



South Carolina Department of Health and Environmental Control

Blood lead records and surveillance in South Carolina

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Division of Surveillance

Bureau of Health Improvement and Equity

Outline

- Background
- Children vs. adults
- DHEC and blood lead test records
- How data are being used
- What next?

Background

- Per South Carolina (SC) state law §44-29-10, **ALL** blood lead tests conducted in SC are reportable to DHEC
- This is regardless of age of the individual and test value
- In children, blood lead testing is targeted for some populations and required for others
- In adults, most testing is based on occupation

Children

- Testing for children is REQUIRED in SC for:
 - Children enrolled in Medicaid (at certain ages)
 - Children enrolling in Head Start (if no record available)
- Also recommended for international adoptees and refugee children
- It is also recommended that children be screened by their primary care provider to determine if testing should occur
 - However, we do know that not all children are being screened based on DHEC's recommendations

Adults

- Adult blood lead testing is done per occupational requirements, or personal monitoring based on hobbies
- DHEC works with:
 - Centers for Disease Control and Prevention (CDC) Adult Blood Lead Epidemiology and Surveillance (ABLES)
 - SC Occupational Safety and Health Administration (SC OSHA)

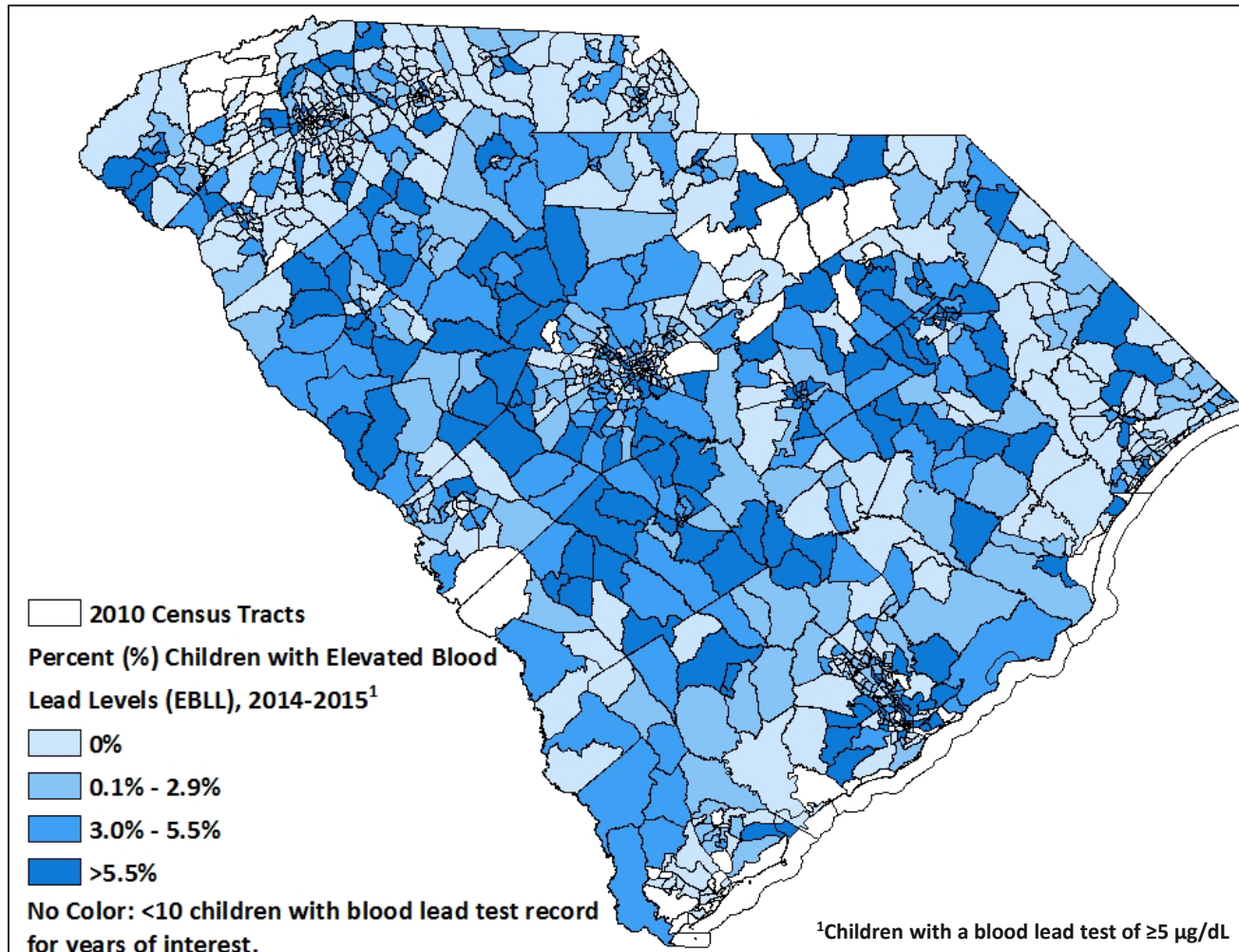
DHEC and blood lead records

- Maintain records of blood lead tests received by DHEC
 - Implemented new lead reporting web application (May 2017)
 - Monitor import of electronic test records
 - Manually enter paper test records
- Maintain data quality
 - De-duplication
 - Geocoding
 - Provision of data sets and/or estimates for internal and external partners
- Provide reports (as needed)

How are data being used?

- Identification of children with elevated blood lead levels so that appropriate follow-up occurs
 - DHEC uses current CDC reference level of ≥ 5 $\mu\text{g}/\text{dL}$
 - Notifications based on roles in lead reporting web application
