

# Creating Healthy Indoor Environments in Child Care Settings

Common practices to keep your kids safer

[Presenter's Name]

[Date]

[Conference Title and Location]

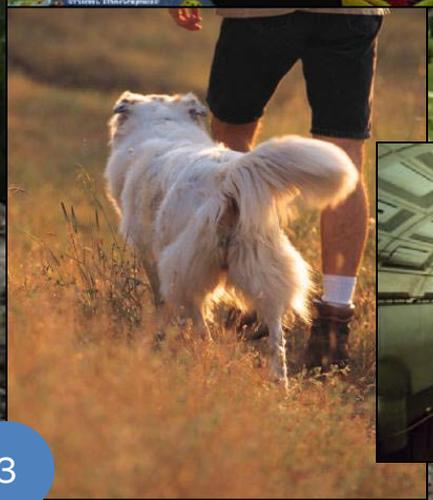
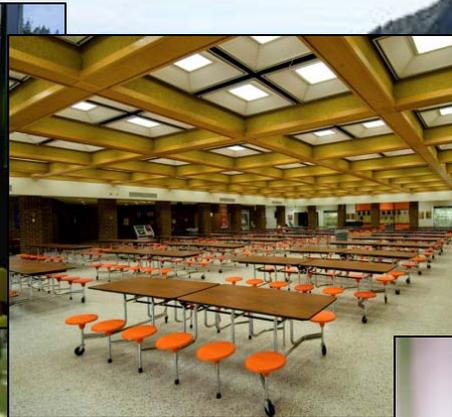




# Learning Objectives

- Discover why children are more vulnerable
- Identify environmental hazards in child care settings
- Learn how to reduce these hazards
- Find resources for more information

# This is what environment looks like



# Children Are Not Little Adults



# Body Differences

- Drink, eat, and breathe more than adults, as based on body weight
- Children are rapidly growing and developing
- Less developed natural defenses
- More skin per pound and less protective skin
- Chemicals in the womb and in breast milk

