

# Social and economic factors that influence the health of children and their families

Robert S. Kahn, MD MPH

[robert.kahn@cchmc.org](mailto:robert.kahn@cchmc.org) @docrob64

Sept 2019



24 al 27 de sep

2019

Rosario  
Santa Fe, Arg



# 3 presentations today and tomorrow

1. Social and economic factors that influence the health of children and their families
2. Thinking about how pediatric care can help the population's health outcomes
3. Effective relations between health, schools and other institutions

1. *Scope of the problem and pediatric response*
2. *Structure and impact of hospital and health system response*
3. *Building a multi-sector response to help all children thrive*

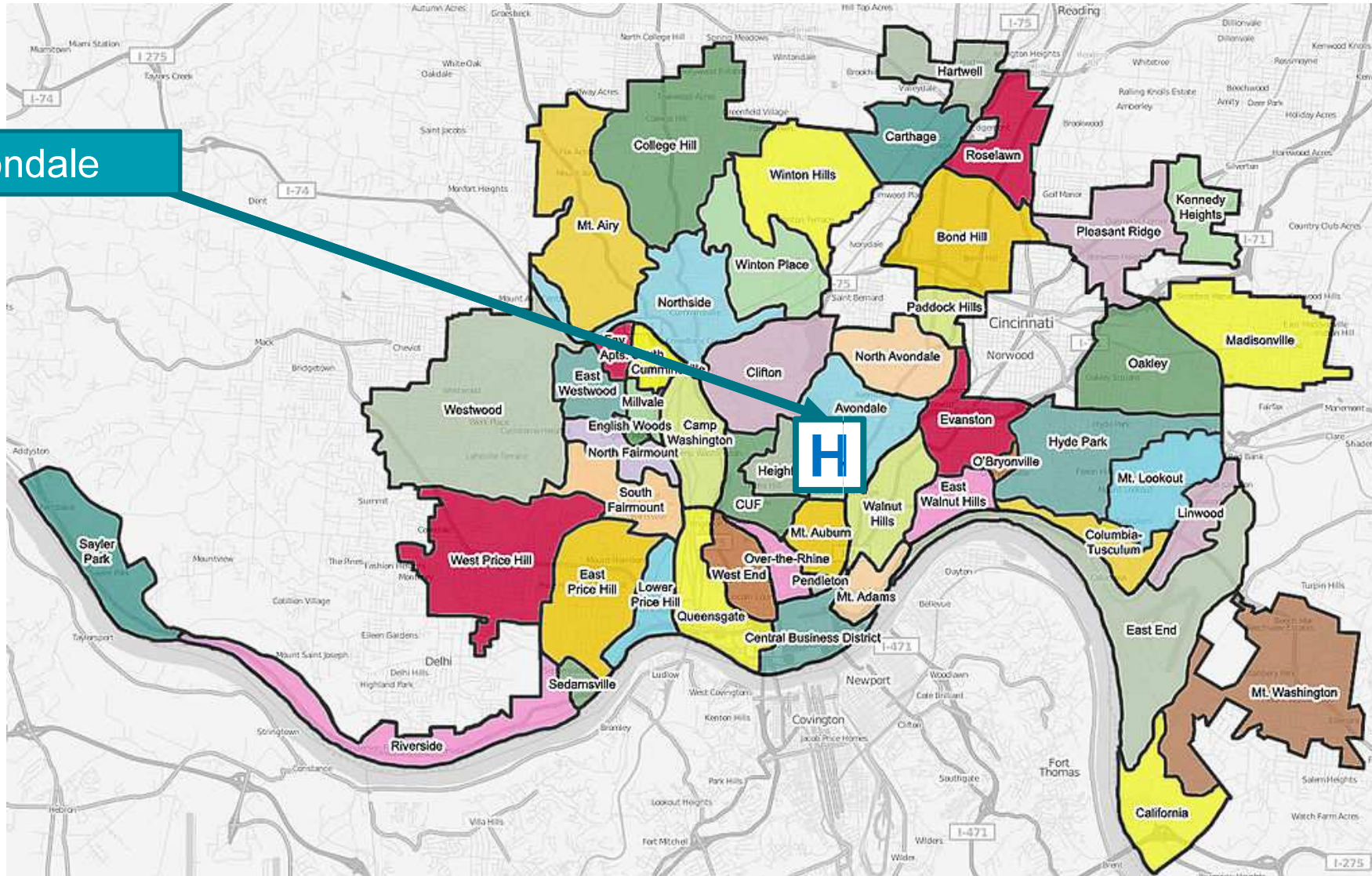
# *Scope of the problem and pediatric response*

- Asthma – paradigm
  - Framework
  - Specific hardships - modifiable factors
- Generalized approach beyond asthma
  - Interventions
- Subspecialists and population health





## Evolutionäre



- 80+ neighborhoods
- 180,000 children

- 45 neighborhoods
- 75,000 children

Procter & Gamble hor  
Cincinnati Reds basek

## Child poverty top 10 in the US

# Health Disparities or Health Inequities

- factors often called: Social determinants of health

- Presence of systematic and potentially remediable differences in one or more aspects of health across population subgroups defined socially, economically, demographically, or geographically
- Differences in health that are not only unnecessary but, in addition, are considered unfair and unjust.

# Clinical Case

Jalen, 11 year old boy with asthma from Avondale

- Hospitalized 4 times in 3 months
  - March, April intensive care unit, April, May intensive care unit
- Care team:
  - Primary care MD; nurse case manager, social worker
  - Pulmonologist and an allergist
- What are we missing?

# Clinical Case

alen, 11 year old African American boy with asthma

Hospitalized:

- March 08, April 08 PICU, April 08, May 08 PICU

Care team:

- Primary care MD, nurse case manager
- Pulmonologist and an allergist

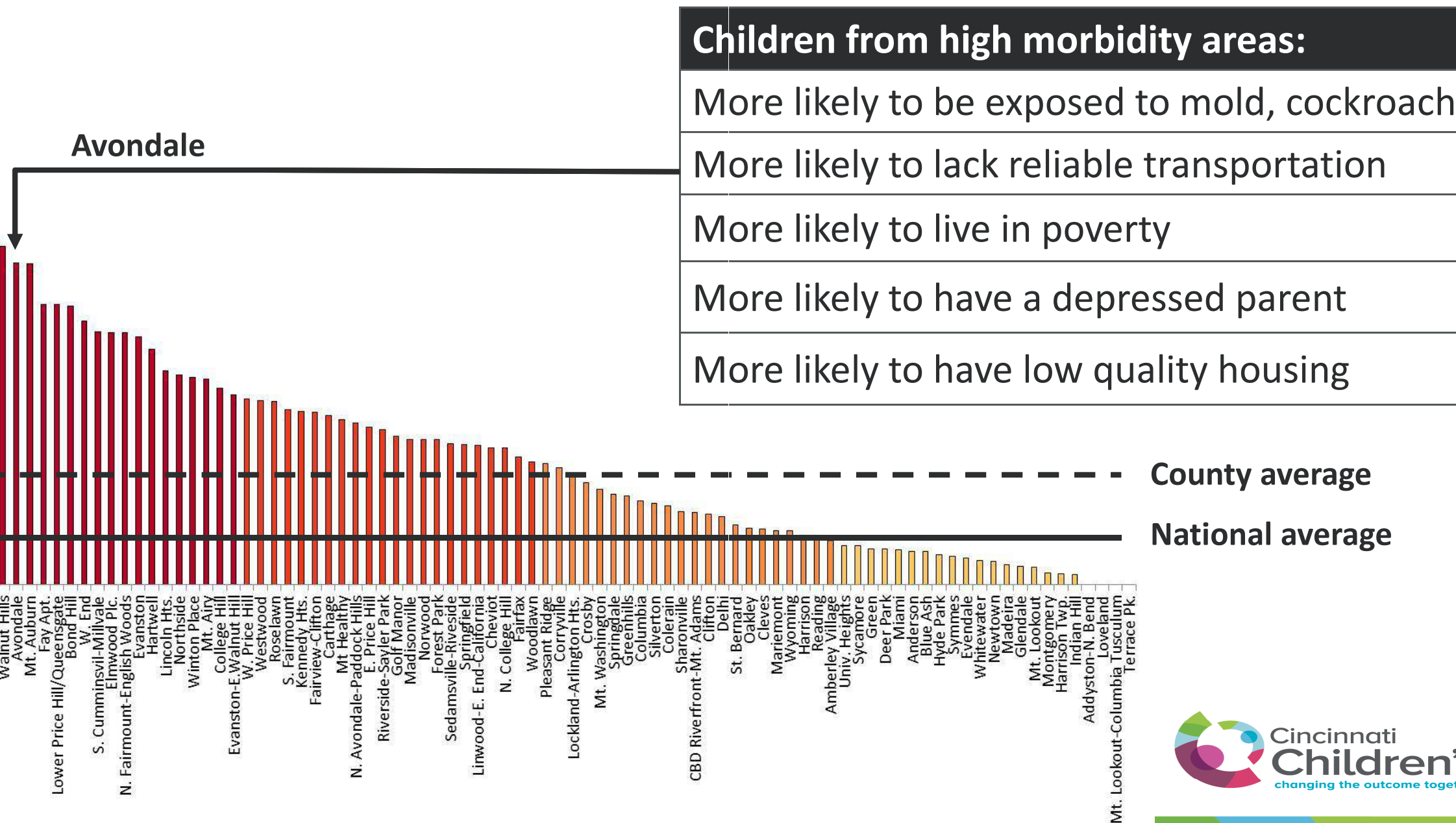
Pediatric resident called patient's mother after last admit

- Rental apartment has mold
- Mother complained and landlord threatened to evict the family
- Lost health insurance and not buying his medicines
  - Employer's payroll clerk wouldn't verify wages



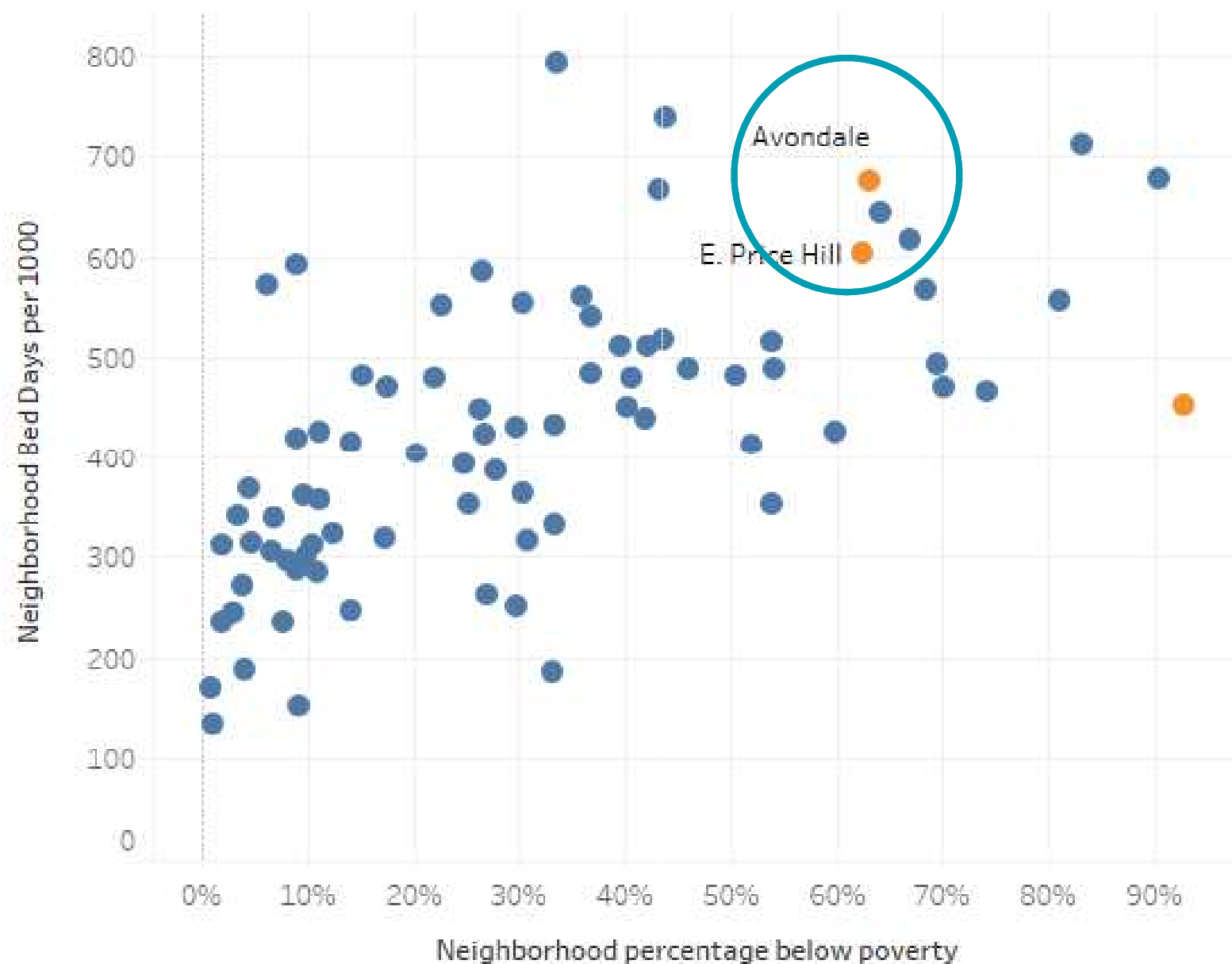


## Asthma admission rate per 1000 children, 3 year average (2010-2012)





# patient day rate by neighborhood poverty rate (FY2012-2017)



# Rudolf Virchow – Birth of ‘Social Medicine’

1821-1902

Father of modern pathology, first to describe leukemia, that each cell comes from another cell, embolism

Sent to address the Typhus Epidemic in Upper Silesia in 1848  
– Medicine is a social science

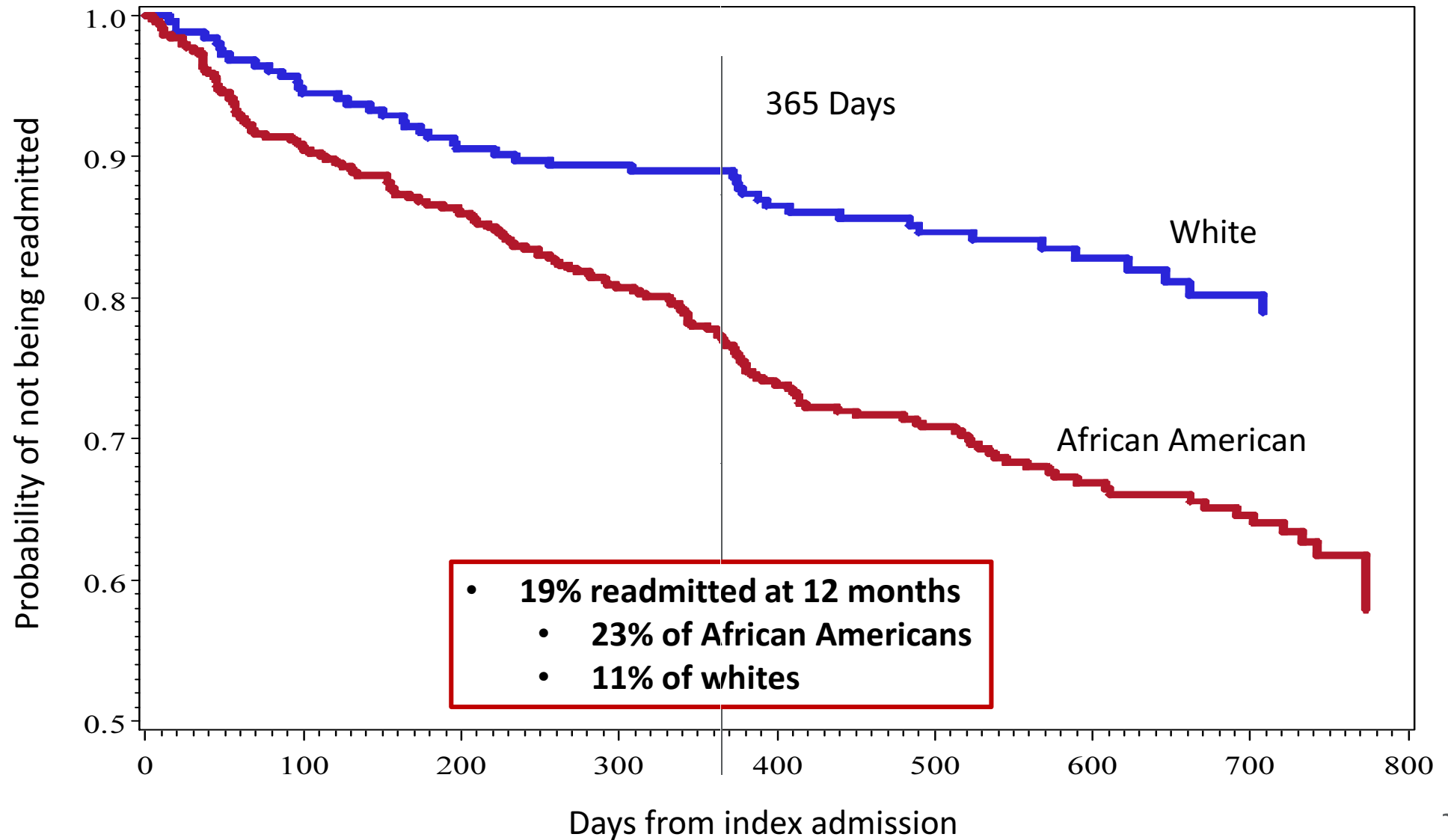
Physicians are the natural attorneys of the poor, and social problems fall to a large extent within their jurisdiction.

