



Maternal, Infant Early Childhood
Home Visiting Conference

Bed Bugs and Lead and Hazards, Oh My!

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Learning Objectives

- Help home visitors to recognize common household hazards and nuisances based on history and observation:
 - Bed bugs
 - Lead
 - Asthma and asthma triggers
 - Injury hazards
 - Poisonings
- Provide resources to help manage and eliminate hazards



Housing-Related Health and Safety Hazards

- » Lead Paint Poisoning
- » Asthma Episodes
 - » Pest allergens and diseases
 - » Mold allergens
 - » Inadequate weatherization
 - » Chemicals and VOCs
- » Household Injury
 - » Fire and electrical hazards
 - » Carbon monoxide poisoning
 - » Injuries & accidents
- » Radon Exposure
- » Asbestos Exposure





MARYLAND

Department of Health
and Mental Hygiene

Bed Bugs



Key Messages About Bed Bugs

Messages for today

- Anyone can have them – they don't discriminate
- Bed bugs do not transmit disease – they aren't pleasant, but they aren't dangerous
- Getting rid of them is tough, takes patience, and often times takes more than one attempt
- Bombs, foggers and sprays do not work



Bed Bug Basics

- Small, oval, beige-brown-red (apple seed)
- Crawl – don't jump or fly
- Nocturnal and secretive
- Don't spread disease
- Don't burrow under the skin
- Usually found together – like to congregate



Avoiding & Managing Bed Bugs

You can get bed bugs despite best efforts

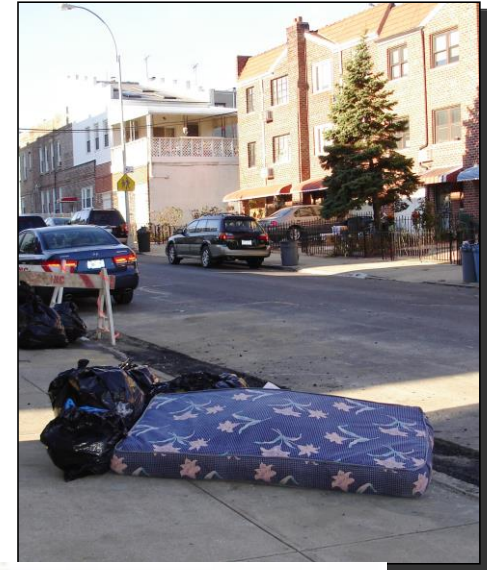
Bed bugs are no one's fault

- Problems begin with a small number of bed bugs
- With **early detection and quick action**, problems easily resolved



Where Do They Come From?

- Bed bugs hitch hike and can be just about anywhere
 - Clean places and dirty places
 - Public places – stores, hotels and motels, theaters, libraries, etc.
 - Private homes
- Used mattresses, box springs and furniture
- Bed bugs crawl between residences with shared walls, floors or ceilings



Prevent Bed Bugs From Spreading

- Before discarding mattresses, box springs, and furniture, damage or wrap the item and label it “bed bugs/chinches”
- Do not move to another residence before exterminating
- When purchasing used items – inspect, bag then dry on high heat (and discard bag)
- Travelers – use luggage stands in rooms; check for bed bugs in bed frames and mattresses



Avoid Bed Bug Infestations

- Routinely practice checking yourself, mattresses, box springs and bed linens
- Once/week wash and dry on high heat bed sheets and linens
- Reduce clutter in your home – difficult to check for bed bugs and creates hiding places for them



Bed Bugs: Detection & Action



Bed Bug Size



Bed Bug Life Cycle



Signs of bed bugs

Detect and confirm live bed bugs first

- ❑ Bites
- ❑ Blood spots
- ❑ Shed skins
- ❑ Dead bed bugs
- ❑ Live bed bugs



Bed bug bites



Detection: Blood Spots

- ❑ Blood spots are bed bug droppings.
- ❑ Bed bugs cannot be confirmed by blood spots alone.



A bad infestation



The start of an infestation



Detection: Molts



Shed skins on a mattress seam

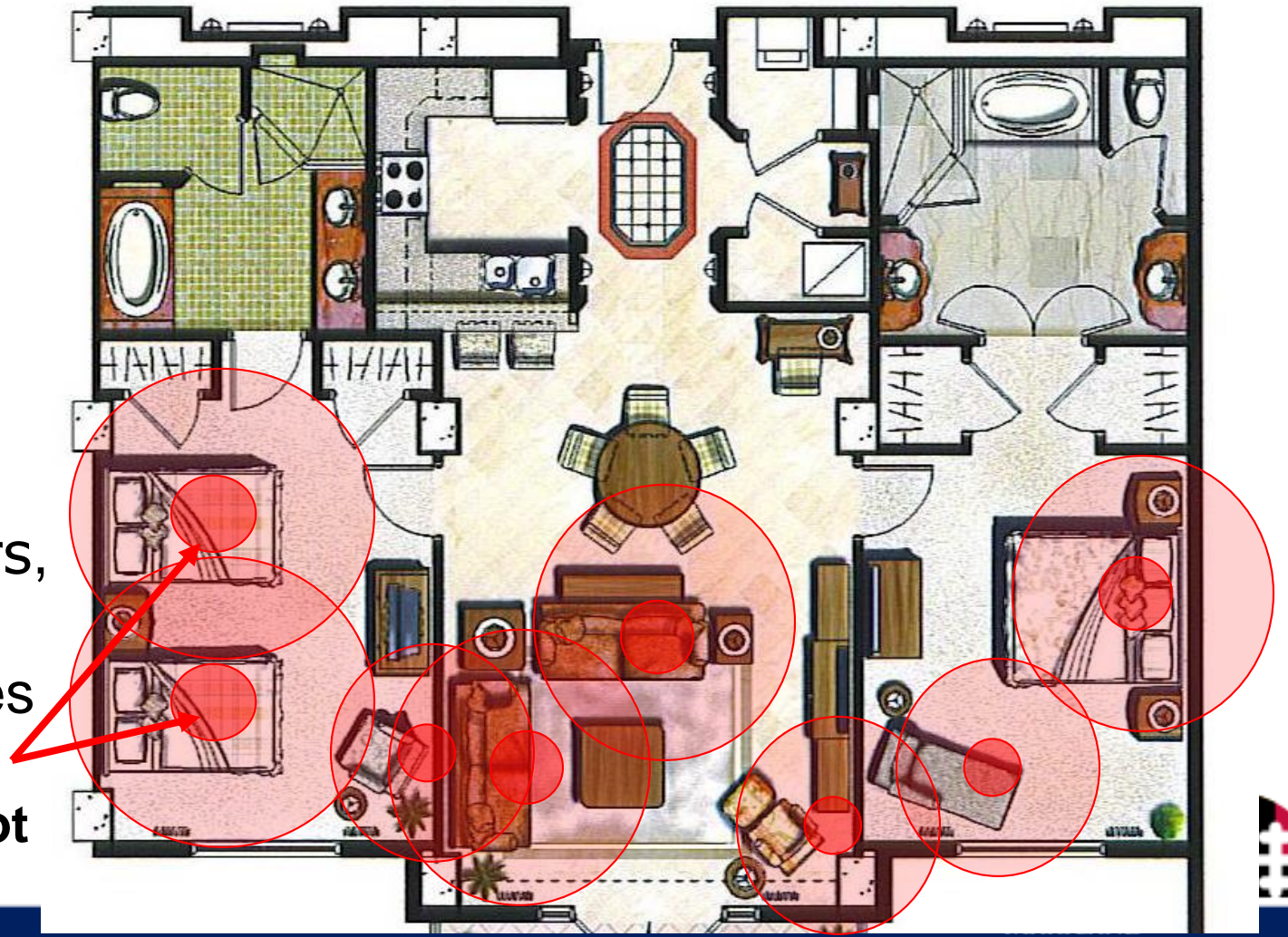


Bed Bug "Hot Spots"

Cracks
Crevices
Clutter

Mattresses,
box springs,
night stands,
sofas, chairs,
baseboards,
picture frames

● = Hot Spot



Pesticides and Bed Bugs

- Sprays and foggers will not fix the problem
- Sprays and foggers can cause the bugs to scatter and spread
- Pesticides sprayed around beds and bedrooms can be very risky



Simple and Safe Ways to Combat Bed Bugs in Your Home



Take Away Their Hiding Spots

- Remove clutter around beds and sofas
- Place unused shoes and clothing in sealable plastic bags
- Remove pictures and posters from walls
- Repair or remove any peeling wallpaper



Bag, Wash, and Dry

- 1) Bag clothing, etc., to separate 'infested' from clean items.
- 2) Wash and dry on high heat for 60 minutes. For items that cannot be washed, dry on high heat for 30 minutes.
 - Seal and throw away used plastic bags.
- 3) Keep 'clean' items bagged to protect them until the bed bugs are gone.



Make Your Bed An Island

- Make sure nothing on the bed touches the floor
 - Bed skirts make it easy for bed bugs to climb up and down the bed
- Move bed away from the wall
 - Only the four bed posts should touch the floor



Select Mattress Covers

Mattresses and box springs do not need to be discarded. Bedbug-proof covers used correctly provide protection at a lower cost.

- Covers must be labeled for “bed bugs.” Many mattress stores now carry them.
- Do not remove or unzip the cover for any reason for at least a year.



Use Bed Bug Interceptors

Interceptors trap bed bugs as they climb up and down your bed, chair or sofa.

