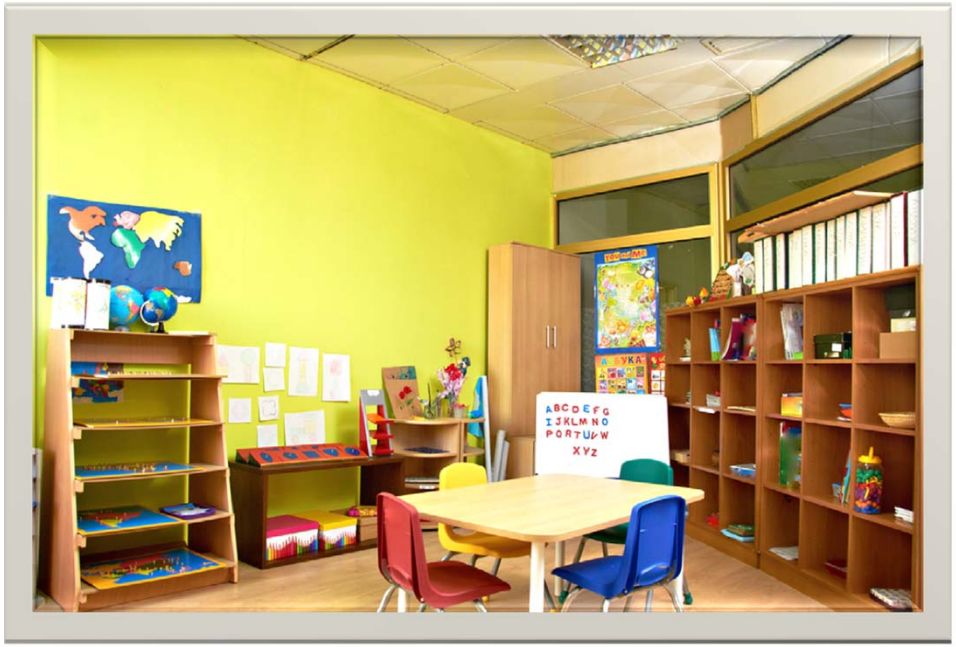

# Healthy Children, Healthy Environments

UGA extension

Healthy Homes Partnership

extension alliance for better child care

NC State University A&T State University COOPERATIVE EXTENSION Empowering People · Providing Solutions

# Presenters:

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Associate Professor, Housing Specialist

