Be prepared for an Asthma Emergency! Is your school ready?

Deb Robarge BSN RN NCSN

IN Association of School Nurses – Executive Director

PollEverywhere: Text DEBR319 to 37607 to participate in 3 polls

Learning Objectives for this Breakout Session

- Participants will:
- Be able to name three important factors in a school's emergency action plan.
- Identify three factors that undermine health equity for students with asthma to address social determinants of health.
- Be able to identify three environmental factors that affect students' asthma in the school setting.

IN State Asthma Action Plan 2021 - Objectives

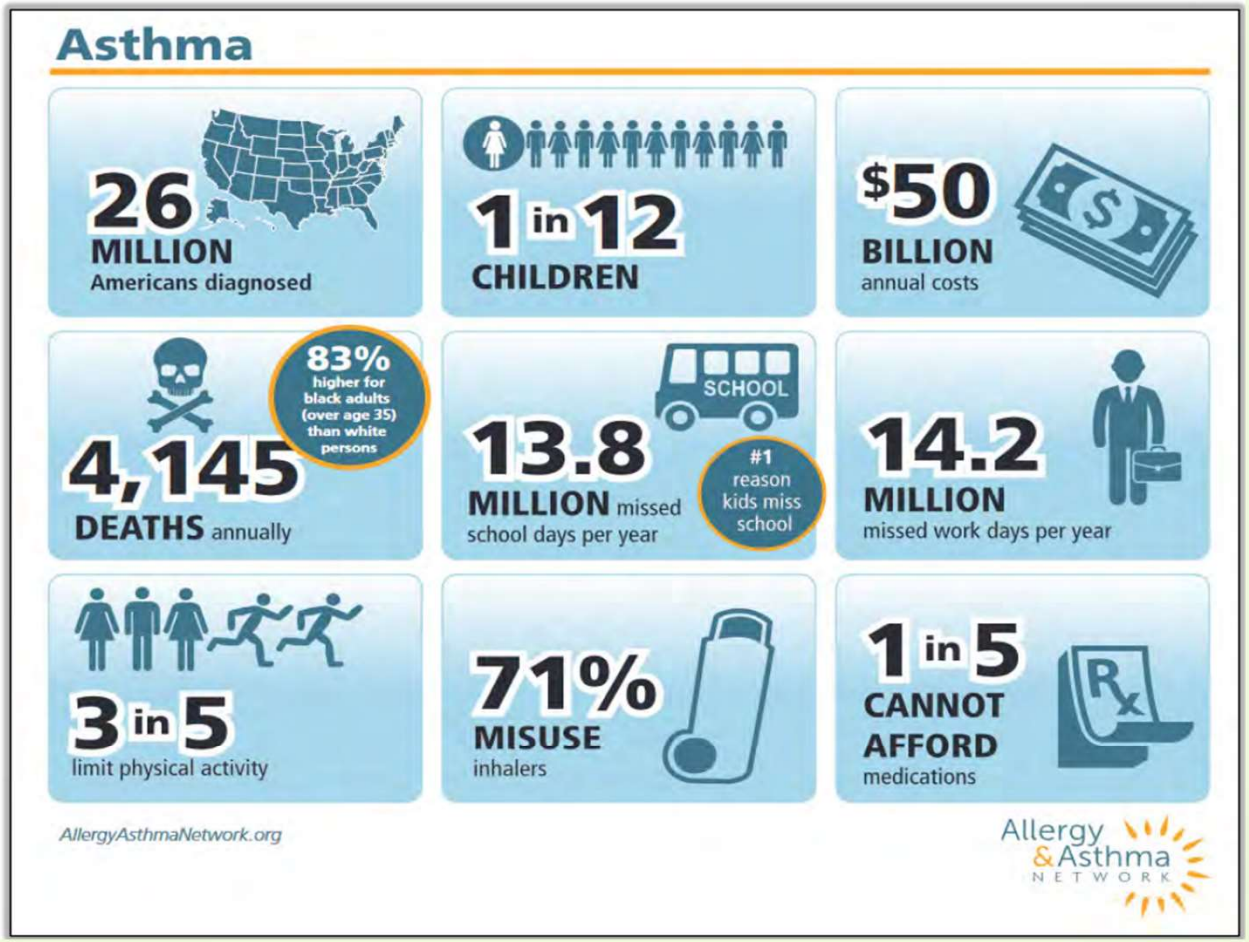
1. Reduce Environmental Triggers
2. Improve Quality of Care
3. Strengthen Asthma Programming Infrastructure

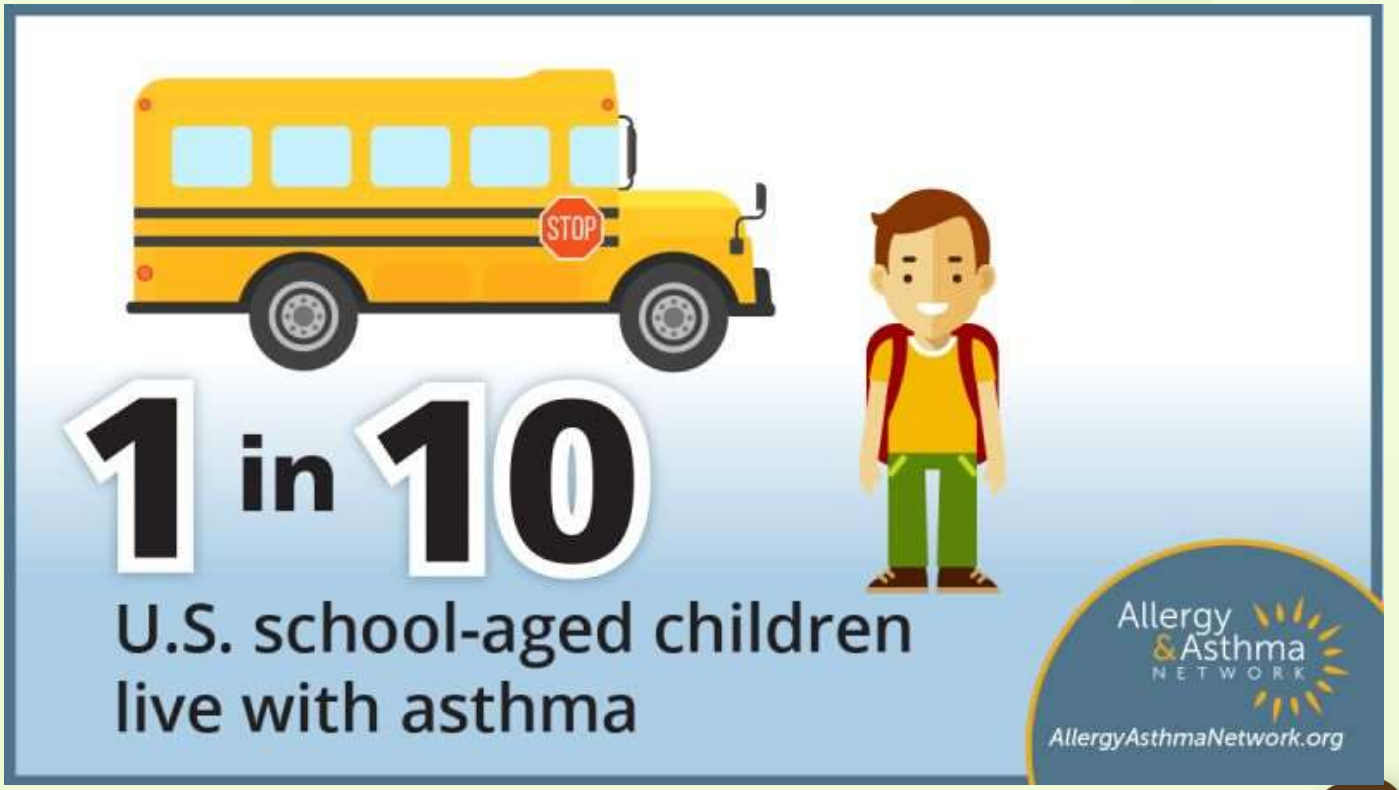
Why Schools should be Concerned about Asthma?

