

A Systems Approach to Impacting Pediatric Asthma Disparities

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Michael M. Davis Lecture Series

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Inequality

Unequal access to opportunities



1

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Equality?

Evenly distributed tools and assistance



2

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Equity

Custom tools that identify and address inequality



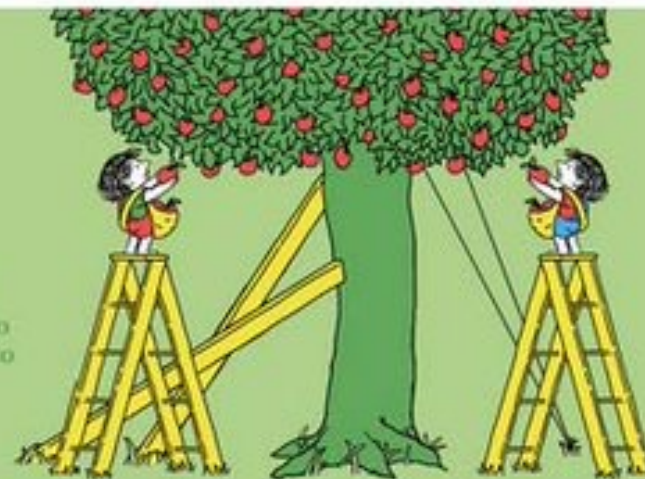
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Justice

Fixing the system to offer equal access to both tools and opportunities



4

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Asthma disparities

A model for disparities

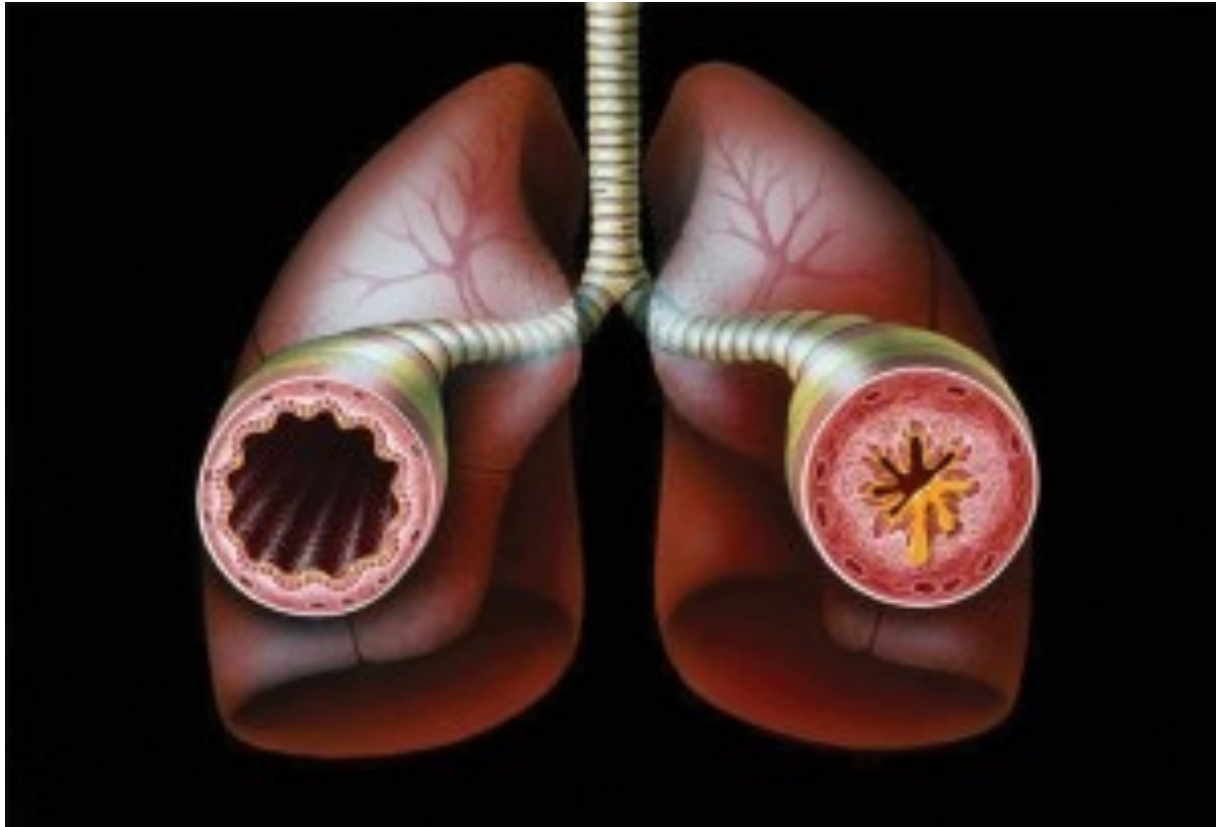
Impacting asthma disparities

Systems for asthma care



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Asthma



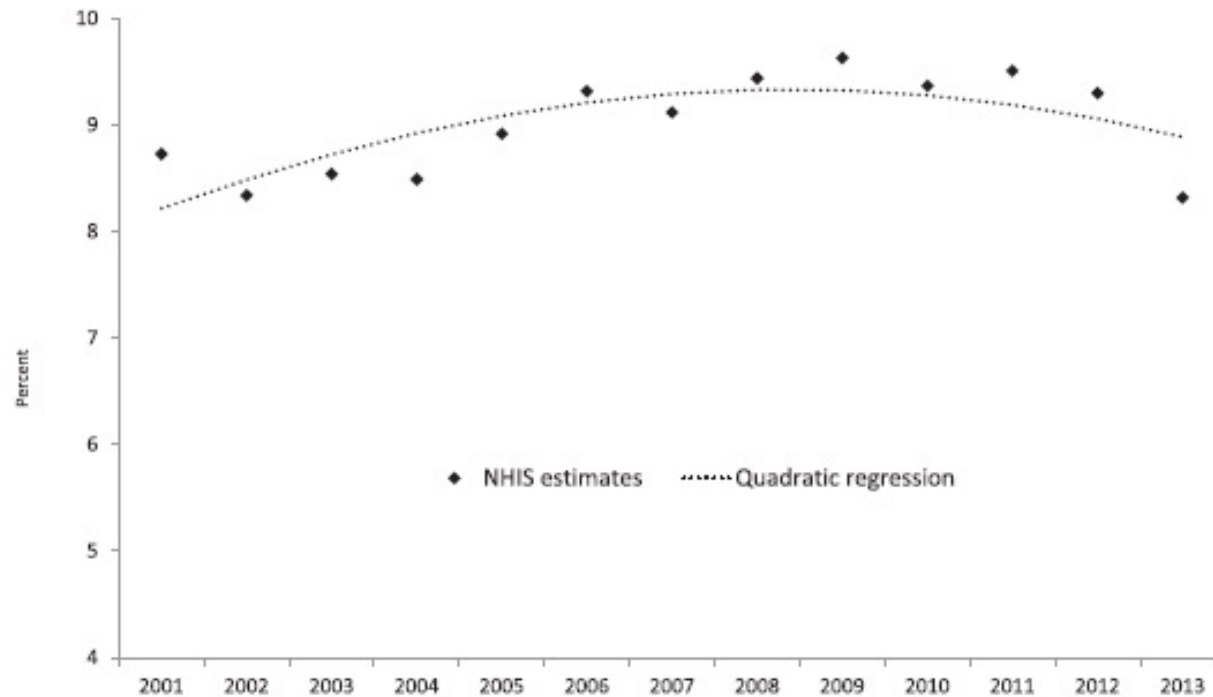
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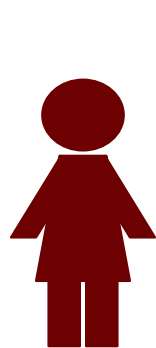
“Of all the forms of inequality, injustice in health care is the most shocking and inhumane.”

