Start with People

You need to start with people to have a healthy home. A home is only healthy if it works for the resident, and people come in all shapes and sizes with varying needs. For example, a child with asthma would mean you need to pay special attention to asthma triggers. For an elderly person, you need to be especially sensitive to the risk of falls.

Why Do You Go Into Houses?

Think about the different purposes and motivations for why you go into houses and how that changes the dynamic and relationship you have with the resident. For example, a nurse is going to provide care and is usually a trusted resource. A home inspector is paid to identify problems in the sale of a house. When a home is being sold, there are opportunities to make important repairs. A code inspector is responding to a complaint and may be seen as government and not trusted by the resident.

Why Start with People?

- What good are they?
- What's difficult about people?
- How can you deal with people?

These questions may make you chuckle, but you should seriously consider what role people serve. They are a source of information about the home. They can point out problems that occurred in the past and may only be obvious at night (like pests).

You need to recognize the resident's agenda. They usually have a story that they want to tell. Until they tell the story, they may not be able to listen. The story may be a battle with a landlord or frustration with a contractor. You need to listen and then ask questions.

Closed-ended or direct questions to residents are likely to get yes or no answers. These answers often miss the detail that help get at information you need to know.

Open-ended questions are more likely to get more details. These details can help you understand hidden problems or past problems that may be hard to see.

You should note the challenge of using a checklist when talking to a resident. Checklists naturally are based on closed-ended questions. The box either gets a check or it does not. If you rely just on checklists, you are likely to miss important information.

Learning Objectives for this module

- Explain how to work with people to get important information from them about potential hazards in the home.
- Identify key routes of exposure and their relationship to housing hazards.

Bracketing

The first strategy for getting good information from residents is bracketing. Bracketing is an internal technique for staying calm and non-judgmental, and keeping the ability to listen and to coach. Here's what can get bracketed:

1. The negative feelings and critical statements communicated to you by others.
2. Your negative feelings and judgments of others.

Health service inequities may result from differences in expectations, assumptions, knowledge, and in perceived values that individual workers and residents may have. Recognizing when these differences affect one's ability to provide services is an important step in recognizing potential service disparities. Always consider the question: What barriers are preventing me from providing information to a client in the best way possible?

You may think you are carefully hiding your expression but people often can see it. A person who is illiterate has survived by reading expressions. Bracketing can help you acknowledge and move on rather than trying to hide it.

Open vs. Closed Questions

Open-Ended or Indirect

- How
- What
- Tell me about
- Describe for me

Closed-Ended or Direct

- Are
- Is
- Do

Example: You are in a residence providing a lead hazard evaluation. The house is a mess and you see lots of alcohol bottles around.

Your internal thought: I'm starting not to like these residents—they are so messy, there is dust everywhere, and it looks like they drink a lot. They don't seem to care one way or the other about lead.

Internal Bracket: [Your negative feelings about the residents; your judgments about their cleaning and lifestyle.]

Your revised internal thought: I may have negative feelings about these residents, but they may really need my coaching. Besides, they may not know that dust may be a lead hazard, or where the hazards can come from.

Your verbal response : "Would you like to sit down with me and find out what sorts of potential lead problems we found in your home?"

Result: You put aside (suspend) your feelings and judgment, and lay the foundation for the coaching partnership by proceeding with the non-judgmental assessment.

Many of the hazards people are exposed to in their homes are the result of sources that they bring in themselves.[1] A key example: tobacco smoke is an important contaminant source in indoor air. We know that children who have a smoking parent are at an increased risk for sudden infant death syndrome (SIDS), acute respiratory infections, ear problems, and more severe asthma.[2]

Other examples: frying foods releases large numbers of fine particles (a range hood helps to reduce their spread); pesticides used in the home are the largest pesticide exposure to US citizens.[3]

While these activities are common, sometimes people do fairly odd things in their homes that result in hazards including:

- Melting and casting lead
- Injecting molding plastics
- Welding
- Barbequing indoors

You should be prepared to identify resident behaviors that are important to consider. For example, most residents know that smoking is a problem. Often they will explain that they do it outside. But if you can see ashtrays around the home, they are hiding the truth.

