Webinars
Series of scientific webinars that provide a forum for discourse on scientific issues.
Live and On-Demand
Case Conferences
Journal Clubs
Grand Rounds
CE Available

Online Courses
Evidence-based online courses on a variety of children’s environmental health topics.
Interactive and Self-Paced
CE Available

Resource Catalog
Fact sheets, journal publications, reports, and other resources for parents, community members, patients and healthcare professionals
Topics included:
Air Quality, Pesticides, Natural Disasters, BPA, Mold, Lead, Mercury
Doc, What’s the Answer?

Addressing Environmental Health Concerns about a Community Exposure

Maida Galvez, MD, MPH
Lauren Zajac, MD, MPH

PEHSU Webinar
December 8, 2015
Acknowledgements

Suffolk County Department of Health
Commissioner of Health, Dr. James Tomarken

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Acknowledgement: The U.S. Environmental Protection Agency (EPA) supports the PEHSU by providing partial funding to ATSDR under Inter-Agency Agreement number DW-75-95877701. Neither EPA nor ATSDR endorse the purchase of any commercial products or services mentioned in PEHSU publications.
Goals for Today

- Provide an overview of a multi-faceted PEHSU response to a community-level exposure
- Review key principles of pediatric environmental health central to our PEHSU response
- Review 3 common clinical inquiries to our PEHSU and our response to local providers:
  - Concerns about possible asbestos exposure
  - Increased asthma symptoms
  - Request for chemical biomonitoring
Toxic Threats to Children’s Health
Simple Steps to Healthy Environments and Healthy Children
Key Messages

- Messaging Matters
- Know Your Audience
• Parents do the best they can with the information they have at the time…
  • Gather evidence-based information
  • Err on the side of caution
Kids Are Not Little Adults
Chemical Safety in the U.S.

80,000+ new chemicals since WWII
- <20% have been tested for toxicity to children

Toxic Substances Control Act 1976
- Exempted 62,000 chemicals

Chemicals banned/restricted in cosmetics
- EU: 1,100
- US: 11
Everyday items contain exposures of concern

Arsenic in your food

Our findings show a real need for federal standards for this toxin
Foods and food packaging, preparation

- BPA
- Perfluorinated compounds

Cosmetics/Personal Care Products

- Phthalates
- Triclosan
- Parabens
- Flame retardants

Furniture and electronics

- Lead
- Cadmium

Children’s toys

- Phthalates
- Lead
- Cadmium
Measured 265 environmental chemicals

- A chemical compound or element present in air, water, food, soil, dust, or other environmental media, such as chemicals in consumer products

- [http://www.cdc.gov/exposurerereport/](http://www.cdc.gov/exposurerereport/)
### CDC’s Key Findings:
- Documents universal exposures
- Establishes background levels
- Highlights existing disparities
Toxic Soup

- Lead
- Mercury
- Mold
- Pesticides
- Phthalates
- Stress
- Triclosan
- Nanoparticles
- Ozone
- Smog
- Radiation
- Asbestos
- Pesticides
- Arsenic
- PCBs
- Solvents
- BPA
- VOCs
- Flame retardants
- Mold
CHILD POVERTY

How many children live in poverty in my state?


American Academy of Pediatrics
High Poverty Neighborhoods

42.3% East Harlem children living in poverty

- In 2012, Federal Poverty Level = $23,283 for family of four
• Nearly third of public housing tenants reported water leaks

• East Harlem ranked 55/59 in average # of housing concerns
### Home Maintenance

Housing conditions that can affect asthma.

<table>
<thead>
<tr>
<th>Condition</th>
<th>East Harlem</th>
<th>Manhattan</th>
<th>NYC</th>
<th>Compared with other NYC neighborhoods*</th>
<th>Trend over time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homes with cracks or holes (percent), 2011</td>
<td>33.2</td>
<td>16.2</td>
<td>15.7</td>
<td>Worse</td>
<td>2002-2011</td>
</tr>
<tr>
<td>Homes with leaks (percent), 2011</td>
<td>35.8</td>
<td>21.8</td>
<td>20.6</td>
<td>Worse</td>
<td>2002-2011</td>
</tr>
<tr>
<td>Homes with 3 or more maintenance deficiencies (percent), 2011</td>
<td>31.3</td>
<td>14.2</td>
<td>15</td>
<td>Worse</td>
<td>2002-2011</td>
</tr>
</tbody>
</table>

### Pests & Pesticide Use

These indicators measure common urban pests and control methods that can be unsafe.

