Putting it into Practice: Pediatric Environmental Health Training Resource

Environmental History-Taking

Children's Environmental Health Network

© 2014 Children's Environmental Health Network

Author

This presentation was developed by:

Sophie J. Balk, MD

Children's Hospital at Montefiore

Albert Einstein College of Medicine

"Putting it into Practice: Pediatric Environmental Health Training Resource" made possible by support from the W.K. Kellogg Foundation

Image in slide #1 courtesy of Alex E. Proimos/Flickr, used under Creative Commons Attribution-NonCommercial 4.0 International License: http://creativecommons.org/licenses/by-nc/4.0/legalcode

Case 1

On well baby nursery rounds, you see a 12-hour old full-term (40 weeks gestation) boy whose mother has no medical problems. The prenatal course was uncomplicated. He was born via normal spontaneous vaginal delivery. Apgar scores were 9/9. Birth weight was 5 pounds, 8 ounces. Physical exam is normal.

- What questions about his prenatal and home environments do you plan to ask?
- What anticipatory guidance do you plan to give?

Case 2

A 10 year-old you've known all his life comes to the office complaining of severe headache. His mother says that he has never had this kind of headache.

- What environmental etiologies are in your differential diagnosis?

Case 3

You're seeing a toddler for well child care. She is overweight. Her parents want to discuss a newspaper article they saw that linked chemicals in shampoos and other personal care products to being overweight. They want your advice on what to do.

- How would you answer them?

Objectives

- To review key environmental questions that pediatric health care providers can ask
  - In the newborn nursery
  - On well child/well adolescent visits
  - When a condition or symptom may have an environmental etiology
  - When parents have concerns

Ensuring Good Health

- Elements of good health include
  - Good nutrition
  - Immunizations against vaccine-preventable diseases
  - Environments that enable children and adolescents to be safe and physically active
- These elements help to establish a base for good health and contribute to healthy practices through the life span

WHO. www.euro.who.int/en/what-we-do/health-topics/Life-stages

“Environmental Health”

“Environmental health addresses all the physical, chemical, and biological factors external to a person, and all the related factors impacting behaviours. It encompasses the assessment and control of those environmental factors that can potentially affect health. It is targeted towards preventing disease and creating health-supportive environments. This definition excludes behaviour not related to environment, as well as behaviour related to the social and cultural environment, and genetics.”

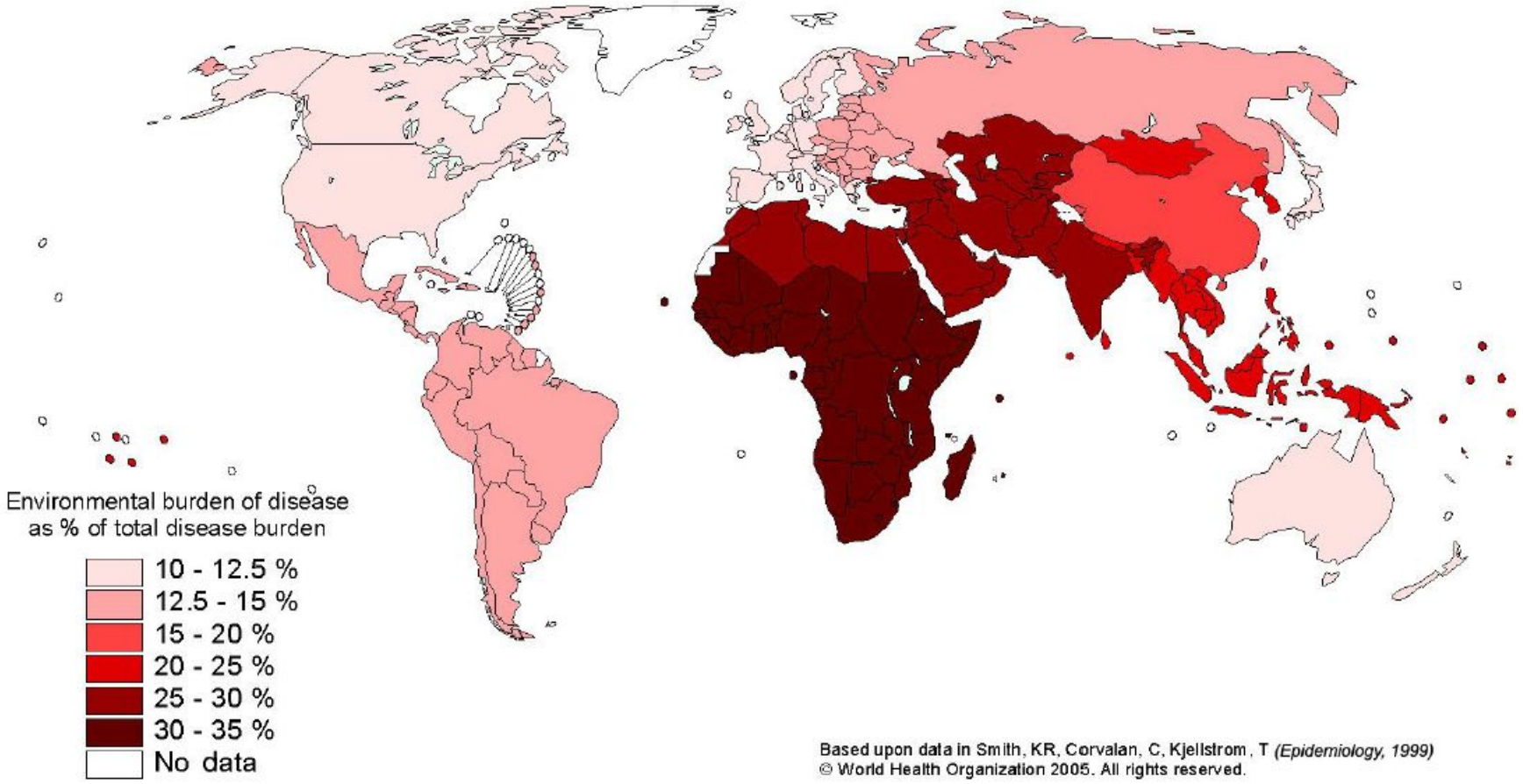
WHO. Environmental Health.
www.who.int/topics/environmental_health/enwww.who.int/topics/environmental_health/en/

In The World…

- Environmental factors are a root cause of a significant disease burden, particularly in developing countries[1]
  - Globally, ~ 25% of death and disease linked to environmental hazards
  - ~ 35% in regions such as sub-Saharan Africa
- 91% of the world's 1.8 billion children live in developing countries[2]

1. WHO. www.who.int/heli/risks/en
2. AAP *Pediatric Environmental Health, 3rd Edition. Etzel RA, ed. 2012.*

Environmental Burden of Disease Globally



WHO. www.who.int/heli/risks/en/

Global Environmental Hazards Include…

- Unsafe water, poor sanitation and hygiene
- Indoor smoke from solid fuels
- Malaria
- Urban air pollution
- Unintentional acute poisonings
- Climate change

WHO. www.who.int/heli/risks/en/

Children and Environmental Hazards

- Compared to adults, children generally are more susceptible to adverse health effects of environmental exposures
- Children receive proportionately larger doses of toxicants
- Organs and tissues are rapidly developing, resulting in greater susceptibility to chemical insults

In The Developed World…

- Different risks compared to global risks
- In the US, health supervision visits are key elements of pediatric health care for infants, children and adolescents
- Opportunities to
  - Ask about the child's surroundings
  - Give advice about preventing or abating exposures
  - Provide guidance about healthy environments

Why Take an Environmental History?

