

# Evidence on Home Visiting Programs

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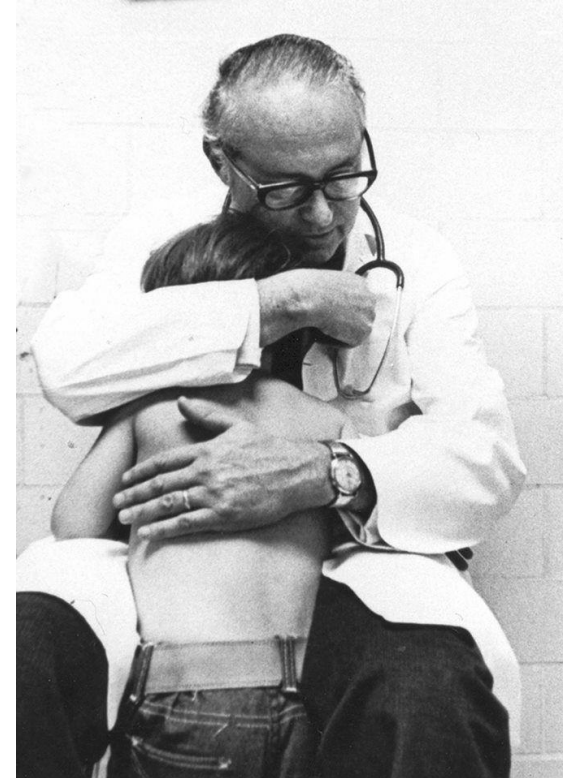
# History

- A number of European countries implemented home visiting programs in the mid 20<sup>th</sup> century.
  - France, England, and Denmark, after successful pilot programs, began providing free prenatal care and home visits centered on promoting healthy behaviors for new mothers and their children<sup>1</sup>
- Home visiting programs started gained traction in the United States in the late 19<sup>th</sup> century.
  - In the early 1900's the New York City Health Department implemented a home visiting program, using student nurses to instruct mothers about healthy hygiene.
    - This lowered the high mortality of inner-city infants from summer diarrhea.<sup>1</sup>

<sup>1</sup>Schonberg et al. (1998)

# History Continued...

- In the 1970s, Dr. C. Henry Kempe, suggested that every pregnant women be assigned a home health visitor to ensure the right of every child to comprehensive care.
  - Insurance companies: “not enough empirical evidence to support the effectiveness of universal home-visiting programs.”<sup>1</sup>
- As funding for public health nurses declined in the late 20<sup>th</sup> century, home-visiting programs became less-universal;
  - And focused on infants that are most at risk
    - Prematurity or low-birth weights, teenage parents, and at risk for child neglect.<sup>1</sup>



<sup>1</sup>Schonberg et al. (1998)

# MIECHV & HomVEE

- Empirical research has shown that a variety of programs have had positive outcomes for the families served.
- These studies influenced the ACA to authorize the Maternal, Infant, and Early Childhood Home Visiting (MIECHV) program.<sup>2</sup>
  - The ACA funded \$1.5 billion into home visiting<sup>3</sup>
- The MIECHV program disseminates substantial funds to communities to create and continue home-visiting programs under certain models.<sup>2</sup>

<sup>2</sup>Dodge et al. (2013)

<sup>3</sup>Killburn et al. (2017)

# Nurse Family Partnership (NFP)

- Home nurse visits a new mother with risk factors; they provide up to 40 visits in the child's first two years of life.
  - Nurses work to:
    1. Help women improve their prenatal health for subsequent pregnancies;
    2. Improve children's health and development;
    3. Improve women's health by helping them develop self care practices and find employment
- Rated as one of the most effective home-nurse models by the HomVEE.



# Olds et al. (2007)<sup>4</sup>

## Participants:

- 743 primarily African American women from Memphis, Tennessee, with previous live births and at least 2 sociodemographic risk characteristics

## Results:

- Sudden Infant Death Syndrome (SIDS) and accidental injuries were less likely to occur in infants that have mothers who received a home-visiting nurse.

# Olds et al. (2014)<sup>5</sup>

## Participants:

- 1,138 primarily African American women and their first live-born children living in highly disadvantaged urban neighborhoods

## Results:

- None of the nurse-visited children died from preventable causes (SIDS, unintentional injuries and homicide)

# Kilburn and Cannon (2017)<sup>3</sup>

- Studied the First Born Program (FBP), a universal home visiting model for first time parents in Santa Fe, Mexico.
  - The FBP team included a registered nurse and a parent educator with human service experience.

