www.hud.gov/healthyhomes

Everyone Deserves a
Safe and Healthy Home

A stakeholder guide for protecting the health of children and all other family members

Lead Poisoning
Mold and Moisture
Asthma and Allergies
Radon
Carbon Monoxide
Indoor Air Quality
Unsafe Drinking Water
Household Chemicals
Pests
Home Safety
Home Comfort
Asbestos

U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

OFFICE OF LEAD HAZARD CONTROL AND HEALTHY HOMES

EQUAL HOUSING OPPORTUNITY

USDA

Healthy Homes Partnership

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Introduction

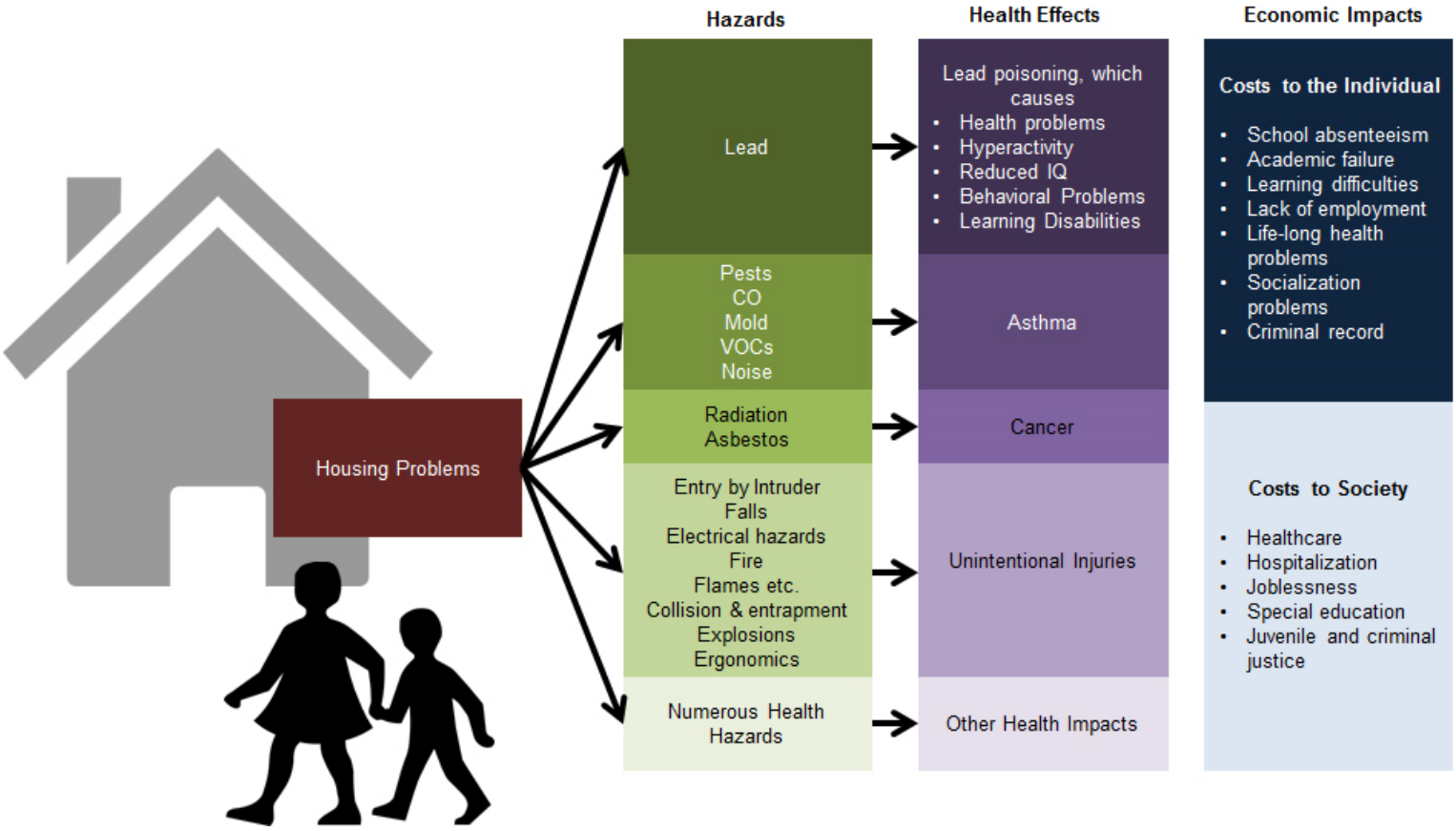
To Safe and Healthy Homes

Everyone deserves to live in a safe and healthy home. It's important for people of all ages, including children, adults, and seniors. It is estimated that most family members spend 70 percent or more of their time inside their home. Millions of these homes, however, have hidden hazards that can impact the health of the occupants and visitors.

Scientific research has revealed that many homes contain one or more hazards that adversely affect human health. According to a 2013 interagency government task force and the National Center for Healthy Housing, these housing-related hazards pose a wide range of risks, including:

- Mold and pests can specifically cause and contribute to asthma, allergies, and other respiratory illnesses. Poor housing conditions, in general, play a significant role in the respiratory health of vulnerable family members. The Centers for Disease Control and Prevention estimates that 1 in 12 adults and 1 in 10 children in the U.S. suffer from asthma.
- Toxins such as lead, asbestos, and household chemicals are detrimental to human health in a variety of ways. Lead poisoning in children causes reduced IQ and attention span, hyperactivity, impaired growth, reading and learning disabilities, hearing loss. The U.S. Department of Housing and Urban Development estimates that over 24 million homes have lead paint somewhere in the structure and there are approximately 500,000 children in the U.S. with elevated blood lead levels.
- Invisible poisonous gases such as carbon monoxide and radon also pose serious threats to family health. Carbon monoxide poisoning results in more than 200 accidental deaths a year and, at much lower levels, causes flu-like symptoms, which often go undiagnosed. Radon can increase the risk of cancer, which is the second leading cause of death among adults and children in the U.S., responsible for approximately 21,000 lung cancer deaths per year.
- Falls are the leading cause of deadly and non-deadly accidental injuries for people aged 65 and older. Older adults are more likely to be victims of falls, and the resulting injuries can affect their ability to lead an active life.

Anyone can suffer from these housing-related illnesses and injuries, however, certain groups such as children, the elderly, or individuals with chronic illness are more at risk. Besides predictable increases in illness and injury, an unhealthy home can also be a financial burden to an individual or family as shown by this diagram:



24 million homes

have significant lead-based paint hazards, as measured by dust wipes.

Lead poisoning

effects

535,000

U.S. children ages 1-5

18,000 deaths

related to injuries occur annually in U.S. homes.

12 million nonfatal injuries

occur annually in U.S. homes.

6.8 million homes

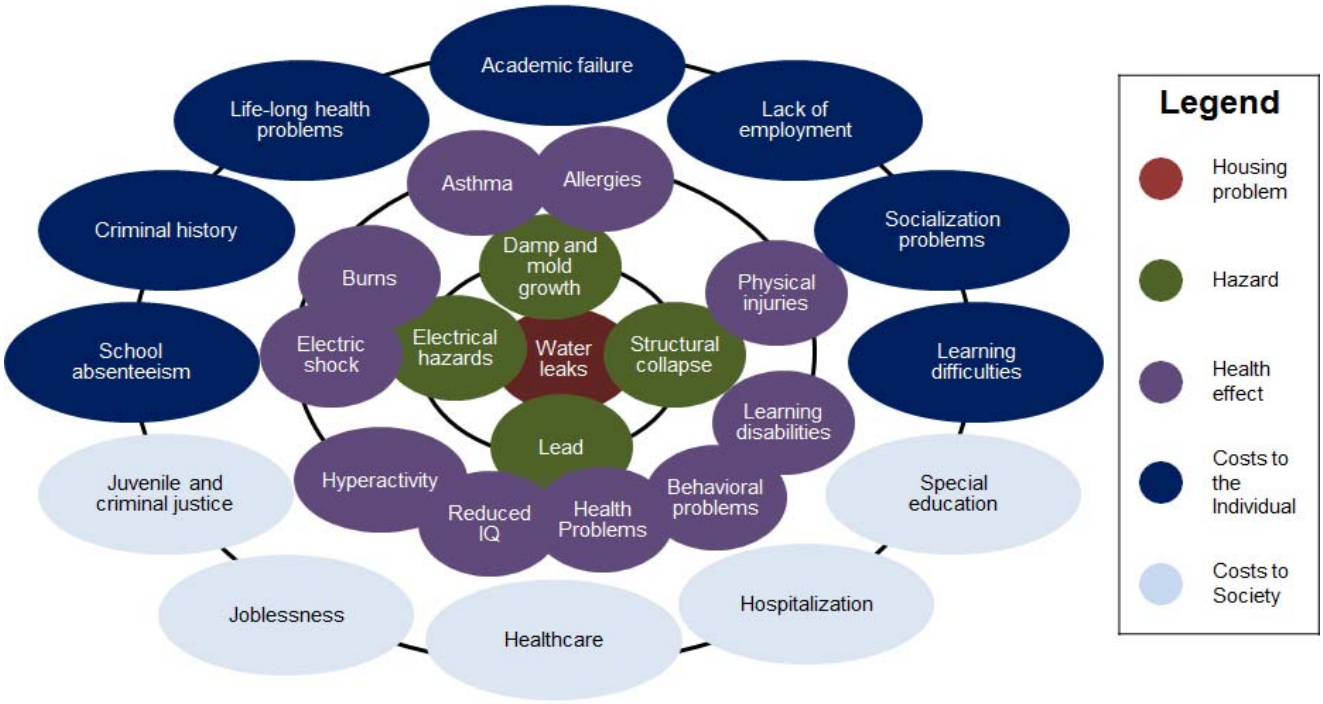
have radon exposures above the current EPA action level.

Lung cancer

from radon exposure causes

21,000 deaths

Here is an example of how a single unhealthy housing problem can lead to multiple health effects and economic impacts: It is like a "pebble in a pond": the impacts of one hazard can contribute to the many facets of the home, health, and community impacts.