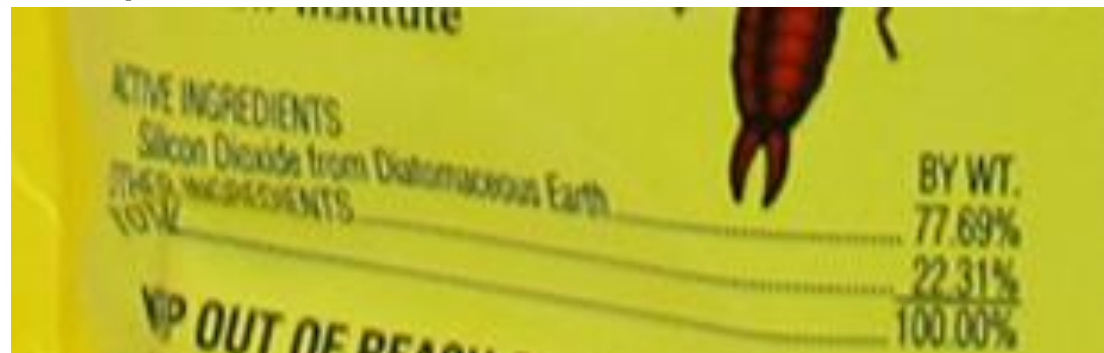
- ❑ Examine daily for bed bugs
 - Flush trapped bed bugs down the toilet



Apply Diatomaceous Earth

Diatomaceous earth is a natural product that kills insects. When used properly, bed bugs die after crawling through it.

- Only use diatomaceous earth **labeled for insects**, and follow the instructions carefully.
- Apply diatomaceous earth to cracks and crevices in the walls, bed frames, and spaces around the bed.



Scrub & Vacuum

- ❑ Scrub infested surfaces with a dry, stiff brush to dislodge eggs.
- ❑ Vacuum floors and carpets, including areas covered by carpets
- ❑ Vacuum all areas of mattress, box spring, and furniture, including underneath.
- ❑ Dispose of the vacuum cleaner's contents right away in a tightly tied or sealed plastic bag outside your home



Steam Clean

Steam will kill bed bugs and eggs.

- Use a “dry” steam cleaner on floors, carpets, baseboards, bed frames and other furniture
- Steam works through direct contact with bugs and eggs

*Do not apply steam to electrical outlets or appliances



Seal Cracks

Use silicon caulk to seal cracks and crevices where bed bugs can hide and travel.

- ❑ Pay attention to walls that are shared with other homes.
- ❑ Be sure plates covering wall openings are in place and sealed.



Work with Your Neighbors

If you share walls (or ceilings or floors) with neighbors, you have to work together.

Even if you think you got rid of the bed bugs in your own home, they can easily crawl back in from your neighbor's home.



Case History

A 18-month old girl, who resides in Montgomery county, presents to her PCP for a well-child check. History and physical exam are unremarkable. The child is growing well and meeting all age-appropriate developmental milestones.



<http://www.cdc.gov/features/leadpoisoning/>

Does she need blood lead screening?



Case History

Review of the child's medical record reveals that she has not received 12-month blood lead screening, despite being enrolled in Maryland's Medicaid EPSDT program.

Next Step: Blood lead screening is ordered.

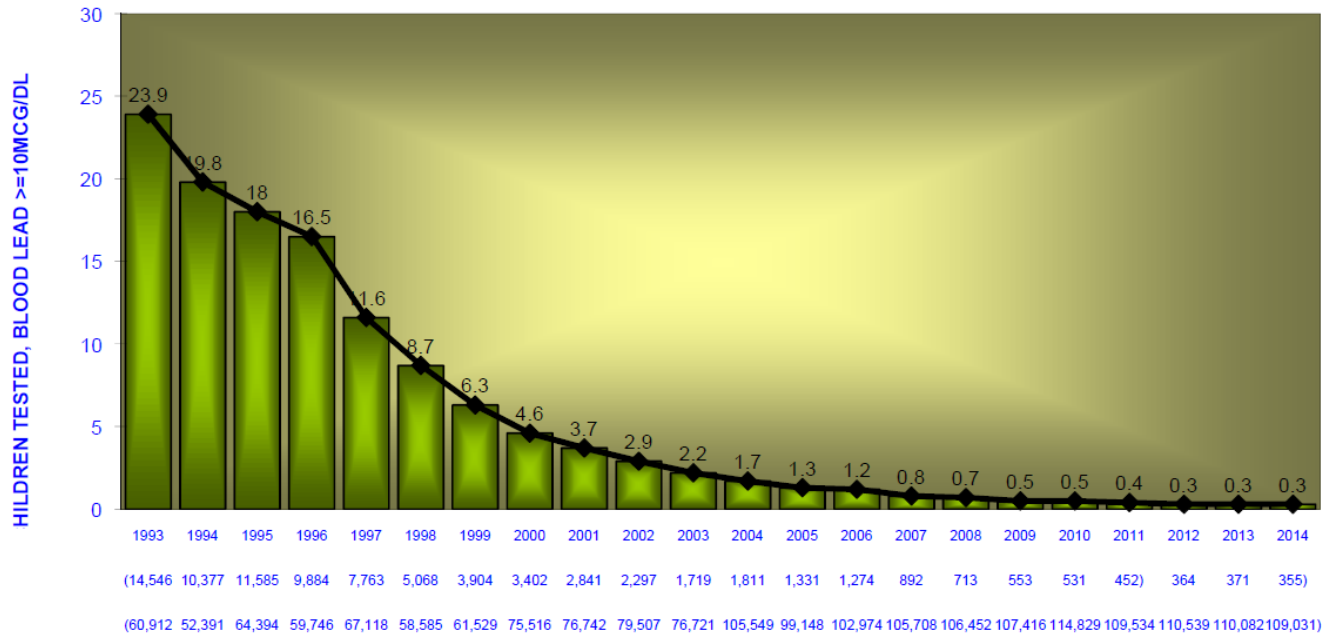


<http://www.cdc.gov/features/leadpoisoning/>



Background

MARYLAND DEPARTMENT OF THE ENVIRONMENT CHILDHOOD BLOOD LEAD SURVEILLANCE STATEWIDE 1993-2014



CALENDAR YEAR
(Number of Children with BLL ≥ 10 mcg/dl)
(Number of Children Tested)



Changes in Lead Poisoning in Maryland

- 2012 – CDC, DHMH adopt recommendations of the Advisory Committee on Childhood Lead Poisoning Prevention, changing “level of concern” of 10 mcg/dL to “reference level” of 5 mcg/dL
- Maryland testing rates, lead levels, number of children with lead exposure declining
- More leaded rental properties being remediated
- Profile of lead exposure changing



Lead is Toxic at Any Level

- At high levels, can cause seizures and death
- At moderate levels, anemia and gastrointestinal effects
- At low levels, effects on neurological development, especially in infants and younger children
- Can be exposed in the womb if the mother is exposed



Goals of New Lead Strategy

- Increase testing rates
- Identify larger portion of children exposed
- Understand current distribution of lead exposure in Maryland so as to better target risks in the future
- Reduce and ultimately eliminate lead exposure in all Maryland children



WHO Needs Testing?

- Previously -- (COMAR 10.11.04.04) Blood tests required for:
 - All children enrolled in Medicaid at 12, 24 months
 - Children in *at-risk* areas (defined in 2004 Targeting Plan) during 12, 24 month visits
 - Children in *at-risk* areas older than 24 to 72 months if no prior test or no documentation of prior test
 - Children with risks according to screening questionnaire (positive or unknown response)



New Regulations for Testing (as of 3/28/2016)

- All areas in MD should be considered “At Risk”
- Change affects children born ON OR AFTER **January 1, 2015**
- Children born BEFORE January 1, 2015 will not be affected, still use 2004 Targeting Plan
- All blood leads ≥ 5 mcg/dL elevated for clinical purposes (MDE law still 10 mcg/dL)



What Will Not Change?

- Parents still required to document lead tests for Child Care
- Also required to provide documentation of tests for pre-K, Kindergarten, and First Grade, if they ever lived in an “At Risk” area UNLESS schools can access the lead test information electronically



Table 1: Guidelines for Blood Lead Level Testing in Children 6 Months to 72 Months of Age

(COMAR 10.11.04, as of 3/28/2016)

For ALL children born on or after 1/1/15, OR on Medicaid, OR ever lived in a 2004 At-Risk Zip code*

6 Months	9 Months	12 Months	15 Months	18 Months	24 Months	30 Months	36 Months	48 Months	60 Months
Screen	Screen	Screen	Screen	Screen	Screen	Screen	Screen	Screen	Screen
Test if indicated	Test if indicated	Test Blood Lead Level	Test if indicated	Test if indicated	Test Blood Lead Level	Test if indicated	Test if indicated	Test if indicated	Test if indicated

For children born before 1/1/15, AND not on Medicaid, AND never lived in a 2004 At-Risk ZIP code*

6 Months	9 Months	12 Months	15 Months	18 Months	24 Months	30 Months	36 Months	48 Months	60 Months
Screen	Screen	Screen	Screen	Screen	Screen	Screen	Screen	Screen	Screen
Test if indicated	Test if indicated	Test if indicated	Test if indicated	Test if indicated	Test if indicated	Test if indicated	Test if indicated	Test if indicated	Test if indicated

Screening	<ul style="list-style-type: none"> • Perform Lead Risk Assessment Questionnaire (questions found in Lead Risk Assessment Questionnaire section of this document) • Clinical assessment, including health history, developmental screening and physical exam • Evaluate nutrition and consider iron deficiency • Educate parent/guardian about lead hazards
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Indications for Testing	<ul style="list-style-type: none"> • Parental/guardian request • Possible lead exposure or symptoms of lead poisoning, either from health history, development assessment, physical exam or newly positive item on Lead Risk Assessment Questionnaire. <i>(Questions can be found in the Lead Risk Assessment Questionnaire section of this document)</i> • Follow-up testing on a previously elevated Blood Lead Level <i>(Table 4)</i> • Missed screening: If 12 month test was indicated and no proof of test, then perform as soon as possible after 12 months and then again at 24 months. If 24 month test was indicated and no proof of test, then perform test as soon as possible. • For more information about lead testing of pregnant and breastfeeding women, see: http://www.cdc.gov/nceh/lead/publications/leadandpregnancy2010.pdf.
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2004 Maryland Childhood Lead Poisoning Targeting Plan At Risk Areas by ZIP Code

