

# CLEANING, SANITIZING, AND DISINFECTING

This section provides general information about cleaning, sanitizing, and disinfecting; guidelines for specific items commonly used in childcare and school settings; and a checklist for choosing a disinfectant other than bleach.

## Definitions

- Cleaning** Mechanical process (i.e., scrubbing) using soap or detergent and water to physically remove dirt, debris, and many germs. It also removes invisible debris that interferes with disinfection.
- Sanitizing** Chemical process of reducing the number of disease-causing germs on cleaned surfaces to a safe level. This term is usually used in reference to food contact surfaces or mouthed toys or objects.
- Disinfecting** Chemical process that uses specific products to destroy harmful germs (except bacterial spores) on cleaned environmental surfaces.

Proper cleaning, sanitation, and disinfection practices lessen the harmful effects of germs (bacteria and viruses) by controlling them. These practices, combined with frequent handwashing and proper waste disposal techniques, reduce the number of germs on surfaces and objects that children use. Germs are often introduced by contact with bodily fluids, dirt, and other environmental contaminants. Do not assume that surfaces are clean even if there are no visible contaminants. Treat all bodily fluids as infectious material, and make sure to follow all proper cleaning and disinfecting practices even if surfaces do not look dirty. Regular cleaning and sanitation will help control infections, and should be increased in line with communicable disease concerns.

## Glove use when cleaning, sanitizing, and disinfecting

- Wear disposable gloves (consider using non-latex gloves as a first choice) when:
  - Handling blood (e.g., nosebleeds, cuts) or items, surfaces, or clothing soiled by blood or body fluids.
  - Covering open cuts, sores, or cracked skin.
  - Cleaning bathrooms, diapering/toileting areas, or any areas contaminated with stool, vomit, or urine.
- Remove gloves properly and discard after each use. See Section 3 for more information about proper glove use.
- Always wash hands immediately when gloves are removed.

## When using cleaning, sanitizing, or disinfecting products always:

- Consider the safety of children; store products safely out of reach of children.
- Choose a product appropriate for the task. See “*Checklist for Choosing a Disinfectant Other than Bleach*” for guidelines.
- Follow the label instructions for mixing, using, and storing solutions.
- Read the warning labels.
- Clean soiled surfaces and items before using sanitizers or disinfectants.

## Cleaning

- Use warm/hot water with any household soap or detergent.
- Scrub vigorously to remove dirt and soil. Use a brush if item is not smooth or has hard to reach corners, such as toys and bottles.
- Change water when it looks or feels dirty, after cleaning bathrooms, after cleaning diaper changing areas, and after cleaning the kitchen.
- Always clean the least dirty items and surfaces first to avoid transferring contamination from dirtier surfaces to cleaner surfaces. For example, countertops before floors; sinks before toilets.
- Always clean high surfaces first, then low surfaces.
- Disposable towels are preferred for cleaning. If using reusable cloths/rags, launder between cleaning uses. Do not use sponges since they are hard to clean.
- Clean completely on a regular schedule and spot clean as needed.

## Sanitizing or Disinfecting Products

**How to Choose a Sanitizing or Disinfecting Product** (see “*Checklist for Choosing a Disinfectant Other than Bleach*” for guidelines)

Household bleach can be used as a sanitizer or disinfectant. **If you are using a product other than bleach**, the Environmental Protection Agency (EPA) recommends that only EPA-registered products be used for sanitizing and disinfecting. **To find out if a product is EPA registered and meets the criteria for sanitizing or disinfecting follow the steps below:**

- Go to <http://iaspub.epa.gov/apex/pesticides/f?p=PPLS:1>
- Enter the *Product Name*, *Company Name*, or the *EPA Registration Number* listed on the product label or product insert
- Click *Search*
- A *Details* page will provide basic information about the product and there will be a PDF you can download under the *Approved Date* field
- This PDF will contain directions for use, places the product can be used (e.g., hard non-porous surfaces, mouthed objects, etc.), and organisms that the product is effective against (e.g., HIV, hepatitis B, tuberculosis, etc.)

See “*Checklist for Choosing a Disinfectant Other than Bleach*” for meeting the criteria for sanitizing and disinfecting, the intended use of the product (e.g., blood clean-up, mouthed objects/food contact surfaces, diaper area/non-food areas), and the rationale.

**Please note** it is the responsibility of the childcare or school agency to verify that non-bleach products are EPA-registered and meet the criteria for use as a sanitizer or disinfectant. Be sure to follow product instructions and pay attention to instructions for pre-cleaning, contact time, and rinsing. As always, store all products out of reach of children.

- **Bleach (sodium hypochlorite)**

Bleach solutions of differing concentrations can be used for sanitizing and disinfecting. Bleach solutions can be prepared by mixing specified amounts of household bleach and water (see “*How to Mix Bleach Solutions*” for directions on how to mix different solutions and for information on handling, storage, and safety concerns) or commercially prepared bleach-containing products can be purchased. Make sure the bleach solution is appropriate for the type of item to be sanitized or disinfected.