- Questions about a child's surroundings are basic to a complete pediatric history
- In the 1st part of the last century, doctors made house calls and observed a family's environment – today, this is uncommon
- Now, *asking* about physical surroundings is needed to identify some exposures, prevent others, and to promote exposure to healthy environments

Environmental Health Hazards

- Among parents' top health worries
- Concerns about environment include
  - Asthma
  - Developmental disabilities
  - Obesity
  - Birth defects
  - Pediatric cancer

Opportunities

- In the newborn nursery
- On well visits
  - Find out where a child lives, plays, spends time
  - Promote exposure to healthy surroundings
  - Uncover potential exposures, give advice about prevention, or test for exposure
- On sick visits
  - Discover environmental etiologies
- When parents have concerns

Developmental Approach

As with other areas in pediatrics, we recommended using a developmental approach to environmental issues

The Newborn Nursery

- Many areas to cover when a baby is born
  - Breastfeeding
  - Back to sleep, no co-sleeping
  - Car safety
  - Any medical issues
  - Arranging 1st visit to the pediatrician's office
- Relevant environmental issues include
  - Secondhand smoke exposure
  - Water source
  - Renovations
  - Sun exposure
  - Mold exposure

Well Child Visits

- An environmental history is part of a complete history
- Several basic questions
- Other questions: tailor to local issues
- Paper or electronic questionnaires may help clinicians gather information
- Abatement advice given by clinicians may help to solve problems
  - Other resources may be needed

Areas of Inquiry

1. Physical surroundings
2. Tobacco smoke exposure
3. Water sources
4. Exposures from food
5. Ultraviolet radiation exposure
6. Exposures from household member occupation and hobby activity

AAP *Pediatric Environmental Health, 3rd Edition.* Etzel RA, ed. *2012.*

1. Physical Surroundings

- Indoors
  - Home, child care, school
- Outdoors
  - In the community
- Work (for employed teens)

Indoors

- Home/child care/relatives' homes
- Infants/young children spend 80 – 90% of their time indoors
  - Lead paint
  - Air pollutants: carbon monoxide (CO), heating sources, radon, allergens
  - Toxic chemicals (including indoor/outdoor pesticides)
- School exposures

At School

- To learn most effectively, children need safe and healthy environments
- Environmental hazards found in the school environment are similar to those found in the home
- Clinicians can encourage parents concerned about potential exposures to advocate for their children

Community

- Toxic hazards
  - Community may be impacted by disaster
    - Mold after Hurricane Katrina 2005, Superstorm Sandy 2012
  - Industrial/hazardous waste sites, landfills
  - Hazards often more prevalent in poorer communities
- Housing, roads, other infrastructure impact health
- Community may contain parks and other natural spaces
  - Spending time in natural surroundings positively affects health and well-being

1. Physical Surroundings *Questions*

- Where does your child live/spend time?
- What are the age, condition and location of your home?
- Do you have smoke and CO detectors?
- Where do you store chemicals and pesticides?
- What type of heating/air system do you have?
- Have you tested your home for radon?
- Are there toxic hazards in your community?

1. Physical Surroundings
Questions

- Does your child get regular physical exercise?
- Is there a park or other natural area that you and your family visit or play in?

1. Physical Surroundings *Recommendations*

- Test child for lead depending on age
- Fix water leaks; remove visible mold; discard very moldy items
- Use CO detectors in sleeping areas
- Place toxic chemicals out of reach; discourage use unless no alternative
- US EPA and Surgeon General recommend testing all homes for radon[1]

1. EPA. www.epa.gov/radon/aboutus.html

1. Physical Surroundings *Recommendations*

- Encourage your child to get at least one hour of physical exercise per day
- Limit screen time to 2 hours a day or less
- Encourage free play*
- Visit or play in a park or other natural area, if possible
- Make sure your child's environments are smoke-free

*See the "Children and Nature Initiative" module in CEHN's Pediatric Training Resource

2. Tobacco Smoke Exposure

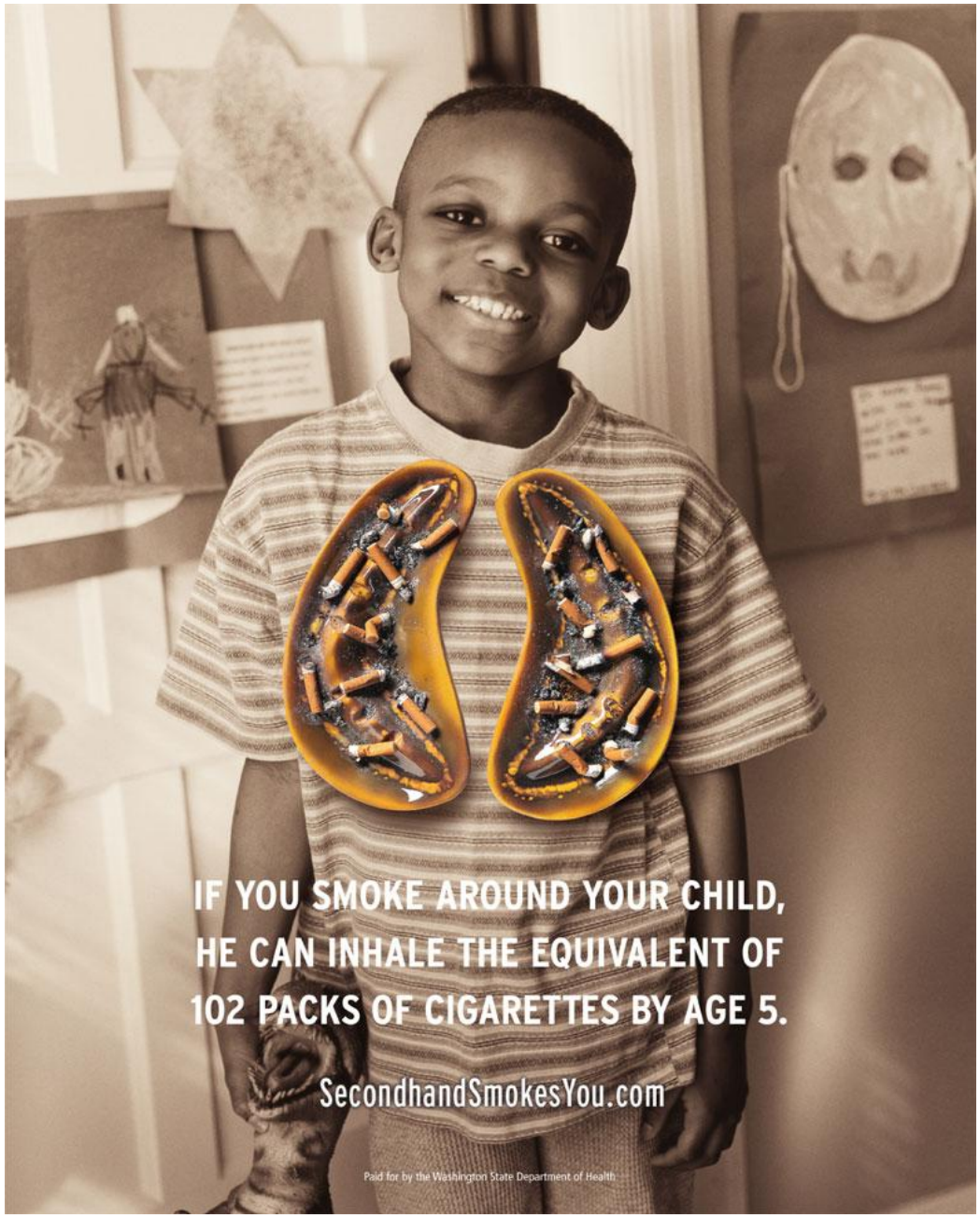
- Tobacco use and exposure continue to be enormous public health problems
- 2010: 19.3% of U.S. adults smoked cigarettes[1]
- Smoking in pregnancy puts babies at risk
- Smokers are at higher risk for heart disease, chronic lung disease, cancer, premature death
- More than 430,000 deaths are attributable to smoking each year
- Nearly 9 of 10 smokers start by age 18

1.CDC. www.cdc.gov/tobacco/data_statistics/fact_sheets/adult_data/cig_smoking/

2. Tobacco Smoke Exposure

- Secondhand smoke (SHS): smoke exhaled by smoker, and smoke released from smoldering cigarette
- "Third-hand" smoke: mixture of gases and particles that adheres to clothing, furniture
  - May linger after SHS has cleared

AAP *Pediatric Environmental Health, 3rd Edition.* Etzel RA, ed. *2012.*


IF YOU SMOKE AROUND YOUR CHILD,
HE CAN INHALE THE EQUIVALENT OF
102 PACKS OF CIGARETTES BY AGE 5.
SecondhandSmokesYou.com
Paid for by the Washington State Department of Health

2. Secondhand Smoke – *Clinical Effects*

- Asthma: 202,300 episodes/year
- Bronchitis/pneumonia (<18mo)
  - 150,000 - 300,000 cases
  - 7,500 – 15,000 hospitalizations
  - 136 – 212 deaths
- Otitis Media: 790,000 visits/year
- SIDS: 430 deaths/year

Best D, AAP Committee on Environmental Health, Committee on Native American Child Health, Committee on Adolescence. *Pediatrics,* 2009.

2. Secondhand Smoke – *Clinical Effects*

- Exposed children more likely to have respiratory complications with general anesthesia
- Children living with smokers are at greater risk for injury and death from house fires
- Children living with smokers are more likely to become smokers themselves

Best D, AAP Committee on Environmental Health, Committee on Native American Child Health, Committee on Adolescence. *Pediatrics,* 2009.

