Appendix A.1. Cleaning for Healthier Schools: Best Practices

Introduction

The Cleaning for Healthier Schools (CfHS) program was developed to assist facilities in their transition to less-toxic cleaning products and improved practices. It is a cleaning program designed to protect public health without adversely affecting the health of staff, building occupants, and the environment.

Best practices include a familiarity with the science of cleaning. Cleaning with detergent, microfiber, and friction removes organic matter (soil) and contaminants, including microbes. Soil is a food source for pathogenic microbes, and without a food and/or water source, these organisms cannot live for long. Frequent cleaning of high-risk or high-touch surfaces reduces the risk of building occupants coming into contact with these microbes.

Recognized experts in infection control recommend that cleaning surfaces with microfiber cloths and mops and a detergent such as an all-purpose cleaner can be very effective at removing microbes. One study found that microfiber mops (compared with cotton string mops) demonstrated superior microbe removal when used with a detergent cleaner and that the use of a disinfectant did not further improve microbial elimination when microfiber mops were used.¹

Recommendations

1. Choose “green” (environmentally preferable) cleaning and maintenance products, including
   ♦ Cleaners certified by an independent third-party, such as Green Seal or EcoLogo
   ♦ Disinfectants that carry the Environmental Protection Agency (EPA) Design for the Environment (DfE) seal on the label
   ♦ Less-toxic alternatives that provide protection against infectious disease if no certification category exists or if no DfE-labeled disinfectants can be easily found

2. Practice state-of-the-art cleaning methods (best practices), such as
   ♦ Green Seal GS-42 Standard for Cleaning Services
     (http://www.greenseal.org/certification/cleaning_services_gs_42.pdf)
   ♦ New York State Green Cleaning Program
     (https://greencleaning.ny.gov/training/login.aspx)

Appendix A.1. References


Further Reading

Appendix A: Development of Protocols

**Appendix A.2. Cleaning for Health: Program Components Checklist**

Use this checklist to determine what components a facility has implemented and what still needs to be phased in.

<table>
<thead>
<tr>
<th>Best practices</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ GS-42 Best Practices for Cleaning Services</td>
</tr>
<tr>
<td>□ Vacuum entryway mats on a daily basis</td>
</tr>
<tr>
<td>□ Review the Standard for other practices</td>
</tr>
</tbody>
</table>

(http://www.greenseal.org/certification/standards/gs-42commercialcleaning.cfm)

| □ Monitor chemical usage |

<table>
<thead>
<tr>
<th>Cleaning chemicals for everyday use</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Third-party-certified cleaning chemicals</td>
</tr>
</tbody>
</table>

<p>| |</p>
<table>
<thead>
<tr>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>□ One concentrate that is diluted for the following tasks:</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>□ bathroom/restroom cleaner</td>
</tr>
<tr>
<td>□ all-purpose cleaner</td>
</tr>
<tr>
<td>□ carpet spotter/extraction cleaner</td>
</tr>
<tr>
<td>□ glass &amp; window cleaner</td>
</tr>
<tr>
<td>□ neutral floor cleaner</td>
</tr>
</tbody>
</table>

<p>| |</p>
<table>
<thead>
<tr>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>□ One heavy-duty cleaning product</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hand soaps</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Third-party-certified foaming hand soap (not antibacterial)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>High-efficiency particulate air filter vacuum cleaners</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Air flow greater than 90 cubic feet of air per minute per square foot (cfm)</td>
</tr>
<tr>
<td>□ Capture 96% of particulates 0.3 microns in size</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>High-filtration floor care equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Floor buffers</td>
</tr>
<tr>
<td>□ Cord electric and battery burnishers</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Microfiber cloths</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Microfiber high-dusting tools</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Microfiber wet mops and dry mops</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Mop buckets or systems that separate clean and dirty water</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Multilevel scraper walk-off mats with rubber backing</th>
</tr>
</thead>
</table>

| □ Inside of entryways (and outside where possible) |
| □ Span the entire entryway |
| □ 15 to 20 feet long, where applicable |
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- Rotated on an appropriate schedule for weather conditions

  - Powered equipment
    - Sound levels less than 70 decibels
    - High-filtration vacuum attachments
    - High efficiency/low emission motors
    - Microfiber pads, where appropriate