Allegany County	21111	21239	Charles County	21778	Montgomery County	20731	Queen Anne's County	20674
	21133	21244	20640	21780		20737		20687
ALL	21155	21250	20658	21783	20783	20738	21607	Talbot County
Anne Arundel County	21161	21251	20662	21787	20787	20740	21617	21612
	21204	21282	Dorchester County	21791	20812	20741	21620	21654
20711	21206	21286	ALL	21798	20815	20742	21623	21657
20714	21207	Baltimore City	ALL	Garrett County	20816	20743	21628	21665
20764	21208	ALL	Frederick County	ALL	20818	20748	21640	21671
20779	21209	Calvert County	20842	Harford County	20838	20752	21644	21673
21060	21210	20615	21701	21001	20842	20770	21649	21676
21061	21212	20714	21703	21010	20868	20781	21651	Washington County
21225	21215	Caroline County	21704	21034	20877	20782	21657	21668
21226	21219	ALL	21704	21040	20901	20783	21668	21670
21402	21220	Carroll County	21716	21078	20910	20784	21670	ALL
Baltimore County	21221	21155	21718	21082	20912	20785	Somerset County	Wicomico County
	21222	21757	21719	21082	20913	20787	ALL	ALL
21027	21224	21787	21727	21085	Prince George's County	20788	St. Mary's County	Worcester County
21052	21227	21791	21757	21130	20703	20790	20606	ALL
21071	21228	Cecil County	21758	21111	20710	20791	20626	
21082	21229	21913	21762	21160	20712	20792	20626	
21085	21234		21769	21161	20722	20799	20628	
21093	21236		21776			20912		
	21237					20913		



Table 5: Clinical Guidance for Management of Lead in Children Ages 0 – 6 years

Confirmed Blood Lead Level (mcg/dL)¹	< 5	5 – 9	10 – 19	20 – 44	45 – 69	≥ 70
Primary Prevention: parent/guardian education about lead hazards ²	X	X	X	X	X	X
Medical/nutritional history and physical	X	X	X	X	X	X
Evaluate/treat for anemia/iron deficiency	X	X	X	X	X	X
Exposure/environmental history ³		X	X	X	X	X
Home environmental investigation		X ⁴	X	X	X	X
Follow-up blood lead monitoring ⁵		X	X	X	X	X
Coordinate care with local health department		X ⁶	X	X	X	X
Obtain developmental and psychological evaluation ⁷			X	X	X	X
Consult with lead specialist, who will also evaluate for chelation therapy				X	X	X
Urgent evaluation for chelation therapy					X	X
Hospitalize for medical emergency						X

¹ Refer to information about confirmation of capillary tests in Table 2.

² Includes discussion of pica and lead sources including house paints (before 1978), ceramics, paint on old furniture, dirt, foreign travel, traditional folk medicines, certain imported items (candies, food, jewelry, toys, cosmetics), and parental occupations that can bring home lead dust and debris (e.g. painting, construction, battery reclamation, ceramics, furniture refinishers, radiator repair).

³ Exposure/environmental history to identify potential lead sources. (see screening questions) Consider Notice of Defect (information at right) for child living in pre-1978 rental property.

⁴ Initial confirmed blood lead of 5 – 9 mcg/dL may not require home environmental investigation. Contact LHD for more guidance.

⁵ Refer to schedule of follow-up blood lead testing in Table 4.

⁶ Contact LHD for more information about care coordination for blood lead levels of 5 - 9 mcg/dL.

⁷ Use validated developmental screen for levels 10 – 19 mcg/dL, such as Ages and Stages Questionnaire (ASQ). Refer children as appropriate for further evaluation. Children with BLL over 20 mcg/dL should be evaluated in consultation with an experienced clinician, specialist, or Local Health Department regarding further evaluation.



Case History: Lab Results

A capillary blood lead screening test shows a blood lead level of $7\mu\text{g}/\text{dl}$.

What should you do next?

- ✓ Order a confirmatory venous blood lead test.



<http://www.cdc.gov/features/leadpoisoning/>



The Blood Lead Reference Value

In May 2012, the CDC adopted the ACCLPP's recommendations that the term "blood lead level of concern" be replaced with a "reference value" based on the 97.5th percentile of blood lead level distribution in children 1-5 years of age in the U.S.

A blood lead level reference value of $\geq 5\mu\text{g}/\text{dl}$ should trigger a healthcare provider to order a confirmatory venous blood lead assay.



Case History

The child's exposure history reveals that her family's rental apartment complex was built in 1956. Peeling paint has been observed inside the building.

The child and her family also recently returned from visiting relatives in Laos for 3 months. Her family used bottle spring water to prepare formula during their visit, but did purchase several new toys. The child is often seen chewing on her toys.



<http://www.cdc.gov/features/leadpoisoning/>



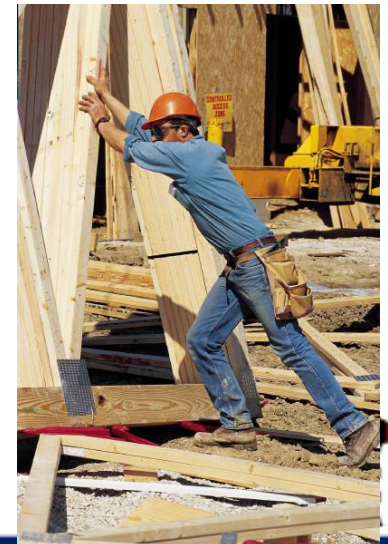
How Lead Gets in the Body

INGESTION

- Hand to mouth activity
- Swallowing paint chips from lead-painted surfaces

INHALATION

Breathing in lead dust from renovations, demolition, or dry sanding of lead-painted surfaces.



Main Source of Lead Exposure



Chipping, flaking, lead based paint and the resulting very fine leaded dust as it breaks down.



Main Source of Lead Exposure

- Friction and Impact Surfaces
- Doors
- Window Wells
- Window Sills
- Window Sashes
- Floors
- “Chewable” Surfaces
- Peeling, Chipping, or Flaking Paint Inside and Outside of the Home
 - Banisters
 - Porches



Other Sources of Lead Exposure

Recalled Children's Jewelry & Toys



Other Sources of Lead Exposure

- Lead solder in cans of imported foods
- Older claw-footed bath tubs
- Imported lead-glazed pottery and leaded crystal
- Imported toys
- Lead in soil
- Lead in water
- Older plumbing fixtures
- Hobbies or jobs (contractors, painters, highway work, stained glass or furniture refinishing)
- Folk remedies and/or Vitamins (Greta, Arzacon, Pay-loo-ah)



Products

- Typically spices
- Concentrations can be very high
- Often found in response to childhood lead exposure



Ayurvedic Products

- Used as healing products (some include spices)
- No FDA approval or review
- May contain a number of heavy metals (As, Pb, Zn, Fe, Hg)



Case History: Follow-up

The family receives education on lead poisoning prevention, including a discussion of lead in toys.

The local health department assists with issuing a notice of defect (notice of elevated blood level) to the family's landlord. Environmental remediation is subsequently pursued using certified contractors.



<http://www.cdc.gov/features/leadpoisoning/>



MARYLAND DEPARTMENT OF THE ENVIRONMENT
Lead Management Administration - Lead Poisoning Prevention Program
 1304 Washington Boulevard • Suite 101 • Baltimore, Maryland 21205-1719
 410-534-8820 • 800-684-4300 (toll-free) • www.mde.state.md.us

Notice of Defect/Notice of Elevated Blood Lead

Lead detection by certified lead paint testing required or lead level in this notice and your signature from the property owner or the property owner's agent is required.

To: Lead Inspector Name _____ Phone _____
Inspector Office _____ City/State _____
City/State _____ Zip _____

THIS IS TO NOTIFY YOU TO REPAIR THE DEFECTS OR EXCEEDING STANDARDS AS SPECIFIED BY § 8-109 OF THE ENVIRONMENT ARTICLE OF THE ASSOCIATED CODES OF MARYLAND.

— It shall be the duty of any party, or a property owner, residing at the above address that has been diagnosed with a blood lead level of 10 ug/dl or more on analysis

— The following defects require your attention:

The following items require painting, chipping, scraping, filling, or other repair as available or visible:

<input type="checkbox"/> Ceiling	<input type="checkbox"/> Balcony	<input type="checkbox"/> Staircase	<input type="checkbox"/> Down Spout
<input type="checkbox"/> Cracks	<input type="checkbox"/> Front Porch	<input type="checkbox"/> Windows	<input type="checkbox"/> Windows
<input type="checkbox"/> Sills	<input type="checkbox"/> Siding	<input type="checkbox"/> Exterior Walls	<input type="checkbox"/> Other

The following items require structural repairs:

<input type="checkbox"/> Ceiling	<input type="checkbox"/> Balcony	<input type="checkbox"/> Staircase	<input type="checkbox"/> Down Spout
<input type="checkbox"/> Cracks	<input type="checkbox"/> Front Porch	<input type="checkbox"/> Windows	<input type="checkbox"/> Windows
<input type="checkbox"/> Sills	<input type="checkbox"/> Siding	<input type="checkbox"/> Exterior Walls	<input type="checkbox"/> Other

Other Defects/Conditions: _____

PROPERTY OWNER: NAME AND ADDRESS
 To: _____
Address _____
City/State/Zip _____

Signature: _____ Date: _____

For further information call:
 410-534-8820 or 800-684-4300 (toll-free)

Form DE-100

A Notice of Defect is a written notice that tells the landlord that there is chipping, flaking or peeling paint or structural defect in the home that is in need of repair. A Notice of Defect may also tell the landlord that a 'Person at Risk' (a child under the age of six or a pregnant woman) has a lead level of 10 or above and that repairs need to be made in the home.

The Notice of Defect must be sent by certified mail (be certain to retain a copy of the return receipt) and the property owner has 30 days to repair the listed defects. It is illegal for a property owner to evict someone or raise the rent for reporting problems and/or defects in the home or that a child has been poisoned by lead. A Landlord CAN evict a tenant if they fail to make timely rental payments.

For more information or assistance with filing a Notice of Defect, contact Maryland Department of the Environment, Lead Poisoning Prevention Program or Green & Healthy Homes Initiative.



