

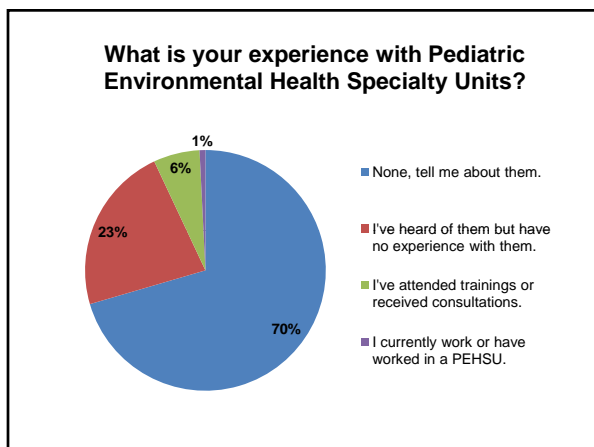
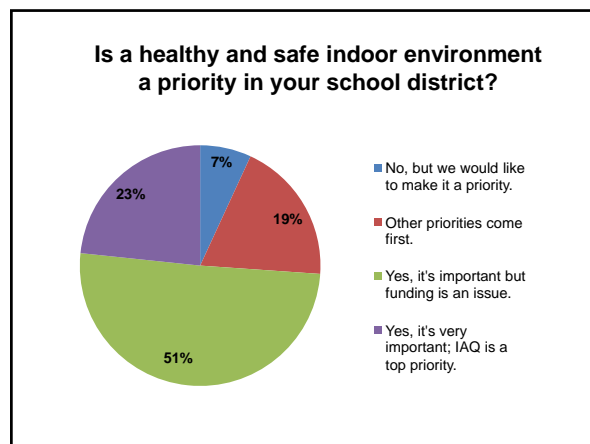
EPA

Managing Asthma in the School Environment

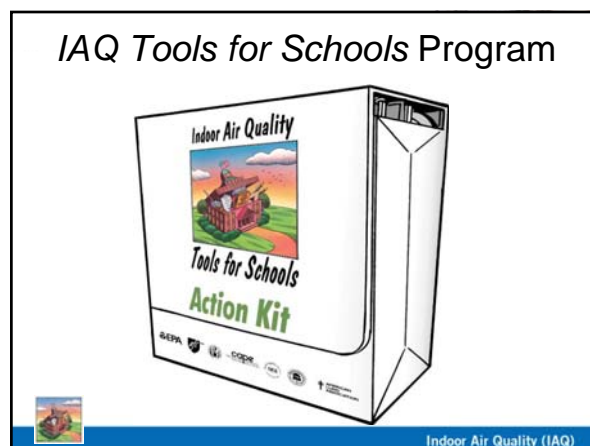
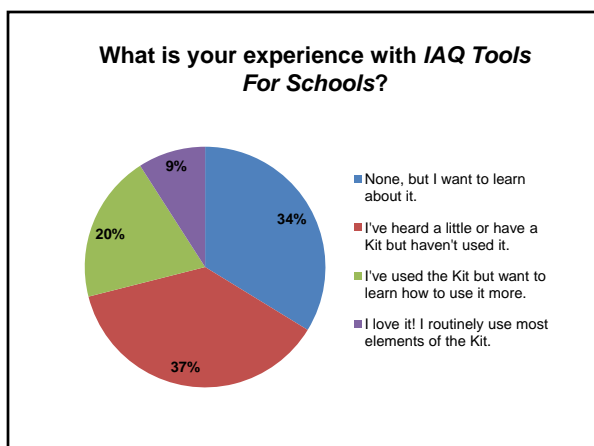
Thursday, May 13, 2010
1:00 – 2:30 PM EST