  - Specialty cleaning products
    - Environmentally preferable disinfectant product
      - (0–1 on the Hazardous Materials Identification System health rating scale)
      - restrict use of disinfectants to predetermined high-risk areas
    - Bioenzymatic cleaner for protein (urine, etc.)
    - Third-party-certified floor care products
      - wax stripper
      - floor sealer and finish
    - Environmentally preferable graffiti remover
    - Environmentally preferable mineral build-up remover (toilets, etc.)
    - Environmentally preferable whiteboard cleaner and markers
    - Others

  - Training programs
    - Best practices training
    - Cleaning for health, safety, and appearance
    - Bloodborne pathogen training
    - Chemical Right to Know training
    - Certified products training
    - Equipment operator training
    - Multilingual training for non-English-speaking work staff
    - Teacher and other support staff training

  - Trash and recycling programs
    - Standardized waste receptacle sizes
    - Proper-size liners for receptacles
    - Dedicated receptacles for recycled-product types

  - Washroom paper products
    - Third-party-certified, post-consumer-waste recycled content for boxed facial tissue, toilet paper, and dispenser roll or multifold towels
    - Third-party certified / sustainable forestry practices / controlled-use dispensers
    - Tissue and towels on large rolls
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Appendix A.3. Program Planning Handout:
Cleaning for Healthier Schools and Infection Control

Introduction
There are many challenges in maintaining a school in a safe, healthy, and effective manner and in conducting infection-control practices in the face of an infectious-disease outbreak. A Cleaning for Healthier Schools (CfHS) Program will help schools to prepare for and respond to an infectious-disease episode. It is essential to have a Disinfection Plan in place as part of the CfHS Program infection-control protocol. If an H1N1 or other infectious-disease episode were to occur in the school, the plan would outline the appropriate steps to take, avoiding the pressure to disinfect the school by hand or to use a disinfectant bomb.

Disinfectants are Environmental Protection Agency (EPA)-registered pesticides designed to kill or inactivate microbes (germs). The overuse or misuse of disinfectants can pose a health hazard because they contain toxic ingredients. Some common disinfectant ingredients have been identified as respiratory irritants; others are considered asthmagens.

Not all microbes are harmful (pathogenic). In fact, most are harmless (nonpathogenic) and many are even helpful because they perform such tasks as helping our digestive system to function effectively and stimulating the development of a healthy immune system. In addition, beneficial bacteria are used in the fermentation process that creates bread, beer, cheese, and yogurt.

The CfHS Program was developed to assist school facilities in enhancing their cleaning systems through the use of less-toxic cleaning products, state-of-the-art supplies and equipment, and improved cleaning practices. The program seeks to educate staff on the impacts that dirt, biological contaminants, cleaning products, cleaning equipment, and practices have on human health. It offers cost-effective, successful cleaning and disinfecting strategies to protect against infectious disease without adversely affecting the health of staff, building occupants, and the environment.

Types of Infectious Diseases Commonly Found in Schools

- Common cold – spread by cough, sneeze, and contact with objects on which microbes have landed
- Diarrhea illnesses – spread by fecal-oral contact, consuming food or drinks contaminated with feces, touching diarrhea or vomit, or breathing air from the same room in which someone has just vomited
- Mononucleosis – spread by mouth-to-mouth contact; sharing drinks, drinking cups, and other objects
- Strep throat – spread by cough, sneeze, and contact with objects on which microbes have landed
- Flu strains – spread by cough, sneeze, and contact with objects on which microbes have landed
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Program Recommendations

1. Form an Environmental Health and Safety Committee or use an existing committee (Wellness, Safety, etc.) made up of representatives from the school community (e.g., school nurse, facilities manager, athletic director, teacher, administrator).1

2. Implement a CfHS Program and select cleaning products certified by an independent third party such as Green Seal or EcoLogo.

3. Select the least hazardous product in its class for disinfecting. Although disinfectants are not currently evaluated by a certification program, some companies use the Hazardous Materials Identification System (HMIS) to rate their product on a spectrum from 0 to 4, with 0 being the least toxic. You can use this rating system when it is available on the product label, or a product’s material safety data sheet (MSDS) to identify a low hazard rating of 0 to 1.

