Asthma In Schools: Prevention Through Green Cleaning

Green Seal is a nonprofit organization with headquarters in Washington, DC. We develop environmental leadership standards and certify:
- products
- cleaning services
- hotels
- and restaurants.

Green Seal-certified products undergo performance testing, and evaluations that verify zero or limited amounts of carcinogens, asthmagens, reproductive toxins, and reduced environmental impact.

September 17, 2015
2:00 – 3:00 PM ET
• What is asthma?

• Prevention Efforts

• Benefits of Green Cleaning
  • Safer Products
  • Green Clean Teams
  • Best Practices
Expert Panelist:

Alicia Stephens

B.S. Toxicology
M.S. Environmental Science and Occupational Health

- A primer on the connection between indoor air quality and asthma
- The pathophysiology of asthma
- Asthma Triggers (schools)
- The differences in risk for students, teachers and staff, and cleaning teams
- Green Cleaning Principles
WHAT IS ASTHMA?

- Long term lung disease
- Episodes make breathing hard:
  - Airways become inflamed/swollen
  - Muscles tighten
  - Mucus increases
- Episodes are triggered by indoor & outdoor allergens and irritants

Asthma can’t be cured, but can be controlled
Asthma is common.

1 in 11 children have asthma.

1 in 12 adults have asthma.

Black children are 2 times more likely to have asthma than white children.

http://www.cdc.gov/socialmedia/tools/buttons/environmental/index.html
Asthma is Disruptive

- Nearly 1 in 2 children with asthma report missing at least 1 day of school each year because of asthma.
- 3 in 5 People with asthma limit their physical activity.
- Nearly 1 in 3 adults with asthma report missing at least 1 day of work each year because of asthma.

http://www.cdc.gov/socialmedia/tools/buttons/environmental/index.html
ASTHMA IN CHILDREN VS ADULTS

- Childhood asthma and adult-onset asthma are the same disease.

- They share many of the same symptoms, and similar medications are used to treat both types.

- However, children with asthma face different challenges than adult asthma patients do.

- Children are often at a different and increased risk from environmental hazards from that of adults.
CHILDREN ARE NOT LITTLE ADULTS

1. Different/unique exposures
2. Dynamic developmental physiology
3. Longer life expectancy
4. Politically powerless

http://www.who.int/ceh/capacity/Children_are_not_little_adults.pdf
Seasonal Hospital Admissions for Children with Asthma in NJ, 2008-2009

- Children’s admissions fluctuate monthly.
- School age children show a dramatic increase in admissions during the fall and spring months.
- The number of admissions for elementary school age children (5-9 years) in May was about 4 times the number that occurred in July and September.
STUDENT PERFORMANCE

“...schools with fewer janitorial staff and higher maintenance backlogs show poorer academic performance”
ENVIRONMENTAL TRIGGERS

http://www.neefusa.org/health/asthma/asthmaguidelines.htm
# Common Asthma Triggers in Schools

<table>
<thead>
<tr>
<th>Triggers</th>
<th>Asthma Management</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Allergic</strong></td>
<td></td>
</tr>
<tr>
<td>Dust Mites</td>
<td>Remove clutter; Vacuum regularly</td>
</tr>
<tr>
<td>Mice</td>
<td>Exclude from building; Store food in tightly sealed containers; Place dumpsters away from building</td>
</tr>
<tr>
<td>Cockroaches/Ants</td>
<td>Sanitation (baits/gels)</td>
</tr>
<tr>
<td>Animal Dander</td>
<td>Remove animals, if possible; Keep away from sensitive students/ventilate systems</td>
</tr>
<tr>
<td>Mold</td>
<td>Fix leaks, dry wet areas; Clean hard, moldy surfaces with water and detergent and dry</td>
</tr>
<tr>
<td><strong>Irritant</strong></td>
<td></td>
</tr>
<tr>
<td>Tobacco Smoke</td>
<td>Enforce no-smoking policy (especially around perimeter); Third-hand smoke: residue remains on a person's body/clothing</td>
</tr>
<tr>
<td>Chemical Odors</td>
<td>Use less toxic products, ventilate, clean when no one is around</td>
</tr>
<tr>
<td>Air Pollution</td>
<td>Do not allow into the ventilation system (monitor location of intakes; no vehicle idling)</td>
</tr>
</tbody>
</table>
Allergic Occupational Asthma

- Body’s **protective response** to a foreign substance
- Vast **majority** (>90%) of cases of occupational asthma
- Does **not** occur after one exposure but develops over time (latency)
- Once sensitized, react by small amounts/similar substances

Health & Safety Authority: Guidelines on Occupational Asthma, 2013
Irritant Induced Occupational Asthma

- Usually develops after a **single, very high exposure**
- Direct “burn” effect on the airways, **irritation**
- **Not** related to the immune system
- Nearly always manifests symptoms **within 24 hours** (no latency)
“We’ve become a germo-phobic society,… The public has increasingly become convinced that a surface isn’t clean unless it is also disinfected.”