2. Tobacco Smoke Exposure *Questions*

- Do you smoke cigarettes or use other tobacco products?
- Are you a former smoker?
- Do other family members or child's caregivers smoke?
- Is your home and caregiver's home smoke-free, even when children aren't present?
- Is your vehicle smoke-free, even when children aren't present?

2. Tobacco Smoke Exposure *Recommendations*

- Strongly advise parents to stop
- "As your child's pediatrician, I think the best thing you can do for your health and your child's health is to stop smoking. My staff and I can help you."
- If parents are ready to stop, provide assistance and/or refer to Quitline: 1-800-QUIT NOW

Fiore MC, et al. Treating Tobacco Use and Dependence: 2008 Update. US Dept. of HHS, 2008.
Best D, AAP Committee on Environmental Health, Committee on Native American Child Health, Committee on Adolescence. *Pediatrics,* 2009.

2. Tobacco Smoke Exposure *Recommendations*

- If parents can't stop now, urge them to keep smoke-free homes, child care settings and cars
- Encourage new mothers who stopped smoking during pregnancy not to resume
- To minimize exposure to third-hand smoke, parents should wash hands and change clothes before touching a child

3. Water Contamination

- Water contamination by lead, nitrates or coliform bacteria is of particular concern for infants and children
- There is concern about bisphenol A (BPA), a plasticizer found in some water bottles, sippy cups and food containers

Lead

- Lead, previously used in some pipes and solder, may leach out into water
- Changes in water additives may ↑ leaching
- Tap water may be contaminated with lead
- Children ingesting lead-contaminated drinks – e.g. reconstituted infant formula – are at risk of lead poisoning

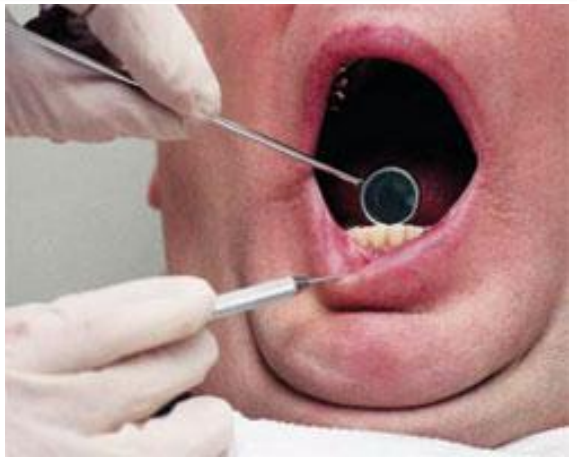
AAP *Pediatric Environmental Health, 3rd Edition.* Etzel RA, ed. *2012.*

See also the "Childhood Lead Poisoning" module in CEHN's Pediatric Training Resource

Nitrates and Coliforms

- Nitrates may be found in well water
- Young infants exposed to high levels of nitrates may develop methemoglobinemia
- Well water also may contain coliform bacteria
- High levels of nitrates or coliforms may indicate that pesticides are present

Bisphenol A (BPA)



See also the “Endocrine Disruptors and Children’s Health” module in CEHN’s Pediatric Training Resource

Bisphenol A

- BPA is an endocrine disruptor
  - Weak estrogen, other endocrine effects
  - Much evidence of harm in animal studies
  - Limited evidence in human studies
- BPA may leach from products, especially if they are heated
- 2012: US Food and Drug Administration (FDA) banned BPA from baby bottles and sippy cups
- FDA did not ban BPA from other food containers such as metal cans
- Local regulations may be more stringent

Galvez MP, et al. *Contemporary Pediatrics*, 2009.

3. Water Contamination
Questions

- What is the source of your drinking water?
  - Tap water?
  - Well water?
  - Bottled water?

3. Water Contamination *Recommendations*

- To ↓ possibility of lead contamination
  - Run tap water until cold before using
  - Use only cold tap water for drinking, cooking and making baby formula
  - Do not overboil water – 1 minute of a rolling boil is sufficient to kill microorganisms
  - Alternatively, parents can test their water for lead

AAP *Pediatric Environmental Health, 3rd Edition.* Etzel RA, ed. *2012.*

3. Water Contamination *Recommendations*

- To ↓ possibility of nitrate contamination
  - Before buying a home with a private well, test water for nitrates, coliforms, inorganic compounds and lead
  - Test for nitrates and coliforms annually
  - Other testing as advised by local health department
  - Do not overboil water

AAP *Pediatric Environmental Health, 3rd Edition.* Etzel RA, ed. *2012.*

3. Water Contamination *Recommendations*

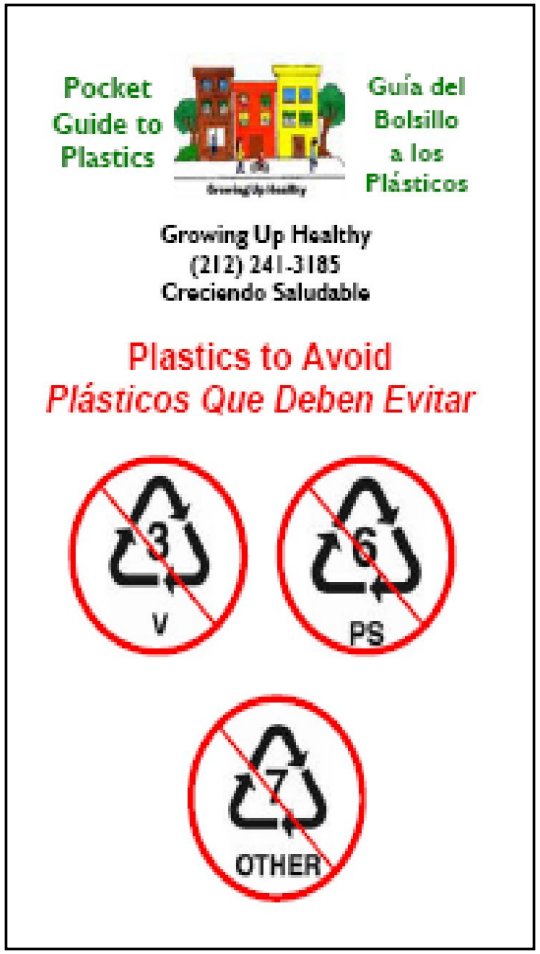
- Look for products marked BPA-free
- Avoid placing plastics in dishwasher or microwave
- Discard scratched or worn bottles
- Choose stainless steel water bottles
- Consider using glass
- Look to recycling labels

Galvez MP, et al. *Contemporary Pediatrics,* 2009.

Pocket Guide to Plastics

Front of card

Back of card



“1,4,5 and 2 – all the rest are bad for you”

Recycling Labels

#7 plastics
may contain Bisphenol A

4. Exposures From Food

- Fish is an excellent source of protein and omega-3 fatty acids
- Some fish may be contaminated with mercury or polychlorinated biphenyls (PCB's)

Mercury in Fish

- Organic mercury is toxic to the CNS
- High levels are teratogenic to fetus
  - Minimata disaster
- Lower levels of prenatal exposure associated with subclinical CNS effects
- US Environmental Protection Agency has set a reference dose for mercury
  - RfD of 0.1 µg/kg body weight/day

PCB's in Fish

- PCB's concentrate in the fat of fish
- PCB's accumulate in body fat over a lifetime
- Prenatal PCB exposure is associated with subclinical neurological effects
- Reference standards for intake established by US Food and Drug Administration and World Health Organization

4. Exposures from Food
Questions

- Do you eat fish?
- Does your child eat fish?
- What kinds?
- How often?

4. Exposures from Food *Recommendations*

- Choose fish low in mercury and PCB's
- Pregnant women, women of childbearing age, nursing mothers and young children
  - COMPLETELY AVOID fish high in mercury: king mackerel, swordfish, shark, tilefish
  - Limit consumption of other fish
- For families who catch and eat fish
  - Be aware of and follow local fish advisories

FDA. www.fda.gov/Food/FoodborneIllnessContaminants/Metals/ucm351781.htm

5. Ultraviolet Radiation Exposure

- Exposure to ultraviolet radiation (UVR) through natural and artificial sources raises the risk of developing skin cancer later in life
  - Non-melanoma skin cancer
  - Melanoma

Melanoma

- Most common fatal skin cancer
- 2013: 76,690 new cases; 9,480 deaths[1]
- Common cancer of teens, young adults
- Metastatic melanoma has a grave prognosis
- Prevention, early detection are key

1. American Cancer Society. www.cancer.org/cancer/skincancer-melanoma/detailedguide/melanoma-skin-cancer-key-statistics

Early Exposure to UVR

- ~25% of lifetime sun exposure occurs during childhood and adolescence
- Episodic high exposures sufficient to cause sunburn, particularly in childhood & adolescence, increase melanoma risk
- Exposure to artificial UVR, especially at younger ages, increases melanoma risk

Balk SJ, AAP Committee on Environmental Health, Section on Dermatology. Technical Report. Ultraviolet Radiation: A Hazard to Children and Adolescents. *Pediatrics,* 2011.

