



## CLEANING AND DISINFECTION PROTOCOLS FOR SCHOOLS

Regular cleaning and disinfection of schools is an important part of preventing and minimizing the spread pathogens in the school environment. Pathogens are microbes which can cause disease and/or infection. Pathogenic microbes may found be in the form of bacteria, viruses, fungi, or parasites. AWS recommends using these protocols in collaboration with the Cleaning for Healthier Schools-Infection Control Handbook (CHS, 2010) to minimize and control the spread of illness and disease.

There are three lines of defense to decrease the spread of pathogens in a school environment:

- 1) Personal hygiene,
- 2) Regular cleaning procedures,
- 3) Proper disinfection and sanitizing procedures.

The difference between cleaning, disinfection and sanitizing is discussed below:

**Cleaning-** Removes germs, dirt, and impurities from surfaces or objects. Cleaning works by using soap (or detergent) and water to physically remove germs from surfaces. This process does not necessarily kill germs, but by removing them, it lowers their numbers and the risk of spreading infection (CDC, 2016).

**Disinfecting** - Kills germs on surfaces or objects. Disinfecting works by using chemicals to kill germs on surfaces or objects. This process does not necessarily clean dirty surfaces or remove germs, but by killing germs on a surface after cleaning, it can further lower the risk of spreading infection (CDC, 2016).

**Sanitizing** - Lowers the number of germs on surfaces or objects to a safe level, as judged by public health standards or requirements. This process works by either cleaning or disinfecting surfaces or objects to lower the risk of spreading infection (CDC, 2016). Since sanitizing is based on quantitative number of microbes killed it is most often used by a regulatory agency to certify the effectiveness of a product.

Basically, low-risk surfaces, such as floors, windows, etc., where the likelihood of pathogen transfer from the surface is low are cleaned on a daily basis. Daily cleaning is also recommended for frequently touched surfaces like desks, countertops, doorknobs, computer keyboards, hands-on learning items, faucet handles, phones, and toys. Disinfection is recommended for food areas, bathrooms and other high-risk areas as discussed further below.

The spread of pathogens can be minimized in schools by employing good personal hygiene, regular cleaning and the proper use of disinfectants. These three lines of defense are detailed below:

## **PERSONAL HYGIENE**

The use of good personal hygiene by students, staff and visitors can greatly reduce the spread of pathogens in the school. These can include the following components:

- 1) Proper hand-washing hygiene. Make sure all building occupants have access to adequate soap, water and drying mechanisms (air dryers or paper towels). Supply adequate training and signage on proper hand-washing techniques throughout the school.
- 2) Ensure building occupants practice proper sneeze and cough etiquette with ample signage and training. Coughing into the elbow is an alternative when tissues are not available. Use tissues when possible to capture droplets and dispose of them in a waste receptacle after use.
- 3) Train coughing or sneezing students/staff to leave a 3-foot buffer between themselves and others.
- 4) Provide training to building occupants on the importance of not sharing drinks, cups, food and paper towels.

## **REGULAR CLEANING**

Comprehensive cleaning programs that use less-toxic products and updated tools and technology can help control the spread of infectious disease and illness. Cleaning is the manual removal of microbes, dirt, dust and allergens from a surface. Cleaning surfaces with microfiber cloths and mops and an all-purpose cleaner can be effective at removing 99.9 % of microbes (EPA, 2002). Most pathogenic microbes cannot live on a clean and dry surface for very long therefore physical removal of the nutrients (including dust) and moisture needed to survive and multiply is an effective first-step in preventing the transmission of diseases.

### **Basic Surface Cleaning Procedures**

1. Wash surfaces with a certified all-purpose cleaner and a microfiber cloth.
2. Rinse and/or wipe surfaces if required.
3. Rinse cloth in clean water after each surface.
4. Reapply the cleaning solution for the next surface.
5. After the cleaning process is complete, rinse out microfiber cloths and hang to dry, or leave for pick-up by the custodial staff.

In the *Cleaning for Healthier Schools – Infection Control Handbook* (CHS, 2010) the following cleaning schedule for specific school surfaces are recommended:

#### Desks, Work Tables, and Computer Keyboards – Shared

Products: An all-purpose cleaning product and a high-quality microfiber cloth. Keyboard covers are more easily cleaned than the keys.