<table>
<thead>
<tr>
<th>Condition</th>
<th>East Harlem</th>
<th>Manhattan</th>
<th>NYC</th>
<th>Compared with other NYC neighborhoods*</th>
<th>Trend over time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homes with cockroaches (percent) 2011</td>
<td>42</td>
<td>20.6</td>
<td>24</td>
<td>Worse</td>
<td>2002-2011</td>
</tr>
<tr>
<td>Homes with personal use of pesticide sprays, bombs or foders (percent) 2003</td>
<td>56.5</td>
<td>31.6</td>
<td>34.5</td>
<td>Worse</td>
<td>Not Available</td>
</tr>
</tbody>
</table>
The Impact

535,000
U.S. children ages 1 to 5 years have blood lead levels high enough to damage their health.

24 million
homes in the U.S. contain deteriorated lead-based paint and elevated levels of lead-contaminated house dust.

4 million of these are home to young children.

CDC MMWR 1999–2010 (April 2013)
Contaminated debris in a local park.

Source: NYS Department of Environmental Conservation via http://www.townofislip-ny.gov/
Islip, Long Island Dumping

Nearly 50,000 tons of debris dumped in a public park.

Source: http://www.townofislip-ny.gov/
Debris contained some contaminants:
- asbestos at some sites
- heavy metals
- pesticides
- polycyclic aromatic hydrocarbons (PAHs)

Contaminant levels in the debris generally low.

Potential for exposure to the debris also low.

We do not expect any adverse health effects.
Impacted sites in various stages of remediation, and are closely monitored to prevent exposures.

Affected sites are closed.
Source: http://longisland.news12.com/
Lawmakers secure $1M for Brentwood park cleanup

As News 12 has reported, an estimated 50,000 tons of toxic waste was illegally dumped in the Brentwood park. Community activists say they’re pleased with the progress. (April 1, 2015 6:42 PM)

Illegal Islip Dumping Scandal Spreads Amid Roberto Clemente Park Probe

State Sen. Tom Croci and Islip Town Supervisor Angie Carpenter announced Wednesday that they have secured $1 million in grant money to be used to clean up Roberto Clemente Park in
Soil samples were analyzed for metals, PCBs, pesticides, VOCs. The results made public.

Enviroscience Report 8/18/15
Source: http://www.townofislip-ny.gov/
Is the air safe to breathe?

The air was tested for asbestos fibers and results made public.

Enviroscience Report
Source: http://www.townofislip-ny.gov/
Is the water safe to drink?

The groundwater was tested and results made public.

Enviroscience Report
Source: http://www.townofislip-ny.gov/
Our PEHSU Response

Consults with families and healthcare providers

Collaboration with local Department of Health

Training to local healthcare providers

Factsheets
- FAQ
- Resources
Frequently Asked Questions (FAQ)

Clinical Guidance on Managing Environmental Exposures

Introduction

This Pediatric Environmental Health Specialty Unit (PEHSU) fact sheet was developed to guide healthcare providers as they address health concerns regarding the dumping of construction debris at several locations around Suffolk County from summer of 2013 through the spring of 2014. The impacted sites include Roberto Clemente Park (located on Broadway Ave in Brentwood; a privately owned parcel located at the southeast corner of Route 11 and Sage Street; (Central Islip); property at 176 Brook Avenue (Deer Park); and the Van Buren Way cul-de-sac in Islandia. There has also been concern about unrelated debris at the Police Athletic League field in Central Islip.

Environmental tests showed that the debris contained some contaminants including asbestos at some sites, heavy metals, and pesticides. However, contaminant levels in the debris were generally low and the potential for exposure to the debris was also low for the general public. In addition, we do not expect any adverse health effects in the general public. The impacted sites are all in various stages of remediation, and are being closely monitored to ensure that risk of exposure remains low.

Over the past 12 months, our PEHSU received multiple calls from families and physicians to discuss the potential health impacts of the construction debris. This answers the most frequently asked questions.

1. Construction debris was dumped in sites around Suffolk County. What are components of construction dust/debris?

Construction and demolition materials are the waste materials from the construction, renovation, and demolition of buildings, roads, and bridges. This can often include bulky, heavy materials such as concrete, wood, asphalt, gypsum (drywall), metals, bricks, glass, plastics, salvaged building components, and trees/earth/rock from clearing sites.

2. In general, what health effects can be associated with exposure to construction dust/debris?

In general, debris materials can produce dust made up of particles that vary in size. Visible dust that settles on surfaces is made up of relatively large particles. When breathed in, large particles cannot be captured by the body’s respiratory system and will be cleared from the lungs. The smaller particles, however, can be inhaled deep into the lungs and even reach the bloodstream.

