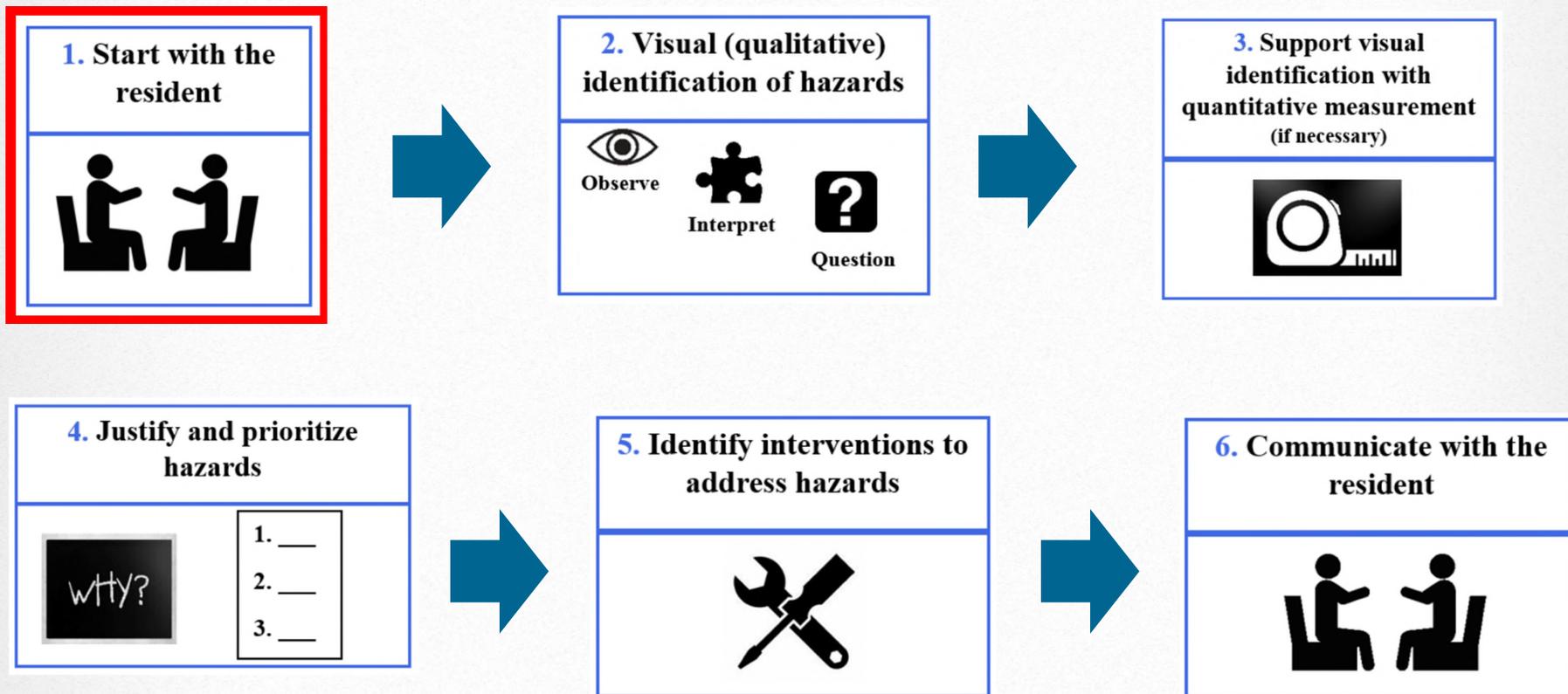


MODULE 2

STEP 1: START WITH THE RESIDENT



KEY STEPS



1. START WITH THE RESIDENT

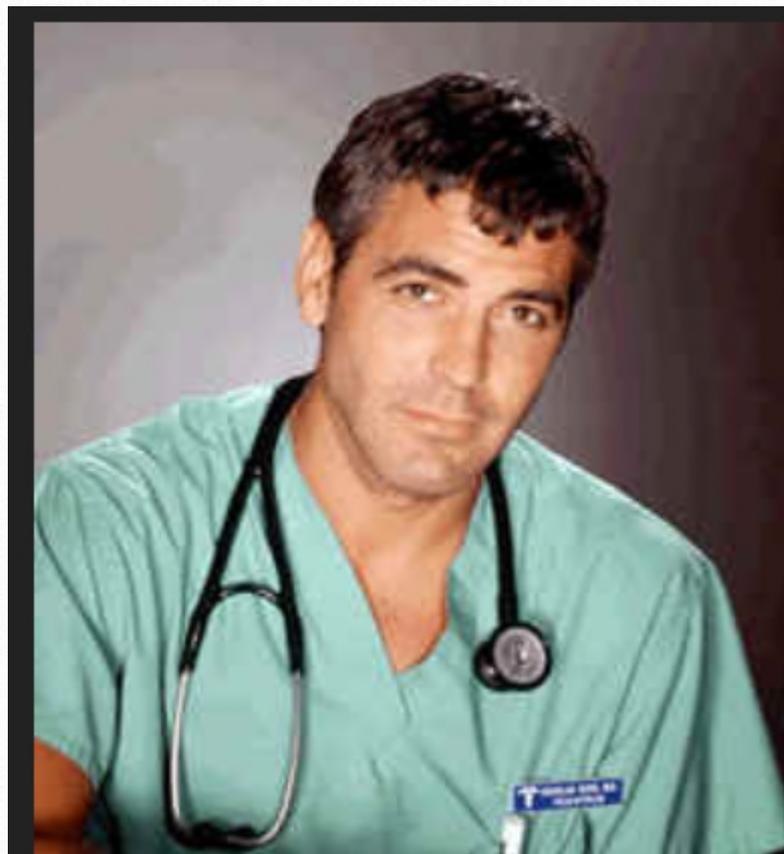
1. Start with the resident



- Sample interview tools
- Communicating with the resident
- Impacts of health hazards on the resident.
- Case study (part 1)



1. START WITH THE RESIDENT



Not a doctor



1. START WITH THE RESIDENT



“If you get rid of the dust mites in your home, your daughter’s asthma symptoms will decrease.”



“There is evidence from the EPA that dust mites are an asthma trigger. I will explain some ways you can decrease dust mites in your house. Make sure you consult a doctor about whether your daughter’s asthma is related to dust mites.”

Which one should you use?