Recommended cleaning schedule: Clean daily.

During outbreak of gastrointestinal illnesses or flu: Clean in between uses or after each group session.

#### Desks, Work Tables, and Computer Keyboards – Not Shared

Products: An all-purpose cleaning product and a microfiber cloth.

Recommended cleaning schedule: Clean weekly or as needed.

#### Cafeteria Tables and Floors

Products: A cleaning detergent that removes dirt and allergenic protein matter, and high-quality microfiber cloths/mops. Sponges are not recommended due to their potential to spread contamination).

Recommended cleaning schedule: Clean after each use, before the next group arrives.

Other Surfaces Touched by a Variety of Hands (phones, light fixtures, stair railings, door knobs and push bars, elevator buttons, water fountains, etc.)

Products: An all-purpose cleaning product and a high-quality microfiber cloth.

Recommended cleaning schedule: Clean daily.

During outbreak of gastrointestinal illnesses or flu: Clean touch points in between classes or periodic events.

#### Floors in Classrooms and Hallways

Products: A neutral floor-cleaning product specific to flooring material that removes dirt year-round (and salt in the wintertime), and a microfiber mop.

Recommended cleaning schedule: Clean daily.

## **DISINFECTION**

Disinfectants are EPA registered pesticides designed to kill or inactivate microbes (germs). The overuse or misuse of disinfectants can kill healthy bacteria and also lead to disease-resistant strains of pathogens. In addition, many disinfectants contain toxic ingredients have been identified as respiratory irritants, while others are considered asthmagens (IGS, 2009).

Disinfecting is a process that kills or irreversibly inactivates microbes (bacteria, fungi, and viruses) present on a nonporous surface but does not necessarily kill their spores. The product label identifies which microbes it has been tested to kill or inactivate. Disinfectants accomplish this by breaking down the microbes' cell walls or by otherwise deactivating them (CHS, 2010).

Disinfectants should be used for bathrooms, showers, locker rooms, child-care facilities with diaper changing stations, food preparation surfaces where disinfection or sanitization is

required, for bloodborne pathogens cleanup and any other high-risk areas. High-risk areas are locations where there is a higher risk for bloodborne incidents, skin contact (MRSA risk), or contact with feces and body fluids. Examples of high-risk areas include the nurse's office, athletic areas, and childcare centers. These surfaces and areas should be cleaned and disinfected daily (CHS, 2010).

Many facilities choose to use a combination disinfectant/cleaner to minimize the number of products and number of steps required to clean and disinfect the building. Even though combination products have been developed to both clean and disinfect, the best practice is to clean a surface first and then apply the disinfectant. Some disinfectants lose effectiveness in the presence of dirt, dust and other organic matter. The disinfectant should be left on the surface for the recommended amount of dwell or kill time and then rinsed or wiped (if recommended). Since different products have specific dwell times, ranging from 30 seconds to 20 minutes; check the label's instructions (IGS, 2009). Cleaning first and then applying the disinfectant for the recommended dwell time ensures that you are truly disinfecting the surface and not creating microbial resistance. When the disinfectant is not allowed the full dwell time, the microbes that survive may develop resistance to the disinfectant and become "super bugs" that cannot be controlled by that disinfectant. Always follow the manufacturer's instructions found on the product label (IGS, 2009).

### **Disinfection Procedures (CHS, 2010)**

- Identify school personnel (e.g. custodian, nurse) responsible for disinfecting.
- Limit the use of disinfectants to: bloodborne pathogens cleanup, food preparation surfaces where disinfection or sanitization is required and high-risk areas as mentioned above (nurse's office, athletic areas, and childcare centers).
- Allow only EPA-registered disinfectants for use in the facility. Prohibit the use of cleaning and disinfecting products that have been brought in by staff or parents without school review and approval.
- Avoid using products with a strong scent that may trigger asthma and allergy complaints. Scented products may also contain known hormone disruptors (substances that interfere with our endocrine system and can cause reproductive issues, early female development, thyroid disorders, polycystic ovarian syndrome, genital deformities in newborn boys, etc.)
- Microfiber is recommended for use with disinfectants and can help prevent cross-contamination. Avoid using sponges in a school setting, as they are difficult to disinfect. Launder your cleaning cloths and mop heads/pads daily.
- Disinfect only after school hours except in the case of an incident, such as vomit, feces, bloodborne pathogens clean-up, or as written in the protocol.

