

A man with brown hair, wearing a white lab coat over a blue patterned tie and white shirt, is seated at a dark wooden desk. He is smiling at the camera. The background wall is covered with numerous framed certificates and diplomas. On the desk in front of him are several framed photographs of people. The lab coat has a 'Mount Sinai Hospital' logo on the left chest and a name tag on the right chest that reads 'Baran Lerner, M.D., Professor of Orthopedic Surgery, Spine Services'.

# GUIDANCE FOR CLEANING, DISINFECTING AND DECONTAMINATING HEALTHCARE FACILITIES

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# HEALTHCARE FACILITIES LEAD THE WAY IN DISINFECTING

The U.S. healthcare industry was deeply affected by the COVID-19 pandemic. Over 35 million people are admitted to one the roughly 6,000 hospitals in the U.S. in a given year. When the pandemic struck this country, many people delayed non-elective surgeries, affecting both quality of life for many Americans and creating deep losses for hospitals. The American Hospital Association estimates that between March 1 and June 30 of 2020 the U.S. health system lost over \$200 billion. This financial loss has placed a tremendous strain on the healthcare system.

As the public becomes more willing to visit a hospital, Risk Management must take every precaution to demonstrate how they are proactively working to make the hospital a safe and healthy environment against the pandemic.

This guide will help you ensure that best practices in cleaning and disinfecting are being used by your staff. Following these protocols can give guests and staff the confidence to know that management is executing thorough and complete care in protecting against viruses such as SARS-CoV-2, the virus that causes COVID-19.

Always follow the policies, procedures and controls of your medical facility when it comes to health and safety and the use of disinfectants and decontaminants.

In the pages that follow, we offer a set of protocols, practices and information that will help you to develop a plan to meet your specific needs for infection control using disinfectants and decontaminants.

## FOUR STEPS TO CREATING A HEALTHY ENVIRONMENT

1. Conduct Your Site Assessment
2. Select Your Antimicrobial
3. Design Your Delivery System
4. Execute Your Plan

# CONDUCT YOUR SITE ASSESSMENT



## WALK THE HOSPITAL, TAKING NOTE OF HIGHLY-TRAFFICKED AREAS

When assessing a property, there are a host of issues to consider.

Walk the hospital, taking note of areas that are highly trafficked by patients, visitors and staff, such as the lobby, public restrooms, patient rooms, front desk, staff breakrooms, lunchrooms, the laundry room, and water fountains. Remember to include a plan for decontaminating ventilations systems.



\* Available at [artemisbiolsolutions.com](http://artemisbiolsolutions.com)

Collect surface sample swabs with an ATP (adenosine triphosphate) meter, such as the Hygiena Systemsure Plus, in order to gauge levels of biomass on surfaces throughout the facility. Biomass is simply the number of organisms on a particular surface or in an area, and assessing its level will dictate how much pre-cleaning should be done before disinfecting or decontaminating a surface or area.

## FOLLOW HOSPITAL POLICIES, PROTOCOLS AND PROCEDURES

Most hospitals have developed policies, protocols and procedures to comply with federal laws and OSHA standards. Always follow company policies, protocol and procedures, along with applicable laws.

## CONSIDER THE TIME REQUIRED TO DISINFECT THE PROPERTY

When planning for cleaning, disinfecting and decontamination procedures, consider and plan for the time needed to properly do the job.'

Consider the following questions:

- ▲ Can the space be vacated? And is that a requirement?
- ▲ Is there a need to work in zones?
- ▲ Can sufficient cleaning, disinfecting and decontamination be done in-between shifts?
- ▲ Are there any HVAC concerns?
  - ▲ Is treatment of ductwork and air handler unit (AHU) an option?
  - ▲ Should the system be turned off during application?
  - ▲ Can the system be turned on right after treatment to incorporate some of the antimicrobial product to provide light disinfection in the duct system?
- ▲ Do smoke/alarm detection devices or sensors in the space need to be treated?
- ▲ Do textiles in the space that require chemical compatibility testing?
- ▲ What, if any, are the post remediation verification (PRV) requirements?
  - ▲ Air sampling for the presence of fungal or bacterial CFUs
  - ▲ Visual inspection
  - ▲ Presence of chemicals or gas

# SELECT YOUR ANTIMICROBIAL



# THE GOAL IS TO CHOOSE AN ANTIMICROBIAL THAT IS HIGHLY EFFECTIVE AGAINST PATHOGENS YET POSES MINIMAL RISKS TO HUMAN HEALTH OR DAMAGE TO SURFACES AND EQUIPMENT.