- Asthma is most common chronic disease in students
- Asthma is the leading cause of school absenteeism (1.54X more)
- Uncontrolled asthma can lead to reduced school performance
- Asthma can be controlled, and schools can help!
- On average, 10 people in the U.S. die from asthma each day. In 2021, 3,517 people died from asthma.*

*National Center for Health Statistics. National Vital Statistics System: Underlying Cause of Death 2018-2021. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention. https://wonder.cdc.gov/ucd-icd10-expanded.html 10. Nurmagambetov, T., Kuwahara, R., & Garbe, P.

Why is control of asthma important?



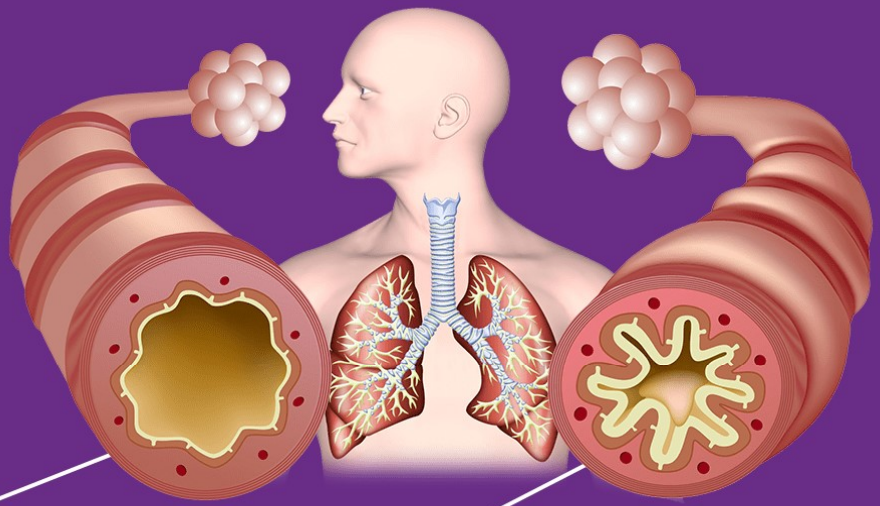

STOP
1 in 10
U.S. school-aged children
live with asthma
Allergy
& Asthma
NETWORK
AllergyAsthmaNetwork.org

Basics of Asthma - Review

- Chronic Inflammatory Disease of the Lungs and Airways
- Common symptoms – wheezing, coughing, chest tightness, shortness of breath
- Reaction to trigger causes respiratory muscles to become inflamed and obstructed
- No cure – managed through medication, avoid triggers, asthma action plan and up to date on vaccinations. Almost 60% have persistent asthma
- 8.6% (1/9) of children and 9.8% (1/10) adults with diagnosis. Rates highest among females, African American or Hispanic.

1. Indiana Department of Health, Health: CDPC: Chronic Respiratory Disease Home (in.gov) Retrieved April 4, 2023

What happens to your lungs when you have asthma



LUNG WITHOUT ASTHMA
- Muscles relaxed
- Normal airways
- Normal amount of mucus

LUNG WITH ASTHMA
- Muscles tighten
- Airways swell
- Mucus clogs the airways
- Lungs have difficulty moving air in and out

aafa Asthma and Allergy Foundation of America

aafa.org

True or False? All students with asthma have an updated asthma action plan?

True

False

Indiana statistics

- 97% of school nurse survey respondents reported having at least one student in their schools with asthma, estimated to affect 7% of students.*
- 26% of Indiana Schools stock Albuterol for emergency use*
- 141 administrations of stock Albuterol were reported in AY2018*
- 96% stock Albuterol given via nebulizer (pre-pandemic)*
- 44% of individuals who were administered Albuterol and had a history of asthma, **lacked an asthma action plan or medical treatment order**
- 21% of students given emergency Albuterol did **NOT** have a known history of asthma*

*IN School Nurse Survey 2018

Does your school district have a stock albuterol program?

A: Yes and a School Wide Emergency Plan

B: I am not sure - I think so

C: Yes, our school stocks albuterol but no Emergency Plan

D: I don't know

SA^{3}MPRO™-School Based Asthma Management Program

- Public Law 116-292: the Act became law January 2021 – to enhance safety of students at school – intent to provide grants to states
- Amendment added preference to states ensure school nurse or trained staffer available and…
- Individuals with asthma have written Asthma Action plan & Coordinated Support System
- Strategies in event of asthma incident planned:
  - Implement individual asthma action plans
  - Preparing school staff to assist in individual with attack.

Critical to have a prepared "Team"

- School Nurse critical component – child centered
- 25.2% No School Nurse, 35% Part-Time School Nurse, 39.4 % Full Time School Nurse
- If No School Nurse – who will lead the team? Administration must decide

Components of Asthma planning at School

- Individual Asthma Action Plan **for every** student diagnosed with asthma**
- Emergency Treatment Plans for individual students
- Comprehensive Asthma Education Plan for school personnel
- Comprehensive Environmental Asthma Plan to assess and remediate asthma triggers both home and school.
- Several types of asthma action plans are available. Will vary based on preference of Health Care Provider

American Academy of Allergy Asthma & Immunology

School-based Asthma Allergy Anaphylaxis Management PROgram™

Asthma Action Plan for Home & School

Name: **Birthdate:**

Asthma Severity: ☐ Intermittent ☐ Mild Persistent ☐ Moderate Persistent ☐ Severe Persistent
☐ He/she has had many or severe asthma attacks/exacerbations

☺ Green Zone — Have the child take these medicines every day, even when the child feels well.

Always use a spacer with inhalers as directed.

Controller Medicine(s): _____

_____

Controller Medicine(s) Given in School: _____

Rescue Medicine: _____ puffs every four hours as needed

Exercise Medicine: _____ puffs 15 minutes before activity as needed

😐 Yellow Zone — Begin the sick treatment plan if the child has a cough, wheeze, shortness of breath, or tight chest. Have the child take all of these medicines when sick.

Rescue Medicine: _____ puffs every 4 hours as needed

Controller Medicine(s): _____

☐ Continue Green Zone medicines: _____

☐ Add: _____

_____

☐ Change: _____

If the child is in the **yellow** zone more than **24** hours or is getting worse, follow **red** zone and call the doctor right away!

☹ Red Zone — If breathing is hard and fast, ribs sticking out, trouble walking, talking, or sleeping. **Get Help Now**

Take rescue medicine(s) now

Rescue Medicine: _____ puffs every _____

Take: _____

_____

If the child is not better right away, call 911

Please call the doctor any time the child is in the red zone.

Asthma Triggers: (List)

School Staff: Follow the Yellow and Red Zone plans for rescue medicines according to asthma symptoms.
Unless otherwise noted, the only controllers to be administered in school are those listed as "given in school" in the green zone.