1. START WITH THE RESIDENT

Health impacts of housing hazards in eight categories:

1. Moisture
2. Sanitation
3. Pests
4. Ventilation
5. Safety
6. Contaminants
7. Maintenance
8. Comfort

-  1. Dry
-  2. Clean
-  3. Pest-Free
-  4. Ventilated
-  5. Safe
-  6. Contaminant-Free
-  7. Maintained
-  8. Climate Controlled



BEFORE WE GET INTO THE PRINCIPLES . . .

Acute vs. chronic

Vulnerable age groups

Asthma basics



ACUTE VS. CHRONIC

Acute: hazards that require immediate attention because they are an immediate threat to health or life.

Chronic – hazards which do not pose an immediate risk to health or life but do promote allergies, asthma, lead poisoning, pesticide exposure, or other chronic health conditions.



VULNERABLE AGE GROUPS – SAFETY EXAMPLE

Age Group	Susceptibility
Infants	Choking/suffocation is the highest rate of injury death
Birth – age 14	Nonfatal falls at home
1-14 years old	Highest rate of home injury death is fires and burns
Older adults	Nonfatal falls at home
Adults 80+ years	20 times higher risk for death from injury than younger individuals



IDENTIFYING VULNERABLE AGE GROUPS

As a starting point – see the Healthy Homes Rating System Operating Guidance at:

https://portal.hud.gov/hudportal/documents/huddoc?id=operatingguidanceHHRS_1-14.pdf

**Example on
page 38,
HHRS
Operating
Guidance**

1 Damp and mould growth

Description of the hazard

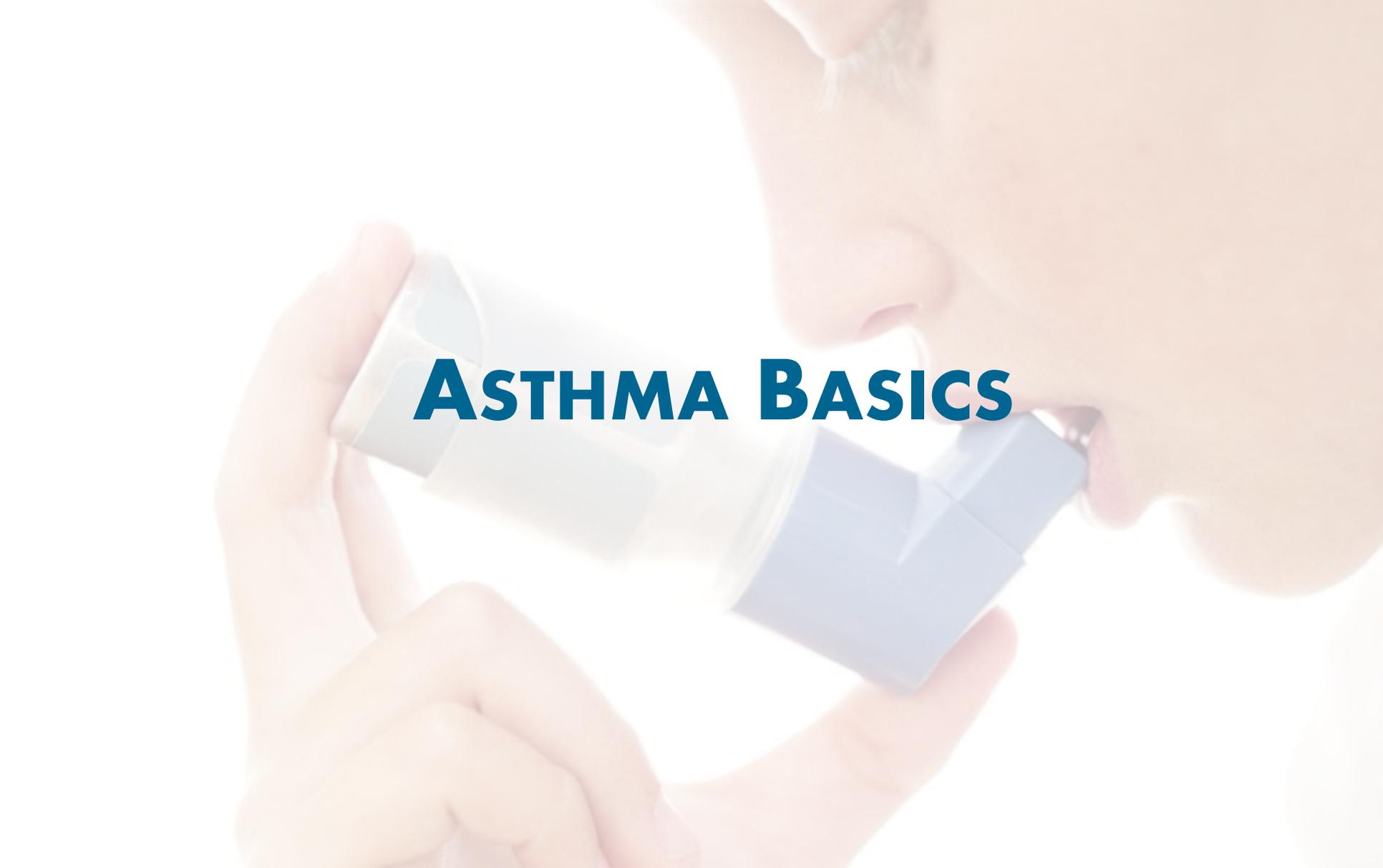
- 1.01 This category covers threats to health associated with increased prevalence of house dust mites and mould or fungal growths resulting from dampness and/or high humidities. It includes threats to mental health and social well-being which may be caused by living with the presence of damp, damp staining and/or mould growth.

Potential for harm

Most vulnerable age group and statistical averages

- 1.02 The most vulnerable age group is all persons aged 14 years or under.





