

# The Value Proposition of Homes for Health

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CHILDREN'S  
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# Roadmap

1. Dimensions how Homes affect Health
  - Quality, Stability, Affordability, Location
  - How can it be like a Vaccine
2. Homes and People (Population Health)
3. Value of Homes and Health (Addressing each other's Pain Points)
4. Homes as a route to Health Equity

# Evidence on Home Quality

- Accidents/Injuries – exposed wiring, needed repairs
- Development and worsening asthma, allergies tied –specific conditions in the home
  - Pests (cockroaches and mice)
  - Molds/Chronic Dampness
  - Tobacco smoke
- Lead exposure tied to long term effects
  - Developmental delay, Attention deficit

## Poor Quality Housing Is Tied to Children's Emotional and Behavioral Problems

*Parents' stress from housing problems takes a toll on children's well-being*

by REBEKAH LEVINE COLEY, TAMA LEVINSON, ALICIA DOYLE LYNCH, AND MELISSA R. HARRIS

SEPTEMBER 2013

A family's home is their haven, but for families living with leaking roofs and mold, it's not always a safe place. For those who have to choose between paying for rent or for food, or for those who repeatedly move in search of a better or more affordable housing, one's place of refuge is not always very homey.

This brief examines how housing characteristics affect children and families' well-being.<sup>1</sup> Among the variables tested, poor housing quality was the most and strongest predictor of emotional and behavioral problems in low-income children and youth. It also had a strong association with school performance among children. Poor housing affected children because the stress of living in unhealthy and unsafe conditions affected parents' ability to care for their children.

