



Lead, Asthma, Radon and Healthy Homes in Maryland: New Resources for Clinicians and Patients

Session 2: Overview of Healthy Homes Approach to Children's Health

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Objectives

- ❖ At conclusion of this presentation, the learner should be able to:
 - Identify the changes in Maryland laws and regulations that reduce the blood lead level in a child that will trigger a response from State agencies;
 - Understand the recent trends in the State for lead levels, blood lead testing rates
 - Identify and access services to reduce home-based pediatric environmental health hazards including lead, asthma, and radon
 - Quickly identify patient needs for services related to home-based environmental health hazards

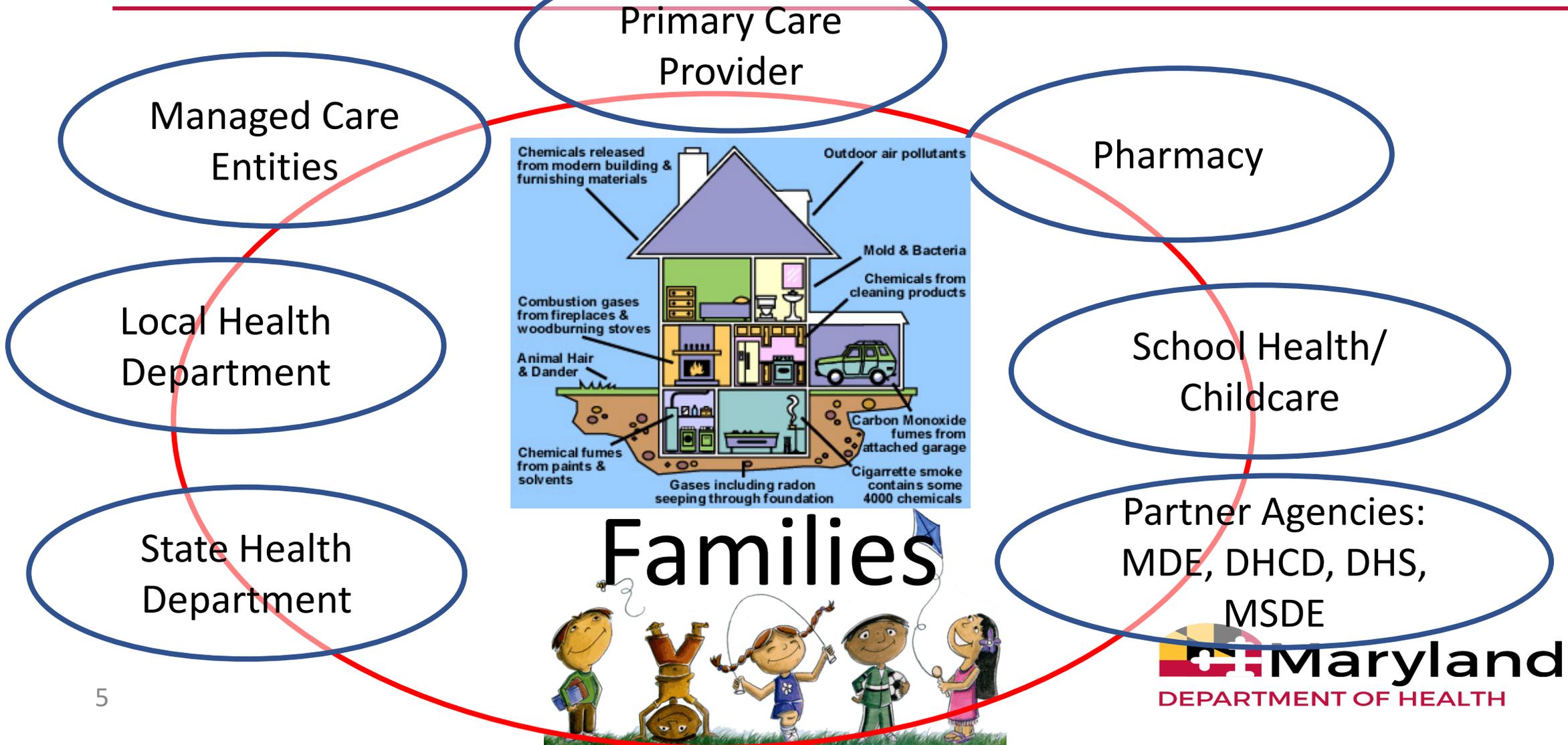
Format

- ❖ Three CME segments: Day 1 (offered twice), Day 2 (offered twice), Day 3 (offered once)
- ❖ Day 1: Maryland’s Evolving Approach to Childhood Lead Poisoning
 - Trends in lead poisoning – blood lead levels, sources, disparities
 - New laws and regulations
 - New resources
- ❖ Day 2: Overview of Healthy Homes Approach to Children’s Health
 - Epidemiology of Children’s Health and Healthy Homes
 - Lead, Asthma, Radon, Injury
 - Overview of new State laws, regulations, resources
- ❖ Day 3: Case Presentations: Lead and Asthma

Disclosure

- ❖ Dr. Mitchell has no conflicts to disclose.

A Community Centered Medical Home



Maryland's Evolving Approach to Healthy Homes

- ❖ Recognition that physical environment of the home can promote healthy childhood
- ❖ Working with families through home visiting, education, provision of durable materials, tests, resources to identify and abate hazards
- ❖ Multi-agency coordinated approach with Departments of Health, Environment, Housing and Community Development, and local health departments
- ❖ A comprehensive approach to multiple environmental hazards, including lead, asthma triggers, radon, and more

Major Environmental Hazards in Homes for Children

❖ Chemicals

- Lead, asbestos
- Pesticides
- Volatile organic compounds emitted from building products, furnishings
- Carbon monoxide

