A PRACTICE GREENHEALTH PROGRAM

Safer Chemicals Challenge: Healthy Interiors

Introduction

The Healthy Interiors goal is part of the Safer Chemicals Challenge, one of six pillars of activity in Healthier Hospitals. The purpose of the Healthy Interiors goal is to promote public and environmental health and help accelerate the transformation of the furnishings market to safer products, while also reducing disposal costs and liability.

What is the HHI Healthy Interiors commitment?

Ensure that 30 percent of the annual volume of furnishings and furniture purchases (based on cost) eliminate the use of formaldehyde, perfluorinated compounds, polyvinyl chloride (PVC), antimicrobials*, and all flame retardants**.

*Triclosan and triclocarban are explicitly prohibited. No other added or built-in chemical antimicrobials are allowed unless they are registered with the U.S. EPA under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), and have published data that show efficacy in a hospital/clinical setting measured by a reduction in healthcare-associated infections (HAIs) as part of comprehensive infection control measures. Antimicrobials added to materials or products for the sole purpose of preserving the product are exempt.

** Eliminate the intentional use of all flame retardants where code permits. When flame retardant chemicals are necessary to meet code requirements, use chemicals that meet GreenScreen Benchmark 3 or 4 or their equivalent.

Among the sustainability issues of growing concern in buildings and operations in general, and health care in particular, is the presence of toxic chemicals in products. In health care, the Green Guide for Health Care (GGHC) catalyzed this work and the U.S. Green Building Council (USGBC) integrated the Green Guide into its LEED for Healthcare. Specific criteria have been established in both the GGHC and LEED for Healthcare to address concerns with toxic chemicals in furnishings.

In addition to GGHC and USGBC LEED, the furniture sector developed its own sustainability standard through the Business and Institutional Furniture Manufacturer's Association (BIFMA). The American National Standards Institute (ANSI)/BIFMA e3-2011e Furniture Sustainability Standard includes a human and ecosystem health section, in which manufacturers receive credit for reductions in the use of hazardous chemicals in products and production processes, including persistent, bioaccumulative, and toxic chemicals (PBTs); carcinogens; reproductive toxicants; and endocrine disruptors.

The marketplace trajectory in the building sector, furniture manufacturing, and health care is clearly toward the production and use of furnishings that avoid chemicals of concern to humans and the environment. The Healthy Interiors goal builds on and supports these market trends.

Scope of Products Covered

Furnishings and furniture include seating (chairs, stools, sofas, benches, etc.), work surfaces (tables, desks, etc.), built-in and modular casework, systems (walled desks with seating), beds (including mattresses), storage units (cabinets, filing cabinets, dressers, drawers, etc.), shelving (bookshelves, built-in shelves, etc.), panels and partitions, cubicle curtains, and window coverings.

Exemption: The electronic components of furnishings and furniture are exempt from the goal.

What are the concerns with chemicals in furnishings?

Furnishings are made of some chemicals and materials that may be hazardous and pose risks to workers, consumers, and entire communities throughout their life cycle. For instance, some chemicals in products known as volatile organic compounds (VOCs) can vaporize into the air, and workers or consumers inhale them.

Since toxic chemicals often do not stay in place—from their use in manufacturing and products—they can migrate into food, air, water, and ecosystems across the globe. Environmental monitoring shows that PBTs are widely distributed and measurable in humans and wildlife at levels that are known to cause adverse health effects. Even wildlife and communities in "pristine" distant lands, such as polar bears and the Inuit living above the Arctic Circle, are now widely contaminated with industrial toxic chemicals, including halogenated flame retardants (HFRs) and perfluorinated chemicals (PFCs).

Building materials and products that are significant sources of indoor air pollution include cleaning compounds, adhesives, paints, carpeting, upholstery, manufactured wood products, and other components of furniture, each of which may emit VOCs, such as formaldehyde

(GGHC, 2008). Workers, patients, and their families are exposed to toxic chemicals from building products every day. This chemical exposure impacts everyone, from the developing fetus to senior citizens. Their impacts, while difficult to track, can be significant. Toxic chemicals, for example, are believed to play a role in rising chronic diseases and conditions, including some cancers, birth defects, learning and developmental disabilities, infertility, asthma, and neurological disorders.