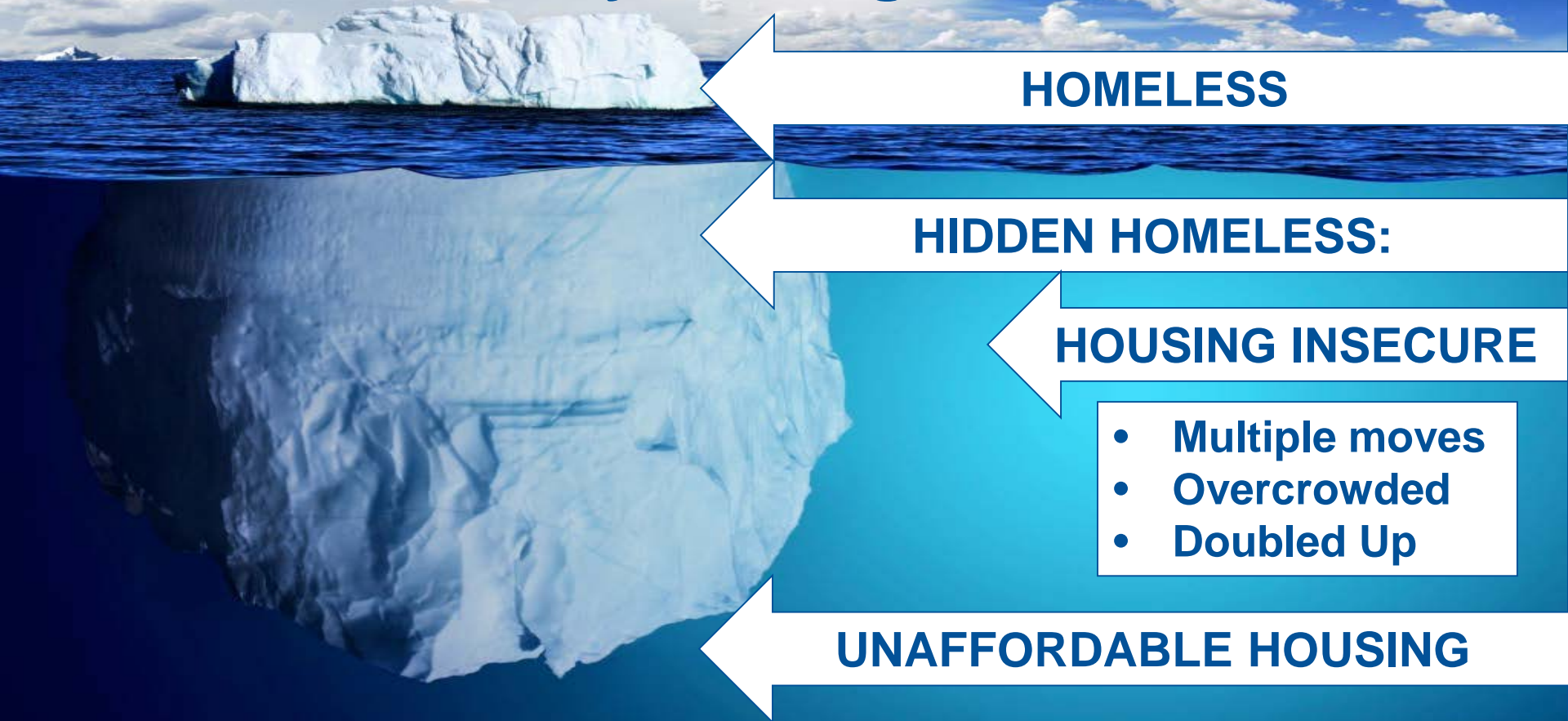
### Advantages of the Current Study

Past research has identified several aspects of poor housing that are thought to be associated with children's emotional and behavioral problems.<sup>2</sup> Researchers, for example, have found that poor housing—exposed wiring, peeling lead paint, mold, and pest infestation, and the like—may contribute to parental stress in children, inhibiting their emotional and behavioral learning. Similarly, residential instability may in-

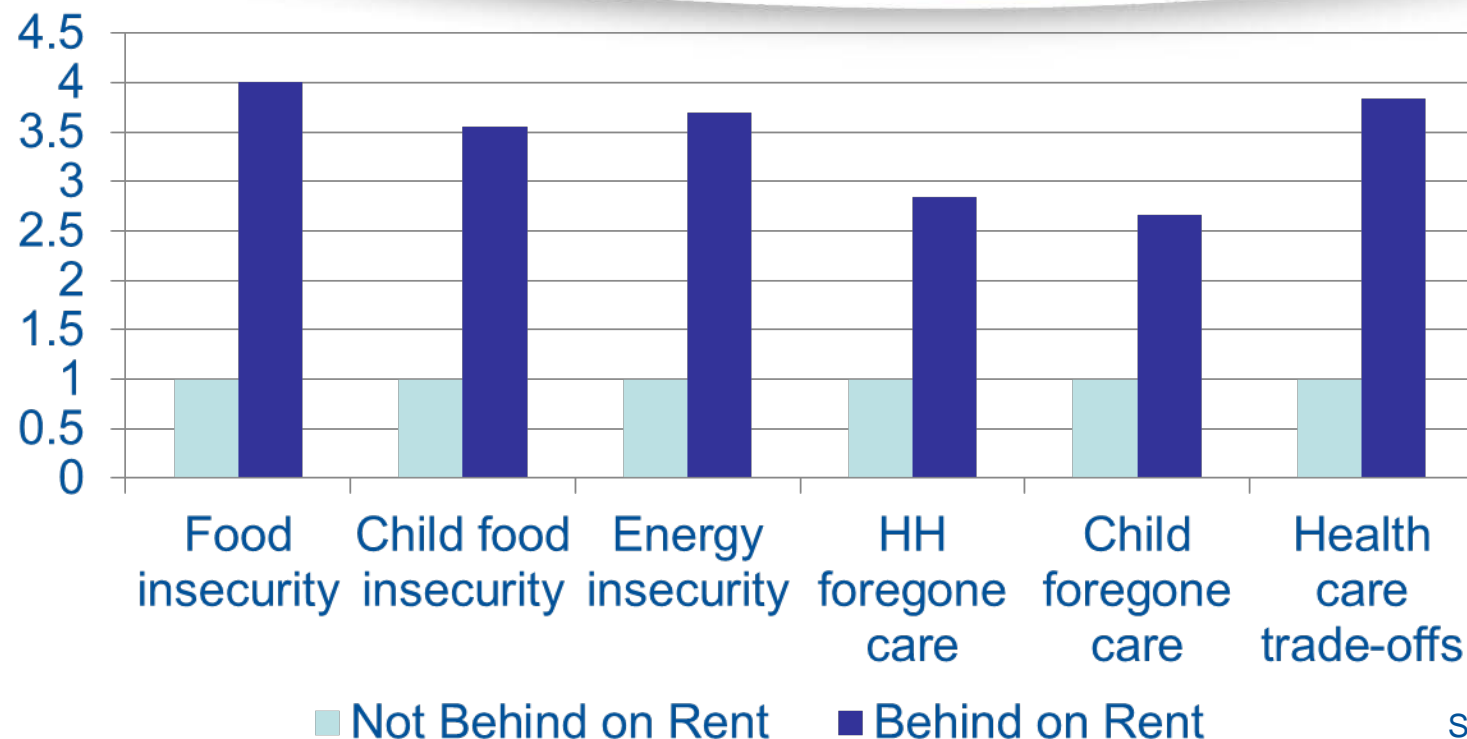
# Home Quality

- Poor housing quality strongest predictor of emotional and behavioral problems in low-income children
- Much of association between poor housing quality and children's wellbeing operates through parental stress, parenting behaviors and mental health