You can also look for signal words:

<table>
<thead>
<tr>
<th>Danger Level</th>
<th>Signal Word</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Most severe</td>
<td>Poison</td>
<td>Highly toxic</td>
</tr>
<tr>
<td></td>
<td>Danger</td>
<td>Extremely flammable, corrosive, or highly toxic</td>
</tr>
<tr>
<td></td>
<td>Warning</td>
<td>Moderate hazard</td>
</tr>
<tr>
<td></td>
<td>Caution</td>
<td>Mild/moderate hazard</td>
</tr>
</tbody>
</table>

4. Practice state-of-the-art cleaning strategies and methods (best practices), such as Green Seal GS-42 Standard for Cleaning Services, a comprehensive program that can be customized by schools for their in-house staff.

5. Use advanced-technology equipment to reduce the need for chemicals and to improve indoor air quality.
   a. Microfiber mops/cloths
   b. High-filtration vacuums and vacuum attachments on floor care equipment
   c. Floor care equipment with stripping pads to reduce the use of chemical floor strippers
   d. Auto scrubbers and hands-free cleaning equipment
   e. Chemical-free systems such as steam vapor devices or electrolyzed water
   f. Walk-off mats to prevent dirt, pesticides, and other debris from being tracked into and throughout the facility

6. Develop a disinfection policy and related protocols so that all school stakeholders understand the issues and the approved practices.
   a. **School staff should not be allowed to bring in disinfectant products from home.**
   b. **Disinfection should be conducted by the custodial staff as part of their cleaning protocol, except in certain circumstances delineated in the policy.**
   c. It is not recommended that staff other than custodians store and use disinfectants; however, if other staff are allowed to disinfect, the school should (1) supply an approved disinfectant product in a properly labeled container, (2) train staff in its proper use and management, (3) provide recommended personal protective
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equipment, and (4) ensure that disinfectants are stored securely with compatible products. Improper storage of disinfectants is a major problem in classrooms, where toxic combinations of products are stored together and accessible to students.

Overview of Best Cleaning Practices

Cleaning with a detergent and a microfiber mop/cloth and using friction removes organic matter (soil) and contaminants, including microbes (germs). Soil is a food source for bacteria and pathogenic microbes that can cause disease. Without a food and/or water source, these organisms cannot live. Frequent cleaning of high-risk and high-touch surfaces (see definitions below) reduces the risk of coming into contact with infectious microbes.

Recognized experts in infection control recommend that cleaning surfaces with microfiber cloths and mops and a detergent such as an all-purpose cleaner can be very effective at removing microbes. One study found that microfiber mops (compared with cotton string mops) demonstrated superior microbe removal when used with a detergent cleaner and that the use of a disinfectant did not further improve microbial elimination when microfiber mops were used.¹

Overview of Best Disinfection Practices

Disinfectants are still needed on certain surfaces and under certain circumstances, but their use should be determined by a policy that specifies when and where disinfecting is appropriate.

Many facilities choose to use a combination disinfectant/cleaner to minimize the number of products and the number of steps required to clean and disinfect the building. Even though combination products (to clean and disinfect) have been developed, the best practice is to clean a surface first and then apply the disinfectant.² 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). Because different products have different dwell times, ranging from 30 seconds to 10 minutes, the label’s instructions must be checked.

Cleaning first and then applying the disinfectant for the recommended dwell time ensures that the surface is truly being disinfected and that microbial resistance is not being created. When the disinfectant is not allowed the full dwell time, the microbes that survive may develop resistance to the disinfectant and become superbugs that cannot be controlled by that disinfectant. Always follow the manufacturer’s instructions found on the product label.
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Disinfecting Policy and Protocols

When illness breaks out in a school, there may be pressure on the staff to try to eradicate the problem with disinfectants. Exposing occupants unnecessarily to toxic pesticides is a result of using disinfectants when they are not needed, in the wrong concentration or incorrectly.

Policy Criteria

- Identify school personnel (e.g., custodian, nurse) responsible for disinfecting.
- Develop cleaning and disinfecting guidelines that promote cleaning; limit the use of disinfectants to bloodborne pathogens cleanup, high-risk areas, diapering areas, and food preparation surfaces where disinfection or sanitization is required.
- Write a procedure for designated staff to follow (e.g., clean first, then disinfect, leaving the product on the surface for the specified dwell time).
- Disseminate the cleaning and disinfection policy and related protocols so that all school stakeholders understand the issues and the approved practices.
- Allow only EPA-registered disinfectants that have been approved by the stakeholder committee 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, and so forth).
- Microfiber is recommended for use with disinfectants and can help prevent cross-contamination. Avoid using sponges in a school setting because they are difficult to disinfect. Launder cleaning cloths and mop heads/pads daily.
- Disinfect only after school hours except in the case of an incident involving vomit, feces, bloodborne pathogens clean-up, or as written in the protocol.
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Disinfection Protocol

1. **Select** – Identify the least toxic product that will control the targeted microbes (e.g., H1N1, methicillin-resistant *Staphylococcus aureus*). Look for an HMIS or National Fire Protection Association hazard rating of 0 to 1, found on the product’s label and/or MSDS.