~Dr. Martin Luther King Jr

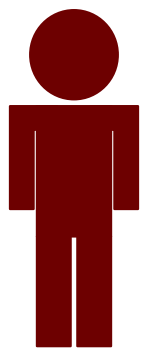
Asthma Disparities

Asthma Prevalence in the United States





6.9%
Female



9.9%
Male



4.7%
0-4yrs



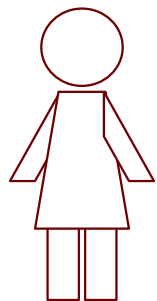
9.6%
5-11yrs



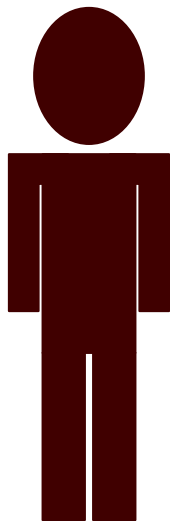
10.3%
12-14yrs



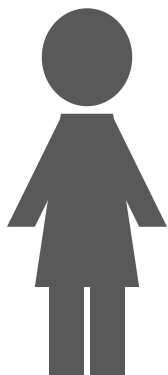
9.8%
15-17yrs



7.4%
White-NH



13.4%
Black-NH



8.4%
Other NH



8.0%
Hispanic



11.1%
<100%
FPL



8.4%
100 to
<250% FPL



6.3%
250 to
<450% FPL



6.9%
>450%
FPL



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CDC, Most Recent Data, 2017.

47.5%

767,000



74,000



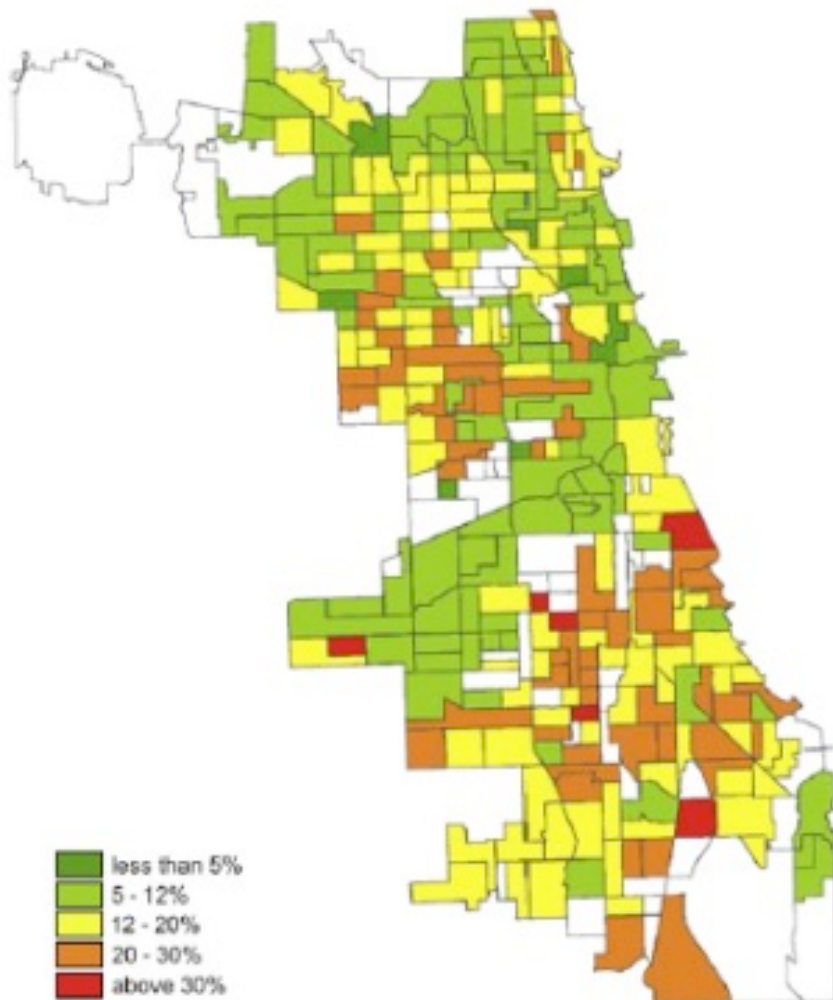
13.8 million



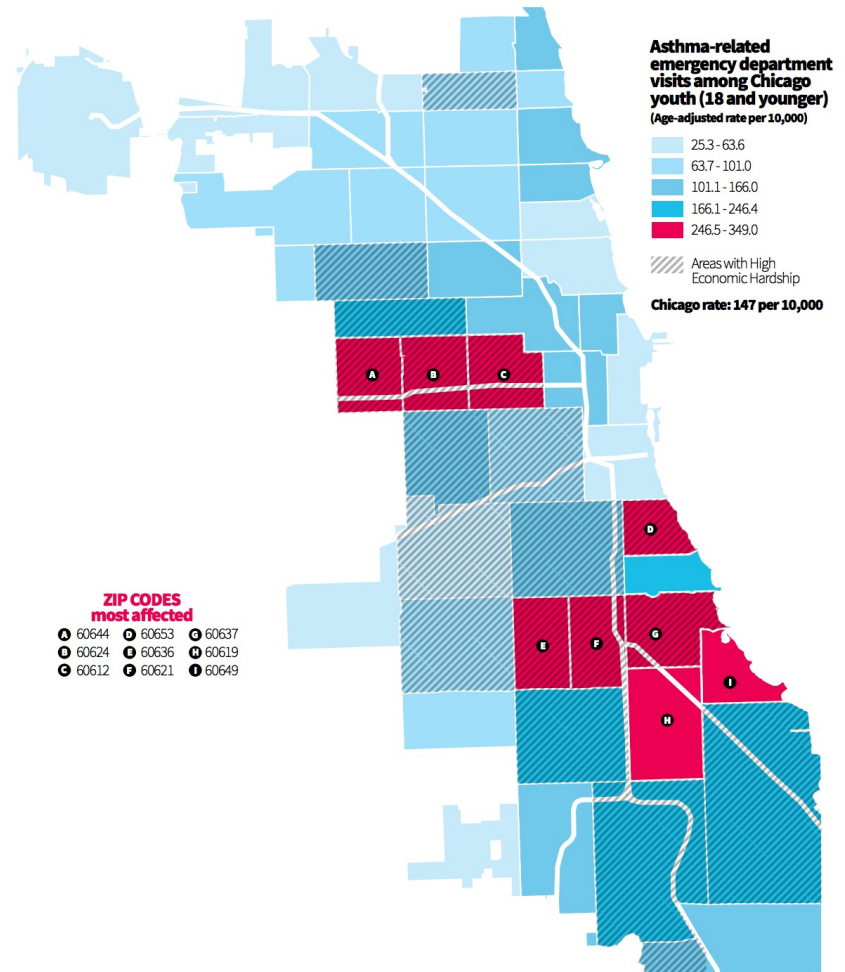
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CDC, Most Recent Asthma Data, 2019.

Asthma in Chicago



Gupta et al, J Allergy Clin Immunol, 2008.

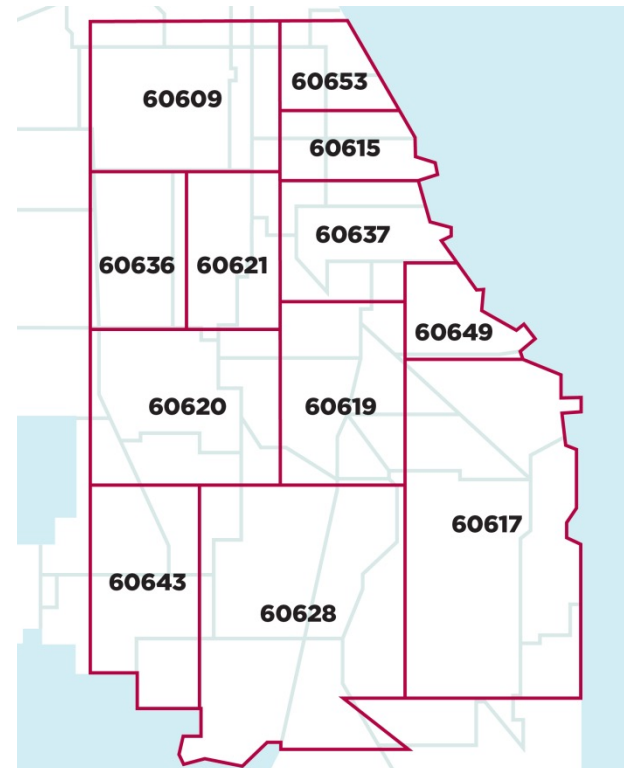


Illinois Department of Public Health, 2011.