UVR: Indoor Tanning

- 50,000 tanning facilities in the US
- 1 million people visit daily
- More tanning salons in the US than Starbucks or McDonalds

Hoerster KD. *Am J Prev Med,* 2009.

Teens & Indoor Tanning

- 15.6% of HS students reported using indoor tanning devices[1]
  - 49.1% of users did so ≥ 10 times
  - Females and whites more likely to use ≥ 10 times
- 25.4% of girls used a tanning device in the last year[1]
- Use increases with age[2]
  - 14-year-old girls: 7%
  - 15-year-old girls: 16%
  - 17-year-old girls: 35%

1. Guy *GP. Prev Chronic Dis,* 2011.
2. Geller *AC. Pediatrics,* 2002 .

Carcinogenity of Indoor Tanning

- Tanning beds emit primarily UVA
  - UVA fluxes may be 10 – 15x higher than midday sun
- Acute & long-term effects
- IARC 2006: UVR from tanning beds is a human carcinogen

Balk SJ, AAP Committee on Environmental Health, Section on Dermatology. Technical Report. Ultraviolet Radiation: A Hazard to Children and Adolescents. *Pediatrics* , 2011.

UVR Exposure
Questions

- Is your child protected from excessive sun exposure?
- Do you visit tanning salons?

UVR Exposure *Recommendations*

- Sun protection measures
  - Don’t deliberately tan or burn
  - Utilize clothing and hats
  - Avoid hours of peak sun if possible
  - Use sunscreen
  - Wear sunglasses
- Avoid indoor tanning

AAP Policy Statement. Council on Environmental Health and Section on Dermatology. Ultraviolet Radiation: A Hazard to Children and Adolescents. *Pediatrics,* 2011.
Moyer ,VA. *Ann Intern Med,* 2012.

6. Exposures from Household Member Occupation & Hobby Activity

- Parents working with toxic substances may bring them home on clothing or shoes
  - E.g. lead paint/dust from construction work
- Parents working with toxic substances at home may expose family members
  - E.g. Lead used in artists' paint
- Teenagers may be employed in jobs that directly expose them to toxic substances
  - E.g. pesticides in farm work

6. Exposures from Household Member Occupation & Hobby Activity

Questions

- What are parents' and teens' jobs?
- What are parents' and teens' hobby activities?

6. Exposures from Household Member Occupation & Hobby Activity

Recommendations

- Workers are legally entitled to know if they work with toxic substances
- Parents working with toxic substances should shower at work, if possible, and change clothes, shoes before leaving work
- Children should be kept away from any toxic substances in the home

Review: Areas of Inquiry Well Child Visits

1. Physical surroundings
2. Tobacco smoke exposure
3. Water sources
4. Exposures from food
5. Ultraviolet radiation exposure
6. Exposures from household member occupation and hobby activity

When to Introduce Environmental Questions

Topic	Age/Period
Home environment including CO, renovation, mold; SHS; water; fish consumption; sun; occupation	Pediatric prenatal visit; newborn visits; new patient
SHS, mold, sun	2 month visit
Lead, pesticides, poisons	6 month visit
Preschool and school exposures	Preschool and school visits
Smoking, sun protection, indoor tanning, occupation	Pre-adolescent, adolescent visits
Lawn/garden products/services, sun protection	Spring/summer
Wood stoves/heating	Fall/winter

Adapted from AAP *Pediatric Environmental Health, 3rd Edition. Etzel RA, ed. 2012.*

Sick Visits

- Secondhand smoke exposure is common
  - Consider when a child has asthma, other respiratory illnesses, otitis media
- Other exposures less common but should be considered
  - Lead poisoning may result in abdominal pain, constipation, seizures, unexplained coma
  - Carbon monoxide exposure may result in headaches, fatigue, nausea
  - Pesticide poisoning may present with symptoms such as headache, dizziness, nausea, muscle twitching and weakness

Sick Visits (continued)

- Consider environmental etiologies with
  - Unusual presentations
  - Persistent or puzzling/non-specific symptoms
  - Multiple persons with same symptoms

Environmental History for Asthma*

- SHS exposure
- Cockroaches
- Rodents
- Mold
- Dust mites
- Seasonal and other allergens
- Other possible triggers
  - Community exposures

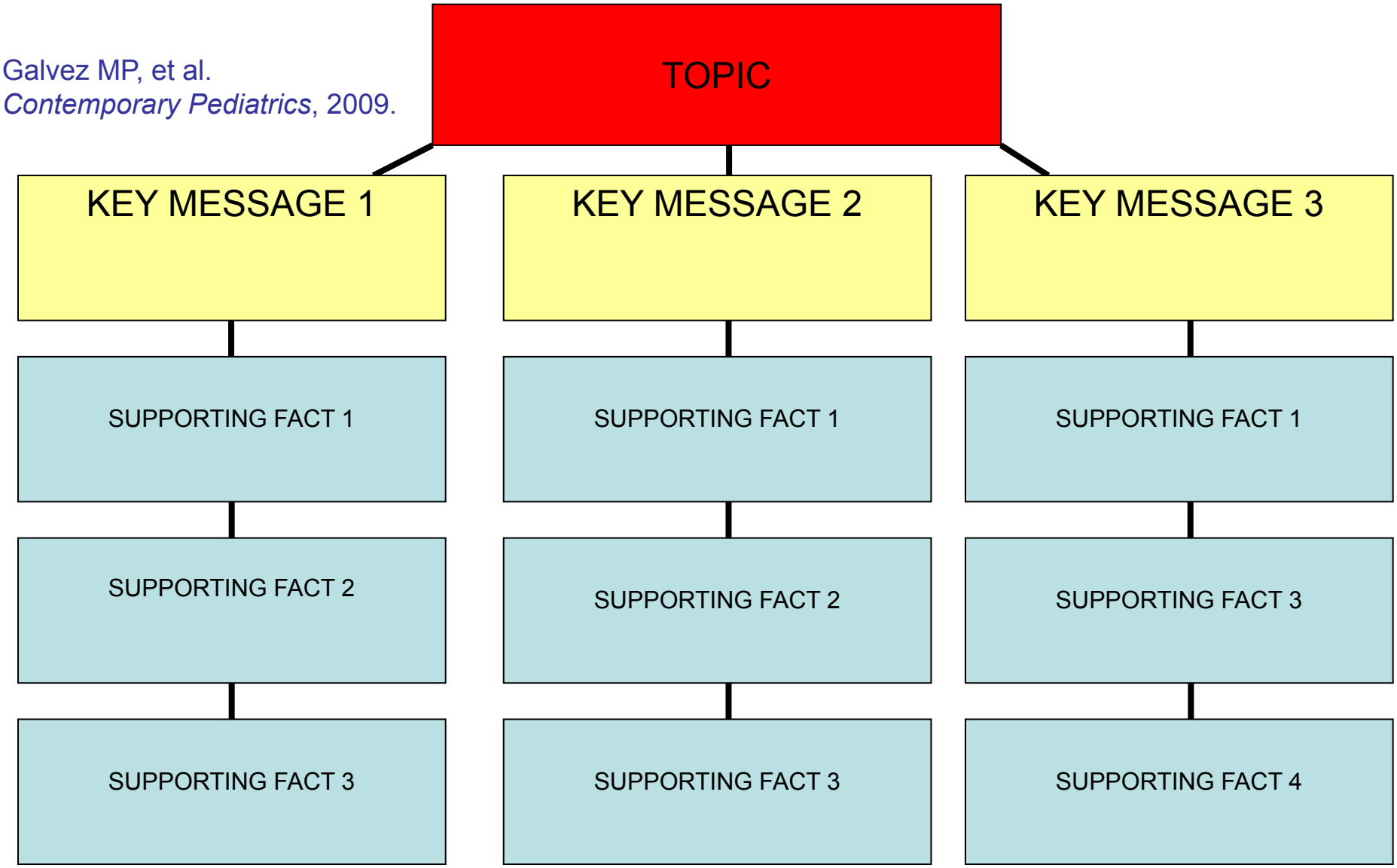
*See also the "Pediatric Asthma" module in CEHN's Pediatric Training Resource

When Parents Have Questions

- Parents may have concerns about actual and possible environmental hazards
  - Plasticizers in children's products
  - Chemicals in personal products
  - Lead in imported toys
  - Arsenic in rice cereal

Message Map

Galvez MP, et al.
Contemporary Pediatrics, 2009.