ASTHMA BASICS



INSTITUTE OF MEDICINE

Summary of Two Key Institute of Medicine Reports Regarding Asthma, Indoor Air Quality, Damp Indoor Spaces, and Mold

Association Between Biological and Chemical Exposures in the Home and Development of Asthma in Sensitive Individuals		Biological Agents	
Biological Agents	Chemical Agents	Sufficient Evidence of a Causal Relationship*	
• House dust mite	No agents met this definition	• Cat	• Cockroach
		• Dog	• Fungi or molds
		• Respiratory Syncytial Virus	• Rhinovirus
Sufficient Evidence of an Association			
No agents met this definition	• ETS (in preschool-aged children)	• Domestic birds	• Chlamydia pneumoniae
Limited or Suggestive Evidence of an Association			
• Cockroach (in preschool-aged children)	No agents met this definition	• Mycoplasma pneumoniae	• Respiratory Syncytial Virus
Inadequate or Insufficient Evidence to Determine Whether or Not an Association Exists			
• Cat, Dog, Domestic Birds	• Nitrogen oxides	• Rodents (as pest animals) [†]	• Chlamydia trachomatis
• Rodents	• Pesticides	• Endotoxins	• Houseplants
• Cockroaches (except for preschool-aged children)	• Plasticizers	• Houseplants	• Pollen exposure environments
• Chitoxins	• Volatile organic compounds (VOCs)	• Insects other than cockroaches	
• Fungi or molds	• Formaldehyde		
• Chlamydia pneumoniae	• Fragrances		
• Mycoplasma pneumoniae	• ETS (in older children and adults)		
• Chlamydia trachomatis			
• Houseplants			
• Pollen			
Limited or Suggestive Evidence of No Association		Limited or Suggestive Evidence of No Association	
• Rhinovirus (adults)	No agents met this definition	• No agents met this definition	

Source: National Academies Press, 2000. *Clearing the Air: Asthma and Indoor Air Exposures*. ISBN 0-309-06496-1. See www.nap.edu/book/

[†] At concentrations that may occur only when gas appliances are used in poorly ventilated spaces.

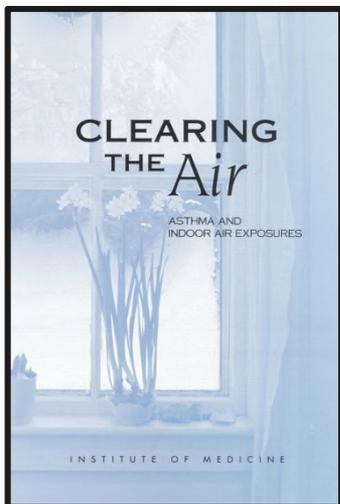
- **Sufficient Evidence of a Causal Relationship:** Evidence fulfills association criteria regarding the strength of association, biologic gradient (dose-response relationship), biologic plausibility and coherence, and temporality used to assess causality.
- **Sufficient Evidence of an Association:** Association has been observed in studies that are consistent in magnitude and direction.
- **Limited or Suggestive Evidence of an Association:** Evidence is suggestive because chance, bias, and confounding cannot be ruled out with confidence (i.e., association, but results of other studies are inconsistent).
- **Inadequate or Insufficient Evidence to Determine Whether or Not an Association Exists:** Evidence is of insufficient quality, consistency, or statistical power to permit a conclusion regarding the presence of an association (but limited to the conditions, level of exposure, and level of study).

Summary of Two Key Institute of Medicine Reports Regarding Asthma, Indoor Air Quality, Damp Indoor Spaces, and Mold

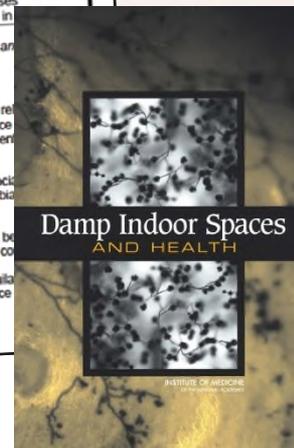
Summary of Findings Regarding Association Between Health Outcomes and Exposure to Damp Indoor Environments		Presence of Mold or Other Agents in Damp Indoor Environments	
Sufficient Evidence of a Causal Relationship			
Sufficient Evidence of an Association			
• Upper respiratory (nasal and throat) tract symptoms	• Cough	• Upper respiratory (nasal and throat) tract symptoms	• Hypersensitivity pneumonitis in susceptible persons
• Wheeze	• Asthma symptoms in sensitized persons	• Wheeze	• Asthma symptoms in sensitized persons
Limited or Suggestive Evidence of an Association			
• Dyspnea (shortness of breath)	• Lower respiratory illness in otherwise healthy children	• Lower respiratory illness in otherwise healthy children	
• Asthma development			
Inadequate or Insufficient Evidence to Determine Whether or Not an Association Exists			
• Airflow obstruction (in otherwise healthy persons)	• Skin symptoms	• Asthma development	• Gastrointestinal tract problems
• Mucous membrane irritation syndrome	• Chronic obstructive pulmonary disease	• Fatigue	• Mucous membrane irritation syndrome
• Neuropsychiatric symptoms	• Lower respiratory illness in otherwise healthy adults	• Neuropsychiatric symptoms	• Chronic obstructive pulmonary disease
• Cancer	• Acute idiopathic pulmonary hemorrhage in infants	• Reproductive effects	• Rheumatologic and other immune diseases
• Reproductive effects	• Rheumatologic and other immune diseases	• Acute idiopathic pulmonary hemorrhage in infants	

Source: National Academies Press, 2004. *Damp Indoor Spaces and Health*. Tables ES-1 and ES-2. ISBN 0-309-09246-9. See www.nap.edu/books/0309091934/html/

- **Sufficient Evidence of a Causal Relationship:** Evidence is sufficient to conclude that a causal relationship exists between the agent and the outcome. That is, the evidence fulfills the criteria for "sufficient evidence of a causal relationship" and, in addition, satisfies the following criteria: strength of association, biologic gradient, association, biologic plausibility and coherence, and temporally correct association.
- **Sufficient Evidence of an Association:** Evidence is sufficient to conclude that there is an association between the agent and the outcome but is limited because chance, bias, and confounding cannot be ruled out with reasonable confidence.
- **Limited or Suggestive Evidence of an Association:** Evidence is suggestive of an association between the agent and the outcome but is limited because chance, bias, and confounding cannot be ruled out with confidence.
- **Inadequate or Insufficient Evidence to Determine Whether an Association Exists:** The available evidence is of insufficient quality, consistency, or statistical power to permit a conclusion regarding the presence of an association (but limited to the conditions, level of exposure, and level of study). Alternatively, no studies exist that examine the relationship.