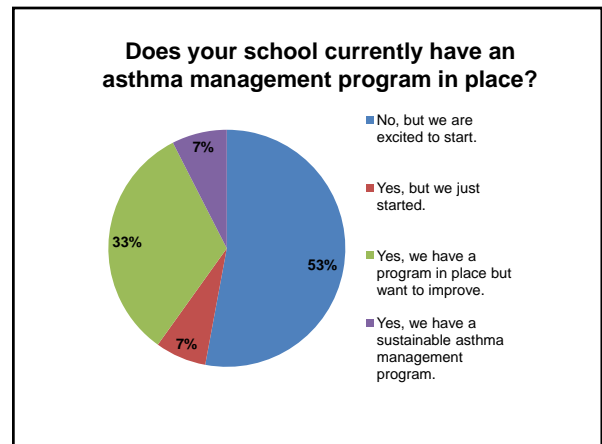
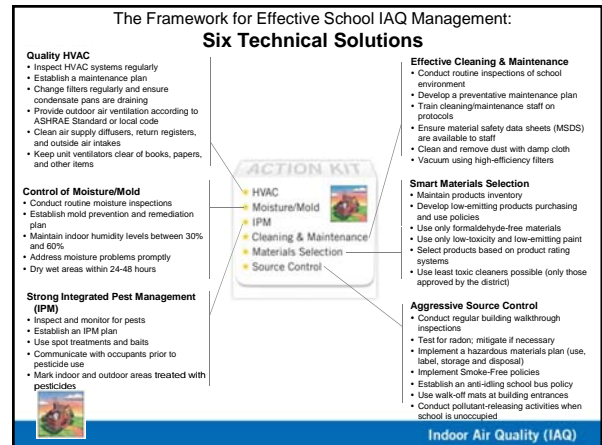
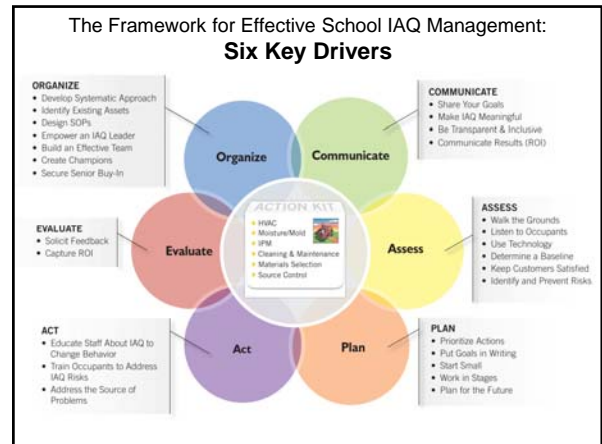
Access Number!
Note: To hear the audio portion of the Webinar, you must call the number below.
Dial: 1-877-290-8017
ID #: 69080666

Indoor Air Quality (IAQ)

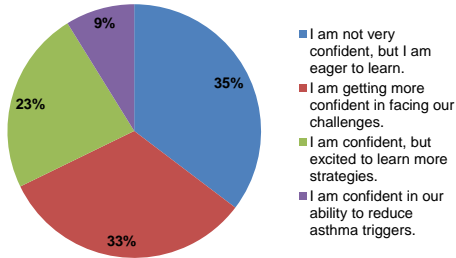


- ### Pediatric Environmental Health Specialty Units Overview
- Community Education and Outreach**
 - Raising awareness about environmental conditions that may harm children and providing guidance on preventing exposures
 - Training Health Professionals**
 - Conducting conferences, on-line education programs and case studies
 - Consultation and Referral**
 - Interrupting diagnostic tests and evaluating toxic exposures
- Indoor Air Quality (IAQ)**





How confident do you feel in your ability to reduce environmental asthma triggers in your school district?



Introductions

Facilitator:

- Lani Wheeler, M.D., FAAP, FASHA, *The Cadmus Group, Inc.*

Speakers:

- Robert Geller, M.D., FAAP, Director, *Emory Southeast Pediatric Environmental Health Specialty Unit*
- Leslie Rubin, M.D., FAAP, Co-Director, *Emory Southeast Pediatric Environmental Health Specialty Unit*



Indoor Air Quality (IAQ)

ASTHMA and the SCHOOL



Robert J. Geller, MD, FAAP

Emory Southeast Pediatric Environmental Specialty Unit;
Children's Healthcare of Atlanta,
Children's Asthma Center at Hughes Spalding, and
Emory University Dept of Pediatrics, Atlanta GA

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Disability, and Morehouse School of Medicine,
Atlanta GA

Disclaimer

- ◆ Drs Geller and Rubin are co-editors of a book on school environments. They have no other financial relationships to report pertaining to school health, school environments, or asthma.