Clinical Resources

Mid-Atlantic Center for Children's Health & the Environment

Pediatric Environmental Health
Specialty Unit
1-866-622-2431
kidsandenvironment@georgetown.edu
www.pehsu.net/region3.html

Mt. Washington Pediatric Hospital Lead Treatment Program

1-410-367-2222
www.mwph.org

Maryland Poison Control

1-800-222-1222

Regulatory Programs and Resources

Maryland Department of Health and Mental Hygiene

1-866-703-3266
dhmh.envhealth@maryland.gov
<http://phpa.dhmh.maryland.gov/OEHFP/EH/Pages/Lead.aspx>

Maryland Department of the Environment

Lead Poisoning Prevention Program
410-537-3825/800-776-2706
<http://www.mde.state.md.us/programs/Land/LeadPoisoningPrevention/Pages/index.aspx>

Local Health Departments

<http://dhmh.maryland.gov/PAGES/DEPARTMENTS.ASPX>

Centers for Disease Control and Prevention

www.cdc.gov/nceh/lead/

Green & Healthy Homes Initiative

410-534-6447
1-800-370-5223
www.greenandhealthyhomes.org/



Asthma



Afflicts 25 million Americans yearly and causes:

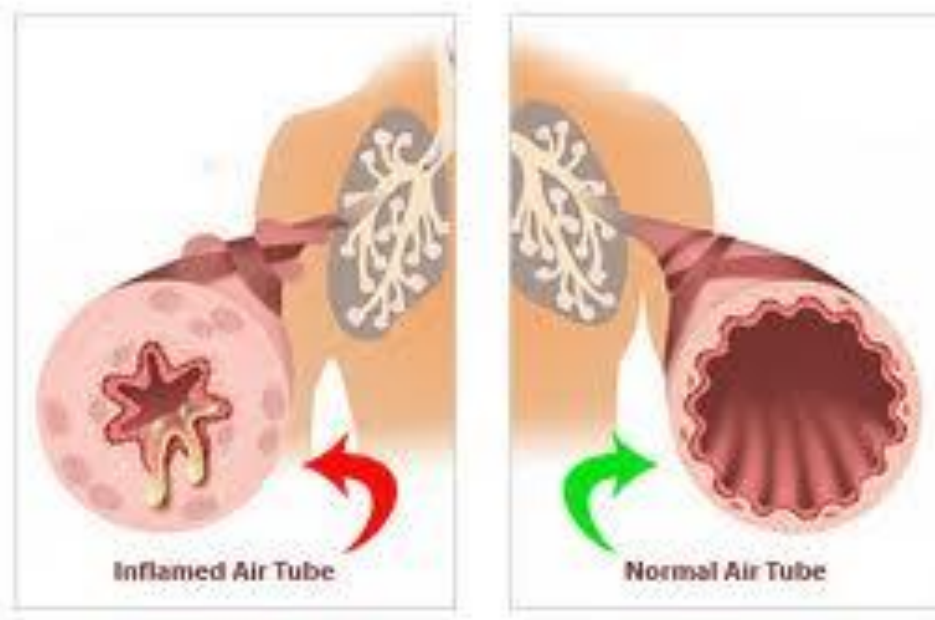
- 1.9 million emergency department visits/year
- 14 million missed school days
- 479,000 hospitalizations/year
- \$50.1 billion in asthma related medical costs/year



What is Asthma?

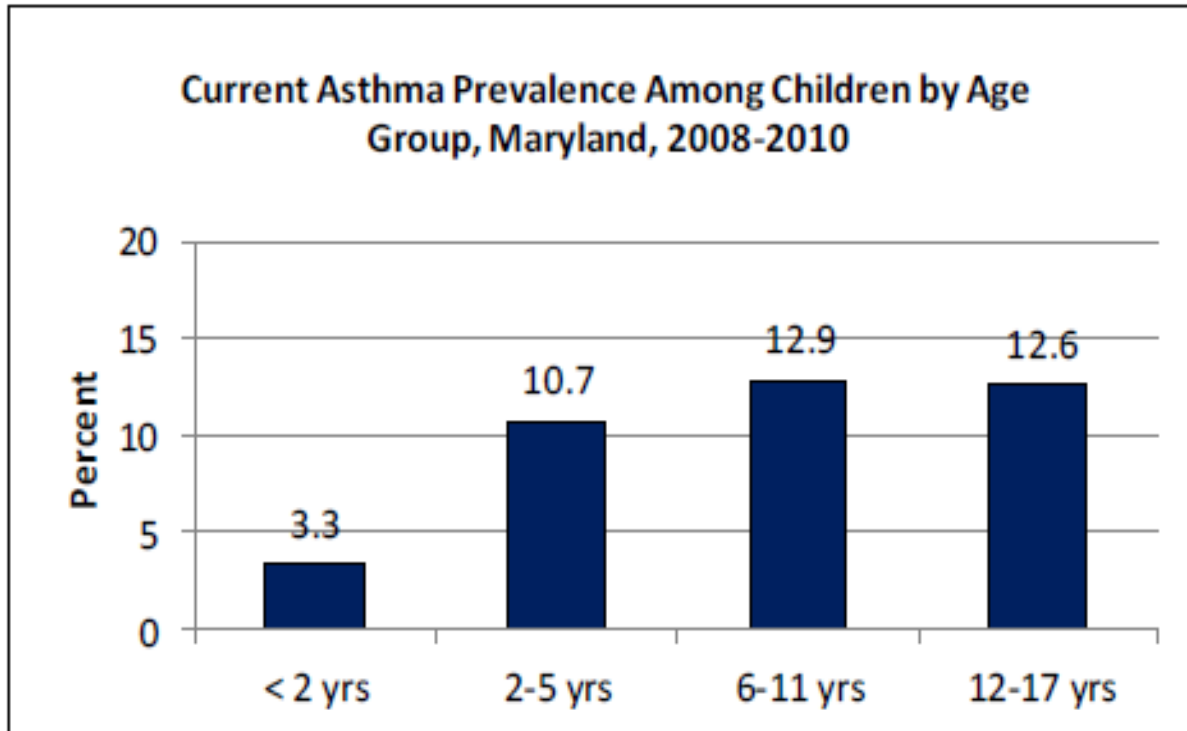
A chronic lung disease

- Due to inflammation, swelling and tightening of the airway
- Results in cough, trouble breathing, chest pain and wheezing



Why should we care?

Asthma = Most common chronic disease in children



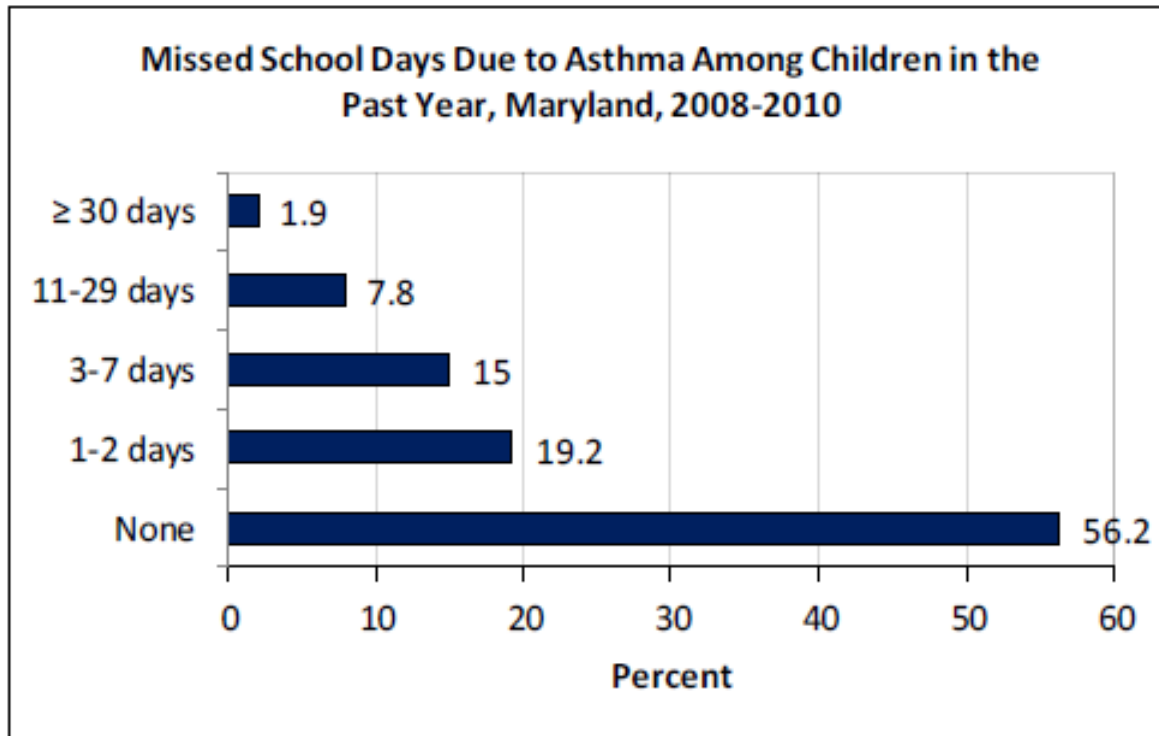
Maryland BRFSS, 2008-2010.

For every 100 children
ages 2-5 years old
living in **Maryland**,
almost **11** of them
suffer from **asthma**

Affects **5 million**
children in **U.S.**,
216,000 in **MD**



Asthma = #1 reason children miss school



Maryland BRFSS Call-back Survey, 2008-2010.

