Cleaning for Health
Green Cleaning, Sanitizing and Disinfecting for Long Term Care Homes

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Introduction

Long Term Care Homes provide rehabilitative, restorative, and/or ongoing skilled nursing care to patients or residents who need assistance with activities of daily living. They include skilled nursing and assisted living facilities, nursing homes, and continuing care retirement communities.

According to the Center for Disease Control and Prevention (CDC) report, Long-term Care Providers and Services Users in the United States, 2015-2016, there were 15,600 nursing homes in the US in 2016, housing 1.3 million residents. In addition, Continuing Care, Assisted Living and Nursing Care Facilities employ over 100,000 maids and housekeepers nationwide.

Preventing the spread of infectious disease in Long-term Care Facilities (LTCFs) is essential because of the compromised health and immune systems of residents. Data on pre-SARS-CoV-19 infections in these facilities is limited however the CDC tells us that as many as 380,000 residents die of infections every year in LTCFs.

Cleaning, sanitizing and disinfecting are the tools used to help prevent infectious disease. Unfortunately, research over the past 30 years has established that these products contain ingredients that can cause illness in both staff and residents. Reports tells us that cleaning staff/housekeepers have some of the highest rates of occupation illness, including asthma and other respiratory diseases, skin irritation and

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1 CDC National Center for Health Statistics - https://www.cdc.gov/nchs/fastats/nursing-home-care.htm
3 Generations at Risk: Reproductive Health and the Environment and Environmental Threats to Healthy Aging:
allergies, cancer, and endocrine disruption/reproductive issues. The latter can be especially concerning for staff of child-bearing age.

In the mid-1990s, the Federal Government’s Environmental Protection Agency developed regulations for purchasing environmentally preferable products and federal agencies were required to purchase the safer products. Since then states, municipalities, colleges and universities, hospitals and other health care entities, schools and others followed suit. Independent third-party entities were established to develop standards for cleaning product manufacturers to meet regarding their ingredients and to certify that these products were indeed safer as well as effective.

Every major manufacturer now sells “green” cleaning products and this segment of the institutional cleaning market has grown steadily every year in part led by health care facilities. These “safer” products are as effective as the conventional products and sometimes more effective. It has become the norm in many sectors to use these products and processes.

Every facility is unique and will implement the program in the most effective manner for them, but the steps to implementing a program are the same.

**Adopt a Policy**

Consult with administrators to assist with the adoption of a Cleaning for Health/Green Cleaning policy. Administration buy-in is key and insures that the program will continue through administration changes. Work with a Team to develop the policy. See sample policies in Appendix A.
Green cleaning is a program that protects human health and the health of the environment while also being effective.

**Establishing Your Green Cleaning Program**

- Adopt a policy
- Establish an Environmental Health and Safety Committee/Team
- Begin with a pilot project
- Evaluate your current cleaning products, methods, and equipment
- Educate staff
- Implement the program
- Monitor success
- Reward staff for participating
- Educate residents, visitors and the public

**Build A Team**

Participation from the facility’s stakeholders is essential in order for the program to be successful. The best way to do this is to bring together primary representatives from:
- facilities/housekeeping
- the infection control department
- the nursing staff
- administration
- unions or other associated organizations
- patient advocates

Present them with the reasons you want to implement a program including the benefits and examples of other facilities who have already transitioned. Develop a policy with input from the Team. A policy will insure the program will continue during personnel changes.
Develop a Plan

Once the Team is on board and engaged you can determine how you want to proceed.

1. Evaluate and categorize facility areas (identify high risk, medium risk, and low risk care areas, patient rooms.)

2. Take an inventory of current products, equipment, and standard operating procedures (SOPs).
   a. Work with your vendor/vendors. They are a wealth of information and will have other customers who have already transitioned. They can tell you what third-party certified cleaning, sanitizing and disinfecting products they carry. They will also have equipment that complement these products such as dilution stations, floor care equipment, cleaning clothes etc.
   b. Select products that work for your facility
      i. Third-party certified products (e.g., all-purpose, toilet bowl, carpet, and glass cleaners, floor strippers and waxes; and types by usage of disinfectants)