This guide is a useful tool for stakeholders who serve all types of families from all zip codes. A healthy home can mean something different to each family but it can make a difference to every family. A stakeholder can be any person or group of persons that work and serve the local populations of all ages to assist them in maintaining or improving their safety and wellbeing. Examples include:

- Medical offices and health care professionals
- School nurses and teachers
- Church leaders and agencies
- Public health or housing departments
- Agencies on youth and aging
- Community college, university and state outreach and extension
- Public assistance programs
- Not-for-profit organizations
- Home and professional daycare businesses

The best approach to ensuring healthy homes for families is to encourage and facilitate a cleaning and maintenance plan, for each individual family that a health provider serves, based on a holistic home assessment related to the family's vulnerabilities. A healthy homes assessment is a great first step to help prevent diseases and injuries that result from housing-related hazards and deficiencies. Stakeholders can use this guide to educate, assess, advocate, train, and set standards and policy on healthy homes for their offices and organizations.

This guide is a companion to a consumer guide on safe and healthy homes for families, homeowners, or renters. For more information on the consumer guide, please visit ***www.hud.gov/healthyhomes.***

Guiding Goals

For Safe and Healthy Homes

Keep it DRY

Damp homes provide an environment for dust mites, roaches, rodents and molds. All of these are related to asthma. In addition, moisture can damage the building materials in homes, including lead-based paints.

Keep it CLEAN

Clean homes reduce pest infestation and exposures to contaminants.

Keep it PEST FREE

Exposure to pests such as roaches and rodents can trigger an asthma attack.

Keep it SAFE

Injuries such as falls, burns and poisonings occur most often in the home, especially with children and seniors.

Keep it CONTAMINANT FREE

Levels of contaminants such as lead, radon, carbon monoxide, asbestos, secondhand smoke and other chemicals are often much higher indoors.

Keep it WELL VENTILATED

Having a good fresh air supply in homes is important to reduce exposure to indoor air pollutants and increase respiratory health.

Keep it WELL MAINTAINED

Poorly maintained homes are at risk for moisture, pest problems, and injury hazards. Deteriorated lead-based paint is the primary cause of lead poisoning.

Keep it TEMPERATURE CONTROLLED

Homes that do not have balanced and consistent temperatures may place families at increased risk from exposure to extreme cold, heat, and humidity. Young children, older people and those with chronic medical conditions are at most risk.

Adapted from the National Center for Healthy Housing at www.nchh.org

LEAD POISONING

What are the Health and Safety Risks?

Lead is a metal. Before 1978, lead was used in paint, water pipes, gasoline, pottery, consumer goods and objects. Millions of older homes still have lead paint and lead and copper solder water pipes, even though lead is no longer used in manufacturing paint or residential surface coatings in the United States. Because of diverse export and trade laws, there are industries in many countries outside the United States that still utilize lead components and ingredients during manufacturing of items such as toys, decorative art and jewelry, and cultural display pottery. Home hobbyists may use lead in stained glass making, fishing sinkers or lead shot, but are unaware of the range of risks the hobby has on their home from the transfer of dust from those hobbies onto their clothes, shoes, and car.

If a home was built before 1978, paint on both the inside and outside could contain lead. Lead in outside paint can get into the soil around a home and can eventually be brought inside a home.

Where Do Lead Risks Come From?

The paint or varnish on walls, doors, and windows could have lead in it. Lead based paint was commonly used on surfaces that received a lot of wear. Areas included windows, doors and cabinets. Household dust from old, worn paint could contain lead. Drinking water could have lead in it from original or repaired plumbing.

Lead paint that is intact is not a direct hazard, but a potential one, if the surface starts to chip, peel, or chalk. Lead paint that peels, flakes, or is disturbed (for example, by sanding) is a health risk. To reduce lead poisoning, it is very important to advise a family to conduct regular paint assessments and maintenance routines when living in an older home. When hiring a contractor for painting or remodeling, federal law requires that up-to-date safety procedures be followed by certified contractors if lead based paint is present. A contractor must do this to prevent lead from being spread but homeowners living in their own home should be advised to use safe work practices to protect themselves and their family from lead hazards created by working with lead paint. A good resource for these practices can be found at the website for the EPA lead in renovation rule: https://www.epa.gov/lead/renovation-repair-and-painting-program .

Older houses are much more likely to have lead in various locations. Homes built before 1940 are most likely to have lead in both interior and exterior paint and possibly in any original plumbing to the house. If a family has young children, it is very important to consult with them to find out if their home has lead in it, especially if their home was built before 1978. There are certified and licensed lead risk assessors and lead based paint inspectors in each state and information on lead risks, assessments, and safe practices can be found at www.epa. gov/lead.

Why is Lead Dangerous?

Whether the lead-based paint is inside or outside the house, if it is not intact, it is dangerous. When lead paint starts to wear off, it creates lead dust or small paint chips. These can then settle into the soil outside the home. Inside, they can get on the floor, onto windows, or in places where children can touch them. Lead that is on the hands of young children can get into their bodies as children often put their hands, toys or other objects in their mouths. Lead can permanently damage a family member's nervous system, including their brain. It can cause permanent learning and behavior problems. Lead poisoning is one of the most preventable health risks for children at home.

Children with lead exposure might not even look sick. A blood lead level test is the only way to know if a child has a high level of lead in his or her body. It is up to parents and health care providers to recommend and complete a blood lead screening tests on all children ages 0-6 years old to ensure that the family is fully aware and educated about the risk of lead from the community they live in. Contrary to the information in the media, lead exposure is not a zip code problem: families of all backgrounds and resources can be exposed to lead hazards at their day care, relatives, and friend's homes where they spend significant amounts of time.

What can you do to help the families and communities you serve?

Actions for Living in a Healthy Home

Family Health

For each family served, healthy homes stakeholders should:

- Encourage health screenings for blood lead levels in children of all ages but especially ages 1-6. This test is free at some clinics or health departments. It only takes a small blood sample to tell if a child has lead in their system.
- Encourage families to facilitate frequent hand washing, especially before eating, using soap and water.
- Have the family consider feeding their children a healthy diet. Foods with vitamin C, calcium and iron can help lower the amount of lead the body takes in if exposed.

Healthy Housekeeping and Habits

For each family served, healthy homes stakeholders should:

- Encourage families to wipe window sills and other surfaces with paper towels, warm water, and soap once a week and rinse well. Families should not allow children to chew or put their mouths on window sills or casings.
- Keep cribs away from windowsills and walls that have deteriorated paint.
- Suggest to them to wash work clothes separately and don't mix them with the rest of the family's laundry. Adult workers can often bring lead dust home on their clothing, skin, or shoes.
- Inform them to test for lead first if their home was built before 1978, if a family plans to do any repair or remodeling. Also inform the family to:
  - Never scrape, sand, or burn lead paint.
  - Keep children and pregnant women away while the home is being remodeled.

If there is Lead in a Home

If lead paint is intact, the family should be instructed to consider leaving it in place and make sure it stays intact. If lead paint is deteriorated, the family should be encouraged to ask their local or state health department for a list of certified lead paint abatement companies or how to proceed safely on their own. If a home was built before 1978, there could also be lead contaminated soil and the family should be warned to avoid having their children playing near bare soil. The family might also consider placing ground covers or mulch, gravel, or plants to create a barrier in play areas.

If there is Lead Plumbing in a Home

If a family has lead water pipes, they should be warned to:

- Use cold water for cooking or drinking or making baby formula, or consider adding a water filter to the tap that will catch lead particals.
- Run the cold water faucet for a few minutes when they haven't used their water for a few hours (or overnight). This clears out any water that was sitting in the pipes that could have collected lead or other metals.

ASTHMA & ALLERGIES

What are the Health and Safety Risks?

More than 7 million children in the United States have asthma, a lung disease that makes it difficult for them to breathe. Another 40 to 50 million people have allergies. It may be anything like certain foods, plants, or something in the air. Symptoms include runny nose, watery eyes and sneezing. Allergies can also affect a person's skin. Symptoms include a rash or itching. Sometimes allergies can actually cause asthma attacks. Prevention is the key for families.

With the right knowledge and assistance, a family member can control their asthma and allergies. A knowledgeable stakeholder or provider could assess, prevent, or reduce doctor visits from family members by identifying changes in the home environment that could positively impact the recurring health issues that may be occurring. There are tools and training to teach about how to guide clients through a home assessment and educate families to learn how to make their home healthier so they will feel better. Family members should always be encouraged to see their health care provider if they believe they have asthma or allergies, where they can then get a diagnosis and proper medical advice.

Where Do Asthma & Allergy Risks Come From?

Asthma Triggers

Lots of things cause asthma attacks and these are called "triggers." Some people have only one or two triggers while others have many triggers. Some triggers are things that people are allergic to, called "allergens." An example of a trigger that is also an allergen is pollen from trees and flowers. Other allergens that are triggers come from dogs and cats, cockroaches, mice, mold spores and dust mites. Some of these allergens are very small and they float around in the air in a home. Dust mites are tiny "bugs" that cannot be seen. They live everywhere in carpets, bedding, furniture, and stuffed animals and they are more plentiful when the indoor air is humid.

Other triggers have nothing to do with allergies. Extreme cold or hot weather, exercise, and strong emotions (laughing, crying, fear, and stress) can all trigger an asthma attack. Cigarette smoke is another common asthma trigger. Nitrogen dioxide gas produced by gas stoves, or other irritants, can also be a trigger.

Common Asthma Triggers

- Dust
- Pollution
- Pets
- Smoking
- Pests
- Mold
- Pollen
- Respiratory Infections like colds and flu
- Chemical irritants

Allergies

An allergy is an unusual reaction to something that is usually harmless, like a food, a plant, or something in the air. The good news for families is that most allergies can be treated. If a family member has allergies, it's important for them to find out what causes the problem and possible solutions including medication or reducing exposure to the risks. A health care provider can test a patient to find out what allergens they are sensitive to.

Common Allergens

Many of the asthma triggers listed above can also cause allergic reactions for people who don't have asthma. Some additional common allergens are listed here. A family member should talk to their health care provider if they have a reaction to any of these:

- **Foods:** milk and dairy products; eggs; gluten; citrus fruits like oranges and lemons; artificial colors and flavors; nuts; shellfish like shrimp or clams.
- **Medicines:** penicillin; some heart medicines.
- **Insect stings or bites:** bee stings from yellow jackets, honeybees, wasps, or hornets; bites from fire ants. Sometimes reactions to insects get more serious as a person gets older. Eventually, only one sting could kill someone. A family member should always talk to their health care provider if they have had a serious reaction to a sting or bite.
- **Contact allergens:** when these touch a person's skin, they could get a rash or another reaction. These include plants like poison ivy and others, cosmetics or personal care products, jewelry, latex, and household chemicals.
- **Inhaled allergens:** when a person breathes these, they could have a reaction. They include cockroaches (their dried shells), dust mites, saliva and dander from cats and dogs, tree or plant pollen, and chemical irritants from cleaning products.

