Lead Poisoning Prevention in Connecticut: Why the Second Screening is Important

HOSTED BY THE CT CHAPTER OF THE AMERICAN ACADEMY OF PEDIATRICS & THE CONNECTICUT REGIONAL LEAD TREATMENT CENTERS

WEDNESDAY, JULY 20
12:00 – 1:00 PM
Objectives

- Overview of lead poisoning history and resources
- Understand AAP screening guidelines
- Review CT State Lead Law and the role of the clinician
- Review of risk assessments for children 3 and older
- Review of confirmatory venous testing
- Review local health department responsibilities
Presenters

Connecticut Children’s Medical Center
• Patricia Garcia, MD; co-Director, RLTC

Yale-New Haven Hospital
• Carl Baum, MD, FAAP, FACMT; Medical Toxicologist/ Director, RLTC

Connecticut Department of Public Health
• Krista Veneziano, MPH, CHES, RS; Program Coordinator, Lead, Radon, Healthy Homes Program
CHILDHOOD LEAD POISONING
CDC’s Ten Great Public Health Achievements 2001-2010

• Vaccine Preventable Diseases
• Prevention and Control of Infectious Diseases
• Tobacco Control
• Maternal and Infant health
• Motor vehicle safety
• Cardiovascular Disease Prevention
• Occupational Safety
• Cancer Prevention
• Public Health Preparedness and Response
• **Childhood Lead Poisoning**
9 to 35 Months: A Critical Time

- Children become more mobile
- Children naturally have hand to mouth activity
- Increased absorption
- A time of rapid brain growth
- Peak Pb levels 18-24 months of age
Origins of Lead: 4.5 billion years ago
Mining of Lead: 6500 BC
Mining of Lead: 800 BC
White Lead Conference, 1921
THE DUTCH BOY'S
LEAD PARTY

A Paint Book for
Girls and Boys

With which is bound
COLOR HARMONY IN THE HOME
A Booklet for the Grown-ups
Cater
To The Children

Do you make it a point in your store to show courtesy to your youthful customers? Do you give them the same consideration and attention that you do the older folks, or do you brush them aside as of less importance?

Have you stopped to think that the children of today are the grown-ups of tomorrow and that a child is particularly quick to remember a kindness and slow to forget a slight or an injustice?

A busy parent sends a child—perhaps a shy little girl—to make a purchase. If there is a choice of stores, the child naturally makes a practice of going where she is made to feel welcome and where she is waited on promptly. She wins approval for doing her errand quickly and it takes less time from her own interests.

This is one of the seemingly small matters which many successful merchants consider worth attention.
Canary in a Coal Mine
Canary in a Coal Mine
Canary in a Coal Mine

"This means something but I can’t remember what!"
## Lead Levels of Concern

<table>
<thead>
<tr>
<th>Year</th>
<th>Blood Lead Level, µg/dL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before 1970</td>
<td>&gt; 60</td>
</tr>
<tr>
<td>1971</td>
<td>40</td>
</tr>
<tr>
<td>1978</td>
<td>30</td>
</tr>
<tr>
<td>1985</td>
<td>25</td>
</tr>
<tr>
<td>1991</td>
<td>10</td>
</tr>
<tr>
<td>2012</td>
<td>5</td>
</tr>
</tbody>
</table>

“Reference Level”
Progress?

- Children 1-5 years, ≥ 10 µg/dL
  - 1976-1980 NHANES: 88%
  - 2007-2010 NHANES: 0.8%
Progress?

- Children 1-5 years, ≥ 5 µg/dL
- 2012: top 2.5%
REGIONAL LEAD TREATMENT CENTERS IN CONNECTICUT
Addressing A Need: Regional Lead Treatment Centers in CT

• In 1994, two Regional Lead Treatment Centers were established: Hartford and Yale-New Haven.

