

Six Building Blocks of a Robust Cleaning and Disinfection Program

A Guide for Employers



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Building a Robust Cleaning and Disinfection Program

The COVID-19 pandemic has created a number of ongoing challenges for employers to navigate as businesses reopen, employees return to onsite work and people return to shared and public spaces. People are anxious about the safety of shared spaces and seek validation that a space has been cleaned and disinfected before they enter. More employees are participating in the cleaning and disinfection process and need resources to help them effectively complete these tasks.

Clorox, a trusted leader in cleaning and disinfection, and Cleveland Clinic, internationally respected as a leader in quality and safety outcomes, have joined forces to develop this free resource to help employers across the U.S. provide the highest standards of clean to their employees and customers.

We understand clean environments enable people to thrive and designed six building blocks to help employers master the 3Ps of a robust cleaning and disinfection program:

1. Training **people** and dedicating resources to the cleaning and disinfection process
2. Selecting **products** to enable effective cleaning and disinfection
3. Developing a sustainable **process** for creating and maintaining a safe environment

This guide is intended to complement existing resources from Cleveland Clinic and the content was adapted from the Centers for Disease Control & Prevention's [Best Practices for Environmental Cleaning in Healthcare Facilities in Resource-Limited Settings](#) and [Guidance for Cleaning & Disinfecting Public Spaces, Workplaces, Businesses, Schools and Homes](#).

As you implement the six building blocks outlined in this guide, you will be able to create, evaluate and strengthen your environmental cleaning and disinfection program, and help control the spread of disease-causing microorganisms, or pathogens, on surfaces throughout your facility.



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The Six Building Blocks

Effective infection prevention and control measures require an established, well-managed environmental cleaning and disinfection program, implemented as a layer of protection within broader safety efforts. Cleaning removes dust, debris and dirt from a surface by scrubbing, washing and rinsing and is an important first step for all surfaces. Disinfecting, when properly performed, destroys or inactivates bacteria and viruses identified on the product’s label (like *E. coli* or influenza virus) on hard, nonporous surfaces. Proper disinfection of hard, nonporous surfaces is one of the most reliable ways to help lower the risk of spreading germs, also known as pathogens, from surfaces by touch.

A robust environmental cleaning and disinfection program is comprised of six building blocks.



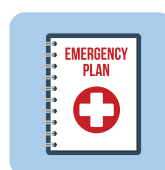
Organizational support



Policies



Product selection



Procedures



Education & training



Monitoring

The purpose of this guide is to provide best practices for cleaning and disinfecting the workplace. Any other infection control measures discussed in this guide should be performed under guidance put forth by the CDC and local, state, and federal health officials.

Organizational Support

Strong organizational support, starting at the leadership level, is vital to the development and ongoing success of an environmental cleaning and disinfection program. A strong program on paper that is backed by strong organizational and leadership support will have the greatest chance at succeeding long term.

Strong organizational support typically consists of four elements:



Designated leader

Lead the development, implementation and maintenance of the program



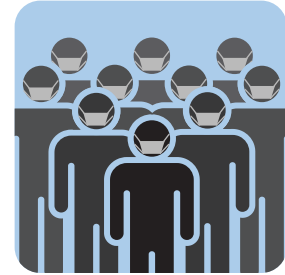
Collaboration across key stakeholders

Strong support from key stakeholders is critical to the program's sustained success



Annual budget

Covers the cost associated with executing the program



Staffing

Culture of support and adequate staffing to keep staff engaged

- › **Designated leader.** A single person should be assigned to oversee the development, implementation and maintenance of the environmental cleaning and disinfection program in your facility. It is essential to give one person visibility to all components of the program to ensure they work well together. This person may be the facility manager.
- › **Communication and collaboration.** Strong communication and collaboration across key stakeholders is needed to develop and implement the program and is vital to the program's success. Be sure to have all facility stakeholders involved during the development of the program, including but not limited to maintenance, facility management, employee health and safety and human resources. Conduct routine meetings at least monthly with these key stakeholders to discuss progress, changes and/or solicit feedback and celebrate successes once the program is implemented. Finally, communicate to the building occupants the actions that are being taken to help create a safe and healthy environment, and update them regularly as changes are made and situations evolve. If outsourcing cleaning and

disinfecting to an external company, the designated program leader should meet with the contractor monthly at a minimum to review performance.

