

HEALTH HINTS

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Reducing Contagious Illness in the Child Care Setting

Taking action for yourself & your kids

Young children get sick. It's that simple. "A child's immunity improves with time. School-age children gradually become less prone to common illnesses and recover more quickly from the diseases they do catch."¹ "Infants and young children who spend time in group child care settings generally have a higher number of illnesses than children kept at home. Frequently, those caring for young children experience increased illnesses as well."²

Childhood illness may not affect a family until a child starts child care or school. After that, it may seem to the family that the child is sick all the time. "This pattern is normal as [the] child builds a robust immune system. Resistance to infection

develops only after exposure to a multitude of germs. Young children in large groups are breeding grounds for the organisms that cause illness. Little hands rub drippy noses and then transfer infectious agents to other children or to shared toys."¹ Children cough and sneeze, releasing infectious agents into the air and onto other children and shared items that may be mouthed or touched and transferred to the mucous membranes (eyes, nose, mouth, genitals) of another child. Not only can these infectious agents spread from child to child but from child to provider, among providers, and from provider to child (e.g., when changing a diaper of one child and then diapering or wiping the nose of another child without taking appropriate precautions).

All child care providers should learn and use health precautions to prevent or reduce illness. Since some illnesses are contagious even before symptoms appear, care providers need to be aware of how diseases are communicated among children and between children and providers. "By always observing caution, providers can do much to prevent the spread of disease."²

This issue of *HealthHints* will address these health precautions, giving practical, step-by-step guidelines for preventing and reducing the spread of illness in your child care facility.

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Common Types of Communicable Diseases

What to watch for

The terms *communicable disease* and *infectious illness* are used interchangeably and sometimes misunderstood. These terms simply mean that the illness is contagious or “catchable.” “A communicable disease is any bacterial, viral, or parasitic infection in the body that can be spread from one individual to another.”² Communicable or infectious diseases can vary from the common cold and flu to more uncommon diseases like meningitis and hepatitis.²

Currently, the top five infectious illnesses that keep children home from child care or school are:

- 1 **Colds** – More than 200 different viruses are known to cause the symptoms of the common cold. Some seldom produce serious illnesses. Others produce mild infections in adults but can precipitate severe lower respiratory infections in young children. Children have about 6–10 colds per year, while adults average about 2–4 colds per year.³
- 2 **Gastroenteritis** – Commonly called “**stomach flu**,” though not akin to the flu for which we can be vaccinated, gastroenteritis is characterized by vomiting and diarrhea, which can lead to dehydration, particularly in young children. Gastroenteritis can be caused by viral, bacterial, or parasitic infections; however, viral gastroenteritis is highly contagious and is responsible for the majority of outbreaks in developed countries.⁴
- 3 **Ear Infection** (otitis media) – Respiratory illnesses, such as colds and allergies, cause congestion, which may squeeze shut a child’s eustachian tube – the tiny drainage pipe for the middle ear. Fluid trapped in the middle ear can become a breeding ground for viruses or bacteria (i.e., viral or bacterial ear infection, respectively).¹
- 4 **Pink eye** (conjunctivitis) – Pink eye can be a viral or bacterial infection that results in inflammation of the clear membrane that covers the white part of the eye and lines the inner surface of the eyelids.¹

- 5 **Sore throat** – Most sore throats are caused by viruses, but about 15 percent of children’s sore throats are caused by streptococci – the bacteria that causes strep throat. Fevers above 101 degrees F are common in strep throat, and swallowing can be so painful that the child may have difficulty eating.¹

Other common illnesses in children are:

- **Chicken pox** – Itchy, fluid-filled blisters caused by a virus.⁵
- **Ringworm** – Skin infection caused by a fungus (not by a worm).⁶
- **Head lice** – Tiny insects that infest the hair of the scalp and sometimes eyebrows and eyelashes, resulting in intense itching and sometimes red bumps that become crusty and ooze.⁷
- **Impetigo** – Skin disorder caused by bacterial infection and characterized by crusty skin lesions. Typically, the infection begins as a cluster of tiny blisters, followed by oozing and the formation of a thick, honey or brown-colored crust that is firmly stuck to the skin.^{2, 8}

Infectious diseases of a more serious nature may include:

- **Meningitis** – Viral or bacterial infection that causes inflammation of the membranes covering the brain and spinal cord. Symptoms may include fever and chills, nausea and vomiting, stiff neck, sensitivity to light, and mental status changes.⁹
- **Hepatitis** – Inflammation of the liver, which can be caused by an infection from parasites, bacteria, or viruses (such as hepatitis A, B, or C). Symptoms may include dark urine and pale or clay-colored stools, loss of appetite, fatigue, abdominal pain or distention, general itching, jaundice, nausea and vomiting, low-grade fever, weight loss, and breast development in males.¹⁰
- **HIV/AIDS** – Viral infection caused by human immunodeficiency virus (HIV) that gradually destroys the immune system, resulting in infections that are hard for the body to fight. Any symptoms of illness may occur since infections can occur throughout the body. Most individuals infected with HIV progress to AIDS (acquired immunodeficiency syndrome – the most serious stage of HIV disease, which causes severe damage to

the immune system) if not treated. People infected with HIV, however, may have no symptoms for up to 10 years, but they can still transmit the infection to others. The immune system gradually weakens until they are diagnosed with AIDS.^{2, 11, 12}

Children in group child care are going to get ill...it's inevitable ~

- Young children have a lower resistance to infection and communicable disease.
- Chances of exposure are increased because of the large numbers of individuals with whom they come into contact.
- Children in child care settings play together, sharing toy and joys.¹³