• Provide multi-disciplinary, culturally sensitive care including:
  ◦ Medical evaluation and treatment
  ◦ Developmental evaluations
  ◦ Social service support
  ◦ Outreach teaching
  ◦ Assistance with relocation

• Lead Clinic medical staff are available for consultation to medical providers by phone or by visit. We will accept children with levels ≥5μg/dL.
RLTC Staff

Connecticut Children’s Medical Center
• Patricia Garcia, MD; co-Director, RLTC
• Jennifer Haile, MD; co-Director, RLTC
• Darlene Abbate, APRN

Yale-New Haven Hospital
• Carl Baum, MD, FAAP, FACMT; Medical Toxicologist/ Director, RLTC
• Christopher Prokop, LCSW; Healthy Homes Specialist
• Marta Wilczynski, LCSW; Medical Social Worker
• Brianna Foley, MPH; Environmental Specialist
Telephone Numbers for Treatment Centers

• Connecticut Children’s Medical Center
  • 860-837-6800

• Yale-New Haven Hospital
  • 203-688-2195 (Social Services)
POLICY REVIEW
AAP Screening Recommendations, 2005

- Screen all Medicaid and Medicaid eligible children at 1 and 2 years of age. Screen up to 72 months if never screened before.
- For non-Medicaid eligible children, look to the state or municipality policy. If none exists: universal screening
- Screen all refugees, immigrants, and international adoptees.
CDC Guidelines/CT DPH

• Last updated guidelines in 2012
• State specific guidelines exist and are found of CT DPH website
• Universal blood lead testing is mandated in the state of CT
  • Childhood Lead Poisoning Prevention CGS 19a-111g
  • Effective January 1, 2009
Pediatric providers shall conduct lead screening **at least annually** for each child 9 to 35 months of age.

Routinely done at 12 and 24 months of age.
Birth Cohort screening rate

2011 Birth Cohort (turned 3 years old in 2014)

• 97.3% were tested once by age 3 (defined as under 36 months)
• 53.0% were screened at age 1* and again at age 2

2010 Birth Cohort (turned 3 years old in 2013)

• 97.% were tested once by age 3 (defined as under 36 months)
• 51.5% were screened at age 1* and again at age 2

Second required screening needs to increase!

* Includes children 9 to 11 months
Childhood Lead Poisoning Prevention, CGS 19a-110

• The local health department shall provide information to the parent or guardian of a poisoned child with a lead level greater than 10 (capillary or venous) about the:
  ◦ dangers of lead poisoning
  ◦ precautions to reduce the risk
  ◦ laws and regulations concerning lead abatement
  ◦ information about potential eligibility for service for children from birth to three years of age
• Medical risk assessment should be conducted at least annually but also as indicated on all children 36 to 72 months of age.

• Any child age 36 months to 72 months of age should be screened if not screened before or if assessment shows risk.
CAPILLARY TESTING AND CONFIRMATORY VENOUS TESTING
Capillary Testing: Advantages of In-Office Lead Testing

• Convenience for patient
• Smaller amount of blood required, 50 µL
• Immediate results for family
• Allows education for at-risk families at visit
• Perfect complement to hemoglobin testing and it allows for another reimbursable CPT code
• Helps comply with state mandate
Barriers of In-Office Capillary Lead Testing

- Requires office personnel
- Some MCOs do not reimburse in-office testing
  - They prefer a venous sample to be taken
- All results must be reported to the state DPH
  - An agreement must be made between the medical provider and the laboratory to determine who will report the blood test results
  - Typically the laboratory will report
Barriers of Sending Children to Laboratories for Lead Screening

• Inconvenient for family, who must take child to another site/laboratory to have blood drawn
• Compliance issue
• Amount of blood required is 0.5 ml
• Outside laboratories may require venous draw
Confirmatory Venous Testing Schedule

- All capillary tests with a result of 5 µg/dL must be followed-up with a confirmatory *venous* test
- A second capillary test is **NOT** considered a confirmatory test

### Timetable for Confirming Capillary (Screening) Blood Lead Results with a Venous Blood Lead Test*^

<table>
<thead>
<tr>
<th>If result of screening test (µg/dL) is</th>
<th>Perform Venous Blood test within:</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-19</td>
<td>3 months</td>
</tr>
<tr>
<td>20-44</td>
<td>1 month - 1 week*</td>
</tr>
<tr>
<td>45-59</td>
<td>48 hours</td>
</tr>
<tr>
<td>60-69</td>
<td>24 hours</td>
</tr>
<tr>
<td>≥ 70</td>
<td>Immediately</td>
</tr>
</tbody>
</table>

*The higher the result on the capillary test, the more urgent the need for venous testing.