- › **Annual budget.** To initiate and sustain a robust cleaning and disinfection program, an appropriate budget that covers costs (e.g., personnel, staff education and training, cleaning supplies and equipment, and compliance monitoring) is needed.
- › **Staffing.** A culture of support for cleaning and disinfection starts by telling people involved how much they are appreciated and that they play a critical role in keeping their workplace safe. Adequate staffing, including an on-site supervisor, is also vital to the program's success. While the required number of cleaning staff will vary by facility, there are various methods and tools available to help facilities make these determinations, such as calculating the cleanable square footage and applying the industry standard of labor per square footage.

Policies

A robust environmental cleaning and disinfection program has a set of policies, providing the standard to which the staff involved will perform. The policies explain “WHAT” should be done while the procedures explain “HOW” they will be done.

The policies should address seven areas:

| | | | | | | | |
|--|---|--|--|--|--|--|------------------------|
| | <ul style="list-style-type: none"> • Roles and responsibilities • Reporting lines | | <p>Cleaning & disinfection schedule</p> <ul style="list-style-type: none"> • Frequency • Method (product and process) • Staff responsible | | <p>Cleaning requirements and other measures during emergencies and outbreaks</p> | | |
| | <p>List of approved products and equipment</p> | | <ul style="list-style-type: none"> • List of PPE • Hand hygiene | | <p>Training plan</p> | | <p>Monitoring plan</p> |

- › **Roles and responsibilities.** Policies should outline roles, responsibilities, accountability and functional reporting lines of everyone involved in the cleaning and disinfection program. A clearly defined organizational structure should also guide to whom issues and concerns should be reported.
- › **Cleaning and disinfection schedule.** Policies should include schedules for every area that needs to be cleaned and disinfected. A schedule should include where, what, when, how and by whom the tasks are to be completed. This can be organized in a grid format so all relevant information by area that requires cleaning and disinfection are in a single document.

Practical tips:

- Common and public areas should be cleaned and disinfected at least once per day.
- Public restrooms should be cleaned and disinfected at least once per shift.
- Adjust frequency of cleaning and disinfecting based on external factors, such as when local outbreaks occur or when there are blood or body fluid spills.
- Regularly disinfect frequently touched surfaces.

- › **Emergency plan and required cleaning.** Policies should explain the plans and reference the appropriate protocols to address emergency situations, including outbreaks. Leverage resources from the CDC, local government and public health officials when developing an emergency plan.
- › **List of approved cleaning and disinfecting products, supplies and equipment.** For each product on the list, document the manufacturer, item number, where the product can be purchased and any acceptable substitutes in case of supply shortages. Document details about product safety, storage and disposal as outlined on product label and to comply with local regulations.
- › **Personal protective equipment (PPE) and hand hygiene expectations.** Details about PPE requirements for specific cleaning and disinfecting products, tasks and situations, as well as expectations about hand hygiene should be documented in the policies.
- › **Education and training.** Training requirements, including frequency, methodology and performance standards should be documented in the policies.
- › **Monitoring and auditing.** Policies should also explain the monitoring and auditing plans, including methods, frequency and staff responsible for conducting program monitoring and auditing.

Product Selection

A variety of products may be required within a facility to accomplish the cleaning and disinfection tasks. When selecting cleaning and disinfecting products, as well as tools to perform these tasks, profiling the building and documenting the unique needs and challenges of the facility is the first step.

The following questions can help:

- › What is the building occupancy and how are different areas being used?
- › What are the frequently touched surfaces and shared pieces of equipment in the building?
- › What types of surfaces require cleaning and disinfecting (e.g., plastic, stainless steel, glass and wood)?
- › What types of soil need to be removed (e.g., grease, soap scum, coffee stains)?
- › What are the key pathogens, including seasonal (e.g., influenza virus A & B) and emerging pathogens (e.g. SARS-CoV-2, the virus that causes COVID-19) that pose a risk to the facility?
- › Does the facility deal with blood or other body fluid spills?
- › Does the facility require cleaning and disinfection in any areas with limited air circulation?