## CLEANING, SANITIZING, AND DISINFECTION

Bleach is safe when used as directed, is effective against germs when used at the proper concentration, is inexpensive to make your own solutions, and is readily available. However, bleach is corrosive to metals and can strip floor wax, is ineffective in the presence of body fluids and soil (must always clean first), is unstable when mixed with water (needs to be made fresh daily), and can be dangerous if mixed with other products.

### ***Bleach Solution 1 (~800-850 ppm) - Disinfectant***

This solution contains approximately 800-850 parts per million (ppm) of sodium hypochlorite. Use to disinfect surfaces that will **not** have contact with food or the mouth. For example, Bleach Solution 1 can be used on changing tables, potty chairs, activity tables, and floors.

Note that household bleach available commercially has increased in concentration from 6.0/6.25% to 8.0/8.25%, thus the bleach solution recipe has changed from the one found in the previous version of this manual. Be sure to follow the updated recipe, or the bleach solution will be too strong.

The Hennepin County Public Health Department recommends using the 800 ppm solution versus the generic recipe recommended on most bleach products (~2400 ppm, a much stronger solution). Note that local environmental health professionals or licensing agencies may have different recommendations.

See “*How to Mix Bleach Solutions*” for directions on preparing this solution. Label the bleach solution clearly with its intended use, the date mixed, where it can be used, etc. Always store bleach solutions out of children’s reach.

### ***Bleach Solution 2 (~100 ppm) - Sanitizer***

This solution contains approximately 100 parts per million (ppm) of sodium hypochlorite. Use to sanitize mouthed toys and other objects, eating utensils, and food-contact surfaces.

The Minnesota Food Code states that the range of the sanitizing solution must be from 50-200 ppm and must not exceed 200 ppm. Chlorine test kits are available for purchase to check the concentration of sanitizer bleach solutions. Commercially licensed facilities are required to use a test kit to measure the strength of the sanitizing solution. Contact your local health department to purchase test strips or to learn where test strips can be purchased.

Note that household bleach available commercially has increased in concentration from 6.0/6.25% to 8.0/8.25%, thus the bleach solution recipe has changed from the one found in the previous version of this manual. Be sure to follow the updated recipe, or the bleach solution will be too strong.

See “*How to Mix Bleach Solutions*” for directions on preparing this solution. Label the bleach solution clearly with its intended use, the date mixed, where it can be used, etc. Always store bleach solutions out of children’s reach.

- **Quaternary ammonia products (quats)**

There are many types of quaternary ammonia (quat) products that can be used for sanitizing and disinfecting, but they are not all the same. A common chemical name for the active ingredient in



## CLEANING, SANITIZING, AND DISINFECTION

quat products is *dimethyl benzyl ammonium chloride*. It is important to read the label and to follow the instructions carefully to make sure you are using a product that is appropriate for the type of item to be sanitized or disinfected. Use the “*Checklist for Choosing a Disinfectant Other Than Bleach*” to determine if the product meets the criteria for both a sanitizer and/or disinfectant.

Use a test kit daily to monitor the concentration of the quat product used in food areas (200-400 ppm). Obtain test kits from your chemical supplier.

Label the quat solution clearly with its intended use, the date mixed, where it can be used, etc. Always store quats out of children’s reach; undiluted quats can be fatal if ingested.

### **Remember When Using Quats:**

#### **Read the label and follow the manufacturer's directions exactly for:**

- how to mix product
- how to apply the solution
- how long to leave on the surface (contact time)
- whether to rinse after exposure time
- safety concerns when used around children

The solution for use on food contact surfaces may differ from that used for general disinfection. **Read the label and follow the directions exactly.** For more information about a specific product, call the distributor or the manufacturer. The 1-(800) number is usually found on the product label.

- **Hydrogen peroxide products**

New products containing hydrogen peroxide are available for sanitizing and disinfecting. These products may be labeled as “accelerated hydrogen peroxide” or “hydrogen peroxide/anionic surfactants” and are different from the hydrogen peroxide that can be purchased at grocery or big box stores. Hydrogen peroxide cleaning products break down to water and oxygen and do not leave a residue. Ensure hydrogen peroxide products are EPA-registered and use the “*Checklist for Choosing a Disinfectant Other Than Bleach*” to determine if the product can be used in your facility. Always read the label and follow the directions carefully.

- **Environmentally friendly (“green”) products**

There has been an increased interest in using “green” cleaning products in childcare settings, schools, and homes. This interest is twofold: first is due to reports about increased allergies, sensitivities, and illness in children associated with chemical toxins in the environment and second, these products tend to cause less damage to the environment. Children are more vulnerable to chemical toxins because of their immature immune systems, rapidly developing bodies, and their natural behaviors - they play on the floor; are very tactile having much body contact with the tables, desks, or play equipment; and have oral behaviors of mouthing toys and surfaces and putting their hands in their mouths.