What can you do to help the families and communities you serve?

Actions for Living in a Healthy Home

Family Health

Stakeholders and providers should assist and encourage families to identify their risks for asthma and allergies and what their triggers are. They can also help provide training and education on home assessment tools and how to integrate them into a holistic approach to health, including a focus on education, assessment, and maintenance tips on Allergens, Pets, Smoking, Mold and Moisture.

Housekeeping and Maintenance

As part of a holistic approach to reducing asthma triggers and allergies in the home, families should be encouraged to:

- Use zippered mattress covers and pillow covers under sheets and pillowcases and discouraged from using feather or down pillows. They should look for "hypoallergenic" bedding.
- Routinely wash blankets, sheets, pillowcases, and mattress pads in hot water and detergent weekly and use high heat in clothes dryers.
- Change the filter on their furnace and air conditioner at least a couple of times each year. The "MERV" rating on the package for air filters should be at least 8, if allowable by the equipment manufacturer.

Pets

If the family has pets, they should be advised to:

- Keep furry and feathered pets out of sleeping areas and off of furniture, and keep bedroom doors closed to them.
- Clean pet beds, litter boxes and cages frequently.
- Damp dust with a microfiber cloth and vacuum often, preferably with a HEPA vacuum. This will reduce pet hair and dander, or feathers.

Pollen, Pollution and Fragrances

Families should be encouraged to:

- Shower or wash hair at night before going to sleep when they have spent time outdoors, and wear clean clothing daily. This is especially important when the pollen count is high.
- Ventilate their home and be sure appliances are vented to the outside. They should use exhaust fans in the kitchen and bathroom and avoid smoke from fireplaces, fire pits and charcoal grills.
- Avoid having air fresheners, incense, scented candles and fresh flowers in their home and use “fragrance free” laundry and cleaning products. Perfume and scented personal care products can trigger allergic reactions.

Smoking

If a family member smokes and they would like to quit, encourage them to look for help. Many programs can provide help for free. Good resources for smoking cessation help include the American Lung Association hotline at 1-800-LUNG-USA, or the website smokefree.gov. Until the family member has quit, they should be counseled to smoke outside and away from children, as smoke in the air can give other family members, especially children, asthma and other lung diseases.

Mold and Moisture

In order to avoid substantial mold growth in a home, a family should be coached to:

- Fix all leaks quickly as mold needs water or damp conditions to grow.
- Make sure clothes dryers are vented to the outside.
- Turn on kitchen fans when cooking and use exhaust fans that are vented to the outside or open a window when showering.
- Use a dehumidifier if the humidity in the home is above 50%.

MOLD & MOISTURE

What are the Health and Safety Risks?

Mold is everywhere inside and outside of a home, including the interior surfaces and air, but is typically not a problem until it affects the health of occupants in the home. Mold can have an effect on the health of all family members in a home, and it is important for stakeholders, especially healthcare and service providers, to understand that many families and homeowners do not have a clear understanding of what causes mold, how to treat it, or that it could be impacting their family's health.

Molds produce allergens and irritants. Inhaling or touching mold or mold spores may cause allergic reactions in sensitive individuals. Allergic reactions to mold are common. Molds can also cause asthma attacks in people with asthma who are allergic to mold. In addition, mold exposure can irritate the eyes, skin, nose, throat, and lungs of various family members. Stakeholders should note that these symptoms could also be attributed to other toxins or hazards in a home.

Where Do Mold & Moisture Risks Come From?

Mold is a fungus that is alive and grows in wet or damp places. It is usually gray or black, but can also be white, orange or green. Mold can grow on walls, ceilings, furniture, clothes, or appliances, and it can also grow in hidden places such as behind walls, in attics, and under carpet. In significant quantities, mold usually makes a home smell musty and that smell can identify a potential health hazard. Mildew is a common name for mold that grows in a thin layer on surfaces and molds and mildew are typically found in and around high-humidity areas of a house. If a family lives near water or in a humid climate, then mold is more likely to grow in their home.

Some common places in a home where mold can be found, if the interior environmental conditions are favorable for mold growth:

- In bathrooms, especially around the shower or tub
- In humid or leaky basements and crawl spaces
- Around leaky sinks
- On windows and walls where moisture builds up from condensation or where there is moisture intrusion
- In attics, especially those that are not properly vented or under leaking roofing
- On wet clothes that are not dried quickly
- In closets, or other areas without air circulation
- Under wallpaper or carpets
- In an air conditioner or ductwork
- Inside of kitchen or vanity cabinets
- Around cooktops and countertops

Should a Family Test for Mold in the Home?

In most cases, if visible mold growth is present, testing is unnecessary**.** Since the EPA and other federal agencies have no recommendations on minimum safe levels for mold, testing is not helpful or encouraged. However, surface sampling may be useful to determine if an area has been adequately cleaned or remediated after mold has been removed. Sampling for mold should be conducted by professionals who have specific experience in designing mold sampling protocols, sampling methods and interpreting results.

What can you do to help the families and communities you serve?

Actions for Living in a Healthy Home

Family Health and Housekeeping Habits

A stakeholder should always advise families that it is important to fix any moisture problem in their home right away, including using dehumidifiers, fixing plumbing and roof leaks, and ventilating kitchens, bathrooms, and dryers to the outside. In addition to these recommendations, stakeholders should encourage families to talk to their health care provider if they think mold is impacting their health. If asthma or allergies are worse at their home, mold may be a trigger. Encourage them to check for mold and moisture problems in each room of their home.

Stakeholders and service providers can also educate families in the community by:

- Encouraging healthcare providers and community assistance organizations to help families to self- assess their homes for asthma/allergen triggers that could include mold and other healthy home hazards.
- Assisting community agencies and health care providers in identifying and advocating for actions families can take to reduce allergens and mold in their home.
- Focusing education, training, and assessments on moisture prevention and safe cleaning of suspected mold areas.

Preventing Significant Moisture and Mold Inside a Home

For each family served, healthy homes stakeholders should recommend that families:

- Repair any leaks in their home right away.
- Keep an eye out for mold and mildew or water stains in the home, including on ceilings, walls, around windows, floors and fabrics.
- Avoid letting water sit in drip pans, basements or air conditioners.
- Find and correct the moisture problem and dispose of moldy materials if mold is suspected, seen, or smelled.
- Avoid letting damp laundry stay wet in the laundry basket or machine.
- Use exhaust fans to move any moist air outside especially from kitchens and bathrooms,
- Make sure clothes dryers are vented to the outside.
- Use a dehumidifier or air conditioner to dry out damp areas.
- Throw away any moldy items that can’t be cleaned
- Store items in basements on shelves above the floor and in sealed plastic containers instead of cardboard boxes.

Preventing Significant Moisture Outside a Home

For each family served, healthy homes stakeholders should recommend that families:

- Make sure gutters and downspouts are working and aren’t clogged, and rainwater drains away from the house to prevent wet basements or crawl spaces.
- Keep trees and bushes trimmed away from the home. This will allow air movement to deter mold growth.

Recommended Procedures for Cleaning Up Mold

Before a family attempts to remove mold, the first thing they should do is to figure out the source of the moisture problem. For example, if they have mold on a ceiling, it could be from a leaking pipe or roof above. If they don't fix the pipe, then the mold will most likely return.

A healthy family member may be able to clean up a small area with mold, but should always wear protective gear including a respirator rated "N-95" or higher. The family member should wear long sleeves and pants, shoes and socks, gloves made of rubber, neoprene, polyurethane, or PVC, and goggles for eye protection. A mix of water and either an all-purpose cleaner, laundry or dish soap will usually be sufficient to remove mold with a stiff scrub brush. The surfaces are then rinsed with clean water and dried. After cleaning up the mold, mold removal guidelines recommend the use of a High Efficiency Particulate Air (HEPA) vacuum or air cleaner to help get rid of mold spores in the air. Any fabrics or porous materials should be discarded.

Stakeholders should note that a professional mold remediation specialist is highly recommended when the mold surface exceeds 100 square feet or more, and the use of bleach to remove mold is not acceptable as it has considerable safety issues. Families should be instructed to keep small children, older and sick people and anyone with allergies or asthma away from the home during cleanup as the cleaning procedure usually makes mold spores more airborne and more easily inhaled.

Health departments and the Cooperative Extension Service in a community can also provide more information to families on mold and mold remediation. For additional "how to" guides to inform families about on how to safely clean up mold, especially after a flood or other disaster, visit the Rebuild Healthy Homes guide and App at www.hud.gov/healthyhomes.

CARBON MONOXIDE

What are the Health and Safety Risks?

Carbon monoxide (CO) is a toxic gas. No amount is safe to breathe. CO cannot be seen, tasted, felt, or smelled. CO can make a person sick and can be fatal. Over 200 people in the United States die every year from CO poisoning.

Signs and symptoms of CO poisoning may include:

- Headache
- Nausea
- Vomiting
- Dizziness
- Confusion
- Weakness
- Sleepiness
- Tightness in the chest
- Trouble breathing
- Changes in sight, hearing, touch, taste or smell

Breathing low levels of CO can harm brains, hearts, and other organs. When a person breathes high levels of CO, they don't get enough oxygen, may not be able to think clearly, and can lose control of muscles. In severe cases, the person might not be able to move to safety. High level CO poisoning can cause loss of consciousness, coma, and death. High CO levels from a fire can kill someone in less than a minute.

Where Do Carbon Monoxide Risks Come From?

Fuel burning appliances are the main source of CO. Common fuels are natural gas, gasoline, kerosene, coal, propane, oil, or wood. CO can be produced at dangerous levels if fuel burning appliances aren't vented or working right. Most fuel burning appliances are safe if they have been correctly installed and maintained. All fuel burning appliances need to be vented outside as unvented appliances are not safe. For example, a fireplace burns wood and smoke escapes out through the chimney. Likewise, other fuel appliances have chimneys or flues for the dangerous gases to escape. Electric appliances alternatively don't burn fuel and don't make CO.