❖ Physical hazards

- Radon, other radiation
- Falls
- Electricity
- Fire

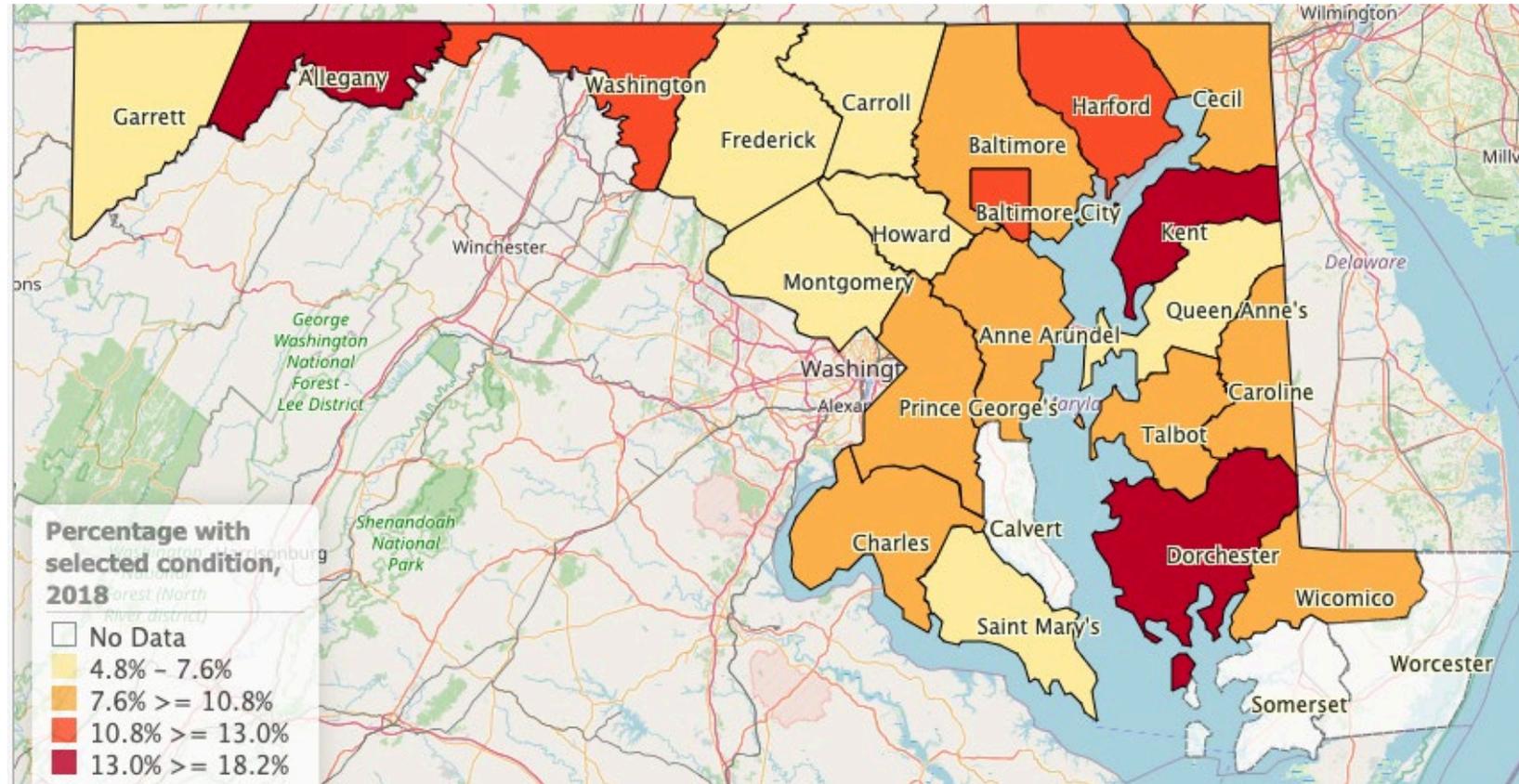
❖ Biological hazards

- Allergens

Epidemiology of Children's Health and Healthy Homes

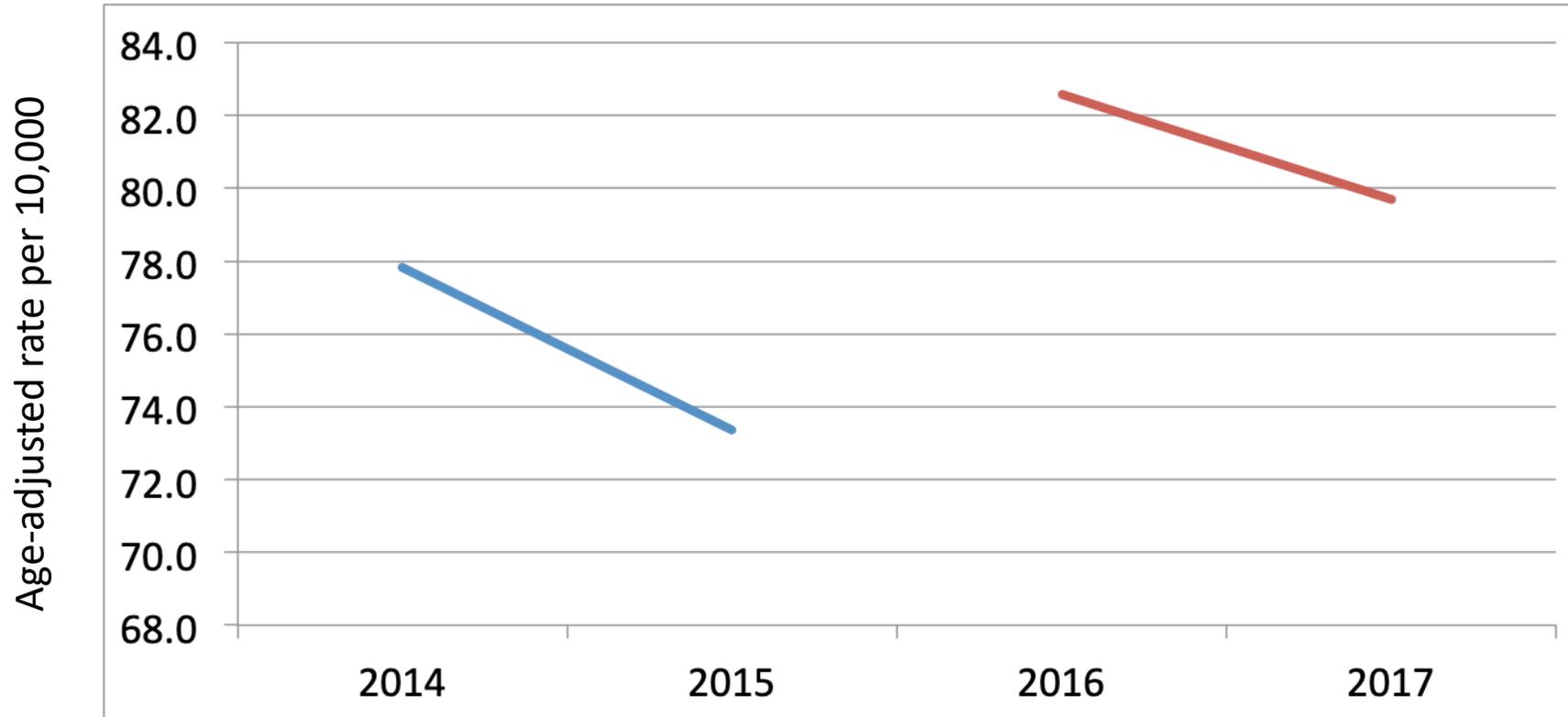
Healthy Homes Update for Health Care Providers

Physician-Diagnosed Asthma Prevalence in Maryland by County, 2018



Source: Behavioral Risk Factor Surveillance System,
<https://ibis.health.maryland.gov/query/result/brfss18/DXAsthmaNow/AgeAdj.html>

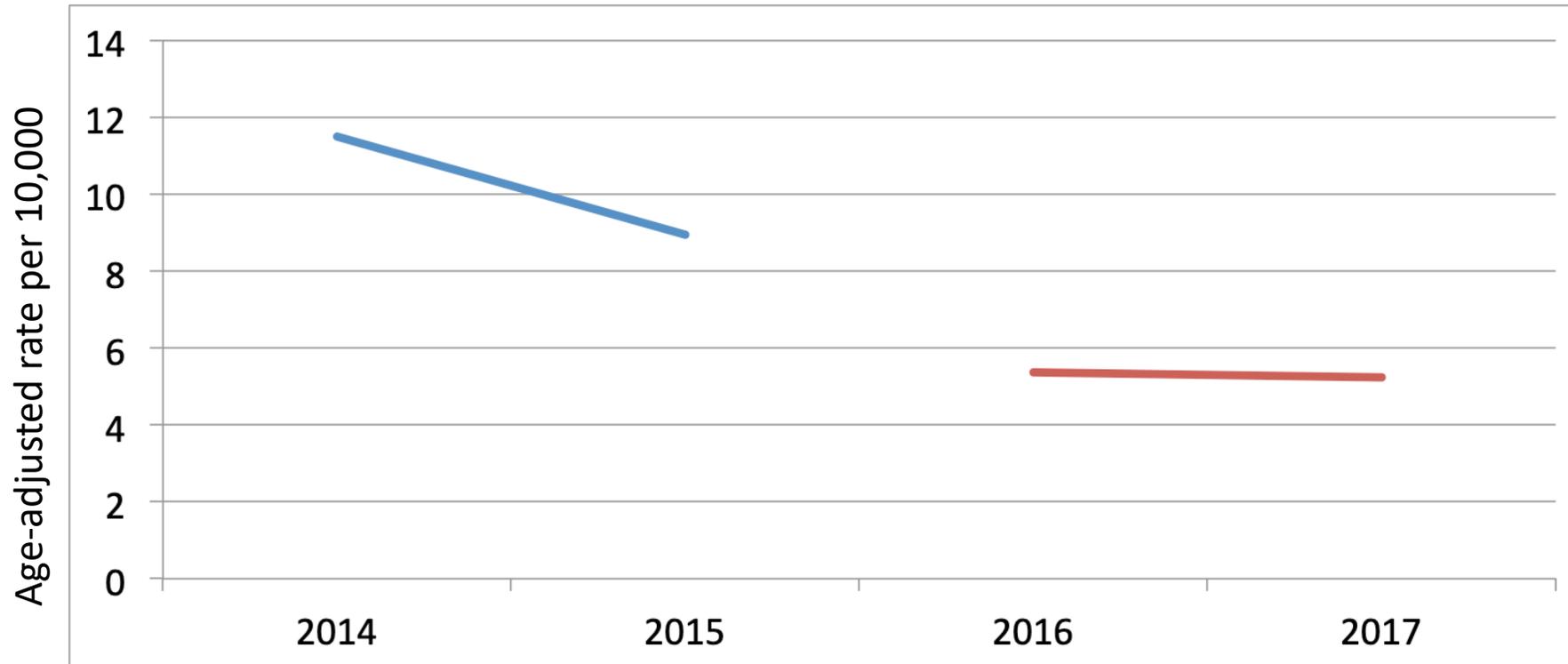
Maryland Asthma Emergency Department Visit Rate, 2014-2017



*Because of the transition from ICD-9-CM to ICD-10-CM, statistics from 2015 and earlier cannot be compared to statistics after 2015.

Source: Maryland Environmental Public Health Tracking, Health Services Cost Review Commission

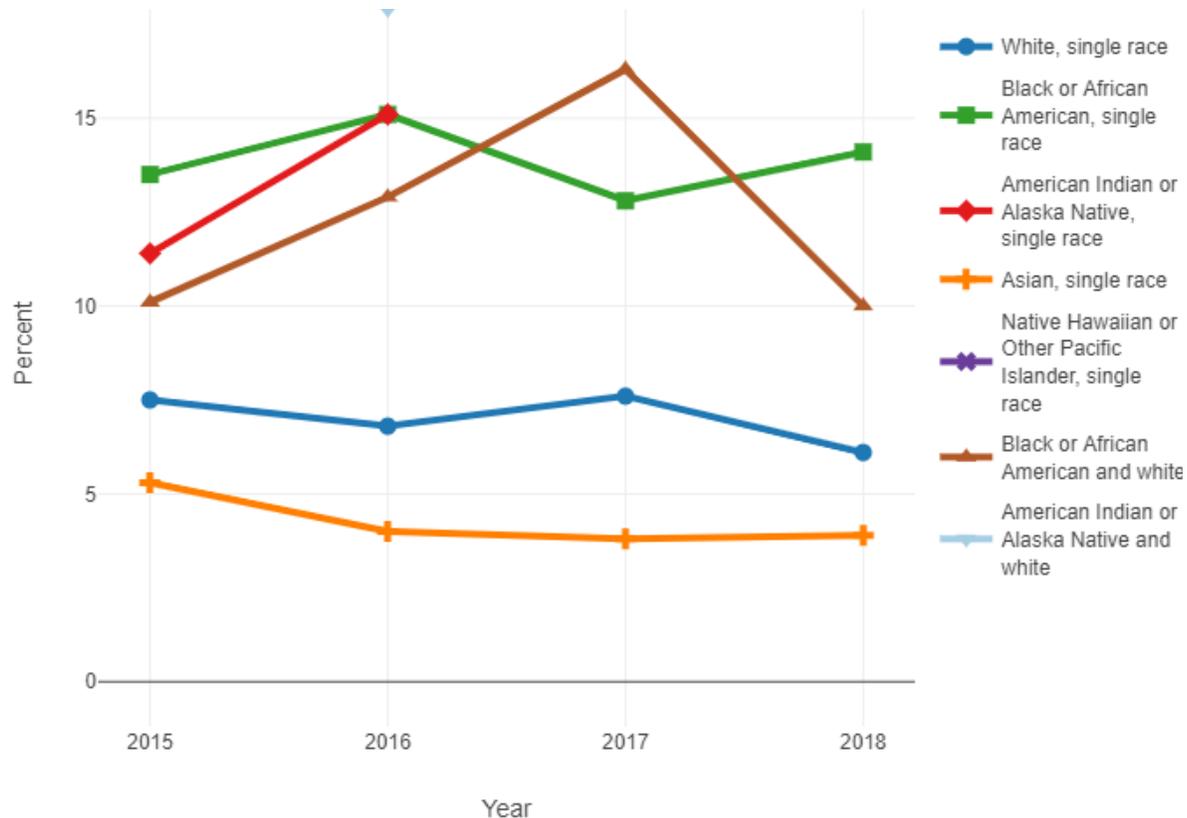
Maryland Asthma Hospitalization Rate, 2014 - 2017



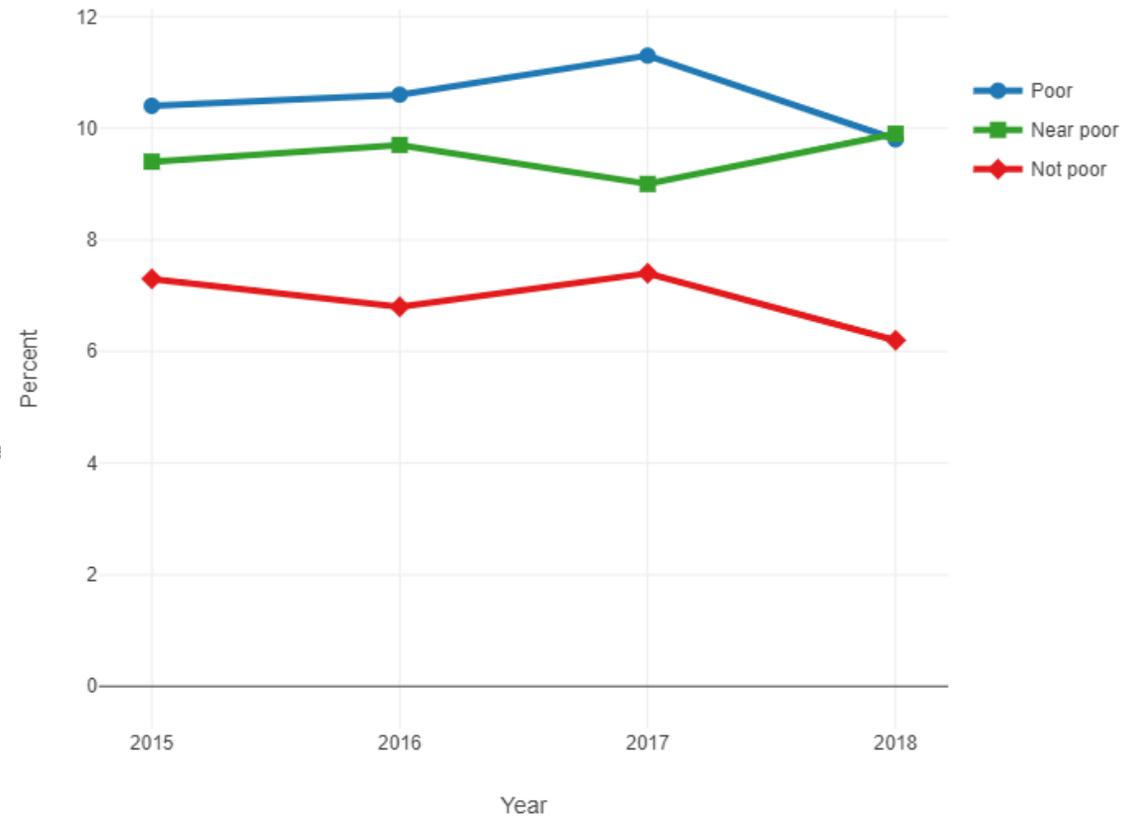
*Because of the transition from ICD-9-CM to ICD-10-CM, statistics from 2015 and earlier cannot be compared to statistics after 2015.