## Results:

- Children who participated in the FBP program were one third less likely to have visited Emergency Departments and 41% less likely to have  $\geq 9$  primary care visits.
  - This save health care cost and usage.





# Donovan et al. (2007)<sup>6</sup>

- Examined Cincinnati's Every Child Succeeds program
  - Universal home visiting program for select counties in Ohio whereby nurses visit the family for the first 3 years of the child's life.

## Results:

- Infants whose families did not receive home visiting were 2.5 times more likely to die in infancy than those with home-visiting nurses
- Program participation did not significantly lower or raise the risk of preterm birth



EVERY CHILD<sup>®</sup>  
SUCCEEDS

# Barnes-Boyd, Norr, and Nacion (2001)<sup>7</sup>

- Examined the Resources, Education and Care in the Home Program (REACH)
  - A program focused in the inner city of Chicago serving disadvantaged mothers.

## Results:

- There were only two infant deaths in the REACH group in the 12 month study duration. This was much lower than the previous home-visiting program
- Significantly more of the REACH infant were fully immunized at 12 months
- Use of community members is important!

# Why is infant mortality higher in the U.S?

- A meta-analysis study by Chen, Oster, and Williams (2016)<sup>8</sup> was done to compare infant mortality data in the U.S. to four European countries.
  - Adjusted for errors in reporting infant deaths and its causes
- Conclusion:
  - Deaths during the neonatal period are unlikely to be the reason for the disparity
    - Policy attention should instead focus on either preventing preterm births or reducing post neonatal mortality.
  - **“Absence of intensive home-visiting programs that exist in countries such as Finland and Austria, is the driving force behind the U.S.’ high infant mortality rate.”**

# >1yr Benefits

- Nurse-visited children in the NFP program had higher academic achievement in elementary school than children born into similar families that were not involved with the program (Olds et al., 2007)<sup>4</sup>
- Nurse-visited children are at less risk of future abuse and neglect from family (Kitzman et al., 1997)<sup>9</sup>
- Nurse-visited children had increased interaction with their mother and their mother reported greater satisfaction with parenting (Kitzman et al., 1997)<sup>9</sup>

# Maternal Benefits (Olds et al., 2007)<sup>4</sup>

NFP Nurse-visited women had fewer subsequent low birth weight newborns than women who were not visited

Nurse-visited mothers had longer relationships with their current partners

Nurse-visited mothers felt less of the need to use food stamps per year

Nurse-visited mothers used fewer substances during the first 9-years of their child's life

# Questions Raised

Can home-visiting have a similar effect on socially advantaged families as it does on disadvantaged families?

Should home-visiting models include community members as central to promoting and aiding the families served?

# Questions Raised

Can European home-visiting models be cost-effective in the U.S. health system?

Are the home-visiting programs significantly effective at a population level?

## Limitations of Studies

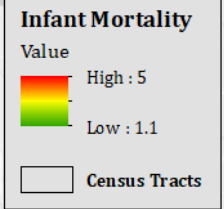
- Sparseness of data and small relative sample sizes for a morality study<sup>4</sup>
- Lack of qualitative data
  - Do nurse-visited mothers report greater satisfaction with their quality of life and their infant's health?
- Studies have shown significantly positive community-level outcomes but have not yet shown that home-visiting programs will have a large, universal population impact<sup>2</sup>

<sup>2</sup>Dodge, et al. (2013)

