country of origin before coming to the United States. A physician designated by the U.S. State Department must perform the examination, which screens only for selected infectious diseases and serious physical or mental defects that would prevent the issuing of a permanent visa (American Academy of Pediatrics, 2012). Also, children who are adopted internationally are not required to have documentation showing basic immunizations. Adoptive parents must pledge to obtain basic immunizations for their new children.

Records of immunization and history of family disease may not be available. This lack of information can pose a problem for enrollment in an early childhood setting or school. Parents who are adopting children and those who are supporting refugee families need the support and guidance of a medical provider. The health professional will ensure that the child receives a full medical evaluation and plan for obtaining the immunizations needed for entry into the children's program.

Common Diseases Among Immigrant and Internationally Adopted Children

Many internationally adopted children are diagnosed with infectious diseases. This is due to the wide array of infectious agents and diseases to which children from international backgrounds may have been exposed. Also, other countries do not use the same vaccinations that are required in the United States. Across the world, nutrition, living conditions, prevalence of various diseases, and access to health care vary greatly.

A list of infectious diseases that are seen among children from international backgrounds is shown in Figure 10-5. Descriptions of some of these illnesses are given next to assist teachers in recognizing infections among children from international communities.

Viral Hepatitis

Screening for hepatitis B infection is recommended for internally adopted children. Vaccination is highly recommended unless the child's health care provider has deemed it medically unnecessary. Also, many internationally born children have acquired hepatitis A earlier in life; however, it is recommended that these children also obtain the vaccine unless testing determines that it is not needed.

Intestinal Infections

The prevalence of intestinal infections in recently adopted children has been found to be as high as 74% (Centers for Disease Control and Prevention, 2014c). Screening is recommended after their arrival to the United States. When teachers notice any unusual symptoms related to abdominal pain, abnormal appetite, or abnormal stools, parents should be notified and encouraged to have the child evaluated. For the vast majority of these infections, treatment is effective and simple.

Tuberculosis

The risk of tuberculosis is 4 to 6 times greater in adopted children (Centers for Disease Control and Prevention, 2014b). All children who were not born in the United States should be screened for tuberculosis.

HIV Infections

The risk of HIV among internationally born children depends on the country of origin and individual risk factors. It is recommended that all immigrant children have an HIV test, even if they had one in their country of origin.

Skin Infections

It is not uncommon for children born outside the United States to arrive with various skin infections such as impetigo, scabies, or fungal infections. Teachers should be observant for signs of infection, and children should be referred for medical treatment.

FIGURE 10-5 Common Diseases Among Internationally Adopted Children

Bacterial diseases:	Other diseases:
• Salmonella • Syphilis • Tuberculosis	• Lice • Scabies • Intestinal worms (parasites)
Viral diseases:	
• Typhoid fever • Cytomegalovirus • Hepatitis A, B, and C • HIV	• Giardia • Malaria • Impetigo

Source: Centers for Disease Control and Prevention, 2010.



PROGRESSIVE PROGRAMS & PRACTICES

Overcoming Infectious Outbreaks

By Eileen Marma, Public Health Nurse, Benton County Health Department, Corvallis, OR

The primary responsibility of a public health nurse in the communicable disease program is to prevent the spread of infectious diseases and to protect people from exposure. The nurses respond to calls from early childhood teachers who have questions about controlling illness in the early childhood setting. The nurses provide information about what to tell parents and whether a child needs to be excluded from the classroom during the contagious period.

What Challenge Did You Face?

Barbara, a director at an early childhood center that served 72 children, called to report that the number of children who were ill had climbed from 1 to 12 within three days. She wanted to get this situation under control quickly. She described the symptoms of stomach distress with abrupt onset, which sounded like Norovirus. Norovirus is a highly contagious virus that occurs in settings that bring people together, such as classrooms. It causes gastroenteritis, with symptoms of vomiting and diarrhea, cramps, fatigue, and headaches. It often strikes during the fall and winter months. An outbreak involving 30% to 50% of the classroom is not unusual. However, it is often overwhelming for the teacher to deal with children getting sick in the classroom if the teaching assistants are also out sick.

An affected person may be ill for 24 hours but remains contagious for at least 72 hours after the last symptom of vomiting or diarrhea. Thus, if the ill child or adult returns to the classroom before 72 hours (three days) have passed, he or she continues to spread the virus. Without a doctor's diagnosis or laboratory tests, Norovirus is usually suspected as the main cause because it is very common and contagious. Other similar viruses may be stopped using the same precautions.