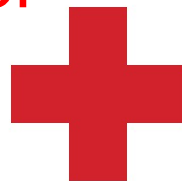
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Asthma in the South Side Community



Each Year:

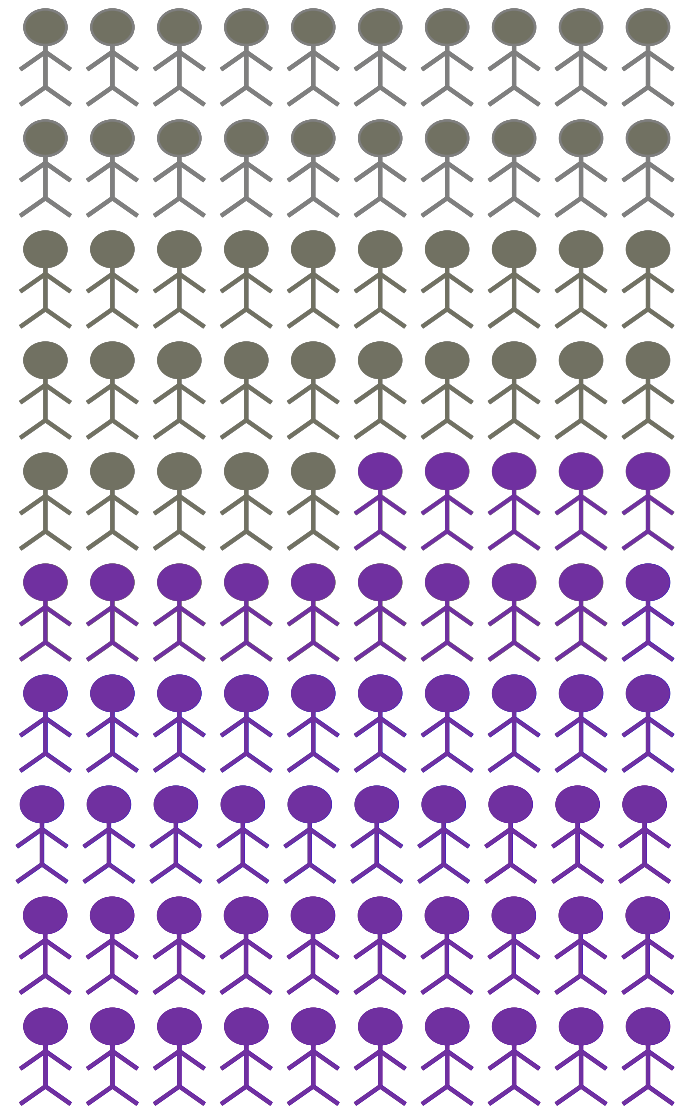
- 23% are hospitalized for asthma



- 51% miss at least 1 day of school due to asthma



- 55% have an emergency department or urgent care visit for asthma



Emergency



I was very sick and I started to cough so then I started to have trouble breathing so I went to the hospital and they gave me a asthma pump.



Once a upon time I sounded like a seal and I couldn't breath and I had to stay home

Reasons for asthma disparities



Patient Name: _____ Date: _____
Address: _____
R_x
MD: _____
Signature: _____



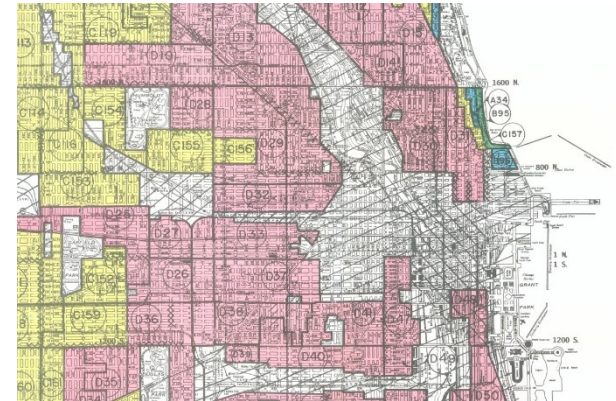
HFS State of Illinois – Healthcare and Family Services
MEDICAL CARD

For questions or to report changes call:
Para preguntas o reportar cambios llame al:
DHS 1-800-843-6154, or
HFS 1-800-226-0768
(TTY 1-877-204-1012)

(CASE NAME
AND ADDRESS)

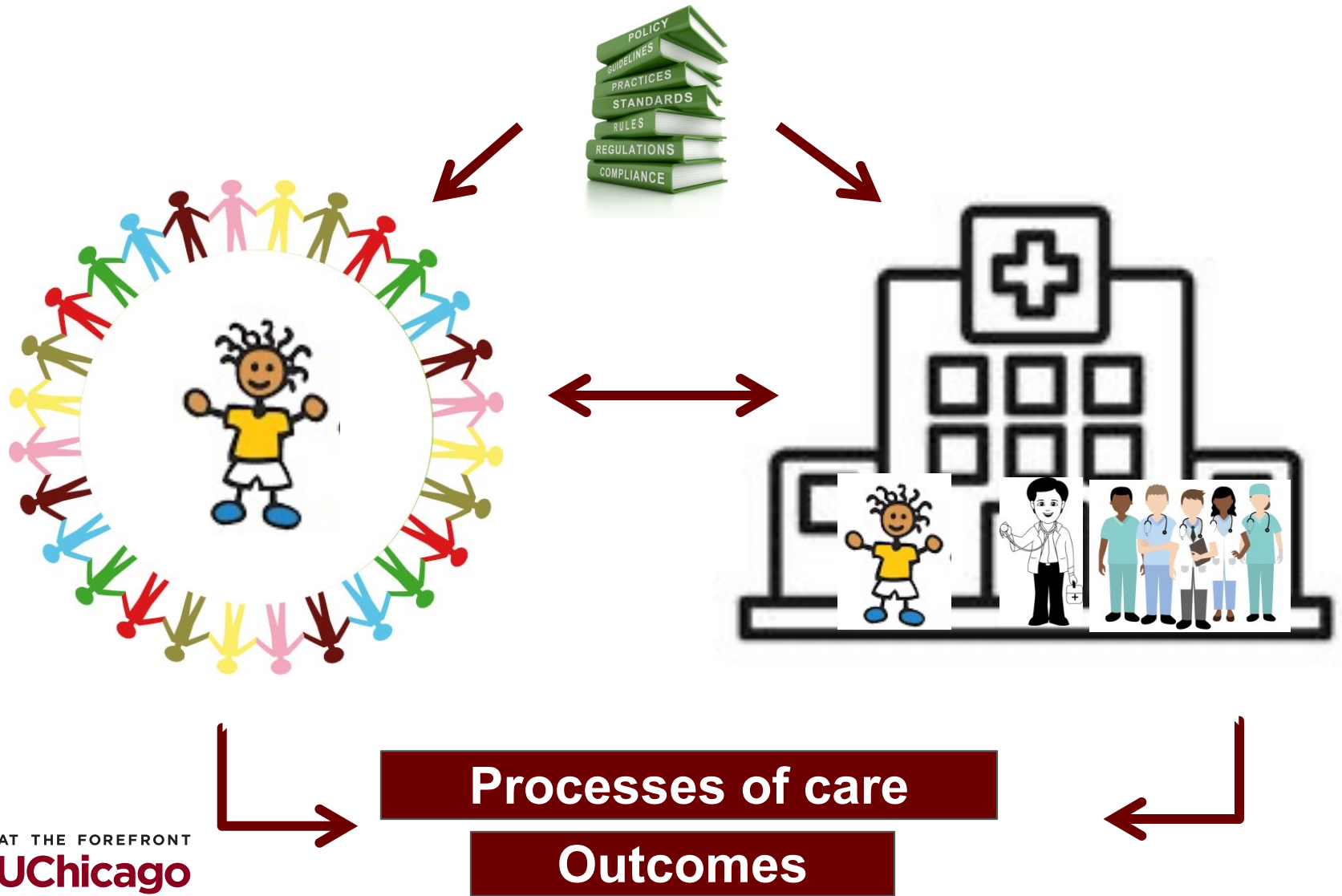
Keep this card and the separate notice we send about your medical coverage.
Guardé esta tarjeta y el aviso separado que le enviamos sobre su cobertura médica.