- Identify ways to improve data quality
- Address research questions developed in conjunction with internal and external partners

How are data being used?



- Examine spatial trends of elevated blood lead tests in children
- While testing is not universal, this information could be useful for planning purposes
- Potential for overlay of other data sources that may further inform programs

What next?

- New CDC-funded grant program (Childhood Lead Poisoning Prevention Program)
 - Surveillance is a large component of this grant
- Increase number of providers reporting electronically
- Examine populations that are universally screened so that demographic and/or spatial disparities in elevated blood lead levels can be identified
- Continuously improve the lead reporting web application, to include additional reporting feature and ability to capture newly identified data elements

CONTACT US

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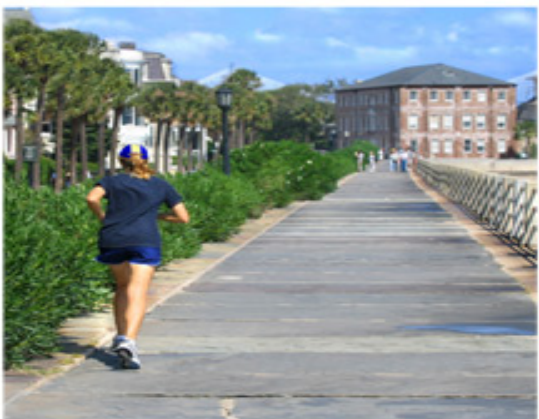
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Childhood Lead Data: Knowns and Unknowns



SC DHEC Data Symposium
2017



Q: What data do you have that would be useful to your audience?

- Known Knowns
- Known Unknowns
- Unknown Knowns
- Unknown Unknowns

H/T former Secretary of Defense, Donald Rumsfeld



The Known Knowns in our Childhood Lead Data

- Client level data on lead test results, specifically dates of testing and test results
 - Who, when, mostly what, mostly where, somewhat how
 - Lots of (but not all of) other identifiers for the child and the testing performed
- How to receive data from major reference labs, and strategies to improve quality of data received
- Limitations of data set (see The Known Unknowns)
- Capabilities of our NEW data system (SCION)

The Known Unknowns in our Childhood Lead Data

- Reason for testing
 - Routine? Follow-up? Concerns?
- Until we investigate:
 - Risks, Sources
- Data that were suppressed when specimens were submitted to reference labs
- Results of testing in many practices that perform point-of-care testing



