Adverse Childhood Experiences, Behavioral Health and the Connection to Asthma in School Age Children

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Henry Ford Health System
Childhood Asthma

- Most Common Chronic Disease of Childhood
- Affecting 7 million Children in the US
- Disproportionately affects poor urban minority youth
Childhood Asthma

- Biological risk factors are well established
  - Genetic, allergens, tobacco smoke, pollution, respiratory infections, etc.

- Research investigating role of psychosocial stressors continues to increase
  - Stress, poverty, poor housing, inadequate environmental control, access to community resources, neighborhood safety, household dysfunction, etc.
Hi! We're every social problem in America that you can name rolled into a herd of too many humans for one mere mortal to manage---let alone teach. Where do you want us to sit?
Impact of Stress on Childhood

- Children are especially vulnerable to the harmful effects of chronic stress and trauma.
- **Fight or Flight**
  - A good thing as long as the stress is short term
- **Toxic Stress**
  - Flight or fight response is constantly on, leading to changes in structure and function of a child’s developing brain and body
Adverse Childhood Experiences (ACEs) Study

- Began with partnership between Kaiser and CDC
- Assessed connection between chronic stress caused by early adversity and later-life health
- Looked at multiple categories of childhood abuse and neglect as well as measures of household dysfunction
- 67% had at least one ACE
- Dose response relationship between ACEs and numerous health problems, including asthma
Adverse Childhood Experiences (ACEs)

- Have the potential to predict future individual and intergenerational health and social outcomes.
- Linked to a range of poor health outcomes in adulthood
  - Substance Abuse
  - Cardiovascular Disease
  - Diabetes
  - Asthma
  - Premature Mortality
During 2011-2012, roughly 1 million Michigan children had one or more adverse experiences.
First and only current study to investigate specific ACEs experienced in the home and cumulative impact on childhood asthma prevalence

Further supporting growing literature on psychosocial model of asthma development
Adverse Childhood Experience (ACEs)

Did child live with

– Parent divorced or separated after child was born
– Parent or guardian who died
– Parent who served time in jail after child was born
– Anyone who was mentally ill or suicidal or severely depressed for more than a couple of weeks
– Anyone who had a problem with alcohol or drugs
– Or see or hear any parents, guardians, or any other adults in the home slap, hit, kick, punch or beat each other up
Adverse Childhood Experiences (ACEs) and Asthma

• One ACE: Increases odds of developing asthma by 28%
• Odds increase with each additional ACE
• Four ACEs increases odds by what %?
  73!%

“Stress should be viewed as a risk factor for asthma development and asthma exacerbations, much like tobacco smoke and dust mites.”
Dr. Robyn Wing – lead investigator on ACEs and Childhood Asthma Study
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<th>2 ACEs, %</th>
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Abbreviations: ACE, adverse childhood experience; HS, high school; NH, non-Hispanic; ST, sometimes.
Asthma and Behavioral Health

- Asthma undermines the mental-emotional health of a child
- Consistent association between asthma and anxiety/depression
  - Possibly explained by biological and psychological mechanisms which may include inflammatory processes as well as the stress of having to live with a life-threatening condition

Expert Rev. Resp Med 6(4), 397-
Asthma and Behavioral Health

- In one study, inner city children with more severe asthma had problems with peers, exhibiting more anxious and shy behavior.

- The reverse is also true
  - Students with anxiety have increased severity of asthma symptoms and poorer asthma control.

- There is also potential to confuse asthma and anxiety
  - Overuse of rescue medication can lead to cycle of asthma/anxiety.
Family Functioning and Asthma Morbidity

- Family conflict is associated with greater number of hospitalizations for asthma
- Adolescents with higher levels of parental criticism respond better to inpatient program
- Several studies also show links between parental mental health problems and increased asthma among youth.

Expert Rev. Resp Med 6(4), 397-406
“Sustained exposure to the conditions of poverty presents a potent threat to the healthy brain and biopsychosocial development of children and adolescents, and increases the impact of severity of chronic and sometimes toxic stress on health and learning.” APHA
Reciprocal Causal Relationship

Health

Education

Poverty

Healthier Students are Better Learners – Charles Basch, PhD
The environment in which youth live is strongly associated with academic achievement, health, and with social mobility.