1 out of every **4** school-aged children with asthma **missed 3 or more school days** during the last 12 months due to asthma

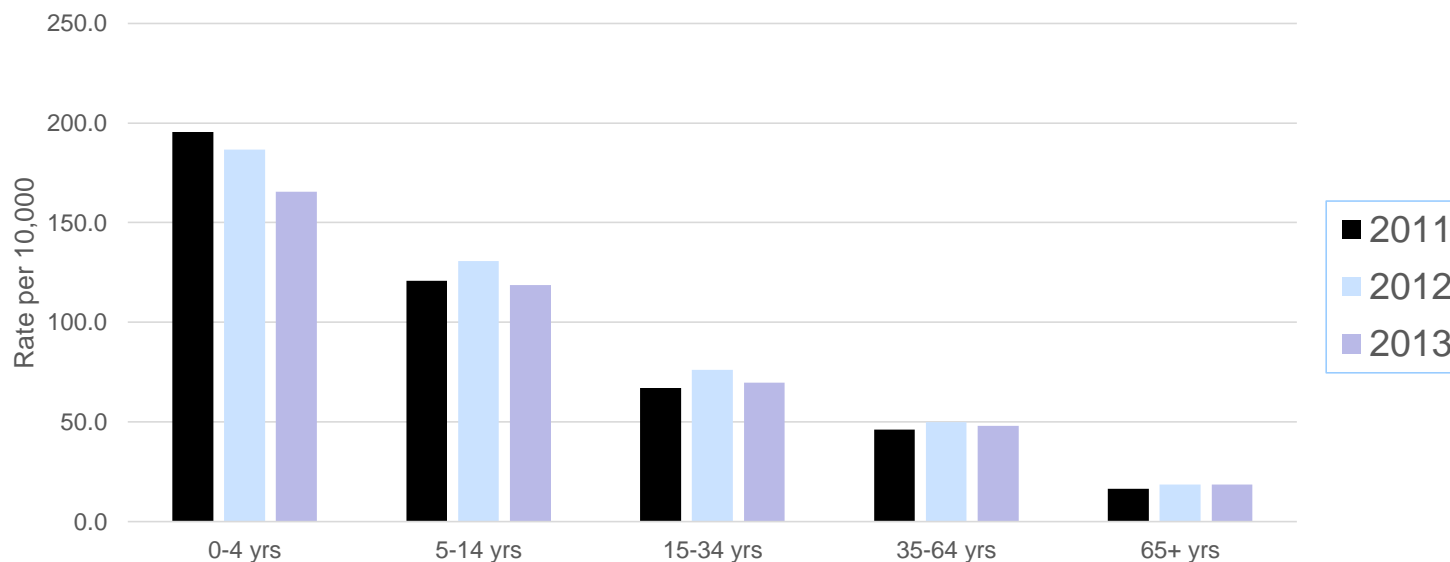
10.5 million school days are missed each year in U.S. due to asthma!



Why should we care?

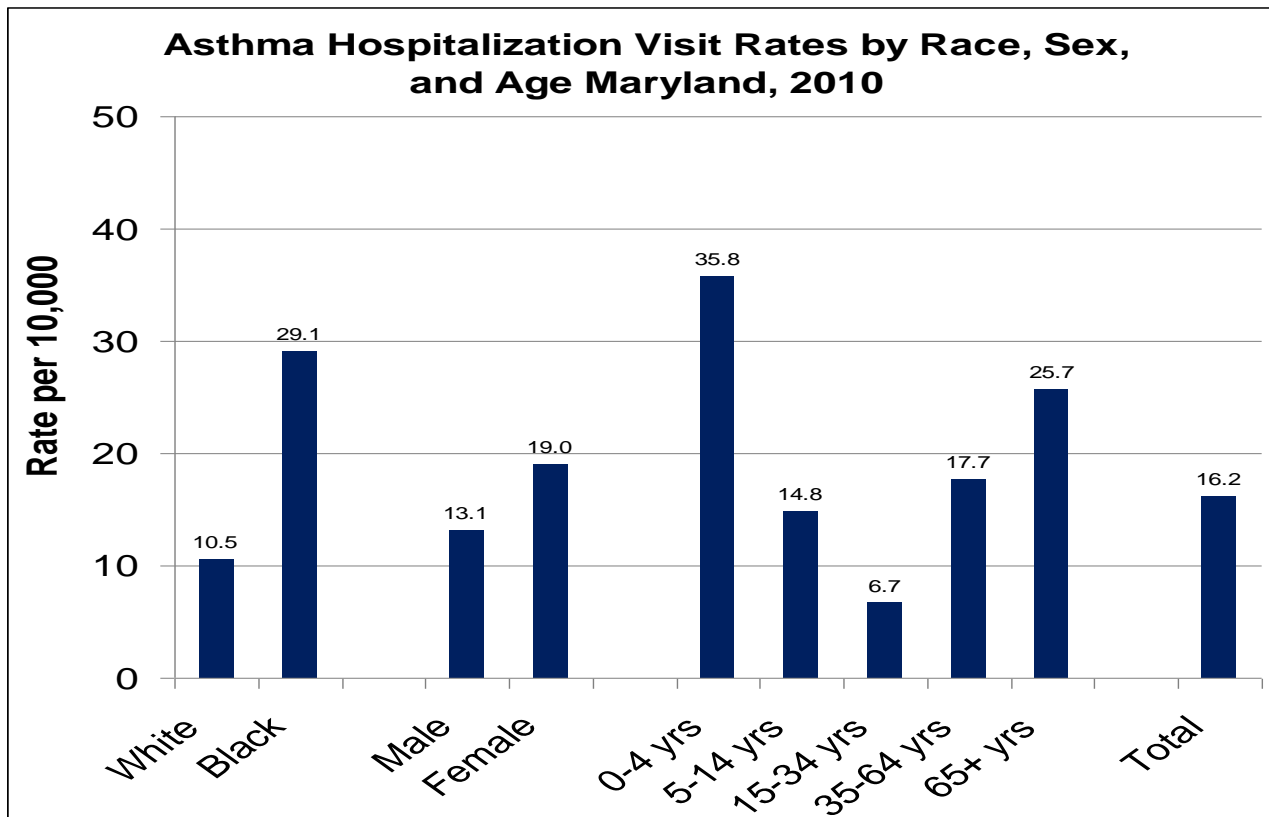
Asthma leads to many Emergency Department visits – especially among 0-4 year olds

Asthma Emergency Department Visit Rates by Age, Maryland, 2011-2013



Why should we care?

Asthma leads to hospitalizations – especially among 0-4 yr olds



2.7 Black persons are hospitalized for every 1 White person

More **females** are hospitalized for asthma than males



Why should we care?

Asthma can **kill**

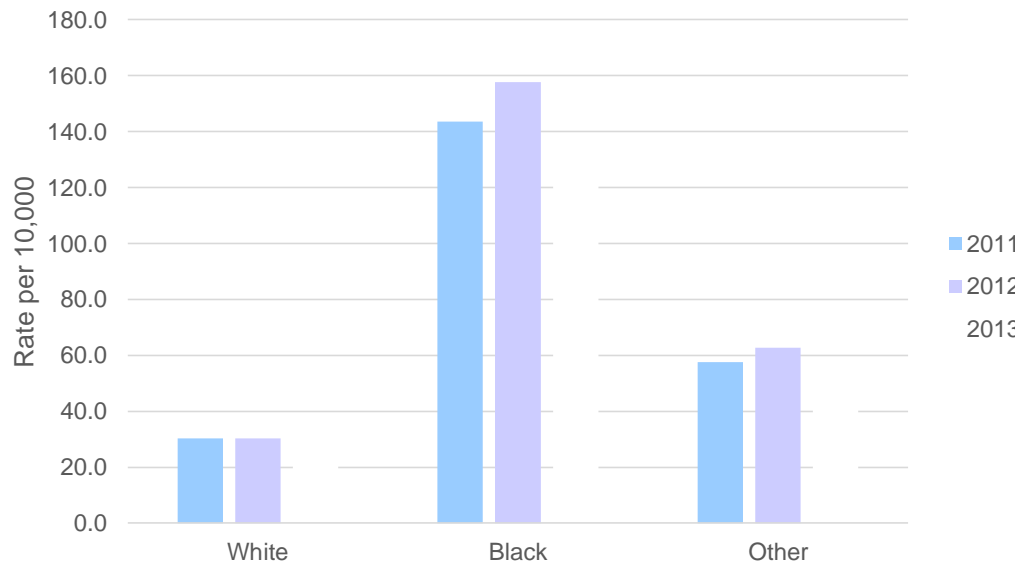
- In **2010** alone, **72** people in Maryland **died** asthma
- Asthma played a part in the **death** of an additional **134** Marylanders in **2010**
- Elderly = most affected but **children** of all ages were among those who died



Why should we care?

Disparities exist: Blacks, Females, 0-4 yr olds, Baltimore City

Asthma Emergency Department Visit Rates by Race, Maryland, 2011-2013



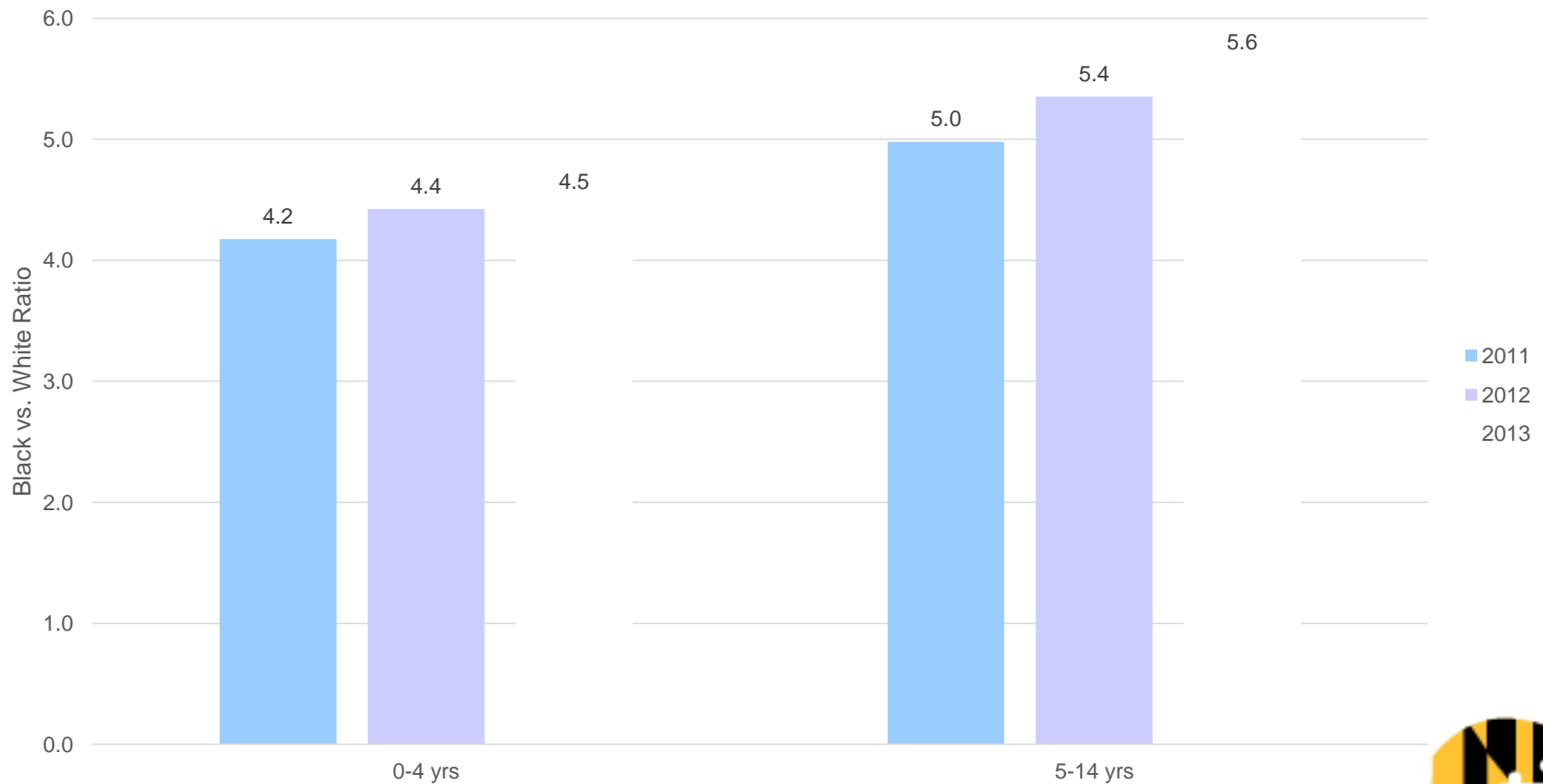
Asthma-related **ED visits** for **Blacks 5x higher** compared to **Whites**