☐ Both the asthma provider and the parent feel that the child may carry and self-administer their inhalers
☐ School nurse agrees with student self-administering the inhalers

Asthma Provider Printed Name and Contact Information:	Asthma Provider Signature: Date:

Parent/Guardian: I give written authorization for the medications listed in the action plan to be administered in school by the nurse or other school members as appropriate. I consent to communication between the prescribing health care provider/clinic, the school nurse, the school medical advisor and school-based health clinic providers necessary for asthma management and administration of this medication.

Parent/guardian signature: Date:	School Nurse Reviewed: Date:

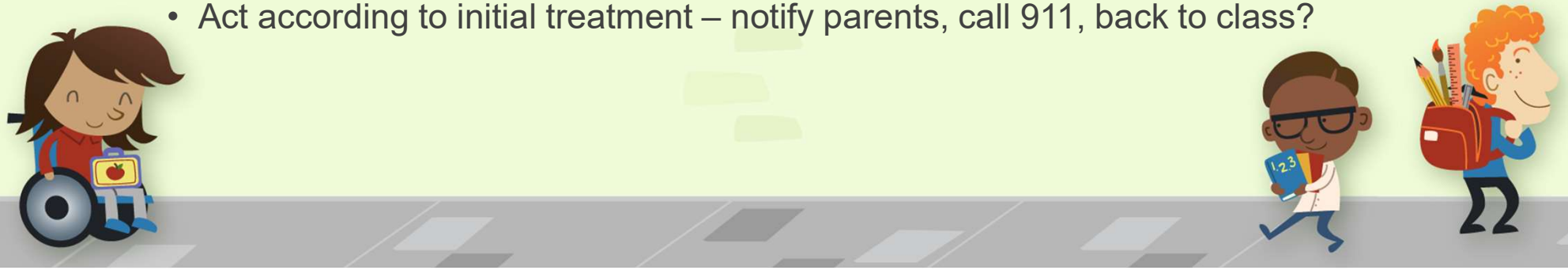
Please send a signed copy back to the provider listed above.

Who leads the asthma management team at your school?

A	B	C	D
A The School Nurse	B The Building Principal	C Other or I Don't Know	D What's a school asthma management plan?

Asthma Emergency Treatment Plan

- Covers all students with symptoms with (and without) updated individual plan:
- Identify students with mild persistent or more severe asthma
- Notify trained staff
- Assess Severity
- Provide initial treatment either student's prescription or stock medication
- Act according to initial treatment – notify parents, call 911, back to class?



Asthma Emergency Treatment Plan

Assess Severity

- Students at high risk for a fatal attack (see Risk Factors for Fatal Asthma Attacks below) require immediate attention after initial treatment.
- Symptoms and signs suggestive of a more serious exacerbation such as marked breathlessness, inability to speak more than short phrases, use of accessory muscles, or drowsiness should result in initial treatment while immediately calling 911.
- Less severe signs and symptoms can be treated initially with assessment of response to therapy and further steps as listed below.

Initial Treatment

- Inhaled SABA (albuterol) up to two treatments 20 minutes apart of either :
  - 2-6 puffs by metered-dose inhaler (MDI) and spacer (when available)
  - Nebulizer treatments with albuterol sulfate inhalation solution 0.083% (2.5 mg/3 ml).

Key: SABA: short acting beta2-agonist (quick relief inhaler)

Good Response

No wheezing, cough, or dyspnea (assess tachypnea in young children).

- Contact parent/guardian for follow-up instructions and further management.
- May continue inhaled SABA every 3 to 4 hours for 24-48 hours.
- Return to class and recheck later.

Incomplete Response

Persistent wheezing, cough, and dyspnea (assess tachypnea).

- Continue inhaled SABA as listed under initial treatment above.
- Contact parent/guardian, who should follow up urgently with health care provider.
- If parent/guardian not available, call 911.

Poor Response

Marked wheezing, cough, and dyspnea.

- Repeat inhaled SABA immediately.
- If distress is severe and nonresponsive to initial treatment, call 911, then call parent/guardian.

To Hospital Emergency Department

Modified by Robert Lemanske, MD and Kathleen Shanovich, RN, CPNP from Guidelines for the Diagnosis and Management of Asthma, National Asthma Education and Prevention Program, Expert Panel Report 3, U.S. Department of Health and Human Services, National Institutes of Health, and National Heart, Lung and Blood Institutes of Health, and National Heart, Lung and Blood Institute, October 2007, page 382.

ASTHMA/WHEEZING/ BREATHING DIFFICULTY

ALGORITHM FOR MANAGEMENT OF MEDICAL EMERGENCIES

NASN National Association of School Nurses

Injury and Illness Protocol Legend

- Note
- Information
- Question
- Action Step
- Final or near final step
- Final step

Students with a history of breathing difficulties, including asthma/wheezing, should be indentified to all staff who need to know. A health or emergency care plan should be developed.

A student with asthma/wheezing may have breathing difficulties which include:

- Wheezing - high-pitched sound during breathing out (exhaling).
- Rapid brathing.
- Flaring (widening) of nostrils.
- Increased use of stomach and chest muscles during breathing.
- Tightness in chest.
- Excessive coughing.

If available, refer to the student's health or emercengy care plan.

Does the student have a healthcare provider and parent/guardian approved medication?

Yes → Administer the medication as directed.

NO

Encourage the student to sit quietly, breathe slowly and deeply in through the nose and out through the mouth

Did the breathing difficulty develop rapidly?
Are the lips, tongue or nail beds turning blue?
Are symptoms not improving or getting worse?

NO → Contact responsible school authority & parent/guardian

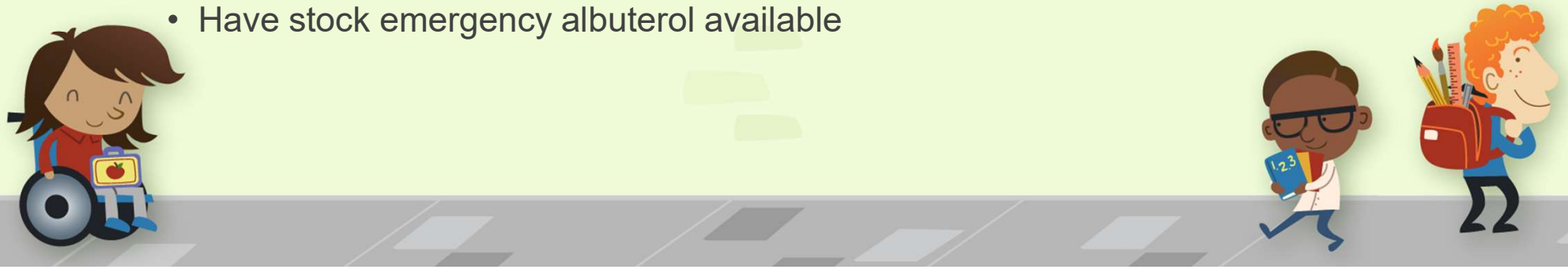
- If unable to reach parent/guardian, monitor student closely.
- If symptoms worsen, **CALL EMS/911**

Yes → **CALL EMS/911** Contact responsible school authority & parent/guardian.

Document care provided & medication administered, if applicable.

