Asthma in Schools: The Health Perspective
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Relevance of Asthma among Children in Georgia

What is Asthma?
• Long-Term or Chronic
• Lung Disease
• Overreaction of the Airways in the Lungs
• Not Curable
• Caused by Triggers
• Can Be Controlled with Proper Care

Quality HVAC
• Maintain HVAC systems regularly
• Establish a maintenance plan
• Change fan filters regularly and ensure
• Routine inspection and testing
• Clean or replace filters on a regular basis
• Ensure all units are functional

Control of Moisture/Mold
• Conduct biannual moisture, mold, and
• Establish mold prevention and remediation
• Conduct inspections
• Develop plans
• Use moisture meters
• Use only non-toxic, low-emitting products
• Use only non-toxic, low-emitting products

Effective Cleaning & Maintenance
• Conduct regular inspections
• Develop a preventative maintenance plan
• Train cleaning/maintenance staff on
• Ensure material safety data sheets (MSDS)
• Use only low-toxicity and low-emitting products

Smart Materials Selection
• Maintain products inventory
• Develop low-emitting products purchasing
• Use only formaldehyde-free materials
• Use only low-toxicity and low-emitting products

Aggressive Source Control
• Conduct regular building walkthroughs
• Test for radon; mitigate if necessary
• Implement a hazardous materials management plan
• Establish a school chemical management and
• Implement Smoke-Free policies
• Establish an anti-idling school bus policy

What Happens in the Lungs during an Asthma Episode?
• Swelling
• Muscle Tightening
• Excess Mucus

Georgia Asthma Prevalence in Schools
Prevalence of current asthma among middle and high school students by sex, Georgia, 2007 and 2009

Source: Georgia Youth Risk Behavior Surveillance Survey

What is Asthma?
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• Lung Disease
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What to do in an Asthma Emergency?

Remove the child from any triggers, if known

Administer Reliever Medication as instructed in the asthma action plan

Follow the child’s Asthma Action Plan

Do not leave the child alone

Have the child sit upright

Calm the child down

If asthma signs do not improve immediately call 911 or go to the nearest emergency room

Key Note:
Remember to contact the child’s parent or guardian after calling 911.

Types of Medications

Reliever Medication
- Relieve acute asthma symptoms
- Works quickly
- Use during an asthma episode

Controller Medication
- Prevents asthma symptoms
- Long-term control
- Taken Daily

Reducing Asthma Triggers in the School Environment

Common Asthma Triggers:
- Animal dander
- Cockroaches/rodents
- Mold
- Secondhand smoke
- Dust and dust mites
- Cleaning products
- Outdoor environment
- Air fresheners

Emergency symptoms:
- Trouble walking or talking
- Blue or Gray lips and fingernails
- Chest and Neck Retractions

Emergency symptoms:
- Trouble breathing
- Blue or Gray lips and fingernails
- Chest and Neck Retractions

Common symptoms:
- Wheezing
- Coughing
- Tightness of chest
- Shortness of breath
- Chest pain
- Chest tightness
- Feeling weak/tired

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Reducing Asthma Triggers in the School Environment

Mold and Moisture Control:
Fix plumbing and moisture problems to reduce/prevent mold growth.
Avoid installing carpet in areas likely to be exposed to moisture.
Maintain appropriate moisture levels in school.
Report signs of water damage and/or mold growth immediately.

Reducing Asthma Triggers in the School Environment

Perfumes and Cleaning Products:
Do Not use spray deodorizers in the classroom.
Use cleaning supplies when children are not present and use in areas with adequate ventilation.
Consider using “green” cleaning products, which are non-toxic and biodegradable.

Reducing Asthma Triggers in the Childcare Center Environment

Dust and Dust Mites:
Keep classrooms as clean and clutter-free.
Dust furniture regularly with a damp cloth and allow sufficient time to dry.
Maintain appropriate ventilation.
Do not block air intake or outlet vents.
Replace drapes with blinds.
Replace carpeting with hard floors.

Reducing Asthma Triggers in the School Environment

Outdoor Triggers:
Check the Air Quality Index before outside play/sports.
Adopt Tobacco-Free Zones on school property and at school events.
Schedule lawn maintenance during non-school hours.
Implement No-Bus Idling policies.