Outline of Presentation

- ◆ What is asthma
- ◆ Current regimens for asthma management
- ◆ Impact of the school environment on asthma
- ◆ Suggested school role for asthma exacerbations
- ◆ Suggested school role for chronic asthma management
- ◆ Asthma in the child with disabilities

Definition of Asthma

- ◆ Asthma
 - A **chronic, inflammatory** disorder principally of the small airways
 - Obstruction to airflow
 - By definition, at least partial reversibility of airflow obstruction, on some or all occasions

Time Course

- ◆ Early phase
 - Airway constriction
- ◆ Late phase (6 – 10 hours or longer)
 - Swelling of the airway
 - Increased mucous in the airway

Goals Of Maintenance Asthma Therapy

- ◆ Minimal chronic symptoms - ideally none
- ◆ Minimal asthma attacks - ideally none
- ◆ No emergent visits for asthma care
- ◆ Minimal need for quick relief β_2 agents
- ◆ No limitations on exercise or activities
- ◆ Near- normal lung function
- ◆ Minimal (or no) adverse med effects

Evaluating Asthma

- ◆ Patient report
- ◆ Clinical exam
 - wheeze, cough, rhonchi
 - decreased breath sounds, air flow
 - increased work of breathing
- ◆ Severity of asthma may be unrecognized and underestimated by the child

Rescue Therapy - β_2 Agonists

- ◆ Short acting beta₂ agonists
 - Albuterol (ProAir, Ventolin, Proventil)
 - Xopenex (neb levalbuterol)
 - Maxair (pirbuterol)
- Should be used in all asthmatics at onset of wheeze, chest tightness, shortness of breath
 - Expect response in 5 -10 min or less
- Routinely used before exercise

Control Therapy

- ◆ Patients with symptoms more than once a week should be using controller(s) to reduce baseline inflammation and airway irritability
- ◆ Some patients need one agent, some more than one
- ◆ Can be administered once daily or more, depending on specific drug

Control Therapy - 2

- ◆ Inhaled corticosteroids the usual first-line agent
 - Flovent, Qvar, Azmacort, Pulmicort, others
- ◆ Some patients on leukotriene receptor antagonists
 - Singulair, others
- ◆ Some patients on long-acting bronchodilators
 - Contained in Advair, Symbicort

Spacers

- ◆ Should be used with all metered dose inhaler medications
- ◆ Improves drug delivery substantially

Role of Asthma Action Plan

- ◆ Every child with asthma should have an asthma action plan describing their current regimen
- ◆ School should have a copy of that data

Asthma Action Plan

Information regarding specific patient triggers must be included in the Asthma Action Plan

Information regarding specific patient controllers must be included in the Asthma Action Plan

Information regarding specific patient relievers must be included in the Asthma Action Plan

Exacerbating Factors for Asthma

- ◆ Inhaled allergens
 - Molds, dust mite, animal dander, pollens
- ◆ Chemical irritants
 - Strong odors, some cleansers
 - Air pollutants (ozone, particulates, etc)
- ◆ Heat, cold
- ◆ Exercise

School Role in Exacerbations

- ◆ 1. Recognize
- ◆ 2. Respond
- ◆ 3. Reassess
- ◆ 4. Record

School Recognition

- ◆ Teachers and others with child contact should be able to recognize shortness of breath, audible wheezing, at the non-health-professional level
- ◆ All staff should give credence to children reporting symptoms, unless consistently proven otherwise

School Response

- ◆ Allow child to carry his/her own medications unless they are unable to hang onto them
- ◆ Supervise use of or administer reliever medication (e.g., albuterol)
 - A staff member who is trained to supervise medication use needs to be available at all times students are on premises
 - In some states, may need to be a licensed nurse, physician, RT

School Response - 2

- ◆ If symptoms appear severe, call 911
- ◆ Record child's need for rescue medication and circumstances
 - May want to share info with parent, especially if this is a frequent event

School Reassessment

- ◆ Has child returned to asymptomatic state?
- ◆ If not, give a second dose of reliever (e.g., albuterol)
- ◆ Reassess again in 10 minutes:
 - Has child returned to asymptomatic?
- ◆ If not, needs to be taken for med care

School Recording

- ◆ Need info to advise parent about need for different home management
- ◆ Need info to advise IEP if appropriate
- ◆ Need info to support school's actions in case they are challenged

The School Environment

- ◆ Multifaceted:
 - The physical environment of the school
 - Air quality in and about the school
 - Toxic hazards in the school
- ◆ Food safety in the school
- ◆ Sports at school
- ◆ Getting to and from school

School Role in Chronic Management

- ◆ Minimize triggers in the school environment
 - Keep humidity 40% - 60% and fix leaks promptly to avoid mold overgrowth
 - Consider which cleansers, paints, markers, chinks, etc are used
 - Schedule activities using cleansers after students and staff leave or on weekends
 - Restrict access to areas under renovation