Specific home sources of CO include:

- Furnaces, boilers, and water heaters that burn gas or oil
- Wood burning fireplaces and stoves
- Blocked chimneys and vents
- Gas appliances like ovens, stoves, and dryers
- Gas and kerosene space heaters
- Gas and charcoal grills
- Cars, trucks, campers, tractors, and other vehicles
- Gasoline powered equipment: lawn mowers, portable generators, snow blowers, chainsaws, or pressure washers
- Generators in campers and houseboats
- Tobacco smoke
- House fires

What can you do to help the families and communities you serve?

Actions for Living in a Healthy Home

Family Health and Safety

To ensure safety in a home from the dangers of Carbon Monoxide, it is essential to advise families to:

- Go outside right away if they hear a smoke or CO alarm or if they smell natural gas. Families should be taught to treat any alarm as an emergency and never ignore it. They should then call 911 from a phone outside of their home and seek medical attention as needed.
- Read the manuals for all appliances and follow all instructions.
- Engage the services of a company that services home furnaces, chimneys, and appliances yearly.
- Vent all heating appliances outside and avoid blocking air openings or exhaust vents.
- Turn off any appliance that is not working right and call a qualified contractor or repair company.
- Never operate grills, generators or anything with an engine inside a home, garage, or basement.
- Always start lawn mowers, snow blowers and all yard equipment outdoors.
- Never use the kitchen stove or oven to heat their home. *There may be programs to help families get or keep heat on in their home during cold weather days. Have them contact their local health department, community action agency, or city housing office to inquire what services may be available locally.*
- Turn on the kitchen exhaust fan when using a gas oven or stove, and leave it on after it's done for a half hour or more.

Carbon Monoxide Alarms

CO alarms are essential to protecting families from CO poisoning. An alarm will make a loud noise if CO is in the air. If a CO alarm sounds, everyone in the home must go outside immediately. Alarms are sold as plug-in or battery operated and can be purchased online or at a home improvement or hardware store.

CO Poisoning Prevention

Stakeholders need to provide outreach to consumers about the importance of:

- Putting CO alarms on every level of a home and in sleeping areas.
- Never leaving a vehicle running in the garage with the garage door closed. Doing so can cause CO poisoning, even if it is for just a couple of minutes.

Bad weather or disasters can cause the power go out. Some people use portable generators during these emergencies which are a high risk activity for CO poisoning for families unfamiliar on how to operate them safely.

RADON

What are the Health and Safety Risks?

Radon cannot be seen or smelled or tasted. But it may be a problem in homes and have a big impact on indoor air quality. Radon is estimated to cause many thousands of deaths each year. That's because when a person breathes air containing radon, they increase their chances for lung cancer. In fact, the U. S. Surgeon General has warned that radon is the second leading cause of lung cancer in the United States today. Only smoking causes more lung cancer deaths. If a family member smokes and the home has high radon levels, their risk of lung cancer is especially high.

Families can reduce their risk of lung cancer by lowering the amount of radon in their home. The good news is that a radon problem can be fixed, and in most cases, radon levels can be reduced significantly. Nearly 1 out of every 15 homes in the U.S. is estimated to have an elevated radon level. Radon has been found in every state in the U.S. and any home can have a radon problem.

Where Do Radon Risks Come From?

Radon comes from the natural (radioactive) breakdown of uranium in soil, rock and water and gets into the indoor air of a home that everyone breathes. Radon typically enters a building through cracks and holes in walls and floors adjacent or closest to the surround soil. Radon can be found all over the U.S. and it can get into any type of building — homes, offices, and schools — and result in a high indoor radon level. But a family is most likely to get the greatest exposure at home, where they spend most of their time.

Testing for Radon

Testing is the only way to know if a family is at risk from radon. The EPA and the Surgeon General recommend testing all homes at the lowest livable level for radon. EPA also recommends testing in schools. It's easy to find out if a home has high levels of radon. Families can do a radon test on their own or they can hire a professional. There are two main types of radon tests that are do-it-yourself:

- A long-term test lasts 3 months to a year. These tests are more likely to give a home's year round average radon level. Radon levels vary throughout the year. Longer lasting tests are recommended.
- A short-term test lasts 2-4 days. This is the quickest way to check a home.

A family can purchase a radon kit in a hardware store, a discount store or online. Testing does not require any protective equipment. Testing methods make a significant impact on the results of the test. Families should be advised to be cautious to read all directions and label the test completely as described on the package, and to avoid moving the test kit around after it is originally placed in a room.

Understanding Radon Test Results

The amount of radon in the air is measured in "picocuries per liter of air" or "pCi/L". The average indoor radon level is about 1.3 pCi/L. The EPA and the U.S. Surgeon General recommend a radon mitigation system if the indoor radon level is 4 pCi/L or higher. Families may also consider taking action even if the level is between 2 to 4 pCi/L.

What can you do to help the families and communities you serve?

Actions for Living in a Healthy Home

Family Health and Safety

It is not possible to get rid of the uranium or soil that is causing the radon problem in a home, but there are other things that families can do. The goal is to reduce the radon levels in the home by stopping it from entering. The most important points to communicate to a family is that they need to be informed and educated about the dangers of radon, how to test homes, and remedial measures available to them when radon levels are too high.

A Radon Problem Can Be Fixed

Radon reduction systems work and they are not too costly. Installing a radon mitigation system will help “mitigate” or reduce radon indoors. Some radon reduction systems can reduce radon levels in a home by up to 99%. Even very high levels can be reduced to acceptable levels with an appropriate installation.

The most common mitigation system is a pipe that goes from under the lowest floor - basement or first floor - of the home and continues straight through the roof. For higher radon levels, a motorized fan is attached to the pipe (often in the attic or basement) to help remove the radon gas to the outdoors. The EPA recommends that a homeowner have a qualified radon mitigation company install the mitigation system. There is help available to install these systems by contacting a state radon office for qualified radon mitigation companies in the area.

Fixing a Radon Problem with a Mitigation System

There are several proven methods to reduce radon in a home, but the one primarily used is a vent pipe system and fan, which pulls radon from beneath the house and vents it to the outside. This system does not typically require major renovations to a house, as it can often be placed in closets or between rooms. Sealing foundation cracks and other openings is often completed with the installation of the vent pipe to make the mitigation system more effective and cost-efficient.

A licensed radon mitigation specialist can recommend what system is best for a home. Homeowners should check with their state health department website for more information on how to find certified radon mitigation contractors. Retesting a home after a radon mitigation system has been installed is always recommended to verify the efficiency of the work completed and to make sure the radon level has been reduced to less than 4 pCi/L.

DRINKING WATER

What are the Health and Safety Risks?

Every day, Americans drink more than a billion cups of water and use water to cook and clean. Most people trust that their water is safe, and this is usually true. Public drinking water in the United States is routinely tested for safety, but if a home has a well or other private water supply, it's the homeowner's responsibility to test it.

No matter where water comes from, families need to make sure it's safe. Family members can get sick from drinking, cooking, and bathing in unsafe water even though it may still look, smell and taste fine.

Drinking unsafe water can cause an upset stomach, diarrhea, or more serious problems. It can be worse for children, pregnant women, those who are sick and older people. Unsafe water can be more dangerous for children than adults because children drink more than adults for their size and their bodies are still growing.

Unsafe drinking water often contains bacteria, total coliforms, and viruses that can cause diseases as well as heavy metals and chemicals. Just one sip can make someone sick. Contaminated water can damage kidneys, liver, and other organs. Some chemicals in unsafe water may cause cancer.

Lead can cause permanent learning and behavioral problems in children. Babies who get too much copper can get colic and spit up their formula if these metals are in the water used to make formula. Older children and adults may get upset stomachs or diarrhea from copper.

Nitrates in water may also cause birth defects and miscarriages. Too much nitrate in drinking water can also cause blue baby syndrome in babies less than six months old. Blue baby syndrome is when a baby's blood doesn't get enough oxygen and their face can turn blue or purple. If this happens, they need medical attention right away.

Where Do Drinking Water Risks Come From?

Nitrates are chemicals that get into water from animal and human waste. It can also come from fertilizers. Nitrates can seep into drinking water from a lawn or a sewage system. Testing tap water for nitrates is important before giving it to babies and children.

Lead and copper are metals that can get into water from plumbing pipes. Other harmful chemicals can get into drinking water such as pesticides that wash off lawns or leak from storage containers, and gas or oil that has seeped into the ground and into wells used for drinking water.

Public Water Supplies

The water in many homes comes from a public water supply. Most public water supplies are local. Public water typically comes from groundwater or from a nearby river or lake. If the drinking water is from a public water supply, it is tested for over 80 chemicals. The water company determines if the water meets EPA safety standards for drinking and they are required to notify customers if it is unsafe.

Every year, water companies are required to give their water test results to customers. Reports are available online or by mail. Families can also call their water company to ask what chemicals are in the water and also ask how they treat it to make it safe. Public water can still be unhealthy and this is possible if the home has lead or copper pipes.

Lead Pipes: Older homes or apartments may have lead pipes. Lead is a dull gray color and scratches easily. Brass fixtures also contain lead.

Copper Pipes: Copper pipes are reddish brown in color.

Private Water Supplies

Nearly 15% of Americans have private water supplies mostly from a well on their property. A well is a deep hole in the ground that fills with water and has a pump and pipes which transport water into a home. There are many different types of wells.

Types of Wells

A dug or bored well has a hole about 2 feet across and are typically less than 50 feet deep. They can be unsafe as chemicals and germs can get into the water through the top and sides. A drilled well has a narrow hole and is 6 to 8 inches around and can be hundreds of feet deep. A driven point or sand-point well is 2-3 inches around and may not be very deep. If a homeowner doesn't know what kind of well is on the property, a local well driller can be of assistance. If the well is more than 20 years old, it should be checked for contaminants often.

Testing Well Water

Stakeholders should recommend that homeowners and renters have well water tested every year by a state certified laboratory. They should be sure the test includes bacteria and nitrates. Families can go online or call a local or state health department or Cooperative Extension Service (www.nifa.usda.gov/extension) to find out what tests are needed.

What can you do to help the families and communities you serve?

Actions for Living in a Healthy Home

Family Health

If the home has lead or copper plumbing with lead solder, family members should be instructed to:

- Never use hot water from the tap for cooking, drinking, or making baby formula. Heat dissolves these metals into the water.
- Use cold water instead of hot water and heat it on the stove or in the microwave to warm it up but test it to be sure it is not too hot before feeding a baby or toddler.
- Let the cold water run for a few minutes when the water hasn't been used for at least 3 hours. This will help clear out any water that is sitting in the pipes which might collect lead or copper.