# The Home Stability Iceberg



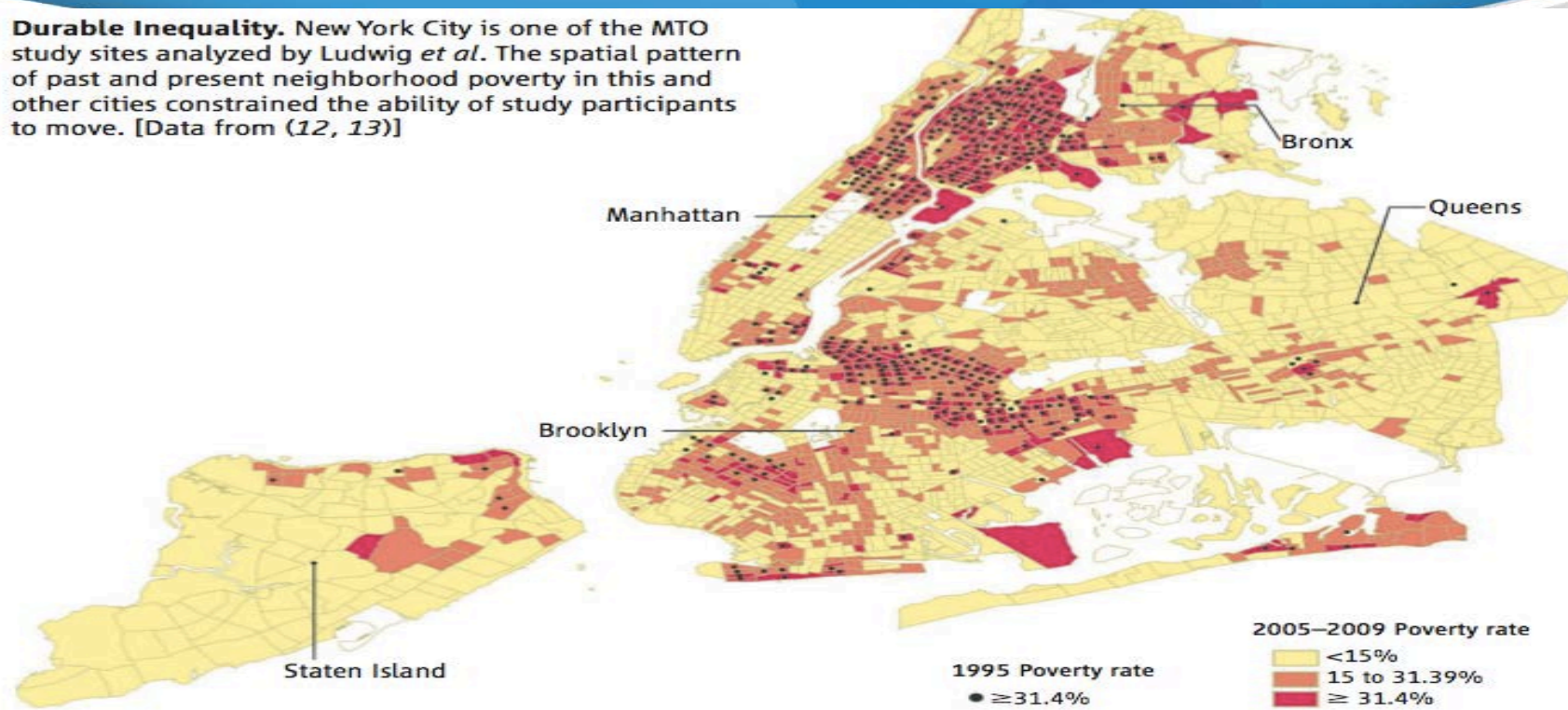
# Being behind on rent strong indicator of other household hardship



Sandel et al. In submission.

