

TIP No. 98-120-0620

CLEANING AND DISINFECTION GUIDELINES DURING COVID-19

BACKGROUND

Social distancing and wearing face coverings are the most effective strategies for preventing the spread of COVID-19.

Even though studies have determined the Severe Acute Respiratory Syndrome (SARS)-CoV-2 virus can survive on a variety of surfaces from 24 hours up to several days, there are no studies that show individuals have contracted COVID-19 after touching contaminated surfaces. Additionally, the frequency in which common touch surfaces should be cleaned and disinfected to reduce the risk of coronavirus or other respiratory disease transmission has not been quantified. Currently, the Centers for Disease Control and Prevention (CDC) does not consider surface contact as a significant factor for COVID-19 transmission. Given these unknown factors, conducting enhanced (more frequent) cleaning and disinfection is simply a prudent public health measure that will reduce accumulation of the microbial burden on surfaces and make it even less likely for disease transmission.

Factors to consider in determining an appropriate frequency for conducting cleaning and disinfection activities in public/shared spaces outside of a medical, isolation, or quarantine setting include contact volume (number of people touching the surface), the products and time available to conduct proper cleaning and disinfection, and potential hazards to exposed personnel during application of disinfectants. The following information is provided to assist in the decision-making process related to cleaning and disinfection and can be applied to other facilities not specifically addressed in this paper.

CLEANING

Frequently wiping high-touch surfaces using a cleaning product will prevent heavy accumulation of germs on a surface and provides the lowest level of control for preventing disease transmission.

- Cleaning is the process of removing “soil” from a surface. Harmful germs are deposited on surfaces through direct contact with individuals or indirectly from bodily fluids that are aerosolized by individuals during activities. Germs can be suspended in soil, which includes dirt, dust, residues, bodily fluids (e.g., sweat, sputum, blood, and so forth), and other debris.
- Detergents (e.g., soap and any general purpose cleaner) are designed to remove soils from a surface. When surfaces are cleaned using a detergent product, some of the germs are also removed.
- Soap has been shown to be effective in damaging the viral envelope of SARS-CoV-2; therefore, application of a detergent product is an important step in the cleaning process.

SANITIZING

Sanitizing is a deliberate process in which the amount of germs on a surface is only reduced to a level that is considered safe for public health.

- Products formulated as a “sanitizer” are not as strong as “disinfectants”.
- In order to be effective, sanitizers must be applied after a surface has been cleaned.
- In facilities where there are no suspected or confirmed cases of COVID-19 among occupants and frequent (and proper) use of a disinfectant is not feasible, application of a sanitizer will provide an added level of control by reducing the microbial burden on cleaned surfaces.

DISINFECTING

Disinfection is the deliberate process of killing all of the germs on a surface. The ability for a disinfectant to kill specific pathogenic microorganisms is dependent upon the type and strength of the active (disinfecting) ingredient and the contact time (dwell time) in which the disinfecting agent must remain wet on the treated surface.

- Soil, as characterized above, creates a barrier that may prevent the disinfectant from reaching the germs we are trying to kill. To be effective, disinfectants must be applied to surfaces that have been cleaned. Some disinfectants are formulated with both cleaning and disinfecting properties and can be used without a separate pre-cleaning step.
- Many disinfectants require a clear water rinse to remove any remaining chemical residual after the appropriate contact time has been met. Failure to rinse remaining chemical residual may create a health hazard for persons who come in contact with the treated surface.
- The product label must be reviewed for instructions regarding pre-cleaning surfaces, product dilution, contact time, and rinsing after treatment.

Use of an area or room disinfecting system is not an appropriate substitute for conducting manual cleaning and disinfecting tasks. Most systems require pre-cleaning surfaces before the disinfecting system can be used effectively and are typically used in conjunction with other hands on cleaning/disinfection efforts. Some systems require wiping residual chemical/deposits off of surfaces after treatment.