### Schedule for Follow-up Venous Blood Lead Testing for Children with an Elevated Blood Lead Level^a^

<table>
<thead>
<tr>
<th>Blood Lead Level (µg/dL)</th>
<th>Early follow-up (1st 2-4 tests after identification) test within:</th>
<th>Late follow-up (after BLL begins to decline) test within:</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-14</td>
<td>3 months^b</td>
<td>6 - 9 months</td>
</tr>
<tr>
<td>15-19</td>
<td>1 - 3 months^b</td>
<td>3 - 6 months</td>
</tr>
<tr>
<td>20-24</td>
<td>1 - 3 months^b</td>
<td>1 - 3 months</td>
</tr>
<tr>
<td>25-44</td>
<td>2 weeks - 1 month</td>
<td>1 month</td>
</tr>
<tr>
<td>&gt; 45</td>
<td>As soon as possible</td>
<td>Chelation and follow-up</td>
</tr>
</tbody>
</table>
Reporting to the State Department of Public Health; CGS 19a-110

- **All** lead testing results must be reported to:
  - Commissioner of the CT Department of Public Health
  - Moving to mandatory electronic reporting
  - Fax reporting form to 860-509-7259 (Lead and Healthy Homes Program)
- Results \( \geq 10 \) are reported to the DPH and the local health department of the town/district where the patient resides within 48 hours
- For Assistance:
  - Denise Ortiz, MPH
  - Epidemiologist 2, Lead Program, Data Management Unit
  - 860-509-7340
  - denise.ortiz@ct.gov
Birth to Three

• Refer all confirmed BLLs of 25 µg/dL or greater for a child under 35 months to Birth to Three (http://www.birth23.org/referrals/)
  • Referrals are made to the Child Development Infoline (CDI)
    • Call 1-800-505-7000
    • Complete [Online Referral Form](http://www.birth23.org/referrals/)
    • Print, complete and fax [Referral Form to Print and Fax](http://www.birth23.org/referrals/) form

• Missing referrals for more than 95% of confirmed automatically eligible infants and toddlers based on data from the DPH and Office of Early Childhood

• Office of Early Childhood is eager to get intervention started for these children as early as possible
Overdue Venous Tests

- The Department of Public Health Lead Surveillance System (A.K.A., Maven), tracks the number of overdue follow-up venous tests
  - 3000 capillary tests were $\geq 5\mu g/dL$
  - 1800 of these are overdue for confirmatory testing!
CONDUCTING RISK ASSESSMENTS
Medical Risk Assessment: When to Test; CGS 19a-111g

• In addition to testing children at the recommended time intervals, at each well-child visit, health care providers shall evaluate children 6 months to 72 months of age for risk of lead exposure risk assessment questions.

• AAP update June 2016:
  • Primary prevention is most important
  • Individual environmental assessments for older housing
  • Familiar with reports of lead hazards and be able to refer families to lead specialists
  • Appropriate case management if lead greater than 5 µg/dL
Medical Risk Assessment: What It Entails

- Includes anticipatory guidance
- Ask about recent address change
- Ask about places child visits
- Ask about renovations of homes
- Ask about pica
- Assess risk for iron/calcium deficiency
- Ask about exposure to recalled toys
- Sources: Occupations, hobbies
Medical Risk Assessment: Who is at risk?