Answers to these questions should help narrow down the types of products and tools you'll need to clean and disinfect. Once there is a good understanding of the facility's needs, there are additional considerations for selecting cleaning and disinfecting products. It is important to know who will be using the products (e.g., trained professional cleaning staff or other employees) when making such selections as some products are geared more toward professional use. The following questions can further help with selecting appropriate products:

- › Which product format is easy to use for cleaning and disinfection tasks?
- › Does a product meet the facility's specific safety concerns?
- › What product odor is acceptable to both the building occupants and cleaning and disinfecting staff?
- › Does product usage comply with local, state, federal or industry regulations (i.e., OSHA Bloodborne Pathogens Standard)?



Types of cleaning/disinfecting products

| | Ready-to-use sprays | Ready-to-use wipes | Ready-to-use aerosol | Dilution control system | Concentrates | Tablets/powder |
|-------------|--|---|---|--|--|---|
| | Cleaning/disinfecting product in liquid form that does not require dilution and is ready to spray | Cleaning/disinfecting product that does not require dilution and is saturated into wipes | Cleaning/disinfecting product that does not require dilution in an aerosol can | A system that takes concentrated cleaning/disinfecting product in a liquid form and dilute it with water using a dispenser to create a ready-to-use solution | Concentrated cleaning/disinfecting product in liquid form that require manual dilution with water to create a ready-to-use solution | Concentrated cleaning/disinfecting product in a solid form that requires manual dilution with water to create a ready-to-use solution |
| Pros | <ul style="list-style-type: none"> • Time and labor savings • Avoids dilution errors | <ul style="list-style-type: none"> • Time and labor savings • Avoids dilution errors • Convenience | <ul style="list-style-type: none"> • Time and labor savings • Avoids dilution errors • Fast application | <ul style="list-style-type: none"> • Economical • Accurate dilution | <ul style="list-style-type: none"> • Economical | <ul style="list-style-type: none"> • Less hazardous to handle |
| Cons | <ul style="list-style-type: none"> • Higher cost than concentrates | <ul style="list-style-type: none"> • Higher cost than concentrates • Generates additional waste | <ul style="list-style-type: none"> • Higher cost than concentrates • Flammable • Volatile Organic Compound use | <ul style="list-style-type: none"> • Requires maintenance • Requires training | <ul style="list-style-type: none"> • Prone to dilution errors • Requires training • Potential exposure to concentrated products | <ul style="list-style-type: none"> • Prone to dilution errors |

When specifically selecting a disinfectant, always read the product label and consider the following:

- › **Kill claims.** Select an EPA-registered disinfectant that kills the pathogens of most concern for the facility when used as directed. If in doubt, contact the disinfectant manufacturer for a list of kill claims.
- › **Contact or dwell time.** This is the amount of time that the disinfectant needs to stay wet on a surface in order to ensure antimicrobial efficacy. Disinfectants currently on the market typically have contact times ranging from several seconds to many minutes. The contact time will vary by product and by pathogen. Selecting a disinfectant with shorter contact times, but is still effective against the targeted pathogen(s), will help with compliance.
- › **Wet time.** Use a product that keeps the surface wet for the duration of the contact time with a single product application so reapplication is not required.
- › **Other considerations** include surface compatibility, flammability and multi-use products that both clean and disinfect.

Practical tip:

If viruses are a concern at your facility, remember to disinfect – not sanitize. The main difference is that EPA-approved sanitizers only have claims for bacteria, while disinfectants have claims against both bacteria and viruses.

COVID-19 tip:

When selecting a disinfectant to help prevent the spread of COVID-19, reference the U.S. Environmental Protection Agency’s [List N](#), a list of approved disinfectants that meet EPA’s criteria for use against SARS-CoV-2, the virus that causes COVID-19.



Tool and equipment selection are also important in effectively performing cleaning and disinfection tasks. There are also newer technologies on the market that can supplement manual cleaning and disinfection [see table below]. Some considerations for tool and equipment selection include:

- › **Ergonomics.** Cleaning and disinfecting tasks can be physically demanding, so select tools that are lightweight and designed to help prevent repetitive stress injuries.
- › **Safety and efficacy.** Request test results and potentially third-party validation of equipment safety and efficacy. Marketing claims for many pieces of equipment (e.g., floor cleaning machines or electrostatic sprayers) do not undergo regulatory preapproval; therefore, it is important to ensure manufacturer claims are well-substantiated.
- › **Ease of use and maintenance.** Select equipment that is easy to operate and maintain. It is also important that the equipment is easy to clean and disinfect to prevent cross-contamination.
- › **Durability.** Select tools and equipment that are durable enough to withstand the daily grind of cleaning and disinfecting.