- Ozone generators—refer to **APHC TIP No. 98-115-0420**, available at https://phc.amedd.army.mil/PHC%20Resource%20Library/TIP_No_98-115-0420_UseofOzoneGenerators.pdf.
- Ultraviolet (UV) light systems—refer to **APHC TIP No. 24-103-0320**, available at <https://phc.amedd.army.mil/PHC%20Resource%20Library/TIP241030320EffectivenessSafetyUVLight.pdf>.

- Electrostatic sprayers or foggers—refer to **APHC TIP No. 37-107-0420**, available at [https://phc.amedd.army.mil/PHC%20Resource%20Library/TIP_No_37-107-0420_UseofElectrostaticSprayers\(Foggers\)_April2020.pdf](https://phc.amedd.army.mil/PHC%20Resource%20Library/TIP_No_37-107-0420_UseofElectrostaticSprayers(Foggers)_April2020.pdf).
- Dry hydrogen peroxide (DHP) systems. There is currently insufficient information to demonstrate DHP devices are effective in area disinfection. Manufacturer claims have not been validated through independent studies, and there is no information demonstrating employee health would not be adversely impacted from the resulting long-term exposure to hydrogen peroxide.

NOTES

- When treating surfaces in areas where there are suspected or known coronavirus contamination (e.g., high-risk areas such as a medical facility or areas used for COVID-19 isolation and quarantine) use an U.S. Environmental Protection Agency (EPA)-registered disinfectant identified on List N as effective for SARS-Cov-2, available at <https://www.epa.gov/pesticide-registration/selected-epa-registered-disinfectants>, or refer to the list of approved products with emerging viral pathogen claim, available at <https://www.americanchemistry.com/Novel-Coronavirus-Fighting-Products-List.pdf>.
- For facilities linked to an employee or patron who has tested positive for COVID-19, follow the cleaning and disinfection guidance provided in **APHC TIP No. 98-105-0420**, *Cleaning and Disinfecting Buildings and Areas Previously Occupied by Coronavirus 2019 (COVID-19) Personnel*, available at https://phc.amedd.army.mil/PHC%20Resource%20Library/TIP_No_98-105-0420_CleaningandDisinfectingAreasOccupiedbyCOVID-19Personnel.pdf.

FACILITY CLEANING, SANITIZING, AND DISINFECTION

GYMS AND FITNESS FACILITIES

The daily high volume of personnel and rapid equipment turnover between patrons present unique challenges for conducting frequent cleaning and disinfection of common touch surfaces. Proper equipment cleaning and disinfection after each patron may not be feasible because of the time required to achieve disinfection; therefore, the following recommended actions should be implemented as a system of control to minimize the microbial burden on surfaces.

Hand hygiene. Require patrons to sanitize hands upon entering the facility and immediately before departing.

- Provide hand sanitizer (at least 60% alcohol) at facility entrances/exits.
- Ensure hand wash sinks are supplied with soap and paper towels.

Individual equipment cleaning. Require patrons to wipe down skin-contact surfaces of equipment before and after each use.

Disposable disinfecting wipes. Supplying disposable disinfecting wipes is recommended as these products contain both cleaning and disinfecting properties and do not require a rinse.

- Disinfecting wipes containing alcohol and ammonium quaternary compounds are ideal for individual use on gym equipment because they typically require the shortest contact time for disinfection.
- Multiple wipes may be needed when treating a large surface area to ensure the entire treated surface is sufficiently wetted to achieve the required disinfection time specified on the product label.
- Disinfection time for most disposable wipes is typically less than 2 minutes; treated surfaces are ready to use once the surface is dry.
- Personal protective equipment (PPE), such as gloves, are not required when using disinfecting wipes. Always review the product label before use.
- Post a sign next to each wipe station to inform patrons on proper use and to emphasize that disinfecting wipes must not be used for personal hygiene (e.g., wiping sweat off of skin).

