In Case You Haven't 'HERD' About...

A Newsletter of Tufts Environmental health and Safety

DECEMBER 2016 **VOLUME VIII, ISSUE 3**

S A F E T Y F O R A L L

Hearing Loss - Early Onset and How to prevent it!

HISTORICALLY, hearing loss has been associated with advanced age and occupation. However, over the last few decades, hearing loss is occurring to younger people in low-risk occupations. Workers in industrial settings such as factories, construction, railroad, shipping, or mining almost accepted the noise hazards associated with those jobs. Yet, due to upgrades in amplification of music in the late 1960s and ever increasing loud music over the next couple of decades, generations of younger people were exposed to the increased volume of noise leading to diminished ability to hear many tones clearly.

If you believe you are not able to hear properly, high pitch noises such as door bells or cell phones, seek medical attention.

More recently, the development of ear buds and the Walkman in the 1980's, the ever-increasing technology of cell phones, and their internal music systems developed over recent years the impact on our ears has been almost overwhelming. Ear buds provide a high-quality sound directly into the inner workings of our ears. The cochlea receives direct vibration from these devices with the only limiting factor being how loudly we choose to turn the device up or down. Very often young people, in particular, have it up very loud. This constant pounding and vibration leads to extensive damage and hearing loss.

There are steps to be taken to reduce the risk of hearing loss. The World Health Organization recently produced information to address the concerns related to this problem. Below is some of that information.

1. Respect Safe Listening levels. Find the lowest most comfortable level for your hearing. It should never be more than 50% of possible volume.

2. Wear ear plugs when going to a loud concert or night club to reduce the direct impact on your ears.

3. If possible, use noise canceling headphones. Although they are a little more expensive, these remove background noise and allow you to listen at a lower volume.

4. At a loud venue, move away from the direct source of the loud volume such as speakers.

5. Most importantly if you believe you are not able to hear properly, high pitch noises such as door bells or cell phones, seek medical attention. Do not wait the issues will only get worse.

Reference: www.who.int/pbd/deafness/activities/MLS

Can Flooring Be Hazardous to Your Health?

THE CONSUMER is faced with a bewildering variety of flooring products.

In the 1950s, the choices were natural linoleum, vinyl tile, hardwood, painted floors, area carpets (wool and synthetic) and ceramic tile. In 2015, choices include natural rubber, bamboo, engineered wood, cork, wall to wall carpet, laminate flooring, sheet vinyl, vinyl tile.

The criteria for selection include appearance, durability, cost and *now potential impact on indoor air quality*. In March 2015, a large distributor of laminate flooring was accused of producing with excessive formaldehyde emissions. In response to numerous consumer complaints, the distributor offered in-home formaldehyde testing using approved methods with analysis by accredited laboratories. Although 26,000 test kits were mailed to owners of the product, 11,000 were returned. Of these, 3400 kits were tested from 2600 homes. The management announced that 97% of the homes were less than the World Health Organization recommended indoor air quality limit of 0.1 mg/M^3 of formaldehyde gas. The remaining 3% were contacted for additional testing and resolution.

All of the accusations and reactive testing that followed, occured more than 5 years after Congress and the President signed legislation regulating Formaldehyde in composite wood products. However, in part due to the efficacy of interested commercial lobbies, the rules were not ultimately promulgated by the Environmental Protection Agency (EPA) until March of 2016.

The forces that delayed this regulation include the flooring products industry, the wood industry, the chemical industry and the furniture industry. The purpose of the regulation is to control the emissions of formaldehyde from hardwood plywood, particle board, engineered wood products, and products made from these materials.

Formaldehyde is just one of several volatile organic compounds known as Volatile Organic Compounds (VOC's) that are emitted from the adhesives and other treatment chemicals used to manufacture several types of flooring.

Vinyl sheet and tile flooring is made flexible by a family of plasticizers known as phthalates. These phthalates, are emitted as vapors from the floor covering, can be removed by wiping the surface and are contained in dust particles on the floor. Phthalates are in many types of plastic products, many used to store and process food and water. Phthalate exposure is widespread in the US population. EPA states that the health effects are unknown. Other federal agencies take a different approach and state that scientific investigations to date have not revealed any health effects of low levels of phthalates at the levels found in the US population.