Modes of Transmission

How infection spreads

Understanding how germs are transmitted can help us in identifying the best ways to prevent or reduce the spread of illness. There are four primary ways common illnesses that children acquire are spread:

- 1 airborne/respiratory,
- 2 fecal/oral,
- 3 blood/body fluids, and
- 4 direct contact.^{13, 14}



Airborne/respiratory

Airborne/respiratory transmission of infection occurs when germs (viruses, bacteria, parasites) pass from the lungs, throat, or nose of one person to another person through the air.¹⁴ Respiratory infections, such as colds and flu, are responsible for most illnesses. Most colds present with fever, runny nose, coughing, and sneezing. Illness is spread by coughs or sneezes into the air or by secretions from the nose or mouth. Other illnesses that are spread by airborne droplets include chicken pox, hand-foot-mouth disease, measles, mumps, whooping cough, and rubella.¹³

Fecal/oral

Fecal/oral transmission occurs when feces or objects contaminated with feces are touched and then the mouth is touched.¹⁴ These types of infection are usually intestinal infections that cause diarrhea. In these cases, viruses, bacteria, or parasites spread infection from person to person directly from the bowel movement to the mouth, usually by way of the hands; by diapering; or indirectly by food or other objects that get into the mouth.¹³ Some examples of illnesses spread through fecal/oral transmission include viral enteritis, E coli 0157:H7, Giardia, Cryptosporidiosis, Shingella, Salmonella, or Hepatitis A.

Blood/body fluids

Blood/body fluid transmission occurs only when there is direct contact with blood or body fluids of an infected person and an uninfected person. HIV, Hepatitis B, and Hepatitis C are some examples of diseases transmitted through direct contact with the blood/body fluids of an infected person.^{13, 14}

Direct contact

Direct contact transmission occurs when an uninfected person touches the skin or body fluid (e.g., nasal secretions, oral secretions) of an infected person or touches a contaminated surface – in other words, they come into “direct contact” with the virus, bacteria, or parasite. Skin infections and infestations such as impetigo, lice, scabies, ringworm, and herpes simplex are generally transmitted through direct contact. Contact with nasal and oral secretions can spread illnesses such as chicken pox, influenza, measles, meningococcal meningitis, mumps, whooping cough, rubella, and pink eye.^{13, 14}

For more information on illnesses and their modes of transmission, see the chart entitled “How Some Childhood Infectious Diseases Are Spread” at:

http://www.dfps.state.tx.us/handbooks/ms_homes_standards/apx_v_d.htm,

as well as the descriptions of communicable diseases at

http://www.dfps.state.tx.us/handbooks/ms_homes_standards/apx_v_e.htm).

Regardless of how disease is transmitted or how minor or severe the illness, the precautions necessary to prevent their spread are the same.² Let’s take a look at precautionary measures your child care program can take to minimize the spread of communicable disease and promote a healthy environment for the children in your care.



Handwashing

Number 1 way to prevent the spread of illness

“**G**erms multiply rapidly in warm, moist places. When objects or hands touch places where there are a lot of germs, they pick up the germs, which then enter the body through the nose, eyes, mouth, and/or broken skin.”² For this reason, the hands are a primary avenue for the transport of germs into the body. In fact, **handwashing is the number one way to prevent the spread of communicable disease.** This message cannot be emphasized enough to the provider, parent, and child. Simply running hands under water for a couple of seconds and drying them on a towel, however, is not enough. Share and emphasize the following guidelines for appropriate handwashing from the National Resource Center for Health and Safety in Child Care.¹⁵

When Hands Should Be Washed

Hands should always be washed upon arrival for the day or when moving from one child care group to another. Also, wash hands at the following times:

Before and after ~

- eating, handling food, or feeding a child;
- giving medication; and
- playing in water that is used by more than one person.

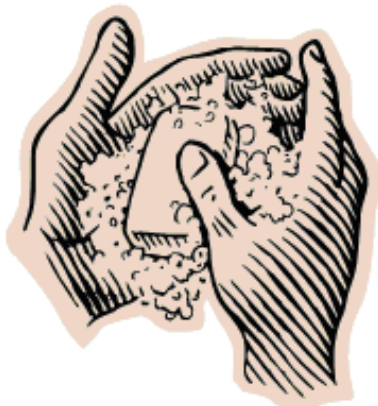
After ~

- diapering;
- using the toilet or helping a child use the toilet;
- handling bodily fluid (mucus, blood, vomit), from sneezing, wiping and blowing noses; from mouths, or from sores;
- handling uncooked food, especially raw meat and poultry;
- handling pets and other animals;
- playing in sandboxes; and
- cleaning or handling the garbage.¹⁵

Steps for Handwashing

Children and staff members should wash their hands using the following method:

- 1 Check to be sure a clean, disposable paper (or single-use cloth) towel is available.
- 2 Turn on warm water, no less than 60 degrees F and no more than 120 degrees F, to a comfortable temperature.
- 3 Moisten hands with water, and apply liquid soap to hands.
- 4 Rub hands together vigorously until a soapy lather appears, and continue for at least 10-15 seconds. Rub areas between fingers, around nailbeds, under fingernails, jewelry, along the back of hands and up wrists.¹⁶ For young children, who cannot understand the amount of time recommended, have them sing the alphabet (abc) song; twinkle, twinkle little star; or twice through the happy birthday song.¹⁷
- 5 Rinse hands under running water, no less than 60 degrees F and no more than 120 degrees F, until they are free of soap and dirt. Leave the water running while drying hands.
- 6 Dry hands with a clean, disposable paper or single-use cloth towel.
- 7 If taps do not shut off automatically, turn taps off with a disposable paper or single-use cloth towel.
- 8 Throw the disposable paper towel into a lined trash container; or place single-use cloth towels in the laundry hamper; or hang individually labeled cloth towels to dry. Use hand lotion to prevent chapping of hands, if desired.¹⁵



Helping Children with Handwashing

Caregivers should provide assistance with handwashing at a sink for a child who can be safely cradled in one arm and for children who can stand but not wash their hands independently. A child who can stand should either use a child-size sink or stand on a safety step at a height at which the child's hands can hang freely under the running water. After assisting the child with handwashing, the staff member should wash his or her own hands.

