Megan Sandel, MD, MPH

- Principal Investigator, Children’s HealthWatch
- Associate Professor of Pediatrics, Boston University Schools of Medicine and Public Health
- Medical Director, National Center for Medical-Legal Partnership

@megansandel
@ChildrensHW
Roadmap

• Overview of Children’s HealthWatch
• How housing influences child health
  • Quality
  • Stability
  • Affordability
• Homelessness, does timing matter?
• How child homelessness contributes to health care spending
• How affordable housing reduces infant hospitalizations
• Policy Solutions
About Children’s HealthWatch

- Non-partisan network of pediatric & public health researchers → research & policy center

- MISSION: Improve health & development of young children → public policies → alleviate family economic hardships
  - Hunger (Food Insecurity)
  - Unstable Housing (Housing Insecurity)
  - Trouble Keeping Heat or Lights on (Energy Insecurity)

- Provide policy makers with evidence to develop policies that protect young children’s health and development
Where our data come from:

Frontline health care settings:

Boston, Baltimore, Philadelphia, Little Rock and Minneapolis

- Household survey
- Interviews - caregivers with children 0 to 4 years old
  - “invisible” group
  - critical window of time
Human Brain Development

Most Vulnerable Period: Birth – Age 4 Yrs

Synapse formation, neural networks – “brain architecture”
Why Child Health and Development Matters

### Earnings and unemployment rates by educational attainment

<table>
<thead>
<tr>
<th>Educational Attainment</th>
<th>Unemployment Rate in 2014 (%)</th>
<th>Median Weekly Earnings in 2014 ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doctoral degree</td>
<td>2.1</td>
<td>1,591</td>
</tr>
<tr>
<td>Professional degree</td>
<td>1.9</td>
<td>1,639</td>
</tr>
<tr>
<td>Master's degree</td>
<td>2.8</td>
<td>1,126</td>
</tr>
<tr>
<td>Bachelor's degree</td>
<td>3.5</td>
<td>1,101</td>
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<tr>
<td>Associate's degree</td>
<td>4.5</td>
<td>792</td>
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<tr>
<td>Some college, no degree</td>
<td>6.0</td>
<td>741</td>
</tr>
<tr>
<td>High school diploma</td>
<td>6.0</td>
<td>668</td>
</tr>
<tr>
<td>Less than a high school diploma</td>
<td>5.0</td>
<td>488</td>
</tr>
<tr>
<td>All workers: $910</td>
<td></td>
<td></td>
</tr>
<tr>
<td>All workers: $839</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:** Data are for persons age 25 and over. Earnings are for full-time wage and salary workers.  
Evidence on Housing Quality

- Accidents/Injuries – exposed wiring, needed repairs
- Development and worsening asthma, allergies tied - specific housing conditions
  - Pests (cockroaches and mice)
  - Molds/Chronic Dampness
  - Tobacco smoke
- Lead exposure tied to long term effects
- Anemia, developmental delay, aggression, attention deficit

Skinner et al, 2014
• 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 and parenting behaviors
Stability: The Housing Iceberg

HOMELESS

HIDDEN HOMELESS:

HOUSING INSECURE

- overcrowded
- multiple moves
- behind on rent

UNAFFORDABLE HOUSING
Children in housing-insecure families more likely to be

- Food insecure
- In fair/poor health
- At risk for developmental delays
- Seriously underweight

(compared to children in housing-secure families)
Being behind on rent strongly associated with negative child and maternal health outcomes

- Lifetime hospitalizations
- Fair/poor health
- Serious underweight
- Maternal fair/poor health
- Maternal depressive symptoms
Yes!

- **Comparison - birth outcomes**
  - Consistently housed
  - Homeless prenatally
  - Homeless postnatally

- **Mothers’ characteristics or homelessness itself?**

- **Prenatal homeless – increased risk of**
  - Low birthweight
  - Preterm delivery
  - Lower weight at birth

Cutts et al. MCH, 2014.
Compounding Stress
The Timing and Duration Effects of Homelessness on Children’s Health

By Megan Sandel, MD, MPH, Richard Stewner, APP, and Lisa Stollman, PhD
June 2015

Decades of scientific research has demonstrated that homelessness experienced during early childhood is harmful to a child’s growth and development. The stress of homelessness during early childhood can lead to potentially permanent harmful changes in brain and body function, in turn causing higher levels of stress-related chronic diseases later in life. In addition, a growing body of evidence has established that a child’s health and development are critically dependent on his or her mother’s mental and physical well-being during pregnancy.

New research from Children's HealthWatch illustrates there is no safe level of homelessness. The timing (pre-natal, post-natal) and duration of homelessness (new or less than six months) compounds the risks of harmful child health outcomes. The younger a child experiences homelessness, the greater the cumulative toll of negative health outcomes, which can have lifelong effects on the child, the family, and the community.

The Children's HealthWatch Research Network
Researchers from Children’s HealthWatch collected data from over 20,000 caregivers of low-income children under the age of four with public or no health insurance. These caregivers were interviewed in urban pediatric clinics and emergency departments in five U.S. cities from 2009 through 2014. Interview data were analyzed to assess children’s health and development and to compare outcomes for children who experienced homelessness at some point in their lives with children who were never homeless.