A green cleaning program is a wise investment for many reasons.
Some of the benefits include:
- Improved health of staff and residents
- Increased worker productivity and staff retention
- Reduced workers’ compensation claims
- Decreased time spent on paperwork administration
- Less damage to building components from corrosive chemicals
- Reduced storage needs
- Protection of the environment
- Improved patient satisfaction
3. Develop a pilot (pilot area(s), pilot evaluation criteria, changes in SOPs, pre-implementation and post-implementation surveys for facility staff, patients and visitors.)

   a. Work with your vendor to get samples of products to use for the pilot. Trying out two brands of all-purpose cleaner for example can provide staff with the opportunity to compare and find the best one for your facility.
   b. Train staff on the use of the sample products and procedures. Review Safety Data Sheets on the new products and compare the information with that of the conventional products. Ensure staff is familiar with any procedures that are new.
   c. Review staff, patient and visitor evaluations and address any issues. Adjust products and procedures as needed.

4. Implement the program.

   a. Order the new cleaning products and equipment. It can be helpful to replace your daily cleaning chemicals first and then add specialty products as they need replacing. New technology equipment can be phased in as old equipment needs replacing.
   b. Once your cleaning supplies vendor(s) is onboard with your Cleaning for Health program, request that they update you as new products and equipment are developed.

5. Educate all staff, patients, visitors and the general public on your program. Use press releases, flyers, fact sheets and case studies to get the word out.
Disinfectants

“In health care, cleaning has a dual purpose—making surfaces clean and presentable, as well as significantly contributing to infection control,” says Green and Clean How hospitals can protect patients and workers by using earth-friendly and sustainable products/practices OSHA & Worker Safety Beware! Products that contain any of the following could cause harm to your patients and staff—and even visitors to your facilities: • Kathleen Fagan, MD, MPH, medical officer, Office of Occupational Medicine, OSHA, Washington, DC “Green cleaning adopts those two purposes but additionally considers patient, worker, and environmental safety,” Fagan says.

Choosing a Safer Disinfectant

Safer Active Ingredients Identified by the EPA’s Design for the Environment Disinfectants Program:
- Citric Acid
- Hydrogen Peroxide
- L-lactic Acid
- Ethanol
- Isoproponal
- Sodium Bisulfate

Choose disinfectants that have been certified by the EPA’s DFE Disinfectants Program or that use the active ingredients above - https://www.epa.gov/pesticide-labels/dfe-certified-disinfectants.
Evaluate your facility according to levels of disinfection needed.

1. High-level disinfection: kills all microorganisms, with the exception of small numbers of bacterial spores.
2. Mid-level disinfection (also intermediate-level disinfection): kills inactivate vegetative bacteria, including mycobacteria, most viruses, and most fungi, but might not kill bacterial spores.
3. Low-level disinfection: inactivates most vegetative bacteria, some fungi, and some viruses in a practical contact time, but does not kill more hardy viruses (e.g. non-enveloped), bacterial genus (e.g. mycobacteria), or bacterial spores.

Determine what products are required for each level of infection control. Work with your vendors to identify a third-party certified product. The EPA’s Design for the Environment program has identified safer ingredients for disinfecting and certified some disinfectants.

**Products to Avoid**

Research tells us that bleach and quaternary ammonium compound (QACs) based products are extremely hazardous to health. They both are associated with new onset asthma and/or asthma episodes.

**Bleach**

Mixing bleach with ammonia, QACs, and other acidic products such as vinegar can create a poisonous gas. It is corrosive and irritating to the eyes and skin. Bleach must be diluted daily exposing staff to the concentrated product. It can damage floor finishes, carpets, clothing, and other fibers when used in higher concentrations and has an unpleasant odor. Bleach must be stored separately from ammonia and flammable products and rinsing is required in applications where direct skin or oral contact can occur. Bleach generates chlorine gas when in use, which is a respiratory irritant and an asthmagen and is very toxic to aquatic organisms.

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Quaternary Ammonium Compounds (QACs)
Names of individual QACs include: Benzalkonium chloride, Alkyl dimethyl benzyl ammonium chlorides, Benzyl-C12-18-alkyldimethyl, chlorides, Didecyl dimethyl benzyl ammonium chlorides and others. These products can cause contact dermatitis and nasal irritation. Certain QACs (including benzalkonium chloride, dodecyl-dimethyl-benzyl ammonium chloride, and lauryl dimethyl benzyl ammonium chloride) are respiratory sensitizers and associated with asthma. QACs are associated with nervous system effects, reproductive and developmental effects, immunological effects and altered cellular function and effects on metabolism. They are toxic to aquatic organisms and are found in sludge, rivers and streams. Some QACs are associated with antimicrobial resistance and are being evaluated by various federal and state agencies for removal from the market or labelling.

