

A **Multi-Clean** White Paper

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Your Guide To Clean

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Cleaning for Health in Healthcare

Using Green Cleaning to help Prevent Healthcare Associated Infections

Learn the latest about how green cleaning can help hospitals, nursing homes and other health care facilities create a healthier environment for patients. Addresses the most common HAI (Healthcare Associated Infections) and references current recommendations in the 2009 Healthcare Recovery Act.

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Introduction

Like many other cleaning operations, healthcare facilities are interested in adopting sustainable cleaning practices. However, facilities whose mission is caring for the sick have special cleaning needs. A cookie cutter approach to green cleaning that works in other facilities cannot be used in healthcare. Every cleaning operation must be examined closely for how it may impact the control of harmful pathogens.

Problem Statement

The goal of cleaning in a healthcare institution can be summarized as 'creating a healthy place for healing'. The challenge is that sick people are often the carrier of harmful pathogens that can make others sick. Sick people are also more susceptible to disease simply because their natural immune functions are weakened.

According to the CDC, 1.7 million Healthcare-associated infections (HAI) are contracted by patients annually in American hospitals.

Estimates are that 99,000 of these infections were fatal. This must be taken into account anytime changes in cleaning processes are considered, including the transition to a green cleaning program.



Healthcare institutions can incorporate sustainability concepts into their cleaning operations; it just has to be done carefully and thoughtfully. The definition of Green Cleaning... 'cleaning to Protect Health without Harming the Environment' takes on special meaning in healthcare.

Common Healthcare Infectious Agents
Methicillin Resistant Staphylococcus Aureus (MRSA)
Clostridium Difficile (C. Diff)
Vanomycin Resistant Enterococcus (VRE)
Hepatitis A, B & C

Disinfection: Where, When and How A central part of infection control in a healthcare facility is the cleaning and disinfection of surfaces. A chemical disinfectant, when used properly is designed to kill harmful pathogens, including bacterial and viral agents. Because these compounds kill living organisms, they are classified as a pesticide and must be registered with the EPA (Environmental Protection Agency). Using these products wisely is an essential part of protecting the health of patients. Too often, these products are overused and relied on too heavily as a means to control Healthcare-associated Infections. Reducing the use of disinfectants in a hospital environment should be an important green initiative that should not negatively impact infection rates.

A Disinfection Strategy

To begin the process of reducing disinfection use, hospital areas should be divided in three or more areas based upon the probability of disease transmission. These areas can be critical, semi-critical, and non-critical. It is important to have the involvement of infection control practitioners to properly identify these areas and the protocols necessary for each.

Critical care areas include operating rooms, isolation rooms, and acute care areas. Critical care areas should be disinfected with an EPA registered disinfectant that has a claim for the hepatitis B virus or is tuberculocidal. These types of disinfectants are OSHA bloodborne

The CDC defines Healthcare-associated infections (HAI's) as 'infections that patients acquire during the course of receiving healthcare for other conditions'.

pathogen compliant and are typically part of EPA's list "D". In isolation rooms where patients exhibit C. Difficile Associated Disease Symptoms, special disinfection requirements may be required.

Semi-Critical areas can include exam rooms, patient rooms and a variety of treatment areas. Some disinfecting of these areas is required, but should be limited to high touch areas, or any surface or equipment

that might come in contact with broken skin or mucous membranes. Floors are a common area where disinfectants may be used but are rarely needed. It is common practice to disinfect floors in semi-critical areas, yet there is little evidence that suggests disinfecting floors has any influence on disease transmission.

Non-Critical Areas include offices, waiting rooms, hallways and cafeterias are normally cleaned using general cleaners. Little or no disinfection is required. General cleaning is normally what is indicated.

Battling HAI's

Healthcare-associated Infections, (also referred to as Nosocomial Infections), are illnesses acquired during a stay at a healthcare institution. Infection rates in hospitals remain a nagging problem. A true green cleaning program can actually improve infection rates if one understands that green cleaning is a systematic process, not simply the use of certain products. Green cleaning embraces training, standard operating procedures, and pro-active maintenance strategies that reduce waste, improves cleanliness, and Indoor Air Quality.



Now More Incentive to Control HAI's

The government as a healthcare insurer (Medicare) has turned up the heat on healthcare institutions. Medicare now will no longer reimburse healthcare institutions for treatment of select conditions that were not present on admission. This change makes it even more critical for hospitals to address HAI's. Look for private insurers to follow the Medicare example.

The Healthcare Recovery Act of 2009

As part of the American Recovery and Reinvestment Act, grant funds were set aside for state program initiatives that address healthcare costs, in particular HAI's. Areas specific to environmental cleaning include programs and protocols to evaluate environmental cleaning. The initiative's focus is on developing a Level I or II program to evaluate and monitor terminal room cleaning. Several handy checklists and procedures are outlined to facilitate developing such a program.

An excellent overview document is titled [Options for Evaluating Environmental Cleaning](#). This document provides various ways to monitor including ATP meters that measure the relative amounts of the protein Adenosine Triphosphate on surfaces as a measure of cleanliness.