Asthma-related **hospitalization rate** in **Baltimore City 10x** that of **Garret county**.

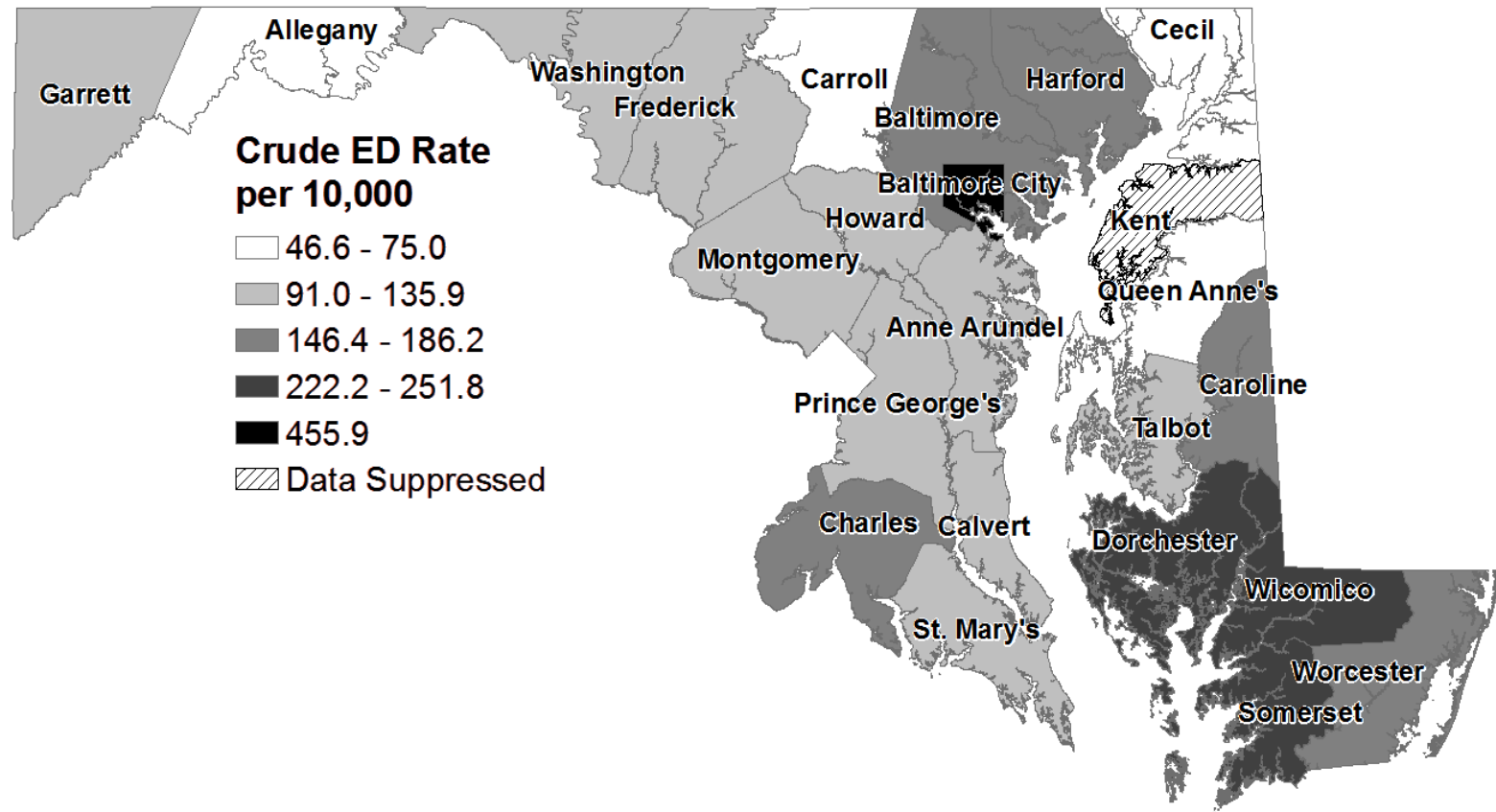


Why should we care?

Black-White Disparity Ratio for Asthma Emergency Department Visits, Maryland, 2011-2012



2013 Maryland ED visits for Ages 0-4 years



What can be done?

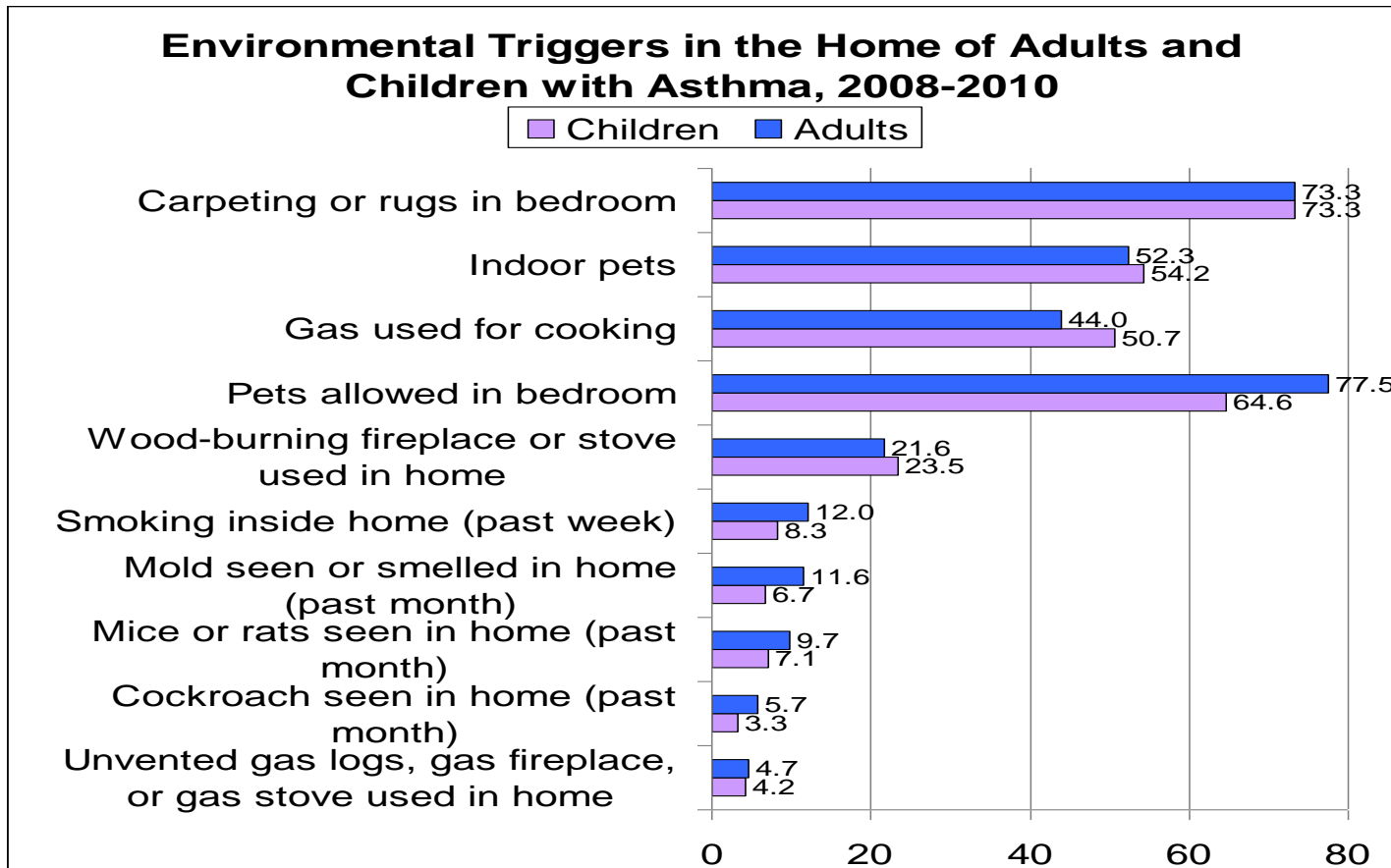
First, **know** the environmental **triggers**

- Carpet
- Cigarette smoke
- Animal (pet) dander
- Rodents
- Cockroaches
- Dust mites
- Mold
- Pesticides
- Strong odors
- Seasonal



What can be done?