# Location: Poverty and Zip code remain linked

**Durable Inequality.** New York City is one of the MTO study sites analyzed by Ludwig *et al.* The spatial pattern of past and present neighborhood poverty in this and other cities constrained the ability of study participants to move. [Data from (12, 13)]

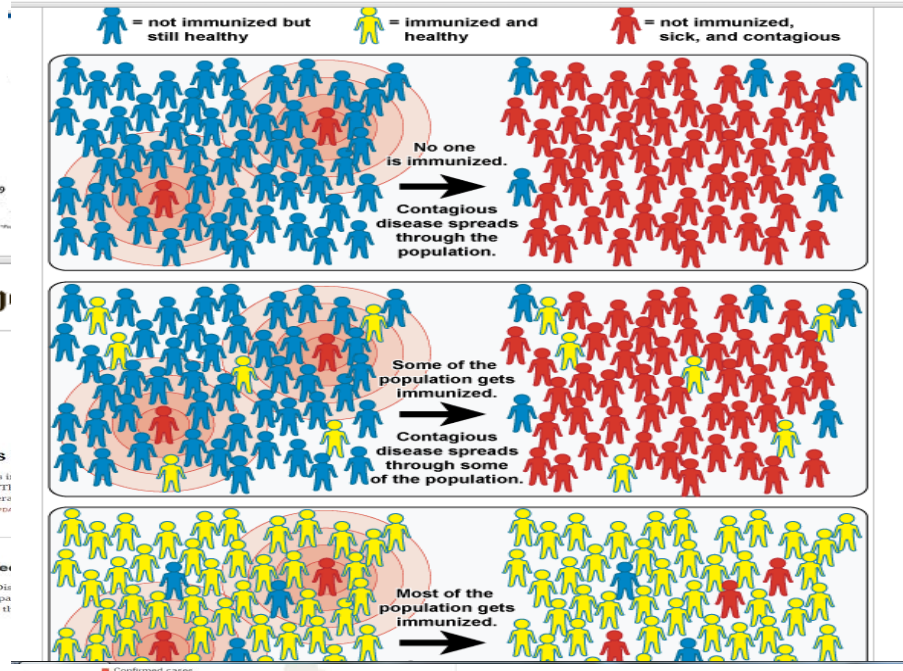


# Public Health 101 – Vaccine Review

## Why vaccinate?

- Personal protection
- “Herd immunity”
- Community and economic benefit

From January 1 to February 20, 2015, 154 people from 17 states and Washington DC were reported to have measles [AZ (7), CA (104), CO (1), DC (2), DE (1), GA (1), IL (14), MI (1), MN (1), NE (2), NJ (1), NY (2), NV (6), PA (1), SD (2), TX (1), UT (2), WA (5)]†. Most of these cases [116 cases (77%)] are part of a large, ongoing multi-state outbreak linked to an amusement park in California.



### Facts About the Measles

The United States has already had more cases of measles in than the number that is typically diagnosed in a full year. The number of cases was several times more than the average disease was declared eliminated in the United States. [CDC](#)

### Where Cases Have Been Reported

A majority of the cases this year have been tied to an outbreak at Disneyland in California. At least 40 people who visited or worked at the theme park disease has now spread to at least six other states. The map shows the number of cases reported. [DATA AS OF FEB. 6](#)





## Subsidized Housing and Children's Nutritional Status

### Data From a Multisite Surveillance Study

Alan Meyers, MD, MPH; Diana Cutts, MD; Deborah Anne Skalicky, MPH; Timothy Heeren, PhD; John Maureen Black, PhD; Patrick Casey, MD; Nieve

**Background:** A critical shortage of affordable housing for low-income families continues in the United States. Children in households that are food insecure are at greater risk for adverse nutritional and health outcomes and are more vulnerable to the economic pressures of high housing costs. Only about one fourth of eligible children receive a federally financed housing subsidy. Studies have examined the effects of such housing subsidies on the health and nutritional status of low-income

**Objective:** To examine the relationship between receiving housing subsidies and nutritional and health status among young children in low-income families, especially those that are food insecure.

**Design:** Cross-sectional observational study.

**Setting and Participants:** From August 1999 to 2003, the Children's Sentinel Nutrition Assessment Program interviewed caregivers of children younger than 6 years in pediatric clinics and emergency departments at 6 sites (Arkansas, California, Maryland, Massachusetts, Minnesota, and Washington, DC). Interviews assessed demographic characteristics, perceived child health, the US Household Food Security Scale, and public assistance program participation. Children's weight at the time of the visit was documented. The study sample consisted of all renter households identified as low income by their participation in at least 1 means-tested program.

**Kids in Food Insecure Families were TWO FOLD less likely to be underweight if they had a housing subsidy than similar kids who were eligible but did not receive a subsidized home**

...  
comparable families not receiving housing subsidies, especially if the family is not only low income but also food insecure.