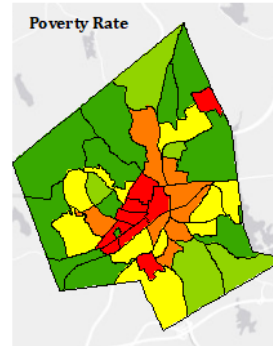
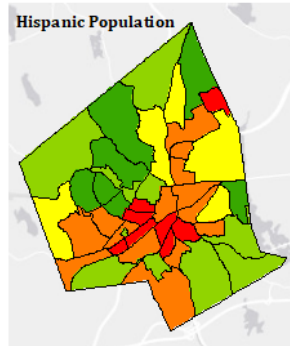
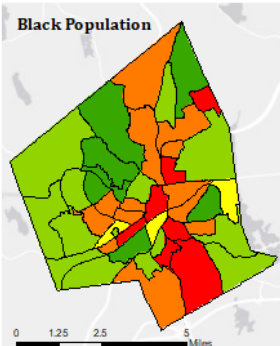
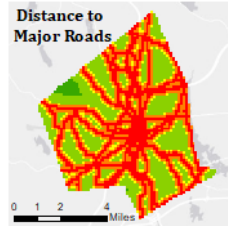
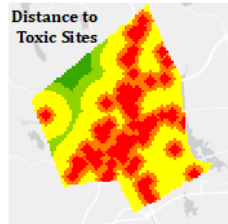
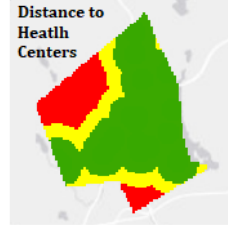
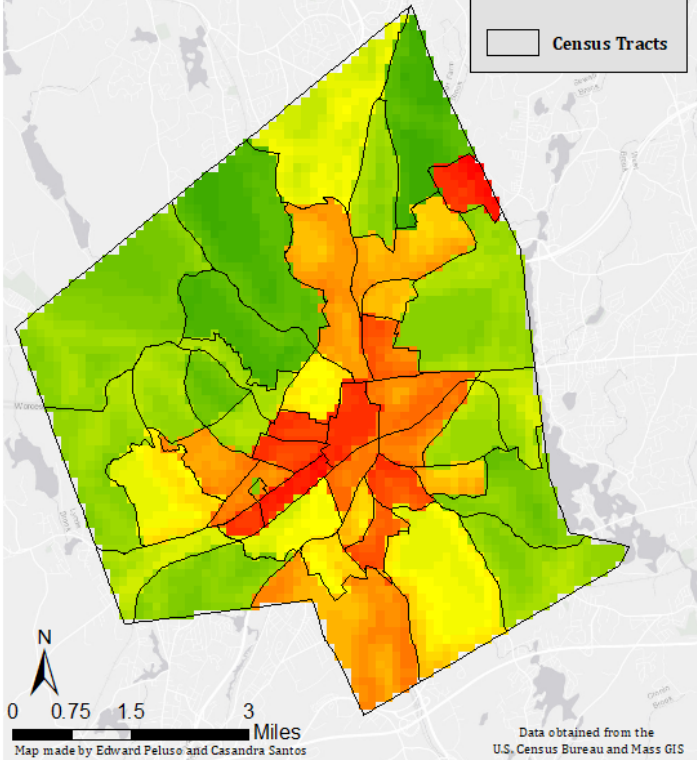
<sup>4</sup>Olds et al. (2014)



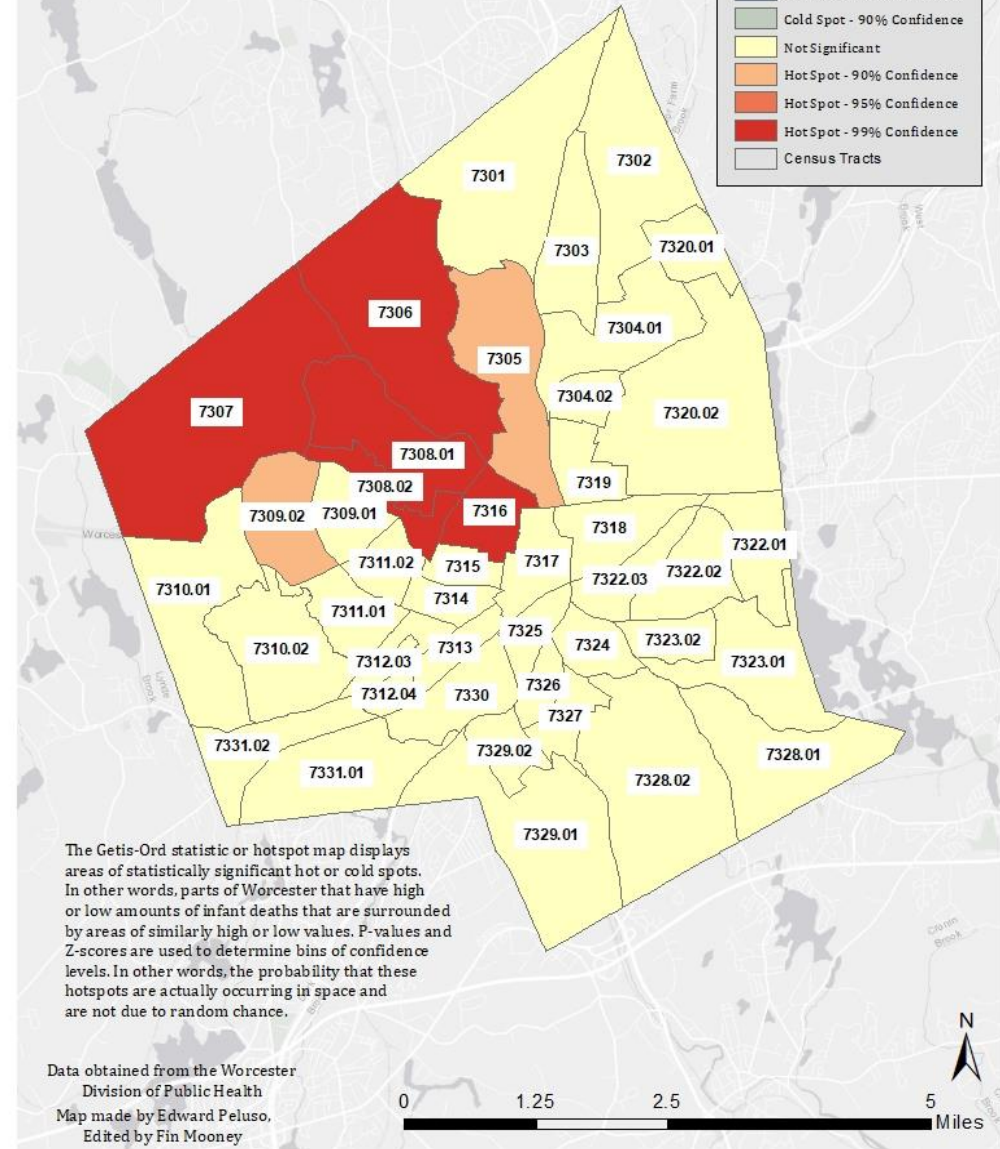
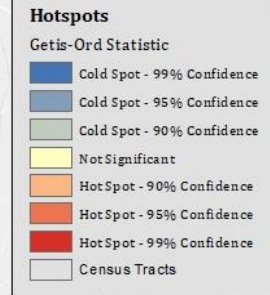
### Vulnerability Assessment of Infant Mortality for Worcester Census Tracts