New York City Department of Health Lead Management Guidelines

Addressing Environmental Contaminants in Pediatric Practice

Parent Factsheets

Simple Steps to Protect Your Family from Toxins in Our Everyday World

Pediatric Environmental Health Resources

General Resources

Clinical Tools

Pediatric Environmental History Health Forms


New York City Department of Health Lead Management Guidelines

Addressing Environmental Contaminants in Pediatric Practice

Parent Factsheets

Simple Steps to Protect Your Family from Toxins in Our Everyday World
Management of Children with Possible Environmental Exposures in Suffolk County, NY

Construction debris was illegally dumped at four sites around Suffolk County, NY.

- The debris contains asbestos, heavy metals, polycyclic aromatic hydrocarbons (PAH) and pesticides.

Environmental testing has been done at the contaminated sites, and the levels of contaminants are generally low.

The impacted sites are being carefully monitored and are in various stages of careful remediation.

The likelihood of exposure and health impacts for residents is low.

- A person in the community is not expected to have been in direct contact with contaminated soil at levels at which we would expect associated health effects.

- We do not recommend environmental testing or “biomonitoring” for residents concerned about the dumping sites.

- Targeted medical testing may be done if the child's environmental history or clinical status changes.

The key management strategy is to reduce environmental exposures in everyday life.

- Encourage families to adhere to posted restrictions at contaminated sites and stay informed about remediation plans.

- Reinforce “simple steps” to reduce general environmental exposures in everyday life.

- Families should continue routine pediatric care.
A concerned father brings his son to your pediatrics practice after hearing about the dumping in the news. He wants to know what environmental issues to be concerned as his son’s asthma and allergies have “been acting up” recently.

How should you proceed?
Environmental Health History

Routine screening at well-child check

- vs -

Targeted history for specific symptom or environmental concern

What environment?

- Primary home environment, other homes, school, community, etc
## Basic EH screening questions

### Pediatric Environmental History (0-18 Years of Age)

The Screening Environmental History

For all of the questions below, most are often asked about the child’s primary residence. Although some questions may specify certain locations, one should always consider all places where the child spends time, such as daycare centers, schools, and relative’s houses.

<table>
<thead>
<tr>
<th>Question</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Where does your child live and spend most of his/her time?</td>
<td></td>
</tr>
<tr>
<td>What is the age, condition, and location of your home?</td>
<td></td>
</tr>
<tr>
<td>Does anyone in the family smoke?</td>
<td>Yes, No, Not sure</td>
</tr>
<tr>
<td>Do you have a carbon monoxide detector?</td>
<td>Yes, No, Not sure</td>
</tr>
<tr>
<td>Do you have any indoor furry pets?</td>
<td>Yes, No, Not sure</td>
</tr>
<tr>
<td>What type of heating/air system does your home have?</td>
<td></td>
</tr>
<tr>
<td>What is the source of your drinking water?</td>
<td></td>
</tr>
<tr>
<td>Is your child protected from excessive sun exposure?</td>
<td>Yes, No, Not sure</td>
</tr>
<tr>
<td>Is your child exposed to any toxic chemicals of which you are aware?</td>
<td>Yes, No, Not sure</td>
</tr>
<tr>
<td>What are the occupations of all adults in the household?</td>
<td></td>
</tr>
<tr>
<td>Have you tested your home for radon?</td>
<td>Yes, No, Not sure</td>
</tr>
<tr>
<td>Does your child watch TV, or use a computer or video game system more than two hours a day?</td>
<td>Yes, No, Not sure</td>
</tr>
<tr>
<td>How many times a week does your child have unstructured, free play outside for at least 60 minutes?</td>
<td>Yes, No, Not sure</td>
</tr>
</tbody>
</table>

### Follow-up/Notes

This screening environmental history is designed to capture most of the common environmental exposures to children. The screening history can be administered regularly during well-child exams as well as to assess whether an environmental exposure plays a role in a child’s symptoms. If a positive response is given to one or more of the screening questions, the primary care provider can consider asking questions on the topic provided in the Additional Categories and Questions to Supplement the Screening Environmental History, accessible at www.neefusa.org/pdf/PEHistory.pdf.