If a child is unable to stand and is too heavy to hold safely to wash hands at the sink, caregivers should use the following method:

- Wipe the child's hands with a damp paper towel moistened with a drop of liquid soap. Then discard the towel.
- Wipe the child's hands with a clean, wet paper towel until the hands are free of soap. Then discard the towel.
- Dry the child's hands with a clean paper towel.¹⁵

A Note about Types of Soap

Hands should be washed with liquid soap and water when possible, but an **alcohol-based hand sanitizer** can be helpful as a supplement or substitute when soap and water are not available. Look for a hand sanitizer with at least 60 percent alcohol in it.¹⁸ Follow the manufacturer's directions. Generally, directions for hand sanitizers require placing enough hand sanitizer in the palm of your hand to thoroughly cover your entire hand and rubbing hands together until dry.¹⁶

Provide and encourage the use of alcohol-based hand sanitizers to wash hands immediately if a child comes into contact with any body fluid at locations where handwashing facilities may not be available.¹⁶

Note: Plain, liquid soap and water are best. Liquid soap is more sanitary than bar soap where multiple people will be using the soap. **Antibacterial soaps are NOT needed.** Antibacterial soaps may contain triclosan, a chemical that kills both bad and good bacteria. While bad bacteria can make you sick or cause infection, good bacteria can help you. The triclosan in antibacterial soaps may change the balance of bacteria on your skin and may even make bacteria harder to kill.¹⁷

Cleaning, Sanitizing & Disinfecting

Keeping a healthy environment

In addition to handwashing, cleaning and sanitizing/disinfecting surfaces that could pose a risk to children or staff is one of the most important steps to reducing the spread of communicable diseases in the child care setting.¹⁹ Before we go any further, let's take a moment to distinguish the terms cleaning, sanitizing, and disinfecting.

Cleaning – Removing dirt and soil with soap and water.

Sanitizing – Removing dirt and soil AND certain bacteria so that the number of germs is reduced to such a level that the spread of disease is unlikely.

Disinfecting – Removing dirt and soil AND bacteria AND virtually all germs.²⁰

Sanitizing and disinfecting are often used to describe the same type of “cleaning” – to remove germs to a level that the spread of disease from one person to another is unlikely.²⁰ For this reason, we will use the word sanitizing throughout the remainder of this issue of *HealthHints* to describe such “cleaning.”

Routine cleaning with detergent and water is the most useful method for removing germs from surfaces in the child-care setting. Some items and surfaces, however, require the additional step of sanitizing after cleaning to reduce the number of germs on a surface to a level that is unlikely to transmit disease.¹⁹ Sanitizing applies to many routine housekeeping procedures including bedding, bathrooms, kitchen countertops, floors, and walls.²⁰

Sanitizer solutions can be applied in several ways to surfaces that have been cleaned with detergent and rinsed:

Spray bottle – used for diaper-changing surfaces, toilets, potty chairs, door knobs, cabinet handles, phone receivers, countertops, and tables.



Clothes rinsed in sanitizing solution – used for food-preparation areas, large toys, books, and activity centers.

Dipping the object in a container filled with sanitizing solution – used for smaller toys.^{19, 20}

It is important to note that the duration of contact and concentration of the sanitizing solution vary with the type of application. More chemical is required when a cloth or object is dipped into sanitizing solution because each time the cloth or object is dipped, some germs are released into the solution, potentially contaminating the solution if it is not at a high enough concentration. When applying sanitizing solution, always read the label and follow instructions for dilution and minimum contact time.¹⁹

In general, it is best not to rinse off sanitizer or wipe the object dry right away. A sanitizer must be in contact with the germs long enough to kill them ~

- for spray bleach solution, usually allow a minimum of 2 minutes to air dry;
- for cleaned and rinsed dishes submerged in a properly prepared bleach solution, usually allow 1 minute of contact time.¹⁹ (See more details in the next section – *Recipes for Cleaning & Sanitizing*.)

Since chlorine evaporates into the air leaving no residue, surfaces sanitized with bleach may be left to air dry. Some industrial sanitizers, however, require rinsing in fresh water before the object can be used again.¹⁹

Recipes for Cleaning & Sanitizing

For regular cleaning, detergent and water is most useful. For sanitizing, household bleach with water is recommended. It is effective, economical, convenient, easy to mix, non-toxic, safe if handled properly, and readily available. Be sure to purchase “household” bleach and not bleach used for industrial application, which can be hazardous. Household bleach comes in two strengths: 5.25% hypochlorite (regular strength) or 6% (ultra strength). (Note: Use bleach with caution on metal or metallic surfaces. If bleach is found to be corrosive, use a different sanitizer on these materials.)¹⁹

Recipe for spray application on surfaces that have been cleaned and rinsed:
(minimum contact time = 2 minutes)

1/4 cup household bleach + 1 gallon of cool water
or

1 tablespoon household bleach + 1 quart of cool water.