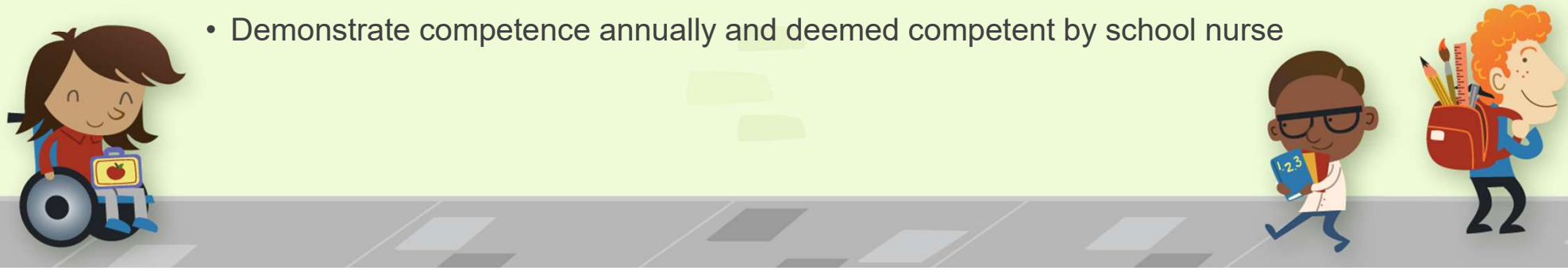
Develop a School Wide Asthma response plan

- NASN has model policy for Administering Emergency Medications at school
- Define terms including delegation, administer, bronchodilator etc.
- Written instructions from Health Care provider including conditions or symptoms to administer medication/treatment (avoid verbal only)
- Parent permission in writing
- District employee is authorized to administer emergency medication
- Have stock emergency albuterol available



Conditions for employee authorization

- Willing to accept this responsibility
- Authorized by principal or his/her designee
- Has received approved training from a professional nurse – specify
- Sufficiently instructed by the school nurse:
  - In recognizing signs and symptoms of asthma emergency
  - On the proper administration of indicated medication
  - On proper follow-up procedures after asthma medication administration
  - Demonstrate competence annually and deemed competent by school nurse



Stock asthma medications – develop management plan

- Obtain approval by school governing board with policy
- Plan must specify training needed to be approved to administer
- Plan must be approved by a Health Care provider
- Plan must be posted on school's website (if none- given upon request)
- Indiana's code: 20-34-4.5 Emergency Stock medications - albuterol
- Training from Indiana HC Provider (SN) and policy developed
- Report any emergency medications given to DOE School Nurse consultant

Stock Albuterol Is Critical for Asthma Emergencies

6.3 million
children with asthma

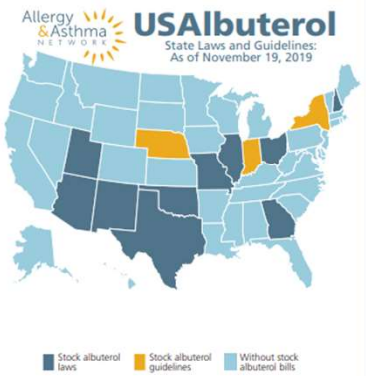
13.8 million
missed school days per year

Primary treatment for an asthma flare = quick-relief albuterol inhalers.

Asthma flares should be treated at the first sign of symptoms – any delay increases risk of hospitalization.

Laws in all 50 states allow children to carry albuterol inhalers at school – but what if the inhaler is lost, forgotten or expired?

13 states have laws or guidelines permitting schools to stock emergency supplies of albuterol inhalers and administer to a student experiencing an asthma flare.



"Increased access to albuterol inhalers helps ensure appropriate and timely treatment and keeps schoolchildren with asthma healthy, safe and in the classroom."

– Tonya Winders, President/CEO, Allergy & Asthma Network

Stock Albuterol Pilot Program in Columbus, Ohio Schools

Pediatric allergist David Stukus, MD, Nationwide Children's Hospital, developed school policy on storing and administering albuterol inhalers

+

TEVA Respiratory donated quick-relief inhalers and trainers

+

Allergy & Asthma Network provided training and educational resources

Headlines to avoid!

- A California School District to Pay $15.75 Million Over a Student's Fatal Asthma Attack: Family's Lawyer – district did not follow plan
- Lack of School Nurse Led to Daughter's Asthma Death: Father
- Boy of 11 dies of asthma attack at school after teacher was 'too busy to call him an ambulance – UK
- Kellen Edwin Bolden, age 10, sudden severe asthma attack led to death!

Health Equity Concerns in Asthma Care

- Health care disparity – differences in medical care that are not due to differing clinical needs, patient preferences or appropriateness of the intervention
- They are long standing, well documented and have complex origins both historic and contemporary – AMA definitions
- Asthma more common in African American children and adults – especially those living in poor urban areas
- Rate of asthma related ER visits and mortality compared to Caucasian:
  - 4.5 X higher ER visits
  - 7 X higher deaths

Patient-Centered Outcomes Research Institute (PCORI) Eugene Washington PCORI Engagement Award #EAIN 21130

ASTHMA AND ALLERGY DISPARITIES: AT A GLANCE

Compared to white Americans:

Black Americans are nearly **1.5 times** more likely to have asthma[1]

Puerto Rican Americans are nearly **2 times** more likely to have asthma[1]

Black Americans are **5 times** more likely to visit the emergency department due to asthma[2]

Black Americans are **3 times** more likely to die from asthma[3]

When sex is factored in, **BLACK WOMEN** have the highest rates of death due to asthma[3]

Compared to white children:

Black children are **more likely** to die from food-induced anaphylaxis[4]

Black children are **1.5 times** more likely to have skin allergies[5]

Black children are **7% more likely** to have food allergies[1]

[1] CDC, National Center for Health Statistics, National Health Interview Survey (2018)

[2] CDC, National Center for Health Statistics, National Ambulatory Medical Care Survey (2017)

[3] CDC, National Center for Health Statistics, National Vital Statistics System: Mortality (2018)

[4] Jerschow, E., Lin, R. Y., Scaperotti, M. M., & McGinn, A. P. (2014). Fatal anaphylaxis in the United States 1999–2010: temporal patterns and demographic associations. *The Journal of Allergy and Clinical Immunology*, 134(6), 1318–1328.e7. https://doi.org/10.1016/j.jaci.2014.08.018