Disparities in Childhood Asthma in the U.S.

Crude Percentage of Current Asthma for U.S. Children Under 18 Years, 2015-2018

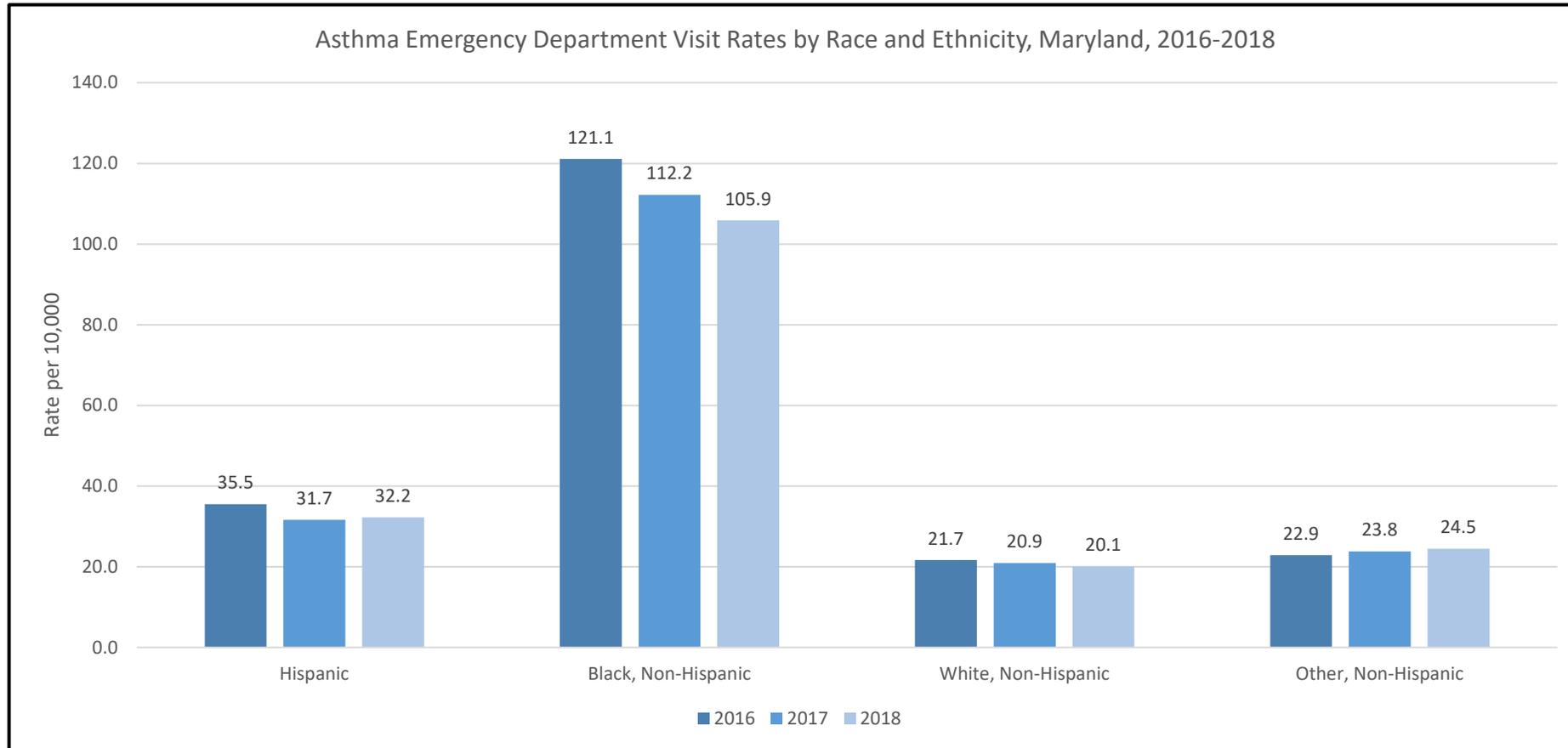


Source: National Center for Health Statistics, National Health Interview Survey, 2015-2018

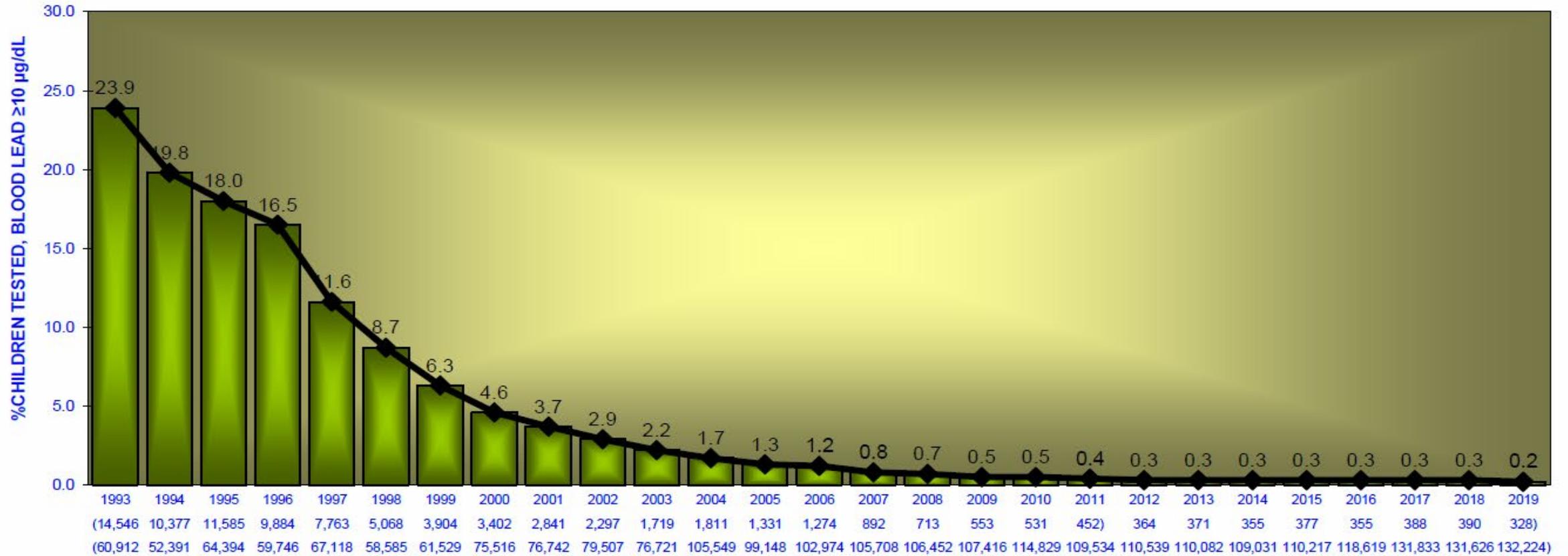


Source: National Center for Health Statistics, National Health Interview Survey, 2015-2018

Recent Epidemiology of Asthma in Maryland



MARYLAND DEPARTMENT OF THE ENVIRONMENT CHILDHOOD BLOOD LEAD SURVEILLANCE STATEWIDE 1993-2019



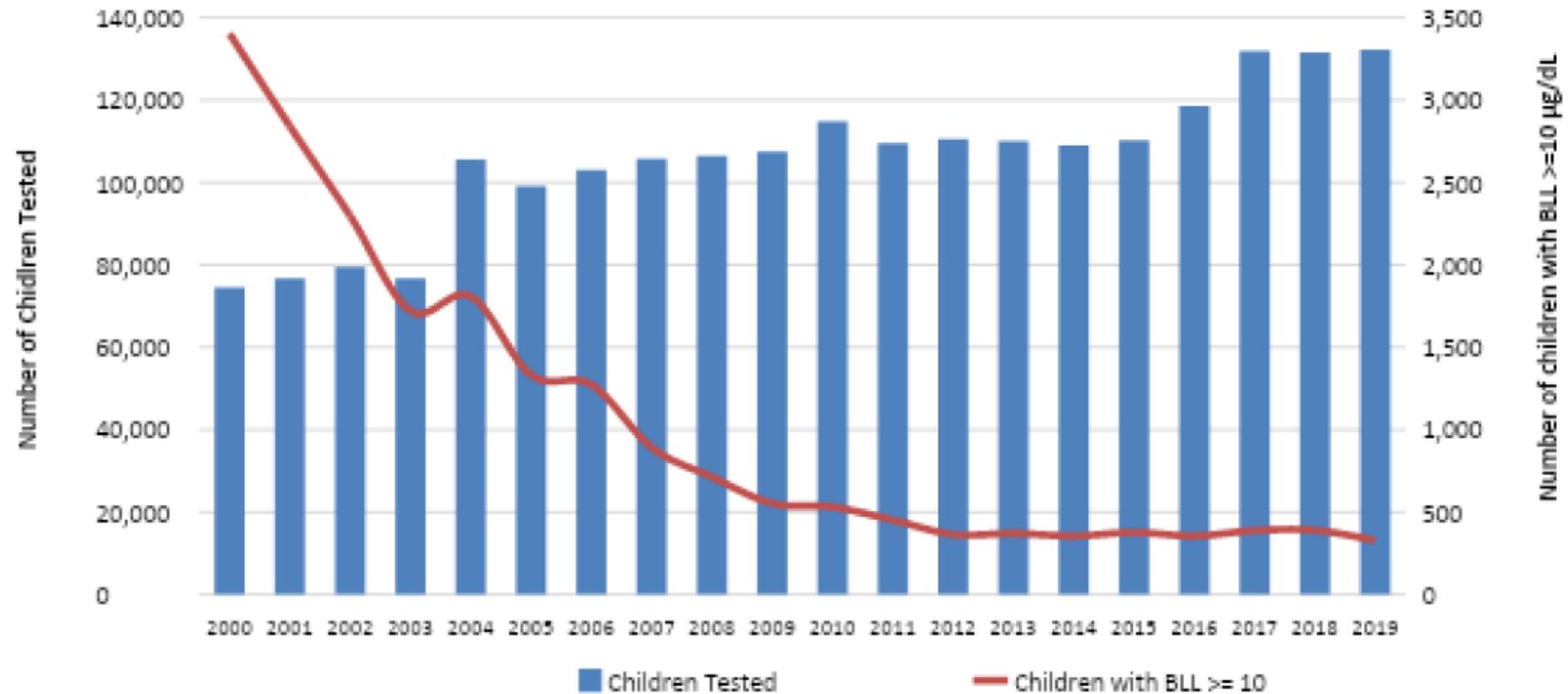
CALENDAR YEAR
(Number of Children with BLL ≥ 10 µg/dL)
(Number of Children Tested)