Chlorine bleach. Chlorine bleach may be used when disposable wipes are not available. Bleach solutions should be diluted to a **sanitizing** concentration that is between 100–200 parts per million (ppm) free available chlorine (FAC). (Refer to the table for Preparing Bleach Solutions.) Chlorine is very corrosive to metal and at higher concentrations can present a skin hazard. Dilutions greater than 200 ppm will require a clear water rinse to remove corrosive and harmful residuals; therefore, using a concentration greater than 200 ppm is not recommended for individual equipment wipe-down.

- Chlorine solutions must be prepared fresh each day. The FAC concentration of the prepared solution should be verified using an appropriate test strip/paper. (Refer to TB MED 531, Table B-2, for test strip suppliers.)
- Apply a sufficient amount of bleach solution using a spray bottle and disposable paper towel to ensure a 1-minute wet contact time is achieved.
- Sanitizing bleach concentrations less than 200 ppm do not require a rinse.

CAUTION: *Ammonium quaternary compounds and bleach solutions SHOULD NOT be used concurrently on the same surface! Mixing of the two products could cause the release of toxic vapors. Bleach and ammonium quaternary compounds should not be stored in close proximity to each other.*

Common touch surfaces. Common touch surfaces that require individual wipe-down after use include but are not limited to—

- Hand grips on cardio equipment such as treadmills, bicycles, ellipticals.
- Hand grips on dumbbells, weight bars, and other strength training systems.
- Pads/cushioned components such as fitness mats, bike seats, lifting benches, and other cushioned components of strength training machines.
- Fitness balls, rope handles, and other nonporous fitness accessories.

Gym floors. Gym floors do not require application of a disinfection product.

- Mop nonporous/hard surface floors and rubber flooring (e.g., in weight and cardio rooms) at the end of each day using a detergent solution.
 - Require patrons to use an individual fitness mat when sitting on the floor to stretch or conduct exercises.
 - Patrons should clean the mat with a disinfecting wipe after use and all mats should be cleaned and disinfected at the close of business each day.
- Large area mats (e.g., wrestling mats) should be cleaned by patrons after each use and then cleaned and disinfected at the close of business each day.
- Artificial turf areas should be sprayed at the end of each day's use with a disinfecting fabric spray/aerosol product.

Facility Cleaning and Disinfection

Facility staff (or custodial personnel) conduct thorough cleaning and disinfection of all skin-contact surfaces of equipment and facilities such as saunas, showers, toilets, sinks, and locker room benches after final use each day as required in Technical Bulletin Medical (TB MED) 531, chapter 3.

Use EPA-registered disinfectants on List N: Disinfectants for Use Against SARS-CoV-2. (See NOTES, above.)

If an EPA listed product is not available, the CDC recommends using a chlorine bleach **disinfecting** solution at a dilution of 1000 ppm. (Refer to the Table for Preparing Bleach Solutions.)

- Bleach dilutions at 1000 ppm require a 1-minute wet contact time to destroy the SAR-CoV-2 virus that causes COVID-19.
- Chlorine solutions must be prepared fresh each day and the concentration verified using an appropriate test strip.
- Surfaces **disinfected** using chlorine bleach must be wiped with a clean water rinse after the 1-minute wet contact time to remove any harmful residuals.
- Reusable wiping cloths that are used to conduct cleaning and disinfection must be laundered each day.
- Application of disinfecting bleach concentrations must be conducted in a well ventilated area.
- PPE, such as gloves and face shield or goggles, are recommended when preparing and applying disinfecting bleach solutions.

Table 1. Preparing Bleach Solutions

Concentration	Bleach with 5 to 6% Sodium Hypochlorite	Bleach with 8.25% Sodium Hypochlorite
100-200 ppm	½ Tablespoon bleach per 1 gallon of water	1 teaspoon bleach per 1 gallon of water
1000 ppm	1/3 cup bleach per 1 gallon of water	3 Tablespoons bleach per 1 gallon of water

CHILD CARE AND YOUTH FACILITIES

Based on a review of the most up to date guidance from the CDC, EPA, and National Institute of Health to curtail the spread of COVID-19, the sanitation controls specified in TB MED 531, chapter 8 (Child, Youth, and School Services Facilities), are more than adequate to control the indirect spread of the virus. The following guidance is provided in addition to the criteria presented in TB MED 531.