Triggers You May Not Have Considered

- ◆ All vehicles
 - Avoid vehicle exhaust fumes near the place children are spending time outdoors
 - Avoid idling
- ◆ The school bus
 - Often very bad air quality on board
 - Diesel retrofitting is an effective and cost-effective solution

School Role in Chronic Management - 2

- ◆ Schedule outdoor activities carefully
 - Check outdoor air quality monitoring data each morning
 - If ozone peaks later in the day, hold early outdoor practices and indoors activities later in the day
 - Reschedule outdoor activities on particularly bad air quality days

School Role in Chronic Management -3

- ◆ Allow child to carry own medication when appropriate to age/ development/ level of responsibility
- ◆ Advise parents about frequency of symptoms = frequency of failure of control plan

School Role in Chronic Management - 4

- ◆ In some schools, for some patients, it may be appropriate for school to administer morning dose of chronic medications
 - Depends on staffing, family's ability to adhere on their own
 - Requires availability of medication
 - Requires availability of equipment at times

Questions?

Special Considerations and Populations

- ◆ Children with developmental and other disabilities
- ◆ Children who grow up in circumstances of social and economic disadvantage

Children with Cerebral Palsy

- ◆ Have ambulatory difficulties
- ◆ Have orthopedic problems
- ◆ May have a seizure disorder
- ◆ May have feeding difficulties
- ◆ May have respiratory problems
- ◆ May have multiple doctors, multiple medications and multiple illnesses



Children with Autism

- ◆ Have limited ability to communicate their feelings
- ◆ Are very sensitive to the environment
- ◆ Do very well with structure and predictability
- ◆ May react dramatically to relatively minor changes or perceived disturbances
- ◆ Are likely to respond well to calm, quiet comfort

Obesity Rates in the USA

Age	% Overweight	% Obese
2 - 5	21.2	10.4
6 - 11	35.5	19.6
12 - 19	34.2	18.1
2 - 19	31.7	16.9

*Data taken from the 2007 - 2008 National Health and Nutrition Examination Survey

Children with Obesity

- ◆ High Blood Pressure
- ◆ Diabetes
- ◆ Asthma
- ◆ Obstructive Sleep Apnea
- ◆ Physical Participation
- ◆ Social & Emotional Consequences
- ◆ Impact on Education



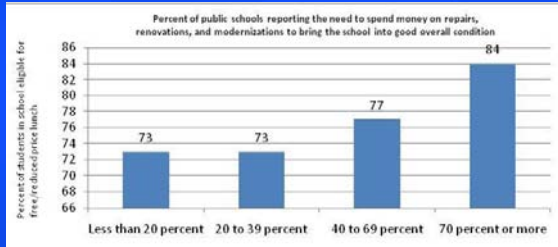
Food Environment in Schools



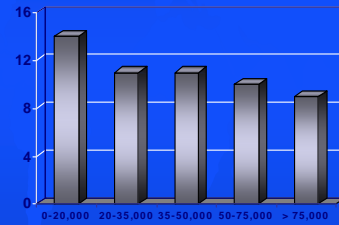
Social & Economic Circumstances



School Conditions & Indices of Income



Household Income and Asthma Prevalence



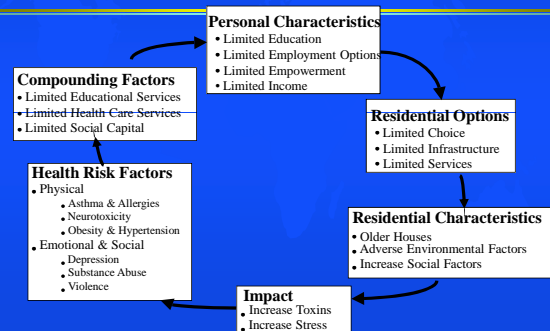
Prevalence of asthma versus self-reported household income from a randomized survey of Georgia families.

Poverty Effects on Cognitive and Educational Function

Indicator	Children Who Are Poor	Children Who Are Not Poor
Developmental delay	5.00%	3.80%
Learning disability	8.30%	6.10%
Grade retention	28.80%	14.10%
Ever expelled or suspended	12.10%	6.10%
High school dropout rate in 1994	21.00%	9.60%
Not employed or in school at age 24	15.90%	8.30%

from Institute of Medicine: From Neurons to Neighborhoods

Cycle of Environmental Health Disparities



Break the Cycle: a Project of the Southeast PEHSU



Questions?