The Unknown Knowns in Childhood Lead Data

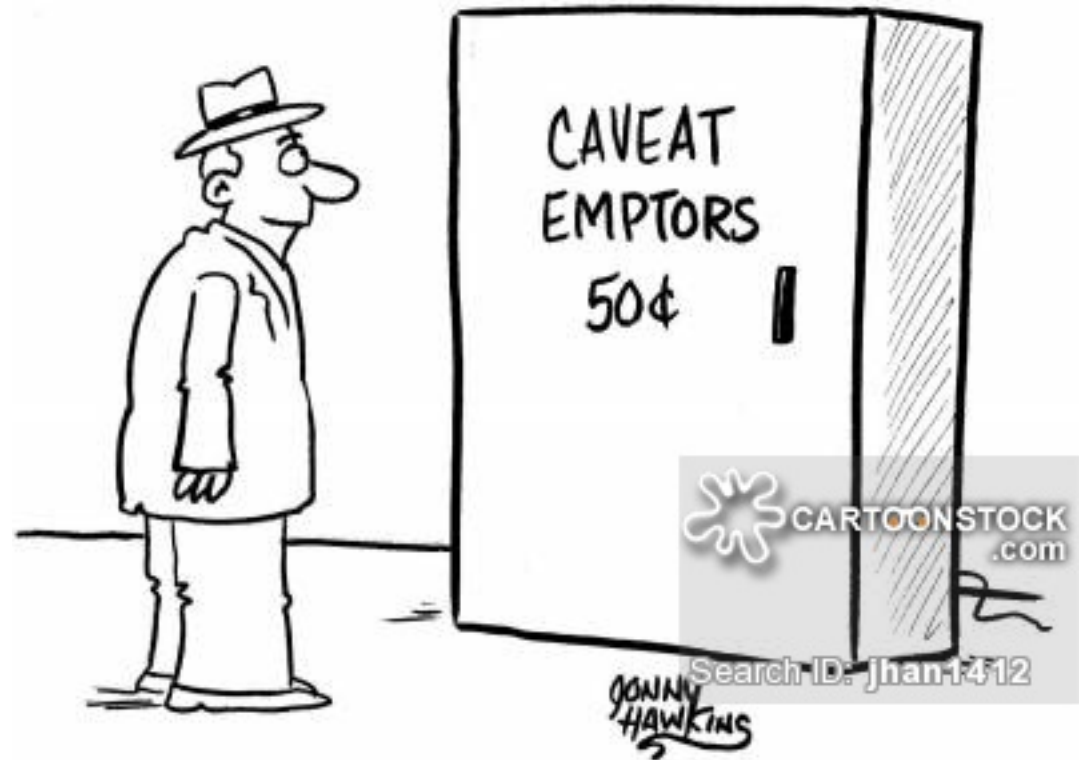
- I.e., what's in there that we haven't yet qualified/quantified or analyzed
 - Trends in reporting by provider type and where specimens are analyzed (point-of-care or reference labs)
 - Extent of errors in system associated with hand-keying results versus importation of electronic data
 - *(Coming)* Trends in sources of lead exposure in children with elevated blood lead levels

The Unknown Unknowns in Childhood Lead Data

- **Questions that you will ask us**
- **How to prevent the next “Flint Water Crisis”**
- Predictive capabilities of our surveillance and investigation systems to identify populations and geographic areas at higher risk for lead exposure
 - Major focus of our new CDC grant