New Research Findings
While pre-natal and post-natal child homelessness were each separately associated with poor health outcomes for children, the combination of pre-natal and post-natal homelessness resulted in a so-called “dose-response” effect that compounded the health risks linked to both pre-natal and post-natal homelessness. In addition, longer periods of homelessness among children generally were associated with worse health outcomes.

FIGURE 1
Compounding Effect of Homelessness on Child Health

The comparison group for these data is children who were never homeless. All findings statistically significant at p<.05.

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FIGURE 2
Long Duration of Post-natal Homelessness Affects Child Health

The Percent Increased Risk of Poor Health Outcomes

Post-natal Homelessness > 6 Months

The comparison group for these data is children who were never homeless.

All findings statistically significant at p<.05, except *hospitalizations among infants (p=.06).

Health Care Spending in America
Spending on health care

Data downloaded from OECD.StatExtracts. Available at stats.oecd.org
Health outcomes

US Ranking out of 34 OECD countries

Maternal Mortality: 25\textsuperscript{th}

Life expectancy: 26\textsuperscript{th}

Low birth weight: 28\textsuperscript{th}

Infant mortality: 31\textsuperscript{st}

Source: OECD, Health at a Glance 2009: OECD Publishing
Ratio of social to health spending is different
Total health care investment in US is less

In OECD, for every $1 spent on health care, about $2 is spent on social services
In the US, for $1 spent on health care, about 55 cents is spent on social services
In 2014 an estimated 671,000 children age four or under had been homeless at some point or were born to a mother who was homeless when she was pregnant.

These children, as a group, experienced 18,600 additional hospitalizations attributable to their experience of homelessness.

The estimated total annual cost of hospitalizations attributable to homelessness among children age four and under in 2015 alone were over $238 million nationally, with more than half of those costs associated with hospitalizations of infants under the age of one.
Housing as a Health Care Investment
Affordable Housing Supports Children's Health

By Megan Sandel, MD, MPH; John Cook, PhD, MAE; Ane Pulkownik, MSc; Richard Steward, MPP; Sharon Coleman, BS, MPH; Janet Winick, MPH; and Lisa Sturtevant, PhD
MARCH 2016

Affordable and stable housing plays a critical role in supporting the health and well-being of children. Research from Children's HealthWatch shows public investment in housing—including housing for homeless families and rental assistance for food-insecure families—improves the health outcomes of vulnerable infants and young children and lowers health care spending.

Previous research from Children's HealthWatch demonstrated the harmful impact homelessness has on the health of young children and that the negative health outcomes are compounded when a mother is homeless both before and after her child is born. New findings from Children's HealthWatch researchers show affordable and stable housing made possible through rental assistance is associated with better health outcomes for infants in vulnerable families.

Investments in programs that house families in need and have the potential to reduce public spending on health care can be a double win for public policy. Given the significant impact stable and affordable housing has on the health of children, policymakers should consider how to expand investment in affordable housing and services for vulnerable families to improve the health outcomes of young children and reduce health care spending.

Homelessness Harms Young Children's Health

Previous research from Children's HealthWatch illustrates the devastating impact of homelessness on children's health. While pre- and post-natal child homelessness are each separately associated with poor health outcomes for children, the combination of pre- and post-natal homelessness demonstrates a “dose-response” effect that compounds the health risks linked individually to pre- and post-natal homelessness.

When compared to children who were never homeless:

- Children who experienced pre-natal homelessness (i.e., their mothers were homeless during pregnancy but were housed after their birth) were 20 percent more likely to have been hospitalized since birth.
- Children who experienced post-natal homelessness (i.e., their mothers were housed during pregnancy but were homeless when the children were infants and/or toddlers) were 22 percent more likely to have been hospitalized since birth.
- Children who experienced both pre- and post-natal homelessness were 41 percent more likely to have been hospitalized since birth.

Source: Children's HealthWatch Calculations.
Affordable Housing Reduces Infant Hospitalizations

• Infants in food-insecure families with rental assistance during the prenatal period were **43 percent less likely to have been hospitalized** compared to infants in food-insecure families eligible for but not receiving rental assistance.

• Health care cost savings associated with avoided hospitalizations among infants in food-insecure families with rental assistance were an estimated **$20 million—or 1,200 avoided hospitalizations**—in 2015.
Housing as a Health Care Investment
Affordable Housing Supports Children’s Health

By Morgan Sandler, MD, MPP; John Cook, PhD; SAE; Ane Prolacker, MSc; Richard Swope, MFE;
Sharon Goeller, MD, MPP; Janet Winick, MPP; and Lisa Brustman, PhD
MARCH 2016

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All findings statistically significant at p<.05.
Policy Solutions

- Expanding funding for rental assistance programs
- Creating more affordable housing suitable for families
- Making housing voucher programs easier for families to navigate
- Ensuring access to supportive services for families receiving rental assistance
- Considering vulnerable families to be a special population
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.

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