Asthma Management
In Schools

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North East Independent School District
Summarize NEISD's six key driver framework and its best practice strategies for achieving healthy environments as a means to improve the quality of life for the district's environmentally sensitive population.

Describe the importance of maintaining a healthy environment for all students as it relates to school funding and productivity of student's capacity to learn.

Evaluate the district’s four component approach and best practices used for Asthma Management /IAQ and the measured outcomes achieved.
Six Key Driver Framework

Organize
- Develop Systematic Approach: NAEPP Guidelines
- Create Buy-In Champions

Communicate
- Goals and Expectations

Assess
- Determine a baseline
- Identify risks

Plan
- Prioritize Actions
- Start Small
- Work in Stages

Act
- Educate and Train
- Identify sources of problems

Evaluate
- Feedback
- Capture ROI

Awareness
- Medication & Tools
- Education
- Environment
Mission Statement:

The Department of Environmental Health will address the needs of students and staff by creating a healthy environment and by providing technical and educational resources for the students and staff on air quality and asthma management. We utilize a four component approach to achieve a healthy environment for all students.

Our commitment to classroom indoor air quality and asthma management results in higher student/staff productivity and attendance which benefit the district with increased state funding, lower healthcare costs, and increased student performance.

Healthier children learn better.
Students, Parents, Staff, Community

NEISD Four Components of Control:

- Asthma Curriculum
- Environmental Curriculum
- Webinar/Podcasts to staff
- Staff Development /AFC
- Website
- Asthma Blow Outs
- Emergency Nebulizer Policy
- Asthma Action Plans
- NIHLI EPR 3 guidelines
- Health Check  data
- EMS incidents
- Inhaler usage
- Facility Assessment
- Air summary
- Facility scores
- Asthma Control Test

- Education and Removing Triggers from home / school environments
- Indoor Environment Quality Best Practices
- Tools for Schools
- Six Technical Solutions
- Tips for Healthy Classroom Air Quality

- School District impact
- Quality of Life Surveys
- Parent /Staff expectations
- Data, data, data feedback

Awareness

Medication & Tools

Environment

Education

Healthy Environments for ALL students

North East Independent School District
Department of Environmental Health
Impact on School Districts
- attendance
- performance

Quality of Life
- prevalence
- expectations

Communicate
- website
- Environmental relationship to health / performance

Awareness

North East Independent School District
Department of Environmental Health
Asthma is…

Environment
“Inducers”
Dust mite, cat dander,
Cockroach, mold,
ETS

Genetics

"Our genes may load the gun, but the environment pulls the trigger."
-- Ellen Silbergeld, Ph.D.

Asthma Development

Medication

Asthma Symptoms

Environment
Reduction of Triggers and Co-morbid conditions (allergy, reflux, obesity)

North East Independent School District
Department of Environmental Health
2007 NIH Goals of Asthma Therapy

- Prevent chronic and troublesome symptoms
- Minimal or no exacerbations
- No limitations on activities; no school/work missed
- Maintain (near) normal pulmonary function
- Infrequent use of inhaled short-acting beta\textsubscript{2}-agonist
- Minimal or no adverse effects from medications
- Meet patients’ and families’ expectations of and satisfaction with care
- Prevent progressive loss of lung function; prevent reduced lung growth
Number of asthmatics in NEISD schools: 8,061

Average number of school days missed due to asthma (CDC): 8

Attendance daily rate by state: $32.00

Potential revenue LOST: $2,063,616.00

Benefits possible when Asthma /Allergy Control Environmental measures applied:

Reducing average number of schools days missed due to asthma by 50%..... $1,031,808.00