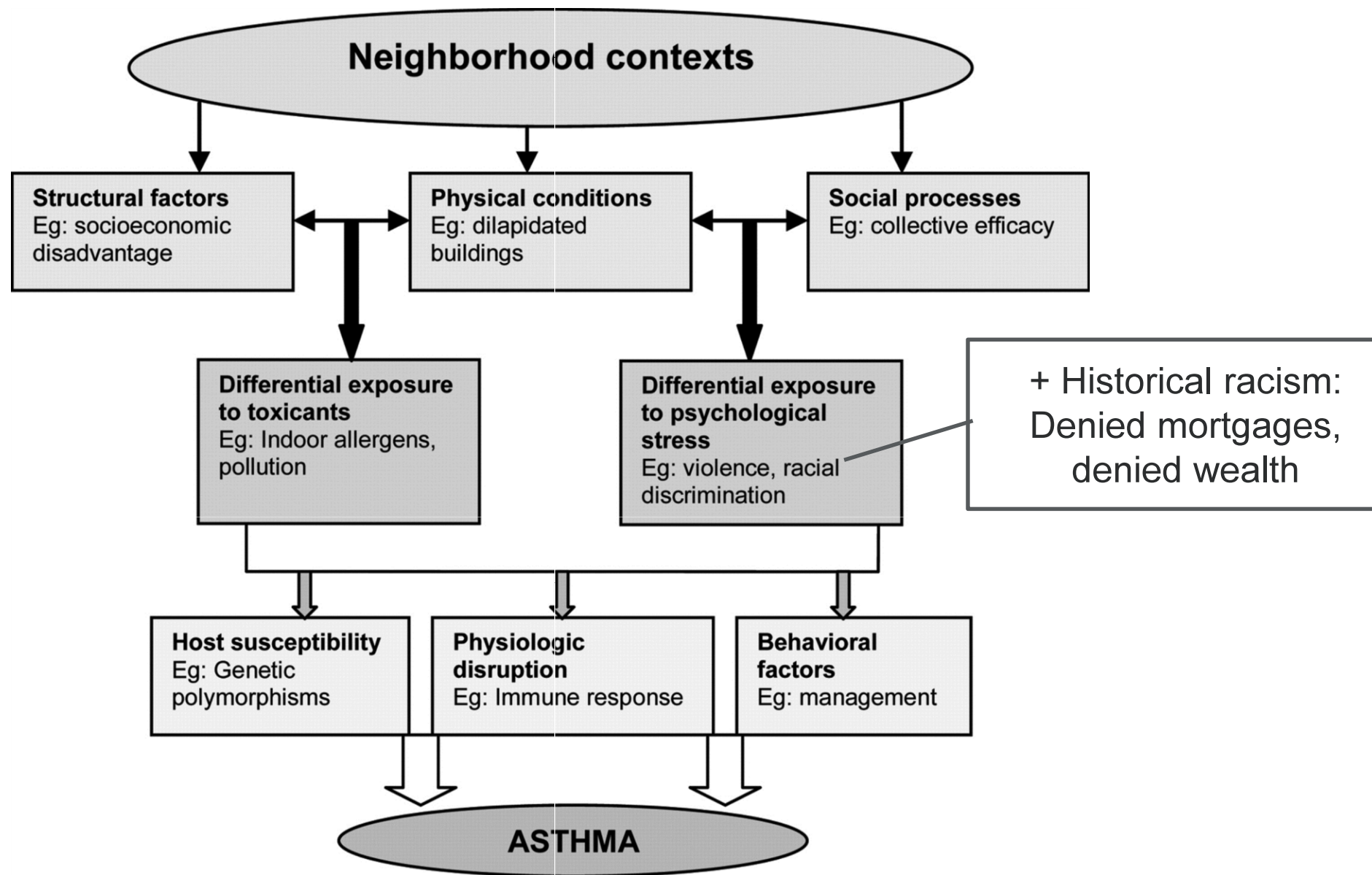
If medicine is to fulfill her great task, then she must enter the political and social life. Do we not always find the diseases of the populace traceable to defects in society?

German liberal revolution in 1848 – expelled from his position in Berlin



# Time to readmission, by race





Developing a Multilevel Framework for Epidemiologic Research on Asthma Disparities\*

Patel, Subramanian

Chest. 2007;132(5\_suppl):757S-769S. doi:10.1378/chest.07-1904

# Inpatients with Asthma:

## From “Poor” to Structured Assessment of Hardships

Strain Question
Not enough money to make ends meet
One or more days with no food & no \$ to buy
Not able to pay full rent or mortgage
Not able to pay full bill for heat or electricity
Not able to borrow \$1000, any source
Not own home or apartment
Had to move in with others due to lack of money
Had to borrow money in past year

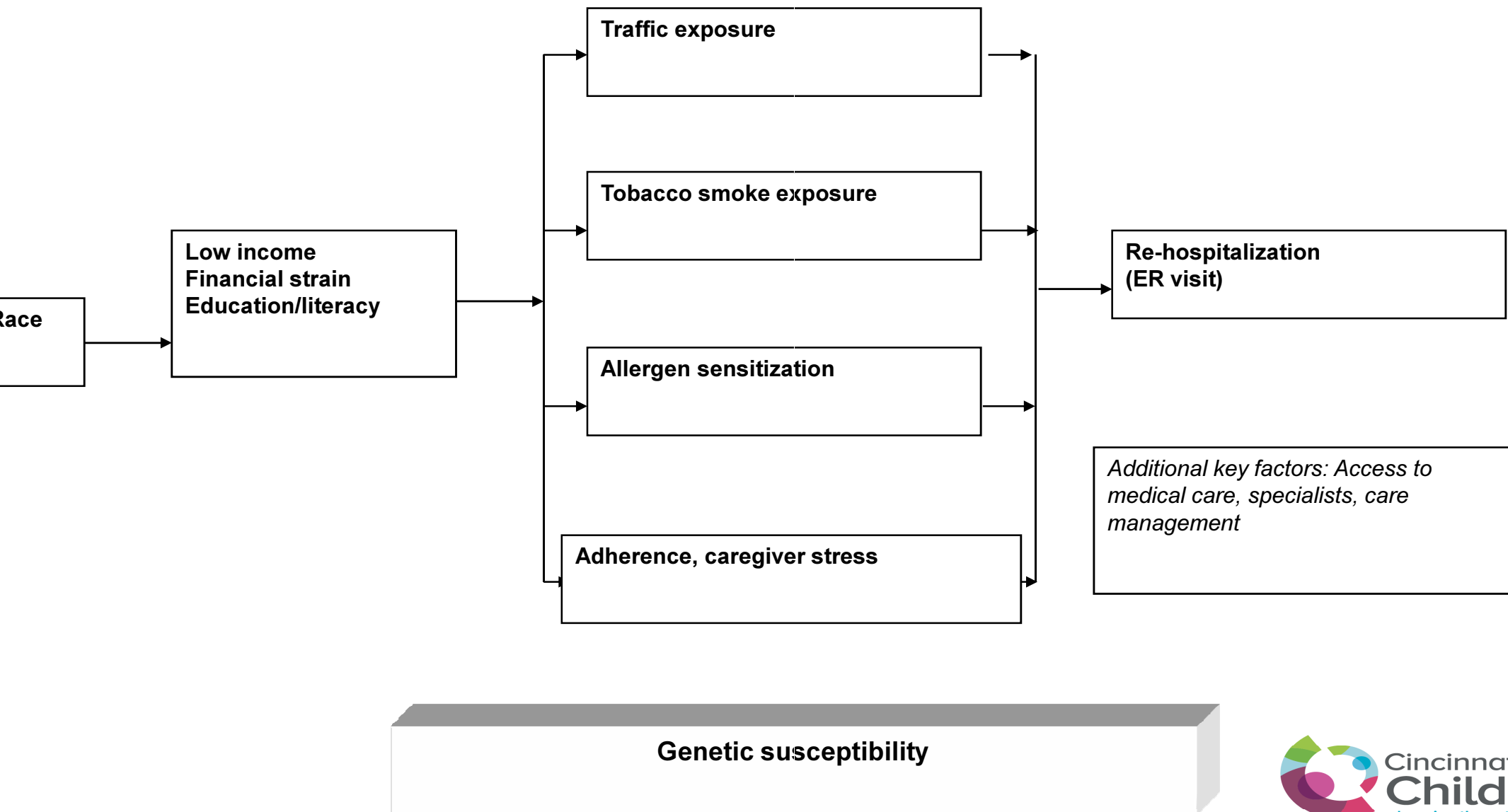


# Risk of a 2<sup>nd</sup> asthma admission within 1 year

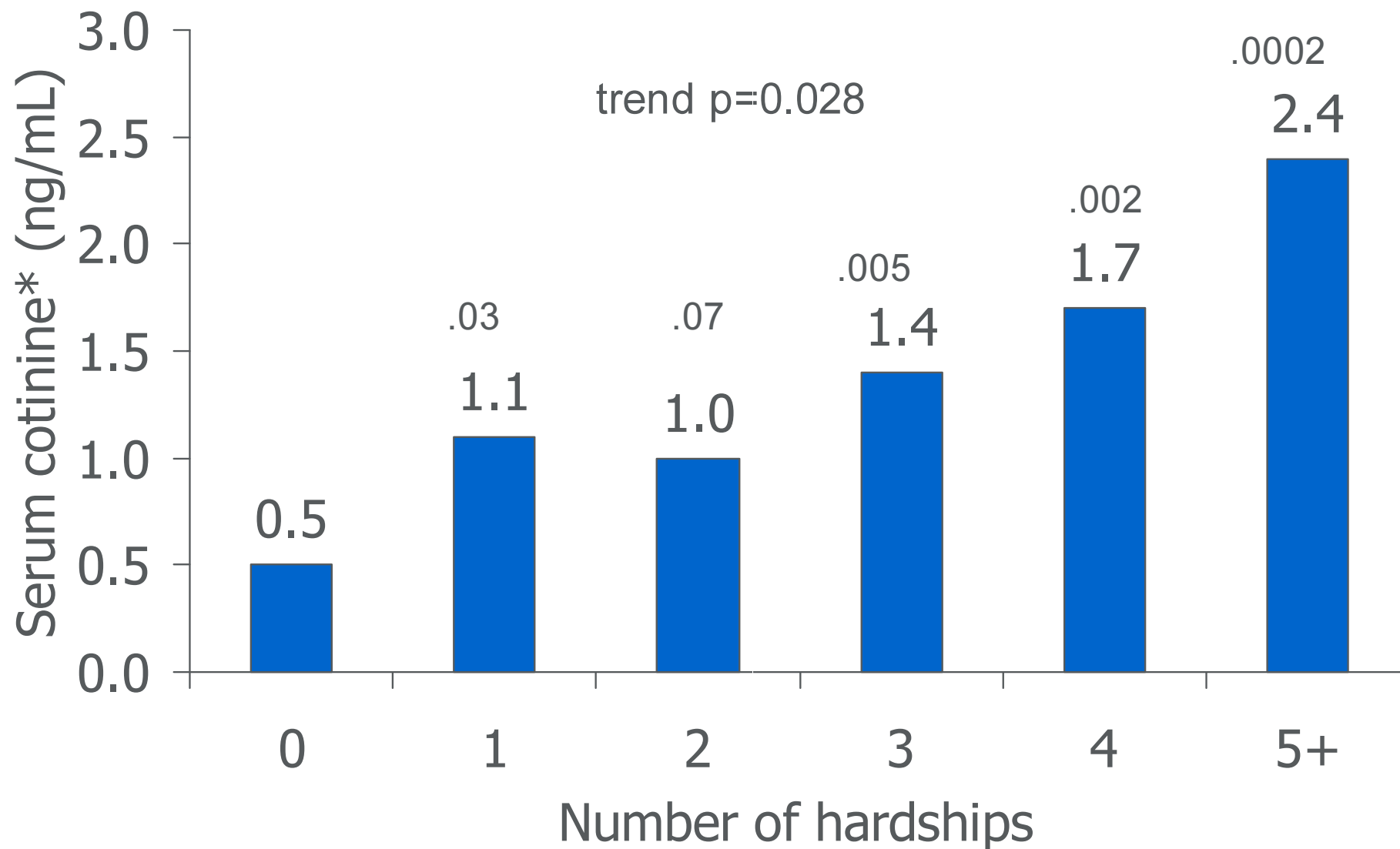
- Hardship index: 6 items
  - Enough make ends meet
  - Not pay full rent/mortgage
  - Not pay full utility
  - Not own home/apt
  - Unable to borrow \$1000
  - Borrowed in past year
- 3-4 fold greater odds of readmission in highest risk group