This recipe is appropriate for bathrooms, diapering areas, countertops, tables, toys, door knobs, cabinet handles, phone receivers, sinks, floors, and surfaces contaminated with body fluid. Note: Always clean the surface first. If there is a spill, wipe up as much as possible with a paper towel; then clean and sanitize. Where surfaces contaminated with body fluids are involved, wear gloves (see *Gloving Procedure* in this issue of *HealthHints*).

Recipe for submerging of eating utensils that have been cleaned and rinsed:
(minimum contact time = 1 minute)

1 tablespoon bleach + 1 gallon of cool water.

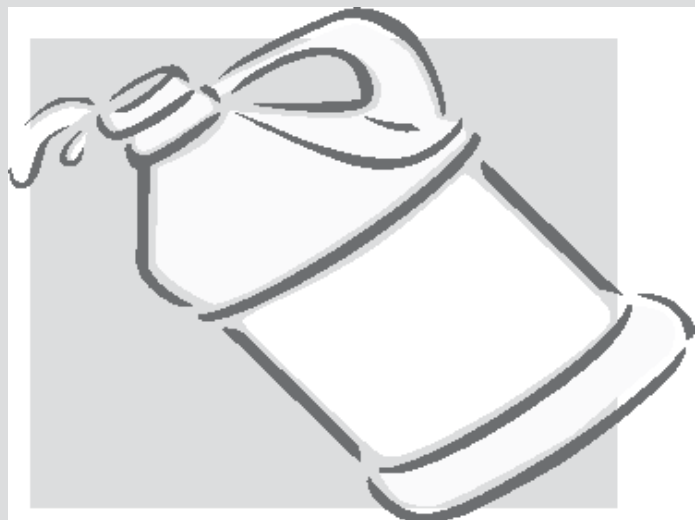
Important notes about bleach:

- Bleach solution and water loses its strength and is weakened by heat and sunlight. Therefore, it should be mixed with cool, fresh water every day for maximum effectiveness.
- Any leftover bleach solution should be discarded at the end of the day.
- Spray bottles and containers should be clearly labeled and stored out of reach of children.¹⁹

Industrial Products

In addition to bleach-sanitizing solution, industrial products are also available. Choose products that meet the Environmental Protection Agency’s (EPA’s) standards for “hospital grade” germicides (solutions that kill germs). Be cautious of industrial products labeled as “disinfectants,” having “germicidal action,” or that simply say “kills germs” – they may not have the same effectiveness as bleach and water or EPA-approved hospital grade germicides. Always read the label for instructions.¹⁹

For a sample cleaning/sanitizing schedule, see http://www.healthykids.us/chapters/cleaning_pf.htm.



Best Practices for Reducing the Spread of Infection

Diapering, food preparations, equipment...

Now that we've focused on the importance of handwashing, cleaning, and sanitizing, let's look at some significant areas where these and other procedures are important and necessary to the health and safety of the children in our care:

- diapering,
- handling food,
- handling equipment and personal items, and
- ventilation and fresh air.

Diapering

When diapering, it is especially important to keep hands and surfaces clean to reduce the risk of fecal/oral transmission of germs. The diapering surface should be kept clean with the use of a plastic-covered pad. Make sure the pad is free of cracks or tears. If the diapering surface cannot be easily cleaned after each use, then use a disposable material, such as a paper sheet, shelf paper, or wax paper on the changing table. Discard the disposable material after each diapering.

It is also important to sanitize the diapering surface after each use and at the end of each day. Be sure to wash hands with soap and warm water immediately after diapering each child. Be careful to clean between fingers and underneath jewelry and fingernails.²¹ Wearing disposable gloves is also recommended.

The following is a detailed guide from the National Resource Center for Health and Safety in Child Care to help keep you and the children in your care safe and healthy when changing diapers:²²

Step 1: Get organized. Before you bring the child to the diaper-changing area, wash your hands, and gather and bring what you need to the diaper-changing table:

- non-absorbent paper liner large enough to cover the changing surface from the child's shoulders to beyond the child's feet;
- fresh diaper, clean clothes (if you need them);
- wipes for cleaning the child's genitalia and buttocks, removed from the container or

dispensed so the container will not be touched during diaper changing;

- a plastic bag for any soiled clothes;
- disposable gloves (put gloves on before handling soiled clothing or diapers – see *Gloving Procedure* in this issue of *HealthHints*); and
- a thick application of any diaper cream (when appropriate) removed from the container to a piece of disposable material such as facial or toilet tissue.

Step 2: Carry the child to the changing table, keeping soiled clothing away from you and any surfaces you cannot easily clean and sanitize after the change.

- Always keep a hand on the child.
- If the child's feet cannot be kept out of the diaper or from contact with soiled skin during the changing process, remove the child's shoes and socks so the child does not contaminate these surfaces with stool or urine during diaper changing.
- Put soiled clothes in a plastic bag, and securely tie the plastic bag to send the soiled clothes home.

Step 3: Clean the child's diaper area.

- Place the child on the diaper-change surface and unfasten the diaper, but leave the soiled diaper under the child.
- If safety pins are used, close each pin immediately once it is removed, and keep pins out of the child's reach. Never hold pins in your mouth.
- Lift the child's legs as needed to use disposable wipes to clean the skin on the child's genitalia and buttocks. Remove stool and urine from front to back, and use a fresh wipe each time. Put the soiled wipes into the soiled diaper or directly into a plastic-lined, hands-free covered can.

Step 4: Remove the soiled diaper without contaminating any surface not already in contact with stool or urine.

- Fold the soiled surface of the diaper inward.
- Put soiled disposable diapers in a covered, plastic-lined, hands-free covered can. If reusable cloth diapers are used, put the soiled cloth diaper and its contents (without emptying or rinsing) in a plastic bag or into a plastic-lined, hands-free covered can to give to parents or the laundry service.