2. **Clean** – Clean the surfaces to be disinfected with a third-party-certified all-purpose cleaner and a microfiber cloth. Rinse or wipe the surface as required.

3. **Ventilate** - Make sure there is ventilation in the work area (an open window or an operating heating, ventilating, and air conditioning system).

4. **Wear protection** – Use personal protective equipment, such as chemically resistant gloves, if required by 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. Not only is this practice wasteful, but it can be less effective and may leave behind a harmful residue that could cause skin rashes and other harmful health effects for students and staff.

6. **Apply to the surface** – Use a pump spray bottle or squirt bottle to apply the product:
   a. Saturate the microfiber cloth with the disinfectant and wipe the surface, leaving a wet film. Make sure there is enough disinfectant on the cloth to cover the surface to be disinfected and to ensure that it will remain wet for the required dwell time. This method of spraying into the cloth minimizes the dispersion of product into the air where it could be inhaled.
   b. Squirt the solution directly onto the surface and use a microfiber cloth to distribute evenly.

7. **Dwell time** – Leave the disinfectant on the surface for the required amount of dwell time (time needed for the disinfectant to kill the microbes) as listed on the product label.

8. **Remove residue** – Rinse or wipe the surface if the product label states that this procedure is 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.
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Cleaning and Disinfection Protocols for Outbreaks of Infectious Disease

A **three-pronged strategy** made up of the following components is the best way to prevent the transmission of disease in the school setting while minimizing exposure to hazardous infection-control products:

1. A comprehensive Cleaning for Healthier Schools program
2. A disinfection strategy and protocols
3. Building occupant responsibility – students and staff should be educated on the following:
   - Proper hand hygiene (see Appendix A.5, Understanding Hand Hygiene)
   - Cough etiquette and respiratory hygiene (see Posters at http://www.cdc.gov/flu/school/)
   - Distancing procedures – keep a 3- to 6-foot distance from others who are sneezing or coughing
   - Nonsharing practices – do not allow sharing of towels, food, drinks, or drinking cups

Expert Perspective for the H1N1 Virus

- Because H1N1 is a new type of influenza virus, we are learning about it as it develops. Check the Centers for Disease Control and Prevention Web site at http://www.cdc.gov/flu/school/ for the latest information.
- Schools should continue to clean and disinfect school buildings according to the regular schedule. **Additional disinfection beyond routine cleaning is not recommended.** High-touch surfaces and items and high-risk areas (see later discussion) should be cleaned with the agents that are routinely used for these surfaces.³
- After the H1N1 influenza virus is deposited on surfaces and objects, it can survive and potentially infect a person for up to 2 to 8 hours⁴ (other viruses can have a longer survival time). Therefore, by the time students and staff come to school in the morning, contaminated surfaces from the day before are longer infectious.
- Because the virus can live on a surface for only 2 to 8 hours, it is not necessary to disinfect an entire school building during an H1N1 flu outbreak. If there is any additional cleaning or disinfection necessary during an outbreak, it should be in select high-risk, high-touch areas (as defined below).
- If there is an outbreak of the H1N1 virus in your school, consult with your local and state health departments for guidance.
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Recommendations for Surfaces to be Cleaned and Disinfected

- Use disinfectants (preferably when no students or other staff members are present) as required by law and in high-risk areas.
- Clean high-touch surfaces or touch-points more often during the day with a third-party-certified all-purpose cleaner and a microfiber cloth.