A pathogen is an organism that causes disease. Once the pathogen sets itself up in a host's body, it uses the body's resources to replicate before exiting and spreading to a new host. Pathogens can be transmitted through skin contact, bodily fluids, airborne particles, contact with feces and touching a surface touched by an infected person.

## FOUR COMMON PATHOGENS

### VIRUSES

Viruses are made up of genetic code, such as DNA or RNA, and protected by a coating of protein. Antibiotics are ineffective as a treatment for viral infections. Antiviral medications can sometimes be used.

### Examples

- COVID-19, SARS
- Meningitis
- Chickenpox/shingles
- Measles
- Hepatitis A, B, C, D, E
- HIV and AIDS

### BACTERIA

Bacteria are microorganisms made of a single cell. They are diverse and can live in just about any environment. Not all bacteria cause infections. Those that can are called pathogenic bacteria.

- Strep throat
- Bacterial meningitis
- Lyme disease
- Tuberculosis
- Gonorrhea
- Cellulitis

### FUNGI

There are millions of fungal species, but only about 300 are known to cause illness. Fungi can be found virtually everywhere, including indoors, outdoors and on human skin, and cause infection when they overgrow.

- Vaginal yeast infections
- Thrush
- Ringworm
- Athlete's foot
- Jock itch
- Onychomycosis

### PARASITES

Parasites live in or on a host. Three parasites that can cause disease are protozoa (single-celled organisms), helminths (commonly known as worms) and ectoparasites (organisms that live on or feed off your skin).

- Giardiasis
- Trichomoniasis
- Malaria
- Toxoplasmosis
- Intestinal worms
- Public lice

## FIRST, DETERMINE WHICH PATHOGENS YOU NEED TO KILL

The choice of any antimicrobial product will depend on the type of contaminate you hope to eradicate. Some pathogens are relatively easy to kill, while others are resistant to commonly used disinfectants and decontaminants.

When choosing an antimicrobial, your goal should be to always choose a disinfectant or decontaminate that is highly effective against the pathogen yet poses minimal risks to human health or damage to surfaces and equipment.







Always read the product's EPA-

registration label for a list of pathogens that the product kills. Label claims are based on standardized tests conducted at a GLP laboratory for efficacy (the ability to kill) against pathogens. Also read the product's SDS (safety data sheet) because some products can pose health hazards and cause corrosion to surfaces.

Not all antimicrobial products are alike. The chart below is a guide to the different types of products used in infection control. From cleaners to sterilants, the product you use should be based on the type of pathogen to eradicate.

## TYPES OF INFECTION CONTROL PRODUCTS

There are six general types of infection control products. The effectiveness of the infection control product will depend on the type of biohazardous material involved.

| CLEANERS  | SANITIZERS   | DISINFECTANTS   | VIRUCIDES   | TUBERCULOCIDES   | STERILANTS   |
|---|--|---|---|--|--|
| Aid in soil removal   | Reduce number of bacteria  | Kill viruses, bacteria and fungi  | Kill viruses  | Kills mycobacteria   | Eliminate viruses, fungi, bacteria & spores  |
|                       |   |                      |           |   |                                 |
| Cleaners help to remove soil from a surface. Cleaners remove germs from surfaces, but don't kill them.. | Sanitizers lower the number of bacteria on surfaces to levels considered safe by public health organizations. They work fast and are safe, but disinfectants usually have broader kill claims. | Disinfectants kills infectious viruses, fungi and bacteria (but not bacterial spores) on hard surfaces. | Virucides destroy or irreversibly inactivate viruses outside of a living "host," like people. | Tuberculocides are effective against mycobacterium tuberculosis and other mycobacteria | Sterilants destroy or eliminate all forms of microbial life including viruses, fungi, bacteria and bacterial spores. |