Improving all asthmatics attendance by only ONE day.... $257,952.00
<table>
<thead>
<tr>
<th>Components of Severity</th>
<th>Classification of Asthma Severity: 5–11 Years of Age</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Intermittent</td>
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<tr>
<td><strong>Symptoms</strong></td>
<td></td>
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<tr>
<td>≤ 2 days/week</td>
<td>&gt; 2 days/week but not daily</td>
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<tr>
<td>&gt; 2 days/week but not daily</td>
<td></td>
</tr>
<tr>
<td>≥ 2x/month</td>
<td>3–4x/month</td>
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<tr>
<td>= Several times per day</td>
<td></td>
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<tr>
<td>≤ 2x/month</td>
<td></td>
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<tr>
<td>≥ 2x/month</td>
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<td></td>
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<tr>
<td>= Several times per day</td>
<td></td>
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<tr>
<td>= 0–1/year</td>
<td>≥ 2/year</td>
</tr>
<tr>
<td>= Consider severity and interval since last exacerbation. Frequency and severity may fluctuate over time for patients in any severity category.</td>
<td></td>
</tr>
<tr>
<td>= Relative annual risk of exacerbations may be related to FEV$_1$</td>
<td></td>
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</tbody>
</table>

**Recommended step for initiating therapy**
(See figure 4–1b for treatment steps)

- **Step 1**
- **Step 2**
- **Step 3, medium-dose ICS option, or step 4**
- **Step 3, medium-dose ICS option, or step 4**

In 2–6 weeks, evaluate level of asthma control achieved; adjust therapy accordingly.
### Components of Control

<table>
<thead>
<tr>
<th>Classification of Asthma Control: 5–11 Years of Age</th>
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</thead>
<tbody>
<tr>
<td>Well controlled</td>
</tr>
<tr>
<td><strong>Impairment</strong></td>
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<tr>
<td><strong>Symptoms</strong></td>
</tr>
</tbody>
</table>
- ≤ 2 days/week but not more than once on each day | >2 days/week or multiple times on ≤ 2 days/week | Throughout the day |
| Nighttime awakenings | 
- ≤ 1x/month | ≥ 2x/month | ≥ 2x/week |
| Interference with normal activity | None | Some limitation | Extremely limited |
| Short-acting beta2-agonist use for symptom control (not prevention of EIB) | 
- ≤ 2 days/week | > 2 days/week | Several times per day |
| Lung function: 
  • FEV₁ or peak flow | > 80% predicted or personal best | 60%–80% predicted or personal best | < 60% predicted or personal best |
  • FEV₁/FVC | > 80% predicted | 75%–80% predicted | < 75% predicted |
| Exacerbations requiring oral systemic corticosteroids | 0–1 per year | ≥ 2/year (see note) | Consider severity and interval since last exacerbation |
| **Risk** | | |
| Reduction in lung growth | | |
| Treatment-related adverse effects | | |
| Medication side effects can vary in intensity from “none” to “very troublesome and worrisome.” The level of intensity does not correlate to specific levels of control but should be considered in the overall assessment of risk | | |

**Recommended action for treatment**

(See figure 4-1b for treatment steps)

- Maintain current step
  - Regular follow-up every 1–6 months
  - Consider step down if well controlled for at least 3 months
- Step up at least 1 step and reevaluate in 2–6 weeks
  - For side effects: consider alternative treatment options
- Consider short course of systemic oral corticosteroids
  - Step up 1–2 steps and reevaluate in 2 weeks
  - For side effects: consider alternative treatment options

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National Asthma Education and Prevention Program; Expert Panel Report 3; Guidelines for the Diagnosis and Management of Asthma
Each Step: Patient Education, Environmental Control, and Management of Comorbidities

Steps 2–4: Consider subcutaneous allergen immunotherapy for patients who have persistent, allergic asthma.

Quick-Relief Medication

- SABA as needed for symptoms. Intensity of treatment depends on severity of symptoms: up to 3 treatments at 20-minute intervals as needed. Short course of oral systemic corticosteroids may be needed.

Caution: Increasing use of SABA or use >2 days a week for symptom relief (not prevention of EIB) generally indicates inadequate control and the need to step up treatment.
Co-Morbid Conditions Contributing To Asthma Severity

- Rhinitis
- Sinusitis
- Gastroesophageal reflux disease (GERD)
- Obesity
Parent understanding of Asthma Action Plan

2 types of medications

**Maintenance meds**

- **Nasal Steroid Sprays:**
  - Beconase AQ®, Vancenase DS AQ® (beclomethasone)
  - Flonase® Veramyst® (fluticasone)
  - Nasacort AQ®, Nasacort® (triamcinolone)
  - Nasarel® (flunisolide)
  - Nasonex® (mometasone)
  - Rhinocort® (budesonide)

**Reliever meds**

- If you DO NOT feel better in 20 to 60 minutes FOLLOW THE RED ZONE PLAN

- CALL 911 (EMS) IF: Lips or fingernails are blue, or you are struggling to breathe, or you do not feel or look better in 20-30 minutes.