This association is mediated by factors such as family structure, parental involvement at school, and parental involvement in education at home.

Early intervention is critical!

Disparities between poor and non-poor children are already apparent at school entry.
Impact of Health Disparities on Learning

- Low income and minority students are more likely to attend schools with unhealthy learning environments.
- These students are also at increased risk of health problems that hinder learning.

Health in Mind – Improving Education through wellness
Asthma and Achievement Gap

- A student who is struggling cognitively is less likely to feel connected and less inclined to attend school.
- Children with asthma perform worse on tests of concentration; explained in part by sleep disruption.
- Virtually every study examining asthma and absenteeism found a positive association.
10,000,000

The number of school days missed each year because of asthma.
Students who are chronically absent from school are more likely to:

- fall behind academically
- display behavior and discipline problems
- engage in smoking, drug use, and high risk sexual behaviors
- drop out of school
On average, 3 children in a classroom of 30

are likely to have asthma.*

Additional Challenges specific to Detroit

- Roughly 60% of Detroit’s children live in poverty
- Health Professional Shortage Areas throughout most Detroit neighborhoods
- Low literacy rates
- Transportation barriers
- Some of the most polluted zip codes in the country
Most Detroit students with asthma do not have an (asthma) action plan on file and lack access to rescue inhalers.

Schools may be unaware of students walking around with chronic health issues like asthma. School staff may not have received asthma education.

Most schools in Detroit, similar to the rest of MI, lack a school nurse.
HFHS School-Based & Community Health Program

• Bringing health care services directly to the child at select schools in Detroit and surrounding communities.
  • 8 School-Based Health Centers
  • 3 School-Wellness Sites (Network)
  • 3 RN sites (Transformation)
  • 2 Mobile Clinics
HF SBCHP Network Project

• One of three programs in the State
• Hub and Spoke like model
  • SBHC at Center and RN + LSW at each surrounding school
• Telemedicine allows provider to be in multiple places

Earhart (K-8) SWP

Full Service Centralized School-Based Health Center Western High School (Hub)

Munger (K-8) SWP

Maybury (K-5) SWP
Coming Soon: Breathmobile

- State of the art asthma clinic on wheels
- Deliver comprehensive asthma care to children at Detroit schools and community centers
- Objectives
  - Improve asthma management/control
  - Reduce asthma related
    - ER visits
    - hospitalizations
    - Missed school days
Existing Breathmobile Impact

- **LA program**
  - $6.73 for every dollar invested
  - 80% of asthma brought under control after 3 visits
  - Children who remained in the program one year or longer showed 68%↓ in ER visits and 87%↓ in missed school days

- **UC Irvine**
  - 27% missed 10 or more school days pre-intervention. Post intervention that number dropped to 1%
Detroit Breathmobile Program

- Staffing and services will be based on existing Breathmobile models
- Our model will also include a home visiting component
- Realizing the connection between ACEs and asthma
  - We plan to include ACEs as part of evaluation
  - And a behavioral health staff member as part of the team
Working Towards the Solution

We have a clearer understanding of the

- Complex causes of asthma, allowing us to better target interventions
- Barriers and challenges to health care access
- Importance of screening for each of the different risk factors, including psychosocial
- Need for close monitoring of high risk children
- Importance of creating safe, stable, nurturing relationships and environments
We Know What Works

Stimulating Experiences, Parenting Education, Primary Health Care, Good Nutrition, and Safe Environments

Readiness to Succeed in School

We also know that

• Change doesn’t happen overnight
• It takes a village
• Silos need to be broken
• Resources exist and must be tapped and shared
• Through collaborations and partnerships we are much stronger!
I know asthma is a disease. But I'd rather think of it as a challenge I have to learn how to control. I won't let it keep my child or our family from doing the things we want to do.

~ Author Unknown
Thank You!

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