Hardships	%	% readmitted
0	19	10
1 to 2	31	16
3 to	<b>Jalen</b>	21
5 to 6	15	34

# Biologic mechanisms for social/economic factors

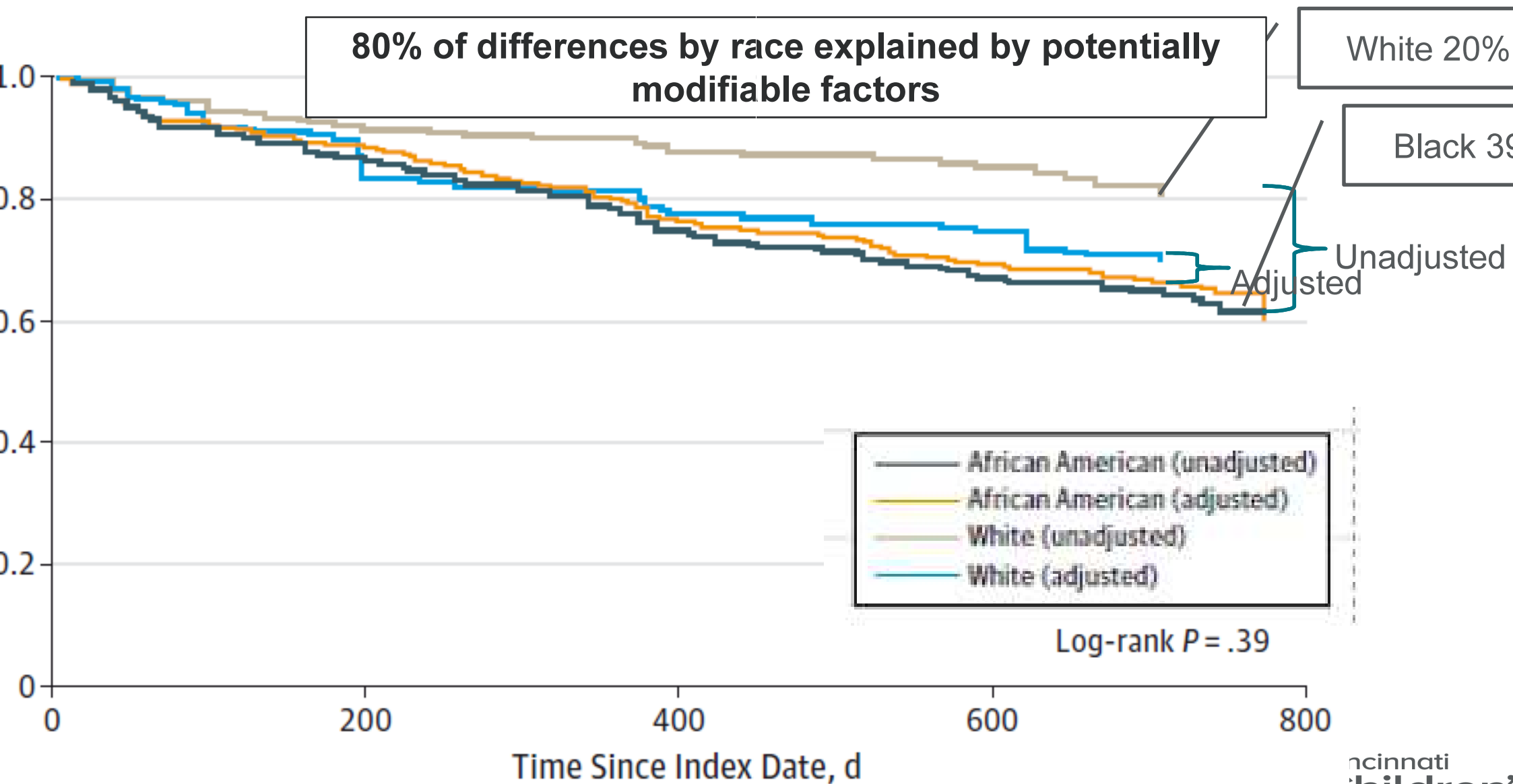


# biologic mechanisms: How does poverty 'get under the skin'?



\*Geometric mean; adjusted for age, marital status, race

# From index date to asthma readmission: Explaining racial differences



# Interim Summary

Learn from each case

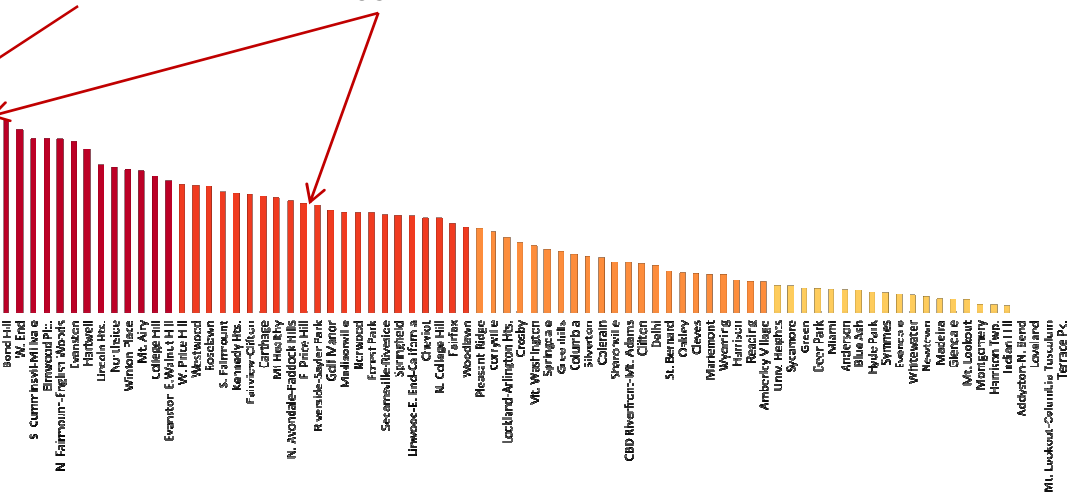
Move from vague, overwhelming 'social/economic factors to specific hardships to see possible interventions

Explore biologic mechanisms for insights and to build will

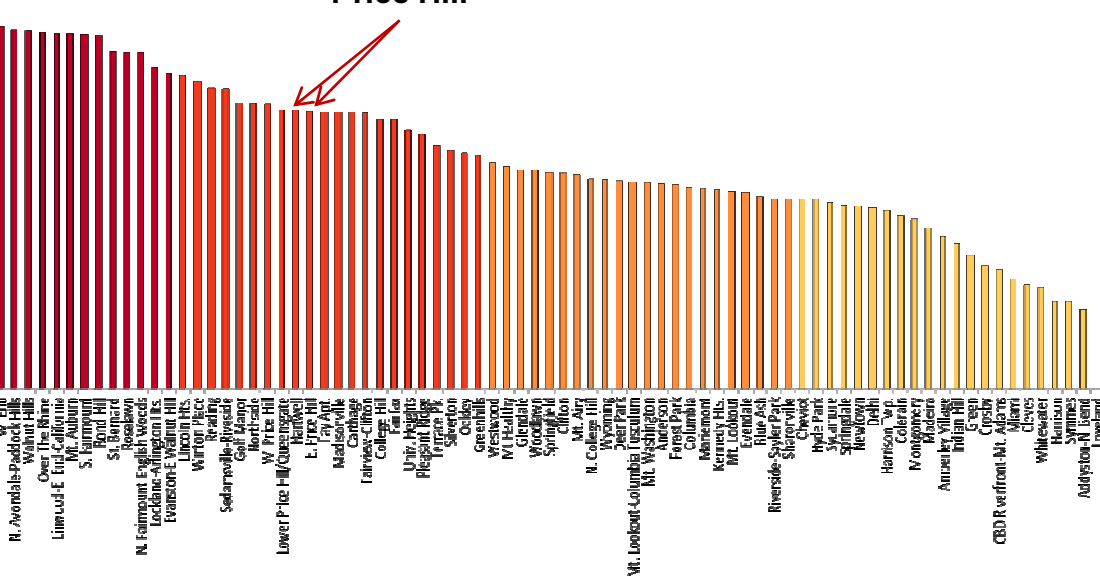
Know if we are to fulfill our great task, then we must enter social and political life



**Avondale** **Price Hill**

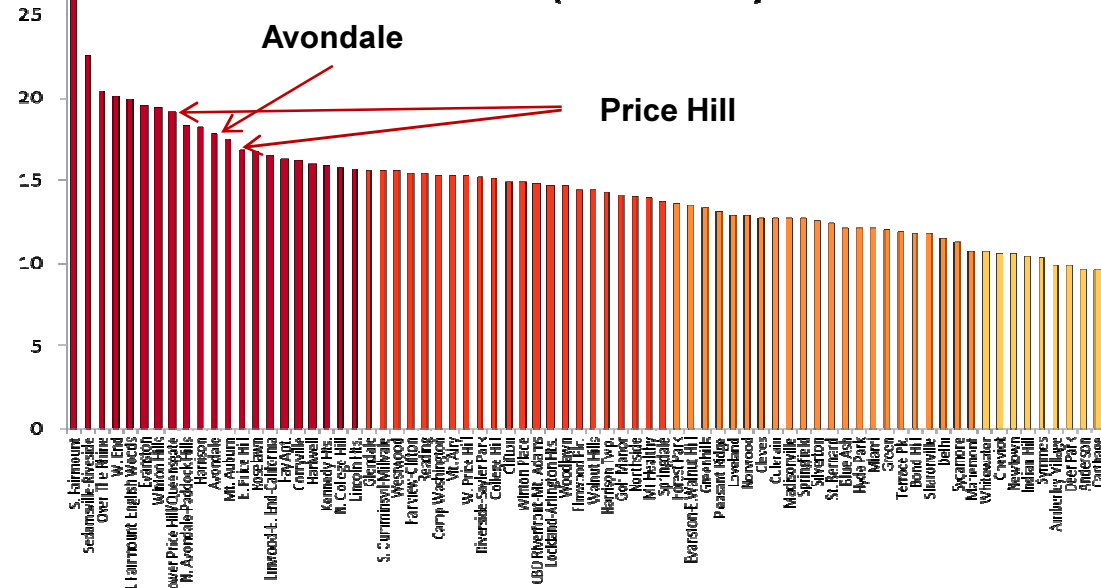
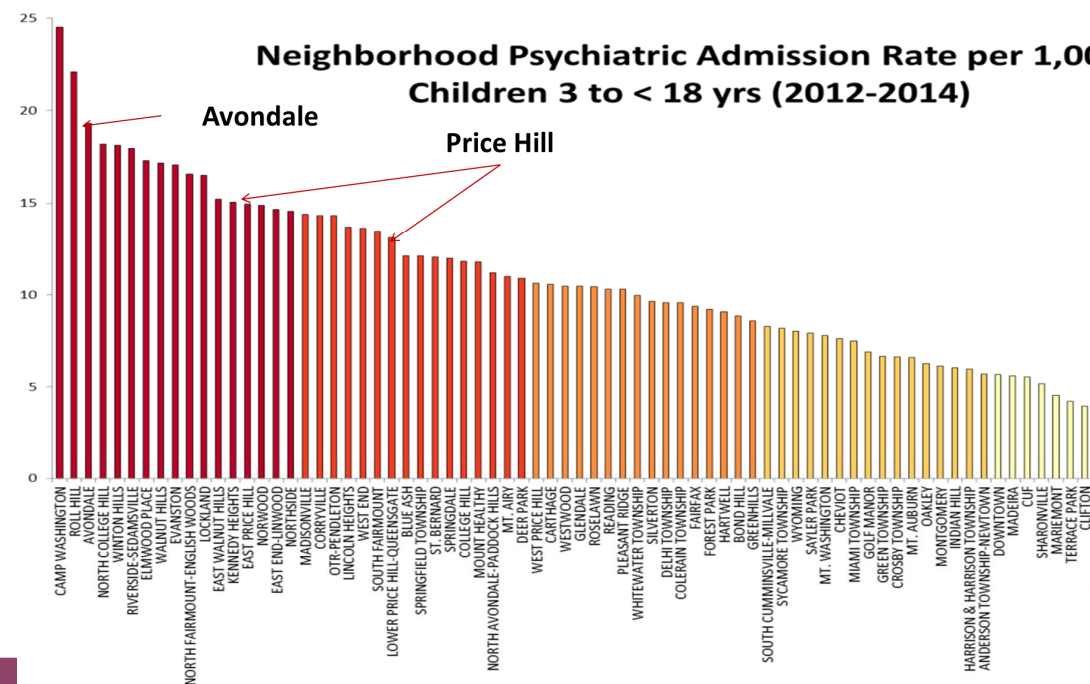