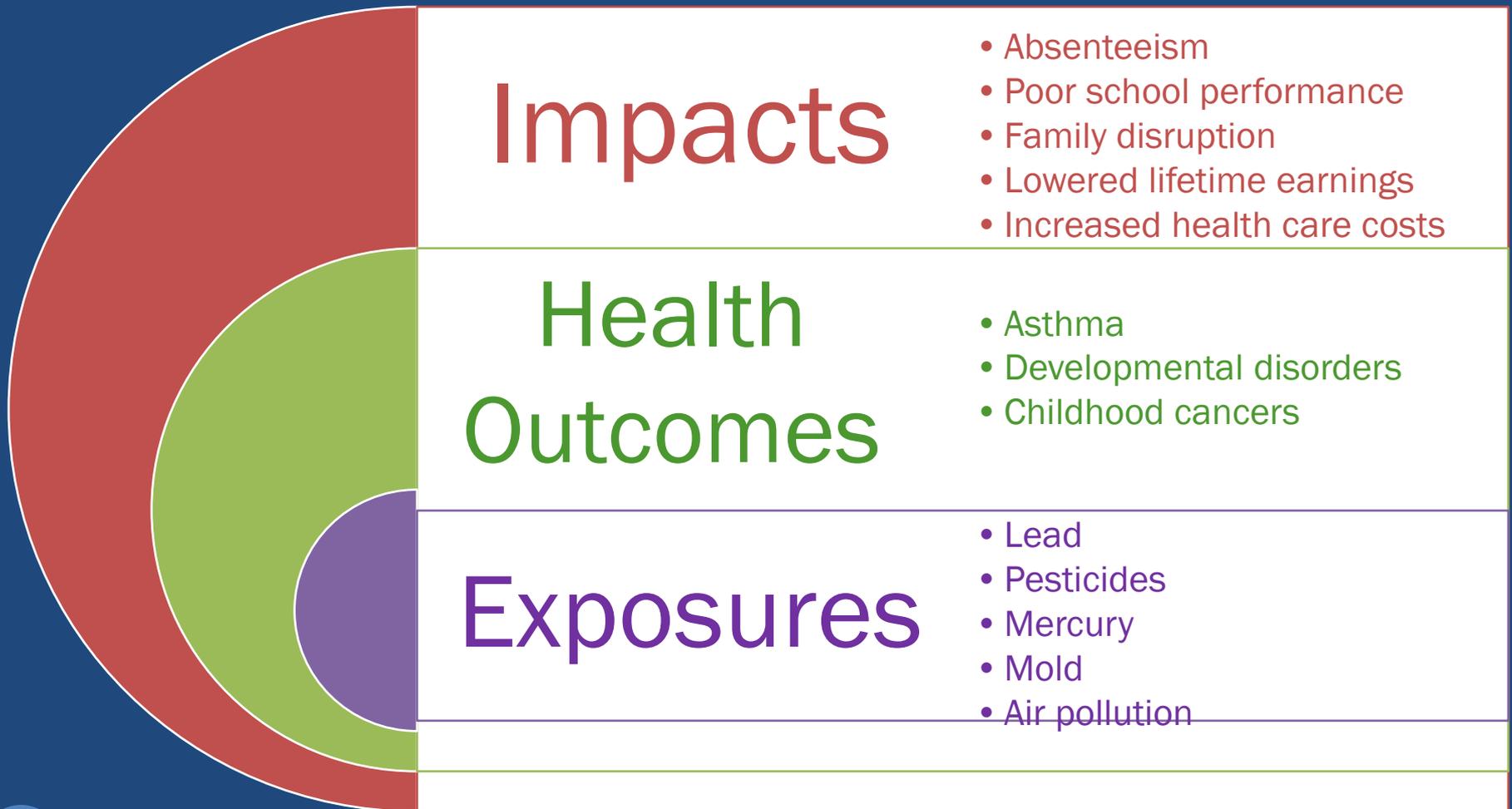


# Behavioral Differences

- Natural explorers
  - Spend more time close or on the ground and floors
  - Spend more time outdoors than adults
- Mouthing behaviors
  - Place dirty fingers and objects in their mouth
  - Ingest dirt and dust, which may be contaminated



# Environments Shape Outcomes



# Health Disparities

All children are susceptible to negative outcomes as a result of environmental exposures, but they disproportionately affect minorities and children living below the poverty level