- **North East Independent School District**
  - **Department of Environmental Health**

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**Asthma Medicine Plan**

You can use the colors of a traffic light to help learn about your asthma medicines:

- **GREEN means GO!!**
  - No cough or wheezing
  - Can work and play
  - Breathing is good

- **YELLOW means CAUTION!!**
  - Not applicable (no prevention medicines)

- **RED means DANGEROUS (use extra medicines and call your doctor NOW!!)**
  - Breathing is hard and fast
  - Coughing
  - Wheezing
  - Can’t talk well

**Use Prevention Medicines Every Day**

**START TAKING QUICK RELIEF MEDICINE**

1. Keep taking GREEN ZONE MEDICINES
2. Take QUICK-RELIEF MEDICINE TO KEEP AN ASTHMA ATTACK FROM GETTING BAD

**Use Quick-Relief Medications**

- Meds to take: Reliever Meds
- Take: Nasal Steroid Sprays
- How much to take: May repeat, time, 20 min apart
- How much to take: (for doctor’s office or emergency room)

**Green Zone Medicines**

- **Not Applicable (no prevention medicines)**
- **Yellow Zone Medicines**
- **Red Zone Medicines**
- **Medication Self-Administration**
- **Parent Recommendations for Medication Self-Administration**
- **Parent Recommendations for Air Quality Alert Days**
- **Parent Recommendations for Outdoor Exercise**
- **Parent Recommendations for Limited Outdoor Activity**
- **Parent Recommendations for Exercise as Tolerated**
- **Other:**

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Medication Talking Points

- Overuse of Reliever Medication
- Oral vs Inhaled Steroids
- HFA vs CFC
- It's all in technique – reeducate at every clinic encounter
Continuity of Care

Physician and Parent communication

Inhaler usage & nebulizer protocol

Activity level & ACT

Attendance & performance

**North East Independent School District**

**Department of Environmental Health**

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**Components of Control**

<table>
<thead>
<tr>
<th>Impairment</th>
<th>Classification of Asthma Control</th>
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<tbody>
<tr>
<td></td>
<td>Well controlled</td>
</tr>
<tr>
<td>Symptoms – wheezing</td>
<td>≤ 2 days/week</td>
</tr>
<tr>
<td>Cough, tightness</td>
<td></td>
</tr>
<tr>
<td>Night time Awakenings</td>
<td>≤ 2x / month</td>
</tr>
<tr>
<td>Interference with</td>
<td>none</td>
</tr>
<tr>
<td>Normal activity</td>
<td></td>
</tr>
<tr>
<td>Allergen usage for</td>
<td>≤ 2 days/week</td>
</tr>
<tr>
<td>Symptom control</td>
<td></td>
</tr>
<tr>
<td>Not prevention EIB</td>
<td></td>
</tr>
<tr>
<td>Peak Flow</td>
<td>&gt; 80% predicted / personal best</td>
</tr>
<tr>
<td>Asthma Control Test</td>
<td>≥ 20</td>
</tr>
</tbody>
</table>

The family was asked to schedule an appointment with you for reevaluation.

NEISD strives to be proactive in asthma management of our students' life so that they may receive a quality education. Our program goals for all our students with asthma are to improve attendance and decrease class time interruptions due to symptoms (increase student performance), and fully participate in desired physical activities (promotes healthy lifestyle). We need your help with the following:

- Please reassess this child and her/his current medical regime
- Please send us an Asthma Action Plan so that we can assist with your management plan.
- Other

Parents have provided permission for us to exchange information. Please reach us if these are questions or concerns.

Health Services Director: ___________________________ School Nurse: ___________________________

School Principal: ___________________________ Phone: ___________________________ Fax: ___________________________

I permit my child’s doctor to communicate with the school staff regarding my child’s asthma.

