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Six Tips for Germ Control

Maintaining a Sanitary Child Care Environment

by Susan S. Aronson, MD, FAAP

All Germs Are Not Bad Germs

Normally, we share the environment with a balanced population of bacteria, viruses, parasites, and fungi. Let's just call them all germs. Our bodies maintain control over the growth of the germs that co-inhabit the world with us. Healthy people usually resist invasion by germs pretty well, fight those that get past the body's barriers, and repair any damage they do. Some germs are better able to get around our defenses than others. Fortunately, less harmful germs fight for territory and help control those that are more harmful.

Very young children have not yet developed immunity to many of the germs that they encounter. It takes more time for the body to mount a response and kill off a type of infection that is being met for the first time. Control of infectious disease risks is especially important for them.

TIP #1:
Keep body defenses strong.

The body barriers are skin and mucous membranes. When we cut our skin, dry out or otherwise injure the protective layer of mucus that covers our moist body openings we give germs an opening into parts of our bodies where these germs don't belong. Avoiding injury is desirable, but not always possible. When injury occurs, help body defenses by reducing the number of germs that the body must fight. Quickly wash out cuts before the germs have time to multiply in the wound. Keep the humidity between 30% and 70% in the winter to prevent drying out the antibody-rich mucus covering of the respiratory membranes.

Maintain ordinary body functions with healthy living. Drinking plenty of fluids provides enough liquid to fill all the blood vessels that carry infection fighting cells and components of the blood to all parts of the body. Eating food as recommended on the food pyramid gives the right building blocks to allow the body to repair weakened or damaged tissues. Getting enough rest and exercise maintains reserves to handle stressful situations. Avoiding toxic substances like smoke or other harmful chemicals prevents damage done by these substances to body defense mechanisms. Immunization teaches the immune system what to do before the real thing comes along.

Hand cream or lotion helps keep the skin from cracking, especially when you need to wash hands frequently. Cracked dry skin holds germs in crevices, so prevent dry skin by applying a small amount of lotion or cream to replace natural skin oils removed by hand washing.

TIP #2:
Keep all surfaces clean and some surfaces sanitary.

Young children are more likely to get sick because they touch the inside of their noses and put their hands in their mouths after touching surfaces that have been loaded (contaminated) with someone else's bad germs. Contamina-

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tion of surfaces occurs when someone or something that is carrying bad germs leaves a body fluid behind. Some bad germs can withstand hostile conditions for a long time.

Use germ-fighting chemicals judiciously. When we use chemicals such as disinfectants and antibiotics, unless we use them appropriately in targeted situations, we tend to kill off the weaker germs and leave behind the stronger, resistant ones. Keeping a visibly clean environment is helpful, but cleaning is removal of soil. It is not application of chemicals on top of dirt.

Trying to keep surfaces in child care germ free is not only very difficult but also not a good idea. Using too many chemicals can be toxic and potentially help foster the growth of resistant organisms. The goal in child care is cleanliness and sanitation of priority areas, not making the environment germ free. Save germ-free chemicals for areas that involve food or that are contaminated with body fluids. Save antibiotics for situations when the body needs the antibiotic to fight off the infection. Taking antibiotics for viral illnesses does no good at all and may remove weaker bacteria that have been keeping the stronger ones from taking over.

Priority Areas to Control Bad Germs

Priority areas for controlling bad germs are those that may have body fluids and dirt with bad germs in high enough concentrations to cause disease — surfaces that will touch food and drink and surfaces that children and adults will touch before they eat.

Use the guidelines for preventing the spread of germs in the pamphlet published by the National Association for the Education of Young Children called Keeping Healthy. These guidelines are the same as those in the soon-to-be-published second edition of Caring for Our Children: Health and Safety Performance Standards for Out-of-Home Child Care. The NAEYC pamphlet describes how and when to do hand washing; how to keep the air fresh; how to space sleeping to reduce the exposure of children while they sleep; and how to clean and sanitize toys, furniture, and areas for eating, diapering, and toileting. Use the cleaning guidelines chart in this brochure and in Caring for Our Children to set up routine maintenance.