How Did You Meet the Challenge?

What Was the Teachers' Role?

After Barbara's phone call, I visited the center with an Environmental Health (EH) Specialist who knew the center and made inspections every six months. We brought written information about Norovirus for teachers and all parents, including how to limit its spread, how to clean up areas infected by vomit, and how long to stay home after symptoms stop. Barbara showed us the classrooms; pointed out a couch that a child had vomited on; and described the precautions they had been using, such as washing toys after toddlers had played with them.

We suggested getting rid of the couch, using a strong bleach solution for cleaning all common surfaces, steam cleaning the carpets, having children wash their hands upon arrival at school, and instructing parents to keep ill children at home for 72 hours after the last symptoms had disappeared. We discussed that the teacher's role in such an outbreak is to recognize a child's symptoms early, report this to the supervisor, and ask the parent to get a diagnosis. If no diagnosis or doctor's visit is made, appropriate precautions should still be taken.

What Was the Outcome?

The teachers worked vigilantly on the suggestions and enforced the "stay home for 72 hour" rule. A fact sheet on "Tips for Parents on Coping with Norovirus" was sent home that day. When there have been no new ill persons for four days during an outbreak, it is considered finished. Thus, the teachers and children were back in the classrooms, playing and learning.

Barbara commented that it is very important for the early childhood teacher to develop a comfortable relationship with the EH Specialist. She also noted that it helps when the children's center has developed policies and procedures for the most common infectious diseases among young children. "When a child has symptoms, we quickly turn to the protocol to take appropriate precautions."

Other Infectious Diseases

Outbreaks of certain infections such as measles have been reported among internationally adopted children. Often adoptions from the orphanages where children were living are temporarily suspended until the outbreak is controlled. Typically these illnesses are resolved before these children enroll in child care, preschool, or school.

Culture and Management of Infectious Diseases

Families from diverse cultures often have culturally based perspectives about the cause and treatment of infections and disease. For example, Native American families may view illnesses as a result of a disruption of the spirits and may not identify germs as the cause of infections (Ball, 2012). Families may turn to religion, herbs, acupuncture, and a variety of other traditional healing practices for illnesses. It is important for teachers to communicate with families to protect the health of children, control disease spread, and honor the family's beliefs.

Regardless of race or ethnicity, each family has its own set of personal and philosophical beliefs about treatment of disease. Personal preferences and beliefs may lead families to use nontraditional forms of medicine. **Complementary and alternative medicine (CAM)** refers to the use of healing practices that are not considered part of conventional medical practices. Complementary medicine is treatment used along with conventional medical treatment, whereas alternative medicine is treatment given instead of conventional treatment. Examples include herbs, vitamins, homeopathic remedies, and nutritional supplements. Estimates of the use of CAM practices with children are as high as 60% and are more common in children with special health care needs and children who are partially vaccinated or unvaccinated (Ben-Arye, 2011).

The use of CAM is typically integrated with traditional medical practices. Examples of CAM that teachers may see with respect to infections are the use of herbal remedies such as eardrops for ear infections and supplements such as echinacea and vitamin C for common colds. If families ask teachers to administer any supplement or medications, regardless of the type, the proper procedure for the administration of medicines should be followed in each case.

complementary and alternative medicine (CAM)
healing practices that are not considered part of conventional medical practices



CHECK YOUR UNDERSTANDING 10.4

Click here to check your understanding of infectious diseases in immigrant and internationally adopted children.

SUMMARY

- Common childhood infections are caused by bacteria, viruses, fungi, or parasites. Each infection has its own set of characteristics with respect to mode of transmission, symptoms, and incubation period.
- Infections in the early childhood setting can be prevented by paying careful attention to the immunization status of children and teachers and by supporting classroom practices that prevent disease, such as hand washing.
- Whereas some childhood infections are preventable with vaccinations, others are not. Teachers can become familiar with more common childhood infections and take appropriate measures to exclude children if necessary and notify parents of spreading infections as needed.
- Children born in other countries who immigrate or are adopted here can have a higher risk of certain infections. These children should have appropriate immunizations and health assessments

Chapter Quiz



Click here to check your understanding of Chapter 10, Managing Infectious Disease.