Community Health and Safety

Clean water in public water supplies and from private wells requires community-wide outreach so that everyone is doing their part to keep the water safe to drink for all families. In order to help keep local water safe, healthy homes stakeholders should advise families in proper care and disposal of household and yard chemicals to avoid adding contamination to the surrounding groundwater and wells. Families need to:

- Ask the water company for the most recent water quality report.
- Follow all directions on the label when using poisons to kill bugs or weeds.
- Store chemicals safely and be sure containers are labeled and sealed.
- Avoid putting chemicals in the garbage or down the drain and reading labels for disposal instructions.
- Give leftover chemicals to someone who will use them or call a local or state health department to find out how to get rid of them safely.
- Make sure to clean up after pets. Don't leave droppings on the ground. Rain can wash germs into storm drains, rivers and lakes. Flush pet waste down the toilet, or put it in a plastic bag and throw it in the trash.

Housekeeping and Maintenance

To protect a private water supply, homeowners and renters should be advised to:

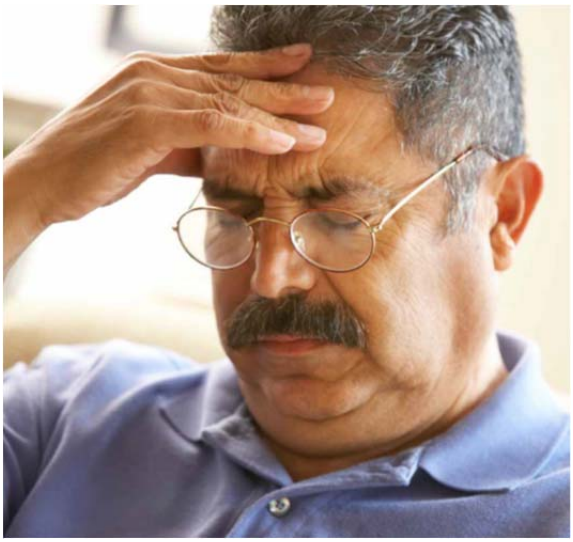
- Test their well water every year.
- Have a professional plumber check the well if it is having problems or has high levels of contaminants.
- Make sure the well is not in a low area of the yard where rainwater can collect. Rainwater can carry germs and pollutants into well water.
- Avoid keeping gas, oil, weed killer, or other chemicals near the well or uphill from it.
- Ask the local or state health department how to seal an unused well if it is abandoned. Cap or fill unused wells to prevent ground water contamination.
- Put "back-flow prevention devices" on outdoor faucets to keep water from flowing backwards into the water supply. These devices help keep germs and pollutants from washing back into a home's drinking water.

When a family moves into a new house or apartment, they should always be advised to find out where the well is located and place a well marker to designate the exact location of the well.

HOUSEHOLD CHEMICALS

What are the Health and Safety Risks?

Some household chemicals and products are more dangerous than others. Some can be used safely if the directions are followed on the label. Hazards from household chemicals include using too much of a product or misusing a product, such as mixing two products together that are dangerous when they are combined.



Children and adults can be injured or poisoned by accident. This can happen if products are misused, stored or disposed in the wrong way. Eating or drinking a hazardous product is very dangerous, sometimes deadly. Children have smaller bodies that are growing so chemicals can harm them more.

Some hazardous products can burn just by touching them and some can poison through the skin if they are touched. Others can also poison a person when they breathe them in. Exposure to these chemicals might make a person feel sick to their stomach or dizzy and their eyes might water, sting or hurt. Other common reactions are headaches or nasal congestion.

Sometimes a person can know right away if a family member has been poisoned by a hazardous product. But some problems don't show up for a long time. Some chemicals can also change how a child grows and develops. Long-term contact with some products can cause cancer or damage to lungs or other organs.

Where Do Household Chemicals Risks Come From?

Hazardous household chemicals are products for use around a house or yard that can be harmful or poisonous. It can hurt someone if it's not used the right way. Here are some common examples:

- All-Purpose, surface and floor cleaners
- Detergent
- Medicine
- Glass cleaner
- Batteries
- Bleach
- Bug spray
- Toilet and drain cleaners
- Furniture polish
- Oven cleaner
- Rat poison
- Mothballs
- Charcoal lighter fluid
- Dishwasher pods
- Mercury thermometers
- Gasoline
- Oil
- Paint
- Shoe polish
- Glue and epoxies

What can you do to help the families and communities you serve?

Actions for Living in a Healthy Home

Family Health

A stakeholder should remind all families they serve that if they think a family member has been poisoned they should call the poison control center number immediately. If a family member is exposed to, breathes in, or swallows a dangerous household chemical, they can reach a local Poison Control Center by calling **(800) 222-1222** from anywhere in the United States at any time. Families should store this number in a mobile phone or speed dial and also put it where hazardous products are stored.

Some persons can have allergies to strong chemicals which could be impacting their health and work. If a family member identifies sensitivity to chemicals during cleaning they should notify their health care provider.

Housekeeping and Maintenance

Most families can create a healthier home environment by changing some of their everyday practices so they don't need to always use hazardous products for cleaning. Some suggestions for them include:

- Use only the amount of the product that is recommended.
- Steam cleaning is a good alternative for people who want to reduce their exposure to chemicals.
- Look for products that are less toxic: "Green" is printed on some labels. It usually means safer, less toxic products. Look for products that list all ingredients and less toxic products that have been tested by a third party. Reliable third party seals include: EPA Design for the Environment, Green Seal and EcoLogo.
- Keeping a doormat by every entrance to the home to encourage "wipe your feet" habits

A stakeholder should encourage the families they work with to take the following precautions to protect the most vulnerable family members:

- Always keep hazardous products in their original containers.
- Recycle products at approved locations. Oil, antifreeze, and products with mercury can be recycled.
- Families with young children should always buy products in child-proof containers and only get medicines with child-proof caps.
- Keep all hazardous products and chemicals in a locked cabinet away from children including the kitchen, bathroom, garage and hobby areas.

Use Safely as Directed

Family members should always follow directions on the labels of household chemicals. That is one of the most important steps in using hazardous products. They should also take extra care if a label has any of these words:

- Caution
- Harmful
- Warning
- Danger
- Poison
- Flammable
- Toxic

Safe Housekeeping Habits

For each family served, healthy homes stakeholders should recommend that families:

- Always put the cap back on a product tightly and put everything away right after use.
- Do not eat, drink, or smoke when using a hazardous product, and wash hands thoroughly after use.
- Never mix products together unless directed by the product label.
- Keep children, pets, and pregnant women away from the area where the hazardous products are being used.
- Use chemical free alternatives
- Store laundry and dishwater pods away from children. They are very dangerous for children as they are brightly colored and may look like candy.
- Keep products in the original package, can, or bottle. Never put products in another container. Keep containers and packages dry. Close containers tightly.
- Keep household products away from heat, sparks, and fire. Don’t store anything near the furnace.
- Store batteries and flammable chemicals like gasoline out of direct sunlight.
- Find out where to recycle products with mercury, as it is quite toxic, even in small amounts. Some items that contain mercury are: fluorescent bulbs, thermometers, thermostats, and blood pressure meters.

PESTS

What are the Health and Safety Risks?

Pests are unwanted living creatures in or around a home. Pests can act as asthma and allergy triggers in sensitized family members and those with asthma or who are chronically ill. Inside of homes, mice, rats, and cockroaches may also trigger asthma attacks. Pests can be a health and safety hazard because they can carry bacteria in on their skin or fur, through biting humans, or by damaging home structure or components making the home unsafe.

Indoor pests include bugs or rodents that get inside and into food; mice and rats which can chew on electrical wires and cause fires; rats and certain spiders which can bite and make people very ill; and fleas and ticks which can be carried into a home on pets or clothing and can cause disease.

Bedbugs are tiny insects that feed on blood of humans and animals. They are hitchhikers and they can crawl onto children and adults or their belongings. Bed bugs are very difficult to get rid of once they have infested a room or area. Common bed bugs are not known to transmit disease but some people have allergic reactions to their bites.

Where Do Pests Risks Come From?

Pests travel into a home looking for places with food, water and shelter. Removing their access to these things can greatly reduce pest problems. Families should be advised to ask these questions in order to identify the problem and possible solutions:

- Are there gaps or openings in the walls, doors or windows?
- Are pets bringing in pests?
- Is there spilled or open food anywhere in the home?
- Is there a water leak in or around the house?

Bedbugs can be carried home in luggage, bags or on clothing. They are most common in public places or where people sleep or travel. They can be found in homes, apartments, dorm rooms, hotels, cruise ships and in public transportation. Bed bugs tend to hide during the day and come out at night and they hide in bedding, furniture, cracks and tight places. If a family thinks they have bed bugs they will need to confirm it with a cooperative extension agent or health professional. If a family is renting the house they should immediately contact their landlord, and check with state or local laws regarding bedbugs.

What can you do to help the families and communities you serve?

Actions for Living in a Healthy Home

Preventing or Controlling Pests Safely

Identifying pests and fixing the causes of pest problems is the first step families should take. First, families should try pest prevention and non-chemical tools like traps. Non-chemical products like traps are safer for people and pets.

Next, families should try to remove the conditions that allowed the pest(s) to enter and live. This system of removing pests is called **Integrated Pest Management** or **IPM**. IPM is an effective and environmentally sensitive approach to pest management that relies on a combination of commonsense practices. IPM programs use current, comprehensive information on the life cycles of pests and their interaction with the environment. This information, in combination with available pest control methods, is used to manage pest damage by the most economical means, and with the least possible hazard to people, property, and the environment.

IPM in Multifamily Housing

If a family lives in an apartment, a condominium, or any kind of unit in a multi-family housing complex, there are special measures that should be considered to prevent or solve pest problems. To keep pest numbers down, each resident needs to do his or her part, keeping individual apartments clean to discourage pests throughout the building. The apartment resident's role encompasses these responsibilities:

- Prepare units for visits from a pest management professional or exterminator.
- Follow leases regarding housekeeping, sanitation, trash removal and storage.
- Report the presence of pests, leaks and mold.
- Monitor common areas for problems and help neighbors with these tasks.