Clearing the Air: Asthma and Indoor Air Exposures 2000



Damp Indoor Spaces and Health 2004

National Healthy Homes
Training Center and Network

Healthy Housing Solutions, Inc.
www.healthyhousingsolutions.com



ASTHMA SYMPTOMS VS. DEVELOPMENT OF ASTHMA

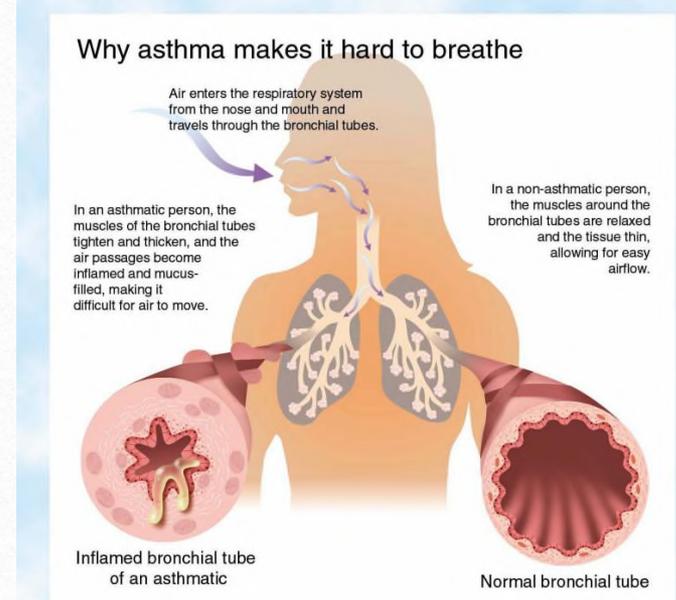
- Asthma symptoms means an attack has been triggered and the individual is coughing, wheezing, or having shortness of breath.
- Developing asthma means a doctor has diagnosed an individual as having asthma.



TYPES OF ASTHMA

An important note about asthma:

- 60% of people with asthma have allergic asthma
- Triggers for those with allergic asthma include:
 - Cockroaches
 - Dust mites
 - Molds
 - Pet dander
 - Pollen
 - Secondhand smoke



American Academy of Allergy Asthma And Immunology



HEALTH IMPACTS OF HAZARDS

By principle:

-  1. Dry
-  2. Clean
-  3. Pest-Free
-  4. Ventilated
-  5. Safe
-  6. Contaminant-Free
-  7. Maintained
-  8. Climate Controlled



HEALTH IMPACTS:

moisture and microbial conditions such as mold impact the lungs through:



Keep it Dry

1. Asthma

2. Infections

- Bronchitis
- Fungal infections

3. Allergies



HEALTH IMPACTS: asthma/allergy triggers

Strong evidence that chronic exposure to indoor dampness and microbial agents (e.g. mold) is associated with the development of asthma in sensitized individuals.



More on Mold

Keep it Dry



SANITATION – CLEANING REDUCES EXPOSURE TO:

Particulates from cooking, fireplaces, and cigarette smoking



Asthma and allergy triggers such as mold and pests



Pesticides



Dust



Keep it Clean



HEALTH IMPACT:

Environmental Tobacco Smoke (ETS):



**Sudden Infant
Death Syndrome
(SIDS)**



**Coronary
heart disease**



Ear problems



- Acute respiratory infections,
- More severe asthma,
- Lung cancer,
- Chronic Obstructive Pulmonary Disease,
- Pneumonia, and
- Bronchitis

Second hand and Third hand smoke

Keep it Clean



HEALTH IMPACTS: asthma/allergy triggers



- Respiratory disease
- Allergy / Asthma trigger
- Asthma symptoms
- Development of asthma

Keep it Clean



HEALTH IMPACTS: pesticide poisoning



Headache



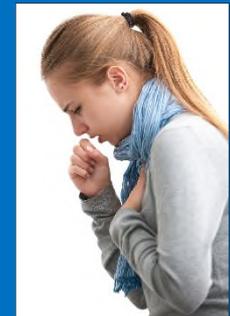
Nausea or
loss of
appetite



Moodiness,
restlessness,
mental
confusion



Skin, eye,
nose and
throat
irritation



Difficulty
breathing

Keep it Clean

Severe poisoning can include vomiting, uncontrollable muscle twitches, convulsions inability to breathe and unconsciousness.



ACUTE VS. CHRONIC pesticide poisoning

Acute – occurs after exposure to a single dose of pesticide

Chronic – occurs from repeated, small, non-lethal doses over a long period of time.

Keep it Clean



HEALTH IMPACTS: Pests

Asthma Triggers AND Allergy Triggers



Dust mites

Asthma trigger
Allergy trigger



Cockroaches

AND carry bacteria, viruses.



Mice (and rats)

AND carry bacteria, viruses, salmonella and hantavirus



Bedbugs

Disturb sleep and mental health

Keep it Pest-free



HEALTH IMPACTS: Pests

Allergens in cockroach feces
Poop arithmetic 101

1 fecal pellet = ~1 mg

1 mg feces = 500 Units Bla g 1

1 female = 3 mg feces per day

1 day = ~1500 Units Bla g 1

Human sensitization threshold	=	<u>per grm dust</u>	2 Units
Morbidity (illness) threshold	=		8 Units

KEY

mg = milligram

BLa g 1 = cockroach allergen



Health impacts: **VENTILATION** problems:

- Various pollutants can be found in concentrations 2-5 times higher indoors than outdoors.

Keep it Ventilated



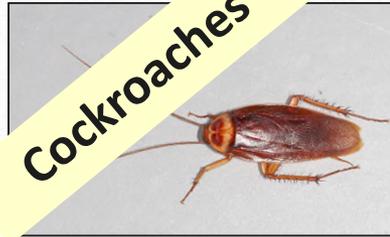
Pollutants covered under previous “Keep it” Principles:

Do you remember the health impacts from these hazards?

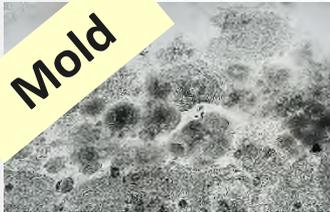
Environmental tobacco smoke



Cockroaches



Mold



Dust mites



Mice



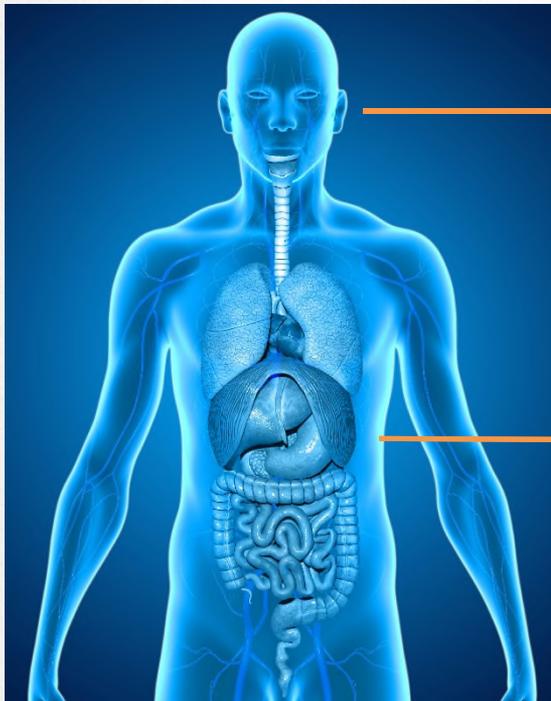
Keep it Ventilated



Other pollutants that can be concentrated indoors without proper ventilation:

Volatile Organic Compounds (VOCs)

Chemical compounds that evaporate when exposed to the air.