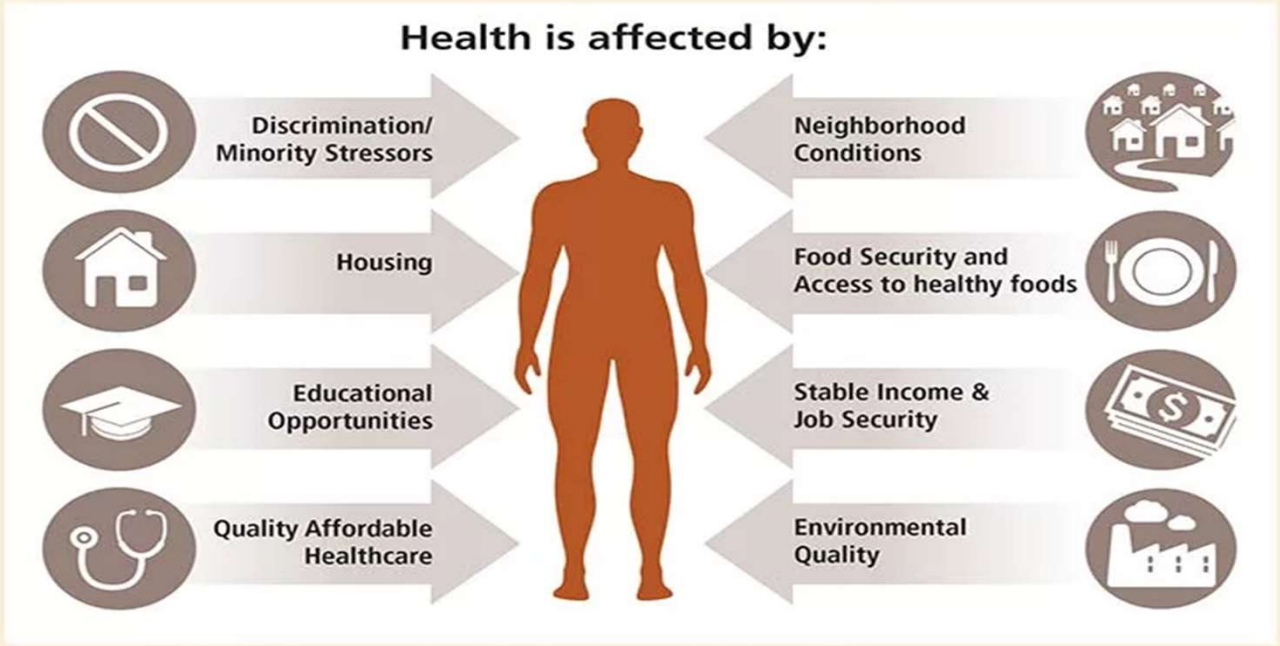
[5] Bilaver, L. A., et al. (2021). Prevalence and Correlates of Food Allergy Among Medicaid-Enrolled United States Children. *Academic Pediatrics*, 21(1), 84–92. https://doi.org/10.1016/j.acap.2020.03.005

aafa Asthma and Allergy Foundation of America

aafa.org/healthequity

The Path to Achieving Health Equity

What social and economic factors must be addressed on the continued path to achieving Health Equity?



Health Equity aims to ensure that all people have full and equal access to opportunities that enable them to lead healthy lives.

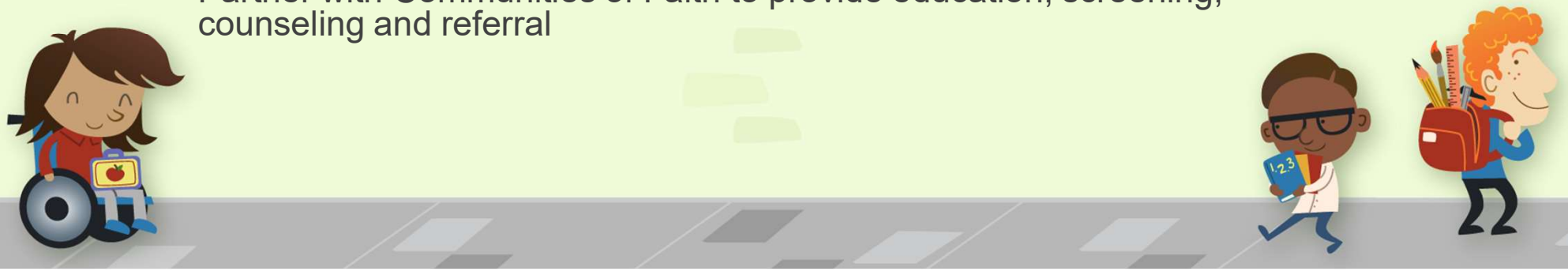
AllergyAsthmaNetwork.org

Why health disparities can lead to suboptimal outcomes:

- ACCESS TO CARE – LIMITED OR LACK OF TRANSPORTATION TO CARE
- INCOME – POVERTY CAN AFFECT ACCESS TO HEALTHCARE OR HEALTH INSURANCE
- ENVIRONMENT ALLERGENS AND IRRITANTS – LIVING IN URBAN AREAS SUBSTANDARD HOUSING
- EDUCATION INEQUALITY – LACK OF KNOWLEDGE AND UNDERSTANDING OF ASTHMA
- LANGUAGE AND CULTURAL DIFFERENCES
- HIERARCHY OF NEEDS – FOOD VS MEDICATION QUANDARY

Strategies to level the playing field

- Build trust with health care provider and trusted school personnel
- Education of all aspects of asthma
- Support reasons to control asthma before need for ER, steroid therapy or hospitalization
- Build rapport with school nurse – controller medication at school daily
- Increase the use of Community Health Workers – staff in pharmacies and Health Care Provider offices?
- Partner with Communities of Faith to provide education, screening, counseling and referral



New treatment research on the horizon

- Recent GINA (Global Initiative for Asthma) – more focus on as needed controller medications (formoterol) for recurrent wheezing or persistent asthma with or without SABA (short acting beta agonist) SMART therapy
- SMART therapy – singles maintenance and reliever therapy
- Study on mild persistent asthma – use of as needed inhaled steroid therapy – difficult to enforce daily ICS when mild symptoms*
  - Intermittent ICS for episodic wheeze or respiratory symptoms
  - Intermittent ICS with SABA only for symptoms up to 4 X/ day

*Evidence-Based Decision Making "As Needed Corticosteroid Therapy for Pediatric Asthma" NASN webinar

Allergy & Asthma NETWORK

(Example of action plan template for budesonide/formoterol. A similar action plan could be constructed for other ICS/formoterol formulations, eg, mometasone/formoterol)

My Asthma Action Plan

For Single Inhaler Maintenance and Reliever Therapy (SMART) with budesonide/formoterol

Name: _____ **Action plan provided by:** _____

Date: _____ **Doctor:** _____

Usual best PEF: _____ L/min *(if used)* **Doctor's phone:** _____

Normal mode

My SMART Asthma Treatment is:

☐ budesonide/formoterol 160/4.5 (12 years or older)

☐ budesonide/formoterol 80/4.5 (4-11 years)

My Regular Treatment Every Day:

(Write in or circle the number of doses prescribed for this patient)

Take [1, 2] inhalation(s) in the morning

and [0, 1, 2] inhalation(s) in the evening, every day

Reliever

Use 1 inhalation of budesonide/formoterol whenever needed for relief of my asthma symptoms

I should always carry my budesonide/formoterol inhaler

My asthma is stable if:

- I can take part in normal physical activity without asthma symptoms

AND

- I do not wake up at night or in the morning because of asthma

Other Instructions

_____

_____

Asthma Flare-up

If over a Period of 2-3 Days:

- My asthma symptoms are getting worse **OR NOT** improving

OR

- I am using more than 6 budesonide/formoterol reliever inhalations a day (if aged 12 years or older) or more than 4 inhalations a day (if aged 4-11 years)

I should:

☐ Continue to use my regular everyday treatment **PLUS** 1 inhalation budesonide/formoterol whenever needed to relieve symptoms

☐ Start a course of prednisolone

☐ Contact my doctor

Course of Prednisolone Tablets:

Take _____mg prednisolone tablets per day for _____days **OR**

_____

_____

If I need more than **12 budesonide/formoterol inhalations (total)** in any day (or more than 8 inhalations for children 4-11 years), I **MUST** see my doctor or go to the hospital the same day.

Asthma Emergency

Signs of an Asthma Emergency:

- Symptoms getting worse quickly
- Extreme difficulty breathing or speaking
- Little or no improvement from my budesonide/formoterol reliever inhalations

If I have any of the above danger signs, I should dial _____ for an ambulance and say I am having a severe asthma attack.