# Link Between Environment & Health –

*Healthy Children, Healthy Environments*

**"The connection between health and the dwelling of the population is one of the most important that exists". [1]**

***Florence Nightingale***

Cited in Lowry, S. BMJ, 1991, 303, 838-840

# What's the Big Deal?

Annual costs for environmentally attributable childhood diseases and injuries

Because of their

size,

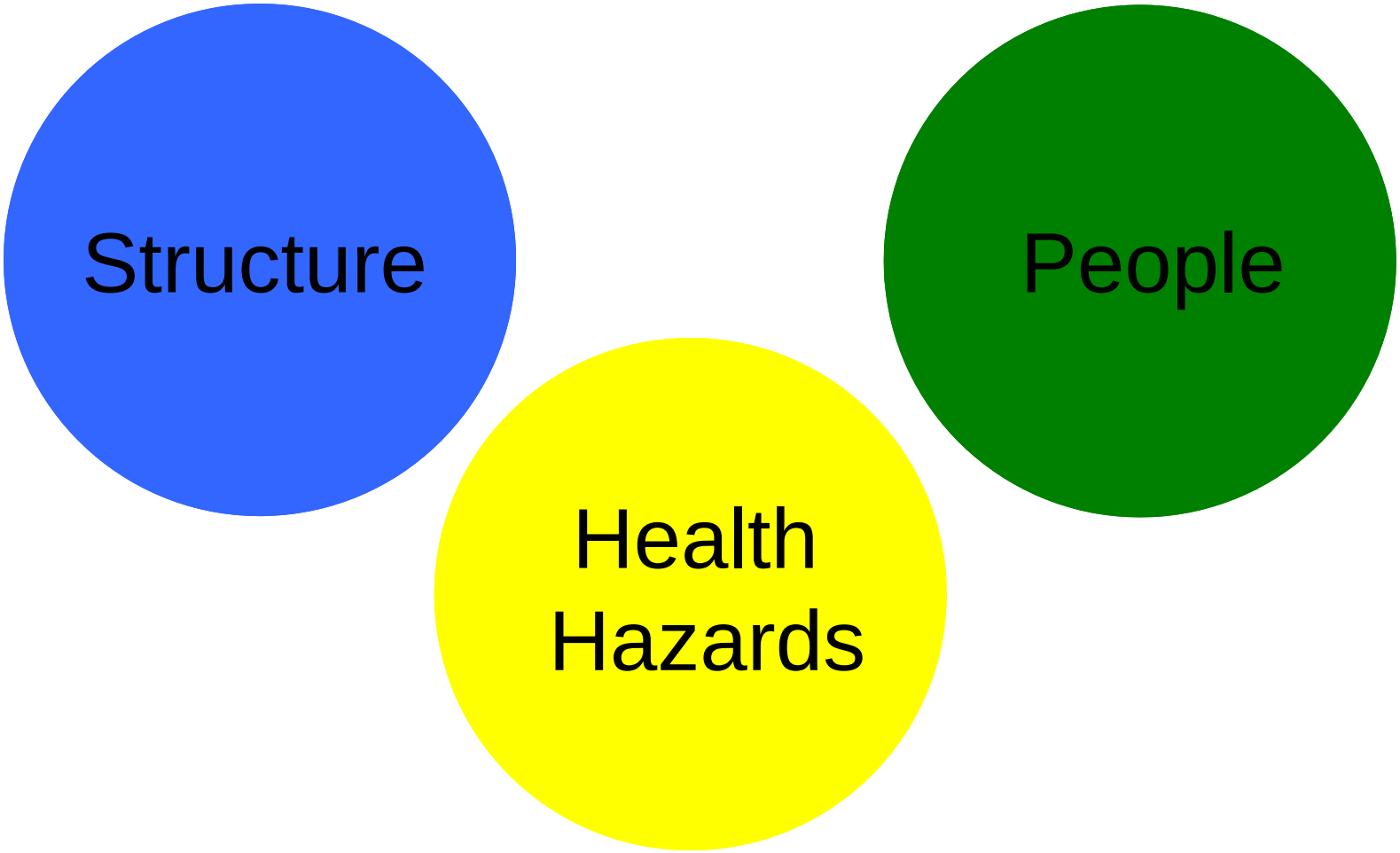
stage of development,

behavior,

children are at greater risk than adults for adverse health effects caused by exposure to environmental hazards.

# Holistic Approach

Integrated approach that considers:




**Moisture / Water Intrusion**

Why a Holistic Approach?


**Moisture / Water Intrusion**

**Mold Growth**


**Moisture / Water Intrusion**

**Mold Growth**

**Asthma Exacerbation**


**Moisture / Water Intrusion**

**Structural Damage**

**Structural Damage**

**Pests**

**Lead Poisoning**

**Injuries**

**Fire Hazards**


**Pesticides**


**Pests**

**Asthma and Allergy Exacerbation**

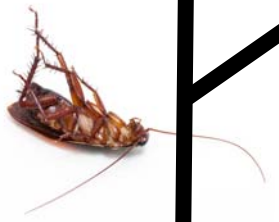

**Pesticide**


**Moisture / Water Intrusion**

**Energy Efficiency**

Structural Damage


Moisture



Asthma Exacerbation

Energy Efficiency

**Links Between Housing and Health: World Health Organization 2005**

**Linkages with sufficient evidence for estimating housing-related burden of disease**

Physical factors
- Heat and related cardiovascular effects and excess mortality
- Cold indoor temperatures and winter excess mortality
- Energy efficiency of housing and health
- Radon exposure in dwellings and cancer
- Neighborhood and building noise and related health effects

Chemical factors
- Secondhand smoke exposure in dwellings and respiratory and allergic effects
- Lead-related health effects

Biological factors
- Humidity and mold in dwellings and related health effects
- Hygrothermal conditions and house dust mite exposure

Building factors
- Building and equipment factors and injuries and domestic accidents

Social factors
- Multifamily housing, high-rise housing, and housing quality and mental health

**Linkages with some evidence for estimating housing-related burden of disease**

Physical factors
- Ventilation in the dwelling and respiratory and allergic effects

Chemical factors
- Volatile organic compounds and respiratory, cardiovascular, and allergic effects

Biological factors
- Cockroaches and rodents in dwellings and respiratory and allergic effects
- Cats, dogs, and mites in dwellings and respiratory and allergic effects
- Pets and mites and respiratory, allergic, or asthmatic effects