How to Support Asthma Friendly Schools

• Tobacco Free Schools
• Implement IEQ Strategies
• School adherence to SB 472- Student Self Administration and Carrying of Asthma Medications
• Implement No Bus Idling policies
• Identify asthmatic students and implement Asthma Action Plans for each of them.
• Routine asthma management training for school staff, teachers, coaches, and facilities personnel.
• Promote awareness of outdoor air quality

Impact of Asthma in Richmond County Schools in 2006
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• 4 Children died of asthma between September 2006 and November 2006
  – Only 2 deaths of children from asthma between 1999 and 2003
  – Baseline of 0.5 deaths per year from 1999-2004
• This prompted an investigation from the CDC

Building our Asthma Coalition

Called first meeting December 2006 regarding the recent deaths
6 individuals attended and represented the following groups
- Richmond Co Board of Education
- Medical College of Ga
- Allergy and Immunology Clinic
- Respiratory Care Service
- School of Allied Health, Respiratory Care
- East Central Health Department
Agreed to form a Coalition with goals directly related to the CDC findings
Would invite any and all those in the community that could offer help
Agreed to a Grass Roots organization
Would meet once a month no matter who could came

Results of the CDC Investigation
March 2007

• Inconsistent use of inhaled corticosteroids
• Overuse of rescue meds
• Delay in medical treatment
• No definitive environmental links
• Most standard risk factors applied but were varied

CDC Recommendations

• General
  - Asthma alert days notification
  - Media campaign for awareness
  - Formulation of Asthma coalition
• Healthcare System
  - Referral to specialist for high risk patients
  - Allergy shots in severe allergic asthma
  - Case managers for multiple asthma emergency visits or hospitalizations
  - Pharmacy notification to PCP on refill of rescue meds
• Patient/Guardian Education
  - Asthma triggers
  - Importance of compliance of controller meds
  - Recognizing symptoms of asthma and its exacerbation
  - Seeking medical attention early
• School
  - Record of MDI use
  - Communicate use of meds to parents
  - Asthma Action plan with a copy at school
  - Protocol for Asthma emergencies
  - Asthma Education program for PE teachers and coaches

Asthma In Our Schools

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Clear the Air Project

- $30,000 grant from the W. G. Raoul Foundation
  - IAQ
  - Asthma Education for students and teachers

Primary Partners

To be successful we would need to connect
Healthcare
Home
School

Our Mission

Initially was a simple two fold approach
- Community Awareness
  - Wellness events and health fairs
  - Media coverage of poor air quality days
- Education of patients and families
  - Targeted at all access points to healthcare
Our membership
- Anyone with an interest
- Richmond County School System
- American Lung Association
- University Hospital
- Medical College of Georgia Hospital
- East Central Health District
- Parents
- Medicaid providers
- Pediatricians
- Allergists
- EPA
- MCG Pediatric Asthma Clinic
- Richmond County School Board
- CMS Nurses
- MCG School of Respiratory Therapy

Immediate Goals
- Educate PE Coaches and school RNs
- Educate teachers/parents/students
- Promote awareness of asthma and the severity
- Assure all have a current Asthma Action Plan
- Communicate air quality thru local media
- Connect schools, parents and healthcare providers
- Employ Asthma Education Health Curriculum for schools
- Increase public’s awareness of about asthma and asthma deaths

Our Accomplishments in 12 months
April 2007 Education for a consistent message
- American Lung Association Asthma 101
- 3 RTs trained as instructors and 41 trained to educate
May 2007 First organized event 200 children
- Education based for those with documented asthma
September 2007 Bash Asthma at the Border Bash
- Awareness event, very no budget!
October 2007 First Grant supported event
- Provided spacer and peak flowmeter kit to 47 kids
- Four highest risk schools visited and trained all personnel

2008
- Community Organized Task force with expanded goals and more involvement
- Realized our goal of Asthma 101 to all Richmond Co schools
- Expanded to Columbia County
- 6 Health Fair and awareness events
- ALA Asthma Institute in Augusta with 3 AE-C
- Confidential fax for Asthma action plans to schools

2009
- Merck Sponsored Community Symposium for healthcare providers
- Headstart providers educated
- Partnerships with faith based organizations
- Girl Scout Asthma Awareness badge
- CMS nurse partnership
- Expansion to additional 2 county area with education
- 8 additional AE-C
- Asthma Response Team at MCG ED

2009
- Richmond and Columbia County protocol for asthma emergencies completed
- Pulse oximeters provided thru the East Central Health Department to schools
- Jet nebulizers in all the schools
- 3 Grant funded events with 500 kits provided
- 6 Health Fairs
2010

- 3 funded events with 600 kits provided
- 8 health fair events
- 2 additional AE-C
- Expansion to 2 additional counties
- Research

CDC Recommendations

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Research

- Diesel Exhaust/Bus Idling
- How Asthma Friendly is Your School Survey?
- IAQ Assessments
- Asthma Education for students and teachers
  - Asthma Mini-Camps
  - Peak Performance USA Asthma Education
  - Diesel Exhaust/Bus Idling
  - How Asthma Friendly is Your School Survey?
  - IAQ Assessments
  - Asthma Education for students and teachers
  - Asthma Mini-Camps
  - Peak Performance USA Asthma Education

Clean My R.I.D.E (Reduce Inhalation of Diesel Exhaust)

- 22,000 students (66.61%) in the Richmond County school system are transported by bus each day.
- Buses at many of the schools in Richmond County were observed idling.
- Grant from East Central Health District

Clean My R.I.D.E

- We assessed particulate counts (<2 um) using a Met One 237B Portable Airborne Particle Counter.
- Counts were collected in the bus loading areas at five schools in Richmond County prior to, during, and after school dismissal.
- The counts were taken on three different days for each school during August and September, 2008.
Results

- Baseline counts varied due to weather conditions, wind direction and velocity, and environmental conditions.
- Factors that contributed to increase peak counts included: amount of time buses and older model cars idled, number of buses arriving and departing, and the configuration of the bus loading zone.
- One school demonstrated a 153% increase above mean during bus loading.
- In one case an idling car increased the < 2 um particulate count 684% from a mean of 127,390 particulates/minute to 1,000,000 particulates/minute.