Going Green in Healthcare

One of the first steps in moving toward green cleaning is identifying what types of products, tools, and equipment are currently being used. Then determining what changes, if any need to be considered to start the green cleaning transition. What follows is a short review of the chemicals, equipment and tools to consider in the green cleaning journey.

Green Cleaning is defined as "Cleaning to Protect Health without Harming the Environment".

General Cleaners

This class of cleaners included daily floor and surface cleaners including restroom cleaning products. There are many green options for this grouping of products.

Disinfectants

The work horse disinfectants in healthcare are referred to as "quaternary" disinfectants. This class of disinfectants are considered 'hospital grade' if they have claims to kill *Staphylococcus Aureus*, *Pseudomonas Aeruginosa*, and *Salmonella Cholerasius*. Most of the quat disinfectants go well beyond these 3 pathogens. The most effective have claims for hepatitis B, HIV-1, and a variety of anti-biotic resistant pathogens, the most notable being MRSA.

Other types of disinfectants included phenolics and sodium hypochlorite (bleach). These types of products are harsher and have a more limited role in infection control.

What About Bleach?

Bleach (Sodium Hypochlorite Solution) used properly, can be an effective disinfectant, but it is damaging to a variety of surfaces and fabrics. More importantly, bleach fumes can be respiratory irritants.

However, limited use of bleach may be necessary to clean the rooms of patients that have been placed in isolation due to the symptomatic display of *Clostridium Difficile* Associated Disease (CDAD). *C. Difficile* is transmitted via the fecal oral route primarily on the hands of other patients and / or healthcare workers. Transmission of *C. Difficile* is through "spores" which are resistant to destruction with normal disinfectants. See table II to learn more about this common cause of HAI's.

Floor Finishes

Floor finishes are now available that are extremely low odor and contain no zinc. These finishes are Green Seal certified and offer excellent performance in a hospital environment.

Strippers

Floor strippers can be one of the most hazardous chemicals used and a source of more complaints in healthcare. Fortunately, new technology has created effective floor strippers that have virtually no odor, are non-corrosive, and are Green Seal certified.

Carpet Cleaners

Carpet cleaning products are now available that leave carpets clean and free of residues. Some carpet cleaning products now incorporate hydrogen peroxide to boost cleaning and destroy odors.

Equipment

Cleaning equipment in healthcare should be quiet, typically less than 70dB. Vacuums should have HEPA filtration to capture even microscopic particles. Burnishers should be equipped with filtration to capture particulates. Automatic scrubbers equipped with features that use less water and/or detergent is available from several

Resources:

CDC Healthcare-associated Infections website

<http://www.cdc.gov/hai/>

CDC Initiative to Monitor Terminal Patient Room Cleaning

[Evaluating Environmental Cleaning](#)

OSHA HealthCare Housekeeping Utility Module

<http://www.osha.gov/SLTC/etools/hospital/housekeeping/housekeeping.html>

Multi-Clean Bug Tracker and other Infection Control Resources

<http://www.multi-clean.com/infectioncontrol.html>

Multi-Clean Green Resources

<http://www.multi-clean.com/green.html>

manufacturers. Look for autoscrubbers that have anti-microbial water recovery tanks. These tanks have an anti-microbial compound integrated into the plastic that won't support the growth of bacteria which might be found in dirty recovery water.



Tools

One of the most important tools being adopted in healthcare cleaning operations are the use of microfibers. Microfibers are replacing cotton mops as ways to dry dust and wet clean surfaces. Combined with dual chamber mop buckets that separate dirty and fresh cleaning solutions, these tools help prevent cross contamination. The microfiber mops are also more ergonomically friendly and are easily laundered for many uses.

Summary

A truly sustainable program reduces waste, improves efficiency and productivity, consequently offering bottom line savings. Correctly implemented, Green Cleaning can help healthcare institutions achieve sustainability goals and help reduce infection rates among patients.

Table II: Click on Any Item Below to Learn More

Acinetobacter
Bloodborne Pathogens
Burkholderia cepacia
Clostridium Difficile
Clostridium Sordellii
Creutzfeldt-Jakob Disease (CJD)
Ebola (Viral Hemorrhagic Fever)
Gastrointestinal (GI) Infections
Hepatitis A
Hepatitis B
Hepatitis C
HIV/AIDS
Influenza
MRSA - Methicillin-resistant Staphylococcus Aureus
Mumps
Norovirus
Parvovirus
Poliovirus
Pneumonia
Rubella
SARS
S. pneumoniae (Drug resistant)
Tuberculosis
Varicella (Chickenpox)
Viral Hemorrhagic Fever (Ebola)
VISA - Vancomycin Intermediate Staphylococcus aureus
VRE - Vancomycin-resistant enterococci

Use the table at left to learn more about specific pathogens found in healthcare. Clicking on the name will bring you to the CDC website that provides information on each pathogen, the illness it causes, control measures, and relevance in healthcare settings.