HFS 469 (R-9-12) IL478-0234



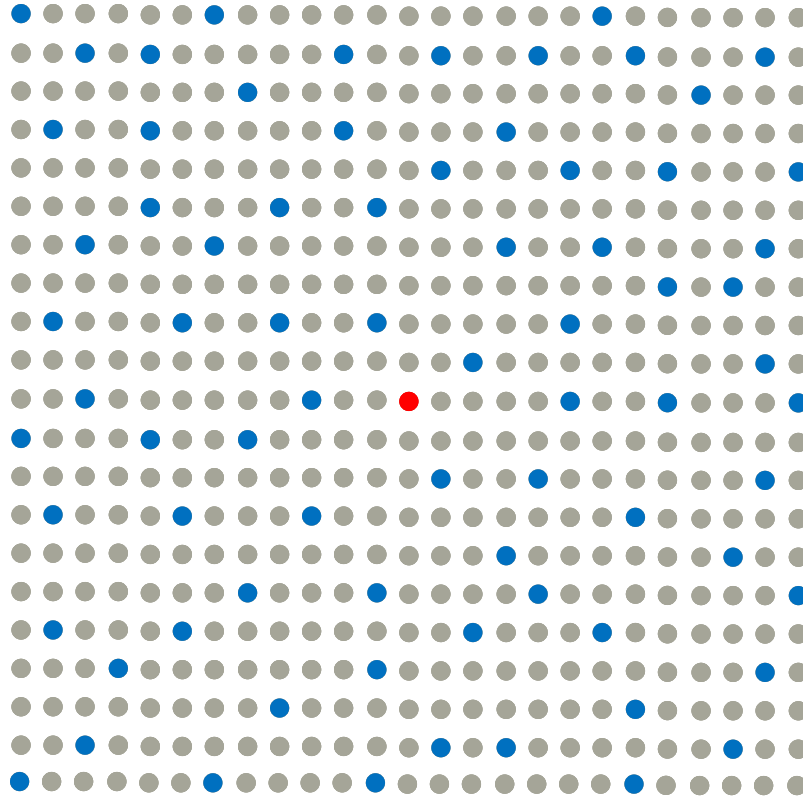
A Model for Disparities

How can we impact asthma disparities?



Level	Definition
-------	------------

525,600



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“A bad system will beat a good person every time.”

~W. Edwards Deming

Impacting Asthma Disparities

Community-based Participatory Research

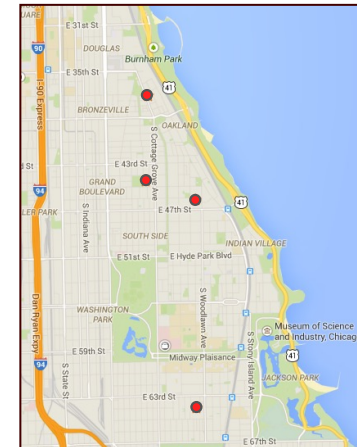
*“**collaborative** approach to research that **equitably** involves all partners in the research process and recognizes the unique strengths that each brings.”*

*“begins with a research topic of **importance** to the **community**, has the aim of combining **knowledge with action** and achieving **social change** to improve health outcomes and eliminate health disparities.”*

-WK Kellogg Foundation Community Health Scholars Program

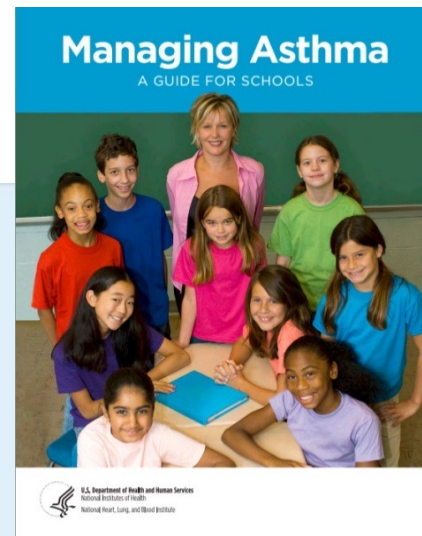
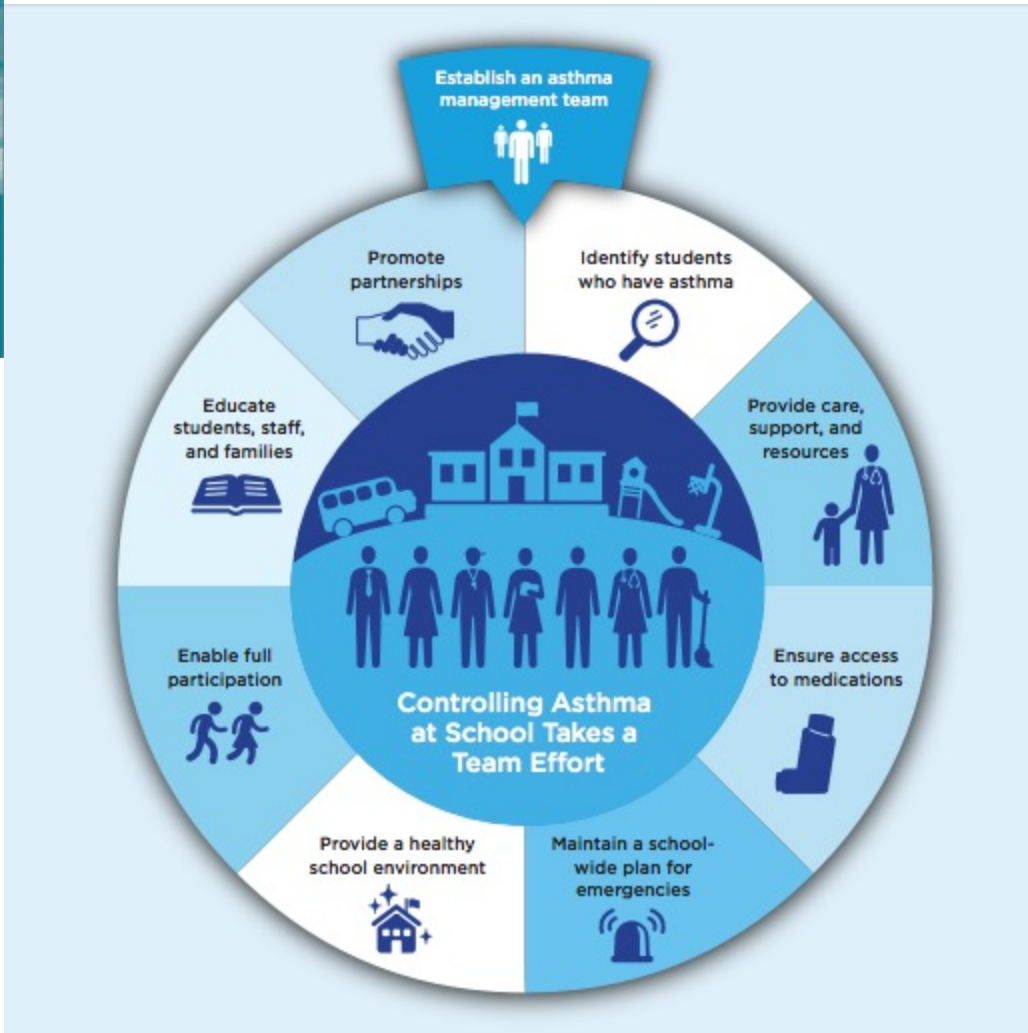
	Traditional Research	Community-based Participatory Research
Research Objective	Issues based on epidemiologic data and funding opportunities	Full participation of community in identifying issues of highest importance
Study Design	Based on scientific rigor / feasibility	Community representative involved
Recruitment & Retention	Based on scientific issues and “best guesses” re community members	Community representatives provide guidance on strategies and aid efforts
Instrument Design	Adopted/adapted from other studies; tested with psychometrics	Developed with community input; tested in similar populations
Intervention Design	Researchers determine based on literature and theory	Community members help guide development
Analysis & Interpretation	Researchers own data, conduct analysis and interpret findings	Data shared; community members and researchers work together to interpret results
Dissemination	Results published in peer-reviewed academic journals	Community assists to identify appropriate venues to disseminate; results also in peer-reviewed journals

- 1,900 students in preK-12th grade
- 97% Black or African-American
- 82% eligible for free or reduced lunch
- 100% graduates accepted to college



Coalition with mission to improve quality of life for people with asthma





Chicago Public Schools Policy Manual

Title:	ASTHMA MANAGEMENT POLICY		
Section:	704.10		
Board Report:	12-0125-PO3	Date Adopted:	January 25, 2012

- Administration & self-administration of medications
- Identification of children with asthma
- 504 Plan
- Emergency response
- Training
- Bullying

Identification of children with asthma

Brief Pediatric Asthma Screen

1. Has your child ever been diagnosed by a doctor as having asthma?	Yes	No
2. Has your child ever had episodes of wheezing (whistling in the chest) in the last 12 months?	Yes	No
3. In the last 12 months, have you heard your child wheeze or cough during or after active play?	Yes	No
4. Other than a cold, in the last 12 months, has your child had a dry cough at night?	Yes	No
5. In the last 12 months, has your child been to a doctor, an emergency room, or a hospital for wheezing?	Yes	No