The Infant Mortality Vulnerability Score is based on a multi-criteria evaluation, combining census data on poverty rate, hispanic & black populations, distance to highways, health centers, and sites of disposal of hazardous material. A score of 4-5 indicates high vulnerability, whereas a score of 1-2 indicates low vulnerability.



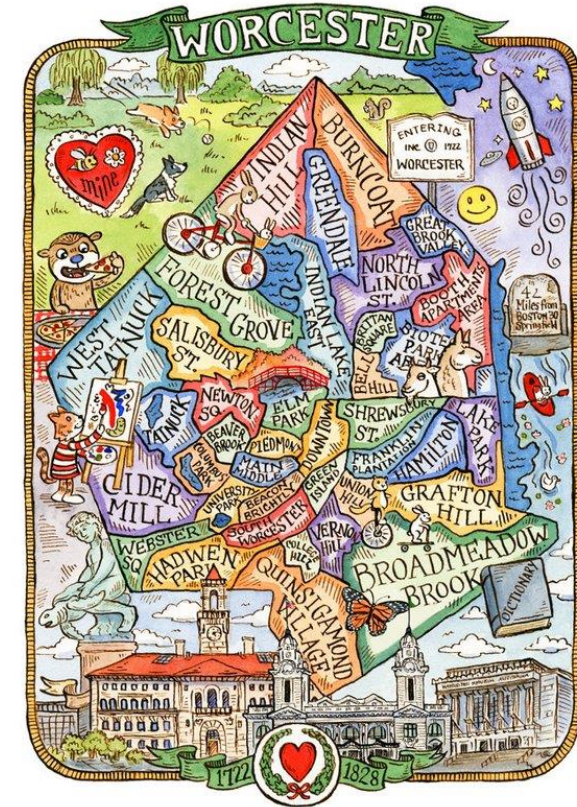
### Hotspots of Infant Deaths in Worcester, MA (2000-2018)



The Getis-Ord statistic or hotspot map displays areas of statistically significant hot or cold spots. In other words, parts of Worcester that have high or low amounts of infant deaths that are surrounded by areas of similarly high or low values. P-values and Z-scores are used to determine bins of confidence levels. In other words, the probability that these hotspots are actually occurring in space and are not due to random chance.

# Worcester

- Quantitative data on where infant mortality is concentrated in Worcester has been surprising
  - Infant mortality is higher in the North-West of Worcester
    - This could be due to mother's ACCESS to health care during their child's infancy.
  - Home visiting programs may improve new mothers educational awareness, health care, and reduce infant mortality in these areas!



# Acknowledgements

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