- Eye, nose and throat irritation
- Headaches
- Loss of coordination

- Damage to liver, kidneys and central nervous system
- Risk of cancer

Keep it Ventilated



What Exactly *Is* That New Car Smell?



Rachel Swaby

3/27/12 1:40pm - Filed to: GIZ EXPLAINS ▾

The smell of a new car is intoxicating. It reminds us of money and shiny objects. It evokes that golden period before repeat coffee stains, moldy Tupperware, and our trunk's transformation into a Good Will depository change the way we feel about our car. But it's kind of a weird smell, right? It's so different from chocolate chip cookies or eucalyptus or whatever else we identify as pleasant.

Unfortunately, . . . The smell is mostly organic compounds in the vehicle off-gassing. Anything that is vinyl or plastic—the foam lamination on the seat surface, the plastic on the dash or on the door panel—it's the VOCs coming out of them that causes that smell. VOCs . . . can do a number on your health. And they're everywhere. Thousands of household products—from paints to cleaning products to waxes—all emit the gasses . . .



Other pollutants that can be concentrated indoors without proper ventilation: **Particulate Matter** **Keep it Ventilated**

What is it?

A mixture of solid particles and liquid droplets found in the air.

Sources?

Dust, dirt, soot, and smoke sources, chemical reactions from industry

Health impacts?

Exacerbate heart and lung disease, aggravate asthma, decrease lung function, increase respiratory symptoms



Health impacts: Safety problems include a variety of injuries, including:



Choking and suffocation



Fires and burns



Drowning



Firearms related injuries



Electrical shock



Poisoning



Entry by intruders



Trips and falls

Keep it Safe

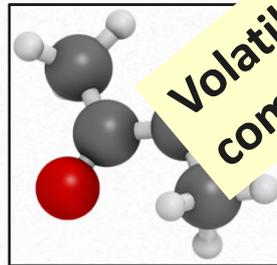


Health impacts: CONTAMINANT problems:

Four specific contaminants to focus on.
Two have been reviewed already.



Environmental tobacco smoke



Volatile organic compounds

Do you remember the health impacts from these hazards?

Keep it Contaminant-free



Health impacts from CONTAMINANT problems -- **Asbestos**:

Asbestos



What is it?

Naturally occurring fibrous mineral

Sources?

Roofing shingles, 9 inch floor tiles, insulation

Health impacts?

Lung cancer, mesothelioma, asbestosis

Keep it Contaminant-free



Health impacts: Contaminant -- **Asbestos**:

Mesothelioma: (*mess-o-theel-e-oma*)

A cancer of the lining of the chest and the abdominal cavity

Asbestosis: (*as-be-stoh-sis*)

Lungs become scarred with fibrous tissue, leading to shortness of breath and persistent cough

Keep it Contaminant-free



Health impacts: Contaminant -- **Radon**:

What is it?

Naturally occurring radioactive gas that comes from the breakdown of uranium in soil, rock and water and gets into the air you breathe.

Sources?

Radon comes from the soil. It can also enter the home through well water.

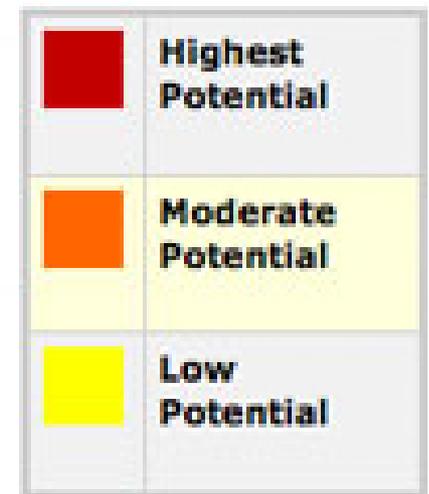
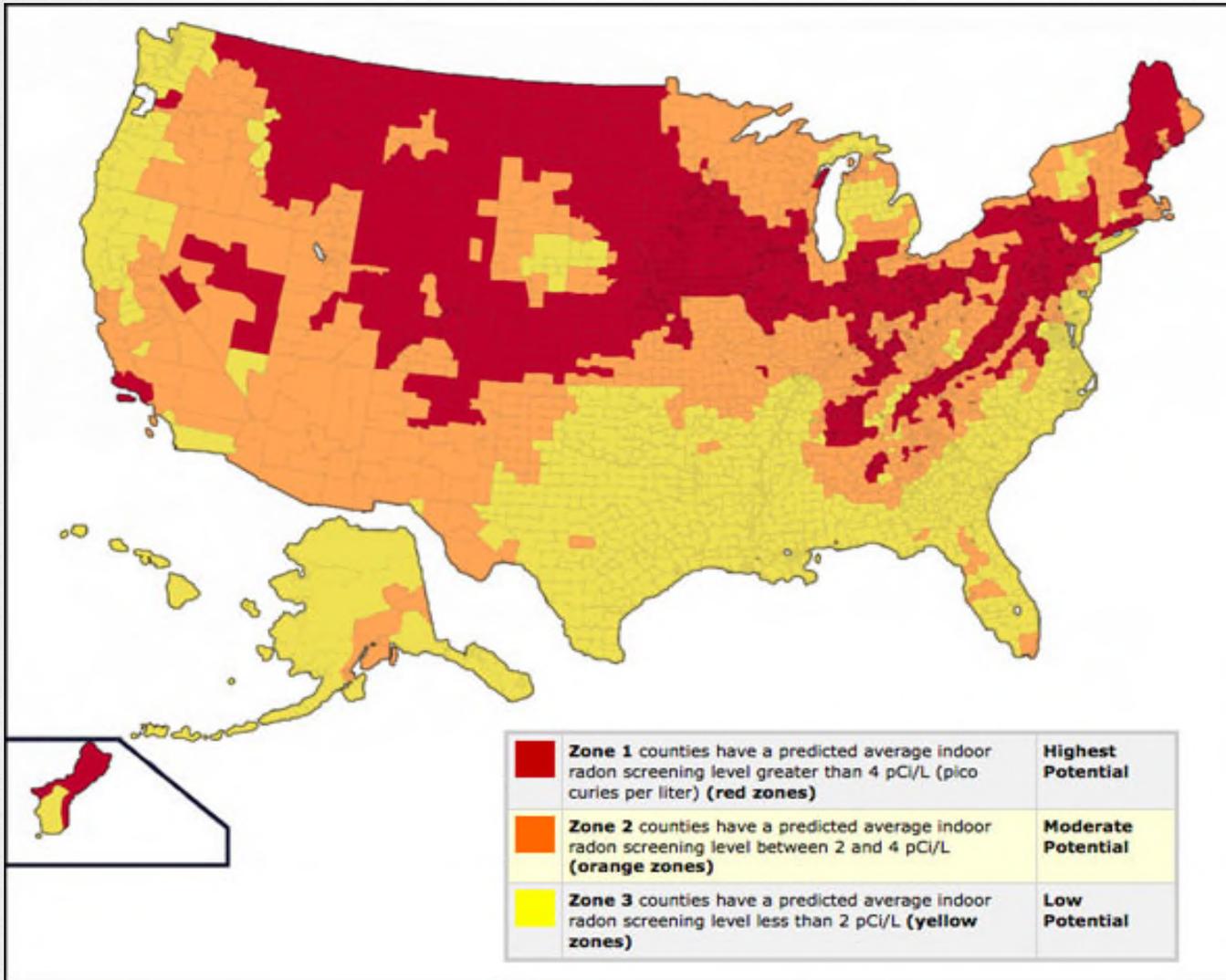
Health impacts?