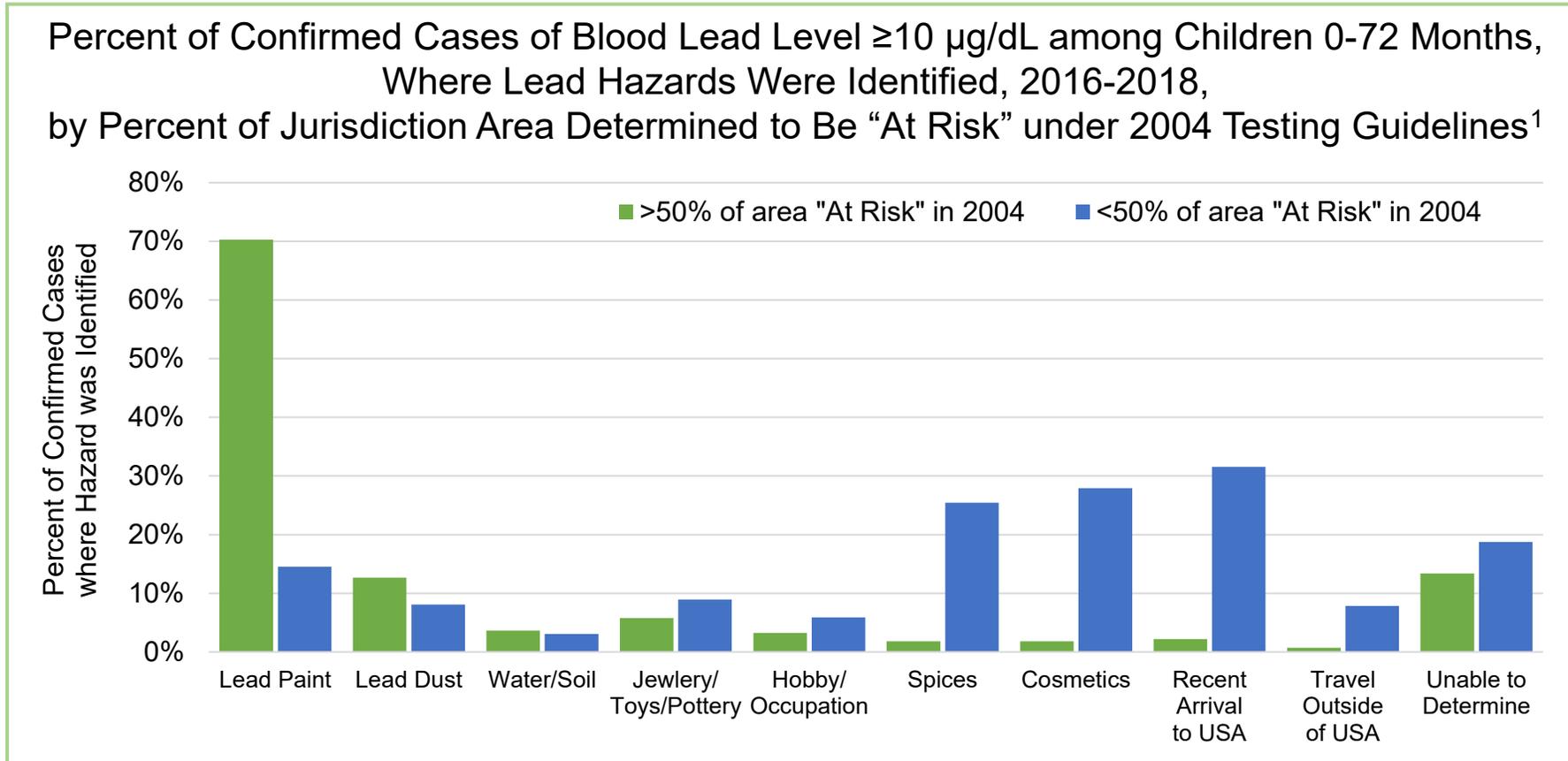
Recent Epidemiology of Lead in Maryland

Number of Children 0-72 Months Tested for Lead and Number Reported to Have Blood Lead Level ≥ 10 $\mu\text{g}/\text{dL}$: CY00-19

- ❖ The number of children with elevated blood leads (≥ 10 $\mu\text{g}/\text{dL}$) has leveled off, despite more testing
- ❖ 257 new cases in 2019 of children with blood leads ≥ 10 $\mu\text{g}/\text{dL}$, and 902 new cases with blood leads of 5 – 9 $\mu\text{g}/\text{dL}$



Changing Sources of Lead Poisoning



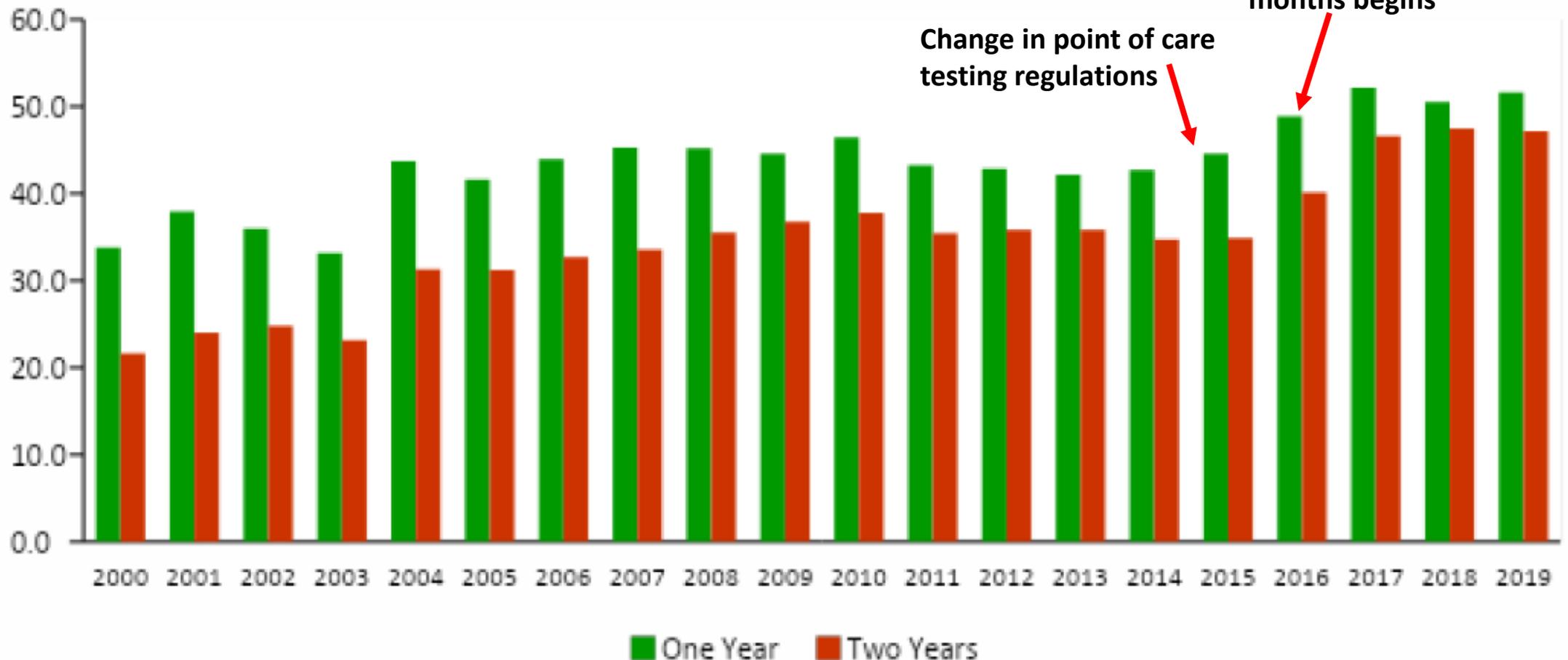
¹ Percent of total jurisdiction area within "At Risk" ZIP codes per 2004 Testing Guidelines

* ">50% of area "At Risk" in 2004" includes Baltimore City

Data source: 2018 Annual Report, Childhood Blood Lead Surveillance in Maryland, Maryland Department of the Environment

Trends in Testing

**% of Children One and Two Years of Age
Tested for Lead CY00-19**



The Maryland Healthy Children Act of 2019

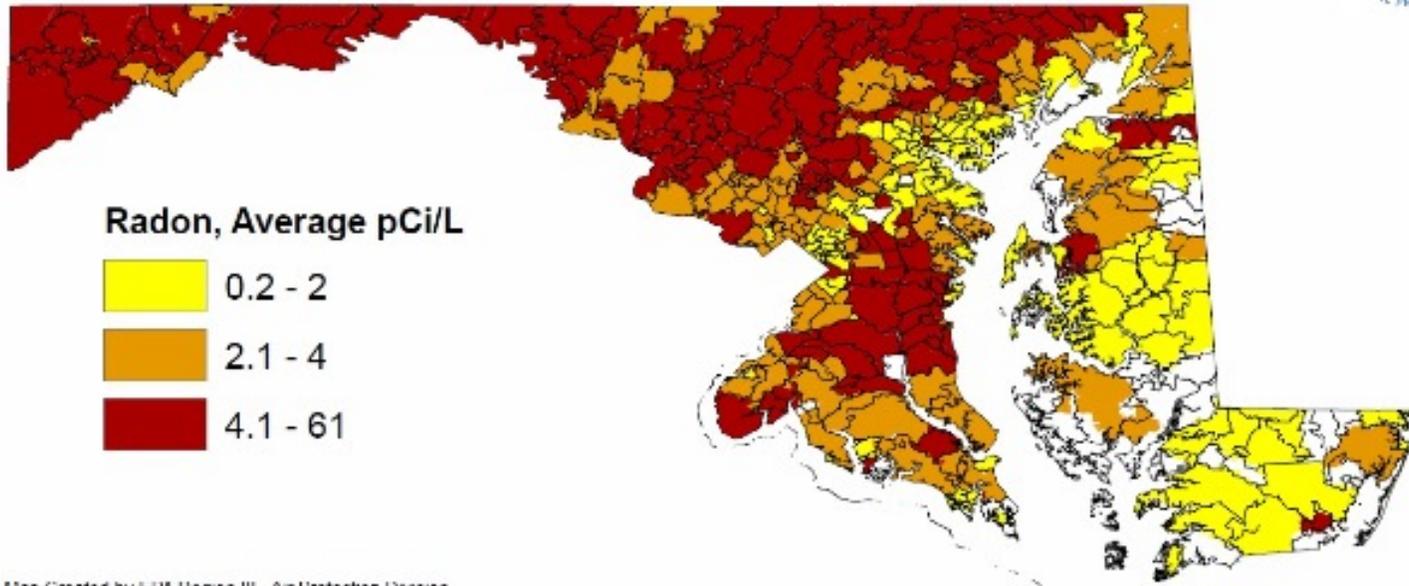
- ❖ The Maryland Healthy Children Act (Chapter 341, Acts of 2019) requires MDE or a local health department to notify the parent or guardian, and the property owner of the results of the blood test indicating a person at risk has an elevated blood lead (now greater than or equal to the reference level of 5 μ g/dL)
- ❖ MDE has adopted new regulations for environmental investigations
- ❖ The Act modifies provisions regarding when an affected property owner is required to satisfy the modified risk reduction standard

New Regulations for Lead Environmental Investigations

- ❖ Effective July 1, 2020, an Environmental Investigation will occur when MDE's Childhood Lead Registry receives a blood lead test indicating that a child under age 6 or a pregnant woman has a blood lead level greater than or equal to $5\mu\text{g}/\text{dL}$
- ❖ An owner of an affected property (a pre-1978 rental property) must satisfy the modified reduction risk standard within 30 days after receipt of written notice that a person at risk who resides at the property has blood lead $\geq 5\mu\text{g}/\text{dL}$ and an environmental investigation has concluded that there is a defect at the affected property

Radon Levels in Maryland Vary with Geography

Maryland: 2005-2016 Average Radon Measurements By ZIP Code



❖ Distribution of radon in homes tested is related to geology, as well as home construction characteristics

Map Created by EPA Region III - Air Protection Division

Data provided by Air Chek, Inc., Alpha Energy Labs, Landauer Radon, RAdata Inc., and Radon Testing Corp of America, Inc.