TIP #3:
Use "Standard Precautions" or "Universal Precautions" for blood spills.

Child care facilities must comply with the procedures that the Occupational Safety and Health Administration called "Universal Precautions" and that the Centers for Disease Control and Prevention now call "Standard Precautions." For a spill of blood or body fluid that might contain blood, clean up visible soil and then disinfect the surface with a properly diluted bleach solution or some other chemical labeled as a disinfectant. The minimum strength of bleach used in a spray application is a fresh mixture of one quarter cup of bleach to one gallon of water. This solution disinfects; it does not clean as well as detergent. Apply the bleach solution to a visibly clean surface and leave it in contact with the surface for at least two minutes. This procedure reduces the number of most bad germs to undetectable levels. Follow the label directions for non-bleach disinfectants.

TIP #4:
Avoid artificial and long fingernails and germ-trapping jewelry.

Recent research has helped confirm what many have suspected about the role of artificial and long fingernails in spreading infection. In a study done in an Oklahoma hospital, nurses with long or artificial fingernails helped to spread infection in a neonatal intensive care unit. Although this study measured infection of vulnerable sick infants in a setting that is very different from child care, the findings are meaningful for child care too. After the hospital restricted long or artificial nails and improved hand washing, the rate of infection decreased. It makes sense to avoid long and artificial nails as well as elaborate hand and wrist jewelry that are hard to clean during hand washing.

TIP #5:
Practice good hand washing.

■ Use running water to moisten the skin first.

■ Apply liquid soap and friction to create a lather that loosens dirt and germs that would otherwise stay attached to the skin. Ten seconds of friction lathering is a reasonable expectation. (Have children count "bubble-one, bubble-two, etc." or sing a ten second hand-washing song while they wash.)

■ Thoroughly rinse the hands with the fingertips pointing toward the drain to take the loosened dirt and germs off the skin.

■ Dry the hands and move to the clean activity in a way that does not put germs back on the skin.

Tip #6:
Organize the environment and routines to avoid unnecessary contamination.

If you or anyone else touched the tap, doorknobs, towel dispensers, or other surfaces with dirty hands, touching them with clean hands will put the dirt and germs back on the clean skin. Dry

AREA	CLEAN	SANITIZE	FREQUENCY
CLASSROOMS/CHILD CARE/FOOD AREAS			
Countertops/tabletops	X	X	Daily and when soiled.
Food preparation and service surfaces	X	X	Before and after contact with food activity; between preparation of raw and cooked foods.
Floors	X	X	Daily and when soiled.
Door and cabinet handles	X	X	Daily and when soiled.
Carpets and large area rugs	X		Vacuum daily when children are not present. Clean with a carpet cleaning method approved by the local health authority. Clean carpets only when children will not be present until the carpet is dry. Clean carpets at least monthly in infant areas, at least every three months in other areas, and when soiled.
Small rugs	X		Shake outdoors or vacuum daily. Launder weekly.
Utensils, surfaces, and toys that go into the mouth or have been in contact with saliva or other body fluids	X	X	After each child's use, or use disposable, one-time utensils or toys.
Toys that are not contaminated with body fluids	X		Weekly and when soiled.
Dress-up clothes not worn on the head	X		Weekly and when soiled.
Sheets and pillowcases, individual cloth towels (if used), combs and hairbrushes, washcloths, and machine-washable cloth toys (none of these items should be shared among children)	X		Weekly and when visibly soiled.
Blankets, sleeping bags	X		Monthly and when soiled.
Hats	X		After each child's use, or use disposable hats that only one child wears.
Cubbies	X		Weekly.
Cribs	X		Weekly, or before use by a different child.
Phone receivers	X	X	Weekly.
TOILET AREAS			
Hand-washing sinks, faucets, surrounding counters	X	X	Daily and when soiled.
Soap dispensers	X	X	Daily and when soiled.
Toilet seats, toilet handles, door knobs or toilet cubicle handles, floors	X	X	Daily, or immediately if visibly soiled.
Toilet bowls	X	X	Daily.
Door knobs	X	X	Daily and when soiled.
Changing tables	X	X	After each child's use.
Potty chairs (use of potty chairs in child care is discouraged because of high risk of contamination)	X	X	After each child's use.
Any surface contaminated with body fluids, saliva, mucus, vomit, urine, stool, or blood	X	X	Immediately.