Asthma

Brain Disorders

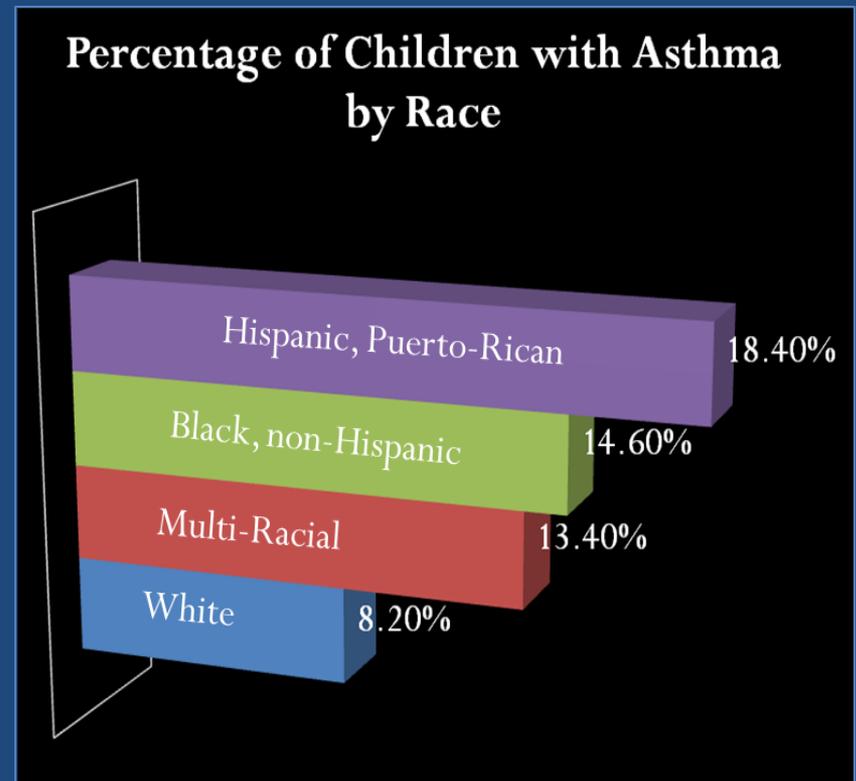
Obesity

Cancer



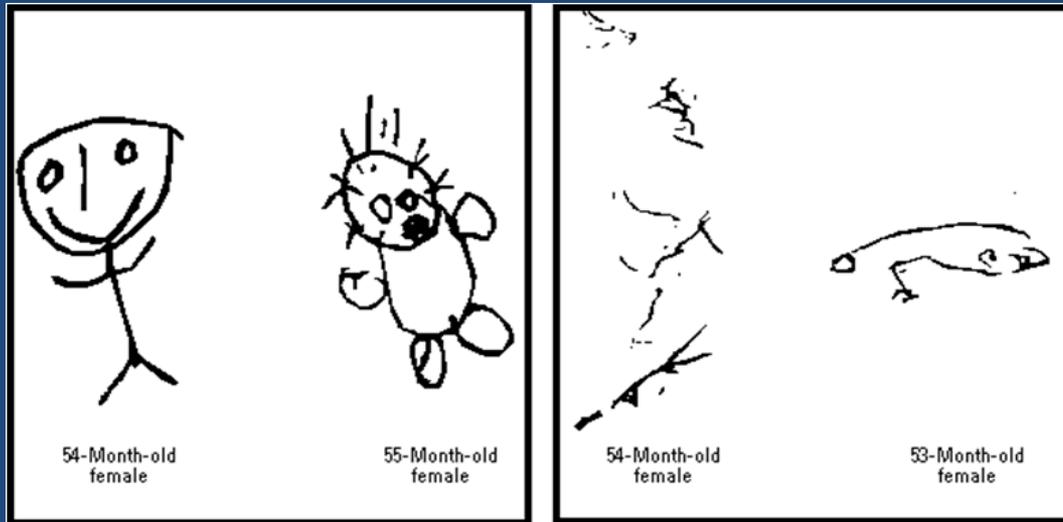
# Asthma: Outcomes and Disparities

- 7 million kids suffer from asthma
- 2 million emergency room visits annually
- 13 million missed school days annually
- Black children are two times as likely to be hospitalized, four times as likely to die from asthma as white children



# Brain Disorders: Outcomes and Disparities

- Exposure to certain chemicals can lead to ADHD, lowered IQ, autism spectrum disorders, behavioral disorders and/or developmental delays
- 12 million U.S. children, or 17%, have learning or behavioral disabilities
- Chemical exposures play a role in at least 1 in 4 cases of behavioral or developmental disorders
- ADHD is more common in children below the poverty level



# Obesity:

## Outcomes and Disparities

- Obesity in children has tripled in the last thirty years and today 1/2 of American children are either overweight or obese
- Obesity in children
  - 21.2% of Hispanic children
  - 24.3% of Black non-Hispanic children
  - 14% of White non-Hispanic children
- Research shows that some chemicals can lead to obesity

*“Because of the increasing rates of obesity, unhealthy eating habits and physical inactivity, we may see the first generation that will be less healthy and have a shorter life expectancy than their parents.”*

Former Surgeon General, Richard Carmona



# Cancer: Outcomes and Disparities

- Cancers: second cause of death among children (ages 1 -14 years of age)
- Approximately 10,400 U.S children under age 15 diagnosed with cancer in 2007
- About 1,545 children will die from the disease
- Cancers may not appear until many years after the exposures to cancer-causing chemicals have taken place.



# Child Care in the United States

- Nearly 11 million children in child care
- People spend about 90% of their time indoors
- Indoor air pollution levels can be 2-5 times greater than outdoor
- No universal policies on environmental safety for child care facilities



# Where could you find these hazards?



## Opportunities for Exposure:

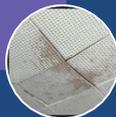
Pests and Pesticides



Lead and Mercury



Mold and Moisture



Radon, CO, ETS

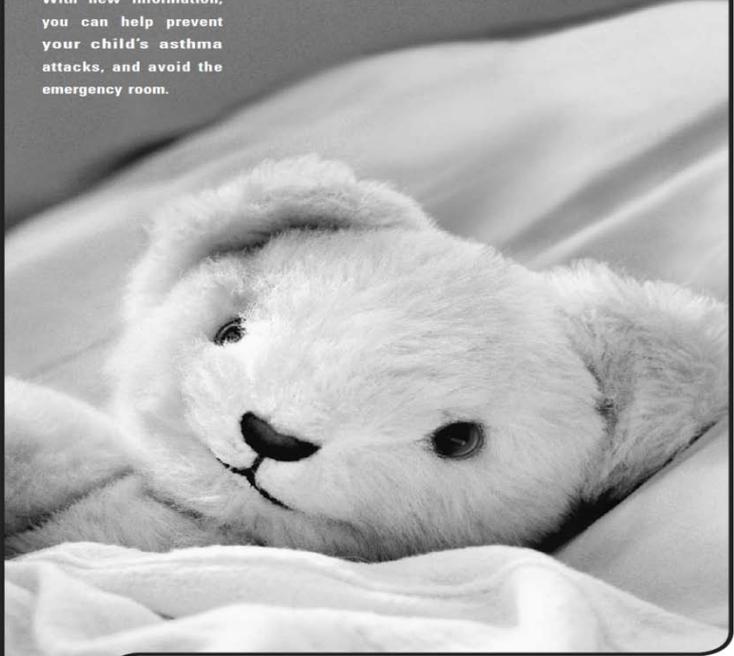


Chemicals, VOCs



# Major Asthma Triggers

- Some pests and pesticides
- Mold and moisture
- Dust mites
- Environmental tobacco smoke (ETS)
- Pet dander and pollen
- Household chemicals



**KEEP OUT OF REACH  
OF CHILDREN**

Asthma attacks can be caused by many things you'd never expect. Including stuffed animals. With new information, you can help prevent your child's asthma attacks, and avoid the emergency room.