The Resilient Floor Covering Institute has developed the FloorScore IAQ Certificate that rates flooring for the emission of VOCs.

If engineered wood products including bamboo and laminate products all contain formaldehyde based adhesives and glues, is carpeting a more healthful choice? Possibly. However, you need to research the information from the Carpet and Rug Institute and assess possible emissions from synthetic fibers (wool has no emissions), foam carpet pads, rug cleaning chemicals and the soils and dirt that is collected by the carpets during its useful life.

What is the most healthful floor material for your home?

Which is better: Bottled Water or Tap Water?

THE INSTITUTE OF MEDICINE (IOM, 2004) recommends that we each drink 91 Fluid Ounces / 125 Fluid Ounces (Adult Women / Adult Men) of water per day. That equals a little over 11 cups of water per-day for adult women and a little over 15 cups per-day for adult men. This includes the water in the food we eat, the water in the flavored drinks we consume, as well as the water we drink as-water. For many people, that means trips to the tap/water cooler or purchasing bottled water. The question is often posed, "Which is better: Bottled Water or Tap Water?" The answer is; **It depends**.

The majority of Americans have municipally supplied tap water that is closely regulated by the Environmental Protection Agency (EPA) via regulations including the Safe Drinking Water Act (SDWA). In most cases, these municipalities provide water that is of very high quality at a very low price.

Some of the limiting factors to these systems include the age and construction of the water supply network, including the service line to the residence/building, which may be constructed of lead; and the fact that not everyone has access to a municipal water supply.

Additionally, some people dislike the taste of tap water, often due to the chlorination performed to eliminate bacteria and/or naturally occurring mineralization of the water.

Others dislike that their water authority treats their water with Fluoride. Beginning in 1945, Grand Rapids, Michigan became the first city to add fluoride to drinking water to reduce tooth decay. As of 2014, approximately 74.4% of the U.S. Population on public water systems received fluorinated water. This practice was lauded by the Centers for Disease Control (CDC) as one of the 10 great public health achievements on the 20th century. Locally, those on the Boston and Medford Campuses receive fluorinated water from the MWRA, while those on the Grafton Campus received fluorine-free water from the Grafton Water District. While fluorination is supported by the CDC, American Dental Association, American Academy of Pediatrics, US Public Health Service, and World Health Organization, there are those who believe that fluorine is not helpful and in some cases dangerous. One group that argues against fluorination is the Fluoride Action Network. They list fifty reasons why you should not fluorinate drinking water.

Finally, rarely, a given municipality may be unable to distribute water that complies with the SDWA for one reason or another. One such well known example is Flint Michigan. There the municipality was unable to distribute "clean" water, but still distributed "contaminated" water while ultimately being sanctioned by local, state and federal agencies. The end result was that people consumed contaminants that they most likely would not have if they drank bottled water.

According to the Centers for Disease Control (CDC) as many of 15 million household are not served by a municipal water service and instead get their water via local groundwater extraction wells or supplied by a small water supplier classified as a Private Water System.

"Spring" water can mean water pumped from below a swamp next to the interstate, or from a well in the pristine snowy Rocky Mountains.

For the great majority of people, in most cases, the tap water will be just as "safe", cost a lot less, and not have the same "footprint" as bottled water.

Ok, so why not just drink bottled water?

Not all bottled water is created equally. For example, as much as 50% of all bottled water sold is simply filtered municipal water, Dasani® and Aquafina® are two of largest filtered municipal offerings. Other bottlers, go to great lengths to market the ground from which it was pumped. For example, the pristine rainforests associated with the island of Fiji are prominently touted on every bottle of Fiji® water. Other times water is marketed as simply "Spring" water, which doesn't really imply anything about where it was pumped/sourced. "Spring" water can mean water pumped from below a swamp next to the interstate, or from a well in the pristine snowy Rocky Mountains. Regardless of where it is sourced, the constituents of bottled water are still regulated, but unlike tap water which is regulated by the EPA, bottled water is regulated by the Food and Drug Administration (FDA, 21 CFR 165.110).