This chart is updated from a table originally prepared by the Soap and Detergent Association (www.cleaning101.com), adapted by NAEYC and published in Keeping Healthy (1999), and further updated for publication in 2001 by the American Academy of Pediatrics, American Public Health Association, and Maternal and Child Health Bureau of the (federal) Health Resources and Services Administration as part of a standard in the second edition of Caring for Our Children.

your hands with a disposable towel from a towel dispenser that does not require touching surfaces that others touched, or use an air dryer. Use a disposable towel to turn off the tap or use a hands-free sink to prevent contamination from touching the tap.

Toilet-room doors should open in the direction of exit from the toilet room. If this is not possible, leave the door open, or keep the towel used to dry your hands to open the door, to avoid picking up the germs from the door handle left there by all those folks who never bothered to wash their hands. Have hand-washing facilities close to areas where contamination is likely to occur and close to eating places. If the plumbing isn't available, use portable sink arrangements that minimize the risk of contamination. Sinks should be an arm's length from the diaper-changing table, and as close to the toilets and eating areas as possible.

A well-designed child care facility has enough sinks so most of the kids can wash at once. When this is not possible, have a clean transition activity for children to do while the other kids get washed. The activity should involve clean surfaces. Having children sit on the toilet-room or classroom floor after they wash gets their hands contaminated again.

What Recent Research in Child Care Settings Shows

Upper respiratory infections and diarrhea are common among children who attend child care. Child care staff can reduce the spread of these infections with good hand washing and surface sanitation. In two studies done in Australian child care centers, a diligent researcher reaffirmed previous documentation that good hygiene reduces these common types of infection. For centers where hand-washing compliance was high, episodes of respiratory infection in children under 24 months of age were reduced by 17%. Diarrhea episodes were reduced by 66% in children over 24 months of age in these centers.

Hand washing did not reduce the frequency of colds in children over 24 months of age, or of diarrhea in children less than 24 months of age. While the research did not show why these effects were observed only in specific age groups, seasoned child care workers might suggest reasons. Generally, children over 24 months of age do more to take care of their own nasal secretions than those under 24 months of age. Perhaps adults in centers where hand washing has been taught and is being continuously evaluated do a better job of hand washing after wiping children's noses than older kids do after wiping their own runny noses.

Preventing contamination of surfaces in child care by hand washing and sanitary diaper changing for children who are not yet using the toilet is tougher than when the children are using the toilet themselves. These data challenge child care staff to do their best with hand washing and surface sanitation — and to get children to do the same.

References

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Roberts, L., et al. (2000). Effect of infectious control measures on the frequency of upper respiratory infection in child care: a randomized, controlled trial. Pediatrics, 105, 743-746.

Dr. Michael Gerber, a pediatric infectious diseases specialist from Bethesda, Maryland, and a member of the AAP Committee on Infectious Diseases, gives some labor-saving advice: "It is unlikely that impetigo spreads in child care settings via cots and bedding. The primary mode of transmission is by direct skin-to-skin contact. Moist secretions from crusty, wet wounds that are on cots or bedding could be a potential source of transmission of impetigo, but simple removal of these moist secretions with a household cleaner or detergent should be sufficient. There is no need to rigourously sanitize cot surfaces to prevent the spread of impetigo."

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