Disinfection Technologies

| | Electrostatic | UV (whole room) | Fogger (whole room) |
|-------------|---|--|--|
| | System in which the device electrically charges the disinfectant, ensuring that the product adheres and coats the front, sides and back of surfaces | Device exposes UV-C light to inactivate microorganisms | Device disperses the disinfectant into the air in a fine mist to reduce the number of airborne micro-organisms and apply disinfectant to surfaces |
| Pros | <ul style="list-style-type: none"> • Superior surface coverage • Fast application | <ul style="list-style-type: none"> • No cleaning products required • No residue build-up | <ul style="list-style-type: none"> • Superior surface compatibility • Fast surface dry time |
| Cons | <ul style="list-style-type: none"> • Device is not EPA-registered, which can result in variability in performance by manufacturer* | <ul style="list-style-type: none"> • Device is not EPA-registered, which can result in variability in performance by manufacturer • Disinfects only the surfaces that directly face the UV light | <ul style="list-style-type: none"> • Device is not EPA-registered, which can result in variability in performance by manufacturer* • Multiple steps to prepare the room • Long room re-entry time |

*While a device is not EPA-registered, the disinfectant that is used through the device should be EPA-registered.



Procedures

Procedures provide detailed instructions on how to execute cleaning and disinfection tasks by area and in specific situations. For example, one procedure might outline day-to-day routine cleaning and disinfecting of common areas, another would include details for cleaning up blood or body fluid spills, and another could address cleaning and disinfecting during outbreak situations. The specific procedures will depend on the type of business and facility.

Cleaning and disinfection procedures should be specific and easy to follow for all team members involved in the cleaning and disinfection process. The use of visuals to explain the procedures are highly recommended. Procedures can also be turned into job aids such as checklists, cleaning logs, cart references and posters to deliver better compliance.

Each procedure should include three sections:

Prepare

- › Start with a list of supplies and equipment needed to perform assigned cleaning and disinfecting tasks. The preparation step should also include what Personal Protective Equipment (PPE) to wear, when to perform hand hygiene, and how to prepare the cleaning and disinfecting products and equipment if needed.

Clean and disinfect

- › This portion of the procedure should specify the location, timing and specific surfaces to be cleaned and disinfected and by whom. It should also list supplies and tools needed as well as the step-by-step process to clean and disinfect a specific area.

Finish/wrap-up

- › The final steps of a cleaning and disinfection procedure should include cleaning and disinfecting any reusable tools and equipment, proper removal of PPE and hand hygiene. Include details about where products should be stored when not in use and how to properly store cleaning and disinfecting products and containers.

Additional considerations for developing a procedure:

- › **Evaluate a space and identify surfaces that may be touched by multiple people** throughout the day and therefore may require additional cleaning and disinfecting.
- › **Decide when and how often surfaces should be cleaned and disinfected.** In general, determine the frequency of cleaning and disinfecting of an area based on the probability of contamination with pathogens (e.g., does an area have high, medium or low exposure to contaminants?), susceptibility of the building occupants (e.g., is a facility occupied by people with weakened immune systems?) and potential exposure (e.g., does an area have many frequently touched surfaces?).

Practical tips:

- For shared and public areas, focus cleaning and disinfecting on frequently touched surfaces.
- For public restrooms, all surfaces, including the floor should be cleaned and disinfected due to high traffic and potential exposure to contaminants.

For example, an area with high probability of contamination with many frequently touched surfaces that is occupied by people with health issues can be cleaned and disinfected much more frequently (e.g., a hospital emergency room) than an area with lower probability of contamination with limited frequently touched surfaces occupied by generally healthy people (e.g., the hallway of an office building).

- › **Determine the step-by-step process of cleaning and disinfecting.** In general, it is good practice to develop procedures that also incorporate the directions for use found on the product label.