High-touch surfaces

Conducting a thorough cleaning and disinfection of high-touch surfaces at least once daily, at the end of the day, is considered adequate. Opportunities for conducting intermediate cleaning or cleaning and sanitizing, as described under the **GYMS AND FITNESS FACILITIES, Individual equipment cleaning section**, should be incorporated during daily activities.

- High-touch surfaces that should be considered for intermediate cleaning/sanitizing include, but are not limited to; large toys, activity play centers, tables, chairs, and electronics. Wipe these surfaces following a natural break or pause in the activity, when children exit the activity room for outdoor play, or during child nap time.
- Enforce frequent hand washing, for example, when individuals enter the facility, after using the toilet, after playing outside, before and after eating, after fitness activities, after engaging in activities with other children, and before and after playing with gaming equipment or electronics.
- For electronics, follow the manufacturer’s directions for cleaning. In the absence of specific guidance, use alcohol-based wipes or sprays containing at least 70% alcohol. Never spray cleaners or disinfectants directly onto electrical devices; apply using a disposable paper towel.

Rugs, carpets, and upholstered surfaces

Steam cleaning or standard laundry processes using hot water or heated drying will effectively destroy bacteria and viruses from fabrics. Carpets and upholstered surfaces that cannot be steam cleaned should be treated/sprayed with an EPA-registered household disinfectant that will not impact/alter fabrics.

- Launder small area rugs or fabric barriers used on floors during infant tummy time or crawling activities after each use as specified in TB MED 531. Applying bleach or other laundry sanitizing agents is not required.
- Treat carpets and large area rugs located in child activity rooms with a disinfecting fabric spray/aerosol product at the end of each day.
- Spot contamination on carpets or upholstered surfaces should be cleaned using appropriate detergents or steam cleaning. Ensure the treated surface is completely dry before next use.

Outdoor play equipment

The CDC does not advocate disinfecting outdoor surfaces. Playgrounds **in schools and parks** generally require **normal routine cleaning** but **do not require disinfection**.

- Clean playground equipment at least once daily or after peak usage periods.
- Use a wiping cloth with a detergent solution to wipe down high touch surfaces such as metal or plastic grab bars and railings.

Wiping cloths

Wiping cloths used for cleaning must be laundered daily.

- Wiping cloths that are used to conduct general facility cleaning and disinfection must not be used for cleaning and sanitizing food-contact surfaces.

RECREATIONAL WATER FACILITIES

According to the CDC, “there is no evidence that the virus that causes COVID-19 can spread directly to humans from water in pools, hot tubs, spas, or water play areas. Conduct daily cleaning and disinfection of bathhouse facilities such as toilet rooms, showers, diaper-changing stations, and locker room benches, as specified in TB MED 575. Include high-touch surfaces such as door handles/knobs/push levers, light switches, pool handrails, and other handrails associated with pool slides and climbing or play structures.

- Maintaining adequate levels of disinfectant residual in recreational waters as specified in TB MED 575 should kill the virus that causes COVID-19.
- Discourage patrons from sharing items that may or are meant to come in contact with the face (for example, towels, goggles, nose clips, and snorkels).
- Provide disposable disinfecting wipes for patrons to wipe shared objects in pool area such as lounge chairs, tabletops, and kickboards, before use by a different person.
- Shared objects in pool area should also be cleaned and disinfected at the end of day.

PARKS AND PLAYGROUNDS

According to the CDC, “outdoor areas generally require normal routine cleaning and do not require disinfection. Spraying disinfectant on sidewalks and in parks is not an efficient use of disinfectant supplies and has not been proven to reduce the risk of COVID-19 to the public.” Maintain existing sanitation and hygiene practices for outdoor areas.