This map is for informational purposes only. EPA received this data from the referenced labs and cannot verify the accuracy or quality of the data. Labs collected data (January 2005 - April 2016) from testing kits that includes all testing performed, including pre and post mitigation, duplicate testing, different floors (basement, first floor, second floor, etc.), and different testing methods (charcoal canister, liquid scintillation, but not radon in water testing.)

References (from most recent Quality Assurance Plan for reference only, actual QAP used during data collection may be different.):

Air Chek, Inc. "Laboratory Quality Manual." 06/17/2015

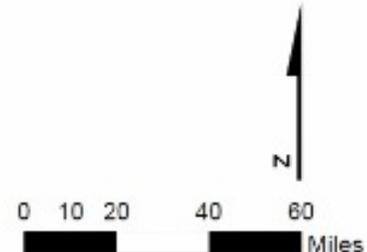
Alpha Energy Labs - "Quality Control/Quality Assurance Manual Revision 10." - 7/6/2016

Landauer Radon - "Quality Manual for Landauer Nordic AB" - 05/09/2016

RAdata Inc. - "Quality Assurance Plan" - 01/29/2016

RTCA - "Quality Manual, Methods for Measuring Radon in Air & Water with Charcoal Canisters, Liquid Scintillation Vials, Electret Ion Chambers and Continuous Radon Monitors." - 10/01/2014

Date: 8/31/2016



New Resources for Clinicians and Families



Maryland's Innovative Medicaid Programs to Create Healthier Homes

- ❖ Maryland Medicaid, Public Health Services, and the Department of Housing and Community Development (DHCD) have developed two new initiatives, using the Maryland Children's Health Insurance Program (MCHP):
 - **Program 1:** Healthy Homes for Healthy Kids – Lead Abatement
 - **Program 2:** Home Visiting Program for Children with Lead or Asthma
- ❖ Center for Medicaid and Medicare Services approved the two programs as a Health Service Initiative (HSI) in the form of a State Plan Amendment to MCHP in June, 2017

Healthy Homes for Healthy Kids

❖ Expansion of lead identification and abatement programs for low-income children through programs delivered by the Maryland Department of Housing and Community Development (DHCD).

- ❖ Eligibility: Children (< 19 years) who are:
1. Enrolled in or eligible for Medicaid or MCHP;
 2. Have a BLL of $\geq 5\mu\text{g}/\text{dL}$; AND
 3. Reside 10 hours or more in the property where the lead exposure is likely to have occurred



HAS YOUR CHILD BEEN EXPOSED TO LEAD?

There is a new program in Maryland to help families with lead poisoning. The Maryland Department of Housing and Community Development, in partnership with Maryland Department of Health will pay for the removal of lead from the home or apartment where the child lives or spends time, at no cost to the homeowner or renter.

QUICK-CHECK ELIGIBILITY LIST

- Under the age of 19 years
- Blood lead level of 5 micrograms per deciliter ($\mu\text{g}/\text{dL}$) or more
- Eligible for or enrolled in Medicaid or Maryland Children's Health Insurance Program (MCHP)
- Live in or visit the home or apartment with a lead problem for 10 or more hours per week

ELIGIBILITY CHECKLIST

- Under the age of 19 years
- Blood lead level of 5 micrograms per deciliter ($\mu\text{g}/\text{dL}$) or more
- Eligible for or enrolled in Medicaid or Maryland Children's Health Insurance Program (MCHP)
- Visit (for 10 more hours per week) or live in the home/apartment with a lead problem

6

For more information about eligibility and program details: **866-703-3266**

Maryland Department of Health, Maryland Department of Housing and Community Development (DHCD), Maryland Department of the Environment



Innovative Approach to Financing Home Hazard Abatement

- ❖ Maryland Department of Housing and Community Development (DHCD) Lead Inspector and a contractor walk through the property with the lead report in hand
 - Includes lead related and safety issues (including sanitary, liveability issues, etc.)
- ❖ A scope of work (SOW) is provided to DHCD within two weeks
- ❖ DHCD breaks down the SOW between Lead/Lead related repairs; Energy Related measures, and essential repairs outside of the lead program. Inspector supplies a narrative to all aspects of the project
- ❖ Lead portion of the project is packaged and presented to multi-agency Committee for approval
- ❖ Lead portion approved; client is notified and explained the other opportunities available through DHCD to address non-lead related repairs that came up during the inspection
- ❖ Client applies and if deemed eligible for financing, the vendor is already in place with an approved proposal

Home Visiting Program for Children with Lead or Asthma

- ❖ Expansion of county level programs to provide environmental case management and in-home education programs with the aim of reducing the impact of lead poisoning and asthma on low-income children
- ❖ The program conducted by environmental case managers and community health workers seated in Local Health Departments (LHDs) and conducted in nine counties.



PARENTS:
If your child has asthma or lead poisoning, a new program in Maryland can help ... for *FREE!*

DID YOU KNOW?

- **LEAD:** Lead can hurt your child's development and growth, and its effects can last a long time. Lead can get into your child from paint and other things in and around your home
- **ASTHMA:** Asthma attacks are a big reason for missed school days and missed work days for parents. Asthma attacks can happen because of things in the home, like dust, pests, mold, pets, and tobacco smoke

THE GOOD NEWS

Maryland offers free visits to help make your home healthier. We can assist with helping you remove lead from your house and prevent asthma attacks in your children.

YOU ARE ELIGIBLE FOR OUR NEW FREE HOME VISITING PROGRAM IF:

- Your child has lead poisoning, has frequent asthma attacks, or both
- Your child is 18 years old or younger and lives in Maryland
- Your child gets Medicaid/MCHP or qualifies for Medicaid/MCHP

***CHILDHOOD LEAD POISONING
PREVENTION AND ENVIRONMENTAL
CASE MANAGEMENT PROGRAM***

Call Toll-Free: 866-703-3266

Email: mdh.healthyhomes@maryland.gov

Visit: <http://bit.ly/MDLeadAsthmaHelp>

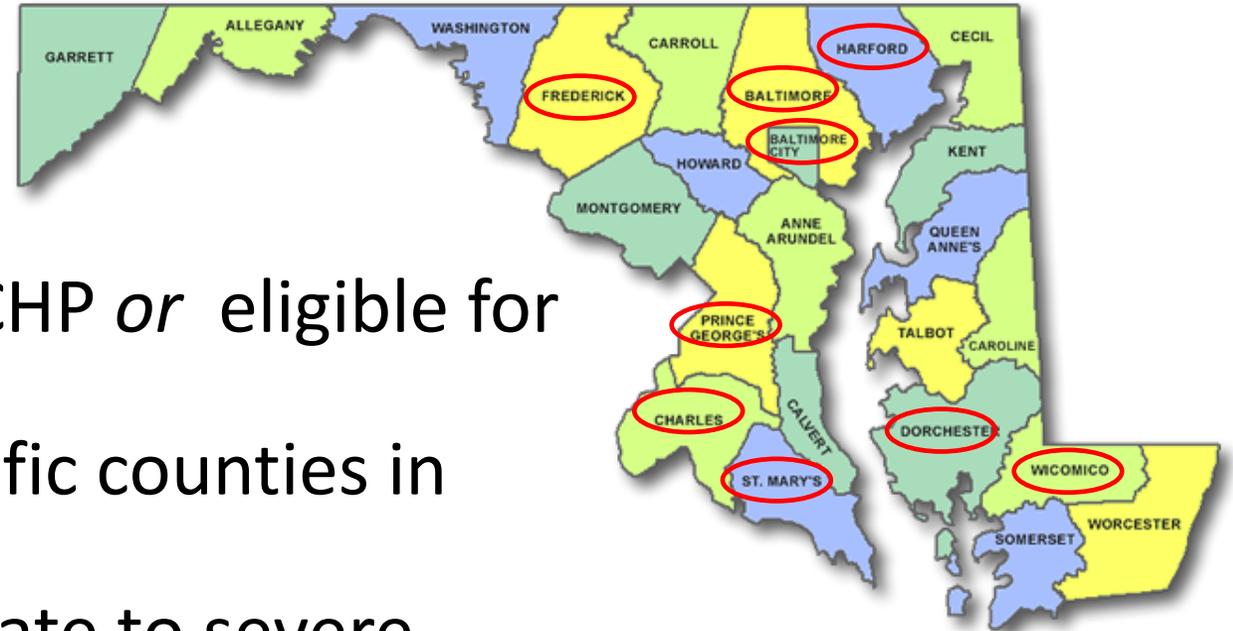


Home Visiting Program: Eligibility

❖ Children (<19 years) must be:

1. Enrolled in Medicaid or MCHP *or* eligible for Medicaid /MCHP;
2. Reside in one of nine specific counties in Maryland; AND
3. Have a diagnosis of moderate to severe asthma* **AND / OR** a BLL of $\geq 5\mu\text{g}/\text{dL}$.