**Ad Council**  
**EPA**

**ATTACK ASTHMA. ACT NOW.  
1-866-NO-ATTACKS  
WWW.NOATTACKS.ORG**

**DON'T LET YOUR CHILD FEEL LIKE A FISH WITHOUT WATER.**

Digital Vision/Getty Images

# Pests

- Pests, such as cockroaches and rodents, can trigger asthma attacks
- Pests can also transmit diseases
- Reducing children's exposure to pests is critical to reduce health risk



# Pesticides

- Pesticides are poison and may irritate skin or eyes. Recent studies have shown an association between pesticide exposure and developmental delays. Some pesticides are believed to interfere with hormone function, and some pesticides are classified as possible or probably carcinogens.
- Pesticides include:
  - Bug sprays
  - Rat poison
  - Weed killers
  - Flea and tick treatments
  - Lice shampoo
  - Insect repellants
- Pesticide residues can be found on fruits and vegetables and in water



# Where can pests gain access and breed?



Be sure doors and windows fit tightly and seal cracks or tears.  
Install door sweeps.



Avoid clutter and clean up food.

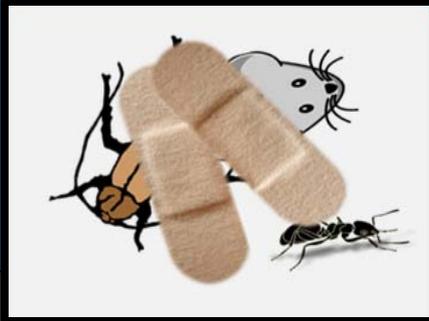
# What's wrong with this picture?

Make sure equipment and toys don't contain standing water.



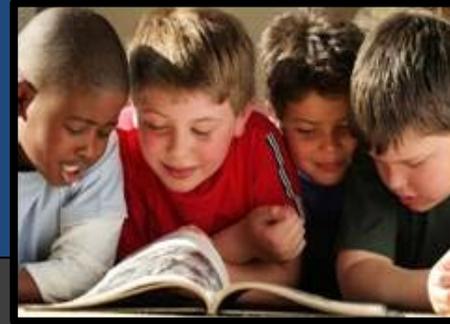
Remove conditions that will encourage pests—clean up spilled food, use dome-lid trash cans and dumpsters with tight sealing lids.

# Pests and Pesticides: What you can do



## Address the Real Problem

- Remove sources that attract and house pests
- Clean up food/spills
- Use closed containers for food leftovers and trash storage
- Clean and sanitize countertops daily
- Remove trash to take away their homes
- Keep facility well-maintained and sanitary
- Seal cracks and fix leaks
- Use window screens



## Benefits of IPM

- Better long-term control of pests
- Reduced liability of facility owner
- Lower cost than repeated chemical applications
- May lower facility operation costs (energy saving, etc.)
- Healthier learning environment for our children

# Mold and Moisture



- Mold can grow and spread in carpets, walls, fabrics, and wood



- Mold needs moisture to survive - eliminate mold by addressing the moisture issue

- Once mold dries, it can travel in dust and through air



- Mold can trigger asthma attacks, allergic reactions and other respiratory issues

- Reactions to mold can be immediate or delayed

# Mold and Moisture: What you can do

## When to Take Action

- When you see or smell mold or mildew growing
- Within 48 hours when you see damp or wet building materials or furnishings. If wet or damp areas are dried within 24-48 hours, mold usually won't grow
- Continue to inspect regularly to ensure problem is resolved

## Eliminate the Mold

- Scrub the mold off with detergent and water and completely dry the area
- Eliminate the source of moisture
- If the mold problem is too big, hire a professional

## Prevention

- Use an exhaust fan or open a window in the bathroom or kitchen when showering, cooking, or washing dishes
- Fix water leaks as soon as possible to keep mold from growing
- Always vent clothes dryers to the outside

# Carbon Monoxide

- Carbon monoxide (CO) is an odorless, colorless and toxic gas
- Sources
  - Engine exhaust from cars and other gas-powered, motor equipment
  - Tobacco smoke
  - Gas and wood burning stoves and heaters
- Symptoms
  - Headache, dizziness, fatigue and nausea
  - Shortness of breath and difficulty breathing due to reduced oxygen
- High levels may result in death