Lung cancer

Number 2 cause of lung cancer after smoking tobacco

Keep it Contaminant-free





Health impacts: Maintenance problem -- lead-based paint



- Reduced IQ,
 - Reduced attention span,
 - Increased antisocial behavior and
 - Reduced educational attainment
-
- Damaged hearing and speech
-
- Slowed growth
 - Anemia (too few red blood cells)
 - Feels tired or weak
 - Shortness of breath,
 - Dizziness or headaches

Keep it Maintained



Health impacts: Lead-based paint on adults:



Muscle and joint pain

High blood pressure



Fertility and sexual problems

Memory and concentration problems



Keep it Maintained

Essentials Manual





Healthy Home Key Messages Check List

Keep it Dry

Moisture Sources

- Sinks, water heaters, air conditioning, dryers, washing machines, cooking all creates moisture
- Use exhaust ventilation often to reduce humidity in bath & kitchen
- High humidity levels can lead to mold/bacterial growth and increase viral illnesses
- Home being **too dry** can also cause issues- dry irritated throats, sinus headaches

Humidity

- Want indoor relative humidity between 30-50%
- Can purchase humidity gauge and move it around the home to measure indoor RH.

Keep it Clean

Dust Mite

- Hidden. Barely visible to humans. Love Humidity
- Keep RH <50% in the home as much as possible
- To kill mites, wash linens at least once a week in hot water and if possible through hot dryer.
- Vacuum often all surfaces including upholstery, drapes, curtains, throughout home, if present.
- Keep stuffed animals on shelves and off the bed. Throw stuffed animals in dryer for >10 minutes.
- Get allergen covers for mattress and pillows.
- Try not to have drapes in the child's room.

Keep it Contaminant-Free

Volatile Organic Compounds (VOCs)

- Anything that has a scent is a VOC. (Ex: building materials, dry cleaning, candles, new carpet.)
 - Also results from off-gassing. (Ex- Perfume is released into the air when it "boils" or volatilizes from the surface of skin upon contact resulting in a VOC fragrance).
 - Keep different VOC sources to a minimum.
 - Be mindful of what you are spraying into the air. Different fragrances can cause respiratory symptoms for sensitive persons.
- ##### Home Chemical Use and Medications
- Should be aware of chemical poisoning
 - Be sure to use child-proof safety precautions.
 - Sprays should be avoided if possible. Wipes or pourable chemicals should be utilized first.

Keep it Pest-Free

Integrated Pest Management

- Suggest integrated pest control, decrease food and water sources and make sure gaps and cracks are blocked or covered to prevent use
- If roach infestation exists, boric acid, bait traps, gels can be used. With mice, use snap traps. Use IPM companies for professional help.

Keep it Ventilated

Air Circulation

- Supply vents should be uncovered and able to blow and circulate room air. Return vents take air back to system, over the filter and back into the occupied space.

Combustion Gas By-products:

CH⁴

- Methane or Natural Gas
- Is odorless. Stinky smell is added for safety
- Indicates there is a gas leak.
- Should shut off source immediately, evacuate the area to a safe place and call Gas Co. or Fire Dept. for help.

CO

- Carbon Monoxide
- By-product of gas appliances.
- Should install a CO detector.
- Should place detector as close as possible to the family's bedrooms.
- CO detector alarm at a low level in order to give the family enough time to get out of the home safely.

Keep it Safe

Basic Fire Safety

- Make sure smoke detectors are functional.
- Change battery at least once a year.
- Make sure a smoke detector is on each level of the home.
- Make sure a smoke detector is placed near bedrooms or in bedrooms.
- Test detectors at least once a month
- Make sure the family has an escape plan.
- Fire extinguisher mounted in kitchen area near exit for quick access when needed.

Basic Electrical Safety

- Receptacle plug covers
- Use outlets with reset buttons if w/in 5 ft of water source- Ground Fault Circuit Interrupter (GFCI)
- Make sure outlets are not overloaded with too many cords.

Slip and Fall Hazards

- Be sure to have adequate lighting.
- Rallings on all stairs w/> 3 steps.
- Keep rooms clutter-free

Keep it Maintained

Discuss maintenance practices

- Have systems serviced at least once a year.
- Educate about importance of regular maintenance to minimize problems.