1. Common high-touch surfaces in schools

These are surfaces that are frequently touched by a variety of hands. For example, a surface such as a desktop that is touched daily by only one student might be touched often but is not considered an area to be managed for infection control, because no one else would be exposed to those microbes. Areas that might be touched frequently by many different hands include but are not limited to

- A shared computer mouse and keyboard
- Shared musical keyboards and instruments
- Shared desks
- Doorknobs, elevator buttons, light switches, door push bars, handrails
- Faucet handles, toilet handles, toilet stall door locks, towel dispensers, hand dryers
- School bus doors and railings
- Coffee pots, microwave doors, refrigerator doors, cafeteria trays and tables

2. Common high-risk areas in schools

Some areas of a school building are of greater concern for possible transmission of disease because there is an increased likelihood of skin-to-skin, object-to-mouth, or fecal-to-oral contact. High-risk areas also include any location where food is prepared, sick or preschool children are cared for, or special incidents (such as those involving blood, feces, and vomit) have occurred. High-risk areas include but are not limited to

- Athletic departments – gym mats, exercise equipment, and shower and locker rooms
- Bathrooms, kitches, and lunch rooms
- Nurses’ offices
- Childcare and preschool centers
- School buses

Protocols

Cleaning desktops

- Wash desks with a third-party-certified all-purpose cleaner and a microfiber cloth.
- Rinse and/or wipe desks if required.
- Rinse cloth in clean water after each desk.
- Reapply the cleaning solution for the next desk or surface.
- After the cleaning process is complete, rinse out microfiber cloths and hang to dry, or leave for pick-up by the custodial staff.
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**Disinfecting touch-points by custodians**

1. First clean with a detergent and rinse or wipe surfaces. (Some disinfectants lose effectiveness in the presence of soap residue.)

2. Uniformly apply the disinfectant to a microfiber cloth (with a pump spray bottle or squirt bottle) and wipe the surface with the saturated cloth, or apply the disinfectant directly to the surface (with a squirt bottle).

3. Ensure that the surface stays wet for the length of the dwell time recommended on the label.

4. Rinse or wipe surfaces (if required) after dwell time has elapsed.

5. Rinse the microfiber cloth in clean water between uses on each touch-point, or if using the folding method, use a clean fold of the cloth for each touch-point.

6. Launder microfiber cloths as recommended by the manufacturer.

**Disinfecting in the classroom by teachers**

If the school’s disinfection policy includes the use of disinfectant products by teachers or other staff, the following guidelines apply:

1. Do not ask students to use disinfectant products. Children’s developing bodies are 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 MSDS. Provide copies of the MSDS in case of an accident in the classroom.

3. Use only nonscented 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 secure area, away from students and with other compatible chemicals. Check the product’s MSDS to determine how to safely store the disinfectant.

**Appendix A.3. References**


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3. Centers for Disease Control and Prevention, H1N1 Flu, “Preparing for the Flu: A Communication Toolkit for Schools (Grades K-12).” Available at: http://www.cdc.gov/h1n1flu/schools/toolkit/.

# Appendix A.4. Regulatory Categories and Definitions of Waste

<table>
<thead>
<tr>
<th>Definition of Waste</th>
<th>Agency/Regulation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Regulated Waste – Biohazardous Waste:</strong></td>
<td></td>
</tr>
<tr>
<td>- Liquid or semiliquid blood or other potentially infectious materials</td>
<td>Occupational Safety and Health Administration</td>
</tr>
<tr>
<td>- Contaminated items that would release blood or other potentially infectious materials in a liquid or semiliquid state if compressed</td>
<td>Bloodborne Pathogen Standard 1910.1030</td>
</tr>
<tr>
<td>- Items that are caked with dried blood or other potentially infectious materials and are capable of releasing these materials during handling</td>
<td></td>
</tr>
<tr>
<td>- Contaminated sharps</td>
<td></td>
</tr>
<tr>
<td>- Pathological and microbiological wastes containing blood or other potentially infectious materials</td>
<td></td>
</tr>
<tr>
<td><strong>Infectious or Physically Dangerous Medical or Biological Waste:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Blood and blood products:</strong></td>
<td></td>
</tr>
<tr>
<td>- Discarded bulk human blood and blood products in liquid state</td>
<td>Massachusetts Department of Public Health</td>
</tr>
<tr>
<td>- Body fluids contaminated with visible blood</td>
<td>State Sanitary Code Title VIII</td>
</tr>
<tr>
<td>- Materials saturated/dripping with blood</td>
<td>105 CMR 480.000</td>
</tr>
<tr>
<td><strong>Waste that because of its characteristics may:</strong></td>
<td>For information about California regulations, see Notesᵃ</td>
</tr>
<tr>
<td>- Cause or significantly contribute to an increase in mortality or an increase in serious irreversible or incapacitating reversible illness</td>
<td></td>
</tr>
<tr>
<td>- Pose a substantial potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed</td>
<td></td>
</tr>
<tr>
<td><strong>Physically Dangerous Medical or Biological Waste:</strong></td>
<td></td>
</tr>
<tr>
<td>- Sharps</td>
<td>Massachusetts Department of Environmental Protection</td>
</tr>
<tr>
<td>- Blood and blood products</td>
<td>310 CMR 19.000</td>
</tr>
<tr>
<td>- Pathological wastes; cultures and stocks of infectious agents and associated biologicals; contaminated animal carcasses; contaminated bedding</td>
<td>For information about California regulations, see Notesᵇ</td>
</tr>
<tr>
<td><strong>Special Waste:</strong></td>
<td></td>
</tr>
<tr>
<td>- Solid waste that is not hazardous waste pursuant to 310 CMR 30.000 and that exists in such quantity or a state that management controls are required to prevent an adverse impact from its collection, transport, transfer, storage, processing, treatment or disposal</td>
<td>Massachusetts Department of Public Health</td>
</tr>
<tr>
<td><strong>Hazardous Waste:</strong></td>
<td></td>
</tr>
<tr>
<td>- There are two ways a waste may be identified as hazardous: it may be</td>
<td>Massachusetts Department of</td>
</tr>
</tbody>
</table>