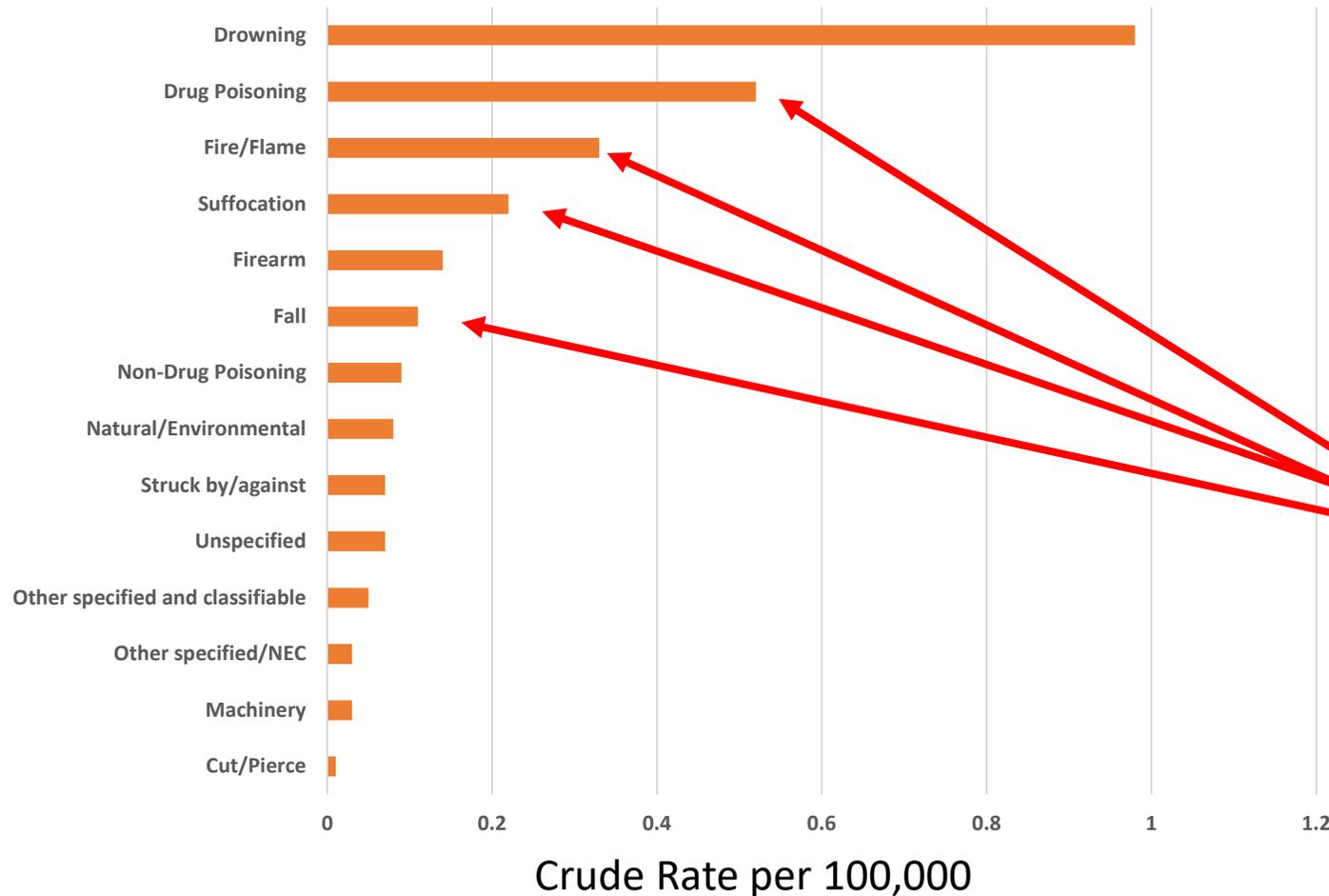
*Utilizes standard clinical definitions of moderate to severe asthma by age group.



Home Visiting Program Services

- ❖ Each participating local health department (LHD) team consists of an environmental case manager and community health workers (CHWs)
- ❖ Protocol includes:
 - Enrollment
 - Asthma or Lead history module
 - 3 – 6 home visits to assess environmental hazards, provide education, assess medication usage, work with family on goals to improve health outcomes
 - ✓ Provides free mattress and pillow covers, cleaning supplies, integrated pest management supplies, up to and including HEPA vacuum cleaner
- ❖ Goal is to work with and provide feedback to primary care providers

Fatal Injury Mechanisms, U.S. Children Ages 2 – 18, 2015-2019*



❖ *Excludes vehicular, pedestrian and traffic/travel related injuries

❖ Home visiting program also assesses for common hazards including falls, electrical, fire, smoke inhalation



Benefits of Home Visiting Program

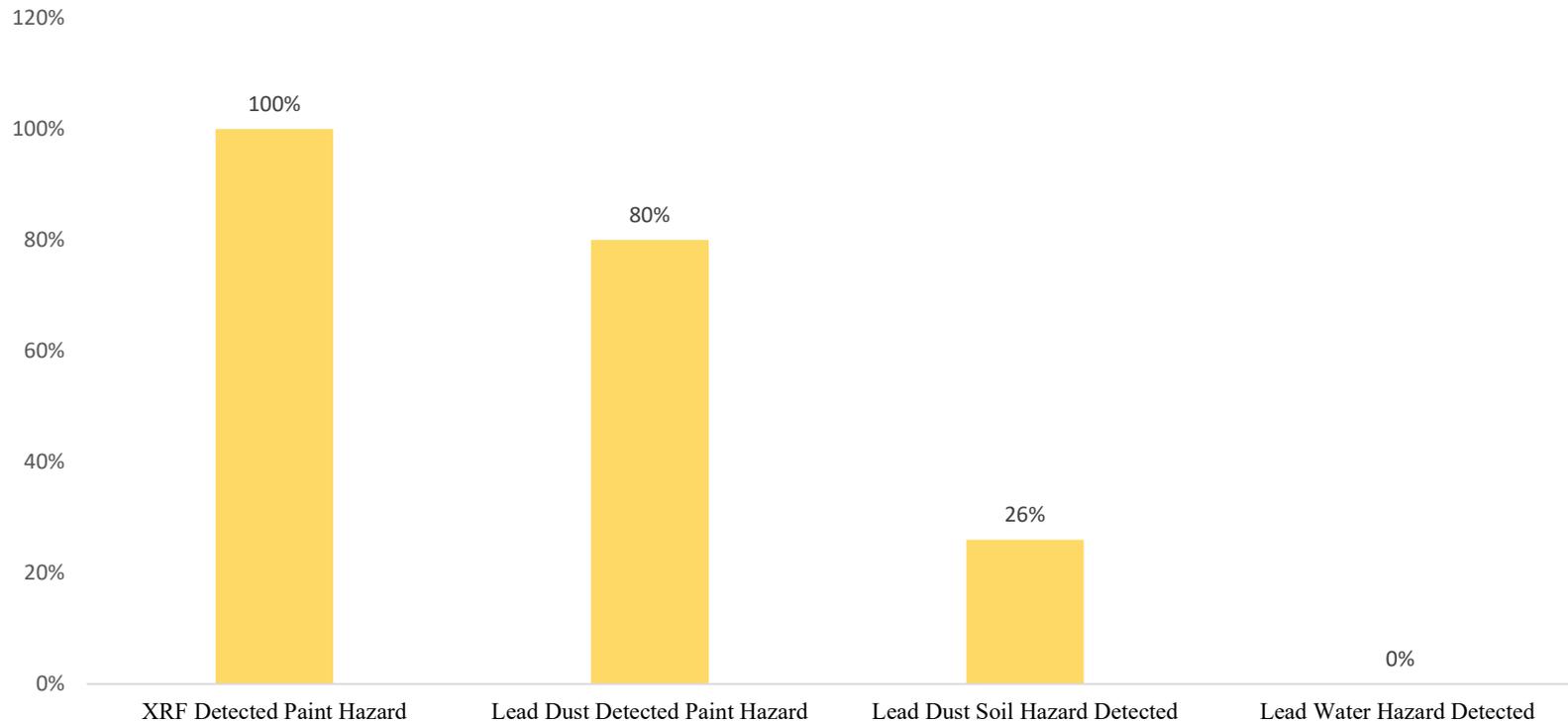
- ❖ CHW and case manager collect detailed information on home environment, family understanding of problem, medication, and establish goals
- ❖ Asthma action plan, improvement in symptoms and control, and reductions in triggers all discussed with family as potential goals
- ❖ Opportunities for primary care provider to have detailed understanding of home environment, work with LHD staff on goals with family, work cooperatively on reducing disease severity and improving outcomes
- ❖ Opportunities to provide additional relief to families in abating lead hazards through Healthy Homes for Healthy Kids

Referrals

- ❖ Referral can come from:
 - Primary care providers
 - Specialty care providers
 - Managed care and inpatient care coordinators
 - School-based health personnel, social services personnel
 - LHDs
 - Emergency departments
 - Emergency services personnel
 - Parents/guardians
 - Social service agencies

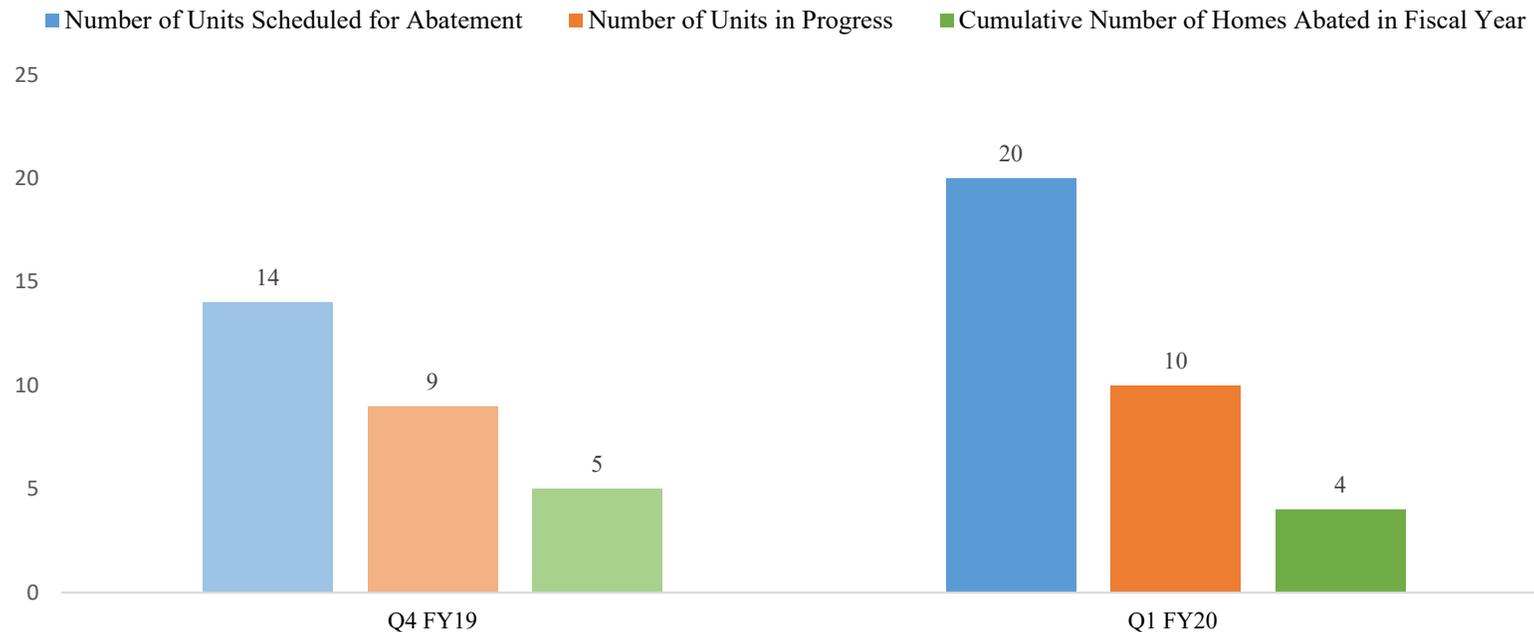
Healthy Homes for Healthy Kids: Outcomes FY20, Q1