It is important to note that “green” cleaning does not mean accepting a lower standard for sanitization or disinfection. For areas or tasks that do not require sanitization or disinfection, green cleaning products are a good alternative and are acceptable. Green cleaning products can readily be used in childcare and school settings. Green sanitizers or disinfectants must meet the



## CLEANING, SANITIZING, AND DISINFECTION

criteria listed in “*Checklist for Choosing a Disinfectant Other Than Bleach*”, be registered by the EPA, and be approved by your local environmental health agency or your childcare consultant. Note that new green sanitizers and disinfectants are not widely available through vendors and may need to be special ordered. To learn more about EPA green cleaners, visit <http://www2.epa.gov/childcare/information-child-care-providers-about-green-cleaning>

- **Other sanitizing or disinfecting products**

Use the “*Checklist for Choosing a Disinfectant Other Than Bleach*” to determine if other products can be used in childcare or school settings. Always read the label and follow the directions carefully.

### Disinfecting Procedures

- **Surfaces or objects that will not have contact with the mouth or food** (immediately after each soiling)

1. Clean first with soap or detergent and water.
2. Rinse.
3. Spray the area thoroughly with ***Bleach Solution 1* or another appropriate disinfecting product.**
4. Wipe the area to distribute the disinfectant evenly using single-service, disposable paper towels.
5. Discard paper towels in a plastic-lined container.
6. Allow surface to air dry.
7. Wash your hands.

- **Water play tables** (after each use)

1. Soak all water table toys in ***Bleach Solution 2* or another appropriate sanitizing product** for two minutes prior to use.
2. Fill table with fresh potable water immediately before use.
3. Ensure that all children and staff wash hands before and after play.
4. Exclude any child with open sores or wounds from play.
5. Do not permit children to drink the water.
6. Drain the water after play is over and between groups of children in the same classroom. If the toys and table are going to be used by *a different* classroom, the table and toys should be washed and sanitized using ***bleach solution 2* or another appropriate sanitizing product** in between use.
7. Clean with soap or detergent and water.
8. Wipe table with ***bleach solution 1* or another appropriate disinfecting product.**

- **Blood and body fluid spills or soiling**

1. Wear disposable medical gloves for any blood and body fluid cleanup (see “Gloving” fact sheet in Section 3 for more information).
2. Always use disposable towels to clean objects and surfaces contaminated with blood and body fluids (stool, urine, vomit) and discard in a plastic-lined, covered waste container.
3. Scrub the area with soap or detergent and water to remove blood or body fluids and discard paper towels. Rinse the area with clean water. Prevent exposure by avoiding splashing any contaminated fluids.



## CLEANING, SANITIZING, AND DISINFECTION

4. **Disinfect immediately** using *Bleach Solution 1* or another appropriate disinfecting product on any items and surfaces contaminated with blood and body fluids (stool, urine, vomit). See “Cleaning/Sanitizing/Disinfecting Guidelines for Specific Items/Areas” for more information.
  5. Allow surface to air dry.
  6. Discard disposable gloves. If using utility gloves, follow cleaning/disinfecting procedure.
  7. Wash hands immediately.
- **Washable items like linens, towels, bedding**
    1. Use hot water in a **washing machine**. This is acceptable for soaking, cleaning, sanitizing, and disinfecting washable articles.
    2. Read the label on the laundry detergent.
    3. Read the label and follow directions exactly if using bleach.
    4. Dry items in a dryer on high heat.

### Sanitizing Procedures

- **Surfaces that come in contact with food or are mouthed**
  1. Clean first with soap or detergent and water.
  2. Rinse.
  3. Spray the area thoroughly with *Bleach Solution 2* or another appropriate sanitizing product.
  4. Wipe the area to evenly distribute the sanitizer using single-service, disposable paper towels.
  5. Discard paper towels in a plastic-lined container.
  6. Allow to air dry.
- **Items in contact with food or are mouthed (toys, eating utensils, dishes, formula bottles)**
  - Three separate sinks (or basins) method
    1. Sink/Basin #1: wash items in hot water using detergent (bottle brushes as needed).
    2. Sink/Basin #2: rinse in clear water.
    3. Sink/Basin #3: soak items in *Bleach Solution 2* for at least two minutes.
    4. Remove items, do not rinse, and place on rack to air dry.
  - Dishwashers

To be acceptable, a dual process for cleaning with the detergent and agitation **and** sanitizing with heat or chemicals must be provided.

Two types of dishwashers are available, commercial and household:

    - National Sanitation Foundation (NSF) approved commercial dishwashers are required in commercial childcare or school food service. The NSF standards require that the water temperature reach 180° F, or that there is 50 ppm chlorine in the final rinse of the dishwasher.
    - Household dishwashers must have a heat sanitizing setting. If at the end of the cycle when the machine is opened the dishes are too hot to touch, then the items are sanitized. It is strongly recommend that household dishwashers carry the NSF mark of approval.

For more information, call Hennepin County HSPHD-Epidemiology at (612) 543-5230 or call your local health department.