Topic:

Plasticizers

Galvez MP, et al.
Contemporary Pediatrics, 2009

Key Message 1

Plasticizers (phthalates and bisphenol A) are added to every day products because they add flexibility and durability.

SF1

Phthalates are found in personal hygiene products (eg cosmetics, shampoos, fragrances, nail polish), food packaging, medical tubing, children's toys, and vinyl products.

SF2

Bisphenol A is found in hard plastics such as sports bottles, baby bottles, canned goods, and dental sealants.

SF3

These 2 plasticizers are of particular concern because they are known to leach from these products resulting in exposure through ingestion, inhalation or dermal absorption.

Key Message 2

Concerns have been raised about potential for health effects based on animal studies and growing evidence that the US population is universally exposed.

SF1

Phthalates and BPA are known to have hormonal activity. For these reasons, they are often referred to as endocrine disruptors.

SF2

The US population is universally exposed with children and adolescents having higher exposure levels than adults.

SF3

Animal studies suggest a potential for impacts on birth outcomes and the male reproductive tract is particularly sensitive. Human studies are assessing links to early puberty, obesity and asthma.

Key Message 3

Given the concerns raised by animal studies and limited human studies, one can take a precautionary approach and choose alternatives.

SF1

Look for phthalates and bisphenol A free products. In the absence of labeling, look to recycling labels, avoid #3, 6 and 7 plastics.

SF2

Avoid heating in microwave and placing in dishwasher since high heat promotes leaching of plasticizers.

SF3

Choose what are known to be safer alternatives, fresh or frozen foods rather than canned, choose glass or stainless steel instead of plastic and encourage breastfeeding.

Topic:

Plasticizers

Galvez MP, et al.
Contemporary Pediatrics, 2009

Key Message 1

Plasticizers (phthalates and bisphenol A) are added to every day products because they add flexibility and durability.

SF1

Phthalates are found in personal hygiene pr
shampoos,
food pack
children's t

Bisphenol A is found in hard plastics such as sports bottles, baby bottles, canned goods, and dental sealants.

SF3

These 2 plasticizers are of particular concern because they are known to leach from these products resulting in exposure through ingestion, inhalation or dermal absorption.

Key Message 2

Concerns have been raised about potential for health effects based on animal studies and growing evidence that the US population is universally exposed.

SF1

Phthalates and BPA are known to

The US population is universally exposed with children and adolescents having higher exposure levels than adults.

SF3

Animal studies suggest a potential for impacts on birth outcomes and the male reproductive tract is particularly sensitive. Human studies are assessing links to early puberty, obesity and asthma.

Key Message 3

Given the concerns raised by animal studies and limited human studies, one can take a precautionary approach and choose alternatives.

SF1

Look for phthalates and bisphenol A
ence of
labels,
ics.

Avoid heating in microwave and placing in dishwasher since high heat promotes leaching of plasticizers.

SF3

Choose what are known to be safer alternatives, fresh or frozen foods rather than canned, choose glass or stainless steel instead of plastic and encourage breastfeeding.

See also the "Endocrine Disruptors and Children's Health" module in CEHN's Pediatric Training Resource

Barriers

- Time constraints often decrease our ability to ask questions and give advice
  - Numerous areas to cover in a short visit
- Pediatric health care providers may feel that they lack expertise in some areas
- Pediatric health care providers may need additional resources to respond

Resources

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.

Where does your child live and spend most of his/her time?	_____
What are the age, condition, and location of your home?	_____
Does anyone in the family smoke?	❑ Yes ❑ No ❑ Not sure
Do you have a carbon monoxide detector?	❑ Yes ❑ No ❑ Not sure
Do you have any indoor furry pets?	❑ Yes ❑ No ❑ Not sure
What type of heating/air system does your home have? ❑ Radiator ❑ Forced air ❑ Gas stove ❑ Wood stove ❑ Other_____	
What is the source of your drinking water? ❑ Well water ❑ City water ❑ Bottled water	
Is your child protected from excessive sun exposure?	❑ Yes ❑ No ❑ Not sure
Is your child exposed to any toxic chemicals of which you are aware?	❑ Yes ❑ No ❑ Not sure
What are the occupations of all adults in the household?	_____
Have you tested your home for radon?	❑ Yes ❑ No ❑ Not sure
Does your child watch TV, or use a computer or video game system more than two hours a day?	❑ Yes ❑ No ❑ Not sure
How many times a week does your child have unstructured, free play outside for at least 60 minutes?	_____
Do you have any other questions or concerns about your child's home environment or symptoms that may be a result of his or her environment?	_____

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 http://www.neefusa.org/pdf/PEHIhistory.pdf.

The Screening Environmental History is taken in part from the following sources:

- American Academy of Pediatrics Committee on Environmental Health. Pediatric Environmental Health 2nd ed. Etzel RA, Balk SJ, Eds. Elk Grove Village, IL: American Academy of Pediatrics; 2003. Chapter 4: How to Take an Environmental History.
- Balk SJ. The environmental history: asking the right questions. *Contemp Pediatr*. 1996;13:19-36.
- Frank A, Balk S, Carter W, et al. Case Studies in Environmental Medicine. Agency for Toxic Substances and Disease Registry, Atlanta GA. 1992, rev. 2000. Taking an Exposure History.

National Environmental Education Foundation
Knowledge to live by

Health & Environment

4301 Connecticut Avenue, Suite 160 • Washington, DC 20008 • Tel. (202) 261-6475 • health@neefusa.org • http://www.neefusa.org

ediátrica Ambiental (0-18 Años de Edad)

biental Exploratoria

s preguntas, que generalmente se hacen acerca del lugar de residencia principal del niño. tas pueden especificar sitios determinados, uno siempre debe tomar en cuenta todos los sa el tiempo, tales como guarderías, escuelas y casas de los parientes.

ónde pasa la mayor parte del tiempo?	_____
ondición y ubicación de su casa?	_____
familia?	❑ Sí ❑ No ❑ No está seguro
xido de carbón?	❑ Sí ❑ No ❑ No está seguro
eluda dentro la casa?	❑ Sí ❑ No ❑ No está seguro
/aire acondicionado tiene en su casa? rzado ❑ Estufa a gas ❑ Estufa a leña ❑ Otro_____	
able utiliza? ua de la ciudad ❑ Agua embotellada	
a exposición al sol excesivo?	❑ Sí ❑ No ❑ No está seguro
a algún químico tóxico de que usted sepa?	❑ Sí ❑ No ❑ No está seguro
nes de los adultos de la casa?	_____
a está libre de radon?	❑ Sí ❑ No ❑ No está seguro
tiliza la computadora o juegos de video más de dos horas al día?	❑ Sí ❑ No ❑ No está seguro
a juega libremente su niño(a) fuera de la casa por lo menos 60 minutos?	_____
preocupaciones acerca del ambiente hogareño del niño(a), o síntomas del medio ambiente?	_____

Esta historia ambiental exploratoria está diseñada para captar las exposiciones ambientales más comunes de los niños. La historia ambiental exploratoria puede ser aplicada regularmente durante los exámenes rutinarios del niño, así como también para evaluar si las exposiciones ambientales juegan un papel en la sintomatología del niño. Si se obtiene una respuesta positiva a una o más de las preguntas, el proveedor de salud primaria puede considerar hacer más preguntas de acuerdo a las Categorías y Preguntas Adicionales para Complementar la Historia Ambiental Exploratoria.

atoria está tomada en parte del las siguientes fuentes:

atrics Committee on Environmental Health. Pediatric Environ- RA, Balk SJ, Eds. Elk Grove Village, IL: American Academy of How to Take an Environmental History.

istory: asking the right questions. *Contemp Pediatr*. 1996;13:19-36.

- Frank A, Balk S, Carter W, et al. Case Studies in Environmental Medicine. Agency for Toxic Substances and Disease Registry, Atlanta GA. 1992, rev. 2000. Taking an Exposure History.

Health & Environment

National Environmental Education Foundation

NHMA National Hispanic Medical Association

4301 Connecticut Avenue, Suite 160 • Washington, DC 20008 • Tel. (202) 261-6475 • health@neefusa.org • http://www.neefusa.org

www.neefusa.org/health/PEHI/index.htm
www.neefusa.org/health/index.htm

Pediatric Environmental History (0-18 Years of Age)

Additional Categories and Questions to Supplement
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.