Common Household Contaminants: The Hazards and the Laws

The National Center for Healthy Housing (NCHH) developed this summary to serve as a short guide for health and housing professionals on common household contaminants. It is not comprehensive. As a guide, NCHH provides only short descriptions intended as a reminder to professionals. Professionals need a solid understanding of the contaminants to make the best use of this guide. Go to the link below for more information.

http://healthyhousingsolutions.com/wp-content/uploads/2015/06/Essentials_Refs_Connections_BW_Jan20141.pdf

Table 1 Hazards Posed by Common Household Contaminants				
Contaminant (sorted by name)	Primary Health Impact	Common Sources in Home	Primary Routes of Exposure	"Keep Its" (listed by priority)
Asbestos	<input type="checkbox"/> Lung cancer <input type="checkbox"/> Asbestosis (scar tissue buildup in lung) <input type="checkbox"/> Mesothelioma (cancer of the lining of chest and abdomen)	<input type="checkbox"/> Insulation / Vermiculite <input type="checkbox"/> Floor tiles <input type="checkbox"/> Sheet vinyl flooring <input type="checkbox"/> Cement shingles or roofing <input type="checkbox"/> Plaster and joint compound <input type="checkbox"/> Baskets	<input type="checkbox"/> Inhalation of fibers from deteriorated, damaged or disturbed material	Maintained Contaminant-Free Dry Clean
Arsenic	<input type="checkbox"/> Skin cancer	<input type="checkbox"/> Copper Chrome Arsenate (CCA) Treated lumber (produced before 2004) <input type="checkbox"/> Private wells (in some locations)	<input type="checkbox"/> Ingestion of residue from wood or soil <input type="checkbox"/> Splinters <input type="checkbox"/> Drinking water	Maintained Safe
Carbon Monoxide	<input type="checkbox"/> Death <input type="checkbox"/> Central nervous system damage	<input type="checkbox"/> Combustion appliances <input type="checkbox"/> Attached garage	<input type="checkbox"/> Inhalation	Ventilated Maintained Clean
Codroaches	<input type="checkbox"/> Asthma <input type="checkbox"/> Allergies <input type="checkbox"/> Stomach illness <input type="checkbox"/> Communicable disease	<input type="checkbox"/> Walls, cavities and other places to hide	<input type="checkbox"/> Inhalation <input type="checkbox"/> Ingestion	Pest-Free Clean Dry Maintained
Formaldehyde	<input type="checkbox"/> Respiratory Irritation & Sensitization <input type="checkbox"/> Nasal Cancer	<input type="checkbox"/> Glues <input type="checkbox"/> Press wood products	<input type="checkbox"/> Inhalation	Contaminant-Free Ventilated
Lead	<input type="checkbox"/> Nervous system / brain damage <input type="checkbox"/> Learning, behavioral Problems <input type="checkbox"/> Cancer	<input type="checkbox"/> Deteriorated paint <input type="checkbox"/> Lead in soil and dust <input type="checkbox"/> Lead in water <input type="checkbox"/> Some consumer products	<input type="checkbox"/> Ingestion <input type="checkbox"/> Inhalation of dust from renovation, or disturbing lead-based paint.	Maintained Clean Dry Contaminant-Free
Mercury		<input type="checkbox"/> Fluorescent lamps <input type="checkbox"/> Thermometers <input type="checkbox"/> Switches	<input type="checkbox"/> Inhalation	Maintained Ventilated Clean Contaminant-Free

Page 1 of 6

Resources

Separate sheet in your binder

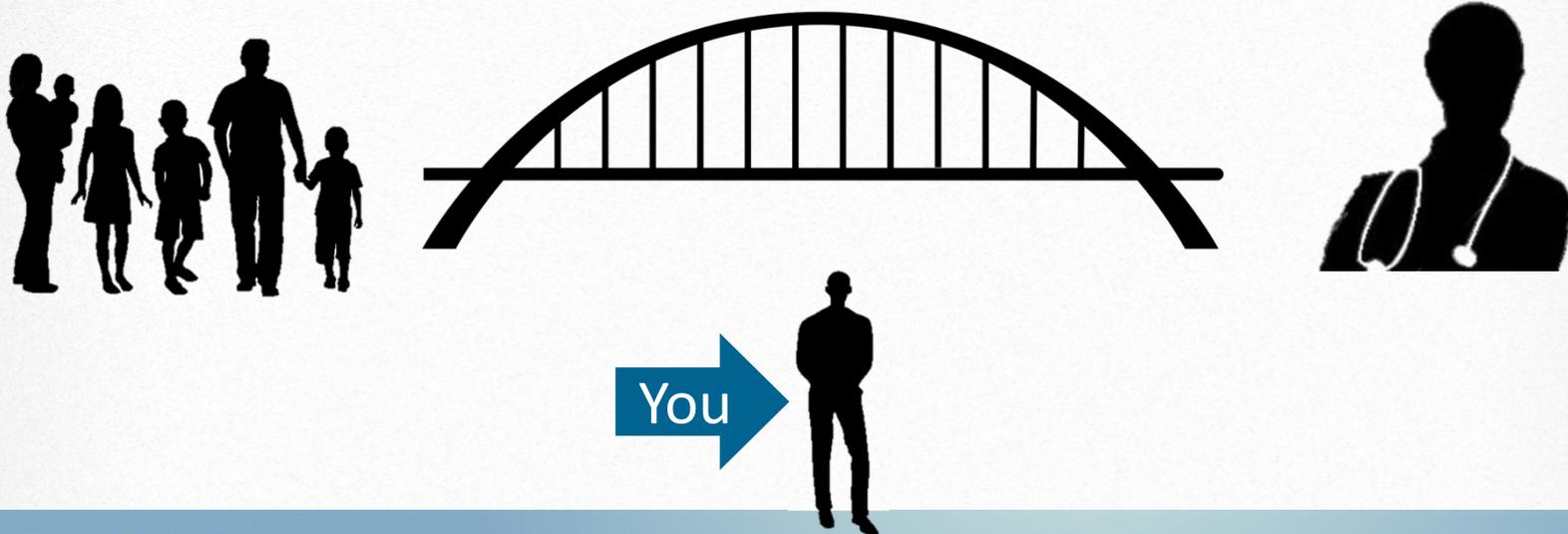
And in the Essentials Manual

Essentials Manual



NOW THAT YOU KNOW ALL THIS HEALTH IMPACTS INFORMATION . . .

Remember that you can be a bridge between your client and a health professional BUT you are NOT a health professional yourself.



REVIEW OF HEALTH IMPACTS

Get ready to compete!