Housekeeping and Maintenance

A stakeholder should encourage families to be diligent in finding out how pests are getting into their home and advise them to walk around the house from outside, and:

- Look for openings in walls, doors and windows, then sealing gaps where pipes and wires come inside. This is often where pests come in.
- Use screens on windows and repairing holes in screens.
- Make sure doors and windows are tight and well- sealed. (Mice can get in a hole the width of a pencil). Repair damaged doors and windows.
- Trim plants so they don't touch the exterior walls,
- Avoiding large collections of trash.
- Keep gutters clean and use downspouts to direct water away from the home.
- Get rid of standing water in watering cans, toys, wading pools, buckets, cans, tires, and plant containers. Standing water breeds mosquitoes.
- Repair openings in the roof and eaves which may let bats, bees and squirrels inside.

After an inspection from the outside, the family should be advised to proceed to inspecting the conditions of the interior, and routinely:

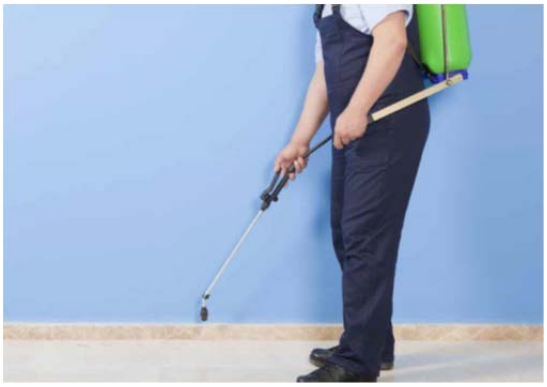
- Clean countertops, floors, window sills, and other surfaces often.
- Clean up spills and crumbs and dirty dishes right away.
- Keep a tight lid on trash cans and emptying the trash daily.
- Store food in tightly sealed containers. Pests are attracted to food in open bags, boxes or containers.
- Keep pests from getting water by fixing plumbing leaks and not leaving dishwater in the sink overnight.
- Get rid of clutter, especially newspaper, bags, papers, and cardboard boxes. Paper makes a good home for pests. Also, Roaches like the glue in paper bags and cardboard boxes.

Safe Pest Control Methods

Once clutter is removed, cracks and crevices are sealed, and a home is clean, THEN a family may be further advised on pest control methods the may still be needed. Families should always choose less toxic methods first and non-chemical methods of pest control are safest. Other suggestions to help families with pest management include:

- Snap (not sticky) traps for mice. Mice or rats may stick to the traps but not die and remain a bite hazard.
- "Child resistant" traps for roaches, ants or mice.
- Avoiding the use of pesticides or rodenticides like pellets. Rodents can eat them and die inside walls and hidden places. Dead rodents smell bad and the smell can last for months, and children or pets may eat the pellets.
- Fly swatters to kill flies, spiders or roaches. A vacuum cleaner can also remove them but the vacuum bag should be thrown away as soon as possible so the pests don't get out.
- Sealant, steel wool or other pest-proof materials to plug cracks. An "escutcheon plate" keeps pests out around pipe openings.
- Not using products designed to be used outdoors inside a home.

Methods That Use Chemicals



Pesticides can cause health problems if not used properly. If the non-chemical methods do not work, it's best for a family to call a certified pest management professional. Persons in the home should only use pesticides according to the label directions, and choose products that cannot be easily breathed, swallowed or touched by babies, children and adults. Children could easily become sick from contact with pesticides. Families should always keep pesticides in a locked cabinet and out of reach. It is vital that the person applying the pesticide uses only the amount of product that the instructions say to use. More is not better and can be very dangerous to persons and pets.

Residents planning on using chemical pesticides should review important information on recommended protection including:

- Plastic or rubber gloves
- Long sleeves
- Long pants
- Safety glasses or goggles
- Dust mask or respirator

Families using pesticides should always be advised to wash hands after use and never smoke, eat, or drink while using the products. For more information on pesticide safety, the Environmental Protection Agency, Office of Pesticide Programs (EPA/OPP) supports the National Pesticide Information Center. The number is (800) 858-7378 and their website is: www.npic.orst.edu.

Bed Bug Prevention and Removal

When returning home from travel or somewhere that may have had bed bugs, families should be advised to store belongings in sealed bags until they can be carefully inspected with a flashlight or magnifying glass. If bedbugs are found, non-flammable items and clothing should be immediately put in the clothes dryer on the highest heat setting for 30 minutes to kill them. Flammable items should be discarded, if possible. Clothing from a suitcase should be unpacked and put directly into a clothes washer and hot dryer.

Regular maintenance in a home to reduce the possibility of bed bug infestation includes recommendations to regularly wash and dry bedding and any clothing that touches the floor and throwing away the vacuum bag or contents right away after vacuuming.

HOME SAFETY

What are the Health and Safety Risks?

When it comes to safety, preventing injuries at home is important for people of all ages. A family member's chances of getting hurt at home are much higher than at work or school. Very young children and older adults are the most likely to get hurt. The leading causes of death and injury in the home are:

- Falls
- Poisoning
- Fires or burns
- Blocked airway
- Drowning
- Weapons

Where Do Home Safety Risks Come From?

Falls are the leading cause of deadly and non-deadly accidental injuries for people aged 65 and older. Most falls happen at home and can be inside or outside. Most people trip and fall at floor level, not going up or down stairs. Older adults are more likely to be victims of falls, and the resulting injuries can affect their ability to lead an active life, or worse.

Young children can get into everyday items that can poison them. Children like to play with things that they find because they can look or smell good and by nature they are curious. Children may find new things appealing such as medicine, makeup, household chemicals, alcohol or plants. Babies and toddlers will put items in their mouth as they crawl or run around.

Fires and burns are a main cause of death in the home. Older adults are most at risk. They might not be able to hear an alarm or get out of their home or apartment quickly. Older adults also may have difficulty seeing, smelling or hearing.

When a person is choking, a blocked airway can cause them to stop breathing and can be fatal. Children under age 4 and older adults are the most likely to die from choking. People usually choke on food although children can choke on something they find, like a button or a coin.

Suffocation happens when a person's nose, mouth, or throat is blocked and they can't breathe. If someone stops breathing long enough, they can suffer brain damage or die. Sheets, blankets, and plastic bags can suffocate people or pets who get caught in them. Strangulation deaths and injuries can occur anywhere in the home. For example, corded window coverings are a risk for young children and pets.

Drowning is a major safety risk at the home. Children aged 1 to 4 have the highest drowning risk. Weapons are also a major safety concern.

Many of these causes of death and injury are preventable.

What can you do to help the families and communities you serve?

Actions for Living in a Healthy Home

Stakeholders and service providers should be aware that many families live in blended and extended home situations where multiple families are joined in one residence, causing space to be cramped and trip and fall injuries to be a higher risk. Encourage and facilitate families to be aware of home hazards and to take action for those family members at highest risk of injuries in all rooms of the home.

Some actions that families can take to increase the safety of their home include:

Help Prevent Trips, Slips and Falls

- Keep floors clear of anything that could cause someone to trip. This includes: clothing and shoes, papers and newspapers, and clutter.
- Use night lights in bedrooms, hallways, stairs, landings, and bathrooms to increase visibility.
- Don't use chairs or tables as ladders.
- Use safety gates to prevent falls down stairs. Repair any stairs that are cracked or worn. Install secure handrails on steps and ramps.
- Use anti-slip mats around and in tubs and showers.
- Supervise children and keep their play area away from windows and stairways.
  - Be aware that screens alone cannot prevent children from falling. Use window guards and window stops. Window guards prevent children from falling out of windows. Adults and older children should know how to open these easily in case of fire. Window stops prevent the window from opening more than 4 inches.
  - If possible, open windows from the top to get fresh air, not the bottom.

Help Prevent Fires and Burns

- A smoke/fire alarm should be located on every level of a home and an additional one in or near every sleeping area.
- An adult should always be in the kitchen during cooking in ovens or on stoves. Family members should never put or leave flammable items on or near the stove or cooktop.
- Store matches, lighters, and other heat sources in a safe place like a locked drawer.
- Talk about fire safety with children. Talk about how to prevent fires and what to do if there is a fire.
- Plan and practice a fire escape route.
- Keep a fire extinguisher on each level of the home.
- Keep floor pathways clear of electrical and extension cords.
- Keep portable heaters out of doorways, halls, and other busy areas and away from curtains, bedding, and anything that could catch on fire.

Help Prevent Choking and Suffocation

Small children, older adults or other people that need help eating should not eat food that they could easily choke on. Everyday foods like nuts, popcorn, hard candy, or other small foods can easily get stuck in the throat.

- Have children drink while sitting up. Drinks like formula, milk, and juice can make babies choke if they are drinking while lying down, especially when drinking from a bottle.
- Balloons are a choking hazard. Infants and toddlers are most at risk for choking on items like small toy parts, coins, marbles, buttons or anything that can fit in their mouths.
- Do not tie toys or pacifiers to children's clothes. Small children should not wear jewelry around their necks.
- Read every toy package to make sure it's safe for children in the home. Small toy parts are a choking hazard. Only allow children to play with toys that match or are recommended for below their age.

Help Prevent Strangulation

- Corded window coverings can accidently strangle infants, children and pets. In 2012, new standards were approved for corded window coverings. If a home has older window coverings, it is best to replace them. Children can accidentally wrap window cords around their necks and become entangled. This is a very serious hazard and may cause death.

- Drawstrings on children's clothing can be hazardous. Children shouldn't wear jackets, hoodies or sweatshirts with drawstrings longer than 3 inches. Drawstrings must be stitched to the back of clothing. Do not purchase clothing with toggles or attachments on drawstrings. Drawstrings can attach to playground equipment, vehicles or furniture and may cause strangulation.

Help Prevent Tip-Over Hazards

Furniture and appliances such as televisions that are not well secured represent tip-over hazards to young children in particular. Children can be subject to injuries from tip-overs, including crush and head injuries. Parents or caregivers should ensure that furniture and appliances are stable and not prone to tipping.

- Large appliances and furniture (e.g., bookcases) should be anchored to the wall.
- Televisions should be on sturdy, low bases and should be pushed as far back on stands as possible.
- Remote controls, toys, and other items that might attract children should be kept off of TV stands or furniture that represents tip-over hazards.

Help Prevent Drowning

- Parents or other adults should always supervise children and older adults by the water. Life jackets or vests should be worn on docks, at beaches, rivers and by the pool.
- Make sure any pools, hot tubs, or spas have a fence around them. Make sure the fence is at least 5 feet high or the height required by the local building code, if higher. Select a pool fence with a self-closing gate and install pool and gate alarms near pools. Surface wave and under water alarms are also available. Make sure pool and spa covers are in good condition.
- Young children should never be alone in the bathtub. Use toilet lid locks when you have toddlers in the home to prevent drowning in the toilet. Remember, children can drown in only a couple inches of water.