High Performance Cleaning Equipment
Innovations in cleaning equipment have evolved to complement the safer cleaning products. Some examples of the equipment are:

- Microfiber cloths and mops
- Green Label certified HEPA filter vacuums and carpet extractors
- 2-Chamber mop buckets
- Chemical-free machines for stripping floors
- Engineered water technology

ISSA, the worldwide cleaning association, estimates that as much as 90% of the soil (dust, grit, moisture) that enters a facility walks in the front door on the bottom of shoes. Installing a high efficiency matting system at the front door – one that is at least 12-15-feet long and designed to collect and trap these soils – allows fewer soils to enter the facility.

6 Stephanie M. Holm, MD, MPH, Victoria Leonard, RN, PhD, Timur Durrani, MD, MPH, Mark D. Miller, MD, MPH
American Journal of Infection Control, STATE OF THE SCIENCE REVIEW| VOLUME 47, ISSUE 1, P82-91, JANUARY 01, 2019
Do we know how best to disinfect child care sites in the United States? A review of available disinfectant efficacy data and health risks of the major disinfectant classes
Published: August 29, 2018DOI:https://doi.org/10.1016/j.ajic.2018.06.013
7 Biomonitoring California Scientific Guidance Panel Meeting, March 2020
“Introducing harsh chemicals into a resident’s environment can have a very negative effect,” says David Henry, director of home office facilities management for Trinity Senior Living Communities. “But the great thing is that current research has shown we don’t need to use all those harsh chemicals or the high concentrations that were once used so regularly. In the past, hospitals and long term care facilities used a lot of bleach and ammonia, which are very dangerous and unstable chemicals. Now we're realizing there is more opportunity to use less chemical and still get the same efficacy with micro-organism contact.”

Today’s Geriatric Medicine, Vol. 6 No. 3 P. 18

Assess the Program

Assess the program on a periodic basis and implement new products and equipment as needed.

Sullivan County Health Care

“Sullivan County Health Care (SCHC) is publically owned by the citizens of Sullivan County and is operated by the County Commissioners to provide residential nursing care for those in need of these services.”

SCHC is a 107,000 square foot facility located in Claremont, NH. It can accommodate 156 residents with various health care needs, and consists of Alzheimer’s and dementia wings as well as regular residential nursing areas. Staff consists of 17 housekeepers and between 220 and 240 staff members.
The facility is Medicaid licensed as an Intermediate Care Facility (ICF) certified by the New Hampshire Bureau of Health Facilities Administration and is a Medicare approved Skilled Nursing Facility (SNF.)

The Administration was approached about taking part in this USDA grant funded project and was enthusiastic about the opportunity. Informed Green Solutions (IGS) personnel met the Housekeeping Supervisor and Infection Control Nurse who were also onboard with the project.

A sample policy document was provided to the Housekeeping Supervisor. The facility was toured and an evaluation of the current cleaning, sanitizing and disinfecting program was conducted. Cleaning products were identified and practices detailed. The Facility had previously used some third-party certified products and was still using some. From this information a report was generated that reviews products and practices that are currently being used. Cleaning product vendors were contacted and alternative products were identified and obtained.

IGS met with the Housekeeping Staff to describe the project and obtain feedback. Forms were distributed to Lead Housekeepers to be completed after trying the new products. The new products were used and evaluated by Staff who returned completed forms to the Housekeeping Supervisor. The results were positive. IGS created a training video and adapted the Green Cleaning Workbook into an E-book to use with Long Term Care Housekeeping Staff. The training was to be presented in late March of 2020 but was canceled because of COVID-19 restrictions. The training was conducted on August 18, 2021 and attended by 10 Housekeepers and the Housekeeping Supervisor. The Workbook was trialed at the training and then turned into an E-book in September of 2021.

The Staff is using the third-party certified cleaning products and new procedures and feels that the conversion to the safer products has been beneficial to their health and that of their clients.
Additional Resources:


Notes

The Sullivan County Health Care facility was affected by supply chain issues as were many facilities. Informed Green Solutions was able to assist by locating and providing some safer disinfectants to them. This helped to bridge the gap and allowed them to continue using the safer products.