1. Close your binders.
2. Your instructor will divide the class into two teams.
3. Your instructor will show a question on the screen and ask Team A to answer it.
 - Team A must agree on the answer(s) to the question.
 - If Team A gets the question right, they get one point.
 - If they get the question wrong, Team B gets a chance to answer the question (and get the point)
4. Your instructor will alternate questions between Team A and Team B.
5. The Team with the most points at the end of the game, wins!



QUICK REVIEW ON RESIDENT INTERVIEWING



making homes
healthier



SAMPLE INTERVIEW TOOLS

Pediatric
Environmental
Home Assessment
(PEHA)

Interview tools from
local / state
governments

ASTM D7297 –
Evaluating
Residential IAQ
Concerns

Lawrence Berkley
Laboratories
questionnaire
(in development)

NEEF Environmental
Health Survey

Healthy Homes
Inspection Manual
(Section 1)



PRACTICE INTERVIEW

- Break into groups of 3
- Find the PEHA Resident Information form
- Interview your partner (5 minutes)
 - Third person is an observer
- Use your own home as a reference to answer questions

Pediatric Environmental Home Assessment
Last Revised October 2009

RESIDENT REPORTED INFORMATION
Bolted responses indicate areas of greater concern.

General Housing Characteristics			
Type of ownership	<input type="checkbox"/> Own house	<input type="checkbox"/> Market rate rental hsg.	<input type="checkbox"/> Subsidized rental hsg.
Age of home	<input type="checkbox"/> Pre-1950	<input type="checkbox"/> 1950 - 1978	<input type="checkbox"/> Post-1978
Structural foundation	<input type="checkbox"/> Basement	<input type="checkbox"/> Slab on grade	<input type="checkbox"/> Crawlspace
Floors lived in (check all that apply)	<input type="checkbox"/> Basement	<input type="checkbox"/> 1 st	<input type="checkbox"/> 2 nd
Fuel used	<input type="checkbox"/> Natural gas	<input type="checkbox"/> Oil	<input type="checkbox"/> Electric
Heating	<input type="checkbox"/> Baseboards	<input type="checkbox"/> Radiators	<input type="checkbox"/> Forced hot air vents
Sources in home	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> HEPA air filter
Filters changed	<input type="checkbox"/> Easy to control heat	<input type="checkbox"/> Hard to control heat	<input type="checkbox"/> Other:
Control	<input type="checkbox"/> Easy to control heat	<input type="checkbox"/> Central/retrofit AC	<input type="checkbox"/> Fans
Cooling	<input type="checkbox"/> Windows	<input type="checkbox"/> Kitchen & bathroom fans	<input type="checkbox"/> Central ventilation
Ventilation (check all that apply)	<input type="checkbox"/> Open windows	<input type="checkbox"/> Kitchen & bathroom fans	<input type="checkbox"/> Central ventilation

Indoor Pollutants			
Mold and moisture	<input type="checkbox"/> Uses dehumidifier	<input type="checkbox"/> Users vaporizer or humidifier	<input type="checkbox"/> Musty odor evident
Pest	<input type="checkbox"/> No damage	<input type="checkbox"/> Cat # _____	<input type="checkbox"/> Dog # _____
Prevalence	<input type="checkbox"/> No pets	<input type="checkbox"/> Full access in home	<input type="checkbox"/> Other: _____
Management	<input type="checkbox"/> Kept strictly outdoors	<input type="checkbox"/> Not allowed in patient's bedroom	<input type="checkbox"/> Family shows evidence
Cockroaches	<input type="checkbox"/> None	<input type="checkbox"/> Family reports	<input type="checkbox"/> Present in kitchen
Mice	<input type="checkbox"/> None	<input type="checkbox"/> Family reports	<input type="checkbox"/> Present in bedroom
Kats	<input type="checkbox"/> None	<input type="checkbox"/> Family reports	<input type="checkbox"/> Family shows evidence
Bedbugs	<input type="checkbox"/> None	<input type="checkbox"/> Family reports	<input type="checkbox"/> Family shows evidence
Lead paint hazards	<input type="checkbox"/> Tested, failed, and mitigated	<input type="checkbox"/> Tested, failed, and mitigated	<input type="checkbox"/> Not tested/Don't know
Asbestos	<input type="checkbox"/> Tested - None present	<input type="checkbox"/> Tested, failed, and mitigated	<input type="checkbox"/> Not tested/Don't know
Radon	<input type="checkbox"/> Tested and passed	<input type="checkbox"/> CO alarm working and one on each floor	<input type="checkbox"/> CO alarm does not log peak level
Health and Safety Alarms	<input type="checkbox"/> Smoke alarm working and well placed	<input type="checkbox"/> Smoking only allowed outdoors	<input type="checkbox"/> Smoking allowed indoors
Tobacco smoke exposure	<input type="checkbox"/> No smoking allowed	<input type="checkbox"/> No smoking allowed	<input type="checkbox"/> Total # smokers in household:
Other irritants	<input type="checkbox"/> None	<input type="checkbox"/> Air fresheners	<input type="checkbox"/> Other strong odors:
Type of cleaning	<input type="checkbox"/> Vacuum (non-HEPA)	<input type="checkbox"/> HEPA vacuum	<input type="checkbox"/> Damp mop and damp dusting

NOTES:



THE ORLOV FAMILY CASE STUDY (PART 1)

- Same groups
- Take out Orlov Case Study
- Read the case study
- Write out questions for the residents.
- Report out to full class

Exercise #2 on Pre-Assessment Tasks
Case Study #1: The Orlov Family
(Details provided by Robert Gardella with the Association for Energy Affordability)

The Setting

The Orlov family lives in a single family, three story townhouse style home in New York City. There are other houses near and it is a fairly dense neighborhood. The house is fifteen years old. The house has four bedrooms and two

Visit Trigger

The house had water damaged from burst water pipe in the second bathroom. The Orlovs noted that a contractor was called to repair the home. A considerable amount of mold had developed after that work was done. The contractor would not return their calls. No one else has performed anywork in the house. The Orlovs also complained that their children were not feeling well and were having allergy like symptoms.

The Residents

The Orlov family has five members – mom and dad and three children. Two of the children are teenagers (one boy and one girl) and the third child is an infant girl. The family recently arrived from Russia and the mother speaks some english and father does not speak English. The children, however, do speak English well and are able to interpret.

1. Resident Questions
Given the details provided in the case study, list additional questions you may want to ask the Orlov family when you visit their home.

1. _____
2. _____
3. _____
4. _____
5. _____