Parent Signature: ___________________________ Date: ___________________________
Organize

• Six Key Drivers ‘Tools for Schools’ program
• Six Technical Solutions
• Asthma Triggers

PLAN

• Create Asthma Friendly Campus
• Facilities trades cross-training
• Custodial training
• Administrators awareness
• Staff development

Data Collection

• Inhaler usage
• Walk throughs
• Facility Assessments
• Attendance

ACT

• “Tips” for healthy classroom
• Green Cleaning Program
• Anti Idling
• Hand Hygiene
• Facility Trades
• Air Quality Health Alert monitoring (www.airnow.gov)

Communicate

• Administrators (campus & facilities)
• Teachers
• Website
• Webinars/podcasts

Environment

North East Independent School District
Department of Environmental Health
The Framework for Effective School IAQ Management: Six Technical Solutions

Quality HVAC
- Inspect HVAC systems regularly
- Establish a maintenance plan
- Change filters regularly and ensure condensate pans are draining
- Provide outdoor air ventilation according to ASHRAE Standard or local code
- Clean air supply diffusers, return registers, and outside air intakes
- Keep unit ventilators clear of books, papers, and other items

Control of Moisture/Mold
- Conduct routine moisture inspections
- Establish mold prevention and remediation plan
- Maintain indoor humidity levels between 30% and 60%
- Address moisture problems promptly
- Dry wet areas within 24-48 hours

Strong Integrated Pest Management (IPM)
- Inspect and monitor for pests
- Establish an IPM plan
- Use spot treatments and baits
- Communicate with occupants prior to pesticide use
- Mark indoor and outdoor areas treated with pesticides

Effective Cleaning & Maintenance
- Conduct routine inspections of school environment
- Develop a preventative maintenance plan
- Train cleaning/maintenance staff on protocols
- Ensure material safety data sheets (MSDS) are available to staff
- Clean and remove dust with damp cloth
- Vacuum using high-efficiency filters

Smart Materials Selection
- Maintain products inventory
- Develop low-emitting products purchasing and use policies
- Use only formaldehyde-free materials
- Use only low-toxicity and low-emitting paint
- Select products based on product rating systems
- Use least toxic cleaners possible (only those approved by the district)

Aggressive Source Control
- Conduct regular building walkthrough inspections
- Test for radon; mitigate if necessary
- Implement a hazardous materials plan (use, label, storage and disposal)
- Establish a school chemical management and inventory plan
- Implement Smoke-Free policies
- Establish an anti-idling school bus policy
- Use walk-off mats at building entrances
- Conduct pollutant-releasing activities when school is unoccupied

Indoor Air Quality (IAQ)
North East Independent School District
Department of Environmental Health
Tips for Providing a Healthier Learning Environment

**HVAC**
- Maintain Quality HVAC to allow circulation of air in your classroom
  - AC units should not be used as bookcases or to store dust-collecting items, decorations, plants, books, clutter, etc.
  - Do not use rooms designed for offices as classrooms
  - Keep fans in 'on' position in portables when occupied
  - Do not block air supply or exhaust vents
  - Communicate with facility staff regarding mechanical systems for your classroom
  - Keep your room comfortable for the general public not individual needs
  - Be aware of odors, perceived stuffiness in room, and pay attention to increases in IAQ symptoms of occupants (headache, itchy eyes, cough, and/or increases in nurse visits)

**Moisture/Mold**
- Control and Report Moisture in your classroom
  - Monitor and report if condensation occurs on inside of windows
  - Don’t allow stained ceiling tiles to remain
  - Report water leaks, dripping pipes, or water stains to administrator
  - Report findings of damp materials, sense of high humidity, and musty or moldy smells in classroom
  - Do not attempt to mask musty smells with chemicals
  - Don’t allow liquid spills on carpeting to remain without properly drying completely
  - Be aware of and report any signs of water (wetness or stains) in cabinets under sinks