- Remove gloves using the proper technique (see *Gloving Procedure*), and put them into a plastic-lined, hands-free covered can.
- Use a disposable wipe to clean the surfaces of the caregiver's hands and another to clean the child's hands. Put the wipes into the plastic-lined, hands-free covered can.
- Check for spills under the child. If there are any, use the paper that extends under the child's feet to fold over the disposable paper so a fresh, unsoiled paper surface is now under the child's buttocks.
Note: Gloves must be worn when blood or bodily fluids containing blood are present (see *Gloving Procedure*).

Step 5: Put on a clean diaper and dress the child.

- Slide a fresh diaper under the child.
- Use facial or toilet tissue to apply any necessary diaper creams, discarding the tissue in a covered, plastic-lined, hands-free covered can.
- Note and plan to report any skin problems such as redness, skin cracks, or bleeding.
- Fasten the diaper. If pins are used, place your hand between the child and the diaper when inserting the pin.

Step 6: Wash the child's hands, and return the child to a supervised area.

- Use soap and water, no less than 60 degrees F and no more than 120 degrees F, at a sink to wash the child's hands.

Step 7: Clean and sanitize the diaper-changing surface.

- Dispose of the disposable paper liner used on the diaper-changing surface in a plastic-lined, hands-free covered can.
- Clean any visible soil from the changing surface with detergent and water; rinse with water.
- Wet the entire changing surface with the sanitizing solution.
- Put away the spray bottle of sanitizer. If the recommended bleach dilution is sprayed as a sanitizer on the surface, leave it in contact with the surface for at least 2 minutes. The surface can be left to air dry or can be wiped dry after 2 minutes of contact with the bleach solution.

Step 8: Wash your hands, and record the diaper change in the child's daily log.

- In the daily log, record what was in the diaper and any problems (such as a loose stool, an unusual odor, blood in the stool, or any skin irritation). Report as necessary.²²

As a reminder, you can post these steps from the "Diapering" poster found at <http://www.globalhealthychildcare.org/Download/DiaperingPoster.jpg> above your diaper-changing area:

- 1 Keep supplies ready.
- 2 Protect the surface with clean, non-porous disposable paper.
- 3 Keep one hand on the child at all times.
- 4 Place the soiled diaper in a container lined with a plastic bag.
- 5 Wipe front to back. Use each cloth or towel only once.
- 6 Diaper and dress the child.
- 7 Wash your hands and the child's. Assist the child back to the group.
- 8 Place soiled clothes in a plastic bag.
- 9 Remove disposable paper. Clean and sanitize.
- 10 Wash your hands.
- 11 Dry hands.
- 12 Dispose of the towel in a container lined with a plastic bag.²³



Gloving Procedure: How & Why?

Why use gloves?

“Gloves provide a protective barrier against germs that cause infections. Use gloves made of disposable latex. If you’re allergic to latex, use vinyl gloves.

- Wearing gloves does not replace the need to wash your hands. Latex and vinyl gloves are a good barrier, but they may not be completely non-porous.
- Wearing gloves reduces contamination, but does not eliminate it.
- If the gloves become contaminated while you are wearing them, be sure to remove them before touching clean surfaces.

Disposable gloves should be worn:

- when contact with blood or blood-containing fluids is likely, particularly if the caregiver’s hands have open cuts or sores – for instance, when providing first aid or changing a diaper with bloody diarrhea; and
- when cleaning surfaces contaminated with blood or body fluids, such as large amounts of vomit or feces.

For added protection, wear gloves when changing the diaper of a child with diarrhea or a diagnosed gastrointestinal disease. Wearing gloves for routine diaper changing is optional.

If your skin does come into contact with blood or other body fluids, immediately and thoroughly wash the contaminated skin.”²⁴

How to use gloves?

Using the appropriate gloving procedure can keep you and the children you care for safer from infection. Use the following steps, in order, when using disposable gloves:

- Wash your hands and dry them.
- Put on a clean pair of gloves.
- Provide the appropriate care – disposing of any contaminated materials in a leak-proof, plastic bag that can be tied or sealed.
- Remove each glove carefully. Grab the first glove at the palm and strip the glove off. Touch dirty surfaces only to dirty surfaces.
- Ball up the dirty glove in the palm of the other gloved hand.
- With the clean hand, strip the glove off from underneath the wrist, turning the glove inside out. Touch dirty surfaces only to dirty surfaces.
- Discard the gloves immediately in a plastic bag-lined step can.
- Wash your hands.¹⁹

For a visual depiction of the gloving procedure, see <http://nrc.uchsc.edu/CFOC/PDFVersion/Appendix%20D.pdf>.



Handling Food

Of particular concern when handling food is taking precautions against foodborne illness (i.e., food poisoning) and any other illness that can occur through fecal/oral transmission. E. coli is one type of bacteria, typically contaminating ground meat, that can cause severe illness and be particularly threatening to children younger than 5 years. E. coli can potentially cause kidney failure and even death in these children.²⁵

Thus, the rule of thumb for food handling to reduce the risk and spread of any communicable disease is “cool it, clean it, cook it.”²⁵

Cool It

Raw meat and poultry (especially ground meats) are more perishable than most foods. Bacteria can multiply in ground meat and poultry in a temperature range between 39-140 degrees F (4-60 degrees C). Keep these products and other products refrigerated. Keep meats on ice if you are more than an hour from the store to the child care facility. Defrost meats by placing them in a container that will hold juices and let them thaw in the refrigerator – NEVER at room temperature. Cook or freeze meat within 1–2 days.²⁵