## **SECOND, DETERMINE THE REQUIRED LOG KILL OF A DISINFECTANT OR DECONTAMINANT**

Log reduction stands for a 10-fold (or one decimal point) reduction in bacteria, meaning the disinfectant reduces the number of live bacteria by 90 percent for every step. Log kill is simply the percentage of bacteria or virus that are killed by a particular product. A 7-log kill rate, or 99.99999% is the highest rate measured by U.S. regulatory agencies.

## **LOOK FOR PRODUCTS WITH THESE ATTRIBUTES**

Healthcare facilities are busy places. The high traffic of patients and staff means that these environments tend to accumulate dirt and grime. Risk Management should look for cleaning, disinfectant and decontaminant products with these attribute.

- ▲ They work in challenging, soil-load conditions. Many products have kill claims that are based on laboratory tests, but it's important that they work in real-world conditions.
- ▲ They have quick kill times for the contaminants that need to be eradicated, so that people can get back to work quickly.
- ▲ They contain no VOCs (volatile organic compounds).
- ▲ They are non- flammable and non-toxic.
- ▲ They have little or no adverse effects on equipment.



**DESIGN YOUR  
DELIVERY SYSTEM**

## CHOOSE HOW TO APPLY YOUR ANTIMICROBIAL PRODUCT

There are numerous ways to apply cleaners, sanitizers, disinfectants and decontaminants. Choosing the right delivery systems will depend on the specific area of the hospital.

### TIPS TO PROPERLY WIPE & SPRAY

- ▲ Follow the manufacturer's EPA-registered label
- ▲ Use the 4-fold method with a microfiber cloth and wipe only in one direction. Fold the cloth to always use a clean surface.
- ▲ Use a 2-step process to first clean a soiled surface, removing dirt, grime and grease, and then disinfect.
- ▲ Allow for the product's prescribed dwell time to kill pathogens.

[See the tips in action in this video](#)

## EACH AREA OF THE PROPERTY REQUIRES MULTIPLE DELIVERY METHODS

- 1 Heavy Touchpoints
- 2 Food Contact Surfaces
- 3 Ventilation Systems
- 4 Carpets

- 5 Laundry
- 6 Personal Hygiene
- 7 Mold and Mildew
- 8 Insect Infested Areas

# Exam Room

3



Exam rooms are filled with heavy touchpoint areas and requires thorough antimicrobial applications. Personal hygiene products should be made readily available.