General Housing Characteristics (For lead poisoning, refer to Table 3.2 in Managing Elevated Blood Lead Levels Among Young Children)

Do you own or rent your home?	_____
What year was your home built? (Or: Was your home built before 1978? 1950?)	_____
Has your child been tested for lead?	❑ Yes ❑ No ❑ Not sure
Is there a family member or playmate with an elevated blood lead level?	❑ Yes ❑ No ❑ Not sure
Does your child spend significant time at another location? (e.g. baby sitters, school, daycare?)	_____

Indoor home environment (For asthma, refer to Environmental History Form for Pediatric Asthma Patient)

If a family member smokes, does this person want to quit smoking?	❑ Yes ❑ No ❑ Not sure
Is your child exposed to smoke at the baby sitters, school, or daycare center?	❑ Yes ❑ No ❑ Not sure
Do regular visitors to your home smoke?	❑ Yes ❑ No ❑ Not sure
Have there been renovations or new carpet or furniture in the home during the past year?	❑ Yes ❑ No ❑ Not sure
Does your home have carpet?	❑ Yes ❑ No ❑ Not sure
Is the room where your child sleeps carpeted?	❑ Yes ❑ No ❑ Not sure
Do you use a wood stove or fire place?	❑ Yes ❑ No ❑ Not sure
Have you had water damage, leaks, or a flood in your home?	❑ Yes ❑ No ❑ Not sure
Do you see cockroaches in your home daily or weekly?	❑ Yes ❑ No ❑ Not sure
Do you see rats and/or mice in your home weekly?	❑ Yes ❑ No ❑ Not sure
Do you have smoke detectors in your home?	❑ Yes ❑ No ❑ Not sure

Air Pollution/Outdoor Environment (For asthma, refer to Environmental History Form for Pediatric Asthma Patient)

Is your home near an industrial site, hazardous waste site, or landfill?	❑ Yes ❑ No ❑ Not sure
Is your home near major highways or other high traffic roads?	❑ Yes ❑ No ❑ Not sure
Are you aware of Air Quality Alerts in your community?	❑ Yes ❑ No ❑ Not sure
Do you change your child's activity when an Air Quality Alert is issued?	❑ Yes ❑ No ❑ Not sure
Do you live on or near a farm where pesticides are used frequently?	❑ Yes ❑ No ❑ Not sure

National Environmental Education Foundation

ediátrica Ambiental (0-18 Años de Edad)

reguntas Adicionales para Complementar
biental Exploratoria

es preguntas, generalmente se hacen acerca del lugar de residencia principal del niño.
ntas pueden especificar sitios determinados, uno siempre debe tomar en cuenta todos los
pasa el tiempo, tales como guarderías, escuelas y casas de los parientes.

de la Vivienda (Para envenenamiento por plomo, referirse al Cuadro 3.2 de Managing Elevated Blood Lead Levels

inquilino de la vivienda?	_____
casa? (O, ¿construyeron la casa antes de 1978? 1950?)	_____
omo a su hijo(a)?	❑ Sí ❑ No ❑ No está seguro
a familia, o compañero de juego con niveles altos de plomo en la sangre?	❑ Sí ❑ No ❑ No está seguro
iempo en otro lugar? (e.g. con las niñeras, en la escuela, en la guardería?)	_____

la vivienda (Para asma, referirse al Cuestionario de Historia Ambiental para el Paciente con Asma Pediátrica)

ilia fuma, ¿quiere esta persona dejar de fumar?	❑ Sí ❑ No ❑ No está seguro
l humo del tabaco con la niñera, en la escuela o la guardería?	❑ Sí ❑ No ❑ No está seguro
es de su casa?	❑ Sí ❑ No ❑ No está seguro
han cambiado la alfombra o los muebles de la casa el año pasado?	❑ Sí ❑ No ❑ No está seguro
	❑ Sí ❑ No ❑ No está seguro
donde duerme su niño(a)?	❑ Sí ❑ No ❑ No está seguro
ña, o una estufa a leña?	❑ Sí ❑ No ❑ No está seguro
vería de agua, filtraciones, o inundaciones en su casa?	❑ Sí ❑ No ❑ No está seguro
casa, diariamente o semanalmente?	❑ Sí ❑ No ❑ No está seguro
su casa, semanalmente?	❑ Sí ❑ No ❑ No está seguro
n su casa?	❑ Sí ❑ No ❑ No está seguro

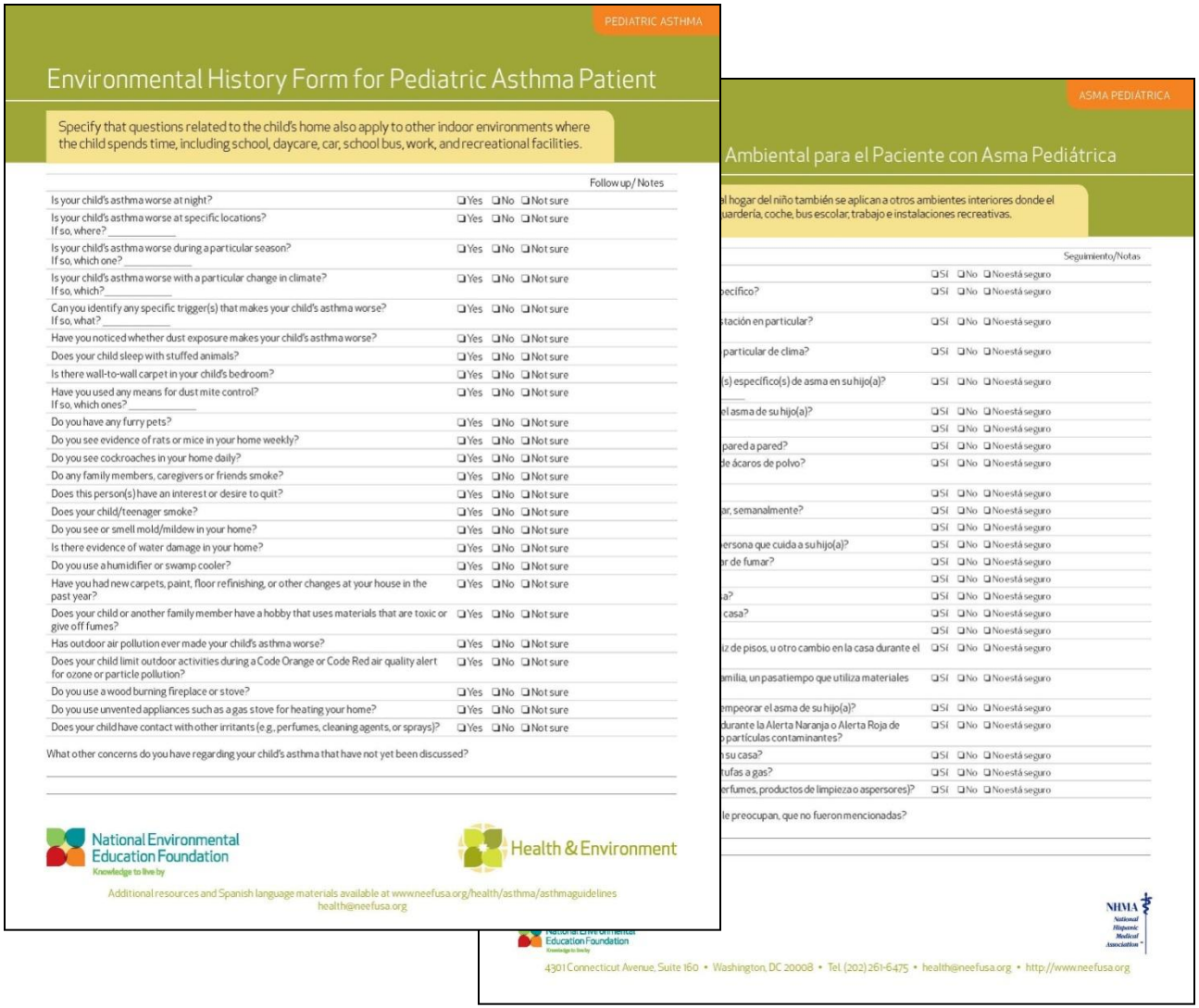
mbiente de Fuera (Para asma, referirse al Cuestionario de Historia Ambiental para el Paciente con Asma Pediátrica)

sitio industrial, de un depósito de desechos peligrosos, o de un relleno de basura?	❑ Sí ❑ No ❑ No está seguro
carretera principal u otro camino de alto tráfico?	❑ Sí ❑ No ❑ No está seguro
s de Calidad de Aire en su comunidad?	❑ Sí ❑ No ❑ No está seguro
el niño(a) cuando hay Alerta de Calidad de Aire?	❑ Sí ❑ No ❑ No está seguro
granja donde se aplican pesticidas con frecuencia?	❑ Sí ❑ No ❑ No está seguro

National Environmental Education Foundation

www.neefusa.org/health/PEHI/index.htm
www.neefusa.org/health/index.htm

Environmental History Form for Pediatric Asthma Patient



PEDIATRIC ASTHMA

Environmental History Form for Pediatric Asthma Patient

Specify that questions related to the child's home also apply to other indoor environments where the child spends time, including school, daycare, car, school bus, work, and recreational facilities.