ᵃ For information about California regulations, see Notesᵃ
ᵇ For information about California regulations, see Notesᵇ
# Appendix A: Development of Protocols

## Definition of Waste

<table>
<thead>
<tr>
<th>Agency/Regulation</th>
<th>Definition of Waste</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental Protection 310 CMR 30.000</td>
<td>Listed in the regulations (310 CMR 30.131-136) or it may be defined by its hazardous characteristic (310 CMR 30.120). Many common disinfectants have these characteristics.</td>
</tr>
<tr>
<td></td>
<td>Ignitable – easily catches fire, flash point 140° F</td>
</tr>
<tr>
<td></td>
<td>Corrosive – easily corrodes materials or human tissue, very acidic or alkaline, pH ≤2 or ≥12.5</td>
</tr>
<tr>
<td></td>
<td>Reactive – explosive; produces toxic gases when mixed with water or acid)</td>
</tr>
<tr>
<td></td>
<td>Toxic – can leach toxic chemicals as determined by a special laboratory test; toxic to humans and wildlife</td>
</tr>
</tbody>
</table>

Notes:


**a**The Medical Waste Management Act (California Health and Safety Code, Sections 117600–118360) governs the management of medical waste in all jurisdictions of the state (http://www.cdph.ca.gov/certlic/medicalwaste/Documents/MedicalWaste/MedicalWasteManagementAct.pdf). This Act is overseen by the California Department of Public Health Medical Waste Management Program (http://www.cdph.ca.gov/certlic/medicalwaste/Pages/default.aspx).

**b**Enforcement of the Bloodborne Pathogen Standard in California is the responsibility of the California Occupational Safety and Health Administration. It is found in CCR Title 8, Section 5193 (http://www.cdph.ca.gov/certlic/medicalwaste/Documents/MedicalWaste/BloodbornePathogensStd.pdf).

Information about hazardous waste management in California can be accessed at the California Department of Toxic Substances Control at http://www.dtsc.ca.gov/ HazardousWaste/index.cfm.
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Appendix A.5. Understanding Hand Hygiene

Introduction
Promoting proper hand hygiene in schools is an essential part of an infection-control program. The best method for controlling the spread of colds and flu is to promote a hand washing program.

Best Practice
The Centers for Disease Control and Prevention recommends hand washing to effectively prevent transmission of infection. Best practice is to vigorously wash hands with liquid soap and water for 15 to 20 seconds (or the time it takes to sing the ABC song). Any amount of hand washing is beneficial, but the longer time is optimum.

Selecting Hand Hygiene Products
Antibacterial products were originally developed for use by surgeons and other operating room personnel to prevent bacterial infections in hospitals and health care settings. These products were then marketed to the public with claims about preventing disease. Hand hygiene products come in several forms, including soaps, gels, and wipes.

1. *Antibacterial soaps and washes* – Two of the most commonly used ingredients in antibacterial soaps are triclosan and triclocarban. An increasing number of studies show that these ingredients can be harmful to hormone development in humans and to other organisms in the environment. In 2005, a federal drug advisory panel concluded that for general use, **antibacterial soaps are no more effective than regular plain soap at removing germs.** This conclusion was confirmed by a literature review of 27 publications on this topic conducted by Aiello and colleagues. There is no benefit in using antibacterial soaps in settings other than health care.