**1** Heavy Touchpoints

**2** Food Contact Surfaces

**3** Ventilation Systems

**4** Carpets

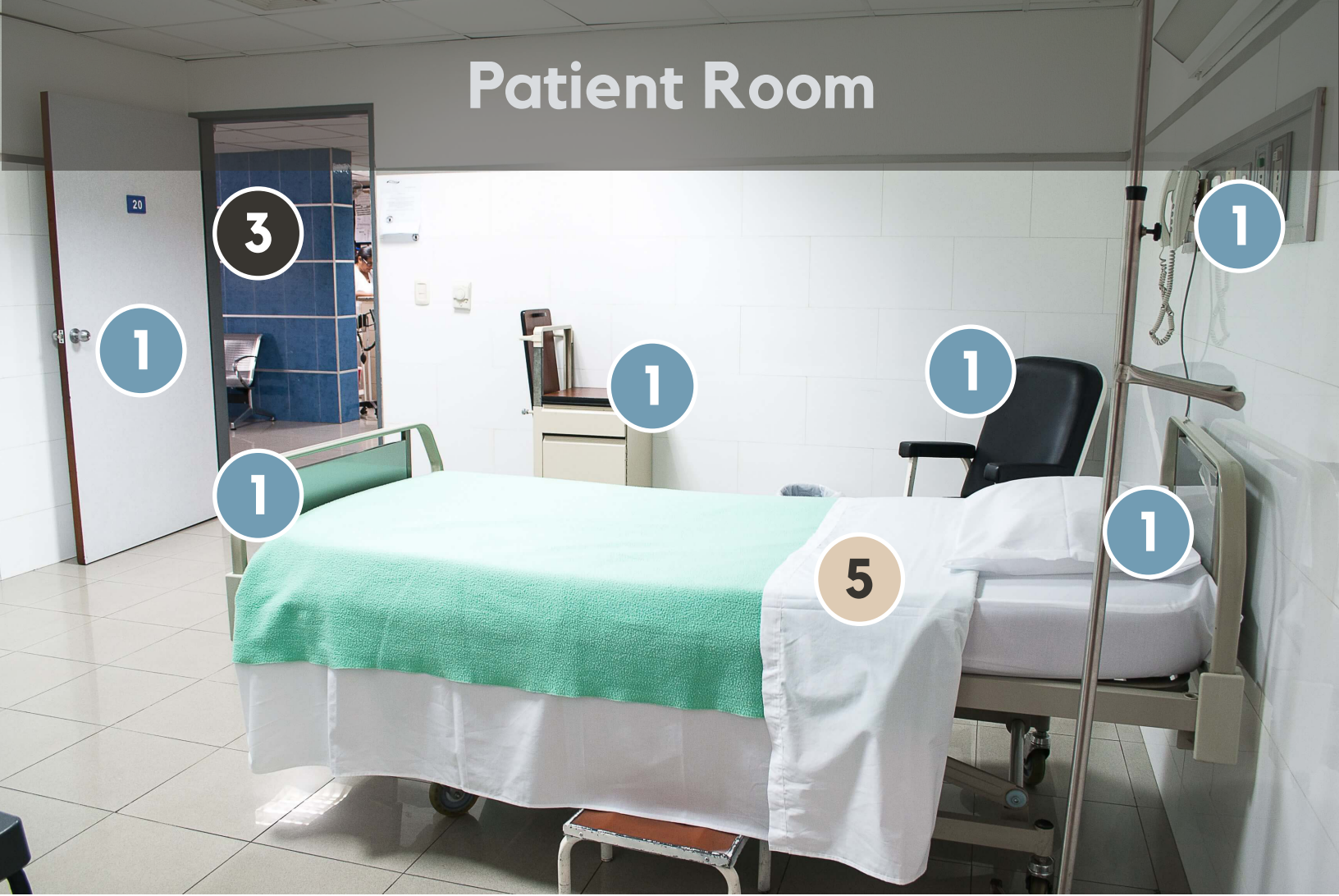
**5** Laundry

**6** Personal Hygiene

**7** Mold and Mildew

**8** Insect Infested Areas

# Patient Room



Hospital patient rooms also require a complete delivery system to address the heavy touchpoints. The ventilation system should be carefully disinfected.

**1** Heavy Touchpoints

**2** Food Contact Surfaces

**3** Ventilation Systems

**4** Carpets

**5** Laundry

**6** Personal Hygiene

**7** Mold and Mildew

**8** Insect Infested Areas

# Operating Room



Only the most effective sterilants are used in operating rooms. Delivery methods used can be carpet applications, disinfectant in the laundry detergent, wiping down surfaces and fogging the room to cover all surfaces.

**1** Heavy Touchpoints

**2** Food Contact Surfaces

**3** Ventilation Systems

**4** Carpets

**5** Laundry

**6** Personal Hygiene

**7** Mold and Mildew

**8** Insect Infested Areas

# Staff Locker Room



Staff locker rooms have heavy touchpoints at the toilet, shower and sink. Laundry disinfecting takes care of the towels and scrubs. Personal hygiene products should be placed on the counter or wall mounted to accompany the other personal hygiene products.

- |                         |                         |
|-------------------------|-------------------------|
| 1 Heavy Touchpoints     | 5 Laundry               |
| 2 Food Contact Surfaces | 6 Personal Hygiene      |
| 3 Ventilation Systems   | 7 Mold and Mildew       |
| 4 Carpets               | 8 Insect Infested Areas |

# Laundry



The laundry room has heavy touchpoints along with the opportunity to sanitize the air through the HVAC system. It's not uncommon to require mold and mildew disinfecting in the humid areas of the laundry room.