### Can adapt EH history based on age, location, etc

- Age and condition of home
- Lead hazards
- Secondhand smoke
- Water sources
- Exposures from food
- Parental occupation/hobbies
- Ultraviolet radiation
- Smoke and CO detectors

www.neefusa.org
Targeted Environmental History: Asthma

- Secondhand smoke
- Mold/moisture
- Dust mites
- Cockroaches
- Animal allergens
- Odors
- VOCs
Case 1, continued

Environmental History:
+ cockroaches in kitchen
+ pesticide use in kitchen
- All other triggers negative

Physical Exam:
● Normal lung exam
● HEENT: swollen nasal turbinates, rhinorrhea

Plan:
● Symptomatic care: allergic rhinitis
● Counsel on home environmental asthma triggers
● Connect to appropriate resources
You are seeing a 4 year old healthy boy who lives near a dumping site. His parents are concerned that he has been exposed to the contaminants and is requesting to be tested “for all environmental chemicals”. The child is in usual state of good health.

How do you respond?
What is Chemical Biomonitoring?

Biomarkers (blood/hair/urine) **not** recommended

Limitations:
- No reference ranges for children
- Lack clinical significance
- Can not establish source of exposure
- “Positive” results common in general population

Exceptions: Lead (and select others in certain cases)
Clinical Management

Good history and physical exam

Discuss limitations of testing

  Emphasize “simple steps” to reduce exposures

Lead testing at age 1 and 2 (or high risk)

Questions/concerns — contact PEHSU
### What are Simple Steps?

<table>
<thead>
<tr>
<th>Avoid tobacco products</th>
<th>Shop Smart, Read Labels</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ventilate your home</td>
<td>Minimize canned &amp; processed foods</td>
</tr>
<tr>
<td>Remove shoes before entering home</td>
<td>Eat fish, choose wisely</td>
</tr>
<tr>
<td>Encourage frequent hand-washing with soap/water</td>
<td>Keep it simple, less is more for personal care products</td>
</tr>
<tr>
<td>Wet Mop, Wet dust regularly</td>
<td></td>
</tr>
</tbody>
</table>
Case 2, continued: Lab report obtained by family

- **MERCURY, RANDOM URINE**
  - < 5
  - Unable to calculate result since analyte concentration is below detection limit of this method.
  - Nonexposed Adult:
    - < or = 4 mcg/g creatinine

- **CADMIUM, RANDOM URINE**
  - < 3.1
  - Unable to calculate result since analyte concentration is below detection limit of this method.
  - Nonexposed Adult:
    - < or = 1.2 mcg/g creatinine

- **OSHA Reference Range for Industrial Exposure**
  - < or = 3.0 mcg/g creatinine

- **COBALT, RANDOM URINE**
  - 1.0
  - < 2.9 mcg/L
  - Nonexposed Adult:
    - < or = 2.8 mcg/L
  - Biological Exposure Index (end of shift/work week):
    - < or = 15.0 mcg/L

- **THALLIUM, RANDOM URINE**
  - 0.7
  - < 0.5 mcg/g creatinine

- **CREATININE, RANDOM URINE**
  - 71.2
  - 2.0-149.0 mg/dL
What were our key messages?

We would not have recommended testing

Gold standard test for urinary thallium is 24 hour urine (spot urine can over-estimate)

No clear reference ranges for children

No links to clinical outcomes at these levels

Bottom line: Simple steps to reduce exposures
You receive a call from a mother who lives near the Roberto Clemente Park. She is concerned about asbestos in the park and wants to know if she should bring her daughter in for testing, especially since she has had a mild cough and sneezing for a few days.

How do you respond?
What is Asbestos?

Fibrous mineral used in building materials and manufactured goods

Route of exposure: inhalation

Friable vs. Non-friable

Health Impacts

Asbestos Ceiling Tile - Scale Comparison

www.flickr.com
Majority of asbestos was “non-friable”

Weekly air monitoring has shown no airborne asbestos to date

Given low likelihood of exposure to asbestos at the dumping sites, we do not expect asbestos-related health effects in the general public.
Clinical Management

Environmental History

Limit further exposure

Smoking, Secondhand Smoke History

NO Chest X-Ray

Document in medical record

Symptomatic care of cough, sneezing

Simple steps to reduce environmental exposures
Case 3: Summary

No acute symptoms expected from asbestos
• Risk exceedingly low from brief, low-dose exposure
• Lung CA, mesothelioma most often seen in workers

Smoking greatly increases risk

Screen for tobacco exposure

Simple steps to reduce exposures
PEHSUs can play an important role in community level exposure cases

Efforts can be targeted towards addressing common questions to the pediatric professionals who serve as frontline

Collaboration with local public health agency is central to effective messaging
Questions?