Clean It

Food-preparation areas should be kept separate from eating, laundry, toileting, and diapering areas.²⁶ Cleaning of food-preparation areas and utensils requires a bit more diligence in the child care setting than at home. Use the following guidelines outlined by Global Healthy Child Care to help with cleaning food-handled items (as well as mouthed toys):

- Don't use cloths or towels used to wipe countertops or other food-contact surfaces for anything else. These cloths must be sanitized after they are used.²⁷
- Don't use a sponge – use a cloth that can be laundered. The structure of natural and artificial sponges provides an environment in which germs thrive.²⁸
- Wash food-contact surfaces with detergent and water, rinse, sanitize with bleach solution, and air dry.²⁷

- Clean kitchenware, countertops, and other things that have come in contact with spoiled food or raw meat, chicken, or eggs. Sanitize by spraying them with the household bleach solution, allowing it to stand for at least 2 minutes, and then dry with a paper towel or allow to air dry.²⁷
- Always wash your hands, utensils, countertops, cutting boards, clothes, towels, aprons, and sinks in hot soapy water after handling raw meat.²⁵
- Wash high-chair trays, bottles, and nipples in a dishwasher, if available. If the trays do not fit in the dishwasher, wash with detergent, rinse, spray with the bleach solution, and air dry.²⁷
- All eating and drinking utensils, tableware, and kitchenware should be cleaned and sanitized after each use, or disposable items can be used.^{28, 29} Be sure to label any drinking cups brought in for a child with his/her name and keep out of reach of other children.

The easiest way to clean and sanitize dishes is to use a dishwasher, which incorporates chemicals or heat sanitizing.²⁸

If handwashing, you'll need three different basins (compartments):

- 1 one for washing,
- 2 one for rinsing, and
- 3 one for sanitizing.

Use the following procedure for handwashing utensils (or toys):

- 1 Scrape off any leftover food.
- 2 Use the first compartment to wash the dishes (or toys) thoroughly in hot water containing a detergent solution.
- 3 Rinse in the second compartment.
- 4 Use the third compartment to sanitize the dishes (or toys) by one of these methods:
 - The safest and easiest method is to immerse the dishes (or toys) for at least 2 minutes in a lukewarm – not less than 75 degrees F (24 degrees C) – bleach solution. Then air dry the sanitized items.
 - Immerse the dishes (and toys) for at least 30 seconds in water heated to 170 degrees F (77 degrees C). The water

temperature should be maintained at that temperature throughout the sanitizing process. A hot-water booster is usually required to heat water to a high enough temperature. To avoid burning the skin while immersing dishes and utensils in this hot-water bath, use special racks designed for this purpose. Then air dry the items. Because it requires very hot water, this method is less safe than the bleach-sanitizing method.²⁸

- Pick up and touch clean spoons, knives, and forks by their handles, not by any part that will be in contact with food. When children help set the table, be sure they have washed their hands thoroughly, and remind them not to touch the parts of the tableware that will have contact with food and go into the mouth. Handle clean cups, glasses, and bowls so that fingers and thumbs don't touch the insides or the rims of these items.³⁰
- Be mindful of good hygiene when around food:
 - Wear clean clothes, and maintain a high standard of personal cleanliness.
 - Wash your hands using correct hand-washing procedures before preparing and serving food and as necessary to keep your hands free of dirt, germs, and body fluids.
 - Also keep your hands clean while handling food-contact surfaces, dishes, and utensils.
 - Do not prepare or serve food while ill with a communicable disease or with uncovered hands or skin lesions. If you have skin lesions on your hands, you should wear gloves while involved with food.
 - Keep your hair covered with a hairnet or cap while preparing food.³¹
 - Be sure children always wash their hands before and after eating.

For a sample food service cleaning schedule, see <http://nrc.uchsc.edu/CFOC/PDFVersion/Appendix%20S.pdf>.



Cook It

Be sure to cook foods to appropriate temperatures before serving. High heat kills harmful bacteria. When cooking raw ground meat, cook until you see no pink in the meat and the coolest part of the meat reaches 165.2 degrees F (74 degrees C).²⁵ A meat thermometer (available at most grocery stores) can be used to test meat's internal temperature.

Handling Equipment & Personal Items

Toys and equipment should be cleaned and sanitized frequently, particularly in programs that care for infants and toddlers, who tend to put everything in their mouths.² You can follow the schedule set forth in the Sample Cleaning/Sanitizing Schedule at http://www.healthykids.us/chapters/cleaning_pf.htm.

Toys

Toys that cannot be washed and sanitized should not be used in your program. If a toy is placed in a child's mouth or has come into contact with body secretions or excretions, set it aside to be cleaned and sanitized. Make sure you have enough toys to replace the contaminated toy with another throughout the day until there is time for cleaning/sanitizing. Small toys with hard surfaces can be put in a dishpan labeled "soiled toys" until cleaning can occur. Machine-washable cloth toys should be for use by one child only until these toys can be laundered. You will need to monitor children closely to prevent shared mouthing of toys.¹⁹

Bedding

Cribs and crib mattresses as well as any resting/napping mats should have non-porous, easy-to-wipe surfaces that are used only by one child and/or cleaned and sanitized between each child's use. Bedding (sheets, pillows, blankets, and sleeping bags) should be washable, and each child's bedding should be kept separate from others. Lice infestations, scabies, ringworm, and other diseases can spread in bedding material that various children use. Providing bedding for each child and storing each set in individually labeled bins, cubbies, or bags in a manner that separates the personal articles of one individual from those of another will prevent the spread of disease.¹⁹ Space children 24 or more inches apart during nap or rest time, and alternate them head to foot to prevent any spread of illness.¹³

Personal Items

Personal items, such as hats, coats, combs, brushes, toothbrushes, pacifiers, and clothes should never be shared. Hats, combs, and brushes are of particular concern because if there is a lice infestation, it could be easily spread from one child's head to another. Each of these items should be labeled and stored separately.²

A Note about Shoes

When infants play, they touch the surfaces on which they play with their hands, then put their hands in their mouths. Shoes may be conduits of infectious material when people walk on surfaces that are contaminated with disease-causing organisms, then walk into the infant play area.