TEMPERATURE CONTROL

What are the Health and Safety Risks?

Every home needs to be a temperature controlled home to ensure families and the house structure is safe from extreme temperatures and provides comfort. A temperature controlled home has balanced temperature and humidity levels. Older homes were constructed with materials and methods that are not very energy efficient, but most do have good ventilation from infiltration of air. However, homes that are not energy-efficient cause monthly utility bills (gas, electric, propane) to be more expensive, therefore, it is beneficial for homes to have a balance of energy efficiency and adequate ventilation.

Homes that are not temperature controlled may place a family at increased risk from exposure to extreme cold and heat. High temperature and humidity in a home can make asthma, mold, and other indoor pollution worse, as well as general discomfort for a family. Having high monthly utility bills can also lead to financial stress for families.

Where Do Temperature Control Risks Come From?

A home's heating and cooling system should provide a stable temperature that also prevents excessive moisture, heat and cold to the indoor environment. When it doesn't, families will sometimes go to extreme measures to make the resources they have work to temporarily meet their needs. To avoid severe temperatures in their homes, families will sometimes do what they can, such as:

- Turning on the Oven
- Use portable heaters that burn fuel and electric
- Use generators
- Add fans and window air conditioners
- Overcompensate with heat or cold air to avoid extreme temp during loss of energy or service

There are times when resources are not available for long periods of time and these temporary fixes become the only form of heat and cool air they have available to them. However, families should be warned that:

- Long term use of an oven, fuel burning portable heaters, and generators to heat a home creates a fire and burn risk as well as CO poisoning risk to the occupants of the home. These measures may also not prevent excessive cold from impacting the most vulnerable populations.

- Long term use of window air conditioners can create mold and moisture issues especially beneath the unit, including the window sill trough, siding and all components in the "water run off" path that these units create.

- Some older generations have a very low tolerance to cold and keep their home at stifling levels of heat year round. Although understandable that their circulatory system is working hard to keep their body strong and balanced; the home and other occupants may be compensating by opening windows or adding window air conditioners in separate parts of the home. The mixture of heat and cold will start to create condensation in the home building materials and structure. Excessive moisture can rot wood based materials, and paper, fabrics, and gypsum materials are ideal environments for mold and mildew growth. Mold and mildew can occur quickly and may hide behind walls, under flooring and wallpaper.

What can you do to help the families and communities you serve?

Actions for Living in a Healthy Home

Family Health and Housekeeping Habits

Stakeholders and providers should encourage families to assess ways to improve their heating and cooling system and their maintenance. A home energy audit can assess a home's energy use and can suggest strategies that a family can implement to find a healthy compromise to temperature and humidity levels that meet the needs of all of their family members. See this website for more information: www.energy.gov/energysaver.

Insulation

Insulation can be a way to balance the temperature of rooms that family members sleep and spend the most time in to avoid overcompensating with the thermostat. Insulation acts like a blanket around a home and it slows heat from escaping in the winter and heat from entering the home in the summer. It is installed throughout homes in the walls, floors, attics, and sometimes basements and crawl spaces. When adding or removing insulation, caution should be taken by the homeowner to look for possible existing **Asbestos or Vermiculite** insulation. These types of insulation were popular at one time but are now known to have harmful health effects if the material is disturbed and the fibers become airborne. It is best for homeowners to have a certified insulation contractor or home inspector identify the risk of any material that is suspected of containing asbestos including a friable, grainy texture; crumbles on touch; and/or looks like pellets (vermiculite insulation).

Air Ducts

Some homes use forced air systems to provide heating and cooling. In these homes, air travels through a system of supply and return ducts. These are made of rigid or flexible materials. Ductwork can be found in attics, walls, and under floors. Heated and cooled air leaking from out of ducts should be fixed by sealing the leaks otherwise a homeowner is wasting money and losing heat or air conditioning. Homeowners should be instructed to:

- Check air ducts for leaks and repair them, especially in places like attics and crawl spaces, using mastic or foil tape to seal the leaks.
- Keep air outlets and registers open and don't block them with furniture or draperies.

General Heating and Cooling Tips

For low or minimal costs, families can take the following steps to balance energy efficiency with heating and cooling requirements:

- Add a programmable thermostat, or use small room or ceiling fans during the summer, and keep the home cooler in winter and warmer in the summer. Changing the temperature on the thermostat by 2° can reduce utility bills by approximately 5-10%.
- Install curtains and shades: open to let the sun shine in during the winter and closed in the summer to keep the heat out.
- Use caulk and weather stripping around windows and doors to stop air drafts. Replace old, cracked or peeling material with new material and seal cracks around pipes.

Indoor Air Quality

For Safe and Healthy Homes

Indoor Air Quality is the health of the air inside a home. There can be hazards, gases, and particles in the air that can be dangerous or unhealthy for various family members. It is not always easy to tell if a home has good indoor air quality. The air inside a home can actually be worse for a person's health than the air outdoors. Most people spend more than half their lives inside their homes, which is why indoor air quality is so important.

The following is a stakeholder and service provider summary of indoor air quality issues in a home:

Lead Poisoning

Homes or apartments built before 1978 could have lead paint. Dust for old lead paint can get into the air and onto floors, windowsills, and other surfaces. Lead exposure is especially hazardous to children under the age of 6.

Asthma and Allergies

Asthma is a lung disease that can be caused by indoor air pollution. An asthma attack is when a person with asthma has extra difficulty breathing. An allergy is an immune response or reaction to substances usually not harmful. Many people have allergies to pets, pollen, mold, and chemicals.

Mold & Moisture

Mold is a kind of fungus. It grows in wet or damp places and it often makes the indoor air smell musty. It produces spores that float in the air and adhere to surfaces in humid or moist areas of a home. Mold is an asthma and allergy trigger.

Carbon Monoxide

Carbon monoxide (CO) is a deadly gas that is invisible and undetectable without a CO detector and alarm. CO can come from car exhaust, fireplaces, and from other fuel burning appliances that aren't working right such as a furnace or gas stove.

Radon

Radon is poisonous gas that can cause lung cancer and cannot be seen or smelled. It comes from the ground below a home. It enters a home through cracks in floor slabs and basement or foundation walls.

Pests

Pests are unwanted living things in or around a home. Pesticides can help fight pests, but they can also be dangerous to use at home and can contribute to poor indoor air quality.

Household Chemicals

Many household products can pollute the indoor air if they are not used correctly. Chlorine bleach, cleaning products, alcohol, thinner, and varnish are a few examples. Hobbies and projects like sanding, painting, welding or gluing can pollute the air with dust or harmful chemicals.

Asbestos

Asbestos was used in homes in the past because it has great thermal and fire-resistance. Asbestos fibers are dangerous if they get into the air and are inhaled. Asbestos can cause serious long term health problems including lung cancer. Asbestos is commonly found in materials such as roofing shingles and siding; floor tiles and vinyl flooring, backing and mastic; textured and spray-on ceilings and paints; pipe coverings, thermal insulation, and fireproofing. Asbestos should only be removed or repaired by a licensed professional and not by a homeowner or renter. More information is available by visiting the EPA Asbestos information website at: www.epa.gov/asbestos

Checklist

For Safe and Healthy Homes

This room-by-room checklist was developed by the National Healthy Homes Partnership at www.healthyhomespartnership.net and www.extensionhealthyhomes.org. It is useful for establishing a healthy home assessment protocol with the families you serve.

Living, Dining, and Family Rooms

- ☐ Vacuum carpets regularly to reduce asthma triggers
- ☐ Move blind cords out of reach of children to prevent strangulation
- ☐ Avoid leaving food and water out overnight
- ☐ Avoid furniture with sharp edges
- ☐ Check lighting and extension cords for fraying or bare wires
- ☐ Purchase children's toys that do not have small parts for choking and do not contain lead
- ☐ Secure heavy items (televisions, bookcases) to walls to prevent tip overs

Kitchen

- ☐ Use a range hood (or open window) to ventilate while cooking
- ☐ Clean up liquids and foods right after spills
- ☐ Keep matches, glassware, knives, and cleaning supplies out of reach of children
- ☐ Avoid leaving food and water out overnight
- ☐ Place Poison Control Hotline number on refrigerator
- ☐ Mop floors weekly
- ☐ Clean drip pan under refrigerator every year
- ☐ Do not allow children to be in kitchen unsupervised when the range or oven is on

Bedroom(s)

- ☐ Move blind cords out of reach to prevent strangulation
- ☐ Make sure room has a working smoke detector
- ☐ Make sure the hall outside of bedrooms has a working carbon monoxide detector
- ☐ For nurseries, make sure cribs are approved products and have not been recalled
- ☐ Use mattress and pillow covers to reduce asthma triggers
- ☐ Vacuum carpets regularly to reduce asthma triggers

Entry

- ☐ Repair or install weatherstripping around the perimeter of doors
- ☐ Use floor mats to reduce bringing in lead and other toxins into the home
- ☐ Remove shoes at entry if lead is present in the soil or paint

Bathrooms

- ☐ Use an exhaust fan to ventilate after shower or bath use
- ☐ Use slip resistant mats in showers and tubs
- ☐ Clean up water from floors right after spills
- ☐ Keep medicines and cleaning supplies out of reach of children
- ☐ Mop floors weekly
- ☐ If an older adult is present in the home, install grab bars at toilets, showers, and tubs

Laundry

- ☐ Vent clothes dryer to the outside (through roof or wall, not into the attic)
- ☐ Keep laundry soaps and detergents out of reach of children
- ☐ Wash sheets and blankets weekly to reduce asthma triggers
- ☐ Regularly remove lint from dryer screen

Attic

- ☐ Clean up clutter to prevent rodents and insects from finding places to nest
- ☐ Check exposed attic insulation for asbestos and consult with professional for removal
- ☐ Make sure eave and roof vents are not blocked with insulation

Basement (or Crawlspace)

- ☐ Seal holes in walls and around windows and doors to prevent rodents and pests
- ☐ Clean up clutter to prevent rodents and insects from finding places to nest
- ☐ Test the home for radon. If test shows above EPA recommended safer levels, consider installing a radon mitigation system
- ☐ Keep pesticides and cleaning supplies out of reach of children
- ☐ Check sump pumps every 6 months and keep in working order
- ☐ Seal all cracks in slabs and foundation walls