**Integrated Pest Management (IPM)**
- Assist in strong Integrated Pest Management in your classroom
  - No live plants in soil; soil attracts pests
  - If caged small animals meet curriculum purposes, obtain Region 20 health certificate. To avoid pest infestations, daily cage cleaning and removal of animal waste by-product will be performed by teacher
  - Don’t allow food or beverages unless necessary. Use a plastic bin with lid that can be sealed to reduce the attraction of pests
  - Do NOT bring pesticides/insecticides from home. Report pest evidence
  - Minimize use of cardboard boxes; breeding ground for insects
  - Remove unused items from under sinks and closets where pests hide

**Cleaning & Maintenance**
- Allow Effective Cleaning practices in your classroom
  - Maintain a clutter free classroom where the custodian can effectively clean your room in 15 minutes or less
  - Avoid clutter by storing loose items in plastic bins with lids that can be wiped down
  - Avoid dust catching items, knickknacks, pillows, throw rugs, carpet squares, hanging items, stuffed animals, etc.
  - The accumulation of papers, books, out dated projects, etc. attract and harbor allergy laden dust, as well as impede effective cleaning.
  - Consider removing unused items from your classroom
  - At the end of the day clear floor to allow vacuuming/mopping

**Material Selection**
- Utilize Smart Material Selection for your classroom
  - Eliminate room deodorizers, air fresheners, plugins, candles, potpourri, and any other scented products
  - Avoid aerosol products, use towelette or wipe down options when available
  - Plants in clear water permitted, no soil
  - Avoid use of strong odor products; use low odor, less toxic alternatives (ie low odor dry erase markers)
  - Animals brought in should be for curriculum purposes only and in written lesson plan. Avoid bringing in any animals if there are children in class who are sensitive to animals, rodents or mice
  - Seal all art/science supplies tightly; use in well ventilated areas

**Source Control**
- Support Aggressive Source Control from entering the building
  - Do not allow students to bring stuffed animals, blankets, pillows from home; these harbor allergens/pests
  - District student/staff policy limiting 'overuse' of personal fragranced items. If chemical can be noticed beyond 3 feet personal space it is considered 'overuse'
  - Do not bring any chemical, fragranced items from home.
  - NON scented Febreze® antimicrobial™ pump spray permitted (found in cleaning aisle in stores)
  - No ionizers or purifiers. These create ozone which is a lung irritant
  - No upholstered furniture brought from home
Planning leads to Action

- Carpet Removal
- De-cluttering
- Green Cleaning
- Custodial Training
- Cleaning Efficiency
- HVAC Filter program - MERV 8 to MERV 13
- Integrated Pest Management
- EMC Commissioning
- HEPA Filter Vacuums
- Water intrusion trailer
- Drying Equipment
- Earth Retainer Blocks
- Chemical ‘overuse’ Policy
- Occupant Best Practices “Tips”

Environmental Walk Thru / Work Order

North East Independent School District
Department of Environmental Health
North East Independent School District
Department of Environmental Health

Education

Staff
- Faculty/Administrator In-services
- End of Year Procedure
- Asthma Friendly Campus Award
- Facilities Maintenance/Support
- Asthma Blow Out!

Student
- Curriculum via CATCH program
- Healthy Lifestyles high school course (graduation requirement)
- Asthma Blow Out!
- Asthma Awareness Week
- Healthy Schools Week

Parent
- PTA/Campus hosted events
- Parent letter on environment
- Asthma Blow Out!
- Website
- Bond Program
Tools for Schools Program

http://www.epa.gov/iaq/schools/
www.epa.gov/iaq/schools/healthcare.html
Challenge

Asthma/Allergy Triggers
- Stuffed things
- Carpet
- Over populated Clutter
- High Particle counts
- Odors/Smells
- Mold
- Infection Control
- Pests
- Passive Transmission of allergens
- Dust mite
- VOC’s

EPA Technical Solutions

- HVAC
- Moisture/Mold
- IPM
- Cleaning & Maintenance
- Materials Selection
- Source Control

North East Independent School District
Department of Environmental Health
What Do Asthmatics Need To Learn?

- Basic concepts about asthma (awareness)
- Avoidance mechanisms (environment)
- Medication actions and technique (medication)
- Skills associated with managing asthma (education)
You have to.....
Communicate,
Communicate
Communicate
To change a culture

Diane Rhodes
drhode@neisd.net