	Follow up/ Notes
Is your child's asthma worse at night? ❑Yes ❑No ❑Not sure	
Is your child's asthma worse at specific locations? If so, where? _____ ❑Yes ❑No ❑Not sure	
Is your child's asthma worse during a particular season? If so, which one? _____ ❑Yes ❑No ❑Not sure	
Is your child's asthma worse with a particular change in climate? If so, which? _____ ❑Yes ❑No ❑Not sure	
Can you identify any specific trigger(s) that makes your child's asthma worse? If so, what? _____ ❑Yes ❑No ❑Not sure	
Have you noticed whether dust exposure makes your child's asthma worse? ❑Yes ❑No ❑Not sure	
Does your child sleep with stuffed animals? ❑Yes ❑No ❑Not sure	
Is there wall-to-wall carpet in your child's bedroom? ❑Yes ❑No ❑Not sure	
Have you used any means for dust mite control? If so, which ones? _____ ❑Yes ❑No ❑Not sure	
Do you have any furry pets? ❑Yes ❑No ❑Not sure	
Do you see evidence of rats or mice in your home weekly? ❑Yes ❑No ❑Not sure	
Do you see cockroaches in your home daily? ❑Yes ❑No ❑Not sure	
Do any family members, caregivers or friends smoke? ❑Yes ❑No ❑Not sure	
Does this person(s) have an interest or desire to quit? ❑Yes ❑No ❑Not sure	
Does your child/teenager smoke? ❑Yes ❑No ❑Not sure	
Do you see or smell mold/mildew in your home? ❑Yes ❑No ❑Not sure	
Is there evidence of water damage in your home? ❑Yes ❑No ❑Not sure	
Do you use a humidifier or swamp cooler? ❑Yes ❑No ❑Not sure	
Have you had new carpets, paint, floor refinishing, or other changes at your house in the past year? ❑Yes ❑No ❑Not sure	
Does your child or another family member have a hobby that uses materials that are toxic or give off fumes? ❑Yes ❑No ❑Not sure	
Has outdoor air pollution ever made your child's asthma worse? ❑Yes ❑No ❑Not sure	
Does your child limit outdoor activities during a Code Orange or Code Red air quality alert for ozone or particle pollution? ❑Yes ❑No ❑Not sure	
Do you use a wood burning fireplace or stove? ❑Yes ❑No ❑Not sure	
Do you use unvented appliances such as a gas stove for heating your home? ❑Yes ❑No ❑Not sure	
Does your child have contact with other irritants (e.g., perfumes, cleaning agents, or sprays)? ❑Yes ❑No ❑Not sure	

What other concerns do you have regarding your child's asthma that have not yet been discussed?

National Environmental Education Foundation
Knowledge to live by

Health & Environment

Additional resources and Spanish language materials available at www.neefusa.org/health/asthma/asthmaguidelines
health@neefusa.org

ASMA PEDIÁTRICA

Ambiental para el Paciente con Asma Pediátrica

l hogar del niño también se aplican a otros ambientes interiores donde el
uardería, coche, bus escolar, trabajo e instalaciones recreativas.

	Seguimiento/Notas
❑Sí ❑No ❑No está seguro	
ecífico? ❑Sí ❑No ❑No está seguro	
tación en particular? ❑Sí ❑No ❑No está seguro	
particular de clima? ❑Sí ❑No ❑No está seguro	
(s) específico(s) de asma en su hijo(a)? ❑Sí ❑No ❑No está seguro	
el asma de su hijo(a)? ❑Sí ❑No ❑No está seguro	
❑Sí ❑No ❑No está seguro	
pared a pared? ❑Sí ❑No ❑No está seguro	
de ácaros de polvo? ❑Sí ❑No ❑No está seguro	
❑Sí ❑No ❑No está seguro	
ar, semanalmente? ❑Sí ❑No ❑No está seguro	
❑Sí ❑No ❑No está seguro	
ersona que cuida a su hijo(a)? ❑Sí ❑No ❑No está seguro	
r de fumar? ❑Sí ❑No ❑No está seguro	
❑Sí ❑No ❑No está seguro	
a? ❑Sí ❑No ❑No está seguro	
casa? ❑Sí ❑No ❑No está seguro	
❑Sí ❑No ❑No está seguro	
iz de pisos, u otro cambio en la casa durante el ❑Sí ❑No ❑No está seguro	
milia, un pasatiempo que utiliza materiales ❑Sí ❑No ❑No está seguro	
mpeorar el asma de su hijo(a)? ❑Sí ❑No ❑No está seguro	
durante la Alerta Naranja o Alerta Roja de partículas contaminantes? ❑Sí ❑No ❑No está seguro	
su casa? ❑Sí ❑No ❑No está seguro	
tufas a gas? ❑Sí ❑No ❑No está seguro	
erfumes, productos de limpieza o aspersores)? ❑Sí ❑No ❑No está seguro	

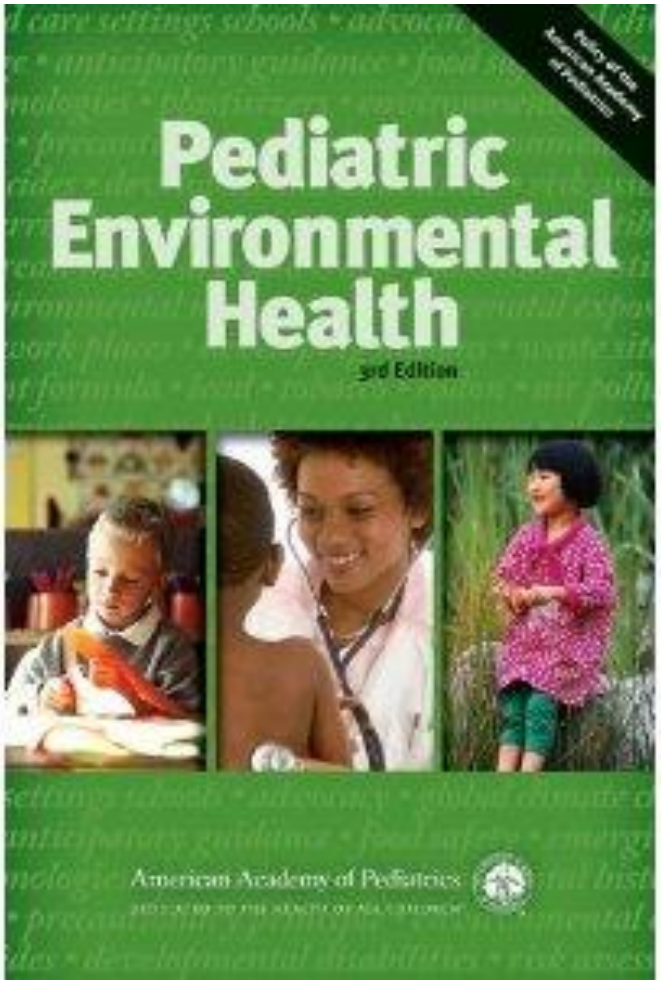
le preocupan, que no fueron mencionadas?

NHMA National Hispanic Medical Association

4301 Connecticut Avenue, Suite 160 • Washington, DC 20008 • Tel. (202) 261-6475 • health@neefusa.org • http://www.neefusa.org

