Webinars
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Case Conferences
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Online Courses
Evidence-based online courses on a variety of children’s environmental health topics.
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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
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WHO’S IN CHARGE OF CHILDREN’S ENVIRONMENTAL HEALTH IN CHILD CARE SETTINGS & SCHOOLS
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Objectives

- Identify environmental health hazards that occur in childcare and school settings.
- Describe the roles that federal, state and local agencies may be able to play in preventing or mitigating some of the environmental health hazards that occur in childcare and school settings.
- Discuss the potential roles of the PEHSUs in assisting schools and agencies in dealing with some of the environmental health hazards that occur in childcare and school settings.
- Identify potential improvements in policies and practices for dealing with some of the environmental health hazards that occur in childcare and school settings.
Who's in charge of children's environmental health at school?
Paulson J. Barnett C.
Children  First, Buildings Second
No systematic collection of health data on children in childcare facilities or in Pre-K or K-12 schools

- DEd
- DHHS – CDC – National Center for Health Statistics, National Center for Environmental Health
- EPA
- No state or local health, education or environmental departments
Lack of data
- Makes recognition of new problems difficult
- Makes evaluation of problems and interventions difficult or impossible.

Family Education Rights and Privacy Act (FERPA)
Environmental Health Issues in Child Care Centers & Schools*

- Indoor air quality
- Lighting
- Pests and pesticides
- Noise
- Radon
- Asbestos
- Cleaning processes and products

- Lead – paint, water
- PCBs
- Non-lead drinking water contamination
- Siting issues
- Construction/renovation while students present

* Examples, not an exhaustive list

http://www.epa.gov/asthma/images/iaq_tfs_logo.jpg
Information on Buildings is Sparse

- No systematic data collection on childcare, Pre-K or K-12 school buildings
- Government Accountability Office (GAO) report published in late 1990s on K-12 schools
- The National Center for Education Statistics (NCES) collects nationally representative data on the condition of public school facilities 2012-2013: (self-reported data)
  - 53% reported need to do repairs, renovations or modernization to bring building into good condition
  - Environmental factors rated unsatisfactory or very unsatisfactory in 5-17% of permanent buildings and 10-28% of portable buildings

http://www.acps.k12.va.us/profiles/tcw.jpg
http://www.gao.gov/products/HEHS-96-103
236_PK-12publicschoolinfrastructurefactsheet21CSF-Best.pdf
Condition of America’s Public School Facilities 2012-13
Problems, Addressed and Unaddressed
## Problems Addressed but Unresolved

<table>
<thead>
<tr>
<th>Problem</th>
<th>How The Problem Was Addressed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infiltration of fumes and carbon monoxide from idling vehicles into classrooms</td>
<td>EPA voluntary school bus program (On-line, but no longer funded or updated)</td>
</tr>
<tr>
<td>Schools located in former commercial spaces, on unremediated Brownfields, or on or near Superfund sites</td>
<td>EPA developed voluntary siting guidelines (<a href="http://www.epa.gov/schools/siting">http://www.epa.gov/schools/siting</a>)</td>
</tr>
<tr>
<td>Use of toxic and explosive products in classrooms or stored in schools</td>
<td>EPA voluntary school chemical clean out program (On-line, but no longer funded or updated)</td>
</tr>
<tr>
<td>PCBs in caulks</td>
<td>Some states have activities</td>
</tr>
</tbody>
</table>

http://www3.epa.gov/region4/rcra/images/sc3_clip_image001_0002.jpg
Problems Addressed but Unresolved

- Asbestos - Asbestos Hazard Emergency Response Act (AHERA)
  - Frequent noncompliance
- Lead in water – voluntary EPA program without enforcement
- Underground storage tanks
- Radon – EPA published recommendations for testing
Problems Unaddressed

- Outbreaks of infectious diseases
- Toxic debris from construction or demolition inside occupied schools and toxic fumes from construction equipment, paints, glues and new carpets
- Air toxics from nearby sources such as industries or highways
- Dampness
  - Mold and other substances
- Allergens
- $\text{CO}_2$ – function of ventilation system
No governmental agency, federal, state or local, regulates indoor air pollutants with the exception of laws pertaining to smoking in public places

http://greenguard.org/Libraries/GG_Images/school.sflb.ashx
Indoor Air Quality

- EPA recommendations in voluntary programs
  - Tools for Schools - Some state laws direct school districts to implement Tools for Schools (TfS)
    - Federal program no longer funded or updated
  - The Healthy School Environments Assessment Tool (HealthySEATv2) - more comprehensive than just indoor air
- Children do better in well ventilated rooms
- Children do better in air conditioned (appropriately heated and cooled) rooms

• Old School Buildings – big windows, much daylight
• Some late 20th century buildings, minimum windows
• Daylighting – research shows better test scores, better behavior with controlled daylighting combined with appropriate artificial lighting
Pests & Pesticides

- Food readily available in many parts of school building
- Wide variety of pesticides used – herbicides, rodenticides, insecticides
- Should use Integrated Pest Management (IPM) approach
- Should never have routine pesticide application program
- Many states with IPM requirements
Why will this classroom be noisy?
Noise

- Hard walls
- Hard floor
- Hard furniture

- Many indoor and outdoor sources of noise
- Children learn better with less noise

Environmental Contamination of School Building

- Water – floods, hurricanes
- Hazardous materials
  - Contained in flood waters
  - From leaking tank cars or trucks
  - From terrorist attack – 9/11

[Image: https://www.portlandoregon.gov/shared/cfm/image.cfm?id=381680]
Green Buildings
LEED Buildings are proven to decrease building-related human health problems.