Avondale Price Hill

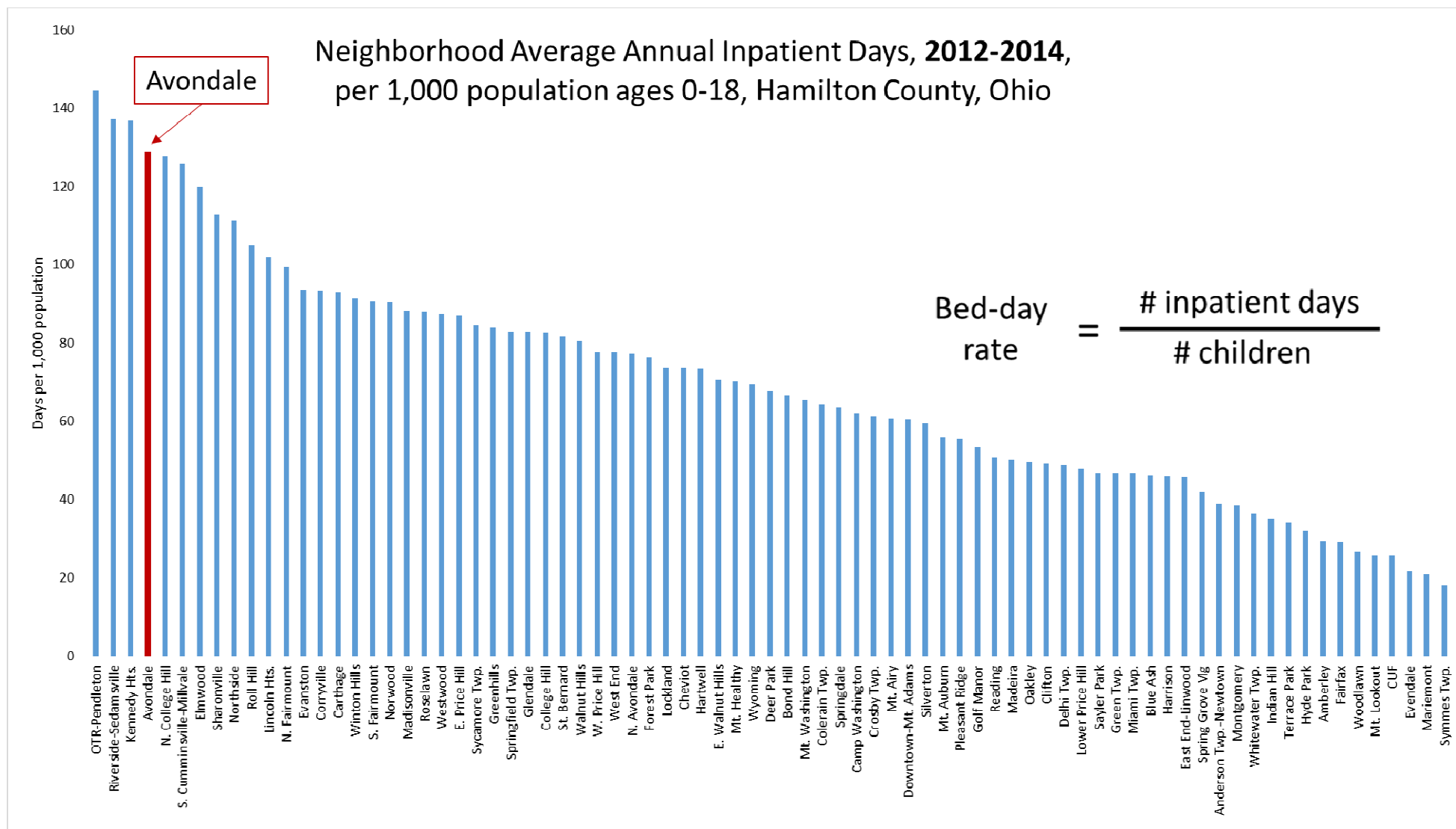


Avondale

Price Hill

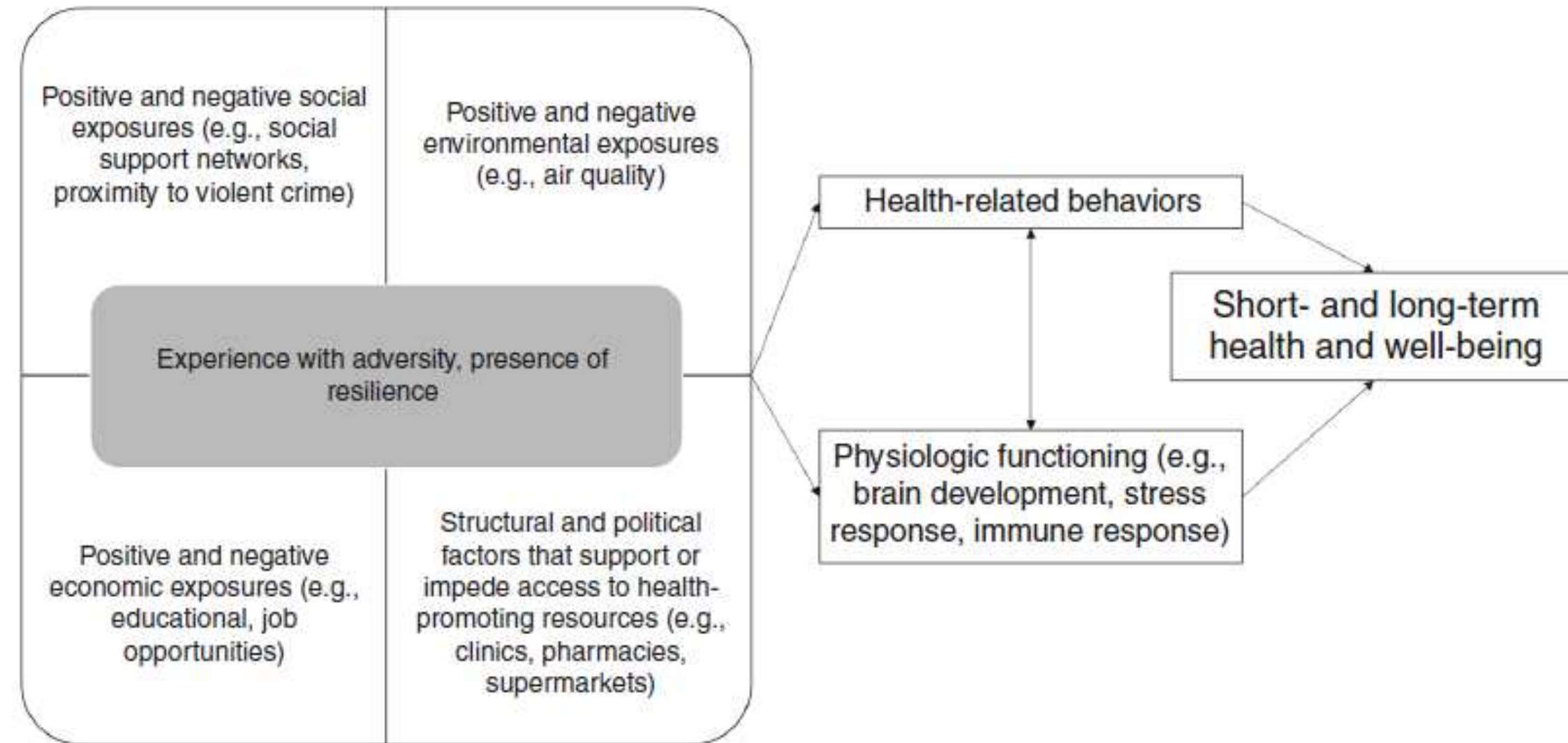
Avondale  
Price Hill

# Disparities in all-cause pediatric inpatient bed-days



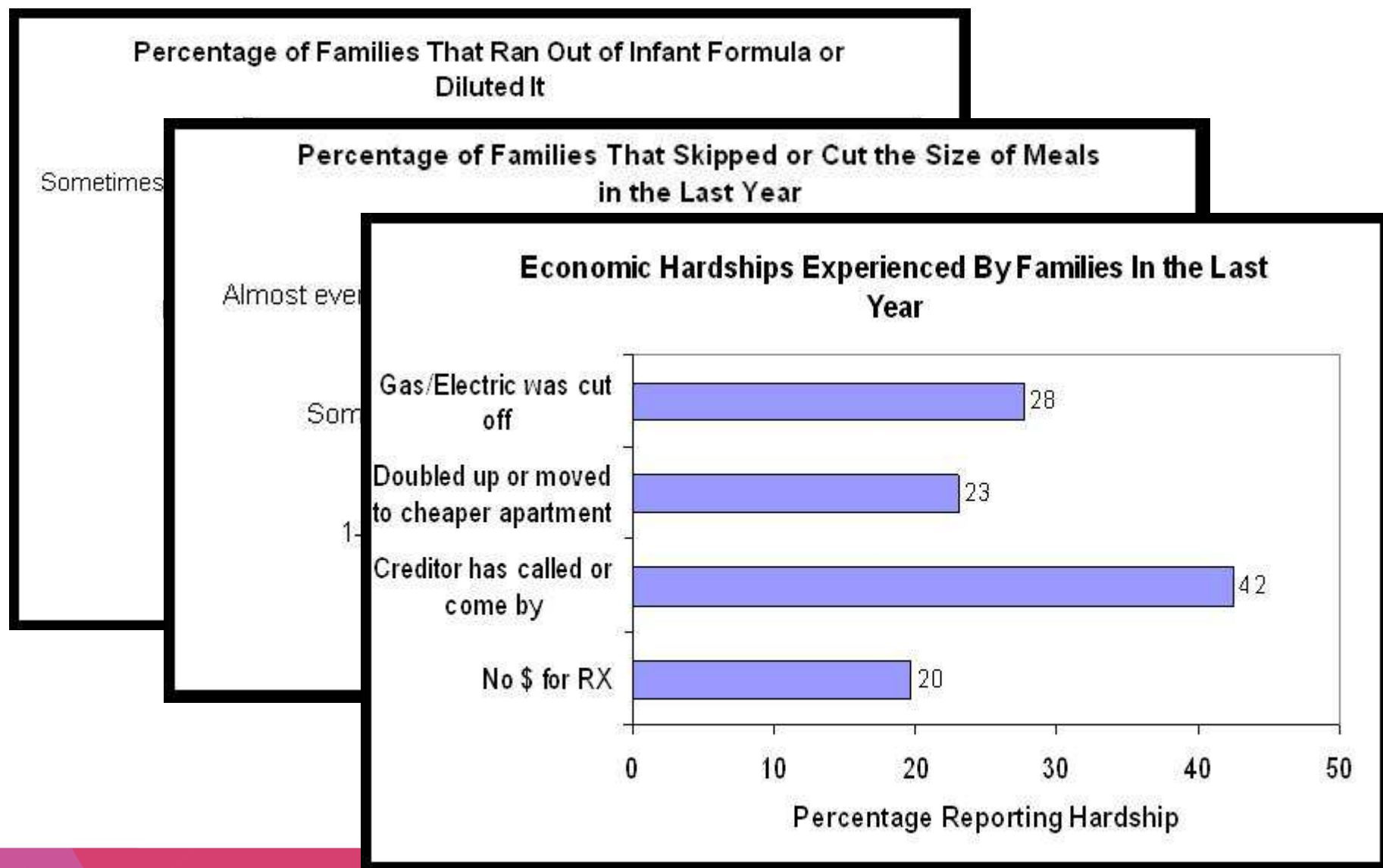
Each neighborhood had the same bed-day rate as those with the lowest poverty, there would be ~8,000 fewer bed-days per year (~22 child-years)

# General framework for social and economic factors



# What are we missing?

Hardships in families seen in our primary care clinics



# Child Health-Law Partnership (Child HeLP)

- To help break the link between poverty and child health by:
  - Increasing knowledge, screening of families' access to basic resources
  - Partnering with legal advocates focused on poverty law to link families to needed resources and services
  - Addressing housing, benefits, education, family law issues
- Partnership:
  - Division of General and Community Pediatrics
  - Legal Aid Society of Greater Cincinnati
- Legal advocates on site in clinic 5 days per week
- *Who might be an unusual partner, agency, friend in the social services sector who you could reach out to?*



# Electronic Health Record Integration

Social/Environmental (Questions to ask family during visit)

lives with

you having  
ms receiving  
od stamp,  
re vouchers,  
al card, or SSI?

Yes No

B

ing problems  
crowding,  
es, rodents,  
, mold, lead)?

Yes No

H

atened with  
n or losing  
ome?

Yes No

the past 2  
, have you felt  
depressed or  
ess?

Yes No

D

the past 2  
, have you felt  
erest or  
re in doing

Yes No

ou feel that you  
your children  
safe in your  
nships?

Yes No

D  
V

d you like to  
with a social  
or legal  
ate in the clinic  
these issues?

Yes No

All others

## REFERRALS

### Referrals

- ☐ Allergy/Immunology
- ☐ Audiology < 6 months
- ☐ Audiology > 6 months
- ☐ BMCP (Behavioral Medi
- ☐ Cardiology
- ☐ DDBP (Developmental I
- ☐ Dermatology
- ☐ Early Intervention
- ☐ Endocrinology
- ☐ ENT
- ☐ Gastroenterology
- ☐ Genetics
- ☐ Gynecology (Adolescent)
- ☐ Hematology/Oncology
- ☐ Healthworks
- ☐ Health Law Partnership
- ☐ Hypertension
- ☐ Nephrology
- ☐ Neurology
- ☐ Neurosurgery
- ☐ Nutrition (CCHMC)
- ☐ Nutrition (PPC)
- ☐ Occupational Therapy
- ☐ Ophthalmology
- ☐ Orthopedics

☒ Health Law

Priority:

Class:

Status:

Comments  
(F6):

Additional

Fax Server

11/17/2017 2:42:28 PM PAGE 1/001 Fax Server

## Order

### Reason for Visit

Behavior Evaluation - Initial  
Reason for Visit History

### Patient Information

Patient Name:  
HR #:  
Date of Birth:  
Sex:  
Phone Numbers:  
Home:

### Patient PCP Information

Provider: PRIMARY CARE PEDIATRIC  
PCP Type: General

### Visit Information

Visit Date: 11/17/2017  
Order Date: 11/17/2017  
Visit Site: EHS/CCM GEN/COMMUN PEDS  
Reason for Visit:

2268 -

Attending:

Ordering:

Question  
Reason for referral?

Guardian names?

Guardian phone?

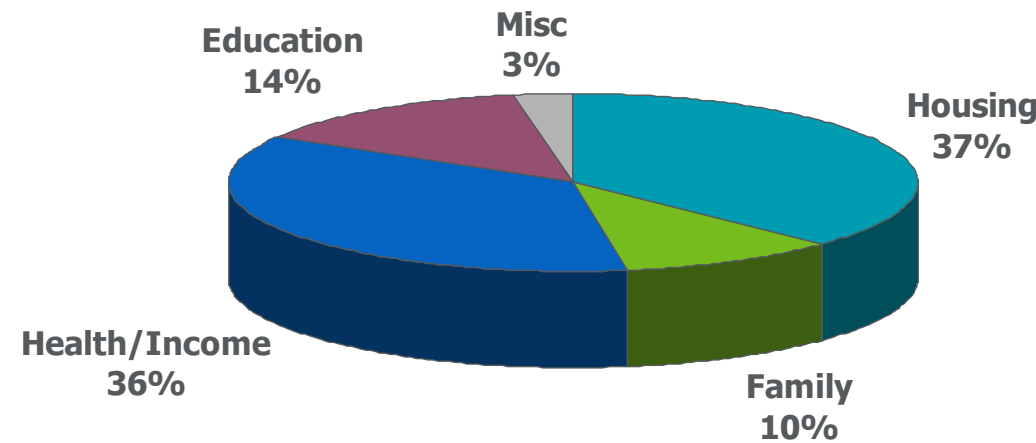
Answer  
Mold in house

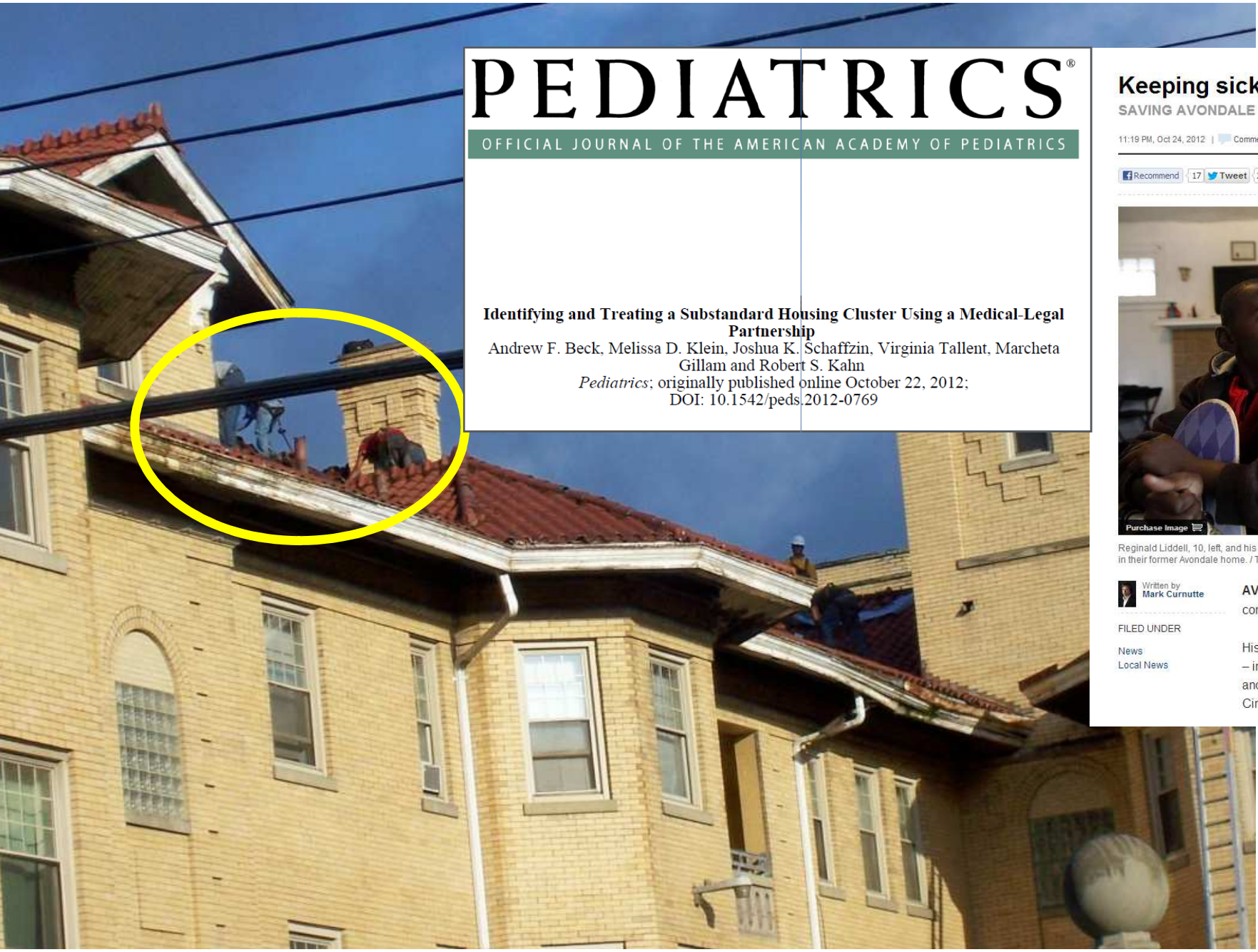
Comment

# Child HeLP's Impact

08-2018:

- **7,070** referrals made
- **5,230** legal cases opened
- **13,240 children** and **6,690 adults** helped in referred households
- **6,600** positive legal outcomes achieved
- **>600** pediatric interns and residents trained





# PEDIATRICS®

OFFICIAL JOURNAL OF THE AMERICAN ACADEMY OF PEDIATRICS

## Identifying and Treating a Substandard Housing Cluster Using a Medical-Legal Partnership

Andrew F. Beck, Melissa D. Klein, Joshua K. Schaffzin, Virginia Tallent, Marcheta Gillam and Robert S. Kahn

*Pediatrics*; originally published online October 22, 2012;  
DOI: 10.1542/peds.2012-0769

## Keeping sick buildings from making children

SAVING AVONDALE

11:19 PM, Oct 24, 2012 | Comments

Recommend

Recommend

17

Tweet

2

+1

0

Print Email Share



Reginald Liddell, 10, left, and his younger brother, Jaylijah, 8, both suffer from asthma that was made worse by mold in their former Avondale home. / The Enquirer/Jeff Swinger

Written by  
Mark Curnutte

FILED UNDER

News

Local News

**AVONDALE** — Reginald Liddell's asthma, otherwise easily controlled by an inhaler, had gotten the best of him.

His family had moved to a building at Reading Road and Blair Avenue — into an apartment creeping with mold and crawling with roaches — and Reginald got so sick that he missed school and spent the night at Cincinnati Children's Hospital Medical Center.