Regularly disinfect surfaces that are frequently touched:



Proper cleaning and disinfecting generally follows these five steps.



1. Put on PPE



2. Remove soil (clean)



3. Apply disinfectant (disinfect)



4. Wait (contact time)



5. Discard or reprocess tools

Cleaning and disinfection best practices:

- Clean and disinfect in an organized and methodical manner so that surfaces are not missed (e.g., clean and disinfect the room in a clockwise manner; break the room up into sections and clean and disinfect one section at a time).
- Clean and disinfect from high to low areas so that any dirt or dust that can contain microorganisms dislodged from above and is removed when lower surfaces are cleaned.
- Disinfect surfaces from “clean” areas to “dirty” areas (e.g., in a public restroom, disinfect the sink area first and then the toilet area) to minimize cross-contamination.
- Avoid wiping two different surfaces with the same cloth or wipe to minimize cross-contamination. Fold cloth or wipes to match the size of the hand, and use a clean side for each new surface.
- Use a cleaner disinfectant (i.e., a single product that can both clean and disinfect rather than purchasing a cleaner and a disinfectant) to streamline your product supply chain and free up storage space.
- Soft surfaces should be laundered. If laundering is not possible, consider sanitizing the surface or replacing with hard, non-porous surfaces that can be more easily cleaned and disinfected.



- For electronic devices, review device cleaning and care instructions and the manufacturer's warranty prior to cleaning and disinfecting.
- Read and follow the product label, paying special attention to the precautionary statements — including PPE needed — to safely handle cleaning and disinfecting products.



Education and Training

Education and training are critical to any cleaning and disinfection program. All employees involved in cleaning and disinfecting should understand how these tasks help prevent the spread of pathogens. They should also learn the proper cleaning and disinfection techniques and correct handling procedures of the products used, as well as their roles and responsibilities as it relates to cleaning and disinfecting a facility.

Education and training should be mandatory and conducted at least four different times, including at the time of initial hiring, annually, when any significant aspect of the procedures change, or when gaps are identified and need to be addressed. Training should also be structured, targeted and delivered in a way that builds competency. For example, depending on the learning objectives and the training content, on-the-job training maybe more appropriate than a classroom-based lecture.

Practical tips:

Components of an effective education and training program include:

- Understanding basic infection prevention and control principles (e.g., how pathogens are transmitted, how to prevent the spread of infectious diseases).
- Knowing the facility layout and key areas to be cleaned and disinfected.
- Safe and proper use of products including a review of each product's direction for use and Safety Data Sheets (SDS).
- Proper storage of cleaning and disinfecting products, including keeping products in secured areas when not in use, and complying with local, state and federal regulations for chemical disposal.
- Reviewing cleaning and disinfection procedures and hands-on practice.
- Training on special jobs, if applicable, such as blood and body fluid clean-up and use of specialized equipment.

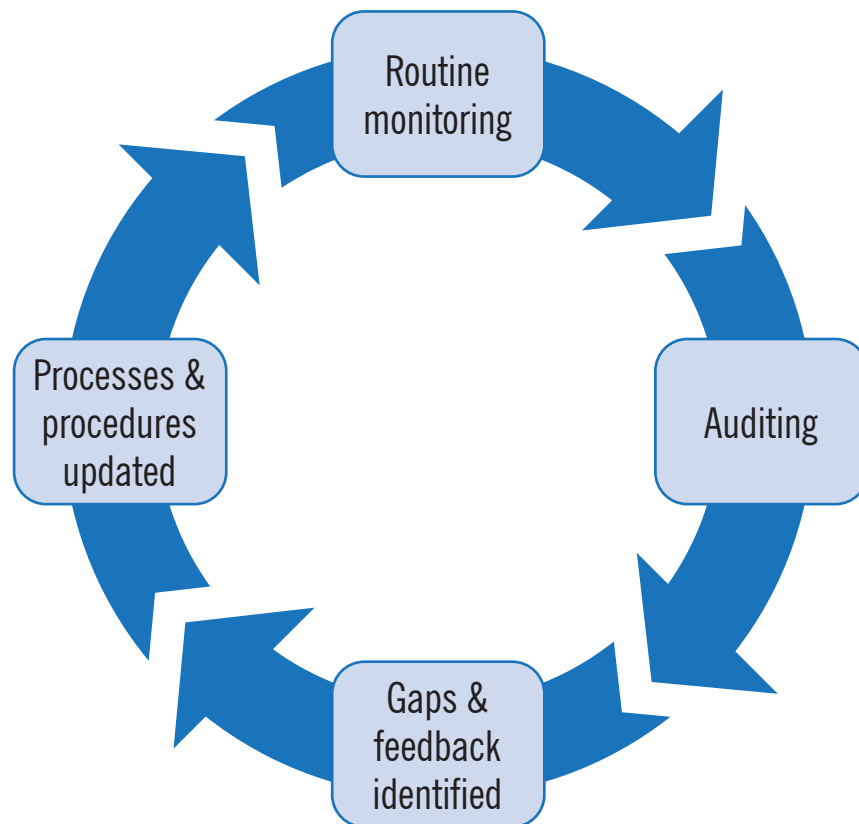
Monitoring, Auditing and Continuous Improvement