Arch Pediatr Adolesc Med. 2005;159:551-556

# Cost-effectiveness of a Routine Varicella Vaccination Program for U.S. Children

Tracy A. Lieu, MD, MPH; Stephen L. Cochi, MD; Steven R. Paul, MD, MPH; Henry R. Shinefield, MD; Sandra J. Holmes, PhD; Melissa M. Thompson, MD, MPH

**Objective.**—To evaluate the economic consequences of a routine vaccination program that targets healthy children.

**Methods.**—Decision analysis was used to compare the cost-effectiveness of a routine vaccination program with no routine vaccination. Outcomes were based on a mathematical model of varicella epidemiology. Data published and unpublished data and on expert opinion. Medical costs were collected from multiple sources, including the Medical Care Program and the California Hospital Discharge Data.

**Results.**—A routine varicella vaccination program would prevent 94% of all potential cases of chickenpox, provided the vaccination coverage rate is 97% at school entry. It would cost approximately \$2 per child if one dose of vaccine per child were recommended at the societal perspective, which includes work-loss costs. However, from the health care payer's perspective (the societal perspective), the program would save more than \$5 for every dollar invested. However, from the health care payer's perspective (the societal perspective), the program would cost approximately \$2 per chickenpox case life-year saved. The medical cost of disease prevention was the most important determinant of cost-effectiveness, but was relatively insensitive to vaccine efficacy within plausible ranges. Catch-up vaccination of 12-year-olds would have high incremental coverage rate of children of preschool age were net savings at a coverage rate of 50%.

**Conclusions.**—A routine varicella vaccination program would result in net savings from the societal perspective costs as well as medical costs. Compared with other preventive services, a routine varicella vaccination program would also be relatively cost-effective from the health care payer's perspective.

VARICELLA virus causes an estimated 3.7 million cases of chickenpox and 9000 hospitalizations in the United States annually.<sup>1</sup> A routine varicella vaccination program targeting healthy children could prevent most of this morbidity

and mortality (M.E.H., S.L.C., M.W., and L. Fehrs, MD, unpublished data, 1993), but would it be worth the cost?

A cost-benefit analysis in 1985 suggested that a varicella vaccine that provided lifelong immunity would save \$7 in costs to society for every dollar in-

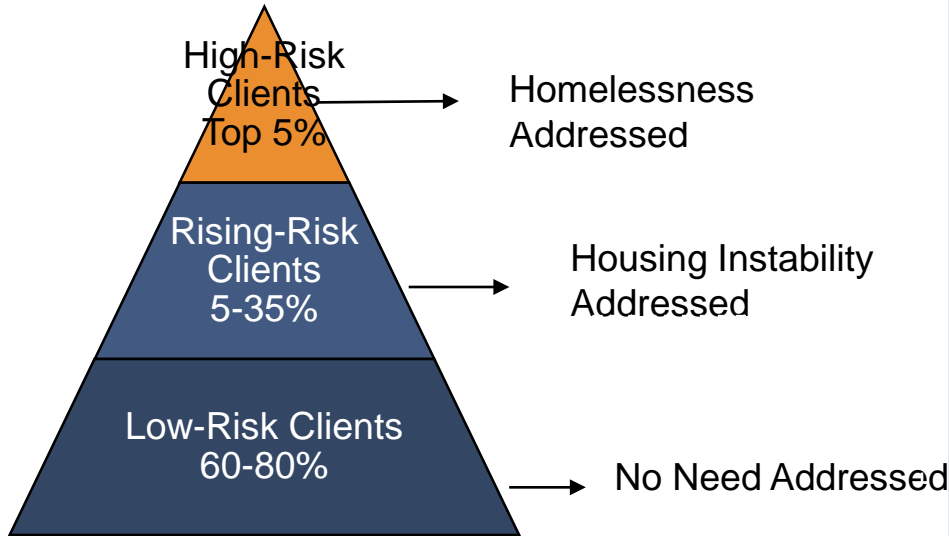
major complications were defined as those requiring hospitalization, including but not limited to pneumonia and encephalitis. Patients with major complications could go on to have no long-term sequelae, long-term disability, or death. The possibility that a vaccination program could cause changes in the

For Healthcare costs alone, it did not save money, but cost \$2 per chicken pox case prevented. But by societal costs, every \$1 invested in vaccines saved \$5 including work-loss costs