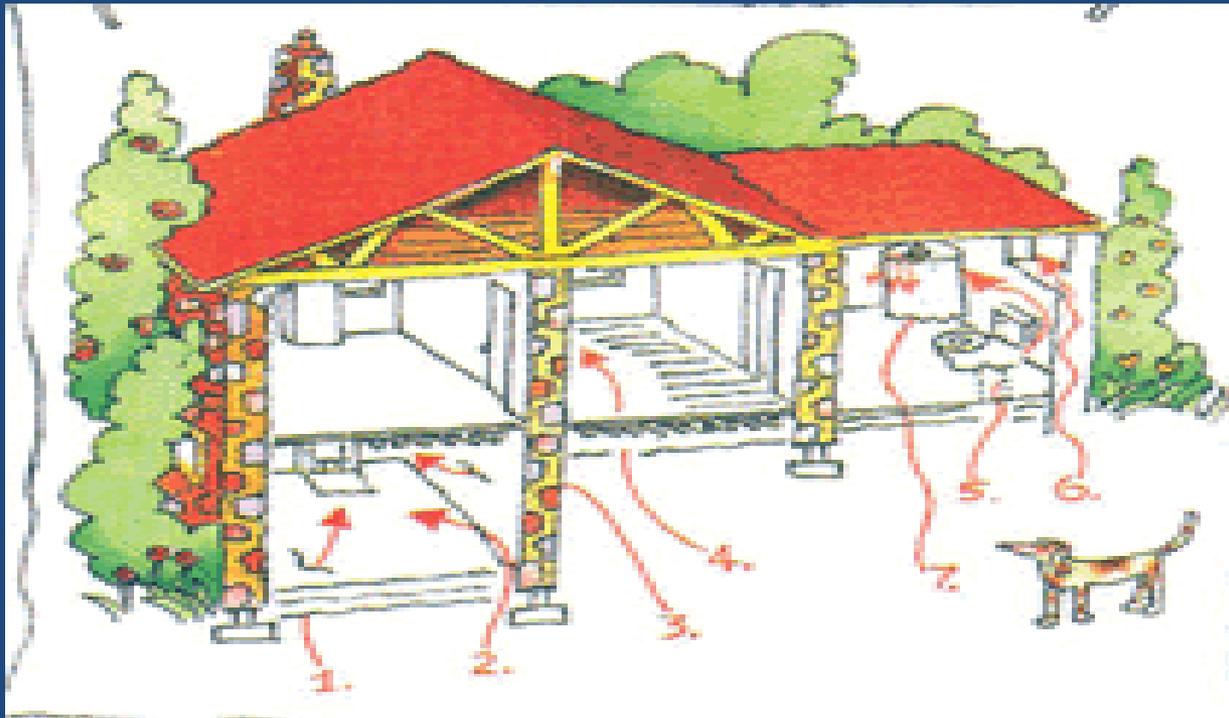
# Carbon Monoxide: What you can do



- Install a carbon monoxide detector
- Consider an anti-idling policy for your facility
- Properly ventilate kerosene and gas space heaters, and gas appliances
- Never use a gas powered-generator indoors, in garages, in small spaces or near windows and doors
- Routinely inspect chimneys and gas furnaces for damage and leaks. Clean chimneys if necessary
- Have a trained professional repair any damage or leaks to ventilation and appliances

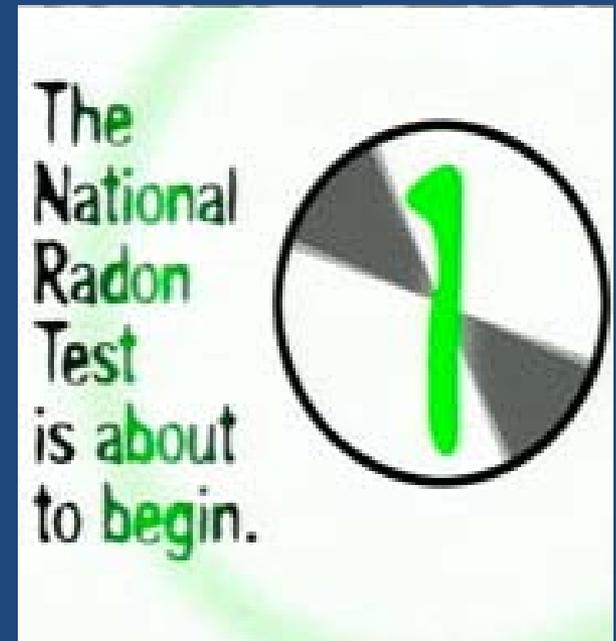
# Radon

- Invisible, radioactive gas found nationwide
- Radon is the second leading cause of lung cancer—21,000 deaths each year
- A smoker exposed to radon has a much higher risk of developing lung cancer



# Radon: What you can do

- Test your facility for radon
  - Some state programs provide kits free of charge
  - Inexpensive screening kits can be obtained at hardware stores
  - Remember to submit the test for data analysis
- What to do if radon levels are high
  - Contact the local health department or state radon coordinator,
  - Call a local radon contractor



# Environmental Tobacco Smoke (ETS)

- ETS, or secondhand smoke, contains harmful substances from a cigarette, pipe or cigar
- Third leading cause of lung cancer (3,000 deaths each year)
- Fetuses, infants, and children exposed to secondhand smoke are at increased risk for
  - Asthma attacks and respiratory ailments
  - Ear infections
  - Lower birth weight
  - Sudden Infant Death Syndrome (SIDS)



# Third Hand Smoke

- Smoke can remain for an extended period of time and spread through indoor air for hours.
- Residues that remain on materials with which a smoker has come in contact.
  - Clothing
  - Hair
  - Household products
  - Furniture and other surfaces