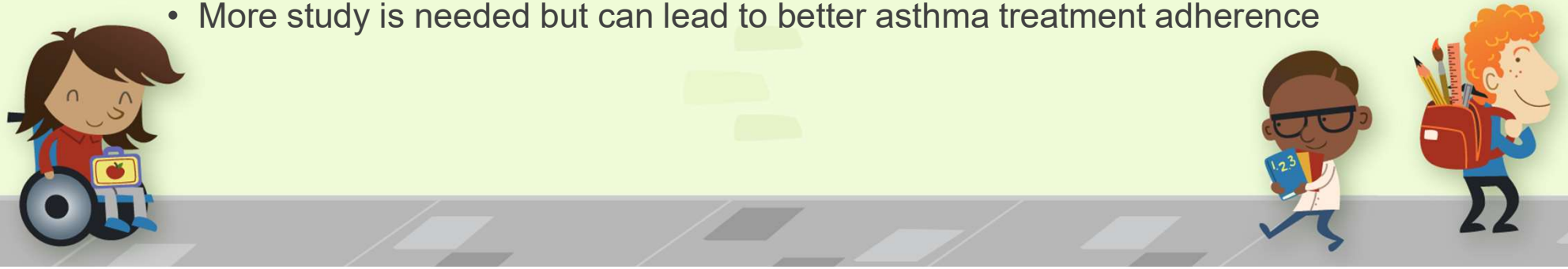
While I am waiting for the ambulance start my asthma first aid plan:

- Sit upright and stay calm.
- Take 1 inhalation of budesonide/formoterol. Wait 1-3 minutes. If there is no improvement, take another inhalation of budesonide/formoterol (up to a maximum of 6 inhalations on a single occasion).
- If only albuterol is available, take 4 puffs as often as needed until help arrives.
- Start a course of prednisolone tablets (as directed) while waiting for the ambulance.
- Even if my symptoms appear to settle quickly, I should see my doctor immediately after a serious attack.

Modified from Australian action plan with permission from National Asthma Council Australia and AstraZeneca Australia

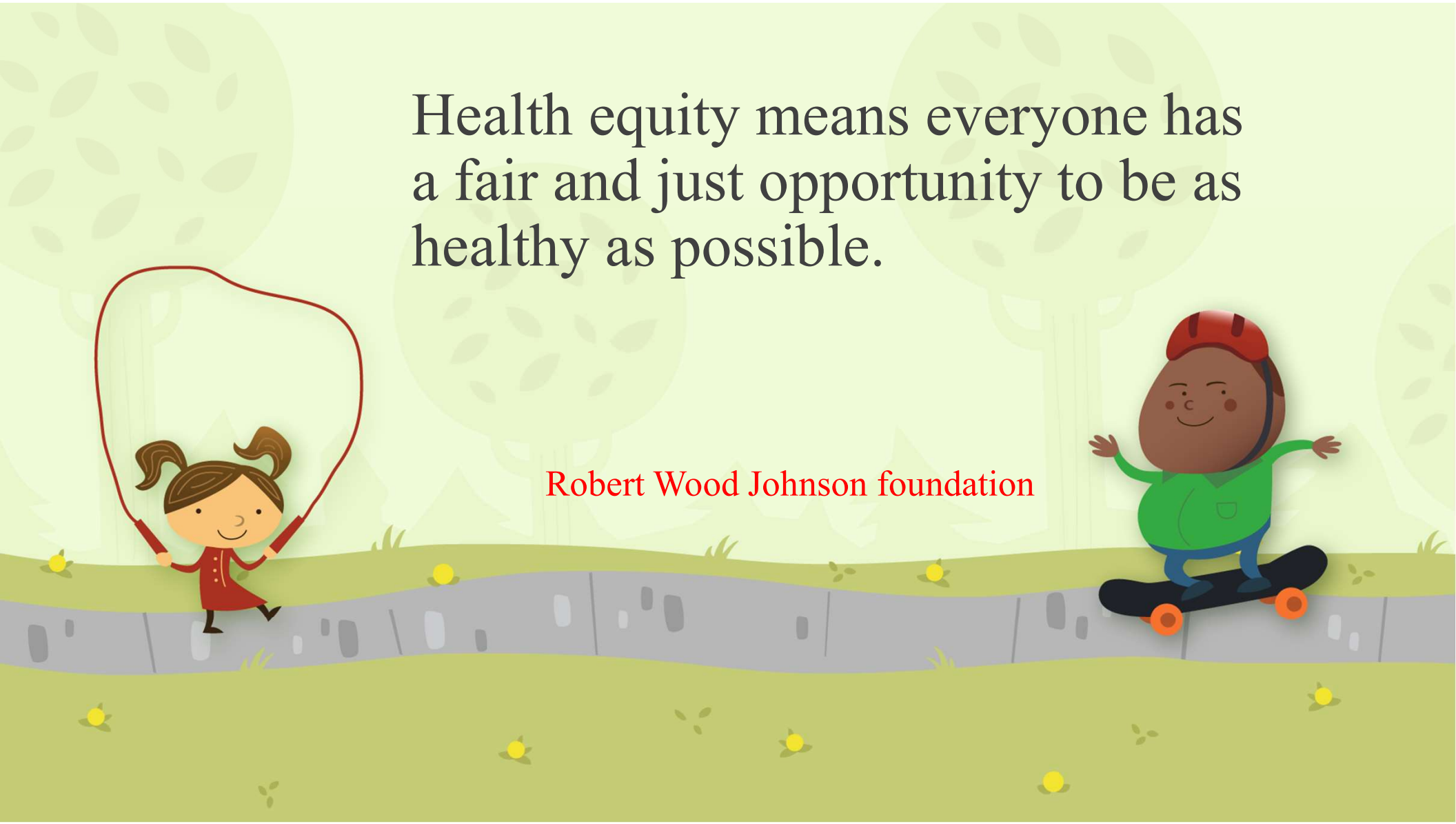
Benefits of Intermittent ICS

- Higher sense of Self-Management (72% vs 42% traditional treatment)
- 90% preferred as needed over daily use of ICS
- Patient center, focuses on disease management
- Less frequent visits to HCP to adjust dosage
- Less overall ICS dose and side effects
- Can decrease cumulative effects from oral steroids
- More study is needed but can lead to better asthma treatment adherence



Health equity means everyone has a fair and just opportunity to be as healthy as possible.

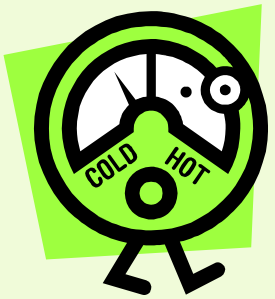
Robert Wood Johnson foundation



Indoor Air Quality & Asthma In Schools: What You Need To Know:

Lisa A Cauldwell, MPH
Indoor Air Quality Team Leader
Marion County Public Health Dept.

What Is Indoor Air Quality?



in·door (in′dôr′) ***adj.*** **air** (er,ar) ***n.*** **quality** (kwŏ′i′tē) ***n.***

1. the temperature, humidity, ventilation, and chemical or biological contaminants of the air inside a building.

Background And History:
Why Is IAQ Receiving So Much Attention?

- 1995 GAO Report revealing that over half of the nation's schools had problems that affect indoor air quality.
- Energy Conservation and Energy Efficiency
- Budget Cuts
- School Performance
- Asthma
- Media Exposure

Potential Consequences Of Poor IAQ

- Respiratory and Allergy Problems
- Asthma Exacerbations
- Poor Student Performance
  - Concentration
  - Missed School Days
- Staff Illness and Dissatisfaction
- $$$$

Asthma Triggers are Everywhere!