For many people, the cost of bottled water is prohibitive to substitute all their tap/well water for purchased bottled water. The International Bottled Water Association reported that the average cost for a gallon of water in 2014 was $1.20/gallon. According to the City of Medford, $1.20 would buy 156 gallons of tap water and according to the Boston Water and Sewer Commission (BWSC, 2016) $1.20 would buy you as much as 183 gallons of tap water. So locally, bottled water would be 156-to-183 times more expensive than tap water.

The strongest argument against bottled water is likely the amount of waste associated with millions of single use bottles and the energy required to move these bottles, in many cases, half-way around the world. For example, it is estimated that more than 17 million barrels of oil annually are used to construct the approximately 50 billion plastic bottles used in the US bottled water industry annually.

So what?

In the end, for most of us, it is a personal choice. Not considering those on individual or private well systems who may have excellent available water or very poor quality water available. For the great majority of people, in most cases, the tap water will be just as "safe", cost a lot less, and not have the same "footprint" as bottled water. But for those who don't like the taste of the tap water, or live in an area not served by clean municipal water service and can afford bottled water, it is a good choice.

[1] https://www.cdc.gov/fluoridation/index.html
[2] http://www.mwra.state.ma.us/04water/html/fluoride.html
[3] http://graftonwaterdistrict.org/faqs_water_quality_1.htm
[4] http://fluoridealert.org/articles/50-reasons/
[5] A Private Water System serves fewer than 25 individuals and is not covered by the SDWA. The analytical requirements are not as protective and water authorities covered by the SDWA.
[6] Note that this cost is based on purchasing 1-gallon containers, the cost if purchased as single serve bottles is as much as 600 times more than tap water according to the EPA.
[7] Pacific Institute. "Fact Sheet: Bottled Water and Energy – Getting to 17 Million Barrels." December 2007.

Winter, Road Salt and Low Salt Areas

WINTER IS STARTING to set in, and many of us will soon be seeing sand and salt trucks on our roads working to improve our driving conditions, and reduce the risks of accidents. Beginning back in 1941, the State of New Hampshire began treating its highways with salt. Since then, the number has grown to 26 states, in which crews will apply approximately 22 million tons of road salt annually.

Why so much salt?

We learned in grade school that salt effective lowers the freezing point of water. So, snowy roads treated with salt will not remain frozen at 32 degrees, but will instead continue melting down to approximately zero degrees (depending on the amount of salt used). A salt treated road will clear by itself more than a road treated only with an abrasive, such as sand. The more of the road that is exposed to the sun the more the pavement will heat during the day, resulting in additional melting. So why not use more salt?

Road Salt has Consequences

Snowy roads treated with salt will not remain frozen at 32 degrees, but will instead continue melting down to approximately zero degrees.

We have known for a long time that road salt is effective for de-icing roads, but we have learned that it is not without consequences. Specifically, what happens to the salt after it is applied to our roads? Road salt applied to our roads is primarily 40% Sodium Ions, 60% Chloride Ions. As the salt is dissolved in the melting snow and ice, the Sodium and Chloride ions move from the road surface into vegetation, soil, groundwater and surface water. The salt entering the environment is responsible for impacts including; water quality impacts, human health impacts, pet health impacts, wildlife impacts, vegetation impacts.

Water Quality Impacts: Salt rich water is more dense than non-saline water, when it enters a surface water body it settles to the bottom. This water is less able to support life because oxygen cannot easily dissolve in the saline water. Due to the density differences, it inhibits lake turn-over or mixing, resulting in dead-zones at the bottoms of lakes and ponds. In 2008, New Hampshire listed 19 water bodies impaired by chloride; in 2010 that number increased to 40.

Human Health Impacts: When salt enters a drinking water well it often renders that well unusable. In New Hampshire from 1983 to 2003 the NHDOT replaced more than 424 private wells contaminated by road salt at a cost of $3.2 million. Several public water supply wells have also been abandoned due to contamination.

Pet Health Impacts: According to the ASPCA's Animal Poison Control Center, ingestion of road salt by eating salt directly, licking salty paws, and by drinking snow melt and runoff "can potentially produce effects such as drooling, vomiting, diarrhea, loss of appetite, volcalizing/crying, excessive thirst, depression, weakness, low blood pressure, disorientation, decreased muscle function and in severe cases, cardiac abnormalities, seizure, coma, and even death." (www.aspca.org)

Wildlife Impacts: Birds, the most sensitive wildlife species to salt, often mistake road salt crystals for seeds or grit. Consumption of very small amounts of salt can result in toxicosis and death within the bird population. Wildlife such as deer and moose are also attracted to the roadway to ingest salt crystals, which leads to higher incidents of vehicular accidents and wildlife kills.