Before walking on surfaces that infants use specifically for play, adults and children should remove or cover the shoes they have worn outside of the infant play area. Socks, shoe covers, or other shoes/slippers specified only for the infant play area may be worn.¹⁹

Ventilation & Fresh Air

"Exchanging indoor air with outdoor air is key to reducing the density of contagious germs. Wherever people gather in groups, they exhale their germs into their surroundings."³² This is especially true for airborne/respiratory transmitted germs.

For this reason, allowing children to play outdoors as often as possible is important.²⁹ It is also important to keep rooms children use appropriately heated, cooled, and ventilated to keep temperatures comfortable and prevent germs from growing or collecting. Try to ~

- open windows and air out rooms at least once a day (opening windows maximizes ventilation),
- keep indoor humidity between 30–50 percent, and
- keep indoor temperature between 64–82 degrees F (18–28 degrees C).³²

Warm Weather

Germs multiply rapidly in warm, moist places.² Humidity increases in warm weather and can also lead to the growth of mold and dust mites in fabrics, which in turn can cause allergies to flare up. Children with allergic irritation of their respiratory tract are more likely to pick up infectious diseases. To prevent this, it may be necessary to dehumidify and cool the air.³²

Cold Weather

Even in cold weather, some form of ventilation is necessary. During naptime, put a sleeper garment over infants' clothing and a warm blanket over older children to keep them comfortable and let in a little fresh air.³² Bundle children up, and let them play outside when weather permits.

In cold weather, indoor air can also become very dry. When this happens, the dry air draws water from mucous membranes in the nose and draws moisture from the skin. This loss of fluid from the membranes can interfere with the protective functions of the mucous barrier and makes people more susceptible to illness.³²

To prevent the drying of mucous membranes, don't overheat rooms. You'll know humidity is too low when you get static shocks from walking across the floor. In general, try to keep indoor temperatures between 64–75 degrees F (18–24 degrees C) in cold weather to reduce the drying effect.³²



“Potentially” Infectious

Necessity of always taking precautions

Since symptoms often do not appear until some time after a child is infected with an illness, it is important to always use precautions. We have covered many of the necessary precautions, but let’s take a few moments to focus on areas that sometimes evoke fear – illnesses that are more severe, like HIV and hepatitis.

HIV

Please know that “to become infected with HIV, infected blood, semen, or vaginal secretions must enter your body.”³³ This does not happen through regular contact – hugging, kissing, shaking hands, or dancing with a child.³³

HIV is most commonly transmitted by ~

- sexual contact;
- infected blood and blood transfusion (the American blood supply has been tested for HIV since 1985,³³ and improved blood-screening became available in 1992,³⁴ which has substantially reduced infection by blood transfusion);
- needle sharing or accidental needle sticks; and
- transmission from mother to child.³³

Hepatitis

There are three types of hepatitis viruses that are of concern: Hepatitis A, B, and C.

Hepatitis A (HAV)

Hepatitis A virus “is usually transmitted via the fecal-oral route. That means that someone with the virus handles food you eat without washing his or her hands after using the toilet. You can also contract the virus by drinking contaminated water, eating raw shellfish from water polluted with sewage, or being in close contact with a person who’s infected – even if that person has no signs or symptoms. In fact, the disease is most contagious before signs and symptoms ever appear.”³⁵

“Although not usually as serious as other types of viral hepatitis, hepatitis A causes inflammation that affects your liver’s ability to function.”³⁵

“Mild cases of hepatitis A don’t require treatment, and most people who are infected recover completely with no permanent liver damage. Unlike hepatitis B and C, hepatitis A doesn’t develop into chronic hepatitis or cirrhosis – both potentially fatal conditions.”³⁵

“Practicing good hygiene – including washing your hands often – is one of the best ways to protect against hepatitis A. Effective vaccines are available for people who are most at risk.”³⁵

Hepatitis B (HBV)

“For you to become infected with HBV, infected blood, semen, vaginal secretions, or saliva must enter your body. You can’t become infected through casual contact – hugging, dancing, or shaking hands – with someone who has hepatitis B. You also can’t be infected in any of the following ways:

- coming into contact with the sweat or tears of someone with HBV;
- sharing a swimming pool, telephone, or toilet seat with someone who has the virus; or
- donating blood.”³⁶

Hepatitis B, like HIV, is most commonly transmitted through ~

- sexual transmission;
- needle sharing or accidental needle sticks; and
- transmission from mother to child.³⁶

Hepatitis B, however, is nearly 100 times as infectious as HIV.³⁶

For some people, the infection of the liver becomes chronic, leading to liver failure, liver cancer, or cirrhosis – a condition that causes permanent scarring of the liver.

Like HIV, you’re especially at risk if you are an intravenous (IV) drug user who shares needles or other paraphernalia or have unprotected sexual contact with an infected partner. You’re also at higher risk for hepatitis B infection if you were born in or travel to parts of the world where hepatitis B is widespread.

Most people infected as adults recover fully from hepatitis B, even if their signs and symptoms are severe. Infants and children are much more likely to develop a chronic infection. Although no cure exists for hepatitis B, a vaccine can prevent the disease.³⁶

Hepatitis C (HCV)

"In general, you contract hepatitis C by coming in contact with blood contaminated with the virus. Most people with hepatitis C became infected through blood transfusions received before 1992, the year improved blood-screening tests became available.