Find out which environmental triggers are present



- **Know the symptoms**

- Coughing and/or wheezing
- Chest pain
- Trouble breathing (fast breathing, nose flaring, skin pulling tightly around ribs and collar bone when breathing, sweating, etc.)
- Looking tired because the child was up all night coughing



- **Know what to do**

- Controller medications (give daily) if prescribed by physi help prevent symptoms
- Rescue medication (when having acute asthma attack)
- Asthma Action Plan

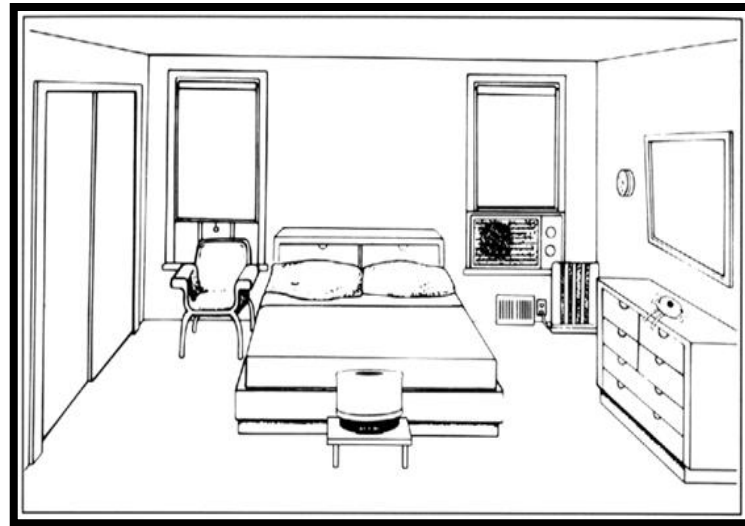
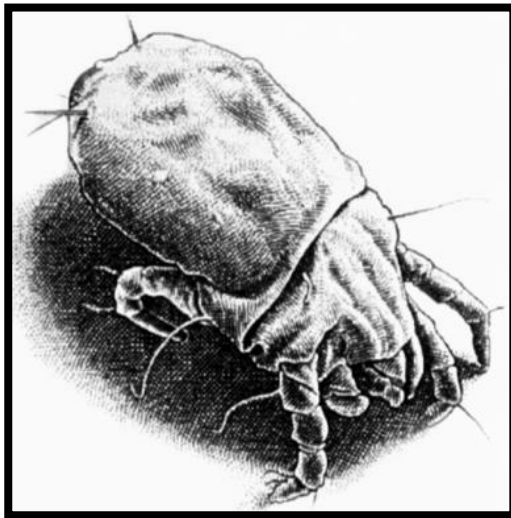


Prevention – Keep it Dry and Clean



Dust Mites

- Microscopic insects which eat dead skin cells.
- Live in everyone's house. In beds, and stuffed furniture, carpets, etc.
- They love moisture!

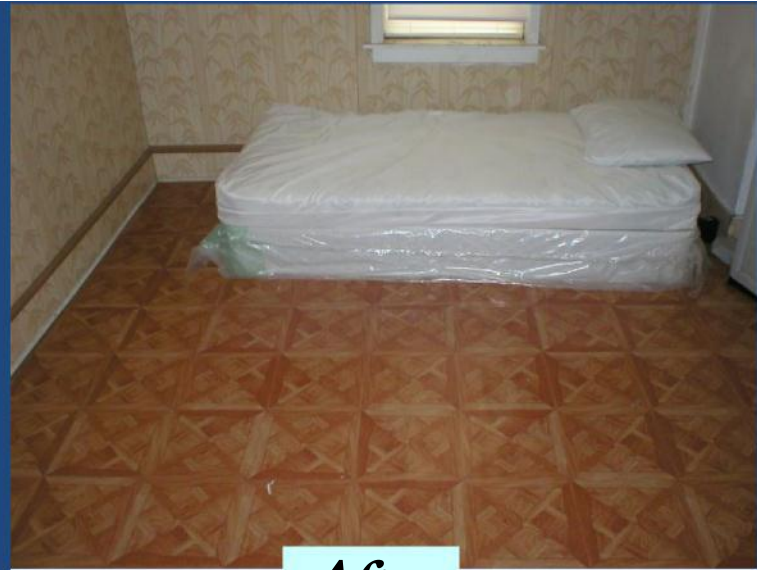


Source: "What You and Your Family Can Do About Asthma" by the Global Initiative For Asthma
Created and funded by NIH/NHLBI





• *Before*



• *After*

- Changes made from intervention
 - Mattress and Pillow Covers Used
 - Clothing and toys placed in rubber bins
 - Tile replaced worn carpet



Household Injuries

- Leading cause of death among children
- **13 million** preventable home related injuries occur annually
 - 10 million emergency room visits/year
- **18,000** unintentional home injury deaths per year
- **Costs:** \$222 billion in medical costs/year





- What hazards do you see?
- What outcomes can occur?



- Injury is the leading cause of death and disability among children and young adults
- Low-income Baltimore City children < 6 years old suffer injuries at a rate 2x the national average.



FACT:
There is a 50-80% reduction in injury and death due to fire in homes with smoke alarms
(Source: CDC 2002)

•(Source: JHSPH Center for Injury Research and Policy



Children Safety

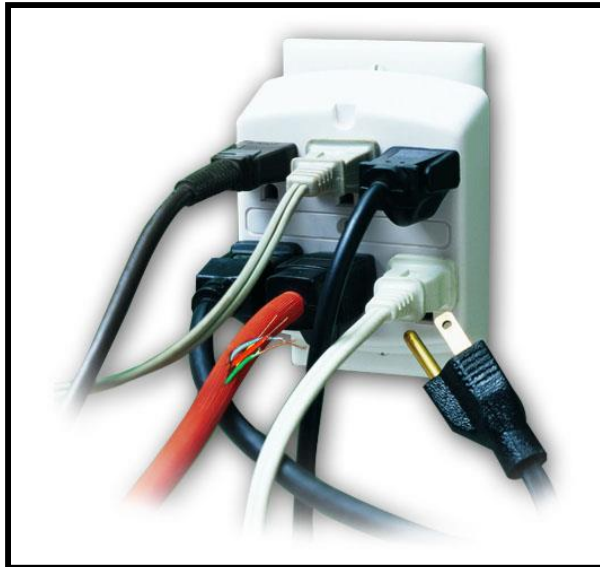
- Presence & location of crib
- Choking hazards
- Accessibility/storage of toxic products
- Covers for radiators
- Cabinet locks
- Safety covers for electric outlets
- Stability of big appliances (stove, refrigerator, TV)



Fire Safety

- Presence/absence of smoke alarms and CO detectors
 - Install or replace units
- Fire Exits
 - Are fire exits available?
 - Are fire exits functional?
 - Fire escape plan?





Electrical hazards

- Exposed wires
- Condition of electrical outlets
- Overloaded power strips



Structural hazards

- Unsafe doors or windows
- Holes, unsafe stairs or handrails



- Trip Hazards
- Smooth floors or slippery floors?
- Worn-out areas
- Cables across the floor



Combustion Contaminants

Health Effects

- Carbon Monoxide (CO)
 - Fatigue, headaches, dizziness, confusion
 - Silent Killer
 - 500 poisonings per year)
- Nitrogen Dioxide (No₂)
 - Eye, nose, and throat irritation
 - Shortness of breath



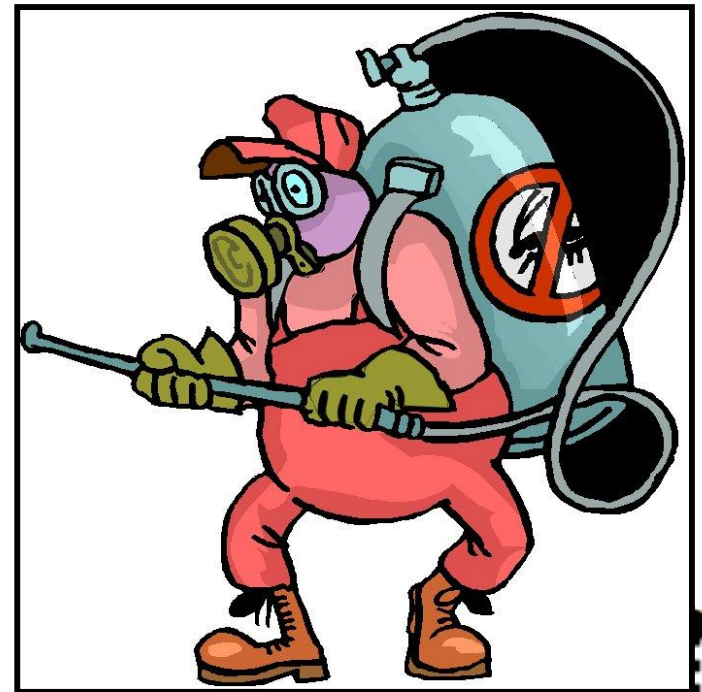
Carbon Monoxide Alarms

- Place near sleeping area
- Put on every level of a home for extra protection
- Do not install directly above or beside fuel-burning appliances



Other Hazards in the Home

- Chemicals
- Pesticides
- Environmental tobacco smoke



Pesticides

- Health effects associated with pesticides:
 - Eye, nose, throat irritation;
 - Skin rashes,
 - Nausea,
 - Damage to the central nervous system, kidney damage, cancer, etc.



- Chemicals

Household chemicals are shown to be a direct link to:

- Asthma triggers
- Ear, nose, and throat irritation.
- Others...