# Condition-specific disparities, relative differences, income

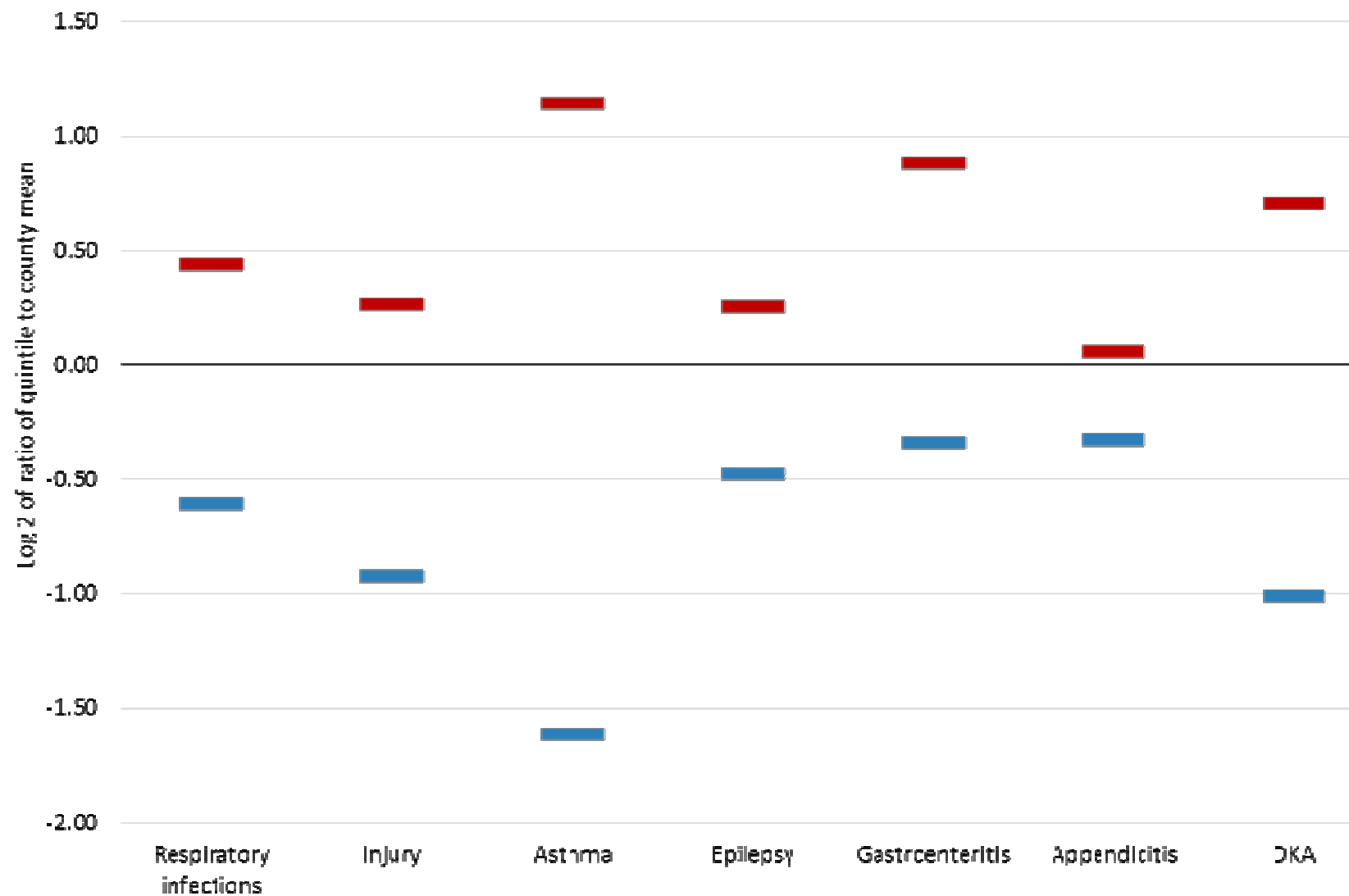


Relatively  
more bed-  
days

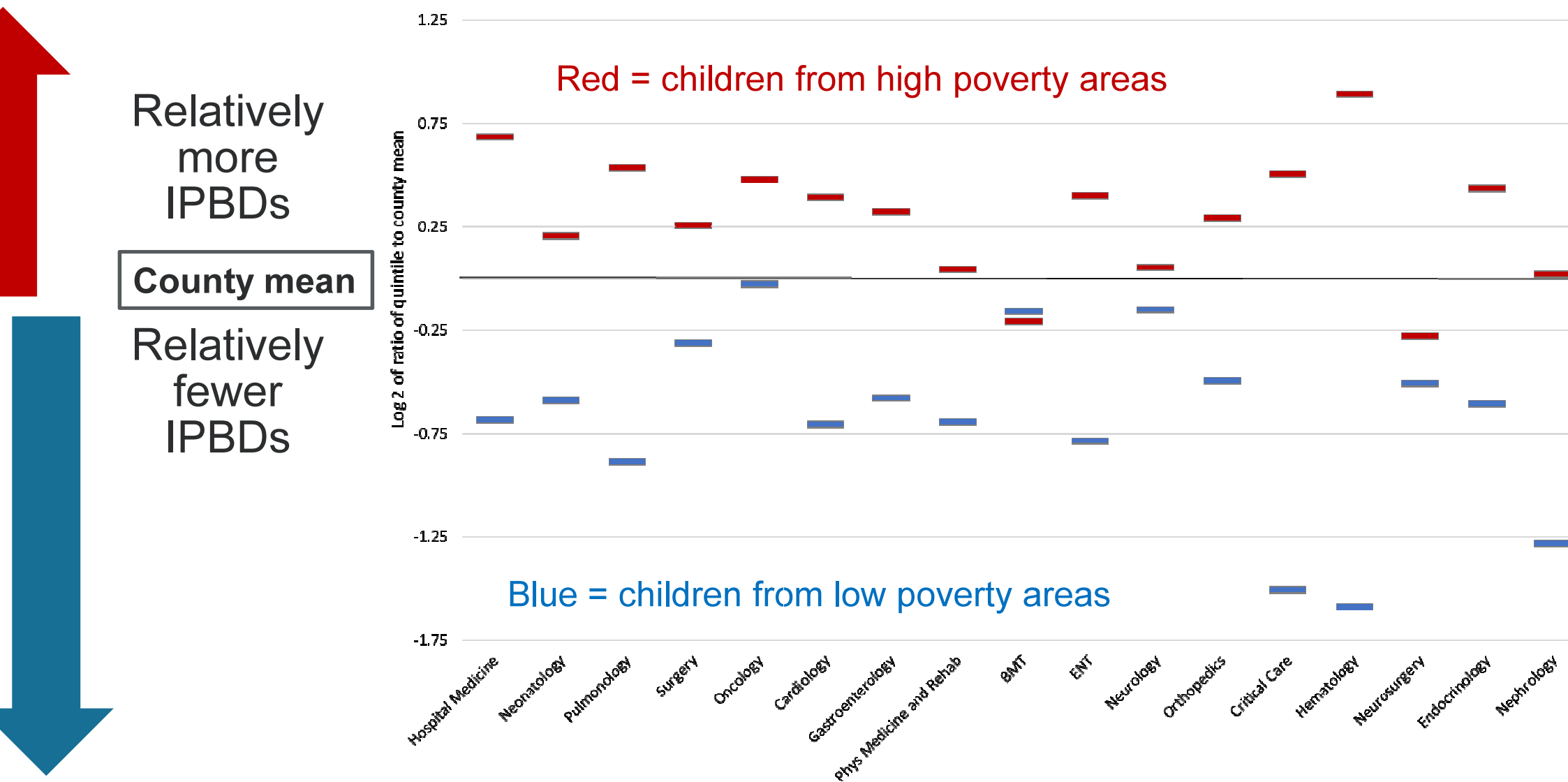
County mean



Relatively  
fewer bed-  
days



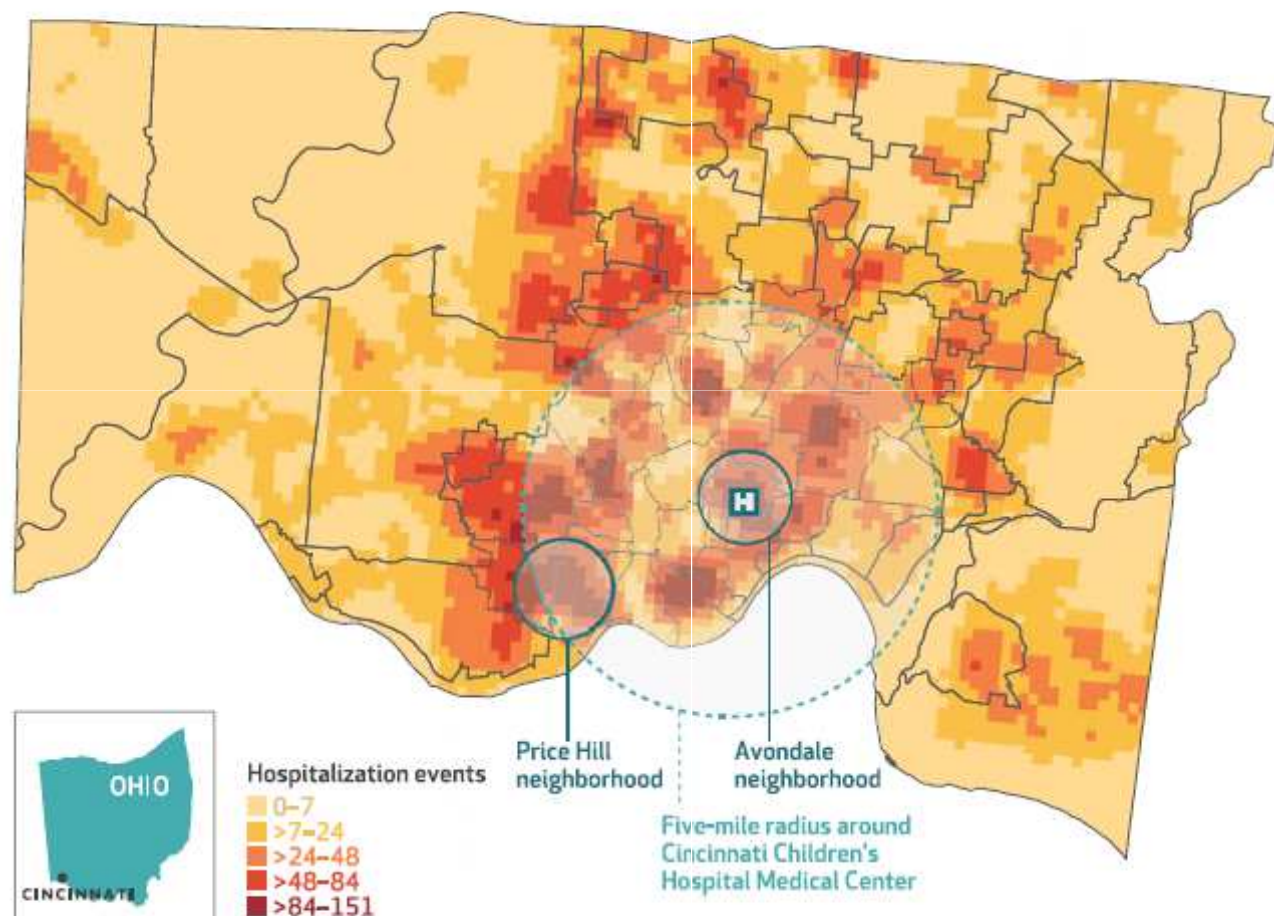
# Specialty-specific, relative differences, by income



# Geospatial software for a new morbidity

## EXHIBIT 1

Hot spots of hospitalizations for children ages 0-18 years in Hamilton County, Ohio, July 2012-June 2015

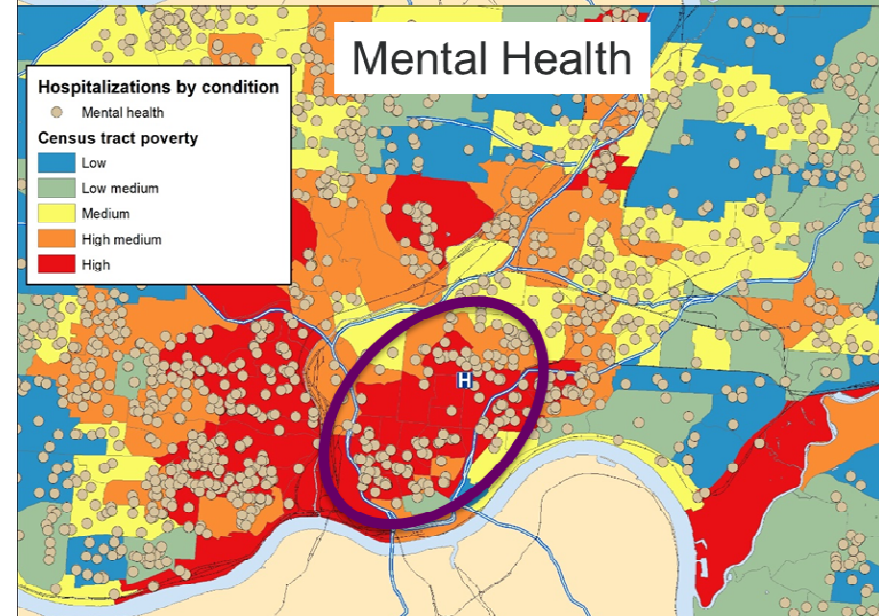
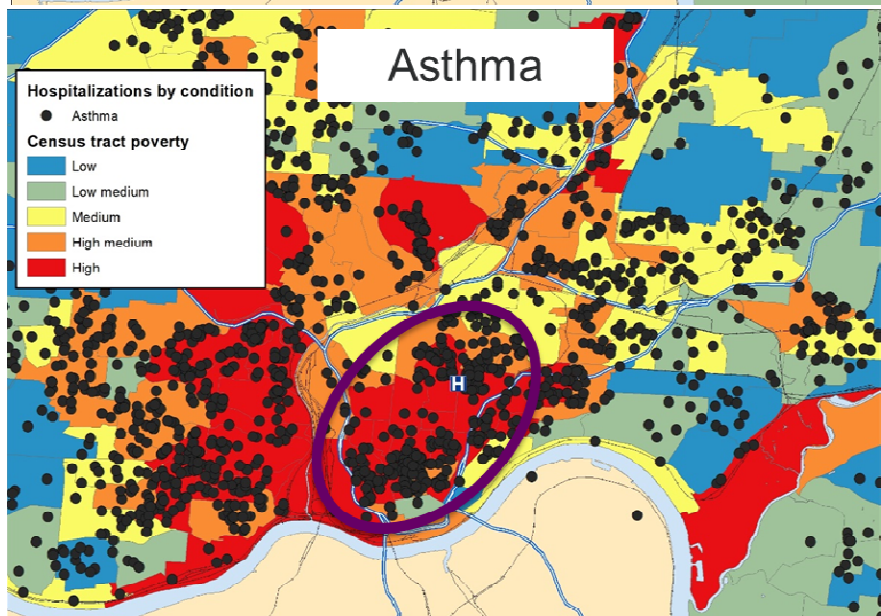
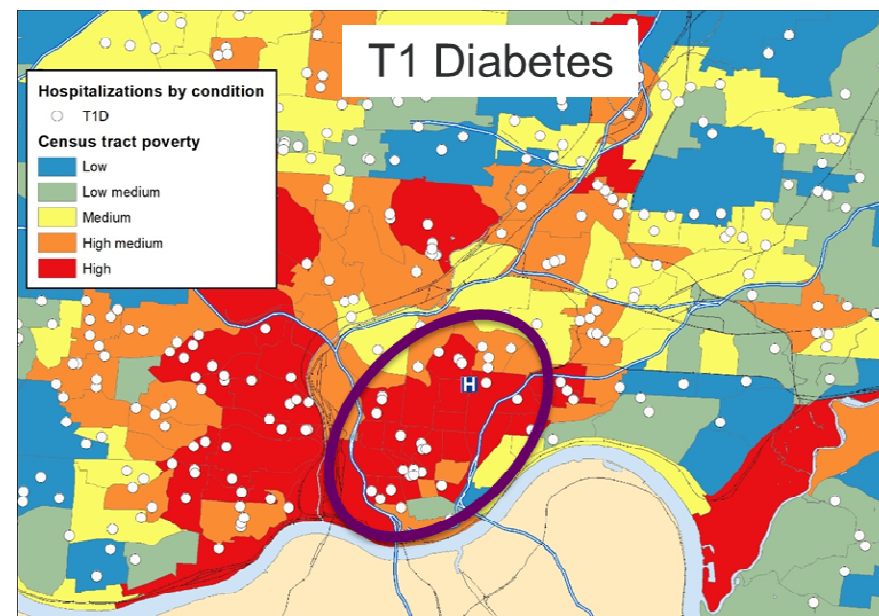
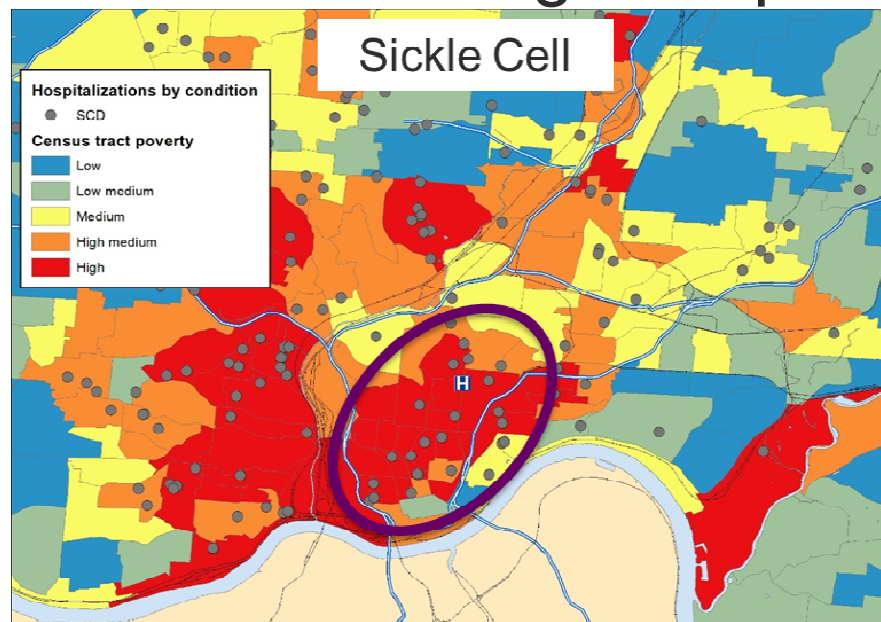


**SOURCE** Authors' analysis of data from Cincinnati Children's Hospital Medical Center and the Cincinnati Area Geographic Information System. **NOTES** "Heat" refers to the numbers of hospitalization events per half-mile square per year in July 2012-June 2015, before the onset of the formal improvement activities described in the text. The solid lines in the map indicate neighborhood boundaries.



# 20: Engage Subspecialists in Social Determinants of Health

## aps of admissions against poverty rates, Cincinnati



# Abraham Jacobi, MD 1830-1919

First Professor of Pediatrics in the US  
Founder, American Pediatric Society  
President, American Medical Association



Every physician is by destiny a 'political being' in the sense in which the ancients defined the term; that is, a citizen of a commonwealth, with many rights and great responsibilities. The latter grow with increased power both physical and intellectual. The scientific attainments of the physician and his appreciation of the sources of evil enable him to strike at its root by advising aid and remedy..."