Garage

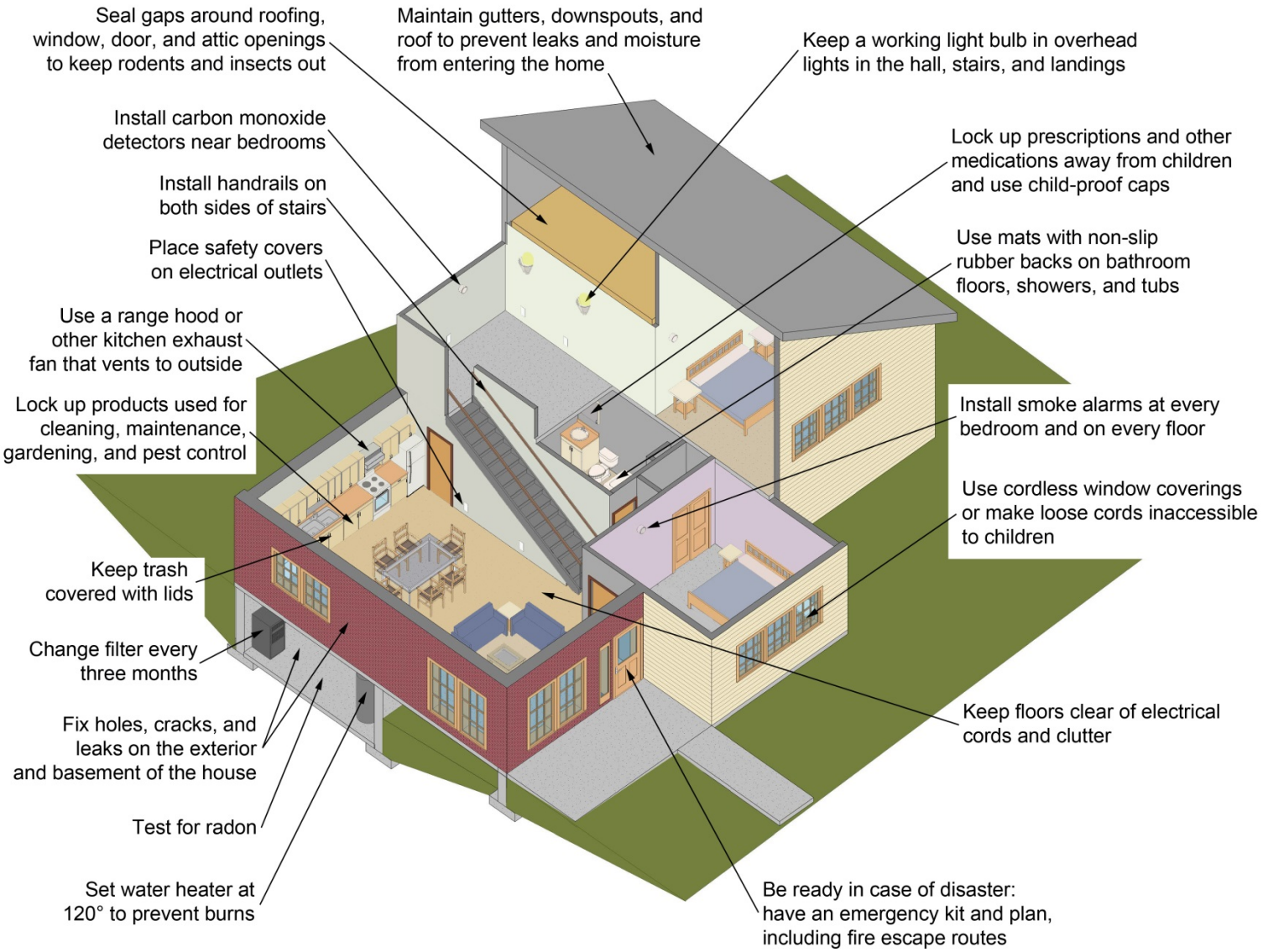
- ☐ Never run lawnmowers, cars, or combustion equipment inside the garage with garage door closed
- ☐ Keep gasoline, pesticides, and cleaning supplies out of reach of children
- ☐ Clean up oil, gasoline, and other spills immediately
- ☐ If a floor drain is present, make sure it drains to well beyond the outside of the home

Outside

- ☐ Seal holes in walls and around windows and doors to prevent rodents and pests
- ☐ If the home was built before 1978, check paint for lead and avoid exposure to peeling paint
- ☐ Remove leaves and debris from gutters regularly
- ☐ Extend downspouts to drain at least 6 feet from the outside wall of the house
- ☐ Replace missing or broken shingles or flashings
- ☐ Clean window wells of trash and debris
- ☐ Maintain fences around pools
- ☐ Tuckpoint (fill with mortar) all cracks in brick and stone walls
- ☐ Avoid watering within 4 feet of the outside wall of the home
- ☐ Make sure private wells are sealed and capped
- ☐ If the home has a private well, test water yearly for toxic chemicals
- ☐ If home was built before 1978, check hardboard siding for asbestos
- ☐ Do not leave open garbage containers near the home
- ☐ Repair broken glass in windows and doors

General

- ☐ No smoking inside the home, especially with children in the same home
- ☐ All renovation and repairs must use lead-safe work practices
- ☐ Test children in the home for lead exposure
- ☐ Have a professional install and maintain yearly all gas appliances and check for carbon monoxide leaks
- ☐ Keep water temperature at 120 degrees or less to prevent scalding
- ☐ Secure balcony and stair railings, and install no slip nosings
- ☐ Run a dehumidifier if the indoor humidity is above 50%
- ☐ Replace burned-out bulbs in lights over stairs and landings
- ☐ Test water in older homes for lead piping. Run water for two minutes before drinking if lead is present
- ☐ Make sure all gas burning appliances, furnaces, heaters, and fireplaces ventilate to the outside
- ☐ If condensation is visible on windows and glass, use a dehumidifier
- ☐ Do not use candles or incense in the home when adult supervision is not present
- ☐ Keep firearms in locked safes
- ☐ Replace the furnace filter with a MERV 8 or better every 3 months
- ☐ If mold is visible in any room, refer to mold removal guidelines from the EPA, CDC, or HUD
- ☐ Do not allow children to be present when pesticides are being sprayed
- ☐ Install child-proof locks on cabinets and child-proof covers on electrical outlets
- ☐ Use pest management recommendations or safer alternative products before applying pesticides
- ☐ Keep all cleaning products in original containers and do not mix two products together
- ☐ Install or maintain a programmable thermostat to keep temperature and humidity in a comfortable range
- ☐ If there are young children in the home, install window guards on second floor windows



Adapted from www.surgeongeneral.gov and www.cdc.gov

Resources

General Safe and Healthy Homes Information

U.S. Department of Housing and Urban Development www.hud.gov
Office of Lead Hazard Control and Healthy Homes www.hud.gov/healthyhomes
Office of Education and Outreach, Fair Housing and Equal Opportunity www.hud.gov/fairhousing
U.S. Department of Agriculture, National Institute of Food and Agriculture www.nifa.usda.gov
Cooperative Extension Service for your state land grant university:
www.nifa.usda.gov/extension or www.eXtension.org or your telephone book
U.S. Environmental Protection Agency www.epa.gov
National Healthy Homes Partnership www.healthyhomespartnership.net
National Center for Healthy Housing www.nchh.org
Children's Environmental Health Network www.cehn.org
National Safety Council www.nsc.org
Pediatric Environmental Health Specialty Units www.aoec.org/pehsu.htm
U.S. Centers for Disease Control and Prevention (800) CDC-INFO/(800) 232-4636 www.cdc.gov
U.S. Consumer Product Safety Commission (800) 638-2772 www.cpsc.gov
U.S. Department of Energy www.energy.gov
Local or state health department: Look in your telephone book or online

Lead Poisoning

U.S. Department of Housing and Urban Development
Office of Lead Hazard Control and Healthy Homes www.hud.gov/lead
Environmental Protection Agency (800) 424-LEAD / (800) 424-5323 www.epa.gov/lead
Safe Drinking Water Hotline (800) 426-4791 www.epa.gov/drink
Centers for Disease Control and Prevention www.cdc.gov/nceh/lead

Asthma & Allergies

American Lung Association (800) LUNG-USA www.lungusa.org
American Cleaning Institute (202) 347-2900 www.cleaninginstitute.org
Allergy and Asthma Network: Mothers of Asthmatics (800) 878-4403 www.aanma.org
The Food Allergy and Anaphylaxis Network (800) 929-4040 www.foodallergy.org
U.S. Environmental Protection Agency www.epa.gov/asthma

Mold & Moisture

U.S. Environmental Protection Agency www.epa.gov/mold
U.S. Centers for Disease Control and Prevention www.cdc.gov/mold
Health House www.healthhouse.org

Carbon Monoxide

U.S. Centers for Disease Control and Prevention (800) CDC-INFO/(800) 232-4636 www.cdc.gov/co
U.S. Consumer Products Safety Commission (800) 638-2772 www.cpsc.gov/co

Radon

U.S. Environmental Protection Agency www.epa.gov/radon
State Radon Contacts www.epa.gov/radon/whereyoulive.html
National Radon Program Services (KSU) (800) SOS-RADON / (800) 767-7236 www.sosradon.org

Drinking Water

U.S. Environmental Protection Agency (800) 426-4791 www.epa.gov/drink
U.S. Centers for Disease Control and Prevention www.cdc.gov/healthywater/drinking

Household Chemicals

U.S. Environmental Protection Agency www.epa.gov/pesticides/regulating/labels/consumer-labeling.htm
Poison Control Center (800) 222-1222
Household Products Database www.householdproducts.nlm.nih.gov

Pests

U.S. Environmental Protection Agency www.epa.gov/bedbugs and www.epa.gov/pesticides/controlling
National Pesticide Information Center (800) 858-7378 www.npic.orst.edu

Home Safety

National SAFE KIDS Campaign (202) 662-0600 www.safekids.org
National Safety Council (800) 621-7615 www.nsc.org

Temperature Control

U.S. Department of Energy www.EnergySaver.gov
Energy Information Administration www.eia.gov
U.S. Environmental Protection Agency
Indoor airPLUS www.epa.gov/indoorairplus
Mercury cleanup and disposal www.epa.gov/cfl
Energy Star www.energystar.gov
Residential Energy Services Network www.resnet.us

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