The person in the picture below who is spraying pesticides (most likely to deal with wasps) misunderstands the danger. She is wearing a mask but no gloves. With her finger on the nozzle, it is the most likely route of exposure.

Special Communication Issues

- Language
- Cultural
  - Shoes in the home
  - Men and women
- Responding to Problems
  - Hoarding
  - Tolerance for clutter and pests

Think about the communication problems you may have had with clients you've visited. Also remember that there are cultural issues to consider – for example, if you are a man visiting a home and the resident is a married woman. In some cultures, the woman cannot let people in.

Issues like hoarding are particularly challenging and take a sustained effort. A social worker is often particularly adept at dealing with the problem. A simple cleaning is usually not sufficient because the problem will likely recur. There are also support groups such as Hoarders Anonymous or Messies Anonymous.

Remember too, that residents need to make difficult choices. Too often they need to balance their health, their comfort, and the cost of the correction.

In addition to identifying what is going on in the home, you need to understand what is going on in the neighborhood. Some neighborhoods have a history that predisposes houses to problems. Houses built on industrial, waste disposal or agricultural sites may have contaminants in the soil. Also, think about the sources of drinking water for residents and where sewage goes.

Resident Choices

- Health
- Comfort
- Cost

Risk = Hazard x Exposure

To understand how a contaminant can hurt a resident, you need to understand the primary routes of exposure. *The Contaminant Guide* that is part of the *Healthy Homes Specialist Credential* study guide can help here.

Normally, inhalation is the most important route of exposure. The resident cannot avoid breathing and what enters the lung can be directly absorbed into the blood through the alveoli, especially if it is a solvent or volatile organic compound. In addition, the lung has limited ability to repair damage. The body defends the lung with mucous and hair in the nose and cilia in the bronchi. The cilia collects the contaminant and moves it up the lungs until it is dumped into the throat where it is swallowed or coughed up.

Smoking paralyzes the cilia so particulate and other contaminants penetrate the lung deeper. That is why the risk of disease from radon and asbestos is greater for smokers. When the smoker stops smoking for awhile – like when they are sleeping – the cilia "wake" back up and dumps the collected material in the throat. The smoker wakes with the characteristic "smokers hack."

What's going on in the neighborhood?

- What neighborhood?
- What uses?
- How zoned?
- What services?
- Water?
- Sewer?
- Solid waste?
- How old?
- Who owns it?
- Water supply? Lead?

Ingestion is typically less important than inhalation but still significant. People can usually avoid ingesting contaminants by washing their hands and wearing gloves. But children play on the floor and suck their thumb; ingestion is a bigger worry for them. The stomach protects itself with acids that digest the contaminants. However, for some contaminants like lead, the acid dissolves the lead so it can be more easily absorbed. Finally, the stomach can repair itself by regularly replacing its inside lining.

Skin absorption is relatively uncommon especially in the home environment. Few chemicals can be absorbed through the skin. Usually these chemicals are found in harsh cleaning products or in hobbies. Phenol and methanol are examples. The skin repairs itself by regularly replacing itself. This will occur unless it has been irreversibly damaged. Irreversible damage can occur when exposed to a chemical labeled "corrosive."

Routes of Exposure

- Inhalation
- Ingestion
- Skin Absorption
- Injection
- Built-in Protection Mechanisms

Injection is very unusual but when it occurs it can be serious. It can occur with splinters. Splinters from treated lumber, especially lumber from before 2004 that may be treated with arsenic, are a common route of injection. They should not be a problem if the splinter is entirely removed.

Built-in protection mechanisms such as cilia and stomach relining help the body protect itself from contaminants. Remember that risk requires exposure to a contaminant. If you reduce exposure, the person will have less risk and be safer.