Establishing asthma prevalence

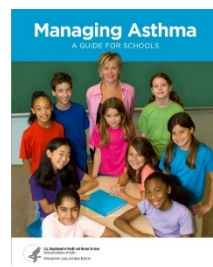
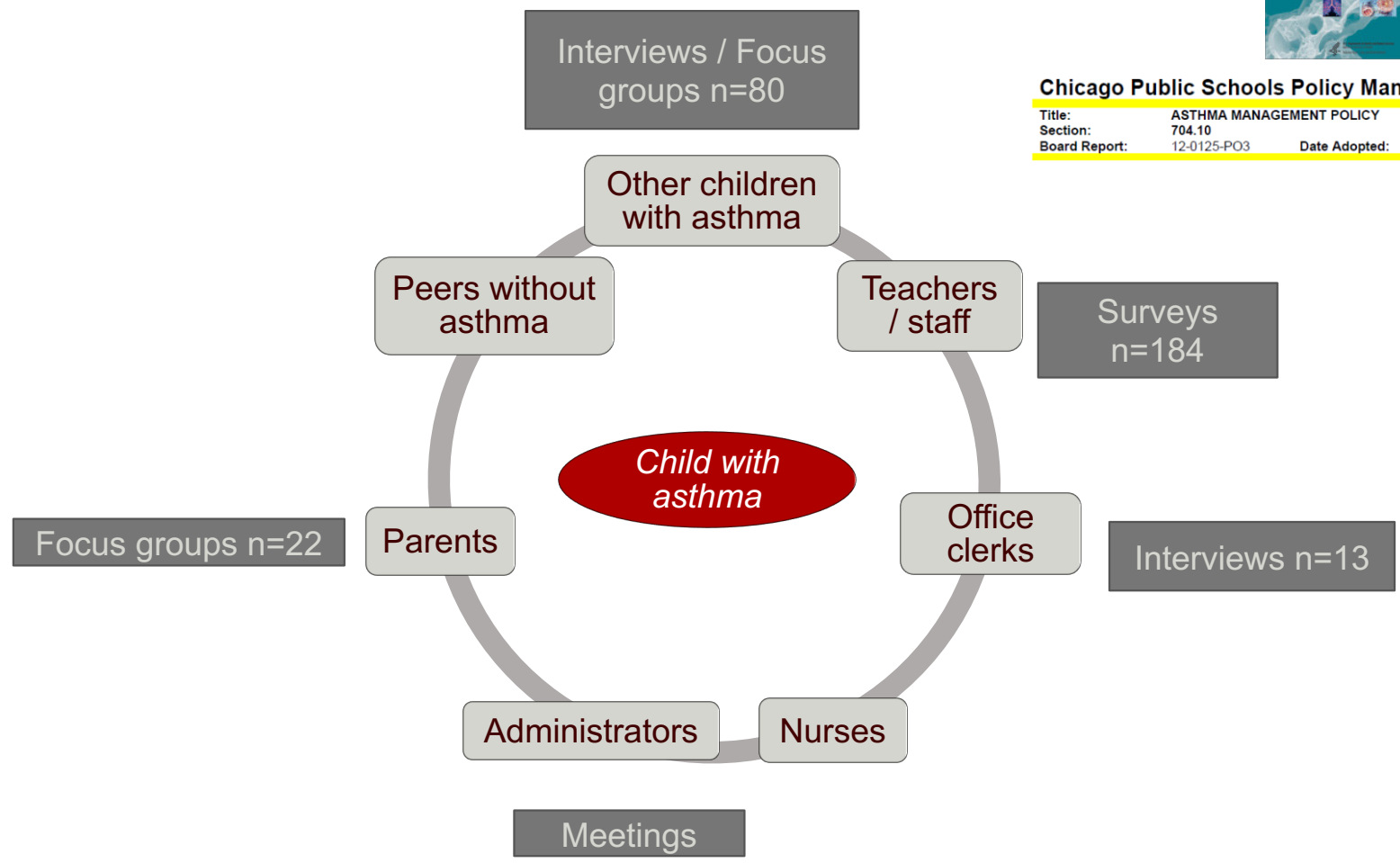
Asthma Prevalence Rates Based on Parent Report During School Screening by School Level^a

School (grade)	Total students	Students screened	Asthma diagnosis or symptoms	Asthma diagnosis ^b	Symptoms suggestive of asthma ^c
Elementary (prekindergarten to fifth)	942	429 (45.5)	173 (40.3)	94 (21.9)	79 (18.4)
Middle school (sixth to eighth)	637	235 (37.3)	89 (37.9)	73 (31.1)	16 (6.8)
Total	1,579	664 (42.1)	262 (39.5)	167 (25.2)	95 (14.3)
P value				.009	<.001

Diagnosis - 25.2%

Symptoms - 14.3%

Stakeholder input



Chicago Public Schools Policy Manual			
Title:	ASTHMA MANAGEMENT POLICY		
Section:	704.10		
Board Report:	12-0125-P03	Date Adopted:	January 25, 2012

Themes

- Awareness
- Communication
- Knowledge and training
- Variation in care
- Empowerment

Awareness

Teachers / Staff:

I know all of the children who have asthma in my class(es):



“I bet if I go to my son classroom, each class, [the teachers] wouldn’t know he’s asthmatic. I bet you all on that.”

~Parent

“If we're outside and I'm not able to go to the teacher... my friends help me get my inhaler.” ~Child

Communication

“On parent-teacher conference days I sat down with them and explained my child’s condition to them as well as made it my business to meet with any other teachers they interact with.” ~Parent

“The teachers that I tell about my asthma, they trust me, so it feels good.”
~Child

“Typically, when a kid comes in, I have them call parent and then we call the nurse.” ~Office clerk

Knowledge and training

Teachers / Staff:

When did you last receive education or training about asthma with a school:



I am adequately trained to provide asthma care to students at my school:



“The nurse trains me. She gives me a pamphlet, we go through it, we read it, she’ll demonstrate.” ~Office clerk

“At this point, [my child is] very educated on when she needs [her inhaler], how much she needs it, how to take it, and she always let everyone know, I’m a asthmatic.” ~Parent

Variation in care

“Times when I don’t want him to miss that many days I will bring his nebulizer to the school myself and at lunchtime I sit in the office and give him a treatment.”

~Parent

“Sometimes I can go get [my inhaler] and sometimes I can’t. So if my teachers gives me the signal....that means just wait for a little.”

~Child

“We really don’t get a lot of students that come down before the nurse...they normally come when she’s here.” ~Office clerk

Empowerment

Teachers / Staff:

I feel ready to respond to an asthma emergency:



Office clerks:

I feel ready to respond to an asthma emergency:



“If [the nurse is] off campus, then of course we’re the first responders so we have to make sure that we’re making the right decisions.”

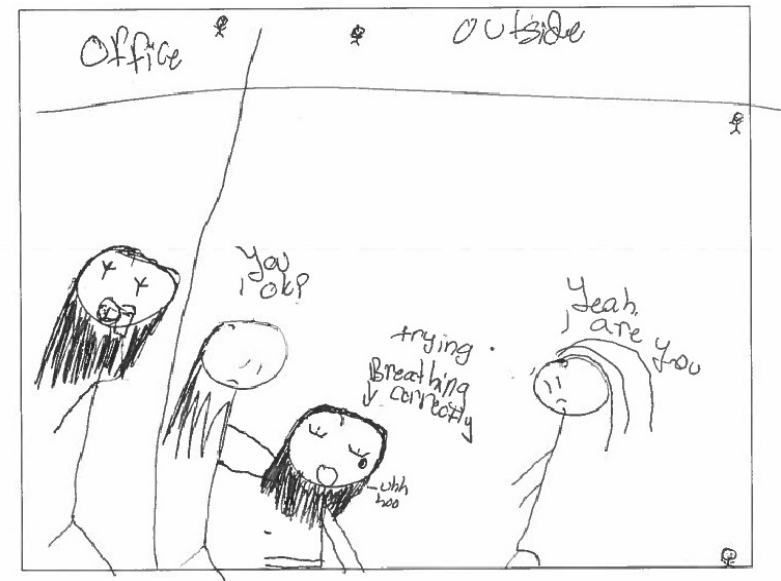
~Office clerk

Themes: Stakeholders

- Awareness
- Communication
- Knowledge and training
- Variation in care
- Empowerment



when I had asma my chest was hurting and I wasn't breathing correctly. I also take my asma pump in the office.