PEHSU
Pediatric Environmental Health Specialty Units

Funded by EPA and ATSDR
to increase knowledge base of pediatric environmental medicine by providing a forum for environmental specialists and pediatricians to combine knowledge



So, where are we nationally?

- ◆ CDC School Health Profiles Survey




Percentage of Secondary Schools that Implemented School-based Asthma Management Activities⁷
47 States, 2008

Activity	Range %	Median %
Had adopted a policy stating that students are permitted to carry and self-administer asthma medications	46.3% to 88.6%	76.5%
Had a full-time registered nurse who provided health services to students	3.8% to 99.1%	40.2%
Had an asthma action plan for all students with known asthma	27.0% to 77.3%	46.1%
Tried to increase student knowledge on asthma awareness as part of a required course	25.8% to 76.4%	47.0%
Lead health education teacher received staff development on asthma awareness	8.8% to 48.8%	17.3%

- ### Addressing Triggers
- ◆ Soliciting input from all school constituencies
 - Parents, students, all types of staff
 - ◆ EPA Tools for Schools
 - Can help identify and address IAQ environmental issues
 - ◆ Looking a fresh look at the problems

- ### What We Have Been Doing to Help
- ◆ Compiling Information
 - Edited book to present validated information from national experts
 - ◆ Disseminating Information
 - Created video modules about the school environment for lay audiences
 - Available on the Internet for free non-commercial use


- 1. Safe and Healthy School Environments (Overview)**
This video is designed to introduce the topic of school environmental health, identify specific items that can be addressed to promote safe and healthy learning environments, and suggest practical steps to get started on a plan to improve health and safety in your schools.
[view the video](#)
- 2. Indoor Air Quality (IAQ)**
Improving indoor air quality – IAQ – in schools doesn't have to be complicated or expensive. This video explains why IAQ matters, factors contributing to poor indoor air quality, practical steps that can be taken to improve IAQ, and where more information about IAQ in schools can be found.
[view the video](#)
- 3. Playgrounds**
This video discusses several health and safety concerns associated with school playgrounds and describe practical steps to take in addressing school playground safety.
[view the video](#)

		
<p>4. Sports Environments This video is designed to provide an introduction to common environmental health concerns associated with school athletics, discusses several steps that can be taken to minimize risks associated with specific athletic activities, and identifies sources of additional information about school athletic safety.</p>	<p>5. Nutrition at School: A Healthy Food Environment This video highlights important storage and handling practices that help ensure food safety, ways in which schools can help promote good nutrition, and sources of additional information about enhancing the school nutritional environment.</p>	<p>6. Emergency Preparedness This video is designed to provide a brief overview of the types of emergencies that schools may face and steps schools can take to prepare for emergencies. It will also highlight some of the many resources available to help your school and community prepare for a natural disaster or other emergency.</p>
<p>view the video</p>	<p>view the video</p>	<p>view the video</p>

Selected Resources

- ◆ Contact us at 877- 33-PEHSU for questions, or at:
 - ◆ www.sph.emory.edu/PeHSU
 - Video modules about the school environment
 - ◆ www.epa.gov/iaq/schools
 - Tools for Schools, IAQ
 - ◆ www.asthmaandschools.org
 - ◆ www.nhlbi.nih.gov
 - ◆ www.cdc.gov/HealthyYouth/asthma
 - ◆ www.nyc.gov/html/doh/html/asthma/asthma.shtml

Questions from the audience?



Indoor Air Quality (IAQ)

EPA IAQ Tools for Schools Resources


- *IAQ Tools for Schools* Program
 - www.epa.gov/iaq/schools
- *IAQ Tools for Schools* Updates and E-mails:
 - Send an e-mail to: IAQTISConnector@cadmusgroup.com
 - View archives at: <http://www.epa.gov/iaq/schools/bulletins.html>
- Schools IAQ Connector Listserv:
 - Send a blank e-mail message to schools_iaq_connector_subscribe@lists.epa.gov or
 - Request subscription online on the Listserv Web interface https://lists.epa.gov/read/all_forums/subscribe?name=schools_iaq_connector. Then, check your e-mail inbox for your confirmation and membership details.



Indoor Air Quality (IAQ)

EPA Asthma Resources

- National Asthma Forum
 - June 17 – 18, 2010
 - Washington, DC
 - <https://www.epaasthmaforum.com>
- AsthmaCommunityNetwork.org – Communities in Action
 - <http://www.asthmacommunitynetwork.org/>



Indoor Air Quality (IAQ)