Vegetation Impacts: Salt primarily causes dehydration which leads to foliage damage but also causes osmotic stress that harms root growth. Salt can disrupt nutrient uptake and cause injury to seed germination, stems, leaves, and flowering ability. Salt can lead to plant death and can also cause a colonization of salt tolerant species, such as cattails, thereby reducing species diversity.

Enter the "Low Salt Area"

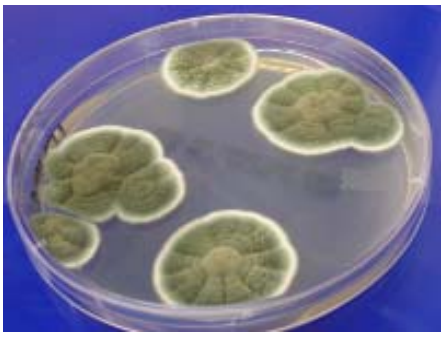
In areas sensitive to contamination by road salt, municipalities or state authorities have set up areas where "less" or in some cases, "no" salt is allowed to be applied to the road. These areas are designated by road-side signs intended to alert the salt truck drivers. These areas may contain any number of the sensitive receptors outlined above. In addition to the signs, many of these areas are listed by the agencies responsible for road maintenance. For example, MassDOT publishes a list of their "reduced salt areas" on their website.

[1] http://www.usroads.com/journals/p/rmj/9712/rm971202.htm
[2] http://des.nh.gov/organization/divisions/water/wmb/was/salt-reduction-initiative/impacts.htm
[3] http://www.massdot.state.ma.us/highway/Departments/SnowIce/WinterRoadTreatmentSnowRemoval/ReducedSaltAreas.aspx#dist5

Mold in the home and workplace: How serious is the problem?

Spores can survive harsh environmental conditions,* such as dryness, *that do not support normal mold growth.

FUNGI ARE LIVING ORGANISMS. They used to be grouped together with plants but they are distantly related. They are perhaps more closely related to animals than to plants. Fungi consist of molds, yeasts and mushrooms. Yeasts are single-celled organisms (like bacteria) while molds are long branching thread-like filaments (hyphae) that form visible colonies. Mushrooms are also filamentous fungi that form a large mushroom cap.



Mold is a type of fungus, as are mushrooms and yeast. There are between 100,000 and 400,000 types of fungi (estimates vary), and of these, scientists have identified more than 1,000 types of mold growing inside houses across America. Common molds are Alternaria, Aspergillus, Chlodosporium, Penicillium, and Stachybotrys. Molds are classified according to human responses classification examples include: Allergic Molds or Pathogenic Molds.

According to the CDC, the term "toxic mold" is not accurate. While certain molds are toxigenic, meaning they can produce toxins (specifically mycotoxins), the molds themselves are not toxic, or poisonous. Hazards presented by molds that may produce mycotoxins should be considered the same as other common molds which can grow in your house. There are very few reports that toxigenic molds found inside homes can cause unique or rare health conditions such as pulmonary hemorrhage or memory loss. These case reports are rare, and a causal link between the presence of the toxigenic mold and these conditions has not been proven.

In 2004 the Institute of Medicine (IOM) found there was sufficient evidence to link indoor exposure to mold with upper respiratory tract symptoms, cough, and wheeze in otherwise healthy people; with asthma symptoms in people with asthma; and with hypersensitivity pneumonitis in individuals susceptible to that immune-mediated condition. The IOM also found limited or suggestive evidence linking indoor mold exposure and respiratory illness in otherwise healthy children. In 2009, the World Health Organization (WHO) issued additional guidance, the WHO Guidelines for Indoor Air Quality: Dampness and Mould[1]. Other recent studies have suggested a potential link of early mold exposure to development of asthma in some children, particularly among children who may be genetically susceptible to asthma development, and that selected interventions that improve housing conditions can reduce morbidity from asthma and respiratory allergies, but more research is needed in this regard.