Building factors
- Sanitation and hygiene conditions and related physical health effects

Social factors
- Social conditions of housing and fear or fear of crime
- Poverty and social exclusion and related health effects
- Crowding and related health effects
- Social factors and social climate and mental health

**Linkages with insufficient evidence for estimating housing-related burden of disease**

Physical factors
- Lighting conditions in the dwelling and mental and other health effects
- Particulate matter in indoor air and respiratory and allergic effects

# What is a Healthy Environment?

A healthy environment

- Designed,
- Constructed,
- Maintained, and
- Rehabilitated

All in a way that is supportive good health for those who work, learn, and play there

# Principles of a Healthy Environment

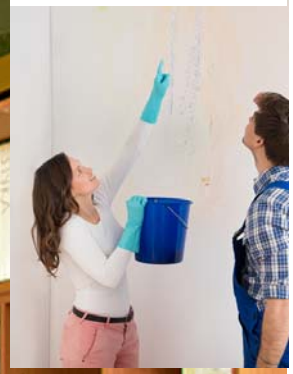
Pest Free

Maintained

Accessible

Ventilated

Dry



Energy Efficient

Contaminate Free

Safe

Clean

# How are children exposed to contaminants?

Inhalation
Ingestion
Skin Absorption & Cuts

Risk = Hazard x Exposure

# How Severe the Factors Are Depends Upon:

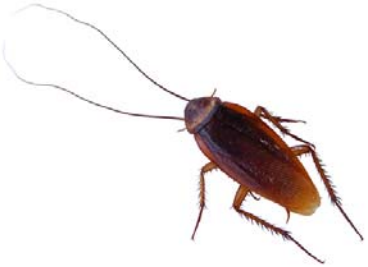
- Occupant Behaviors
- Exposure length
- Concentration of source
- Age and health of individual
- Building condition

# Physical Hazards

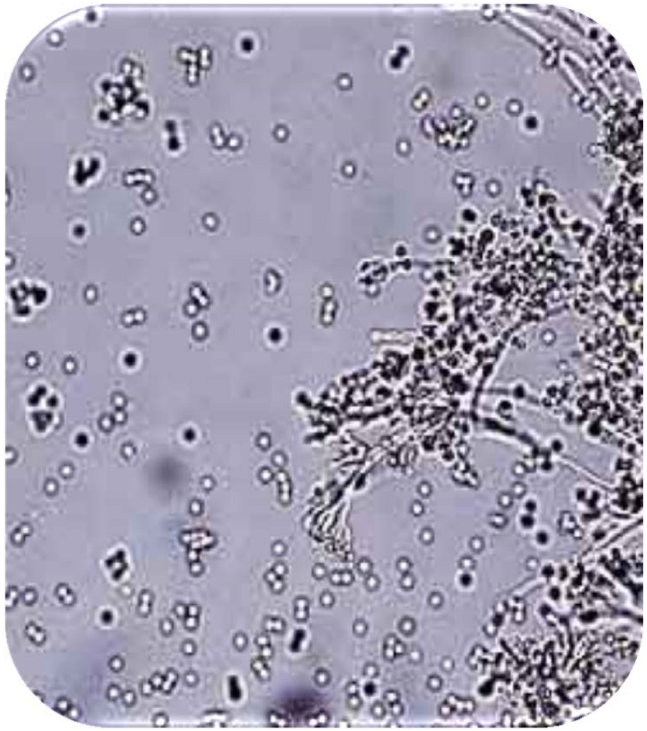
- Physical hazards in the environment pose dangers for children

# Biological Hazards

mold, animal dander,
cockroaches, dust mites



# Mold



- Release tiny spores everywhere
- Spores travel in air, settle on surfaces
- Multiply in right conditions – moisture, temperature, light
- Problem -- when colonies or spore levels are large
- Exponential population growth


## Health hazard depends…

- Level of exposure – no clear level of exposure
- Sensitivity of individual
  - Asthma, allergies, other
  - Weakened immunity
  - Children and elderly
- Type of mold and toxin

# Potential Health Effects

## Common Effects

- Allergic reactions
- Allergic rhinitis (“hayfever”)
- Asthma

## Toxic effects – some types

- Fatigue, flu-like symptoms
- Nausea, vomiting, diarrhea
- Respiratory, eye skin irritation
- Neurologic effects (memory loss, headaches, cognitive, mood changes)
- Suppression of immune system