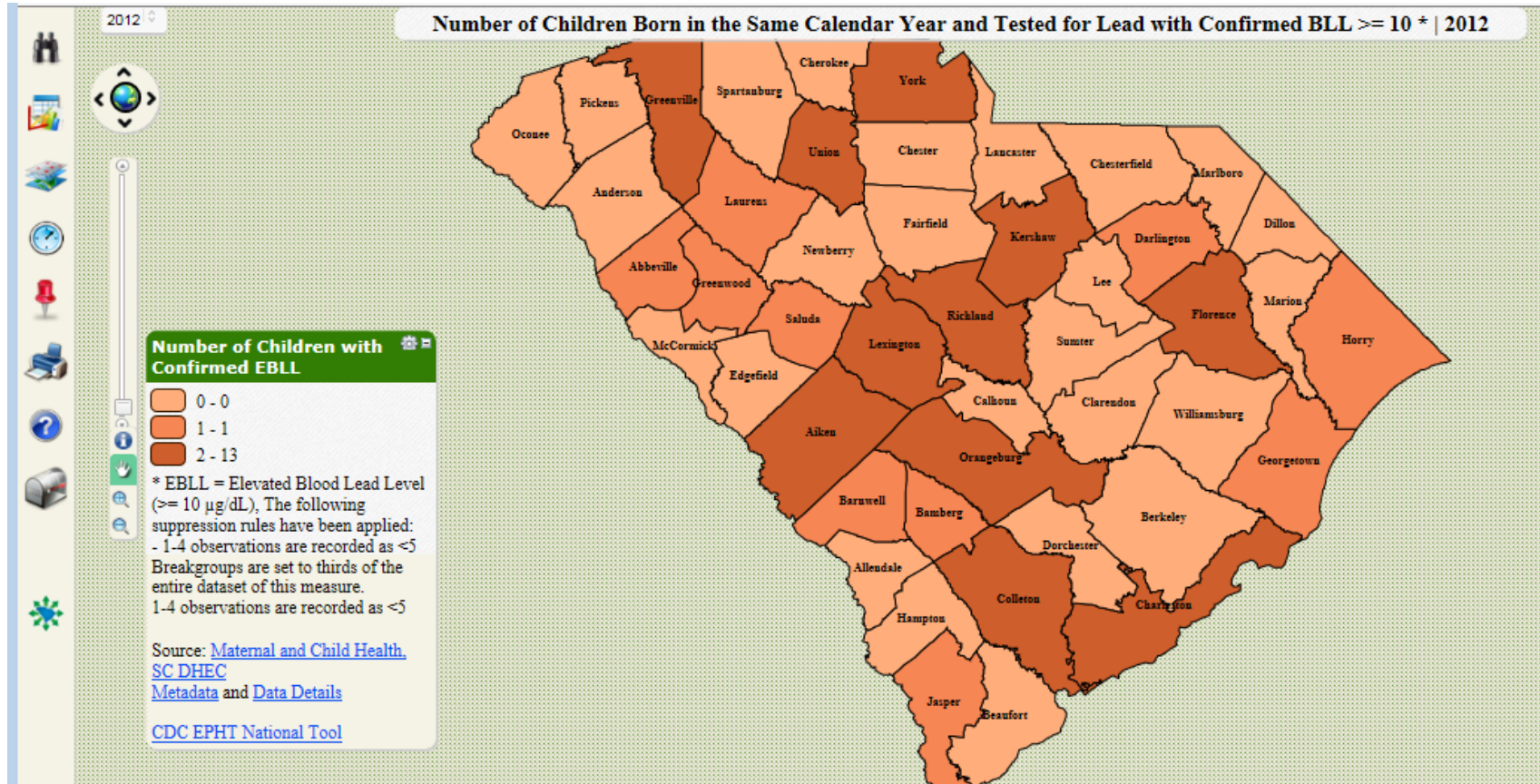
So we can...

- Discuss caveats for any lead data we give you
- Upgrade/enhance our data system to better collect, interpret, and disseminate useful data



So, we can ...

- Make tables and maps
- Discuss trends and make assumptions about large numbers of children
- Tailor testing and reporting guidance for providers



So, we can ...

- Track cases with providers
- Initiate investigations for children with elevated blood lead levels
- NEW/SOON: Extract investigation data



Hey Flint! It is safe to wash!