A common-sense approach should be used for any mold contamination existing inside buildings and homes. The common health concerns from molds include hay fever-like allergic symptoms. Certain individuals with chronic respiratory disease (chronic obstructive pulmonary disorder, asthma) may experience difficulty breathing. Individuals with immune suppression may be at increased risk for infection from molds. If you or your family members have these conditions, a qualified medical clinician should be consulted for diagnosis and treatment. For the most part, one should take routine measures to prevent mold growth in the home.

[1] http://www.who.int/indoorair/publications/7989289041683/en/

Mold pollution is a key element of indoor air pollution that few people understand. Mold has been making the headlines more frequently over the last several years, largely as a result of severe storms like Hurricane Katrina. And this year has brought enormous record-breaking floods in the U.S. not seen in more than a century, including the massive overflow of the Mississippi River, that is certain to activate serious mold infestations in certain areas of the country.

Along with obvious places such as shower stalls and damp basements, there can be many hidden sources of mold in your home. Particularly, if you've had plumbing problems or leaks in your roof, mold may grow and release spores from places such as behind drywall, under carpet or carpet padding, or in wood. But mold can find its way into some rather surprising places. One study found that even Christmas trees can breed mold, quietly releasing millions of spores into the room and causing winter allergies and asthma attacks. The study found that indoor air quality dropped six-fold over the 14 days a Christmas tree typically decorates a room. Millions of mold spores may even be hiding in your pillows.

Surprisingly, if you live in a dry climate you may be even MORE at risk—mold grows routinely in desert regions, and the desert naturally selects the most tenacious forms.

Fungi grow by releasing reproductive cells (spores) into the air, just as plants reproduce by spreading seeds. The airborne spores are invisible to the naked eye, which is a major reason mold is such a problem. It is not uncommon to find hundreds or even thousands of mold spores per cubic foot of indoor air. Spores are extremely small (1-100 microns) - 20 million spores would fit on a postage stamp.

Spores can survive harsh environmental conditions, *such as dryness*, that do not support normal mold growth. In fact, many spores can lie dormant for decades until favorable conditions allow them to spring back to life.

Molds can be found almost anywhere; they can grow on virtually any substance, provided moisture and oxygen are present. There are molds that can grow on wood, paper, carpet, tile, sheetrock, insulation, leather, fabrics, and foods. Molds survive by digesting whatever substrate they are growing on, which is a real problem when it happens to be your floorboards. The most common indoor places for mold to take hold are damp areas, such as: Bathrooms and kitchens, especially under sinks - particularly leaky ones, behind or under appliances that hide slow plumbing leaks (refrigerators, dishwashers, washing machines, etc.), roof leaks, around windows where condensation collects, and high humidity areas of your home, such as basements. There is no way to eliminate all mold and mold spores from your indoor environment; the only way to control indoor mold growth is to control moisture.

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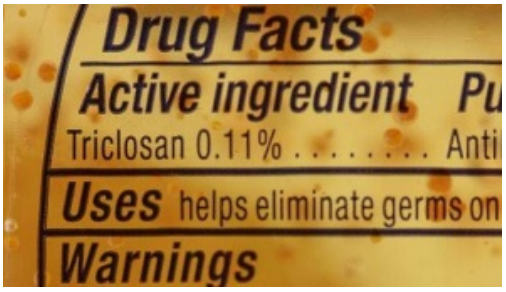
Often, the first sign of a mold problem is a "musty" odor. You are probably familiar with the smell of mildew - mildew is simply a variety of mold. You could also notice bowed or buckled floorboards, discolored carpet, a new water stain on your wall, or black or white specks - all signs you could be developing a mold problem. Proper treatment and removal is necessary.

Disinfectants: Bad for Microbes, Bad for You

FROM TIME TO TIME in the news media we see reports of health alerts regarding the flu, common colds and the ever-present Norovirus outbreaks that will want you to run to the nearest market looking for a disinfectant to kill these "bugs". There are some disinfectant manufactures that make the contemptible claim that their product will "kill ALL germs and viruses" to protect your family. Unfortunately, not all disinfectants are effective against every type of bacteria or bug and while you may think these products are keeping you healthy and safe; the actuality is that some of them may be harmful to both your health and the environment.