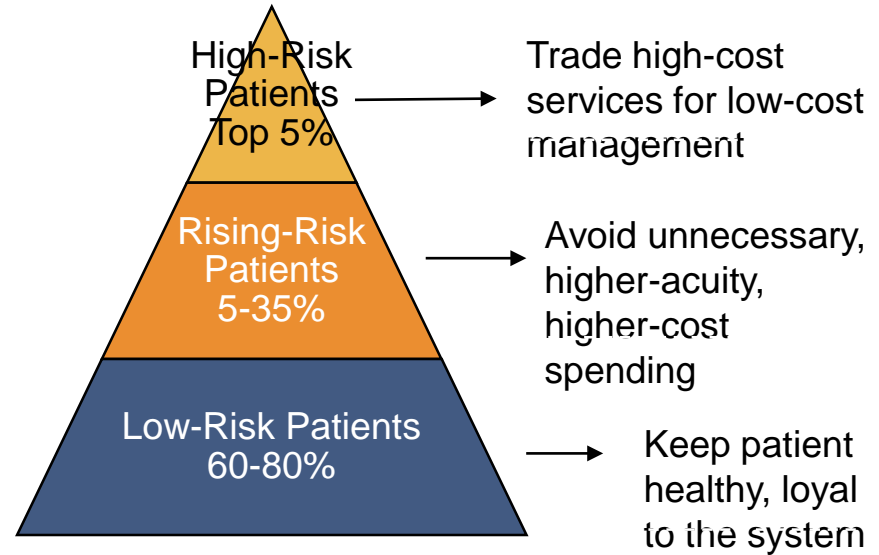


# How Should Population Health be Defined?

## Population by Housing Risk



## How Healthcare Alone Looks at Risk



# Children's HealthWatch

- Non-partisan network of pediatric & public health researchers → research & policy center
- Improve health & development young children → public policies → alleviate economic hardships
  - Hunger (Food Insecurity)
  - Unstable Housing (Housing Insecurity)
  - Keeping Heat or Lights on (Energy Insecurity)
  - Adverse Healthcare Tradeoffs (e.g., foregoing care)

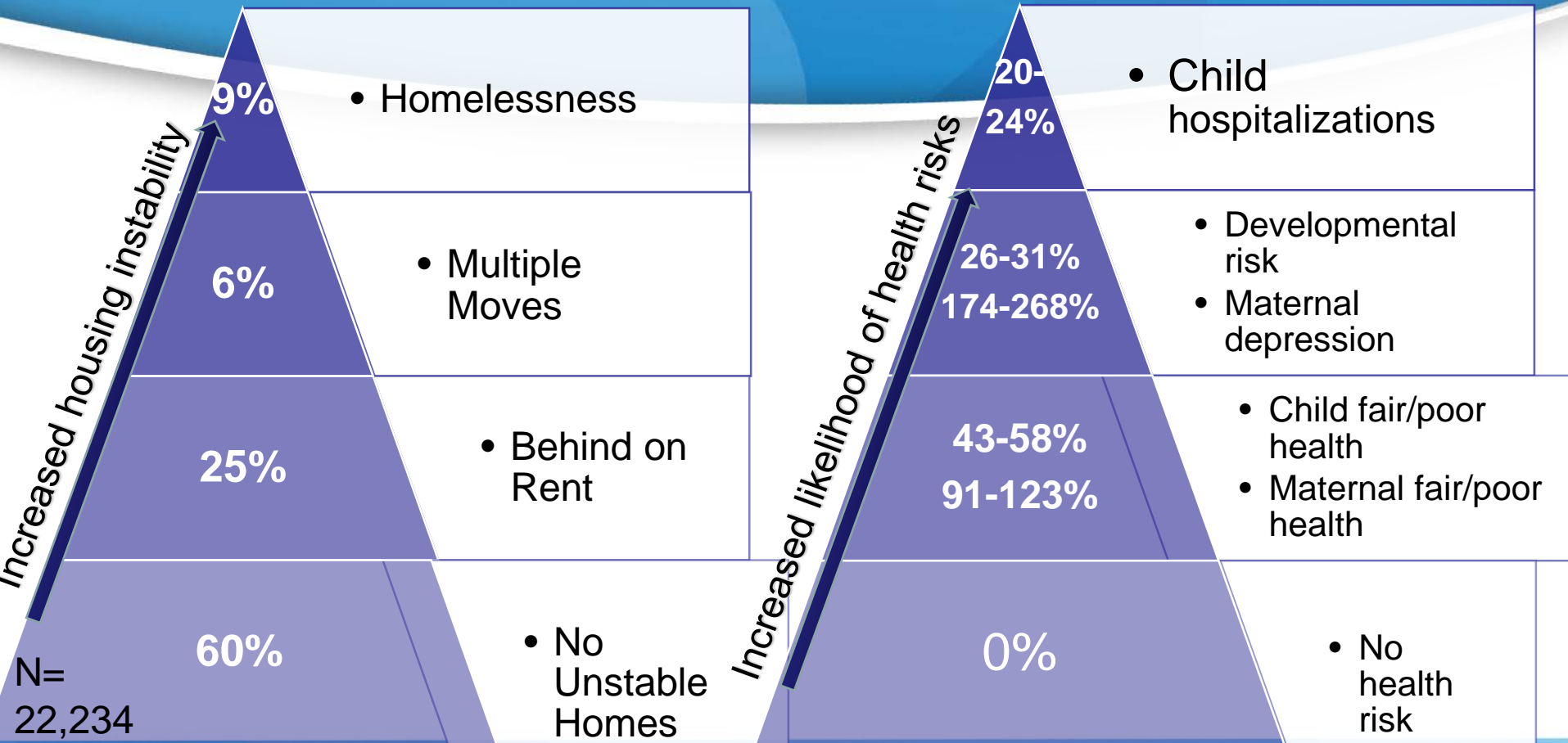
# Where our data come from:

Emergency Departments and Primary Care Clinics in Boston, Baltimore, Philadelphia, Little Rock and Minneapolis.

- A household survey
- Interviews - caregivers with children 0 to 4 years old
  - “invisible” group
  - critical window of time



# Health Risks Associated with Unstable Homes



# HOUSING Stability Vital Sign™

*Since [current month] of last year,*

**1. Was there a time when you were not able to pay the mortgage or rent on time?**

*Answer is yes/no, positive screen if answer is yes*

**2. How many places have you lived?**

*Answer is # of places lived, positive screen if answer is 3 or more (i.e. multiple moves  $\geq 2$  in 12 mos.)*

**3. At any time where you did not have a steady place to stay or stayed in shelter (including now)?**

*Answer is yes/no, positive screen if answer is yes*

*Research reported in this presentation was supported by The Blue Cross Blue Shield of Massachusetts Foundation*

## LONG-TERM COSTS OF UNSTABLE HOMES TO THE HEALTH SYSTEM ARE \$111 BILLION\*



### Maternal health conditions

FOR WOMEN AGES 18 - 44

**\$76.8 Billion  
OVER TEN YEARS**

Includes increased costs for hospitalizations, ambulatory visits, dental procedures, mental health care, and medications

### Child health conditions

FOR CHILDREN UNDER 18

**\$34.3 Billion  
OVER TEN YEARS**

Includes increased costs for hospitalizations, ambulatory visits, dental procedures, medications, and special education services

**Total cost: \$111 Billion over ten years**

## Avoidable Costs in Health Care and Education for Mothers and Children

- Mental health costs linked to maternal depression largest contributor to cost
- Other costs associated with increased:
  - Hospitalizations
  - Ambulatory visits
  - Dental procedures
  - Medications
  - Special education services



# Market that Values Homes for Health\*

- Healthcare Sector Pain Point
  - Unstably housed patients cost \$
- What is the Housing Sector's Pain Point
- Can we find a cure?

*\*Acknowledging David Erickson  
"Marketplace that Values Health"*



# What is the Housing Sector's Pain Point?

- Capital
  - To Build New Units
  - Renovate existing housing stock
- Capital to assist retail on the first floor
- Operating Subsidy
- Money to cover resident services



# What Value Does the Housing Sector have?

- Units
  - New construction
  - Renovation
  - Turnover
- Proven Method of Addressing Chronic Homelessness
- Onsite residential services
  - Monitoring
  - Link with medical case management
  - Wellness (Health, Financial)



Cutts et al. MCH, 2014.

# What Value does the Healthcare Sector have?

- Money
  - Provider (ACO)/Insurance
  - Community Benefit
  - Investment portfolio
- Political capital
- Services dollars
  - Case management
  - Community Health Workers
  - Health/wellness



# How Could the Two Sectors Exchange Value?

- Set aside units for investment
  - Units for High Utilizers
  - Fair Housing Waiver
  - Investment portfolio invests capital
- Set aside units for services dollars
  - Units for High Utilizers
  - Fair Housing Waiver
  - On site resident services paid for



Cutts et al. MCH, 2014.