Lead in bath
water will not
soak into your
skin fast or at
high levels.

Just don't let
kids drink the
bath water when
they play in the
tub...yuck!

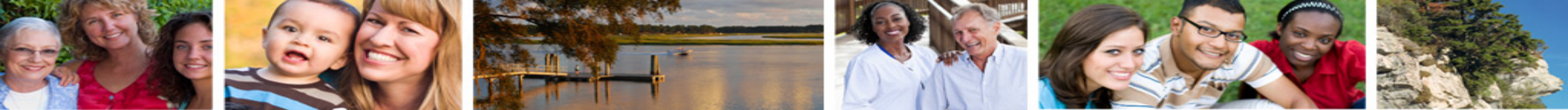
Unfiltered
warm tap water
is OK for
showers &
baths.

For you
AND
your kids!



If you want to get your water tested,
please call the City of Flint Water Plant at 810-787-6537.
If you have questions about Flint water and your health,
please call MDHHS at 1-800-648-6942.

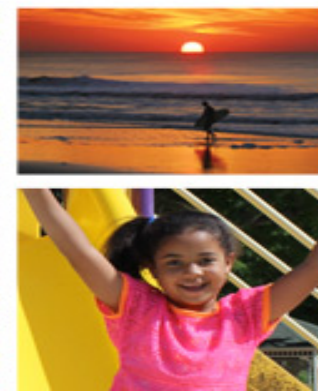
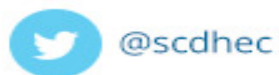