- Patrons should maintain social distancing when visiting parks and playgrounds. When appropriate social distancing cannot be achieved, children and adults should wear a cloth face covering.
- Facility managers must ensure restrooms are properly stocked with hand soap and paper towels for patron use.
- Clean and sanitize toilets, handicap rails, sinks and fixtures, door handles/knobs/push levers, and light switches daily.
- Patrons should be encouraged to carry their own hand sanitizers containing at least 60% alcohol for use after playing on equipment and before eating.

ADMINISTRATIVE WORKPLACES

- Facility custodians should clean and disinfect high-touch surfaces located in common areas of the work environment at least once daily during active work days. Toilet rooms and showers should also be cleaned and disinfected daily.
- Facility employees should conduct daily cleaning and disinfection of high-touch surfaces within their personal work spaces.
- Disposable disinfecting wipes should be made readily available in common areas of the facility.
 - Employees should be encouraged to wipe high-touch surfaces of common-use office equipment before each use.
 - All common-use equipment should be cleaned with a disinfecting wipe at least once daily, at the end of the day.
- High-touch surfaces commonly associated with administrative workplaces include, but are not limited to—
 - Common Office Spaces: door handles/knobs/push bars; elevator controls; window lifts and sash locks; blind pulls/cords; fax/printer/copier cover, keypad/touchscreen, and paper drawer; paper cutters; hole punches; staplers.
 - Individual Office Areas: light switches; keyboards; phones; computer screens; mouse; chair armrest; desk/file cabinet drawers and handles.
 - Conference Rooms: tabletop; chair backs and armrests; spider/conference phone and microphone extensions; computer keyboard, mouse, and screen; remote controls; whiteboard markers.
 - Kitchens: refrigerator sides and handles; (bulk) water dispenser levers; light switches; microwave oven door and controls; toaster/toaster oven handles and controls; tabletops, chair backs and armrests; sink fixtures; countertops; trash container; recycling bin.

- **Restrooms:** sink fixtures; towel dispensers; soap dispensers; countertops; stall doors; handles; hand rails; toilet handles; shower fixtures and doors; shower walls/floor; trash container.

FOOD SERVICE AND FOOD RETAIL FACILITIES

Refer to the following references for guidance:

- **APHC Fact Sheet No. 91-002-0320**, Enhanced Sanitation Practices for Food Establishments in Response to COVID-19, available at: https://phc.amedd.army.mil/PHC%20Resource%20Library/EnhancedSanitationPracticesforFoodEstablishmentsinResponsetoCOVID-19_FS_91-002-0320.pdf.
- **APHC TIP No. 98-117-0520**, Guidelines for Reopening and Safely Operating Food Service Facilities during COVID-19, available at: https://phc.amedd.army.mil/PHC%20Resource%20Library/TIP_No_98-117-0520_GuidelinesforReopeningandSafelyOperatingFoodFacilities.pdf.

REFERENCES

- CDC, Guidance for Cleaning and Disinfection, available at https://www.cdc.gov/coronavirus/2019-ncov/community/pdf/Reopening_America_Guidance.pdf.
- CDC, Considerations for Public Pools, Hot Tubs, and Water Playgrounds during COVID-19, available at <https://www.cdc.gov/coronavirus/2019-ncov/community/parks-rec/aquatic-venues.html>.
- TB MED 531, Facility Sanitation Controls and Inspections, available at https://armypubs.army.mil/epubs/DR_pubs/DR_a/pdf/web/ARN16903_tbmed531_FIN_AL.pdf.
- TB MED 575, Recreational Water Facilities, available at https://armypubs.army.mil/epubs/DR_pubs/DR_a/pdf/web/tbmed575.pdf.

Prepared by: C. Kalinowski

Dated: 3 June 2020