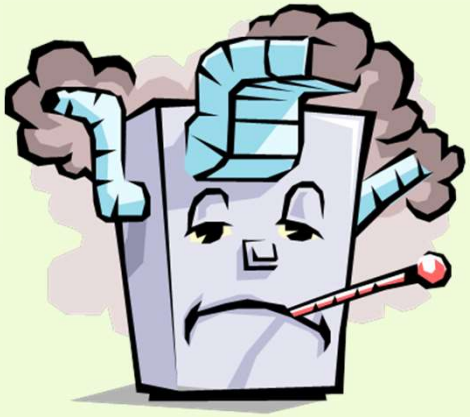
- Home
- School
- Work
- Outdoors
- Leisure
- Etc., etc., etc.

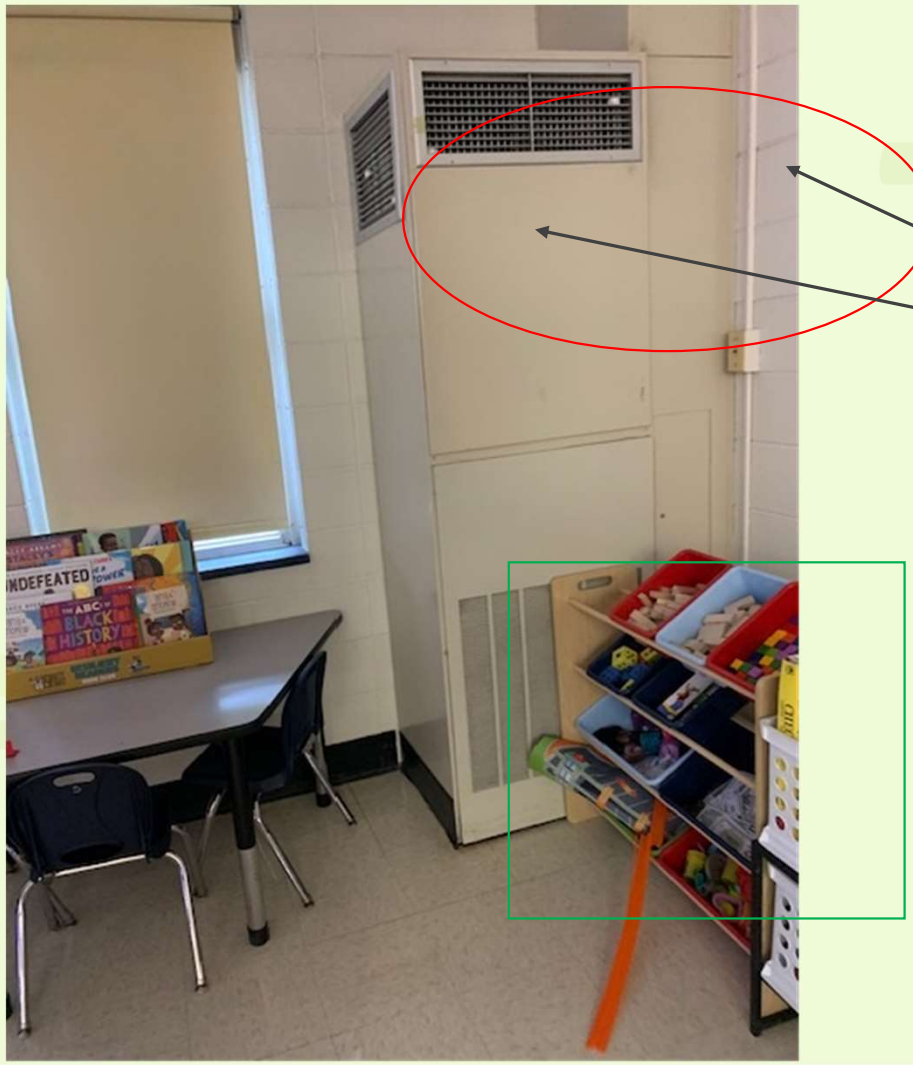
THE BIG 5 (plus 1)

- Secondhand Smoke/ ETS
- Dust Mites
- Pets
- Molds
- Pests
- Fragrance

Common Problems Found In Schools Ventilation and Mechanical Systems

- Design
  - Not enough outside air
  - Access
- Operations and Maintenance
  - Blocked vents
  - Filters
  - Coils
  - Condensation Pans
  - Thermostat issues




UNDEFEATED
THE ABC OF BLACK HISTORY


seeblueuk.com
UK
KENTUCKY

Common Triggers Found In Schools

- Dust producing items
  - Cardboard
  - Paper & Shredders
  - Chalk
  - Pencil shavings
- Food & Beverages
  - Lead to pests
- Fragrances
  - Candles
  - Air fresheners
- Cleaning products

- Soft furnishings
  - Chairs
  - Cubicles
  - “Reading Areas”
  - Stuffed animals
  - Pillows
  - Curtains
  - Carpet
- Animals

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Books are about REAL
people, places, ideas, animals, and
WELCOME
TO
1STGRADE

Mold Talking Points

- Mold is everywhere and you are never in a “mold-free environment.
- Mold should not be visible or growing indoors.
- Mold need water or elevated moisture to grow indoors.
- There are no regulations about types or amounts of mold.
- Different people react to different molds at different levels.
- Mold is the most common issue people believe is their trigger but rarely is this the only issue found in their indoor environment.

Mold: What to do?

- Identify water and/or moisture problem and fix the issue.
- Porous material needs to be removed.
- Hard surfaces can be cleaned with detergent and water solution.
- While removing moldy material, take care to disturb material as little as possible.
- Mold removal is NOT a regulated activity in the State of IN
- EPA guidelines available.

Pests and Pesticides/Integrated Pest Management (IPM)

- Eliminate Water Sources
- Eliminate Access & Entry Points
- Traps and Monitors
- Eliminate or Control All Food Sources
  - Cafeteria
  - Waste/Trash
  - Recycling
  - Eating in places other than the cafeteria!

- Treatment
  - 1st Use Gels, and Baits
  - Chemicals & Sprays are last resort
- Lawn Care and Herbicides
- New possible issue :pharaoh ants

Outdoor Air Issues and Asthma Triggers

- Allergens:
  - Mold
  - Trees/Leaves
  - Grass
  - Pollen
- Ozone
- Particulate Matter (pm2.5)
- https://www.airnow.gov/

- 410 IAC 33-4-3 Vehicle idling
  - Sec. 3. Schools shall adopt and enforce a written policy to address any idling vehicles on school grounds
- Outdoor Air School Initiatives
  - Fly a Flag
  - No idle signs

Air Quality and Outdoor Activities: Recommendations for Schools

Air Quality Index (AQI) Chart for Ozone (8-hr standard)

ACTIVITY	0 to 50 GOOD	51 to 100 MODERATE	101 to 150 UNHEALTHY FOR SENSITIVE GROUPS	151 to 200 UNHEALTHY	201 to 300 VERY UNHEALTHY
Recess (15 min)	No Restrictions	No Restrictions	Make indoor space available for children with asthma or other respiratory problems.	Any child who complains of difficulty breathing, or who has asthma or other respiratory problems, should be allowed to play indoors.	Restrict outdoor activities to light to moderate exercise.
P.E. (1 hr)	No Restrictions	No Restrictions	Consider making indoor play space available for children with asthma or other respiratory problems.	Any child who complains of difficulty breathing, or who has asthma or other respiratory problems, should be allowed to play indoors.	Restrict outdoor activities to light to moderate exercise not to exceed one hour.
Scheduled Sporting Events	No Restrictions	Individuals who are unusually sensitive to ground-level ozone should limit intense activities.	Individuals with asthma or other respiratory or cardiovascular illness should increase rest periods and reduce activities to lower breathing rates.	Consideration should be given to rescheduling or relocating event.	Event should be rescheduled or relocated indoors.
Athletic Practice and Training (over 1 hr)	No Restrictions	Individuals who are unusually sensitive to ground-level ozone should limit intense activities.	Individuals with asthma or other respiratory or cardiovascular illness should increase rest periods and reduce activities to lower breathing rates.	Activities over 1 hour should decrease intensity and duration. Add rest breaks or substitutions to lower breathing rates.	Sustained rigorous exercise for more than one hour should be rescheduled, moved indoors or discontinued