A Jacobi: Trans Am Pediat Soc 1893

German liberal Revolution of 1848, charged with high treason and imprisoned from 1851 - 1853

## Ramón Carrillo 1906-1956



Argentine neurosurgeon, physician, academic, public health advocate  
Nation's first Minister of Health, with a special interest in preventive medicine,  
social medicine and maternal and child care

- "All men have the same right to life and health",
- "There can be no health policy without social policy"
- "Modern medicine tends to take care of health and the healthy...Medicine should not only cure the sick but teach the people to live, to live in health and try to make life go on and be worth living."

# Clinical Case

## Jalen, 11 yo boy with asthma in primary care

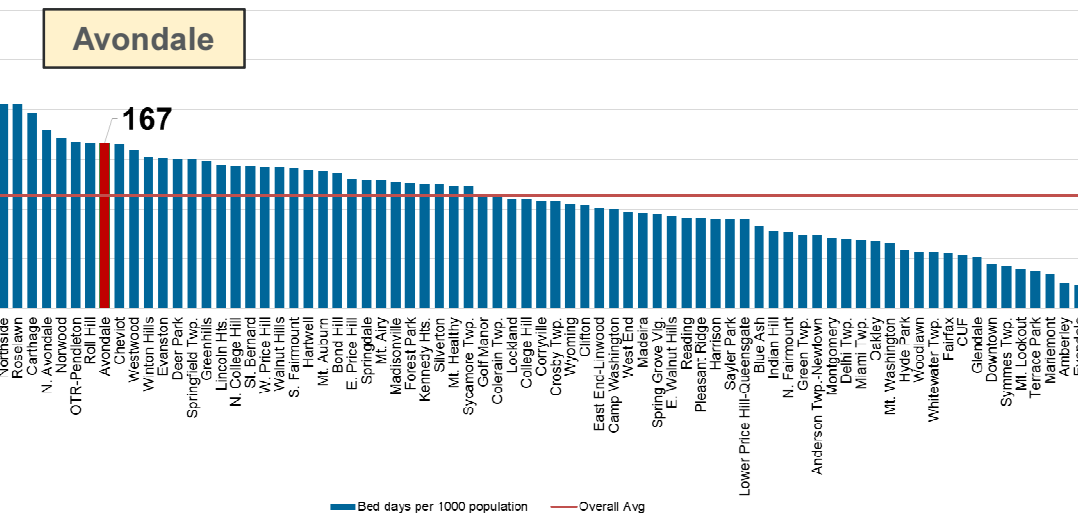
- Hosp: March 08, April 08 PICU, April 08, May 08 PICU
- Eviction threat, No health insurance
- Direct electronic health record referral to legal advocates:
  - Legal advocate – got landlord to move family to healthier housing, no eviction
  - Health insurance for the whole family – got employer verification
  - \$2800 in public benefits wrongly denied and \$950 per month ongoing
- Asthma nurse practitioner joined public health nurse for a home visit
  - Helped create dynamic for improved medication adherence; including moving morning medicine to given by school nurse every day
- Went over one year without an admission



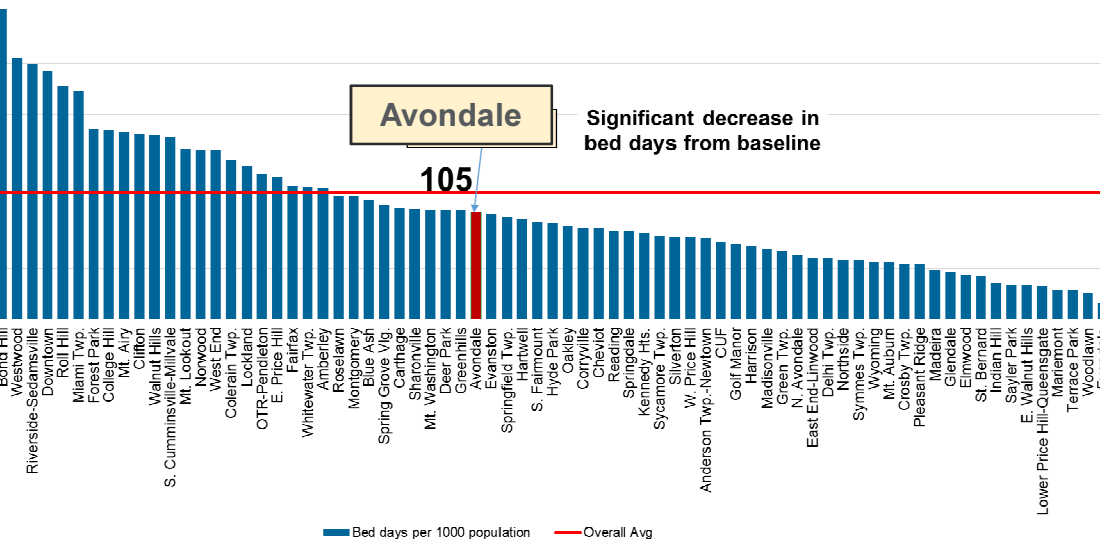
# 3 Presentations today and tomorrow

1. Social and economic factors that influence the health of children and their families
  2. Thinking about how pediatric care can help the population's health outcomes
  3. Effective relations between health, schools and other institutions
- 
1. *Scope of the problem and pediatric response*
  2. ***Structure and impact of hospital and health system response***
  3. ***Building a multi-sector response help all children thrive***

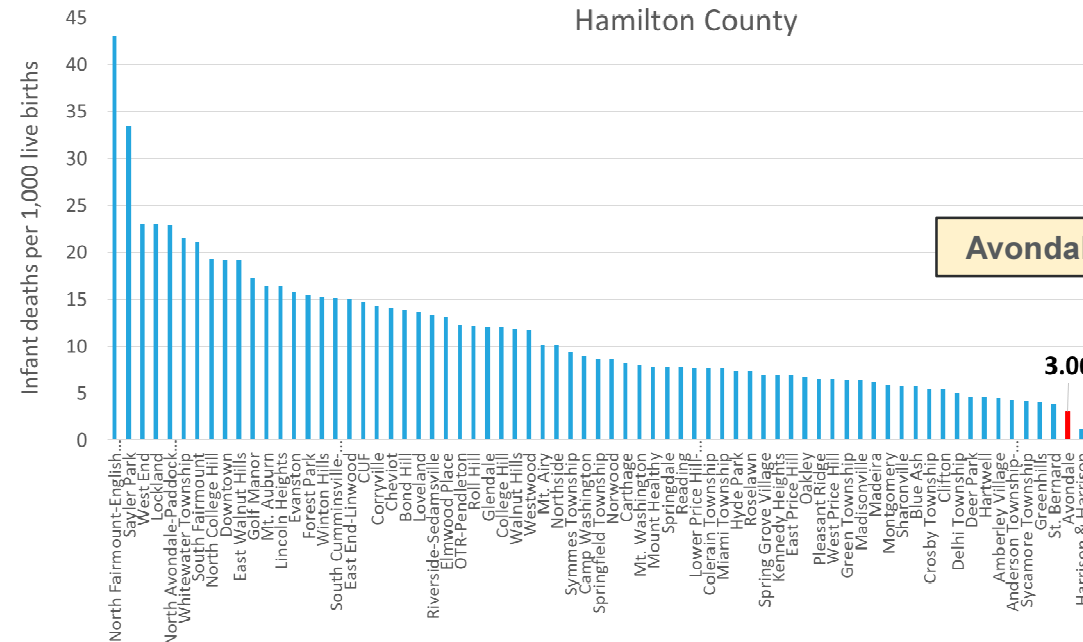
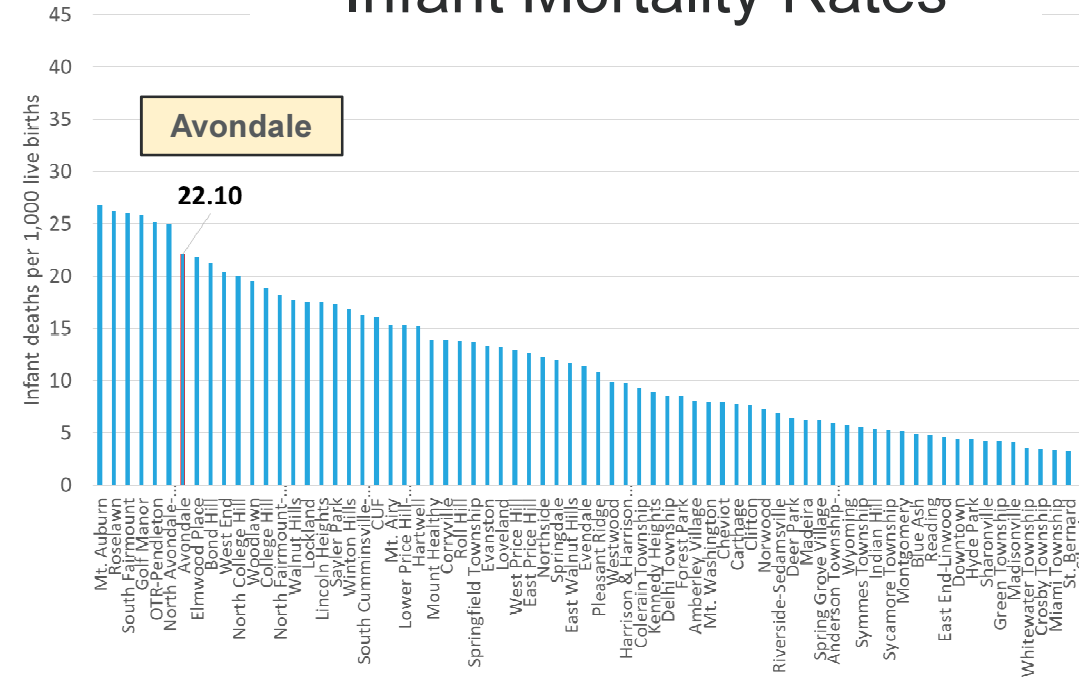
# Inpatient Bed-day Rates



**Average Annual CCHMC Inpatient Bed Days**  
Per 1000 Population Age 0-18, By Hamilton County Neighborhood, FY 2018



# Infant Mortality Rates





# Personal: What is my connection to this?

DEFENSE

by

LAZARUS GATZERT

Made before the jury at Darmstadt

May 16, 1850

in his trial for high treason

In the judging of political crimes, the sword  
of Justice is guided not by truth and right,  
but by whomever chances to be victorious.

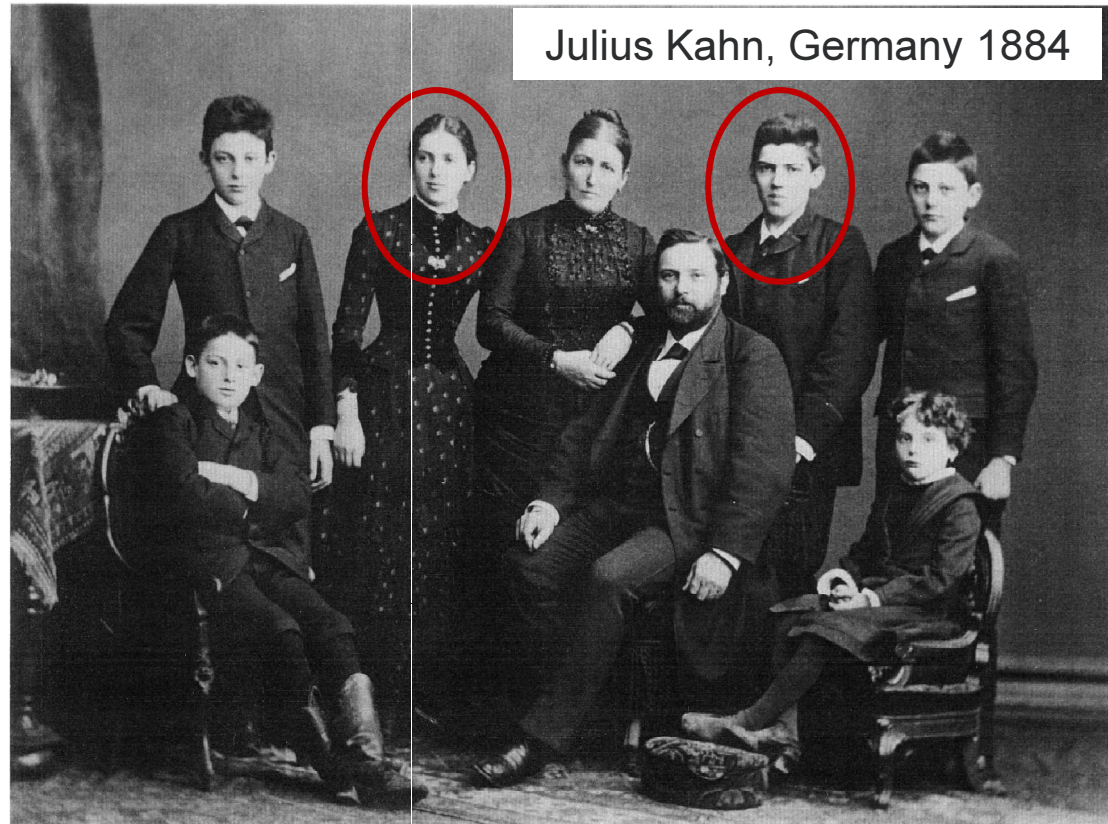
Victor Hugo

Copied on April 29, 1876 from the original  
manuscript of my late beloved Father.

"He suffered much; now peace be with his ashes"

Emilie (Chicago)

LAZARUS GATZERT is a great, great grandfather of Donald J. Kahn.  
LAZARUS GATZERT is one of two daughters of Lazarus Gatzert; translator of  
family's hand-written script in German is Dr. C. H. Rosow, Melville, NJ



Dra. Susi Mandel

Other Gatzerts  
descendants in U.S.  
and France

**Justice:** What rules would we make for the world if we didn't know  
whose child we would be?

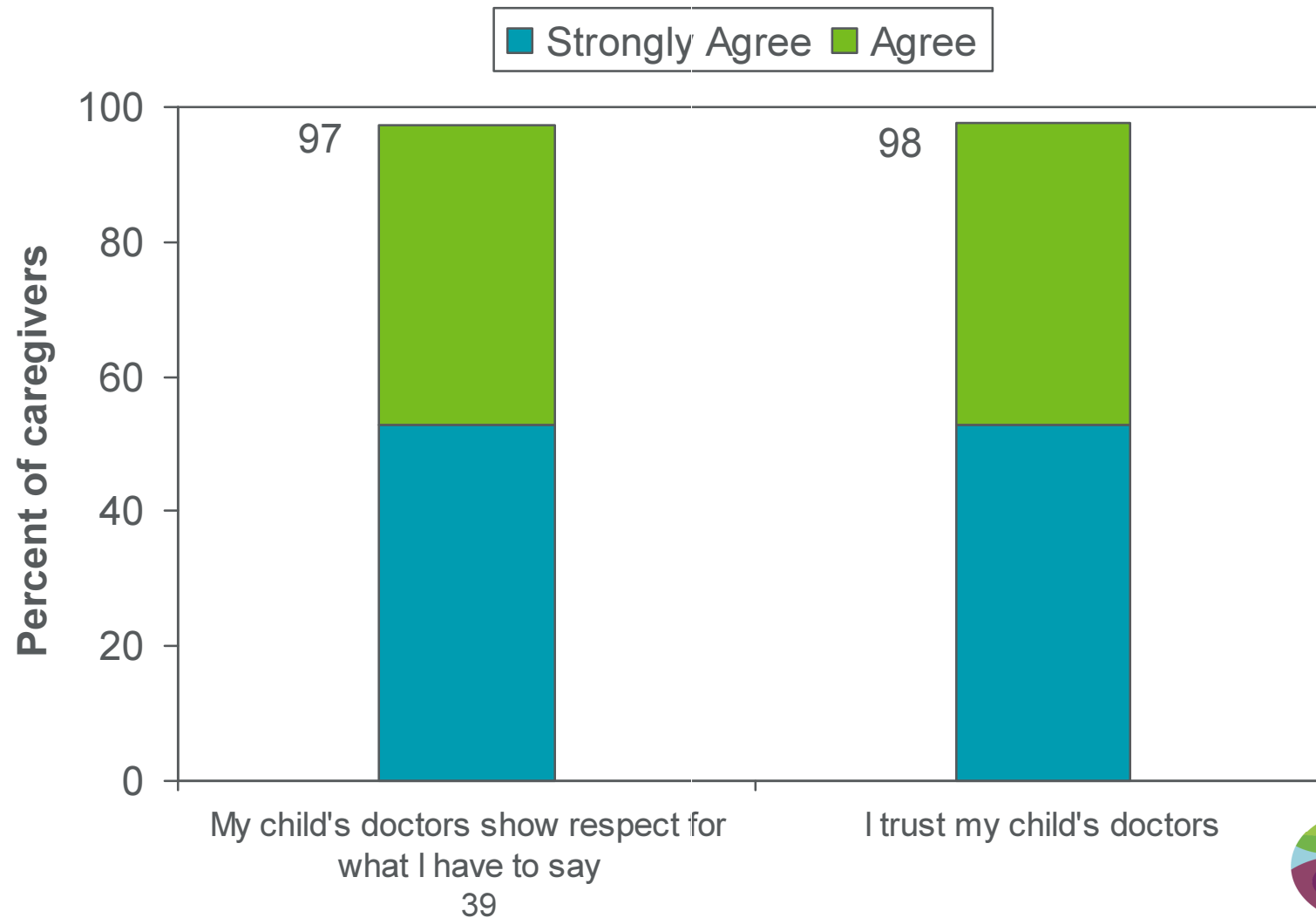
What rules would we want for any child who walks or doesn't walk  
our clinic?