Asthma effected my life. when I was playing outside with my friends at school, and I was running in the cold and really, really badly. So I had to go take my inhaler.



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ITM Institute for
Translational
Medicine
Transforming research into better health.



UCHICAGO
SCHOLARSHIP

Inhaler access

**69% children had
quick-relief inhaler
at school**

**40% parents
familiar with school
asthma policy**

**54% self-carry
inhaler**

**32% had
documentation on
file at school**

Inhaler self-carry and use

Facilitators

- Child's asthma knowledge
- Inhaler characteristics
- Need for easy inhaler access
- Responsibility of child
- Social support from peers and teachers

“If I am running, I can take a break and use it instead of going back to the office.”
~10yo female

Barriers

- Child's limited understanding about asthma and inhalers
- Perception that inhaler not needed
- Limited inhaler access
- Inconsistent policy implementation
- Embarrassment within social groups

“He doesn't think he needs the inhalers until he has a difficult time breathing.”
~parent of 14yo male

Inhaler technique: Assessment

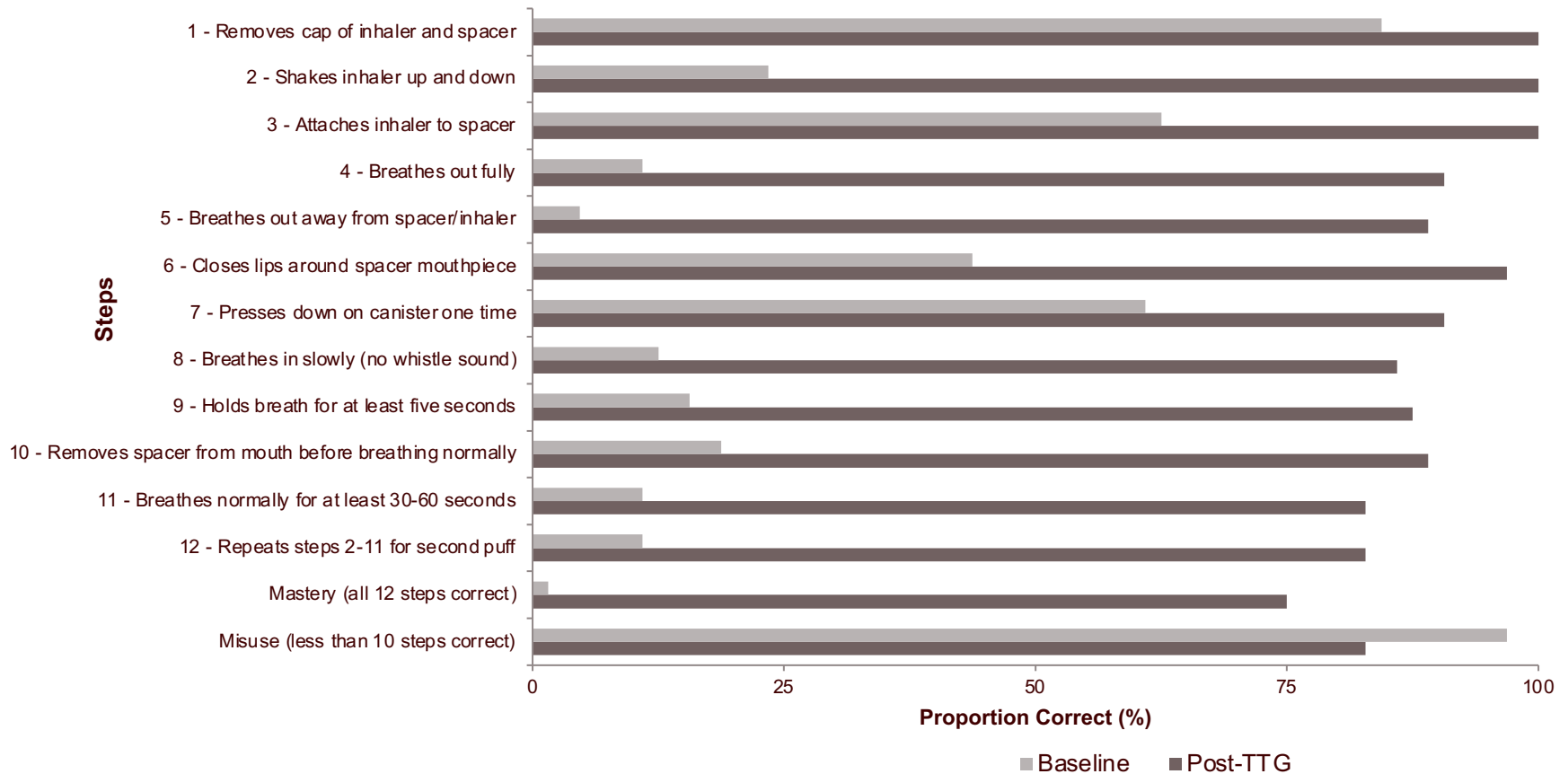


97% children misused inhaler

71% of children were confident that they can properly use properly

92% of parents were confident in their child's ability to use inhaler properly

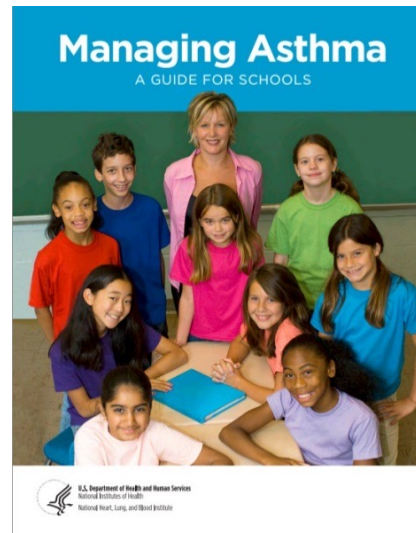
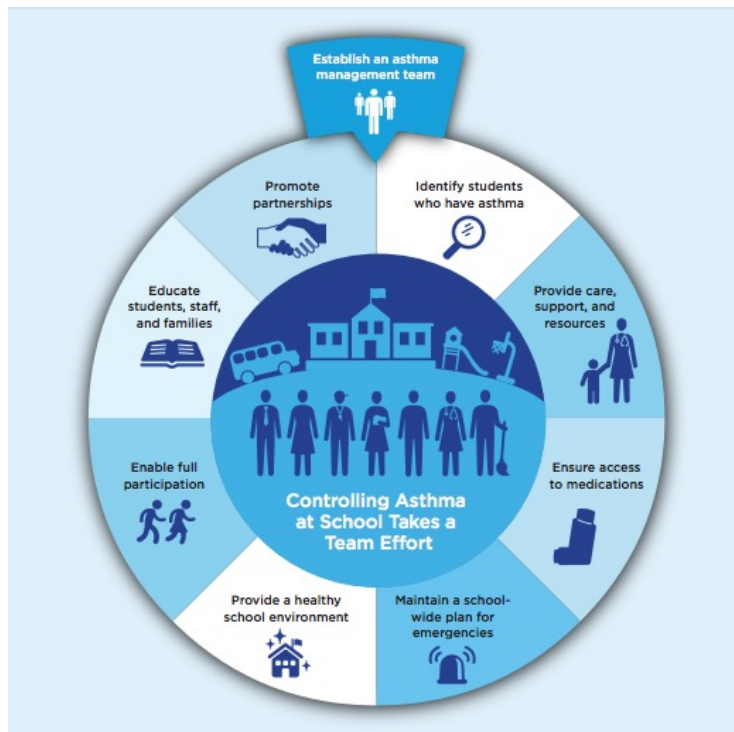
Inhaler technique: Teach to Goal