Leadership in Energy and Environmental Design (LEED)

True?

False?

http://e360.yale.edu/feature/leed_building_standards_fail_to_protect_human_health/2306/
• What is a GREEN building (school)?
  • No universally accepted definition of green building
    • US Green Building Council has LEED
      – Latest iteration of LEED does not have special section related to schools
    • US EPA IAQ Design Tools for Schools
    • Collaborative for High Performance Schools (CHPS.net) – Adaptation of USGBC LEED for New Construction to building new schools
What is a LEED building?

- Leadership in Energy and Environmental Design
- Certification based on “intent-based prerequisites and credits.”
- LEED buildings “…save energy, reduce water use and provide superior environmental conditions.”
- “[H]ealth outcomes have not been as formally or intentionally addressed within green building tools as energy efficiency of natural resource conservation.”
- There is not a consistent approach to health across various LEED categories
- [http://www.usgbc.org/v4](http://www.usgbc.org/v4)
- No peer reviewed outcome studies of the impact of LEED standards on the health of building occupants
Committee concluded that a green school with the following attributes would support student and teacher health, learning, and productivity:

- Dry
- Good indoor air quality and thermal comfort
- Quiet
- Well maintained
Public Policy
Constitution leaves responsibility for education to the states

Federal Department of Education – does not regulate children’s health & safety in schools

Federal Department of Health & Human Services – does not regulate children’s health & safety in schools
States responsible for providing public education
State educational agencies without regulatory power related to environmental health
State often delegates authority for education to local school districts
  • May be an agency independent of other components of local government and with own taxing authority
  • Generally does not interface with state or local health or environmental departments
  • Does not have internal expertise in environmental health
Protection of Occupants
Protection of Adults

- Occupational Safety & Health Act of 1970 (Federal)
  - Public sector workers not covered by federal law
  - 25 states with own occupational safety and health program
- Union
- State Departments of Labor
- Worker’s compensation programs
- Other
  - Call in sick
  - Change schools
Most pediatricians not trained to identify or deal with environmental health problems

Evaluation of child care center- or school-based environmental health problems – multi-pronged approach

- Pediatrician – for child
- Industrial hygienist – for building
- Facilities management experts – for specific systems in buildings
What’s a PEHSU?
A resource for pediatricians, public health officials, child care center personnel, school personnel, parents and others to get questions answered about children’s health and the environment

- Education
- Consultation
PEHSU Regions
What Kinds of Problems do PEHSUs Deal With?

- Lead poisoning
- Pesticide exposures
- Sick building problems
- Water pollution
- Air pollution
- Job related exposures in adolescents
- Volatile Organic Compounds
- Exposure to hazardous waste sites
- Environmentally related asthma
- Agricultural pollutants
- Solvents
- Carbon monoxide
- Arsenic
- Mercury
How to Contact Your Regional PEHSU

- For a list of all PEHSUs and contact information, see http://www.pehsu.net
- All have a toll free phone number
- All have a web site
Potential Roles for PEHSUs in Environmental Health in Childcare & Schools
Potential Roles for PEHSUs

- Energy Independence and Security Act (2007) – Congress directed EPA to issue a guideline on how PEHSUs might assist states with onsite school investigations
  - No funding, no implementation
- Some PEHSUs currently do in-school evaluations on a limited basis
- With adequate funding, could form partnerships with state health and education departments
Conclusions & Recommendations
Conclusions

- No one is in charge!
- Adults may have some protection from EH hazards
- Children have no uniform protection from EH hazards
- No adequate system for gathering data to document or track exposures
- No baseline data from which to assess changes
- EPA guidelines for state agencies to address school environments, lacks guidance on how state health agencies might collaborate with pediatric environmental health experts for on-site investigation
- Green building guidelines are inadequate
Recommendations

- Need 1 Federal agency to establish a program in Childcare, Pre-K to 12 environmental health
  - Tracking and monitoring programs need to be created.
    - Modify or adapt FERPA to facilitate this
  - Develop a coordinated federal strategy for the states to help their schools rapidly improve facility design, construction, and maintenance
  - Set up programs to test and remediate for hazards and to phase in safer products.
  - Fund and conduct research
  - Develop and enforce REGULATIONS
- Utilize PEHSUs to inspect child care centers or schools and develop remediation and management plans
Questions
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