# Mold

**Action Steps:**

- Repair leaks in buildings
- Keep surfaces clean and dry
- Keep relative humidity below 50%
- Use the air conditioner during humid summer months
- Find source of moisture and eliminate, then clean

Some biological hazards are related to ASTHMA

# Asthma

- A chronic inflammatory disorder of the airways
- It is treatable, but not yet curable
- It is not the same as allergies, but allergies MAY cause asthma
- Not contagious
- Can be life-threatening
- It can be controlled

# Asthma Facts

- Affects approximately **7 million** children
- It is the most common chronic childhood disease. Causes more hospital stays than any other childhood disease
- Cost of lost workdays for parents with asthmatic children is about $1 billion
- It is a leading cause of school absences

# Asthma affects

- Children
- Low-income, urban residents
- Some minorities
- Allergic individuals
- People with hereditary disposition for asthma (genetics)

# Common Asthma Triggers

**Allergens**

- Molds ★
- Dust ★
- Animals ★
- Pollen
- Food
- Pests (cockroaches) ★

★ Most common environmental triggers

**Irritants**

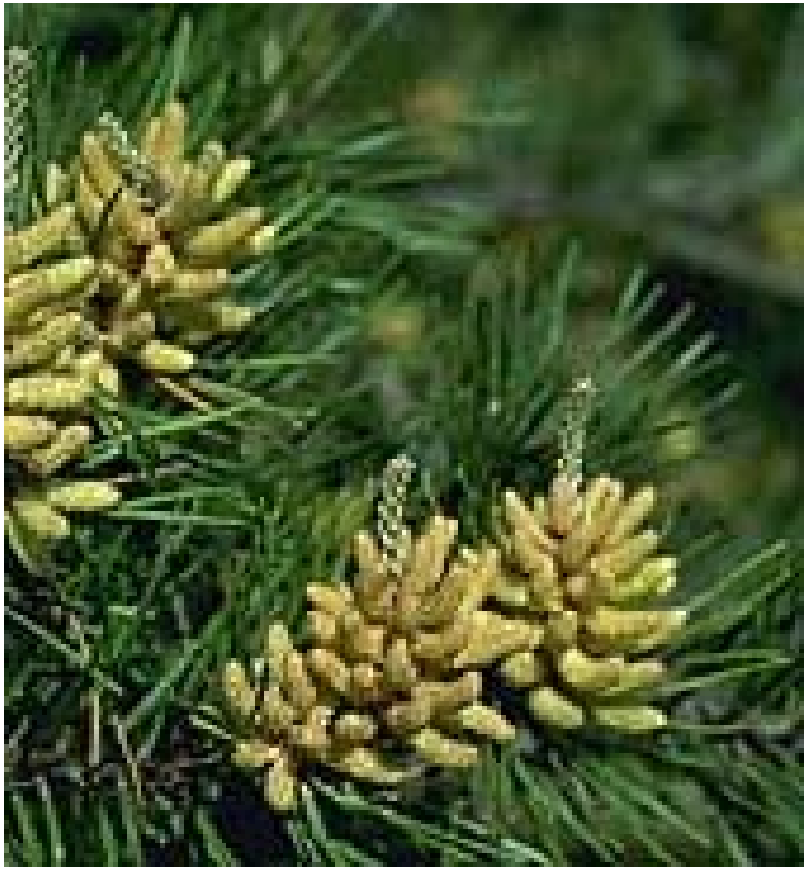
- Secondhand smoke ★
- Strong odors
- Ozone
- Chemicals/cleaning compounds

Other Triggers

- Exercise
- Weather Changes
- Infections
- Obesity

# Pollen

- Transported by wind, can get indoors
- Grass, ragweed, pine, birch, oak trees



**Action Steps**:

- Close windows during pollen season
- Caulk and weather-strip doors and windows
- Change air filters
- Wet dust
- Wipe feet
- Develop an asthma action plan

# Animals

- Skin flakes, urine, and saliva of warm blooded animals can be asthma triggers

**Action Steps**:

- Clean cages regularly
- Keep pets away from sleeping areas
- Wash hands after touching pets

# Pests
## (especially cockroaches)

- Allergic to the body parts and droppings of cockroaches

- Those dust allergies often have cockroach allergies

**Action Steps**:

- Keep tight lid on trashcans and empty often
- Store food in tightly sealed containers
- Wipe up spills and crumbs right away
- Clean dirty dishes
- Fix leaks, seal cracks and crevices, remove “homes” where pests like to live

# Dust Mites

- Found almost everywhere!
- Live in soft bedding
- Live in warm, humid places
- Can be asthma triggers!