*“The leaf does not turn yellow without
the silent consent of the tree.”*

~Khalil Gibran

Systems for Asthma Care

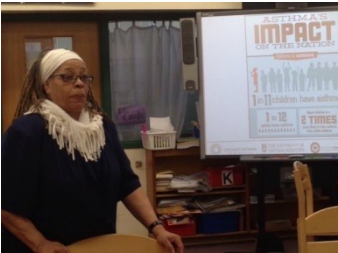
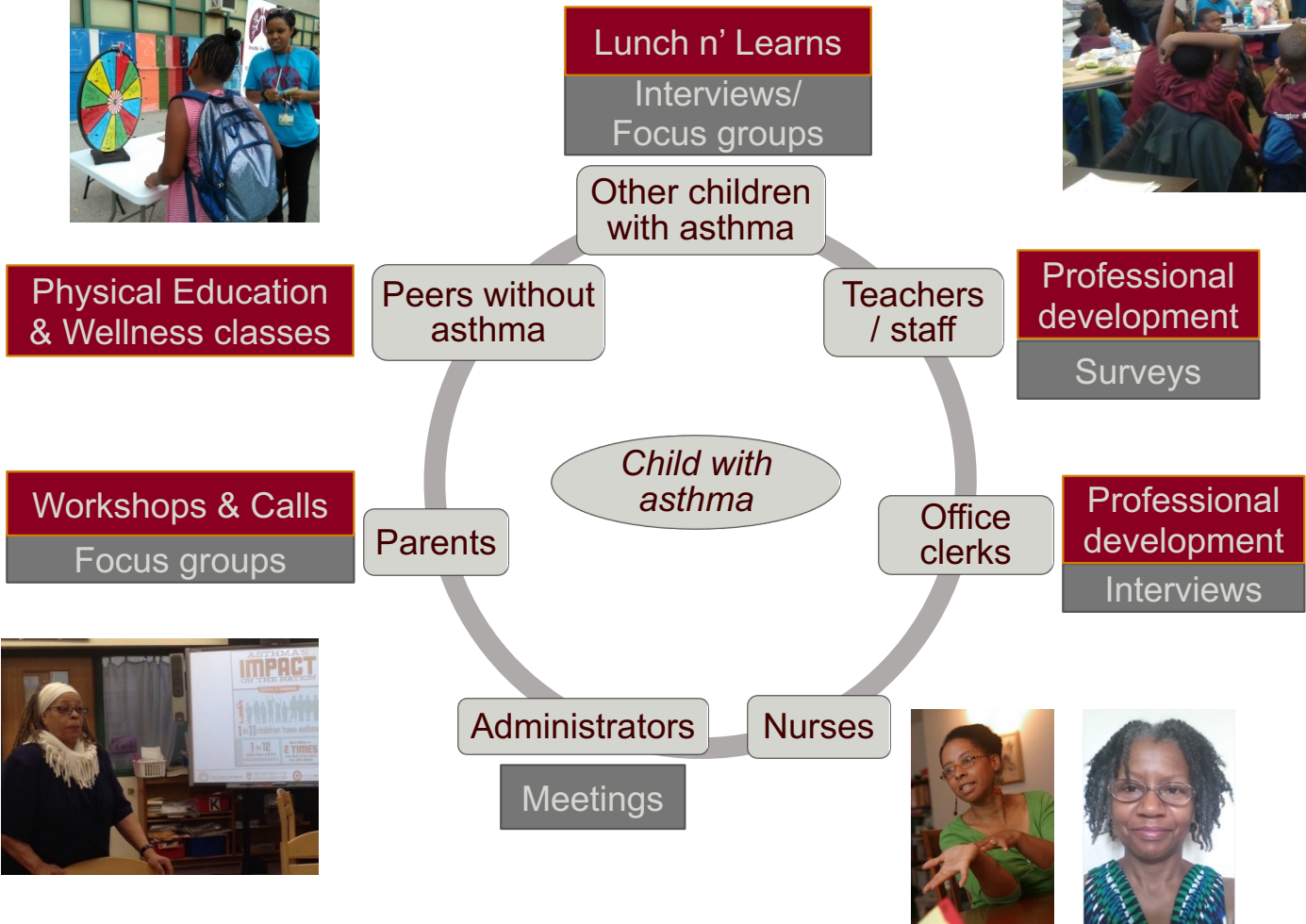


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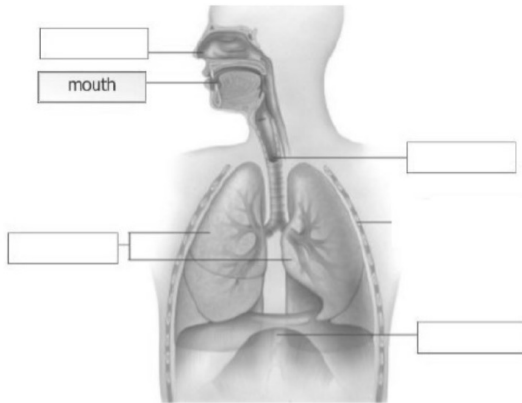
- Administration & self-administration of medications
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- 504 Plan
- Emergency response
- Training
- Bullying

Education



Education for All Students

Respiratory System



Word Box

Mouth
Nose
Lungs
Diaphragm
Trachea

What is Asthma?



SQUEEZE

Muscles *tighten* around airways

SWELL

Swelling of walls around airways

SNOT

Mucus block airways

Susie has asthma. Every time she is near dogs, her asthma starts to give her trouble. Her friend at school just got a puppy and invites her over to meet the puppy. Should Susie go over to her friend's house to see the new puppy? What does she need to do if she does go?

During gym class, Joe was running laps and began to have difficulty breathing. As a classmate, what can you do to help Joe?

Outcomes

- **360 approach to asthma education**

- Teachers and staff about asthma
- Children with asthma
- All students (4th-6th grade)

184 teachers/staff

113 students

150 children

- **Care management**

- Phone outreach
- In person
- 30% decrease in ED visits over 6 months

307 parents/caregivers

65 child/parent pairs

57 children

- **Referrals**

25 children

Identification

- Screening integrated into registration
- 1304 students reached (71.6%)
- Students with asthma diagnosis

22.2%

Improving identification

USE THESE CHECKLISTS TO MAKE SURE YOU COMPLETE THE REQUIRED FORMS!

Asthma Forms Checklist

- ☐ Student Medical Information Form
- ☐ Consent to Exchange Information and Medical Records
- ☐ Physician Verification of Asthma
- ☐ Physician Request for Medication Administration
- ☐ Parent Request for Medication Administration
- ☐ Asthma Action Plan



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Improving identification

16,856

students with asthma currently identified

54,505

students with asthma based on city prevalence

37,649

students with asthma NOT currently identified



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Guideline-based components

Identification process

In-depth staff training

Technology based
tracking system

Communication
strategies

Protocol for routine
care and emergencies

All-student education



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Community-based Participatory Research + Implementation Science

*“**collaborative** approach to research that **equitably** involves all partners in the research process and recognizes the unique strengths that each brings.”*

*“begins with a research topic of **importance** to the **community**, has the aim of combining **knowledge with action** and achieving **social change** to improve health outcomes and eliminate health disparities.”*

-WK Kellogg Foundation Community Health Scholars Program

*“Implementation research is the scientific study of methods to promote the **systematic uptake** of research findings and other **evidence-based** practices into routine practice, and hence, to **improve the quality and effectiveness** of health services and care.”*

-Martin Eccles and Brian Mittman

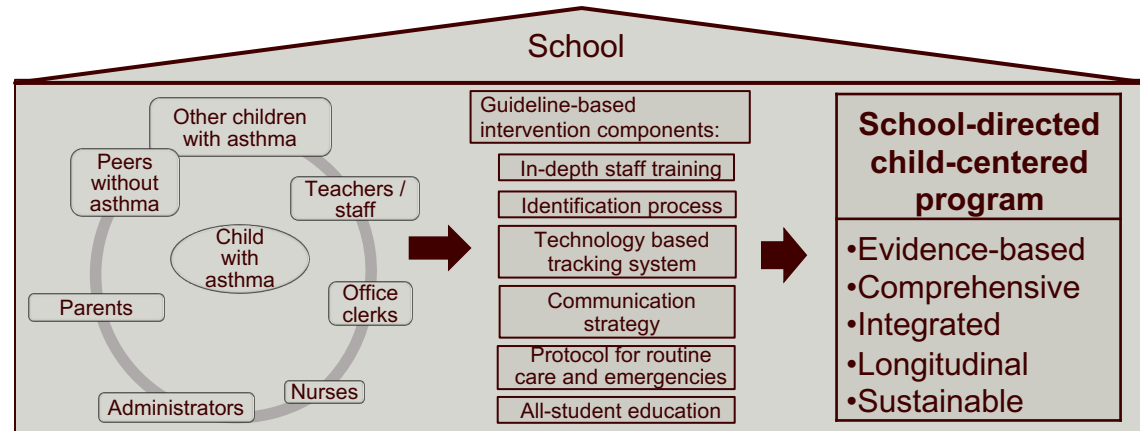


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Reimagining systems

Evidence-based guidelines on components of school asthma management program

- Establish an asthma management team
- Identify students who have asthma
- Provide care, support, and resources
- Ensure access to medications
- Maintain a school-wide plan for emergencies
- Provide a healthy school environment
- Enable full participation
- Educate students, staff, and families
- Promote partnerships