2. *Gels and wipes* – Other common hand hygiene products such as sanitizers and wipes advertised as antibacterial or antimicrobial contain alcohol or quaternary ammonium compounds (QACs) as the effective ingredient. These products have not necessarily been tested for daily use with children or other sensitive populations. Some QACs have been associated with asthma and with fertility problems in mice. If a hand sanitizer is needed and hand washing is not an option, a nonscented, alcohol-based product (greater than 60% alcohol) made from ethanol should be selected.

Frequently Asked Questions

*What do “antimicrobial” and “antibacterial” mean?*

*Antimicrobial* means the product contains a chemical that can kill or suppress the multiplication or growth of microorganisms such as bacteria, viruses, or fungi.

*Antibacterial* means the chemical in the product kills bacteria and some but not all viruses. Colds and flu are caused by viruses, not bacteria. This is why antibacterial soaps, gels, and wipes are a limited form of hand hygiene.
What role do bacteria play in human health?

Bacteria are microorganisms that are found “on our skin, in our digestive tract, in the air, in soil, and on almost all the things we touch every day. Most are harmless (nonpathogenic). Many are helpful because they occupy ecological niches (both within our bodies and in the external environment) that could be occupied by harmful (pathogenic) bacteria. These helpful strains keep harmful microorganisms in check. They also help our digestion to function effectively and stimulate the development of a healthy immune system.”

Where should antibacterial or antimicrobial products be used and who should use them?

Antibacterial or antimicrobial products should be restricted for use in high-risk settings such as hospitals, clinics, nurse’s offices and other health care settings, prisons, and by those with weakened immune systems. In case of a pandemic flu, antimicrobial products may be appropriate. They should not be used indiscriminately in homes, schools, and offices for routine hand hygiene.

What are the safety hazards of alcohol-based hand sanitizer products?

Alcohol-based products pose several safety hazards. One concern is that children in some schools have ingested these hand sanitizers. According to the Iowa Statewide Poison Control Center, a single swallow of ethanol-based hand sanitizer could produce a blood alcohol level high enough to create ethanol intoxication symptoms in a 2-year-old child weighing 27 pounds.

Another concern is the flammability of alcohol-based hand sanitizers. These products pose a fire and explosion hazard. The wall units containing the alcohol sanitizer are referred to as “bombs on the wall,” and fire departments have concerns about having these incendiary products located and dispensed throughout school buildings.

Should antimicrobial hand sanitizers be used in schools when students do not have access to soap and water?

A hand sanitizer can kill the germs on hands if the hands are already clean. In the case of an infectious disease outbreak, a nonscented, alcohol-based (greater than 60% alcohol) hand sanitizer made from ethanol should be used.

If the hands are dirty, the sanitizer will just move that dirt around. Because the sanitizer may not remove the dirt, it may not be effective against and kill all of the microbes.

In cases of allergies to nuts, a study found that liquid and bar soaps and commercial wipes removed proteins (the allergenic component of peanuts) from hands equally well, whereas alcohol-based hand sanitizers and plain water were not as effective.

Are there any preferable alternatives when students do not have access to sinks for handwashing purposes?

Yes, environmentally preferable products are available, such as those certified under EcoLogo’s newly developed Instant Hand Antiseptic Products standard. If these are not
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readily available, look for products that do not contain added fragrances and that use bio-based ingredients.

Many products do not contain triclosan or triclocarban, including Cleanwell Botanical Hand Sanitizer, Purell Instant Hand Sanitizer, Dr. Bronner’s Magic Soaps, and products made by Nature’s Gate, Vermont Country, Naked Soap Works, MiEssence, Ivory, Paul’s Organic, Tom’s of Maine, and others.14

How can antibacterial chemicals be avoided?

When shopping, read the labels and avoid purchasing antibacterial soaps, which contain triclosan, triclocarban, and/or QACs. To assist consumers in avoiding antibacterial chemicals, the following resources provide information, such as ingredients and safety ratings, on many products.

- Beyond Pesticides Triclosan Campaign (http://www.beyondpesticides.org/antibacterial/triclosan.htm)
- Skin Deep: Cosmetic Safety Database (http://www.cosmeticsdatabase.com)
- The Good Guide (http://www.goodguide.com/)

References:

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