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EBLL Risk Assessment

Bureau of Environmental Health Services

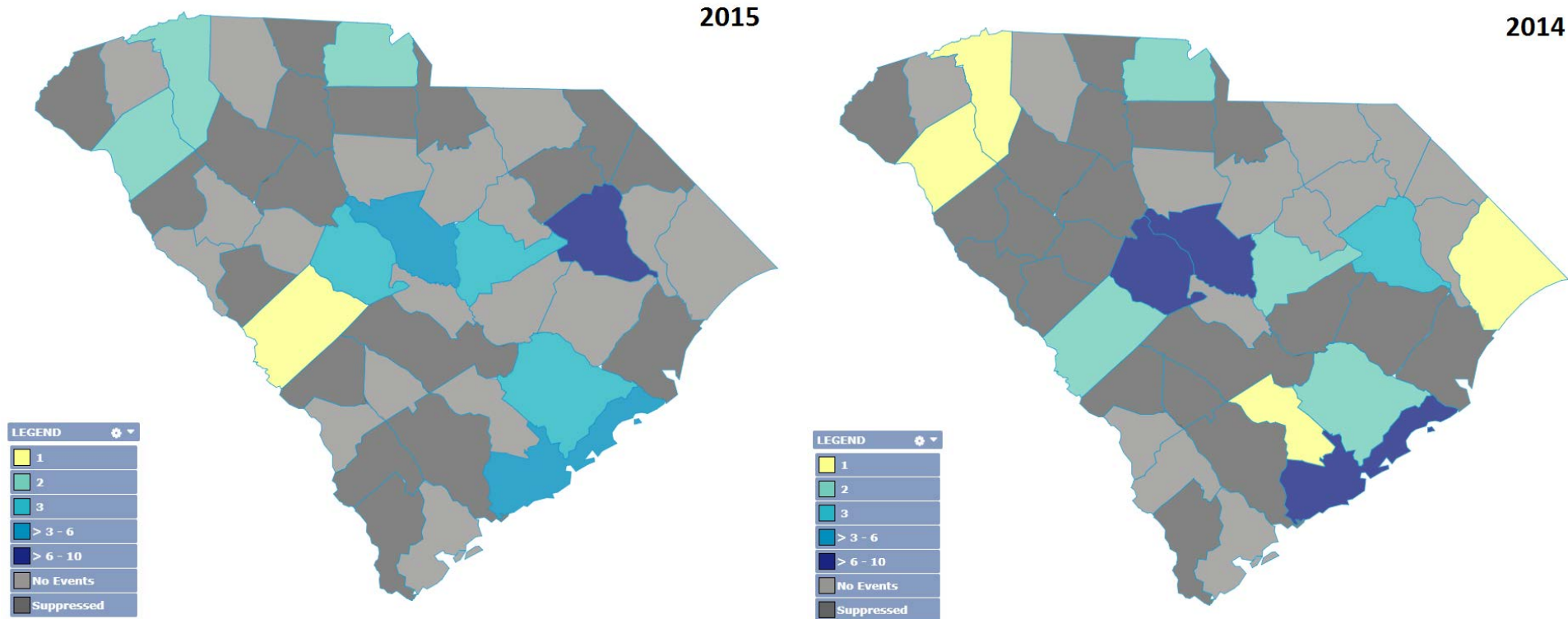
Danielle Saye

South Carolina Department of Health and Environmental Control
Healthy People. **Healthy Communities.**

When to Conduct a Lead Risk Assessment

- Child Health Consultant receives EBLL & refers to a Child Health Nurse, who performs screening questionnaire.
- If deemed necessary, the case is then referred to a certified lead risk assessor to conduct investigation.

Number of Children Tested with Confirmed EBLL of $>10\mu\text{g}/\text{dL}$



EBLL Risk Assessments

- Can only be performed by a EPA certified risk assessor.
- Performed in conjunction with Public Health Nurses.
- On-site investigation to determine the presence, type, severity, and location of lead hazards.
- Focuses on all sources of lead in the child's environment (uncommon sources of lead & other areas the child visits).
 - Uncommon Sources: pottery, home remedies, food, and cosmetics, parental working environment.
 - Other Areas: grandparent's house, parks, childcare facilities.
- Provides recommendations on how to remediate lead hazards.

Steps to Risk Assessment

- Determine most appropriate evaluation process
- Obtain pertinent background information
 - ❖ Children and their habits
 - Household information
 - Family use patterns
 - Building renovations
- Schedule the evaluation
- Conduct the evaluation and collect samples
- Determine lead hazards
- Provide guidance to reduce or eliminate hazards
- Produce written report of findings

Areas of Concern

- Deteriorated paint
- Dust accumulation
- Bare soil
- Painted impact and friction surfaces
- Painted child accessible surfaces



Samples Collected

- Paint: $\geq 0.7 \text{ mg/cm}^2$ (EPA $>1.0 \text{ mg/cm}^2$)
- Dust:
 - $> 40 \text{ } \mu\text{g/ft}^2$ floors
 - $> 250 \text{ } \mu\text{g/ft}^2$ window sill
 - $> 400 \text{ } \mu\text{g/ft}^2$ window troughs
- Soil:
 - $> 400 \text{ ppm}$ play area
 - $> 1,200 \text{ ppm}$ all other areas
 - $> 5,000 \text{ ppm}$ abatement required
- Water: $> 15 \text{ ppb}$



Lead Hazard Control Options

- Interim Controls

1. Paint film stabilization
2. Friction/impact surface treatment
3. Dust removal
4. *Covering with grass, gravel, or mulch*
5. *Prevent access (fences, bushes, decks)*

- Abatement

1. Building component replacement
2. Paint removal
3. Enclosure systems
4. Paint encapsulation
5. *Removal & replacement of soil*
6. *Permanent covering (cement or asphalt)*

Interim Controls vs. Abatement

<u>Characteristic</u>	<u>Interim Controls</u>	<u>Abatement</u>
Likely duration of control measure	Short term measure	Permanent measure (at least 20 years)
Ongoing monitoring	Necessary in all situations	Limited or no monitoring depending on action taken
Certified abatement contractor required	No, but owners, residents, or workers must understand lead risks	Yes, certified abatement supervisors and trained workers on lead risks
Cost	Less initial costs, but greater ongoing monitoring costs	Greater initial costs, but fewer follow-up costs



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