## Second and Third Hand Smoke: What you can do

- Never smoke around children or in or near places they spend time
- Never allow family, friends or visitors to smoke inside your home, child care center, or car
- Do not wear smoke-filled clothing while caring for children
- Wash walls, steam clean fabrics and carpets to get rid of third-hand smoke
- Talk to parents and employees about keeping the places children spend their time smoke-free





# Pet Dander and Pollen

- Pet Dander

- Dried pet saliva, dead skin cells and fur or feathers from animals
- About 10% of the population is allergic to animals
- Anywhere from 20 to 30% of people with asthma are allergic to cats and/or dogs
- 100% of U.S. households have detectable amounts of pet dander

- Pollen

- Early spring and late summer are the most typical ragweed allergy and hay fever seasons
- 75% of the population is allergic to ragweed
- 10-20% of people are affected by hay fever symptoms
- Comes from indoor and outdoor plants and cut flowers
- Asthma triggers can also be non-flowering trees, grasses, and weeds

# Pet Dander and Pollen: What you can do



- Wash hands after touching an animal or plant
- Keep pets away from children who are sensitive to dander
- Wash pets and pet bedding often with allergen-reducing shampoo if possible



- Dust often with a damp cloth
- If children are sensitive, keep pollen out by closing windows and doors



- Mop or use a high efficiency particulate air (HEPA) filtered vacuum
- Remove indoor plants if they produce pollen or allergic reactions

# Other Toxic Chemicals

A child born in America today will grow up exposed to more chemicals than a child from any other generation in our history.

A 2005 study found 287 different chemicals in the cord blood of 10 newborn babies – chemicals from pesticides, fast food packaging, coal and gasoline emissions, and trash incineration.

80,000 on the TSCA inventory

Lack of data and testing for new and existing chemicals

Restrictions on just 5 chemicals

# Plastics: What you can do

- Avoid plastics with recycling codes #3, #6, and #7
- Use “BPA free” and phthalate free baby bottles, feeding plates and cups, sippy cups, or glass
- Never use damaged plastic food containers (scratches, tears, etc.)
- Never microwave food or drink in plastic containers. Use glass instead



# Arts and Crafts Supplies: What you can do

- Avoid use of aerosol sprays indoors
- Consider using environmentally friendly art supplies
- Ventilate workspace
- Do not eat or drink while using art and craft materials
- Wear smocks
- Wash hands after using art and craft supplies



# Cleaning Supplies and Fragrances: What you can do

## All Purpose Cleaning Alternatives

- Use baking soda and water mixture
- 1 to 1 mixture of water and vinegar
- 1 to 1 mixture of water and lemon juice

- Don't use harsh cleaning products
- Don't use bleach or other disinfectant when soap and water will do
- Never use bleach or any other cleaning product at greater concentrations than recommended
- Use fragrance-free and/or hypoallergenic products (soaps, lotions, etc.)
- Store all chemicals out of children's reach
- Do not wear perfumes or other fragrances
- Avoid use of air fresheners



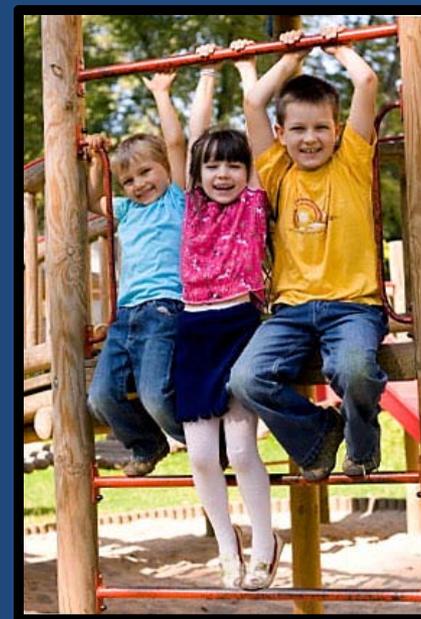
# CCA-treated Playground Equipment

- CCA is no longer being used on wood for most residential settings
- Mostly found in structures built before 2004
- Contains arsenic, which has been linked to several types of cancer
- Hand to mouth behavior puts children at increased risk



# CCA Treated Playground Equipment: What you can do

- If possible, remove CCA treated playground equipment (usually built before 2004)
- Inspect wooden playground equipment for damage
- Always wash children's hands after playing outside



# Lead

- Lead is a harmful metal typically found in homes built before 1978
- Lead-based paint was used in > 38 million homes before it was banned in 1978
- Lead can linger in today's household dust, soil, paint chips, toys, air and drinking water
- Childhood exposure can result in:
  - Learning or behavioral problems
  - Brain, liver or kidney damage
  - Hearing loss