Formaldehyde

Formaldehyde is a common indoor air contaminant because of its use in furniture, cabinets, countertops, insulation, wallpaper, paints, and paneling. It is present in a wide variety of other consumer products, such as antiseptics, medicines, cosmetics, dishwashing liquids, fabrics and fabric softeners, carpet cleaners, glues and adhesives, lacquers, paper, coatings, and plastics. The International Agency for Research on Cancer (IARC) classified formaldehyde as a human carcinogen in 2006. In 2011, the National Toxicology Program, an interagency program of the Department of Health and Human Services, named formaldehyde as a known human carcinogen in its *12th Report on Carcinogens*.

Flame Retardants

To meet certain flammability standards, chemicals that act as flame retardants are added to a wide range of products, including computers, couches, hospital beds, waiting-room chairs, and hospital privacy curtains. Unfortunately, many of these flame retardant chemicals do not remain in the product and slowly offgas into the air, dust, and water, eventually entering the food chain and building up in our bodies. Many flame retardants are linked to a range of negative health effects. Depending on the flame retardant, effects include reproductive, neurocognitive, and immune system impacts, among others. Three common halogenated flame retardants appear on California's Proposition 65 list as human carcinogens. Safety data on newer flame retardants are still emerging and are often not complete, but early studies suggest there is reason to be concerned about the newer alternative chemicals on the market.

Perfluorinated Compounds (PFCs)

PFCs are widely used to make everyday products more resistant to stains, grease, and water. Long-chain PFCs are found worldwide in the environment, wildlife, and humans. They are bioaccumulative in wildlife and humans, and are highly persistent in the environment. Significant adverse effects have been identified in laboratory animals and wildlife. Some studies in more highly exposed human populations show associations with pregnancy-induced hypertension, thyroid hormone abnormalities, and increased risk of various kinds of cancer. Given the long half-life of these chemicals in humans, body burdens will decrease only slowly if and when the use of long-chain PFCs is eliminated. Shorter-chain PFCs are reported to be less likely to bioaccumulate, but they are highly persistent in the environment and exposures will increase if they are used as replacements for longer-chain PFCs. Leading scientists have recently called for discontinuation of all non-essential uses of fluorochemicals.

Polyvinyl Chloride (PVC)

PVC plastic (also known as vinyl) is used in a wide variety of applications in the health care setting, including medical devices, disposable gloves, curtains, flooring, and other building materials. It is also used as cover fabric and for other components of some furniture. PVC manufacture requires the use ethylene dichloride (EDC), a probable human carcinogen, and vinyl chlorine monomer (VCM), a known human carcinogen. The manufacture and incineration of PVC also generates dioxin, a known human carcinogen and persistent, bioaccumulative compound. PVC without additives is brittle and not stable in the presence of heat or light. The additives necessary to confer properties such as flexibility and resistance to heat and UV light can have toxic properties.

Antimicrobials

With rare exceptions, very few data support the use of antimicrobials in furniture as a means of reducing healthcare-associated infections (HAIs). Some antimicrobials pose risks to human health and the environment and may contribute to antimicrobial resistance. Moreover, the presence of antimicrobials in furniture may lead to a false sense of security and result in less stringent infection control practices. The goal is structured to allow for the use of antimicrobials where research shows that they contribute to reduced incidence of HAIs. This is an emerging and active area of research, and this goal may change as additional data are available.

What can health care do?

Health care institutions across the country have reduced exposures to harmful chemicals by eliminating known and likely hazards and switching to safer alternatives. These institutions have reduced their disposal costs and liability while improving the overall health of employees, patients, and communities.

The procurement and use of furnishings that meet the Healthy Interiors goal is part of the movement to create more sustainable health care buildings and operations.

To learn more about Healthier Hospitals, the Safer Chemicals Challenge, or the Healthy Interiors goal, please visit www.healthierhospitals.org, or email lkleinman@practicegreenhealth.org.