Chemical Odors

- Air fresheners, perfumes, paint, pesticides, certain glues, particleboard, vinyl flooring and tiles, dry-cleaned clothes, toner from photocopiers, and cleaning agents used in the home



Clutter & Waste Management



Clutter

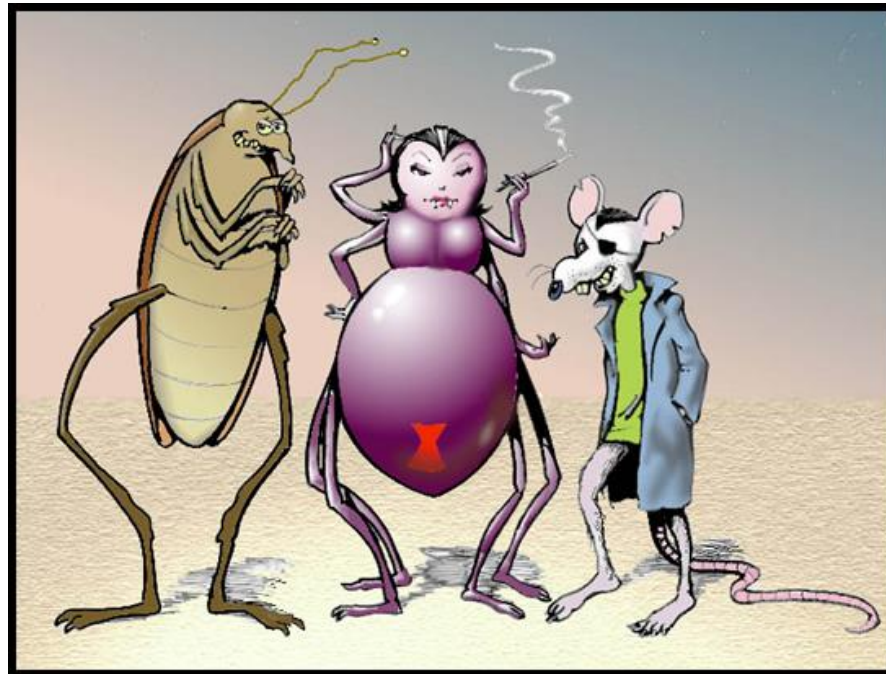




MARYLAND

Department of Health
and Mental Hygiene

Pest Issues



Health Effects From Pests

- 200 human pathogens: Plague, Salmonellosis, Hantavirus, Leptospirosis, rat bites, etc.
- Pests associated with asthma or asthma symptoms: Dust mites, roaches, mouse urine, etc.
- Health effects associated with pesticides: eye, nose, throat irritation; skin rashes, nausea, damage to the central nervous system, kidney damage, cancer, etc.





Recognition of a Rodent Problem

Signs of a rodent Infestation

- Presence of live or dead rodents.
- Rodent nests (Bits of paper, straw, rags, etc.)
- Rodent odor (Distinct odor from rodent urine)
- Droppings (Activity and severity of the problem)
- Evidence of gnawing.
- Rub marks (indicator of habitual pathways)
- Runways (Frequently traveled paths)
- Tracks (Footprints)
- Rat Burrows (Tunnels dug below ground)



Rodent Damage



Onsite Building Maintenance Inc.



MARYLAND
DEPARTMENT OF HEALTH
& MENTAL HYGIENE

Rodent Control

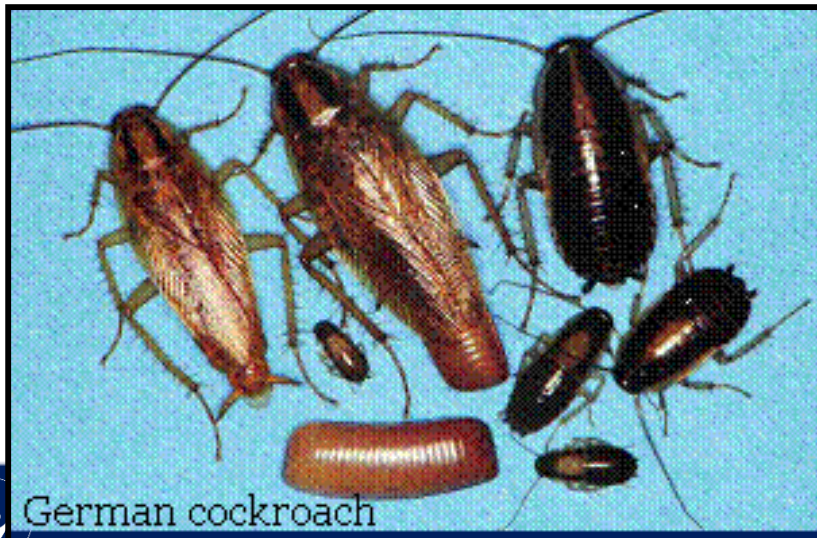
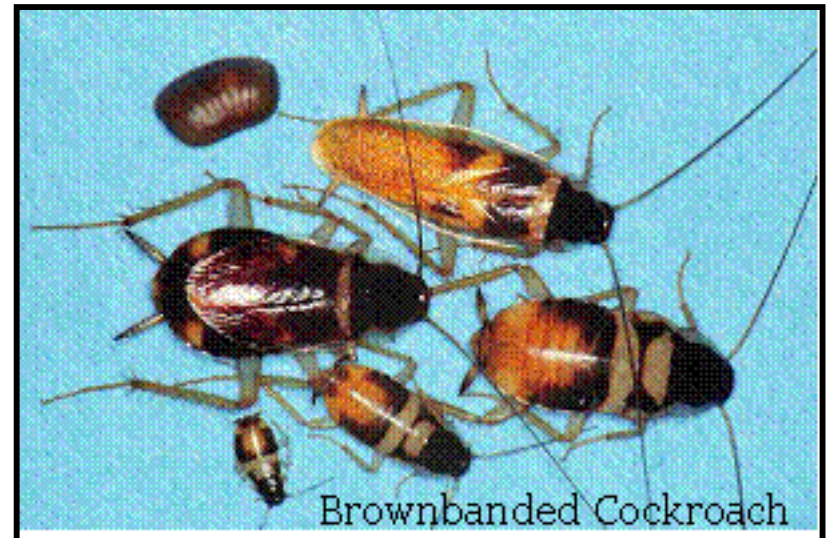
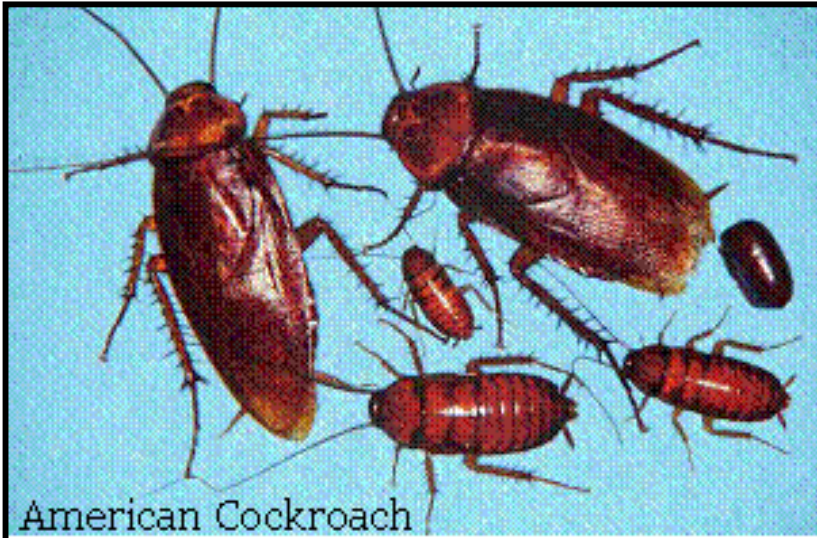
- There are five key elements in any successful pest control program
 - Thorough inspection & proper ID is completed
 - The resident or property owner is educated about their pest issues
 - Proper sanitation is described and instituted
 - Correct rodent/vertebrate proofing is instituted
 - Traps and/or baits are placed



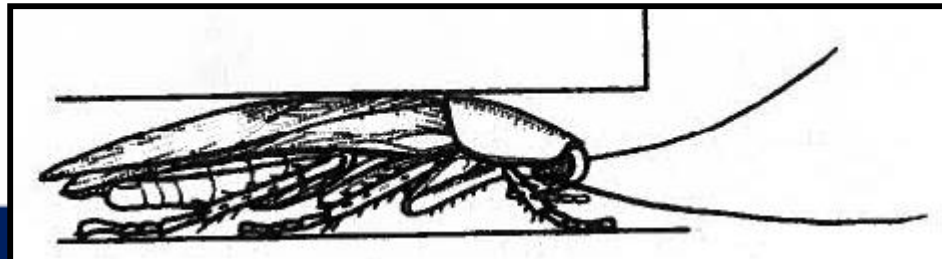
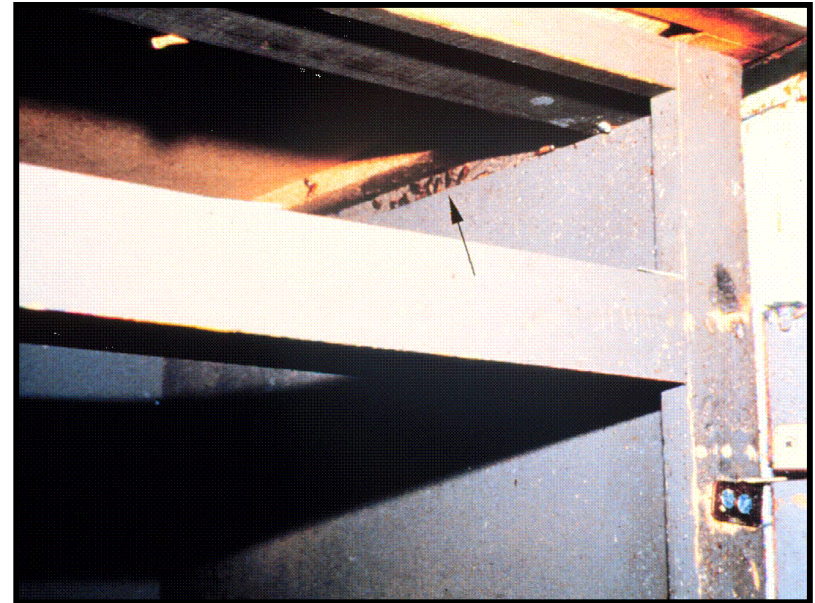
Keep them out



Roaches



Roach habitat



Frass



- Each fecal pellet – roach poop, called “frass” – contains enough of the allergen “Bla g1” to trigger many asthma attacks – only 8 units of the allergen are needed. Each and every pellet can contain 500 units of the allergen: enough to trigger over 50 allergy attacks!

<http://extension.psu.edu/ipm/health/healthpests/asthma>