Outcomes

- The Richmond County Board of Education has a No Bus Idling Policy.
- Policies on when grass can be mowed.

Clean Schools, Healthy Kids

- Grant from the East Central Health District
- Assess the status and priorities for implementing asthma management strategies in schools in the ECHD
- Used the National Heart Lung Blood Institute’s “How Asthma Friendly is Your School” survey.
- We received permission from 7 out of 13 (53.8%) of the counties. 41 of the 112 (36.6%) schools returned the surveys.
Results

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
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<td>Is your school free of tobacco smoke at all times?</td>
<td>98%</td>
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<td>Does your school have an indoor written Indoor Air Quality (IAQ)</td>
<td>14.6%</td>
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<td>63%</td>
<td>36.6%</td>
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Needs Assessment

- Principals placed IAQ management plans and education as their top priorities

Clear the Air Project

- $30,000 grant from the W. G. Raoul Foundation
  - IAQ
  - Asthma Education for students and teachers

Indoor Air Quality

- Three superintendents chose to participate and suggested a school that had either a high number of asthmatic students or known air quality problems.
- The EPA’s “IAQ Tools for Schools Action Kit” was selected to help the schools identify, correct and prevent IAQ problems

Results

- The CO2 levels were higher than recommended in a significant number of the class rooms in each school.
  - The causes for these increases included dirty filters, blocked air vents and ventilation systems that were turned off.
- IAQ problems included
  - Dust
  - Ventilation problems
  - Use of fragrances such as cleaning products or air fresheners in the class rooms
  - Items that harbor dust mites, dust and pollen such as curtains, stuffed animals, or rugs
CO2 Levels
Pre/Post Policy Change

Outcomes
- The principal at one school has implemented a policy to address the increased CO₂ levels.
  - Follow up demonstrated some progress with the policy.
- The three schools do not permit unauthorized fragrance or cleaning products in classrooms.
- One school system has adapted an IAQ management plan that includes the use of green products only.

Asthma Mini-Camps and Faculty Education
- Asthma Mini-Camps
  - Education sessions with games that reinforce the education for students with asthma
    - 2 hour session with all asthmatic students
    - 1 hour session with small group (2-8 students)
    - 2 one hour sessions in PE classes for ALL students in the school
    - GHSU Respiratory Therapy Students developed the curriculum and participated in the camps
- Each asthmatic student received a Peak Flow Meter, Holding Chamber and CD about asthma

Results of Asthma Mini-Camps
- School 1- 77 students
- School 2- 30 students
- School 3- 42 asthmatic students
  - 304 non-asthmatic students

Total 453 students
Peak Flow USA

- Peak Performance USA
  - National asthma awareness program sponsored by the American Association for Respiratory Care, with support from pharmaceutical companies.
- Goals:
  - increase awareness of signs and symptoms of asthma
  - control environmental measures that trigger asthma
  - improve knowledge
  - attitudes and skill of school staff about the detection
  - treatment and control of asthma
  - promote education to school personnel about student self-carry and self-administration of medication.
- Each participant received an educational packet

Peak Flow USA Results

- School One 50 participants
- School Two 26 participants
- School Three 24 participants
Total 100 participants

Outcomes

- Pre and Post Test
  - Improvement in asthma knowledge

Future Work

- Educating students with asthma at School Health Fairs (including a kit with peak flow meter, holding chamber and DVD.)
- Summer Asthma Day Camp
Building an Asthma Coalition
**Outcomes**

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**Clean Schools, Healthy Kids**

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<td>Is there an established asthma education program that includes asthma classes, written educational materials, asthma emergency procedures, and other educational programs for students and staff?</td>
<td>36.6%</td>
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<td>Does your school have a written action plan for each child with asthma in case of a severe episode?</td>
<td>63%</td>
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**Clear The Air Project**

**CO2 Levels Pre/Post Policy Change**

“We never would have known what to look for if you hadn’t given us the training!”
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Future Impact

- “The biggest lesson learned was that we as healthcare professionals, particularly RTs, desperately need to educate our communities about every aspect of asthma. The lack of education is worse than I expected and is sad because lives are lost because of this.”
  - Teonna Griggs
  - RT Class of 2012

Future Work

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Breakout Session Q&A

- Review your actions and strategies that you would like to apply to your own work.
- Please be ready to discuss these actions in your own words.