Monitoring, auditing and continuous improvement are the final critical components to operating a robust environmental cleaning and disinfection program.

Monitoring verifies that education and training programs are effective and that cleaning tasks are done according to documented procedures. A good monitoring program should be performed on an ongoing basis and include a standardized and documented approach. This will allow for multiple members of the team to perform monitoring, as well as allow management to compare results over time. At a minimum, monitoring should involve visual inspection and direct performance observation. If additional resources are available, the use of fluorescent marking technology, Adenosine triphosphate (ATP) devices and/or periodic microbiological monitoring via swab testing can be considered. A good monitoring program should also include feedback to managers from those doing the cleaning.

Auditing refers to the review of the entire program, and helps to identify areas for improvement at the program level. Audits should be performed at least once per year and by someone who is not directly involved with the program. Just as with monitoring, it is important to have a written audit plan that specifies the methods used, person responsible for the audit and the frequency of the audits.

The results of an organization’s monitoring and auditing efforts should be used to drive continuous improvement. Feedback to team members involved in the cleaning and disinfecting process and program leadership should be timely and constructive. Results should also be used to identify knowledge gaps, address employee concerns and update the education and training aspects of the program.



Notes

The response to the COVID-19 pandemic is continuously evolving as we learn more about the virus and the best techniques to address the associated risks. These materials are based on currently available data and guidelines from the CDC and other resources as of June 30, 2020. This guidance may change from time to time and should be used only as a general reference. Employers are solely responsible for determining the best practices to deploy within their work environments.

Please visit clevelandclinic.org/Covid19atwork for the latest updates or to request additional information.

About Cleveland Clinic

Cleveland Clinic is a nonprofit, multi-specialty academic medical center that integrates clinical and hospital care with research and education. Cleveland Clinic was founded in 1921 by four renowned physicians with a vision of providing outstanding patient care based upon the principles of cooperation, compassion and innovation. Today, Cleveland Clinic is one of the largest and most respected hospitals in the country.

U.S. News & World Report consistently names Cleveland Clinic as one of the nation's best hospitals in its annual "America's Best Hospitals" survey. Each year thousands of patients travel to Cleveland Clinic from every state in the nation and more than 180 countries around the world. Cleveland Clinic has been partnering directly with employers for more than 50 years with programs focused on executive health, wellness and expert second opinions.

If you are interested in learning more about Cleveland Clinic's Employer Solutions, please visit: <https://my.clevelandclinic.org/departments/employer-healthcare-solutions>.

About The Clorox Company

The Clorox Company is a leading multinational manufacturer and marketer of consumer and professional products. Founded in 1913, Clorox has a century-long legacy in health and wellness, starting with its namesake bleach and evolving to include other products in its portfolio that can make a meaningful difference in people's lives. They include some of the most trusted and recognized consumer brand names, such as Clorox® cleaning and disinfecting products; Brita® water-filtration products; Burt's Bees® natural personal care products; RenewLife® digestive health products; and Rainbow Light®, Natural Vitality™ and NeoCell® dietary supplements. The company also markets industry-leading products and technologies for professional customers, including those sold under the CloroxPro™ and Clorox Healthcare® brand names.

For more information about how to cope
with the COVID-19 pandemic,
visit clevelandclinic.org/copingwithcovid19.