Signs and Symptoms of Diseases Related to Housing

How would you be able to detect signs and symptoms of diseases related to housing? First, signs of disease are things you can measure or an outside observer can see, and therefore are more objective. Examples of things you can measure include blood pressure, heart rate, and peak flow meter measures if you are visiting someone with asthma. It can also include observations of the person, like seeing evidence of a bloody nose or a rash. It can also includeyour physical examination of the person if you would normally do that. Symptoms of disease are things experienced and described by the person and therefore are more subjective. Examples include back pain, fatigue, headaches, etc.

There are some examples that are both a sign and symptom, something like shortness of breath, which can be observed sometimes and described by the patient. None are more important than others in determining a relationship between housing and health issues.

Timing and corroboration become important when trying to tie a sign or symptom to an environment. Timing becomes crucial since most people will describe a connection between a certain time of day or certain environment. Do the signs and symptoms occur at the same time each day? The same place each day? Is there a seasonality, where they only occur in certain times of year? If so, this could rule it out as a housing problem if it is more related to outdoor pollens. It could also rule it in as a housing problem if during rainy season the roof leaks and leads to more mold growth in the house.

Corroboration becomes important also. Are there other people with the same signs, symptoms and timing? This is not crucial to identifying a housing related health problem, but does offer more evidence to suggest one exists. Lastly, do these symptoms resolve after the person leaves the environment? This again goes to timing and location of when signs and symptoms occur and that they are not always present. Consider the example of carbon monoxide. People may experience high levels in the morning when the gas furnace turns on to warm up the house or someone warms up the car in the garage.

Poor housing conditions, including crowding and inadequate lighting, are associated with risk for poor mental health. Poor-quality, overcrowded, multifamily homes are associated with outcomes that include aggression and withdrawal, lower general health status and psychological distress, particularly among women and children. [4-8] Lack of light (e.g., from inadequate number and placement of windows) is related to depression.[9,10]

Although some studies have suggested an association of dampness or mold with depression, the Institute of Medicine concluded that evidence is insufficient to determine whether an association exists between either damp indoor environment or presence of mold and neuropsychiatric symptoms.[11,12]

Bed bugs may also affect mental health and result in anxiety and/or insomnia.

How can you identify the housing conditions that may affect health?

A resident may be able to recognize the signs and symptoms related to their health, but not be able to identify what's going on in the environment. Many exposures are only found out about because someone else asks. Some problems in the home are often overlooked, mostly because you can't see them or smell them so they are difficult to detect. Examples include lead, radon, and carbon monoxide.

What are the signs and symptoms of housing-related disease?

- Signs are things you can measure or an outside observer can see (objective)
  - Blood pressure, heart rate, peak flow
  - Bloody nose, rash
- Symptoms are experiences and described by a person (subjective)
  - Back pain, fatigue, headaches
  - Tolerance for clutter and pests
- Some can be a combination
  - Shortness of breath

Tying a Sign or Symptom to the Environment

Timing, location and corroboration are very important in relating to environmental problems:

Do signs and symptoms occur

- At the same time each day?
- In the same place each day?
- Only in certain times of the year?
- Do others have the same signs and symptoms and same timing?
- Do signs and symptoms go away when out of the environment?

For lead, a simple question about whether a home was built before 1978 would help determine if lead based paint could be present, since leaded paint was outlawed after that date. If the house was built before 1950, the likelihood of lead paint increased substantially since older homes can have more concentrated amounts of leaded paint. As the Keep it Maintained module will describe, lead paint exposure has been associated with a variety of health problems, including developmental delays and lower IQ in children.

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For radon, simply asking about whether a home was ever tested for radon is crucial. Radon is an odorless gas that is the second leading cause of lung cancer.

For carbon monoxide, asking if a resident has a carbon monoxide detector will potentially save someone's life. Low dose chronic carbon monoxide exposure can also be a health hazard.