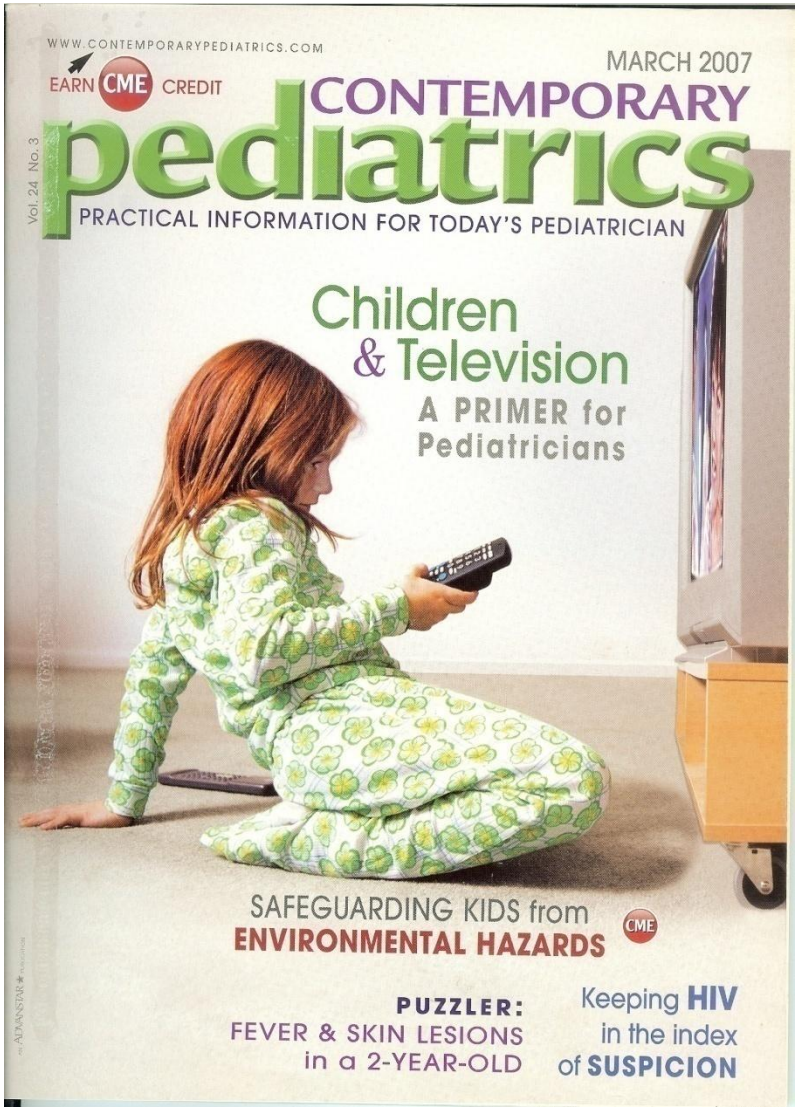
www.neefusa.org/health/asthma/asthmahistoryform.htm

“The Green Book”

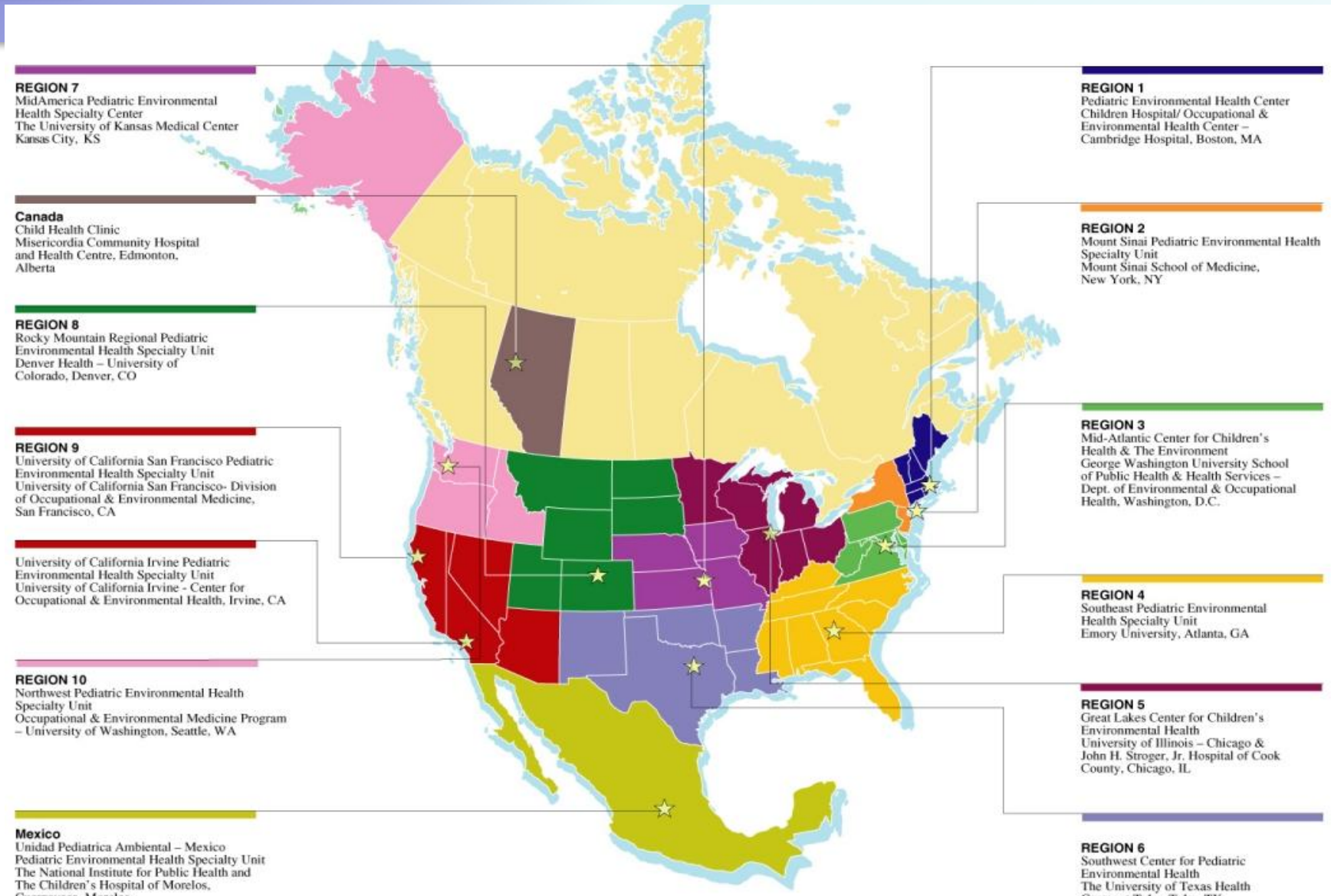


Pediatric Environmental Health, 3rd Edition, 2012

Contemporary Pediatrics Articles



PEHSU NETWORK



REGION 7
MidAmerica Pediatric Environmental Health Specialty Center
The University of Kansas Medical Center
Kansas City, KS

Canada
Child Health Clinic
Misericordia Community Hospital and Health Centre, Edmonton, Alberta

REGION 8
Rocky Mountain Regional Pediatric Environmental Health Specialty Unit
Denver Health – University of Colorado, Denver, CO

REGION 9
University of California San Francisco Pediatric Environmental Health Specialty Unit
University of California San Francisco- Division of Occupational & Environmental Medicine, San Francisco, CA

University of California Irvine Pediatric Environmental Health Specialty Unit
University of California Irvine - Center for Occupational & Environmental Health, Irvine, CA

REGION 10
Northwest Pediatric Environmental Health Specialty Unit
Occupational & Environmental Medicine Program – University of Washington, Seattle, WA

Mexico
Unidad Pediatrica Ambiental – Mexico
Pediatric Environmental Health Specialty Unit
The National Institute for Public Health and The Children's Hospital of Morelos, Cuernavaca, Morelos

REGION 1
Pediatric Environmental Health Center
Children Hospital/ Occupational & Environmental Health Center – Cambridge Hospital, Boston, MA

REGION 2
Mount Sinai Pediatric Environmental Health Specialty Unit
Mount Sinai School of Medicine, New York, NY

REGION 3
Mid-Atlantic Center for Children's Health & The Environment
George Washington University School of Public Health & Health Services – Dept. of Environmental & Occupational Health, Washington, D.C.

REGION 4
Southeast Pediatric Environmental Health Specialty Unit
Emory University, Atlanta, GA

REGION 5
Great Lakes Center for Children's Environmental Health
University of Illinois – Chicago & John H. Stroger, Jr. Hospital of Cook County, Chicago, IL

REGION 6
Southwest Center for Pediatric Environmental Health
The University of Texas Health Center at Tyler, Tyler, TX

www.aoec.org/pehsu/index.html

Organizations

- American Academy of Pediatrics Council on Environmental Health www.aap.org
- Children's Environmental Health Network www.cehn.org
- Healthy Schools Network www.healthyschools.org
- National Environmental Education Foundation
  - Health and Environment Program http://www.neefusa.org/health/index.htm
  - Pediatric Environmental Health Initiative http://www.neefusa.org/health/PEHI/index.htm
- Physicians for Social Responsibility
  - Pediatric Environmental Health Toolkit http://www.psr.org/resources/pediatric-toolkit.html

Conclusion

- An environmental history is basic
- Many opportunities on well visits
  - Promoting healthy environments
  - Identifying, abating hazards
- Consider environmental triggers of illness
- Parents often have concerns about environmental exposures
- Resources are available

Contact Information

Nsedu Obot Witherspoon, MPH
Executive Director
Children's Environmental Health Network
Email: nobot@cehn.org
Phone: 202-543-4033

www.cehn.org

Children's Environmental Health Network