1 Heavy Touchpoints

2 Food Contact Surfaces

3 Ventilation Systems

4 Carpets

5 Laundry

6 Personal Hygiene

7 Mold and Mildew

8 Insect Infested Areas

# Dining Areas



Dining areas can be tricky, since so much of the area has food contact surfaces along with a good number of heavy touchpoint areas. Use of the HVAC system for delivery can be very helpful in creating a fresh safe space for diners and staff.

1 Heavy Touchpoints

2 Food Contact Surfaces

3 Ventilation Systems

4 Carpets

5 Laundry

6 Personal Hygiene

7 Mold and Mildew

8 Insect Infested Areas

# Personal Hygiene



Make sure to deliver antimicrobial personal hygiene products to staff, patients and visitors in convenient locations throughout the medical facility. Place antiseptic soaps at all sinks, sanitizer bottles at all entrances and exits, and sanitizer stations conveniently at all traffic hubs and congregating areas.



**1** Heavy Touchpoints

**2** Food Contact Surfaces

**3** Ventilation Systems

**4** Carpets

**5** Laundry

**6** Personal Hygiene

**7** Mold and Mildew

**8** Insect Infested Areas

A woman with dark hair, wearing a white surgical cap and a white surgical mask, stands with her arms crossed. She is wearing teal-colored medical scrubs. The background is a plain, light gray wall.

**EXECUTE YOUR  
PLAN**

## COMMUNICATE AND TRAIN

The coronavirus pandemic has impacted all industries across the economy, but the healthcare industry has been particularly affected. To establish confidence to all that the medical facility is safe and clean, medical personnel must know what to expect and how to comply with policies and protocols for entering and working at the hospital. Consequently, communication and training should be a priority within any hospital property that is undergoing remediation or changes to daily routines to prevent the spread of disease.

When communicating and training, we

also recommend that you describe the types of antimicrobial products used to disinfect or decontaminate the facility, and explain why they were chosen. Also describe the types of delivery methods for the antimicrobial, such as spraying and wiping, fogging, foaming, mopping and other methods.

In addition to employees, also try to communicate with family members. They will want to know that the hospital is as safe as can be, and they can encourage compliance with safety policies and protocols.

## COMMUNICATE AND TRAIN

To create your cleaning, disinfecting, and decontaminating plan, follow six steps:

- ▲ Establish Engineering Controls
- ▲ Gauge Biomass Levels to Determine Pre-Cleaning
- ▲ Pre-Clean as Needed
- ▲ Setup Antimicrobial Delivery Systems
- ▲ Apply the Antimicrobial and Allow for Dwell Time
- ▲ Post Treatment Considerations

## DOCUMENT YOUR WORK

Industrial hygiene information is needed at all levels of hospital operations, from front-line workers to C-level executives, particularly during the coronavirus pandemic. Document cleaning, disinfection and decontamination with activity log sheets and a log book, or use an electronic system. Logs should include the purpose of the procedure; the type of pathogen(s) you hope to kill; the type and quantity of cleaning, sanitizing, disinfecting and decontaminations materials used; the methods and systems used in the process; and the date and time of the work.



**ADDITIONAL  
RESOURCES**

## ADDITIONAL RESOURCES

[Coronavirus Disease 2019 \(COVID-19\): Cleaning and Disinfection for Community Facilities](#)

Centers for Disease Control and Prevention

[Cleaning and Disinfecting for the Coronavirus \(SARS-CoV2\)](#)

ISSA (International Sanitary Supply Association)

[The COVID-19 Pandemic: A Report for Professional Cleaning and Restoration Contractors, 4th Edition](#)

Institute of Inspection Cleaning and Restoration Certification (IICRC), Restoration Industry Association (RIA), American Industrial Hygiene Association (AIHA).

[Guidance on Preparing Workplaces for COVID-19](#)

U.S. Department of Labor and U.S. Department of and Health and Human Services' booklet

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