Other potential sources of housing related health problems are ones that people may be aware of in their home but are often ignored, such as second-hand smoke, consumer chemicals, and pesticides.

Second-hand smoke is a hazard that is brought into the home and is harmful to the people exposed. Asking whether the smoker wants help with quitting is an essential first step to getting second-hand smoke out of the home permanently. Asking if anyone who visits the home smokes may also be important, and whether the people smoke outside (not just in the other room or with the window open) is crucial.

Consumer chemicals is a broad category, but generally just asking what chemicals are used in the home is an important first step. Asking about cleaning chemicals is good since many people may not connect the headache they get every time they use the ammonia to cleaning the kitchen floor. Asking where they are stored is important to prevent accidental poisonings from children. Other consumer chemicals include air fresheners which can have chemicals that cause cough and runny noses in sensitive individuals.

Lastly pesticide use is often probable if people are trying to get rid of pests, such as mice or cockroaches. Asking which chemicals are used, and if people do not know, having them ask the pest exterminator, can be a vital first step. Exposure from pesticides is much higher with sprays and bombs and is much lower with gels. Baits and even over the counter sprays, such as Raid, have pesticides, which many people may not realize.

Often OVERLOOKED sources of health problems

- Lead
  - Was your home built before 1978? 1950?
- Radon
  - Was your home ever tested for radon?
- CO (Carbon Monoxide)
  - Do you have a carbon monoxide detector?

Often IGNORED sources of health problems

- Environmental Tobacco Smoke
  - Does anyone smoke in the family smoke?
  - Do they want help quitting?
- Consumer Chemicals
  - What cleaning chemicals do you use?
  - Where do you store them?
- Pesticides
  - Any pesticides used?
  - Which ones?

Epidemiologic Triangle of Disease

The epidemiological triangle is an excellent tool that professionals use to analyze a complex situation. It identifies three groups of factors that combine to cause an adverse health affect (disease or injury). You might also think of this as the who, what, and where triangle of disease.

Most public and environmental health professionals think of disease in terms of the epidemiological triangle below.

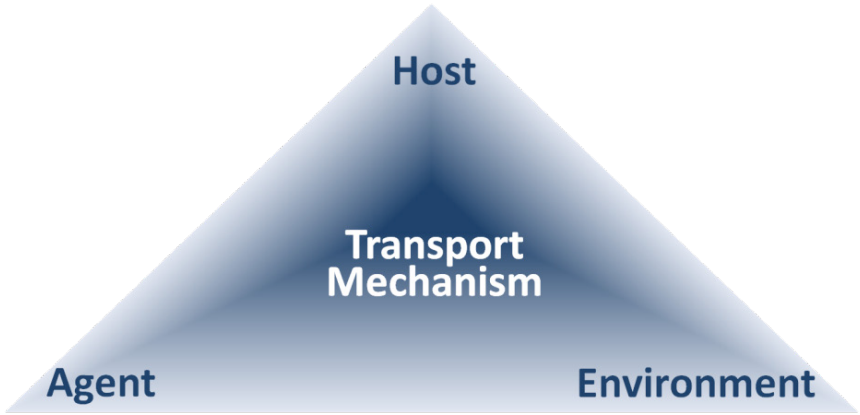
The HOST is the PERSON or the who.

The AGENT is the SOURCE or what, that can bring about changes in a person's health. Agents of disease and injury can be biological, chemical, and physical.

The TRANSPORT MECHANISM is any mechanism, direct or indirect, by which an agent is spread from the environment to the host. Transport mechanisms are either a VECTOR or a FOMITE. A transport mechanism ties the three factors together.

A VECTOR is an insect or any living carrier which transports a pathogenic microorganism from the sick to the well, inoculating the latter. A FOMITE is an inanimate object that transports the agent to the host.

In this course, we do not rely heavily on the epidemiologic triangle because the host is usually the resident and the environment is the home. With two legs established, it is simpler approach.



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