Antibacterial Products (antimicrobial or antiseptic soaps): In regards to disinfectants, the old adage "What doesn't kill you makes you stronger" is appropriate when talking about bugs (bacteria and viruses). According to Stuart Levy[i] a microbiologist of Tufts University School of Medicine, antibacterial products leave a surface residue that will continue to kill bacteria, but some will survive. The bacteria that survive will have developed a tolerance or have been selected to tolerate the disinfectant. These tolerant bugs will then reproduce with the mutation to resist the effects of the disinfectant. In 2013 the FDA issued a proposed rule requiring safety and efficacy data from manufacturers if they wanted to continue marketing antibacterial products specifically containing the active ingredients triclosan and triclocarban. To date little information has been provided to the FDA to show that these ingredients are any more effective than plain soap and water in and is why the FDA is issuing a final rule under which these products will no longer be able to be marketed. So, what should you do? The simplest and best proven method is to wash your hands with plain soap and water and avoid touching mucus membranes (eyes, mouth and nostrils) is the most important steps you can take to avoid getting sick and reduce spreading germs.

Alcohol-based hand sanitizers (Antiseptic rubs): claim that they "kill 99.99 percent of germs" have recently been addressed by the Food and Drug Administration (FDA)[ii] and the Centers for Disease Control and Prevention (CDC). Both the FDA and the CDC recommends consumers to simply wash their hands with plain soap and water over purchasing over-the-counter hand sanitizers. The FDA does not support manufactures claims because more data is needed to assist the FDA ensure that regular use of these products does not present safety and efficacy concerns. This does not mean the FDA believes these products are unsafe or ineffective, just additional data has been requested by the FDA to support their claims. Additionally, according to the CDC, they are not effective against the Norovirus. If soap and water are not available, the FDA and CDC recommends using alcohol-based hand sanitizers that contain no less than 60% alcohol until you have access to plain soap and water.

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Bleach: is a readily available, inexpensive and an effective disinfectant. In fact, Clorox® bleach is the only bleach registered disinfectant by the Environmental Protection Agency (EPA). Typically 10% concentration in water is effective for killing some bacteria and viruses including staphylococcus, streptococcus, E. coli and salmonella, Norovirus, flu, common cold. However, bleach is also harmful to human health – do not apply to skin and never mix with other disinfectants or cleaners especially ammonia-based cleaners. Also, application to stainless steel will pit and "rust" the surface. If used on these surfaces, it is recommended that you follow-up with 70% alcohol solution to stainless steel surfaces and wiped clean.

Ammonia-based cleaners: While these products may be "eco-friendly" over chemical-based products, ammonia-based cleaners are not EPA registered as a disinfectant. Ammonia-based cleaners will not kill staphylococcus bacteria but are excellent glass cleaner since it is known to be a cleaner that leaves no streaks and great for removing soap scums. However, ammonia-based cleaners should never be used with bleach and/or bleach containing products.

Unfortunately, no disinfectant is ideal for every situation. It is important that you define the need and select the proper disinfectant with consideration of the characteristics of a disinfectant to select the most effective and cost-efficient product. Disinfectant considerations to consider: Concentration (how much of the active ingredient or how much to dilute), method of application (spray, wipe, other), contact time, that is how long does it need to be in contact with the surface to be effective; storage (how long can the disinfectant be stored before losing is ability to disinfect). Other considerations that will affect the effectiveness of the disinfectant: Temperature, humidity, surface conditions (rough or smooth, absorbent); other chemicals and interferences. What should you do? Read and understand the instructions and the limitations of the product before selecting a disinfectant.

[i] Scientific American, Strange but True: Antibacterial Products May Do More Harm than Good by Coco Ballantyne. June 7, 2007: Retrieved 12/09/2016: https://www.scientificamerican.com/article/strange-but-true-antibacterial-products-may-do-more-harm-than-good/
[ii] U.S. Food and Drug Administration (FDA) : Antibacterial Soap? You Can Skip It -- Use Plain Soap and Water 9/2/2016: Retrieved 12/09/2016: http://www.fda.gov/ForConsumers/ConsumerUpdates/ucm378393.htm