# Questions?



# What Can We Do?

## Working from a Position of Respect and Trust in PPC



# Why am I here?

DEFENSE

by

LAZARUS GATZERT

Made before the jury at Darmstadt

May 16, 1850

in his trial for high treason

In the judging of political crimes, the sword of Justice is guided not by truth and right, but by whomever chances to be victorious.

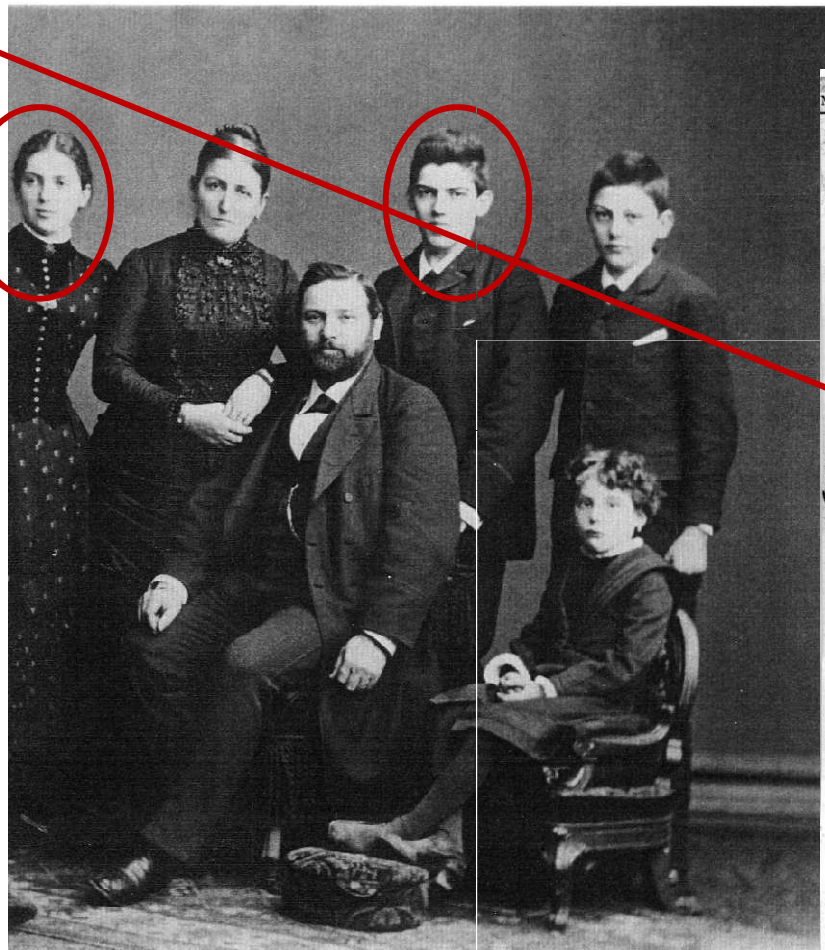
Victor Hugo

Copied on April 29, 1876 from the original manuscript of my late beloved Father.

"He suffered much; now peace be with his ashes!"

Emilie (Chicago)

LAZARUS GATZERT is a great, great grandfather of Donald J. Kahn. GATZERT is one of two daughters of Lazarus Gatzert; translator of my father's hand-written script in German is Dr. C. H. Rosow, M.D., N.Y.



FIRED





# Distinguishing tragedy and injustice

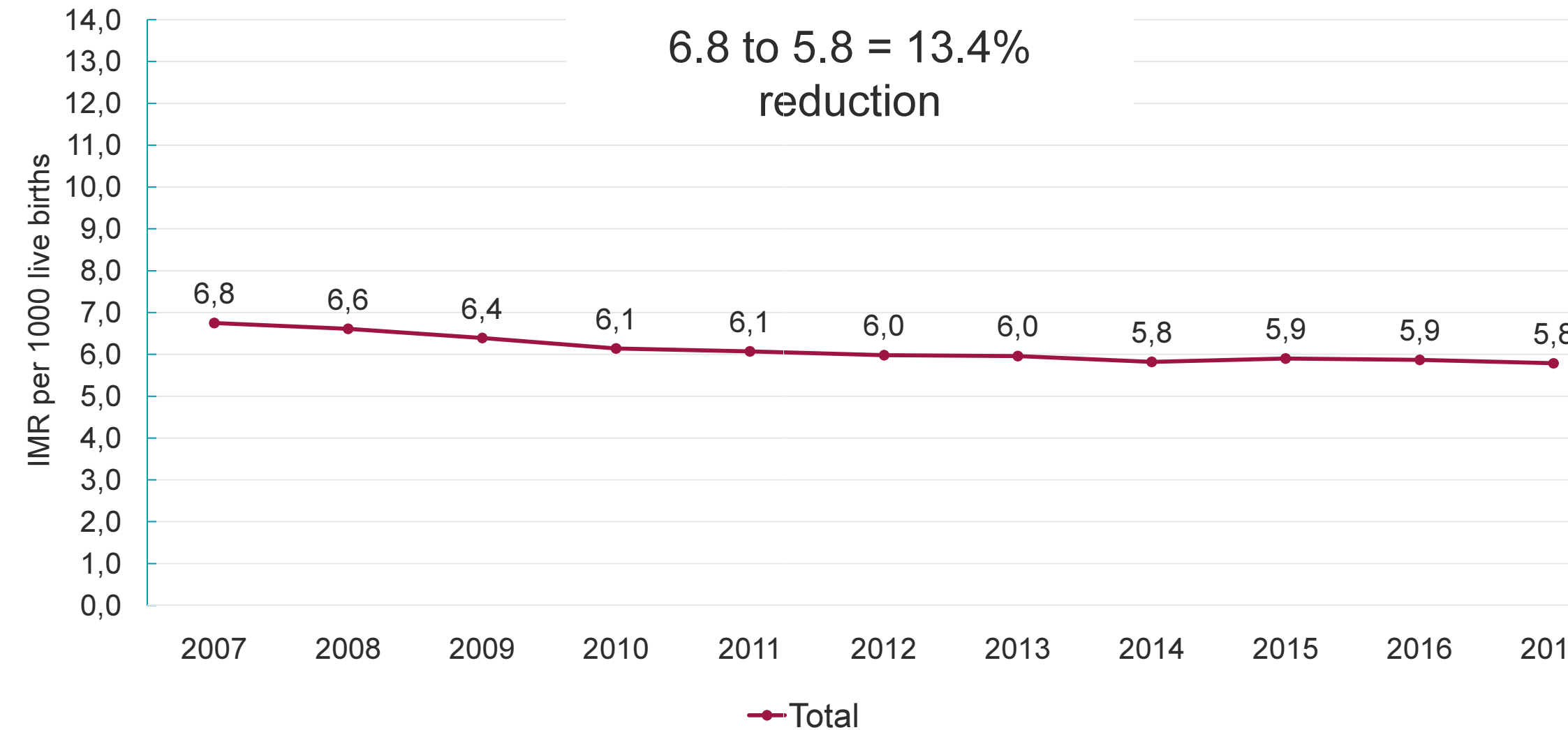
Few tragedies can be more extensive than the stunting of life, but few injustices deeper than the denial of an opportunity to strive or even to hope, by a limit imposed from without, but falsely identified as lying within.”

Stephen Jay Gould

Professor of Zoology, Harvard University  
Evolutionary Biologist

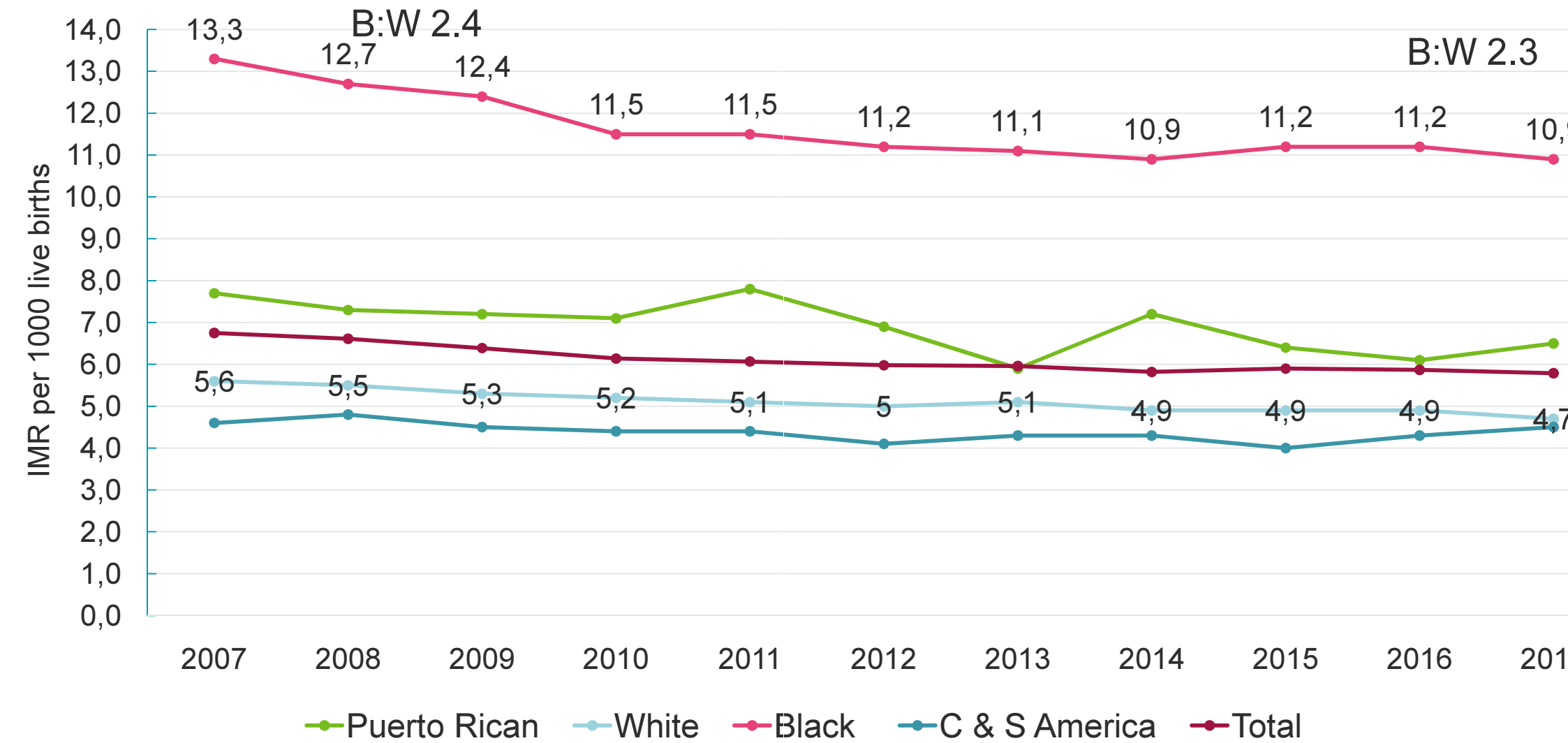


# US Infant Mortality Rate, By Race/Ethnicity and Year

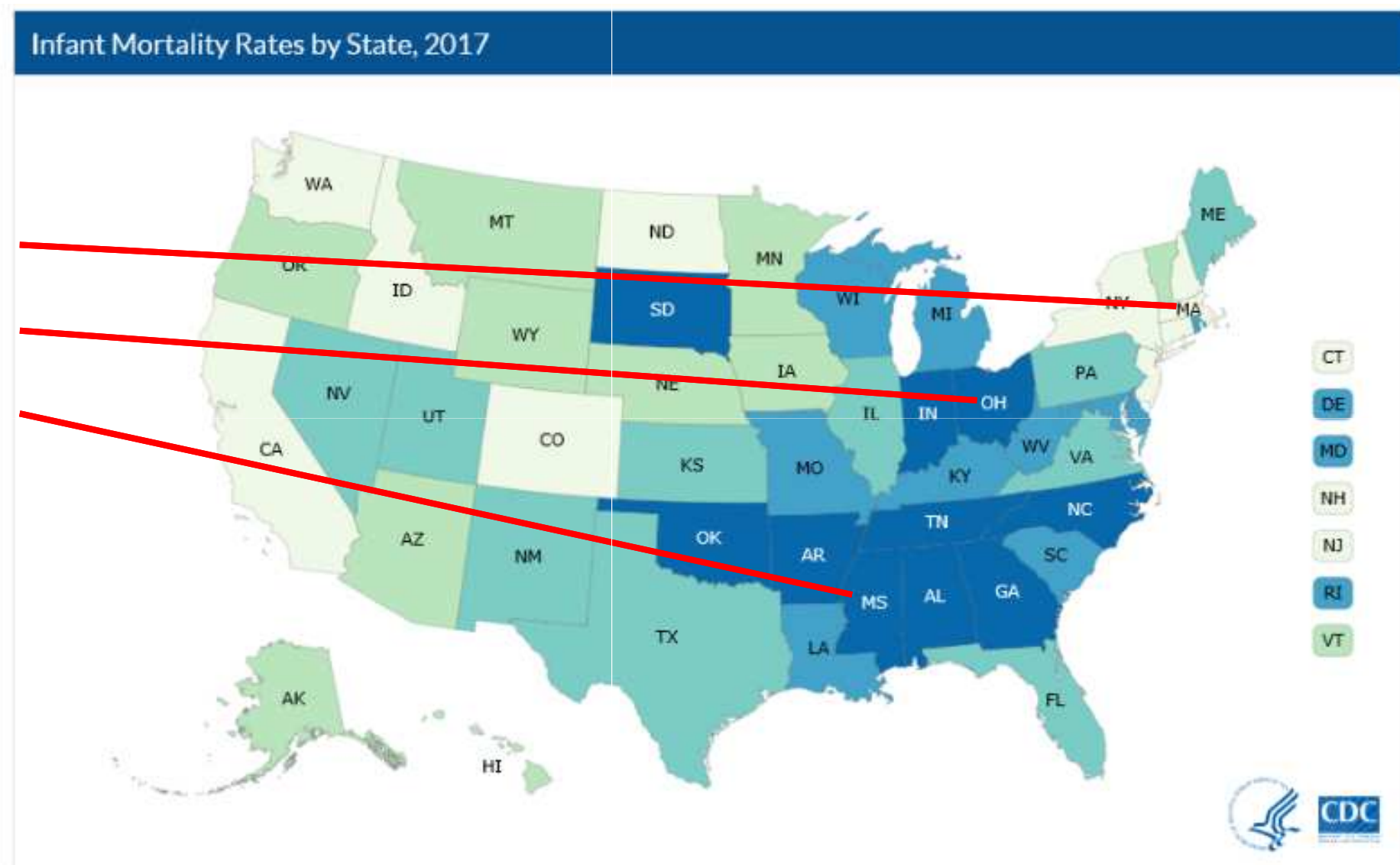




# US Infant Mortality Rate, By Race/Ethnicity and Year



Mississippi - 8.6



<sup>1</sup>The number of infant deaths per 1,000 live births.



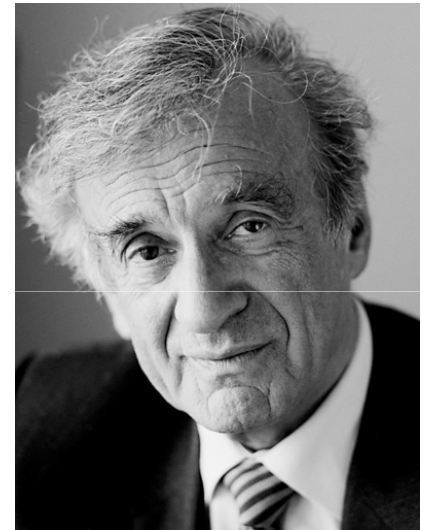
# Elie Wiesel

Indifference can be tempting -- more than that, seductive. It is so much easier to look away. It is so much easier to avoid such rude interruptions to our work.