You can also contract the virus by injecting drugs with contaminated needles and, less commonly, from contaminated needles used in tattooing and body piercing. Needle exchange programs, which increase the availability of sterile needles, are helping to reduce the risk of hepatitis C, HIV, and other blood-borne diseases.

A small percentage of babies born to mothers with hepatitis C acquire the infection during childbirth. Mother-to-infant transmission rates are higher among women infected with both hepatitis C and HIV."³⁴

All strains of the hepatitis virus cause the liver to become inflamed, which interferes with its ability to function. Hepatitis C is generally considered to be among the most serious of these viruses. Vaccines exist for hepatitis A and B, but no vaccine for hepatitis C has been developed.³⁴

In rare cases, hepatitis C may be transmitted sexually. And in many people infected with hepatitis C, no risk factor can be identified.



Potentially Infectious: Taking Precautions

Because symptoms of all illnesses are not always immediately visible, we have to treat all blood, body fluids, and secretions as "potentially" infectious. Spills of urine, stool, vomit, blood, saliva, human milk, nasal discharge, eye discharge, and injury or tissue discharge (e.g., from a cut or sore) should always be treated as "potentially" infectious. Let's take a look at how to safely handle body fluids:

- Treat all body fluids as if they are contagious.
- Wash your hands after any contact with body fluids.
- Wear gloves while cleaning (see *Gloving Procedure*). While household rubber gloves are adequate for most spills, disposable gloves should always be used when blood may be present.
- For small spills of urine or stool, wipe off and clean away visible soil with a little detergent solution; rinse with clean water; follow with sanitizer solution applied to the surface and left for the appropriate contact time (usually 2 minutes).
- For larger spills, take care to avoid splashing any contaminated material onto the mucous membrane of your eyes, nose, or mouth, or into any open sores you may have. *Note:* Sores or cuts should always be covered and appropriately cared for to avoid antibiotic-resistant staph infections, which have become more prevalent in schools and day care settings. (For more information on MRSA and appropriate care, see the issue of *HealthHints* related to this topic at http://fcs.tamu.edu/health/Health_Education_Rural_Outreach/Health_Hints/2006/october06/staph.pdf.)
- Wipe up as much of the visible material as possible with disposable paper towels, and carefully place the soiled paper towels and other soiled disposable material (e.g., tissue, bandages, diapers, etc.) in a leak-proof, plastic bag that can be securely tied or sealed.
- Immediately use a detergent or a disinfectant-detergent to clean the spill area; then rinse the area with clean water.
- For blood and body fluid spills on carpet, blot to remove body fluids from the fabric as quickly as possible; then spot clean the area with detergent-disinfectant (rather than bleach solution); sanitize by continuing to apply and extract the detergent-disinfectant

until there is no visible soil. Follow the manufacturer's instructions for the use of the sanitizer to be sure the carpet is sanitized by the treatment. Dry the surface. Shampoo or steam-clean the contaminated surface as soon as possible.

- Indisposable mops and other equipment used to clean up body fluids should be cleaned and sanitized, rinsed with fresh sanitizing solution, wrung as dry as possible, and air-dried.
- Remove and bag clothing (yours and those worn by children) soiled by body fluids. Put on fresh clothes only after washing the soiled skin and hands of everyone involved.
- Reusable household rubber gloves used for general cleaning should be treated as a contaminated surface, which means sanitizing solution should be applied to them. Remove, dry, and store these gloves away from food and food surfaces. Discard disposable gloves in a sealed, plastic bag.
- **Always wash your hands, even if you have been wearing gloves.**^{19, 37}



Child Care Providers

Taking care of yourself

“During the first six to twelve months of employment, most care providers get sick more than usual because they are exposed to a wide variety of germs. Caring for others can also cause stress, which lowers resistance to illness.”²

Care providers who are ill should take care of themselves, not the children. Allow your own body the opportunity to get well. If you are ill, stay home and recuperate. You cannot provide the best quality of care if you are sick, and you may spread the illness to others if you come to work. Get well and stay well by choosing healthy behaviors:

- Wash your hands.
- Maintain current immunizations, especially tetanus.
- Take scheduled breaks and vacations.
- Observe good nutrition.
- Exercise regularly.
- Don't smoke.
- Rest sufficiently each day.
- Engage in hobbies/activities that do not involve caring for someone else.²

Resources for Your Child Care Center

Need resources for your child care center? Check out some of these...

Infectious Diseases in Child Care Facilities – Fact sheet with statistics on illnesses in child care (great for presentations) at http://www.nfid.org/_old1/content/factsheets/childcare.html

Gloving – Description and pictures of how to put on and remove disposable gloves at <http://nrc.uchsc.edu/CFOC/PDFVersion/Appendix%20D.pdf>

Healthy Handwashing – Poster at <http://www.globalhealthychildcare.org/Download/HealthyHandwashingPoster.jpg>

Clean & Sanitize – Poster at <http://www.globalhealthychildcare.org/Download/CleanandSanitizePoster.jpg>

Diapering – Poster at <http://www.globalhealthychildcare.org/Download/DiaperingPoster.jpg>

Blood & Body Fluid Safety – Poster at <http://www.globalhealthychildcare.org/Download/BloodandBodyFluidsPoster.jpg>

Sample Cleaning/Sanitizing Schedule at http://www.healthykids.us/chapters/cleaning_pf.htm

Sample Food Service Cleaning Schedule at <http://nrc.uchsc.edu/CFOC/PDFVersion/Appendix%20S.pdf>

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