Elise Pechter

scienceblogs.com/thepumphandle/2014/01/31
Contact Information:

Alicia Curtis Stephens

NJ Department of Health
Trenton, NJ 08626

alicia.stephens@doh.state.nj.us
Expert Panelist:

Debbie Shrem

California Work-Related Asthma Prevention Program

California Department of Public Health
Cleaning Products Can Cause Work-Related Asthma
New Asthma

Products
- Carpet, floor, window cleaners
- Disinfectants, sanitizers
- Floor strippers
- Graffiti removers

Chemicals
- Ammonia
- Acetic acid (in vinegar)
- Bleach
- Enzymes
- Quats
WORK-AGGRAVATED ASTHMA

Substances including asthmagens that may make asthma worse at work:

- Strong odors
- Irritating chemicals
- Dust
- Cold air
- Animal dander
- Mold
- Plant materials
WORK-RELATED ASTHMA IN CALIFORNIA

20%
1 in 5 worked as a cleaner.

80%
4 of 5 of workers did not clean but were around during cleaning or after cleaning just happened.

50%
Half had new asthma that started after they began work. On-the-job exposures likely caused their asthma.
HEALTHY AND ASTHMA-SAFER CLEANING

Products

Training
HEALTHY AND ASTHMA-SAFER CLEANING

Equipment

Methods
**CHALLENGES**

- Belief green costs more
- Lack of staff resources
- Not aware using harmful products
LESSONS LEARNED AND SUCCESSES

- Districts successfully cleaning healthier
  - Less absenteeism
  - Reduce cleaning budgets

- Custodians and school staff care deeply, want to clean safer.
- Knowledge brings change
RECOMMENDED LABELING PROGRAMS

LEVEL 1: Prohibits the most asthma-causing chemicals (safest and healthiest options)

Recommended third-party certified cleaning products
UL ECOLOGO UL 2759
UL ECOLOGO UL 2795
Green Seal GS-37
Green Seal GS-53

LEVEL 2: Prohibits some asthma-causing chemicals

Design for the Environment (DfE)
Design for the Environment Antimicrobial Pesticide Pilot Project

LEVEL 3: Do not prohibit asthma-causing chemicals. May still be a healthier choice than uncertified products.

Carpet and Rug Institute products help limit or get rid of asthma triggers
Contact Information:

Debbie Shrem
Cleaning for Asthma-Safe Schools Project
Work-Related Asthma Prevention Program
(510) 620-5762
Debbie.shrem@cdph.ca.gov

http://www.cdph.ca.gov/programs/ohsep/Pages/Asthma.aspx
Kimberly Thomas
Executive Director, Plant Services & Custodial Operations
Clarke County School District, Georgia

“Kimberly Thomas is responsible for facilities management and custodial operations for the Clarke County School District, winner of the Green Cleaning Award for Schools and Universities’ Honorable Mention in 2014. Her department has also received recognition for its commitment to green cleaning and sustainability from the Healthy Schools Network, Environmental Protective Agency - Georgia state office, and US Green Building Council – Georgia division. Prior to her role at Clarke County, she was the Assistant Director of Services for the University of Georgia – Facilities Management Division, which won the Green Cleaning Award’s Grand Award in 2010.”

http://greencleanschools.org/green-cleaning-leadership-council/meet/
THE ISSUES

- Improve IAQ in school facilities
  - Quality HVAC systems
  - Control Moisture/Mold
  - Integrated Pest Management

- Cleaning & Maintenance
  - Green Cleaning as a Daily Practice
  - Green Purchasing
  - Source Control

- Effective Communication & Support
  - Advocates & Cohorts
Asthma Care Plans in Clarke County School District (2012-2014 Data)

Asthma Care Plans for Students 2012-2014

- Elementary Schools: 503, 123
- Middle Schools: 242, 264
- High Schools: 479, 210
- Total 2012-13: 185, 88
- Total 2013-14: 123, 22

Legend:
- Blue bars: # of Students w/Asthma Care Plans
- Red bars: # Students Missing >15 days
ONGOING PREVENTION EFFORTS

- Conduct routine inspections of school environment
  - Safety inspections of entire schools. Look for anything considered “unsafe”
  - Report issues to school principal and leadership team for accountability
  - Weekly building walk-throughs looking for safety issues
  - Regular Chemical Lab inspections and removals

- Develop a preventative maintenance plan
  - Assign PM for accountability with date and times.
  - Any PMs that your staff cannot handle could be contracted to outside vendors
  - Monitor PM schedules (web based software or calendar program)

- Train cleaning/maintenance staff on protocols
  - Monthly and annual training with team supervisors/shop training (3x per year)
  - Other training as needed on “professional learning days” or days when students are not in school
ONGOING PREVENTION EFFORTS

