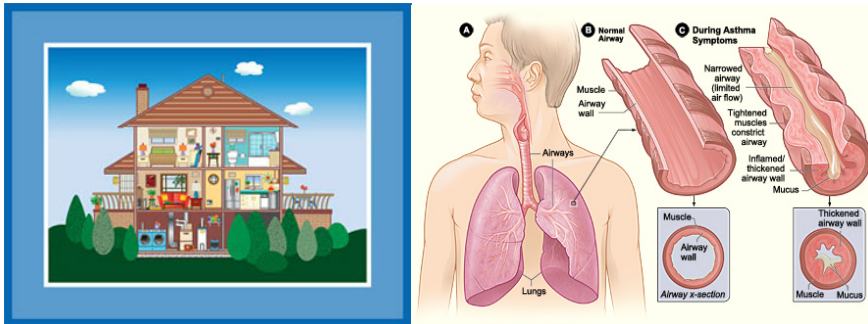


# FEBRUARY 2010 SAFETY SHARE

## KEEPING HEALTHY & SAFE INDOORS



### Why Care About Indoor Air?

- Exposure to indoor air may account for 90% of the total volume of air inhaled per day (8,000 to 10,000 liters/day) requiring a surface area (about 70 square meters) of healthy functioning alveoli for the average adult.
- Concentrations of pollutants indoors may be 3 to 10 times greater than the concentrations in the outside air.
- About 23 million people including 30% children living in urban areas suffer from asthma attacks in the USA. Another 20 million USA citizens suffer from chronic obstructive pulmonary diseases such as emphysema and bronchitis. The leading causes of respiratory diseases and lung cancer include exposures to: cigarette smoke, combustion products, radon, traffic pollutants, and other indoor air contaminants such as mold and volatile organic compounds.



### One Recent Indoor Health Survey—Top Four Concerns

- **Radon** is considered the second leading cause of lung cancer and is estimated to cause 20,000 deaths per year. Radon monitoring and remediation with ventilation, if necessary, is recommended.
- **Falls** in homes account for another 20,000 deaths per year in the USA. Reducing clutter such as loose rugs and electrical cords as well as improving lighting in homes is recommended.
- **Mold contamination** in homes produces allergenic spores as well as volatile organic compounds such as aflatoxins. 1) Remediation of water damaged building materials and items are recommended within 24-48 hours to prevent the growth and dissemination of mold. 2) Wash mold off hard surfaces and dry completely. Absorbent materials, such as ceiling tiles and carpet, may have to be replaced if they are contaminated with mold. 3) Fix leaky plumbing or other sources of water. 4) Use exhaust fans or open windows in kitchens and bathrooms when showering, cooking or using the dishwasher. 5) Vent clothes dryers to the outside. 6) Keep drip pans in your air conditioner, refrigerator and dehumidifier clean and dry.
- **Fire prevention** is essential using smoke detectors and common sense with respect to managing combustion sources. 1) Follow manufacturer's instructions, properly ventilate a room, and vent exhaust to the outside when using fuel-burning appliances or stoves. 2) Inspect and clean the entire heating system annually, including furnace, flues and chimneys.

## Home Ventilation

- In addition to mitigating or removing sources of indoor air pollutants, ventilation must also be adequate. Assuming the outside air is not contaminated; the more outside air supplied to the ventilation system is generally best for the indoor air quality. For homes and offices, 15-20 cubic feet per minute of outdoor air per person is recommended.
- Mechanical filters capture large airborne particles such as dust, pollen, dust mite and cockroach allergens, some molds, and animal dander. Filters with a minimum efficiency reporting value (MERV 1-20) between 7 and 13 may be nearly as effective as HEPA filters in controlling indoor air pollutants. Heating system air filters should be changed with scheduled regularity.
- When using household chemicals, pesticides, insecticides, paints, or when generating dusts/fumes, maximize the dilution of indoor pollutants with proper ventilation such as fans or use a local exhaust system. Use respiratory protection such as the N-95 disposable respirator which is effective for most household allergens, dusts, and some fumes.
- Open the garage door before starting your vehicle and don't let the car idle in the garage.



## Home Air Care

- Keep smokers out of your home. Second hand smoke contains thousands of gaseous and particulate chemicals, including carcinogens.
- Floors and upholstered furniture should be cleaned and vacuumed frequently to prevent the re-suspension of respirable particulates. For asthmatics, carpeting is not recommended as it is a reservoir for allergens and vacuum removal efficiencies are generally less than 60% (even with high efficiency filters).
- Wash linens and bedding frequently (once per week) at water temperatures greater than 130°F to kill mites and even more frequently if pets are allowed in the bedrooms.
- Pets and Pests: Reduce exposures to pet and pest allergens in the indoor environment by keeping animals outside and out of the bedrooms, if possible. Proteins in the secretions, saliva, fecal droppings, and urine of rodents, cockroaches, and pets are triggers for asthmatic attacks. Use respiratory protection (N-95 disposable respirator) when cleaning pest contaminated areas. Wash your pet regularly and wash your hands often.
- Odors: For pet odors on carpets, sprinkle baking soda onto carpeting and vacuum up. For bare floors, wash with a detergent then rinse with a mixture of one part white vinegar and one part water. Take out garbage and compost at least once every two days or more frequently during hot weather. Don't let damp materials like towels accumulate.
- Keep the indoor relative humidity between 30-50%. Indoor plants may contribute to indoor relative humidity and may reduce volatile organic compound levels in homes and offices.
- Formaldehyde emissions may originate from recently manufactured particle board, carpet, upholstery, mattresses, and curtains. If odors are detected from household products, maximize the off-gassing of chemicals outside. The nose is an effective detector, unless it has become acclimated to an odor. Don't let that happen!
- Avoid adding chemicals such as volatile organic compounds to the air by not using cleaning products or perfumes which are sprayed and aerosolized. There is no need for air fresheners if one keeps their home clean. Air fresheners only mask the odors, are ineffective and may be hazardous to your health. Natural air freshener options include opening windows, baking soda, coffee grounds or lemon peels.
- No air purifier can remove all the pollutants from the air and most are designed to remove only particulates. The use of ultraviolet (UV) light in air purifiers does not effectively remove smoke from the air. Air purifiers releasing ozone gas, a known lung irritant and asthma trigger should not be used.

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