## **Disinfection Protocol (IGS, 2009)**

1. **Select** – Identify the least product that will control the targeted microbes (H1N1, MRSA etc.). Look for an HMIS or NFPA Health Rating of 0-1 applied to the product as used. The rating may be found on the product's label and/or material safety data sheet (MSDS).
2. **Clean** – Clean the surfaces to be disinfected with a third-party certified all-purpose cleaner and a microfiber cloth first. Rinse or wipe the surface as required.
3. **Ventilate** - Make sure there is ventilation in the work area, e.g., an open window or an operating HVAC system.
4. **Use proper personal protective equipment (PPE)**-such as chemically resistant gloves, if required by the label. Other PPE such as respirators or coverall may also be required per the MSDS or the label
5. **Dilute the Product** - Follow the label instructions for the proper dilution ratio, if the product is a concentrate. Follow the manufacturer's instructions exactly. If using a concentrated product, do not add more concentrate hoping to create a more effective or stronger solution. This is wasteful, can actually be less effective and may leave a harmful residue behind that could cause skin rashes and other harmful health effects for students and staff.
6. **Apply to the Surface** - Use a pump-spray or squirt bottle to apply the product by:
  - a. Saturating the microfiber cloth with the disinfectant and wiping the surface leaving a wet film. Make sure there is enough disinfectant on the cloth to cover the surface to be disinfected and ensure that it will remain wet for the required dwell time. Spraying into the cloth first minimizes the dispersion of product into the air where it can be inhaled.
  - b. Directly squirting the solution on the surface and using a microfiber cloth to distribute evenly.
7. **Dwell Time** – Leave the disinfectant on the surface for the amount of dwell time (time needed for the disinfectant to kill the microbes) required on the product label.
8. **Remove Residue** - Rinse or wipe the surface, if required. Rinsing removes any toxic residue that may be left on the surface that could be transferred to skin. Not all disinfectants leave a residue.
9. **Allow to Dry** – Allow the surface to dry before use.

### **Disinfecting in the Classroom by Teachers (if permitted)**

If the district or school allows disinfectant products to be used by teachers or other staff, the following guidelines are recommended:

1. Do not ask students to use disinfectant products. Children's developing bodies are much more susceptible to the effects of chemicals than the bodies of most adults. Disinfectant sprays and wipes can contain ingredients that are recognized as asthmagens and scented products can contain ingredients identified as hormone disruptors. Use disinfectant products only after students have left the building.

2. Train teachers on the proper use and storage of disinfectants and on the Hazard Communication Law which will help them interpret the product management and health and safety information provided in the product's material safety data sheet (MSDS). Provide copies of the MSDS in case of an accident in the classroom.
3. Use only non-scented disinfectant products because scented products can trigger asthma and allergy episodes.
4. Provide chemically resistant gloves as specified on the product's MSDS or label.
5. Ensure that the products are stored properly in a secured area away from students, with other compatible chemicals. Check the product's MSDS to determine how to safely store the disinfectant.

**References:**

Environmental Protection Agency (EPA), Using Microfiber Mops in Hospitals, Environmental Best Practices for Health Care Facilities. Region 9 Pollution Prevention Program. 2002.

Informed Green Solutions, Inc./ Cleaning for Health (IGS)/ 802-626-8643, 2009

Cleaning for Healthier Schools –Infection Control Handbook (CHS), National Cleaning for Healthier Schools and Infection Control Workgroup, Lynn Rose and Carol Westinghouse, 2010.

How To Clean and Disinfect Schools To Help Slow the Spread of Flu, [Centers for Disease Control and Prevention](#) (CDC) [National Center for Immunization and Respiratory Diseases \(NCIRD\)](#) 2016