• Ensure material safety data sheets (MSDS) are available to staff
  • MSDS notebooks located at all front offices and custodial closets at schools (Head Custodian Office)
  • New policy recommendation that school teachers provide MSDS sheets and inventory list for any products (cleaning, etc.) they bring from home or request parents send to their classrooms (accountability)

• Clean and remove dust with microfiber or absorbent materials
  • Microfiber in color coded system
  • Use of 3M Easy Trap duster system

• Vacuum using high-efficiency filters
  • HEPA filtration in upright and backpack vacuums and other floor care equipment
  • Internal Policy to purchase energy efficient or environmentally sensitive products as a priority
Benefits of Green Cleaning

- Promotes environmental sustainability
  - Water
  - Energy
  - Environmental footprint

- Reduces exposure to harmful cleaning products
  - Work Safety
  - Reduction in Slips, Trips, and Falls

- Best Practices
  - Business Model
  - Streamline equipment and material purchasing
  - Cross train of staff and resources
  - Encourage better communication with stakeholders
**BEST PRACTICES**

Green Apple Award 2014 for Clarke County School District participation

2014 Green Cleaning Award by Healthy Schools Campaign

4th year of participation in National Awareness of Healthy Schools Day

Web-based work order management software to track and respond to maintenance requests

Cited in trade magazines on green cleaning in K-12 schools
Contact Information:

KIMBERLY THOMAS

EXECUTIVE DIRECTOR, PLANT SERVICES & CUSTODIAL OPERATIONS

Clarke County School District
Athens, Georgia

WWW.Clarke.K12.GA.US
Our Mission

Green Seal is a nonprofit organization that develops science-based programs to empower consumers, purchasers, and companies to create a more sustainable world.

We seek to transform the marketplace.
A few quick facts:

Green Seal was founded 26 years ago.

31 environmental leadership standards. for products, services, hotels, and restaurants.

4,000 certified products and services.

We work with public health organizations, environmental organizations, industry representative, and the public to develop

24 states specify GS-certified products

Hundreds of universities and municipalities
Certified Products:

Cleaning Products:

- General cleaners, glass cleaners, hand cleaners, degreasers, floor-care products,
- biologically-active cleaning products,
- graffiti removers;
- metal cleaning products;
- oven cleaning products;
- upholstery cleaning products

- Sanitary Tissues and Paper Towels
- Paints and Coatings, Stains and Sealers
- Windows
- Laundry Care Products
- Food packaging
- Printing and Writing Paper

Science-Based Standards:

- Define environmental leadership levels for products.

The standard describes the full evaluation process:

- Describes how the product is **EFFECTIVE**.
- Describes how the product is **SAFER**.
- Describes how the product is **GREENER**.

- Visit [greenseal.org/GreenBusiness/Standards.aspx](http://greenseal.org/GreenBusiness/Standards.aspx) to down standards for cleaning products, cleaning services, and more...
A Credible Certification Process:

Evaluation:
- Review Information
- Compare to Standard Criteria

On-site Audit

On-going Monitoring

#SeekTheSeal
Benefits of a Green Cleaning Strategy:

**HEALTHIER** workers, teachers, and students,

**QUALITY PRODUCTS** - Verified performance

**SAVINGS** – Effectiveness and concentration ensures a conserved use of chemicals

**Environmental Leadership**
– Reduced environmental impact

↑ **TEAM MORALE** – Staff appreciation
The Criteria....:

Organization, Account, and Regulatory Compliance Planning (SOPs)
Environmentally-Preferable Purchasing Policies
Cleaning Procedures
Communications and Trainings
“We’ve now raised the bar by protecting the health of our students and faculty, and by providing our staff with the knowledge and hands-on skills they need to become leaders in environmental wellness.”

--Olivia Claus, Manager, Office of Custodial Services
Howard County Public School System
“GS-42 certification for our in-house custodial operation marked a major milestone in our progress towards a more sustainable campus at Harvard. The extraordinary thoroughness of the Green Seal certification process convinced us of its legitimate value. By ingraining the rigorous requirements throughout all of cleaning activities we have changed the way our staff thinks about the term ‘sustainability’ ... from a slogan to Standard Operating Procedure. GS-42 certification has proven to be a challenge that was well worth the effort.”

--Jeffrey Smith, Director, Facilities Maintenance Operations
Harvard University
Thank you for joining us today.

Contact Information:

Brie Welzer  
Environmental Scientist  
BWelzer@greenseal.org

Green Seal, Inc.  
1001 Connecticut Ave, NW, Suite 827  
Washington, DC 20036  
greenseal.org
Green Seal is a nonprofit organization with headquarters in Washington, DC.

We develop environmental leadership standards and certify:
- products
- cleaning services
- hotels
- and restaurants.

Green Seal-certified products undergo performance testing, and evaluations that verify zero or limited amounts of carcinogens, asthmagens, reproductive toxins, and reduced environmental impact.

Q & A

Ask the experts…

Green Seal