Home



Medical
Health care
provider



Community

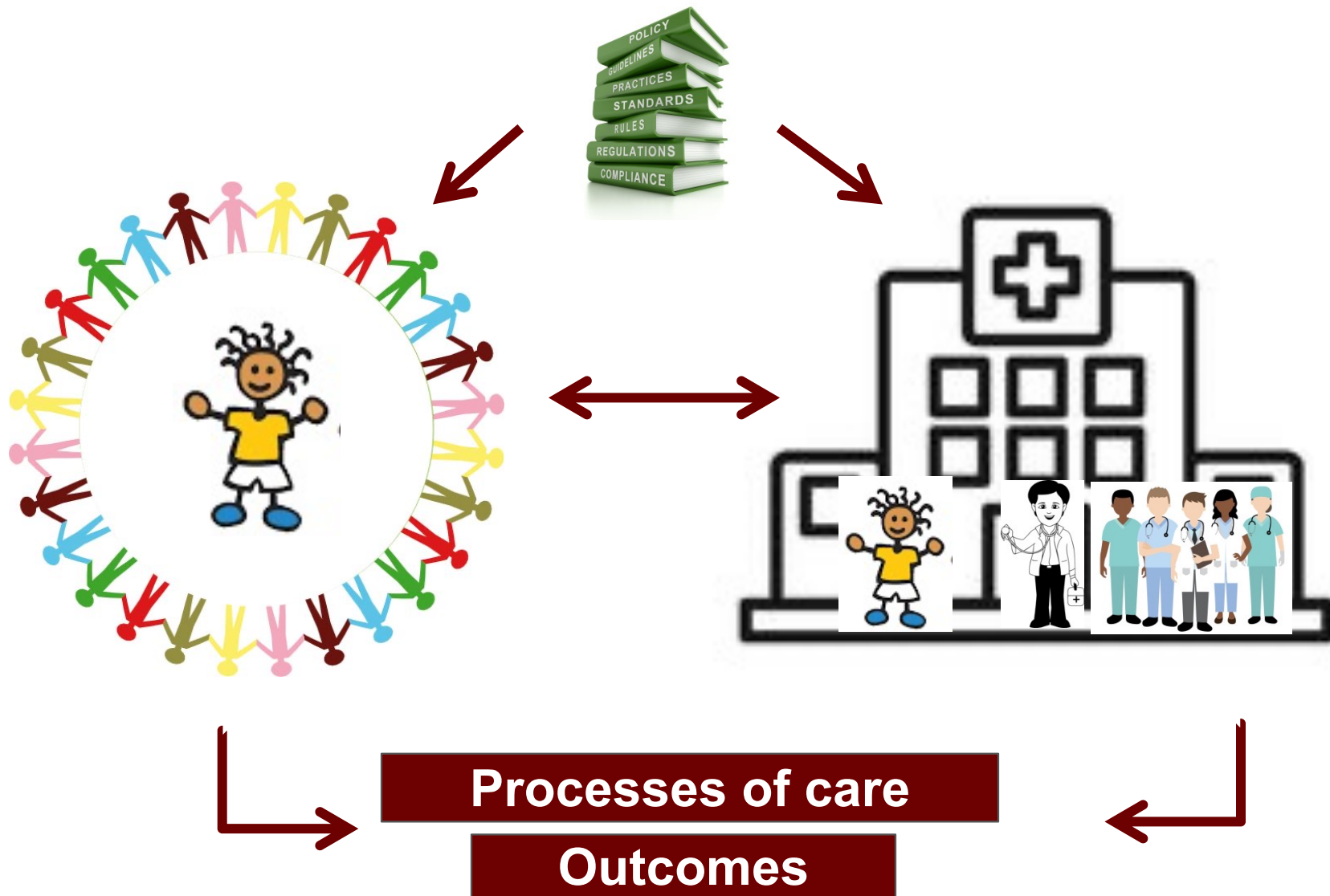


Policy



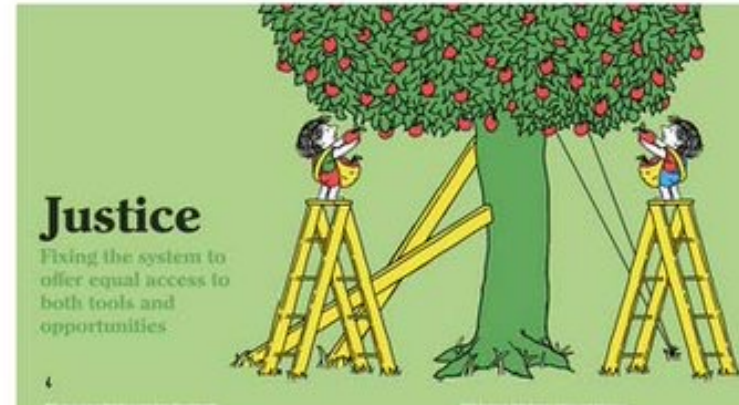
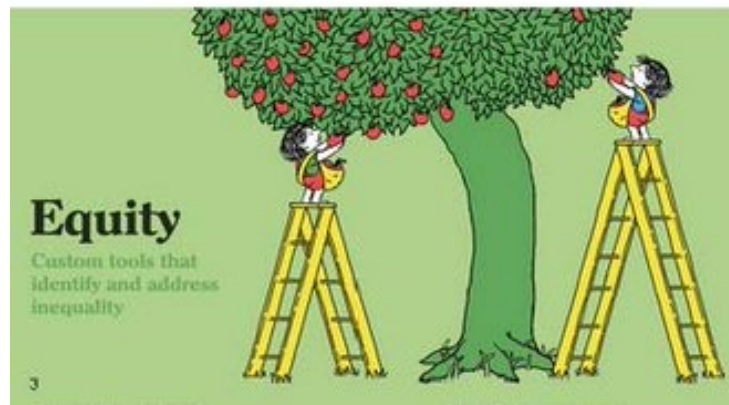
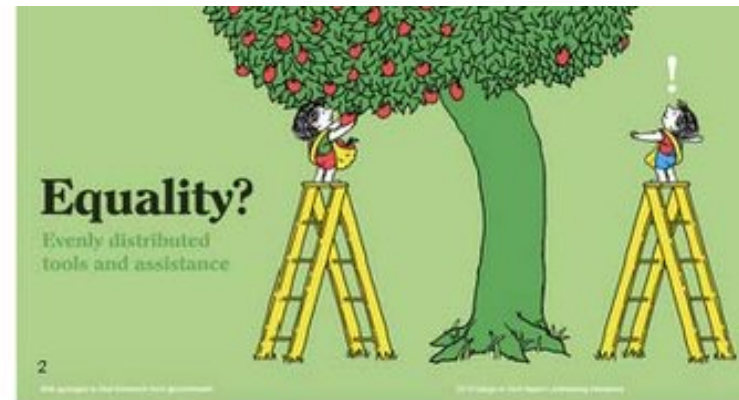
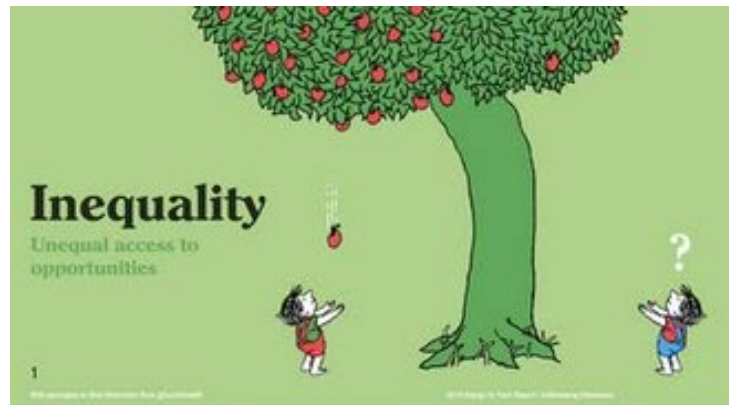
Laws

Sphere of Influence



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“We can't educate children who are not healthy, and we can't keep them healthy if they're not educated.”



Email: avolerman@uchicago.edu | Twitter: [@annavolerman](https://twitter.com/annavolerman)



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