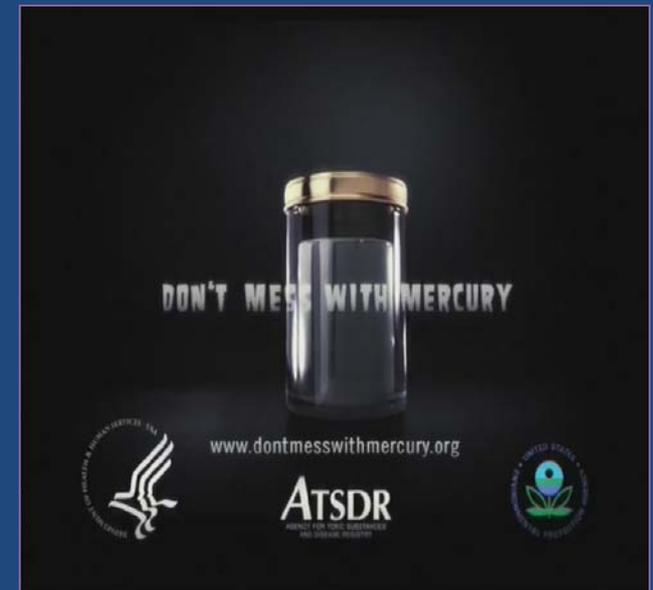
# Lead: What you can do

- Make sure your paint is in good condition (no chipping, cracking, etc.)
- Clean regularly around window sills and doors with a damp cloth
- Wash children's hands, toys, pacifiers and bottles often
- Run water for 15-30 seconds (or until cold) before drinking tap water and never use hot tap water when preparing formula or food
- Keep children away from soil that may have lead in it and use a doormat outside your facility to wipe soil from shoes before entering

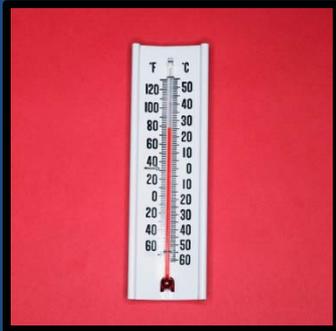


# Mercury

- Mercury is found in some thermometers, CFL lighting, and some seafood
- Seafood consumption is the most common means of human exposure to mercury.
- Coal-burning power plants are responsible for the largest amount of mercury air pollution.
  - Mercury air pollution can contaminate water bodies and some seafood.



# Mercury: What you can do



- Fish: Fish is an important part of the human diet so pay attention to fish consumption advisories to avoid eating types of fish with high methylmercury content. Limit weekly servings of potentially contaminated fish including canned tuna.
- Fever Thermometers: Replace mercury thermometers with digital thermometers or alcohol-containing thermometers. Dispose of mercury thermometers according to local requirements.
- CFL Bulbs: Inspect bulbs for damage prior to purchasing and installing. Do not use bulbs in lighting fixtures within a child's reach (floor lamps, table lamps, etc.). If a CFL bulb breaks, follow EPA's steps for proper clean up and removal

# Steps for Cleaning Up a Broken CFL



1. Have people and pets leave the room
2. Shut off the central air heating/air-conditioning system
3. Air out the room for 5-10 minutes by opening an external window or door
4. Collect materials needed to clean up broken bulb
  - stiff paper or cardboard
  - sticky tape
  - damp paper towels or disposable wet wipes (for hard surfaces)
  - a glass jar with a metal lid or a sealable plastic bag
5. Be thorough in cleaning broken glass bits and powder. Never use a vacuum.
6. Place cleanup materials in a jar or sealable plastic bag and discard all debris and cleanup materials in a secure outdoor location until materials can be properly disposed according to local requirements. Never leave materials indoors.

# PROTECT YOUR CHILDREN Against Disease-Carrying Insects!



**TRIMZ DDT**  
**CHILDREN'S ROOM**  
**WALLPAPER** and Ceiling Paper

## KILLS FLIES, MOSQUITOS, ANTS

... as well as moths, bedbugs, silverfish and other household pests after contact!

**MEDICAL SCIENCE KNOWS** many common insects breed in filth, live in filth and carry disease. Science also recognizes the dangers that are present when these disease-carrying insects invade the home. Actual tests have proved that one fly can carry as many as 6,600,000 bacteria! Imagine the health hazard—especially to children—from flies seriously suspected of transmitting such diseases as scarlet fever, measles, typhoid, diarrhea... even dread polio! Some types of mosquitos carry malaria and yellow fever. And any mosquito bite is painful and easily infected when scratched.

**NON-HAZARDOUS** to children or adults, to pets or clothes. Certified to be absolutely safe for home use. Tested and commended by *Parents' Magazine*.

**GUARANTEED** effective against disease-carrying insects for 1 year. Actual tests have proven the insect-killing properties still effective after 2 years of use.

**NO SPRAYS! NO LIQUIDS! NO POWDERS!** So convenient, so safe because the DDT is fixed to the paper. It can't rub off!

**BEAUTIFUL!** "Jack and Jill" or "Disney Favorites"—gay new patterns that protect as they beautify a child's room.

**DDT CEILING PAPERS, TOO!** Extra protection for your children's room—for every other room in the house. Choice of two tints.