Hazards Identified through Inspection of Enrolled P1 Properties during Q1FY20

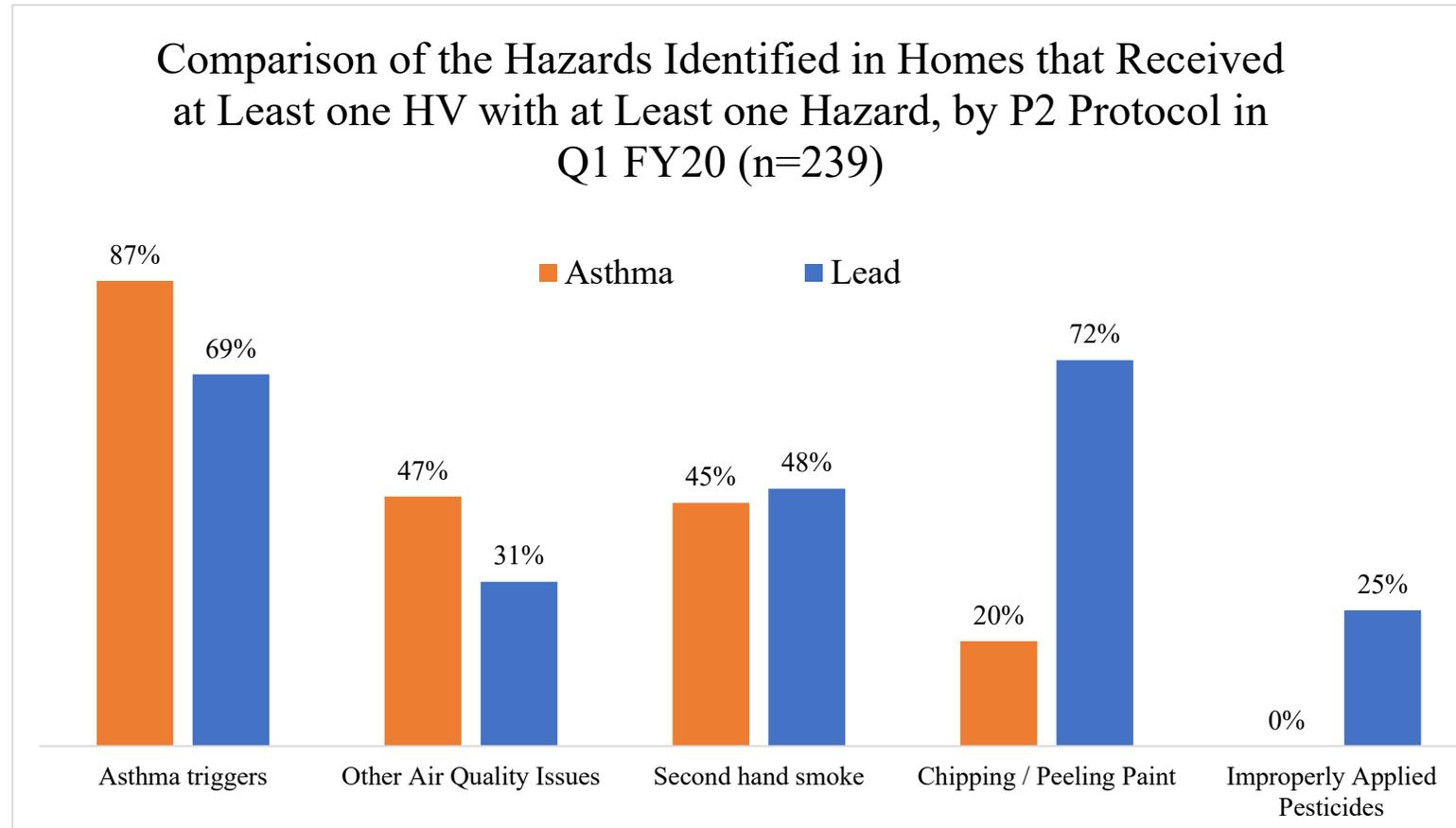


Healthy Homes for Healthy Kids: Units Abated

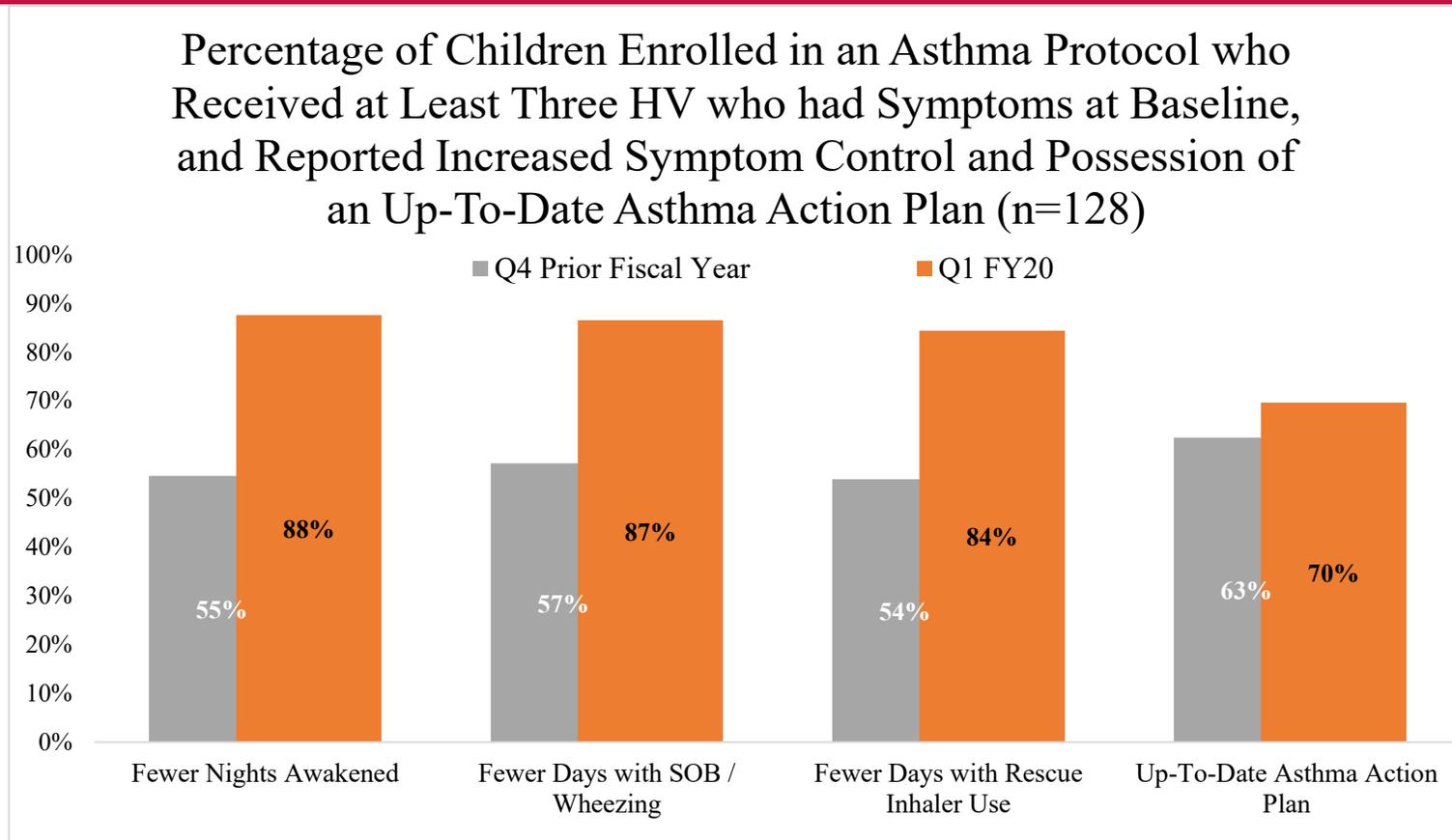
Pipeline of Homes Moving through the Abatement Process,
Q1 FY20 Compared to Close of FY19



Home Visiting Program: Outcomes in FY20, Q1

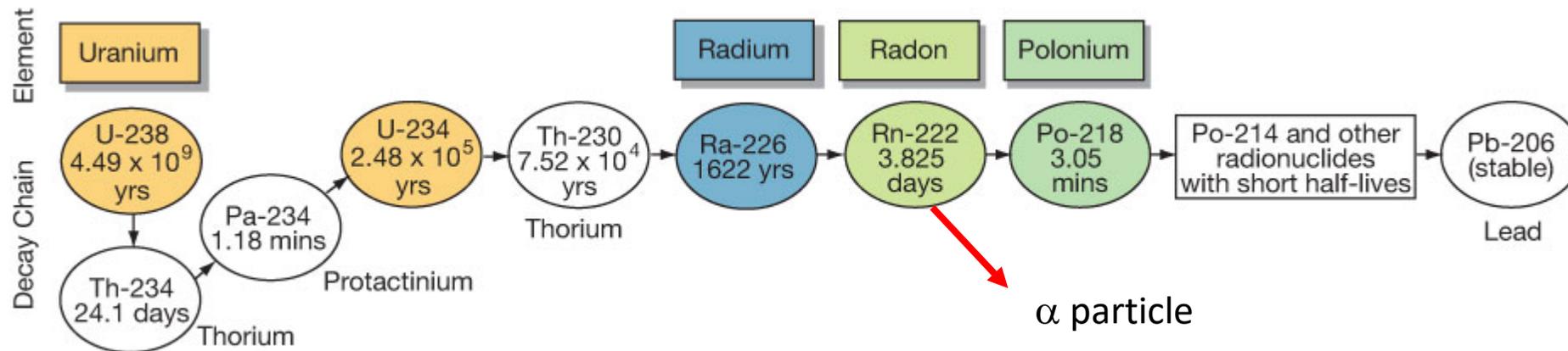


Home Visiting Program: Outcomes



Where Does Radon Come From?

- ❖ Natural decay product of Uranium → Thorium → Radium → Radon
- ❖ Alpha (α) emitter with short half-life

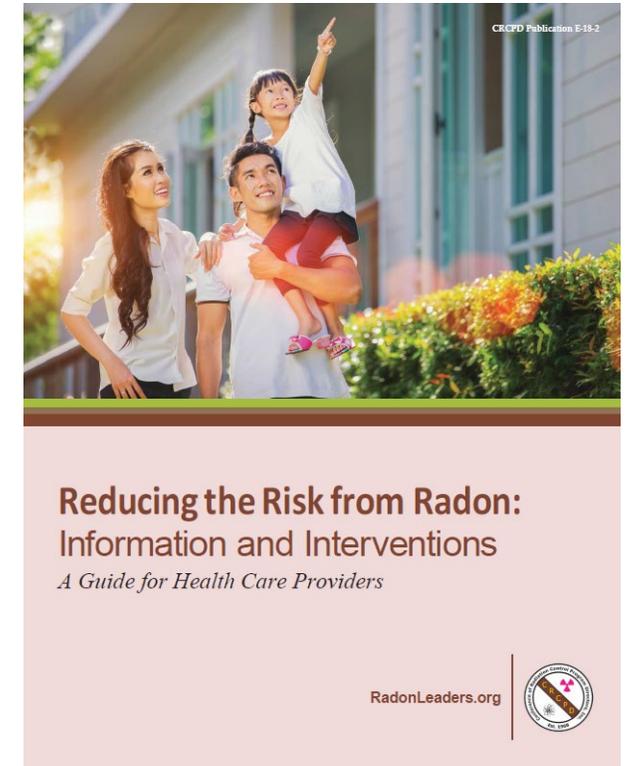


Adapted from: <http://www.kgs.ku.edu/Publications/PIC/pic25.html>

Talking With Your Patients About Radon

Cancer Mortality 2018	
Cancer Type	Estimated U.S. Deaths in 2018 ^{4,5}
1. Lung and Bronchus	154,050
2. Colon and Rectum	50,630
3. Pancreas	44,330
4. Breast	41,400
5. Liver and Intrahepatic Bile Duct	30,200
6. Prostate	29,430
7. Leukemia	24,370
Radon-Induced Lung Cancer	21,100*
8. Non-Hodgkin Lymphoma	20,960
9. Urinary Bladder	17,240
10. Esophagus	15,850
11. Kidney and Renal Pelvis	14,970
12. Ovary	14,070
13. Myeloma	12,770

* The 21,100 radon-induced lung cancer deaths also are included in the estimate of lung and bronchus cancer deaths. The 21,100 estimate is based on risk estimates using U.S. demographic information from 1995.