• Source: AAP June 2016
Risk Assessment Tool: Used for Children Age 3 and Older

• Questions can be found on the DPH Requirements and Guidance for Lead Screening by Health Care Professionals in Connecticut document

• Questions include:
  • Does your child live in or regularly visit a house built before 1978?
  • Does your child have a brother or sister, housemate, or playmate being followed or treated for lead poisoning?
  • Does your child frequently come in contact with an adult whose job or hobby involves exposure to lead (e.g. construction, welding, automotive repair shop, other trades, stained glass making; using lead solder, artist paints or ceramic glazes; etc.)?
  • Has your child been exposed to any imported products (spices, foods/vitamins, ethnic home remedies, or ethnic cosmetics)?
    • Some examples include: azarcon (also know as rueda, Maria Luisa, alarcon, liga); albayalde; greta; pay-loo-ah; ghasard; bala goli; kandu; kohl; litargirio; bebtina; chyawan prash

• Other questions
  • Does your child live in or visit a home with peeling or chipping paint?
  • Does your child put things in her/his mouth or eat or new on non-food things such as paint chips or dirt? (PICA)
Medical Risk Assessment: Other considerations

• Other clinical indications to test per AAP:
  • Developmental delays including behavior problems and hyperactivity
  • GI symptoms such as abdominal pain, chronic diarrhea, or constipation
  • Neurologic symptoms such as unexplained seizures
  • Pica
  • Growth failure
  • History of anemia
  • History of parasites
  • Hearing loss
RESOURCES PROVIDED BY RLTCs
Resources Provided By CCMC RLTC

• Who we are:
  • Patricia Garcia, MD and Jennifer Haile, MD, co-directors
  • Darlene Abbate, APRN

• What we offer:
  • Devoted lead clinic, held weekly
  • 24 hour on call support to all providers in our area
  • Care coordination with local and state health departments
  • Inpatient management for chelation
  • Long term outpatient management until lead levels <5 ug/dL
    (both in person and via phone based on family and provider preference)
  • Educational resources, nutritional guidance
  • Developmental assessment and referrals to audiology and birth to 3
  • Family risk assessment
  • Pain management
  • Healthy homes coordination and evaluation of homes
Yale-New Haven RLTC Services

• Immediate response to critical blood lead levels
• Specialty clinic appointments
• Intensive medical case management
• Monitoring blood draw compliance
• Home visiting & environmental assessment
• Community outreach & prevention education
• Community provider consultation
• Referrals to community resources
Partnerships
You are not alone...

Local Health Department responsibilities:

• Child case management
  
  • Send educational materials (venous ≥5 µg/dL & capillary ≥10 µg/dL)
  
  • Speak to the family about their child’s blood lead level
  
  • Send retest reminder letters (as needed)
  
• Monitor child’s blood lead levels to ensure it is decreasing
  
  • If not, they will perform a visual inspection to determine why it is either increasing or not decreasing
You are not alone...

Local Health Department responsibilities:

- Environmental Case Management
  - Perform comprehensive lead inspections:
    - Testing of paint, dust, water, soil, any thing else of concern (e.g., ethic remedies, ceramics)
    - At blood lead levels 20 µg/dL or two results between 15 – 19 µg/dL taken three months apart
- Issue orders for lead abatement
- Work with property owner to ensure an acceptable lead abatement plan is submitted
- Monitor lead abatement work
- Issue compliance when met

- Compliance = lead abatement is finished AND the child’s blood lead level is below 5 µg/dL
You are not alone...

CT DPH Lead and Healthy Homes Program:

- 4 case managers that monitor child and environmental cases
- 3 surveillance system (data) staff that ensure blood lead results are imported timely
- 1 education outreach staff to target interventions to reduce childhood lead poisoning and increase screening
Finding a Local Health Department

Local Health Departments:
www.ct.gov/dph
Connecticut Local Health

To get information about your local health department, please choose the first letter of your town name below. Many communities, such as Collinsville, Winsted, and Willimantic, while commonly considered "towns" actually are parts of Connecticut’s 169 towns. If you cannot find your "town" in the listing, go to the community listing to find the town with which it is associated.
CT DPH contact information

Lead and Healthy Homes Program:

860-509-7299
We’ve Made Progress...

But there’s still more to be done