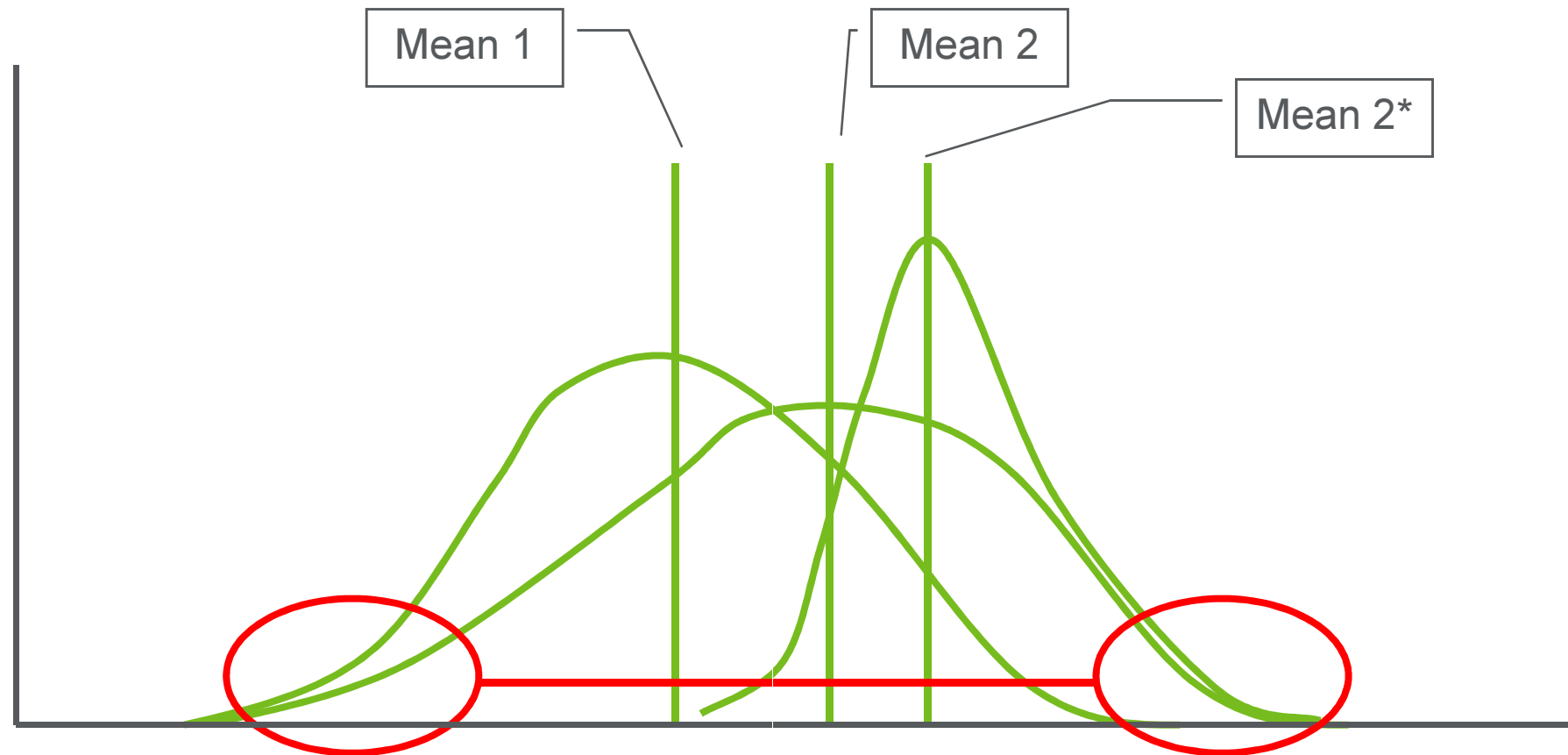
It is, after all, awkward, troublesome, to be involved in another person's pain and despair.

Indifference is not a beginning, it is an end.

White House 1999

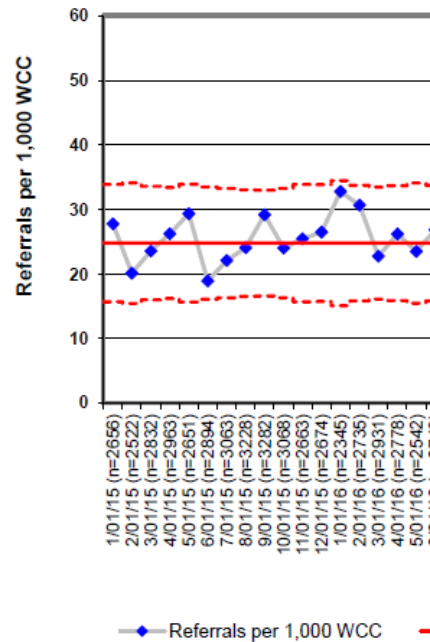


# Improving the mean, but widening the gap?

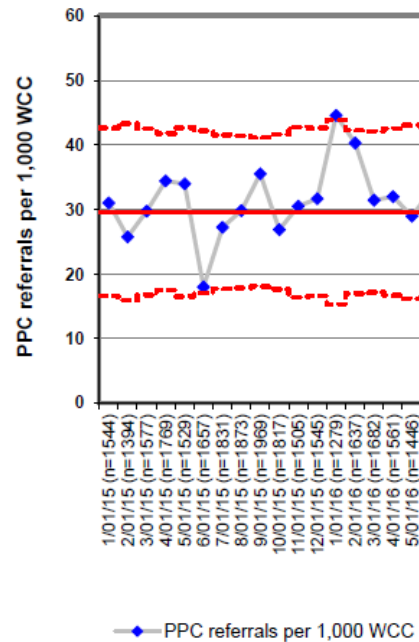


# Longitudinal Measurement

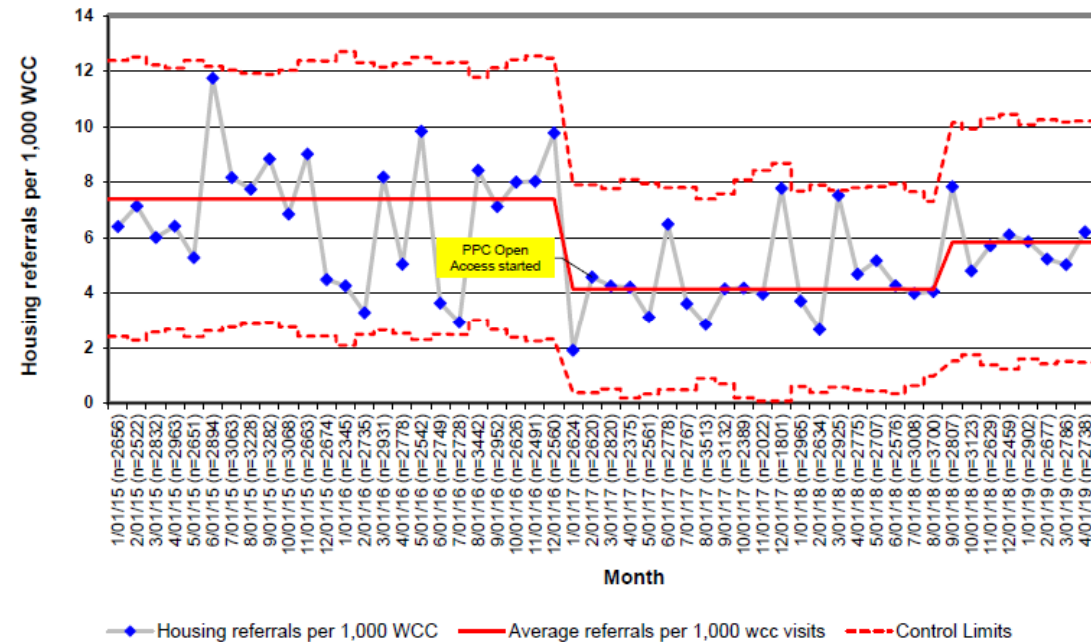
Child HeLP Refe



PPC Child He



Child HeLP Housing Referrals Per 1,000 Well Child Visits  
1/1/15 - 4/30/19

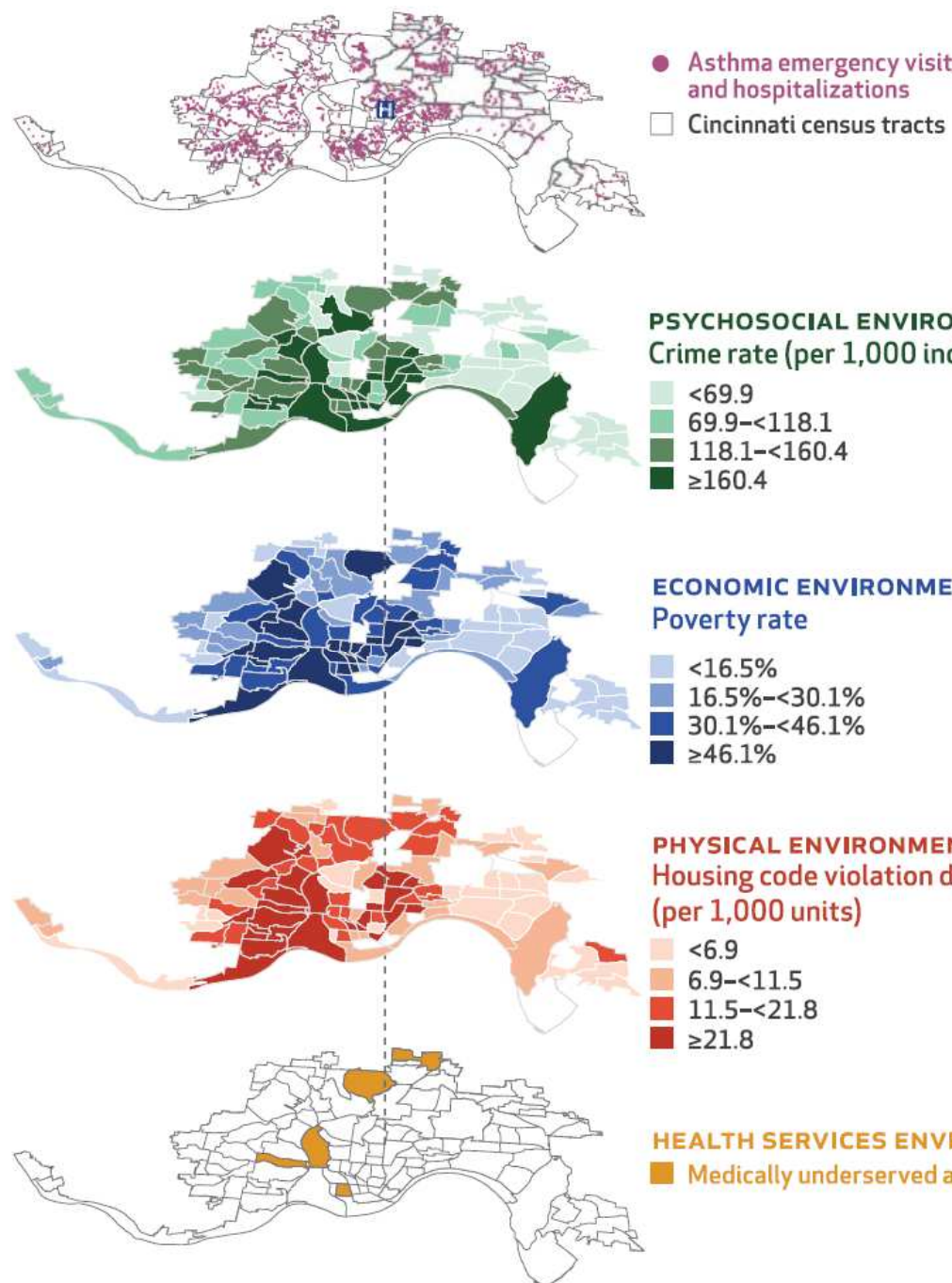




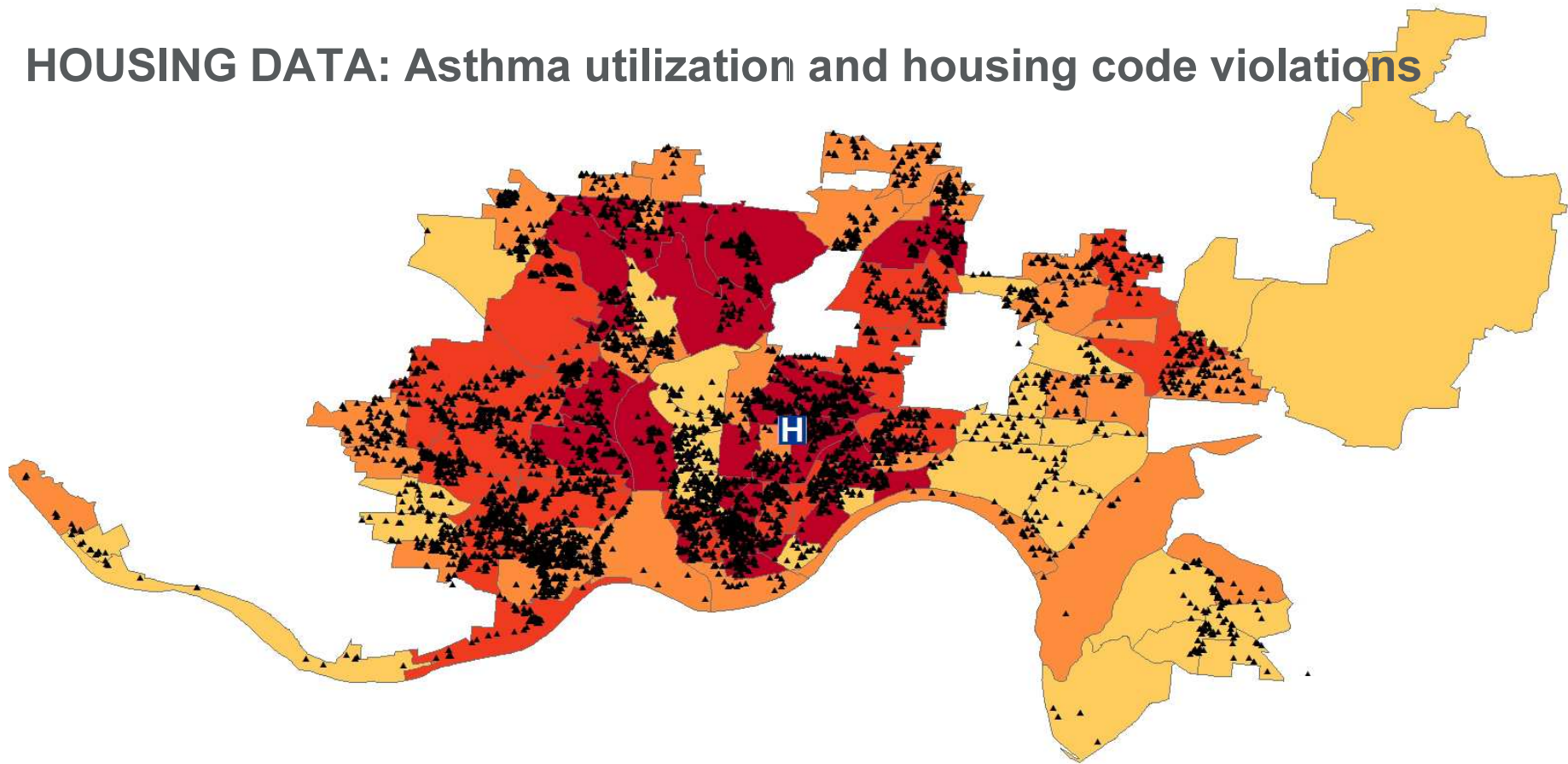
# Identifying potential levers for improvement

“Conditions in which people are **born, grow, work, live, and age**, and the **wider set of forces and systems** shaping the conditions of daily life. These forces and systems include economic policies and systems, development agendas, social norms, social policies and political systems.”

[http://www.who.int/social\\_determinants/en/](http://www.who.int/social_determinants/en/)



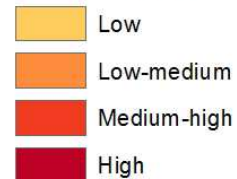
## HOUSING DATA: Asthma utilization and housing code violations



### Asthma utilization and housing code violations

▲ Housing code violations

Census tract asthma utilization rate per 1,000 children\*



- HCVD accounted for 22% asthma use rate variation
- HCVD remained significantly associated with use rates after adjust for poverty ( $p=0.01$ )

\*Calculated from 8,736 emergency department visits and hospital admissions in 113 Greater Cincinnati census tracts between 2009-2012