EPA United States Environmental Protection Agency

Office of Air and Radiation(6301A)
November 2011
EPA-456/F-11-005

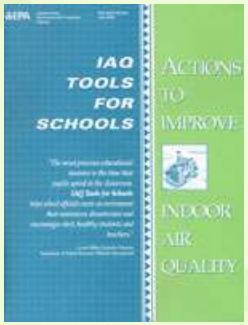
Examples of No Idle Signs:

Schools And Construction

Potential Issues

- Dust and Particles
- Chemicals, Paints, and Adhesives
- Temperature Controls
- Ventilation Problems

What Can Be Done?



- 410 IAC 33: School and State Building IAQ Rule
- EPA's Tools for Schools
- Education
  - Webinars and Listservs
    - EPA https://www.epa.gov/iaq-schools
    - Asthma Networks
      - https://asthmacommunitynetwork.org/
    - National Environmental Education Foundation
      - https://www.neefusa.org/story/health-and-environment/why-you-should-take-neef-elearning-asthma-course
    - National Association of School Nurses Managing Asthma Triggers Program
      - https://www.nasn.org/nasn-resources/resources-by-topic/asthma
  - State and Local Asthma Coalitions

410 IAC 33:
School And State Building IAQ Rule

Effective May 13, 2011
To establish an indoor air quality (IAQ) inspection, evaluation, and parent and employee notification program to assist Schools and State Agencies in improving indoor air quality and establish best practices and necessary minimum standards for IAQ in schools and state agencies, regulate items that affect the IAQ, specify when the department will inspect for IAQ, and establish requirements for parent and/or employee notification of IAQ evaluation findings.

https://www.in.gov/health/eph/files/A00330.pdf

410 IAC 33 Highlights

- School must establish IAQ Coordinator
- Written Policies for:
  - HVAC
  - Vehicle Idling
  - Animals
  - Chemicals
    - Pest Management
- Allergens and Irritants
  - Air fresheners and candles
  - Ozone generators
  - Mold and water leaks
  - Cleaning Activities

Example Of Written Policy Requirements: HVAC

- WRITTEN procedures for routine maintenance schedule that includes:
  - Inspection schedule
  - Coil Cleaning
  - Filter Changes
  - Supplies and Returns must be unobstructed and functional
  - Records must be maintained and available for at least three years.

More Highlights

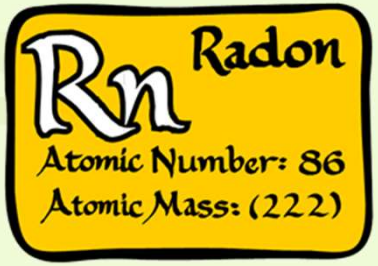
- Ventilation and CO2 Requirements
  - New construction must have ducted supplies and returns
  - Outdoor air shall be supplied to classrooms when occupied
  - CO2 concentrations shall never exceed 700 ppm above outdoor air:

(outdoor CO2 ppm) + 700 ppm = maximum CO2

- Temperature and Humidity Ranges
  - Minimum
    - 68°F: instructional rooms, offices, locker rooms and cafeterias
    - 65°F: activity rooms and shops
    - 60°F: interior toilet rooms
  - Maximum (if AC is installed)
    - 78°F and 65% relative humidity

Other Related Issues

- Asbestos-already regulated under AHERA
- Radon-not on many Indiana school radar screens and not part of the School Rule
- Tobacco Free Campuses



What to do now?

- Make contact with your school's coordinator
  - If none exists, work with your school to appoint one
- Review or create all written policies
  - Work to educate all staff members on policies
- Control your own environment
- Volunteer to help coordinator
  - Team approach usually works best

Summary

"Good Indoor Air Quality Contributes to a Favorable Learning Environment for Students, Productivity for Teachers and Staff, and a Sense of Well-being for School Occupants. These Combine to Assist a School in Its Core Mission--educating Children."

EPA's Indoor Air Quality Basics for Schools Pamphlet

October 1996

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IASN

Indiana Association of School Nurses

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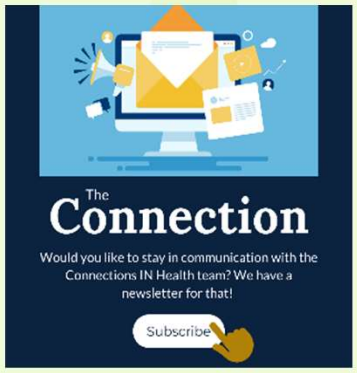

Click on the image or scan the QR code with the camera on your phone.

Resources

- EPA Website
  - Epa.gov/iaq-schools
- Indiana State Department of Health
  - https://www.in.gov/health/eph/indoor-air-quality/
  - 317-351-7190
- Local Health Departments
- State and Local Asthma Coalitions
  - https://indianactsi.org/community/initiatives/indiana-joint-asthma-coalition/about-us/
- Local Hospital Asthma Programs

References and Resources

- SA^{3}MPRO™ Toolkit. American Academy of Asthma Allergy & Immunology, University of Wisconsin – Madison Department of Medicine; 2016. Available at: https://hipxchange.org/SAMPRO.
- DOE: Stock Emergency Medication (in.gov)
- managing_asthma_&_allergies_in_dc_schools.pdf (dcasthma.org)
- Managing Asthma a Guide for Schools, US Department of Health and Human Services, NIH, revised December 2014
- Evidence-Based Decision Making "As Needed Corticosteroid Therapy for Pediatric Asthma" NASN webinar – access at NASN website
- INJAC website and resources: Indiana Joint Asthma Coalition – Resources – Indiana CTSI

Resources and References – page 2

- "School Health Services in Indiana: Student Health Needs and the Role of the School Nurse" Indiana Department of Education, 2019. (available on School Nurse Moodle)
- Asthma resources NASN; Asthma - National Association of School Nurses (nasn.org)
- "School-supervised Asthma Therapy is Associated with Improved Long-Term Asthma Outcomes for Underrepresented Minority Children" School-supervised Asthma Therapy is Associated with Improved Long-Term Asthma Outcomes for Underrepresented Minority Children - Holly N. Shillan, Janki P. Luther, Grace W. Ryan, Shushmita Hoque, Michelle A. Spano, Darleen M. Lessard, Lynn B. Gerald, Lori Pbert, Wanda Phipatanakul, Robert J. Goldberg, Michelle K. Trivedi, 2022 (sagepub.com)
- American Lung Association: Improve Asthma Management in Schools | American Lung Association
- Disparities in Asthma, Who's at Risk; 'Not One More Life' Makes an Impact on Asthma Disparities in Communities of Color | Allergy & Asthma Network (allergyasthmanetwork.org)
- "Black Children More Likely to have Asthma " USA Today May 23, 2023 Why Black children are more likely to suffer from asthma (usatoday.com)