# How Could the Two Sectors Exchange Value?

- Flex funds for rent with landlords
  - Pool of funds for rent or renovations
  - Units for High Risk populations
  - Resident services paid for by Healthcare

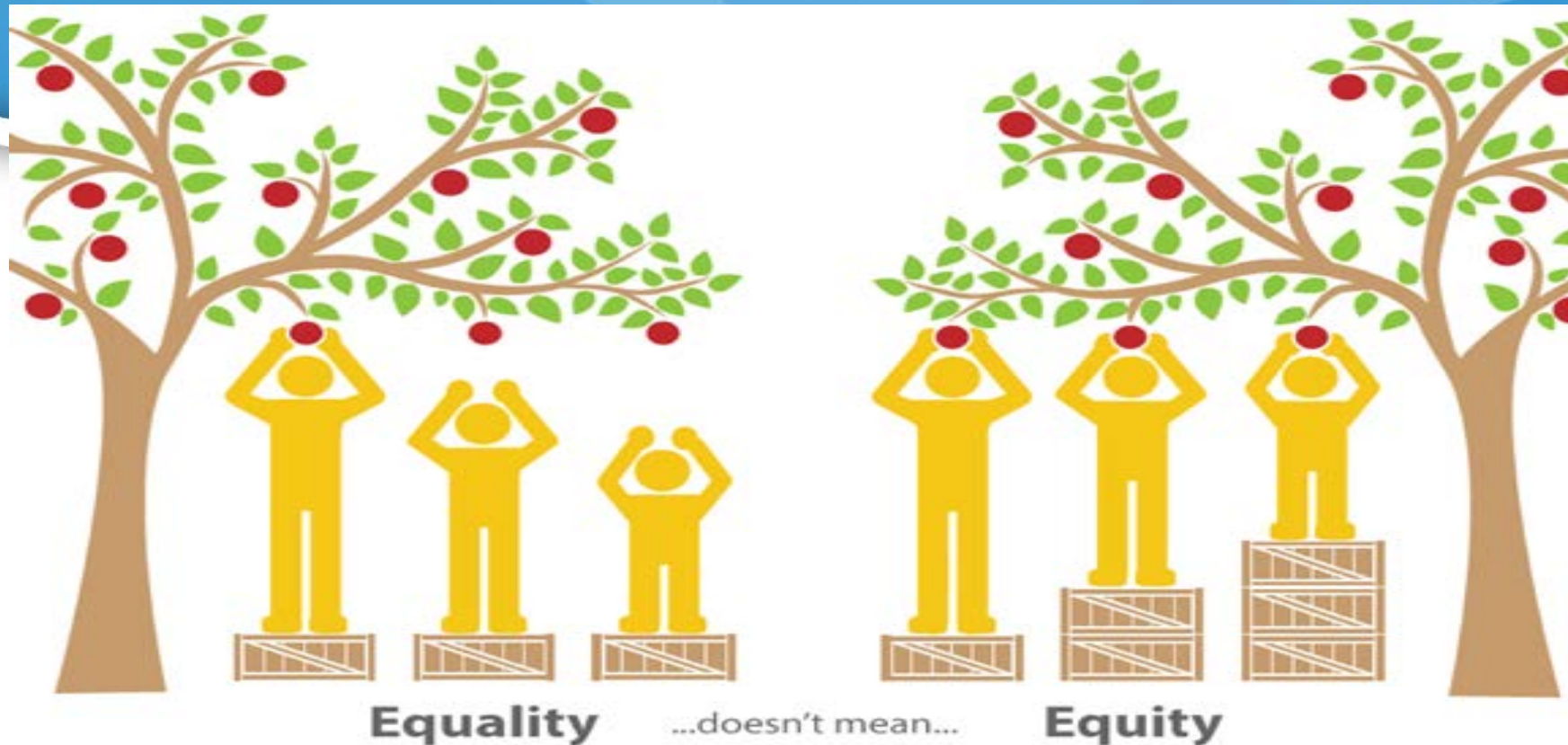


# What Could This Look Like in Action

## Healthy Start in Housing

- Housing insecure, high risk pregnant/ parenting families, child <5 with complex condition requiring specialty care
- Secure and retain housing to
  - improve birth outcomes
  - improve the health and well-being of women and families
- Provision of housing by public housing
- Intensive case management: housing retention, engagement in services, family development plan paid for by health sector





Neudorf C, Kryzanowski J, Turner H, et al. (2014). Better Health for All Series 3: Advancing Health Equity in Health Care. Saskatoon: Saskatoon Health Region. Available from:

[https://www.saskatoonhealthregion.ca/locations\\_services/Services/Health-Observatory/Pages/ReportsPublicatlions.aspx](https://www.saskatoonhealthregion.ca/locations_services/Services/Health-Observatory/Pages/ReportsPublicatlions.aspx)





# Thank You!

The mission of Children's HealthWatch is *to improve the health and development of young children by informing policies that address and alleviate economic hardships.*

Contact us:  
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[www.ChildrensHealthWatch.org](http://www.ChildrensHealthWatch.org)  
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