### READY-PASTED! Just Dip in Water and Hang!

Anyone can put Trimz Wallpaper up without help or previous experience. Millions have done it—proved it's quick, clean, easy! Nothing to get ready—no tools, paste or muss. Just cut strips to fit, dip in water and hang. It's dry in 20 minutes! Guaranteed to stick—guaranteed to please or money back. And so **INEXPENSIVE!** You can protect your child for \$8 to \$12—depending on size of room.

Trimz DDT Children's Room Wallpaper, Trimz DDT Cedar Closet Wallpaper now available at Department, Chain, Hardware, Paint, and Wallpaper stores everywhere.

Many beautiful new patterns also available in regular Trimz Ready-Pasted Wallpaper at \$1.99, \$2.49, \$2.99 per box.



Just Dip in Water and Apply

**TRIMZ** READY-PASTED WALLPAPER

Another Product of TRIMZ CO., INC., Division of UNITED WALLPAPER



World's Leading Designer and Largest Manufacturer, Merchandise Mart, Chicago 54, Illinois

© 1947, TRIMZ CO., INC.

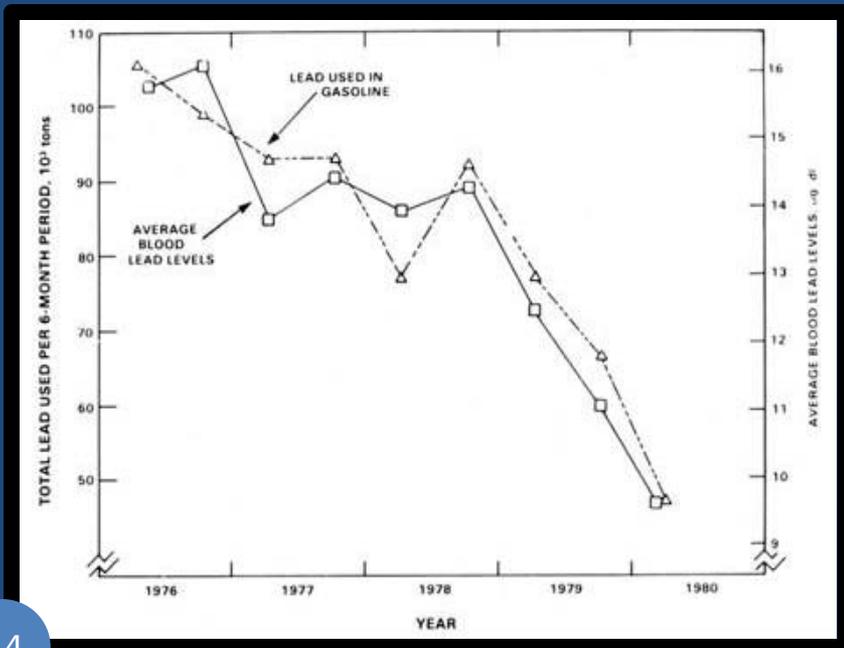
# The Good News— Programs to Reduce Exposure Work!

## *Regulations can make a difference*

- 1973 - Phase-out of lead in gasoline began
- 1978- Lead in house paint banned
- 2008 – Lead-safe home repairs mandated

## *You can make a difference*

- Switch to organic foods
- Use natural cleaning products
- Keep a smoke-free home
- Avoid serving seafood high in mercury



# You can make a difference!

- With so many children spending so much time in child care centers, you can impact the children you care for
- Good environmental health and high quality child care helps children reach their full potential



# Resources: [epa.gov/childcare](http://epa.gov/childcare)



Español | 中文: 繁體版 | 中文: 简体版 | Tiếng Việt | 한국어

Learn the Issues

Science & Technology

Laws & Regulations

About EPA

Search EPA.gov



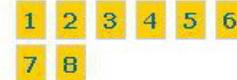
Contact Us

## Healthy Child Care



More than 11 million children under age 5 are in child care where they spend an average of 40 hours per week, most of it indoors. Indoor air pollution levels can be 2-5 times greater than outdoor levels. Children are at greater risk than adults for adverse health effects from exposure to environmental contaminants because of their size, stage of development and behavior. A significant amount of attention has been given to reducing children's exposure to environmental contaminants in K-12 school settings but there has been less of a focus on child cares where infants and toddlers may be at even greater risk. This website houses resources to help you identify and reduce environmental contaminants and is divided into sections for three key target audiences: child care providers, parents and government agencies. We hope you find the information useful and invite you to suggest additional resources by contacting us at [brown.margot@epa.gov](mailto:brown.margot@epa.gov).

### Quiz Yourself!



Lead based paint was used in how many homes before it was banned in 1978?

- A. 2 million
- B. 10 million
- C. 16 million
- D. 38 million

Check Answer