**Action Steps**:

- Keep relative humidity levels below 50%
- Limit carpeting, overstuffed furniture, drapes, etc
- Regular cleaning, HEPA filter
- Use washable toys
- Wash laundry in 130$^{o}$

# Household Products

- Bleach, pesticides, cleaners, aerosol spray products

**Action Steps**:

- Follow instructions on label
- Use when children aren't in the room
- Check child care licensing regulations regarding cleaners
- Keep out of reach of children and in child proof containers

# Lead


- Naturally-occurring element found in soil, rocks, and water.
- A heavy metal.
- Used throughout human history as an **additive** for a wide variety of products.

**TOXIC** to humans and animals.

# Lead


- Paint additive -- helped paint go on more smoothly, last longer, and resist rust more effectively
- Interiors and exteriors applications
- When lead paint deteriorates, it becomes a hazard
- Banned **lead from house paint** in 1978

# Health Effects of Lead Poisoning

| Children | Adults |
|---|---|
| Neurological (brain) damage:<br>Reduced IQ/Learning disabilities<br>Mental retardation<br>Hyperactivity/ADD<br>Disruptive/violent behavior | Anemia |
| Anemia | High blood pressure |
| Hearing loss | Hearing loss |
| Impaired growth | Reproductive difficulties<br>Miscarriage/premature birth |
| Kidney damage | Kidney damage |
| Insomnia | Memory loss |

# EPA estimates lead paint is present in

- 87% of pre-1940 homes
- 69% of homes built 1940-1959
- 24% of homes constructed 1960-1978

3.8 million homes with peeling or chipping paint or high levels of lead dust

# Lead Exposure comes via **INGESTION** and **INHALATION**

- As paint deteriorates, it may flake/chip or degrade to a fine dust.
- Ingesting lead dust causes lead poisoning.
- Lead dust is virtually invisible and easily dispersed into the air -- inhaled lead dust causes lead poisoning.

# All Lead Paint Will Deteriorate

But some more than others:
Windows
Doors
Stairs and Banisters

The effects of weathering, friction, and human handling mean that paint degrades rapidly on these surfaces.

# Exterior Concerns

Lead paint chips and dust are likely to settle in the soil near buildings with exterior leaded paint.

# Action Steps:

**Inside:**

- Wash children's hands and face with soap and water, especially before they eat
- Wash toys weekly
- Don't let children chew or put mouths on windowsills
- Use appropriate cleaning techniques
- Removal must be done by trained and certified workers

**Outside:**

- Children should avoid playing in grass or soil near building
- Vegetable gardens should be located as far away from the building as possible.

A healthy environment is only as healthy as those whom inhabit it. . .

# Things you can do...

- Repair leaks and cracks
- Clean often
- Keep the indoor humidity below 50%
- Store food in tightly sealed containers
- Use a doormat to reduce tracking in lead dust, pollen and other contaminants
- Wash bedding and toys regularly
- Wash hands
- Make sure you have worked with parents on an asthma plan for children with asthma

# In conclusion

Employees/administrators must understand that their actions and choices will impact the quality and health of the indoor environment.

# Supported by:

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If you need a certificate of attendance for today's session, please complete the form **within 24 hours** at

https://www.surveymonkey.com/r/HealthyEnvtWebinar1

You will receive a certificate by email within 2 weeks.

# For More Information:

- National Healthy Homes Partnership http://extensionhealthyhomes.org
- eXtension Alliance for Better Child Care http://articles.extension.org/child_care
- Eco-Healthy Childcare, http://www.cehn.org/our-work/eco-healthy-child-care/

# References:


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- Eco-Healthy Childcare, http://www.cehn.org/our-work/eco-healthy-child-care/
- Centers for Disease Control, Healthy Homes, http://www.cdc.gov/healthyhomes/
- National Center for Healthy Homes, http://www.nchh.org
- US Department of Housing and Urban Development, Healthy Homes,http://portal.hud.gov/hudportal/HUD?src=/program_offices/healthy_homes/healthyhomes
- Montana State University Extension, Lead Presentation, Tribal Healthy Homes, http://tribalhealthyhomes.org/