Source: Conference of Radiation Control Program Directors, Inc. (2018). Reducing the Risk from Radon: Information and Interventions. Available at:

http://www.radonleaders.org/sites/default/files/HealthCareProfessionalsGuide_Radon_2018_FINAL_CRCPD%20E-18-2.pdf



New Resource: Discounted Radon Test Kits

- ❖ Under EPA State Indoor Radon Grant, Maryland Department of the Environment and Department of Health has been offering reduced cost test kits, available on the MDE Radon Page:
 - <https://mde.maryland.gov/programs/Air/RadiologicalHealth/Pages/radon.aspx>
- ❖ Also available from Maryland Department of Health
 - 1-866-703-3266
 - mdh.healthyhomes@maryland.gov

Outreach Materials for Radon

MARYLAND RADON FACTS

How to Protect Yourself and Your Family from Radon



What is Radon? Why is it important?

Radon is an invisible radioactive gas in the earth that can get into your home. Breathing Radon can increase your risk of lung cancer. If you smoke, Radon increases your risk of lung cancer even more than if you don't smoke.

The only way to know how much Radon is in your home is do a Radon test. If your home has too much Radon, it is possible to remove the Radon and lower the risk of cancer for you and your family.

Where is Radon found in Maryland? (See Map)

Although Radon can be found anywhere, some parts of Maryland have soil that make Radon more likely. Basement and first floors typically have the highest Radon levels because of their closeness to the ground.

Why should I test my home for Radon?

Radon causes cancer. The longer you and your family are exposed to Radon, the greater the risk of lung cancer. The risk is especially high for people who also smoke.

How do I test my home?

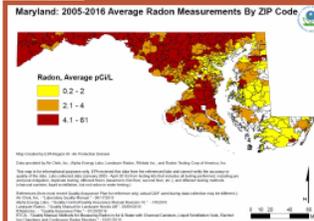
Testing your home is easy. Look for test kits in most area hardware stores and home improvement stores. Look for test kits that are certified by NRPP or NRSB, and follow the directions on the package. Generally, you should:

- Place the test kits in the lowest level that people will occupy, and/or the areas that are most heavily used (like bedrooms, playrooms)
- Place the kits in a dry area (not bathrooms or kitchens) where the kits will not be disturbed, and are not near moving air (windows, ventilation ducts)
- Leave the kits for somewhere between 2 and 90 days (the longer the test, the more accurate it is), seal them up immediately and mail to the testing company

For More Information: 1-866-703-3266

Quick Facts:

- Testing your home for Radon is cheap and easy, and it's the only way to know if your family is at risk
- It's easy to fix Radon problems in homes and schools
- There are ways to make new homes Radon-resistant



Radon concentrations across Maryland. See interactive map at: <https://maps.health.maryland.gov/phpa/eh/Radon>

What Does My Test Mean?

Your Radon test result is used to decide whether a additional testing or some mitigation (removal of Radon) is necessary. If your test is:

Less than 2 pCi/L	2-Less than 4 pCi/L	4 pCi/L or more
No further action is needed at this time; consider another test in the future if the condition of the home changes (cracks in basement, etc.)	No action is needed, but you should re-test at least every 5 years or if home conditions change (construction, new basement, etc.)	You should do another test (either short- or long-term) to confirm the results; if confirmed, consult a certified Radon Mitigation Contractor

While Radon does increase the risk of cancer, the good thing is that you can eliminate the risk increase by getting rid of the Radon. If your home has Radon and you or someone in your family smokes, the risk of cancer is higher. Call the Maryland Tobacco Quitline at: 1-800-QUIT NOW (1-800-784-8669)

Can I fix my home if it has Radon?

Yes. Fixing your home is usually easy and not very expensive. You can find a list of Radon contractors at: www.mde.state.md.us under the Air Tab and look for the Radon Link. You should look for contractors who are credential by the American Association of Radon Scientist & Technologist (AARST) and are licensed by the Maryland Home Improvement Commission (MHIC).

What about buying or selling a home?

MDE and MDH recommend testing your home for Radon before you sell it. It's good for both you and buyer to know. If you are buying a home, MDE and MDH recommend asking about Radon, and about any testing or mitigation that has been done.

New homes can be built with features to reduce Radon

Building new homes with simple and cost-effective Radon-resistant features can reduce Radon entry. Contact your builder or visit www.epa.gov/Radon/rnc/index.html for more information.

Every home should be tested before, or soon after, you move in. Even homes built with Radon-resistant construction features should be tested. If high Radon levels are found, it is easier and costs less to reduce Radon levels in homes that are built Radon-resistant.

For More Information:

www.mde.maryland.gov, look under the Air Tab for Radon
<https://phpa.health.maryland.gov/OEHFP/EH/Pages/Radon.aspx>
<https://www.epa.gov/Radon>
Environmental Health Helpline: 1-866-703-3266
Contact your local health department



❖ Patient and homeowner information available on MDH, MDE websites



What Should You Tell Your Patients?

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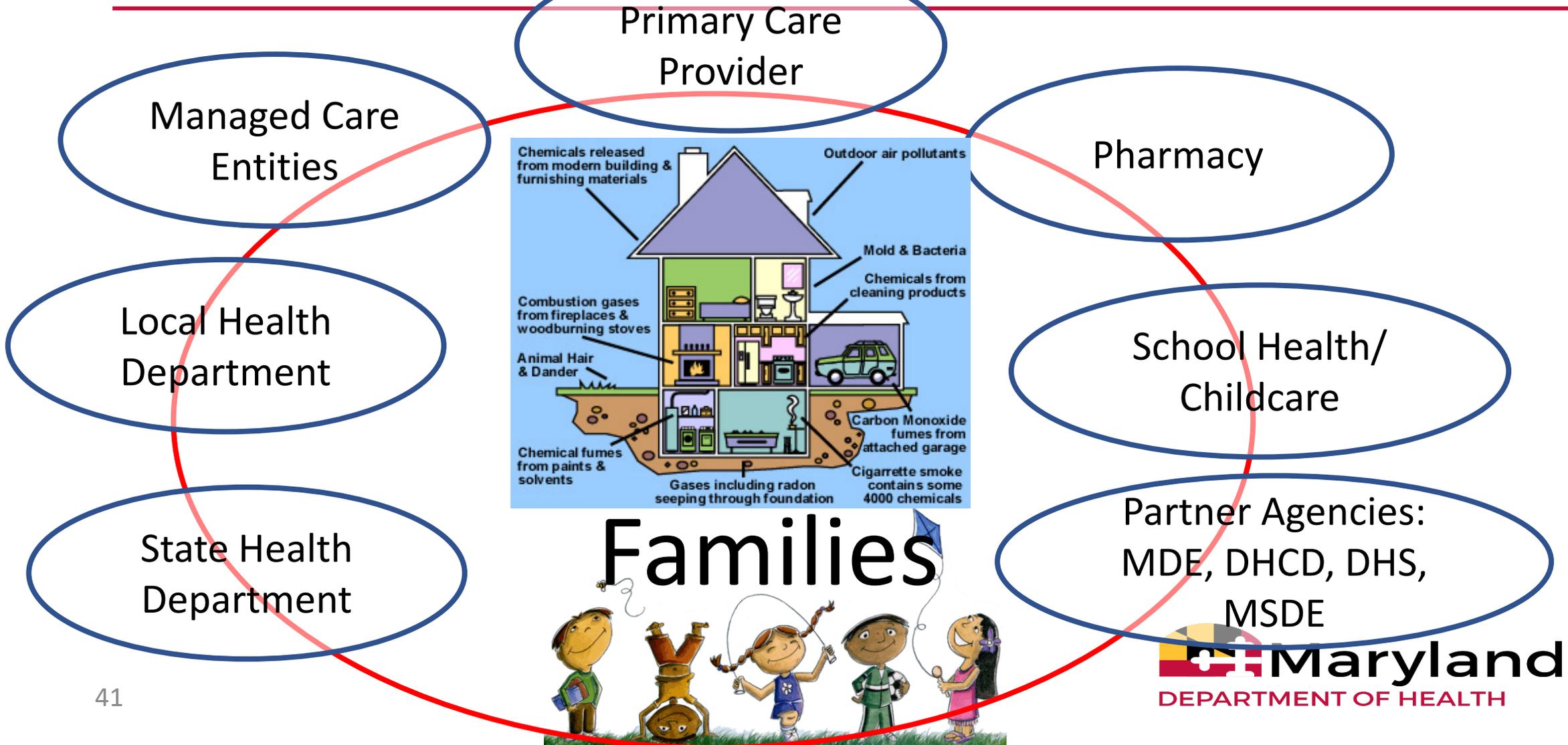
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Take-Aways for Clinicians

- ❖ There are many childhood illnesses and injuries that are directly affected by the home environment
- ❖ Maryland is expanding resources for clinicians, patients to improve housing conditions that can affect childhood health:
 - Home visiting programs in 9 jurisdictions (Baltimore, Baltimore City, Charles, Dorchester, Frederick, Harford, Prince George's, St. Mary's, Wicomico)
 - Lead paint abatement services (no cost to family) through Department of Housing and Community Development
 - Low cost radon testing
- ❖ The goal is to strengthen cooperation and communication between primary care community, public health, other points of contact to create a true community-centered medical home for the child

A Community Centered Medical Home



Resources

❖ Maryland Department of Health

Lead Poisoning Prevention Home Page (<https://phpa.health.maryland.gov/OEhfp/eh/Pages/Lead.aspx>)

Asthma Home Page (<https://phpa.health.maryland.gov/OEhfp/eh/Pages/asthma.aspx>)

Healthy Homes for Healthy Kids and Home Visiting Programs
(<https://phpa.health.maryland.gov/OEHFP/EH/Pages/CHIPEnvCaseMgmt.aspx>)

Data -- Maryland Environmental Public Health Tracking
(<https://phpa.health.maryland.gov/oehfp/eh/tracking/Pages/home.aspx>)

Environmental Health Help Line: 1-866-703-3266

mdh.healthyhomes@maryland.gov

❖ Maryland Department of the Environment

Center for Lead Poisoning Prevention Home
(<https://mde.maryland.gov/programs/LAND/LeadPoisoningPrevention/Pages/index.aspx>)

Phone inquiries: 410-537-3825

Email: mdclr.mde@maryland.gov

Radon Program Home (<https://mde.maryland.gov/programs/Air/RadiologicalHealth/Pages/radon.aspx>)

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❖ Thank you to the following:

- Maryland Chapter, American Academy of Pediatrics
- Dr. Paul Rogers, MD, MBA
- Green & Healthy Homes Initiative
- Maryland Department of the Environment Childhood Lead Poisoning Prevention Program

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