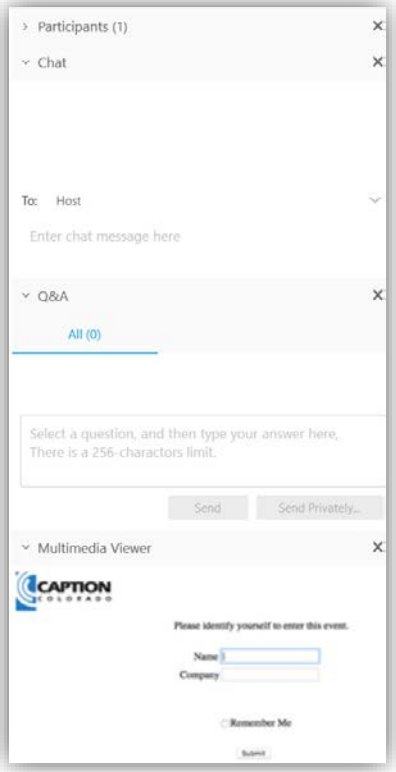
NCI Webinar: Place-Based Strategies for Disease, Injury, and Violence Prevention

NIH NATIONAL CANCER INSTITUTE

Using WebEx and webinar logistics



- All lines will be in listen-only mode
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  - Select Host and a moderator will ask the questions on your behalf
- Closed captioning available by selecting the Media Viewer Panel on the right hand side of the screen
- This webinar is being recorded

Michelle Kondo, Ph.D.
Research Scientist
USDA Forest Service

Webinar Overview

NCI Webinar: Place-Based Strategies for Disease, Injury, and Violence Prevention

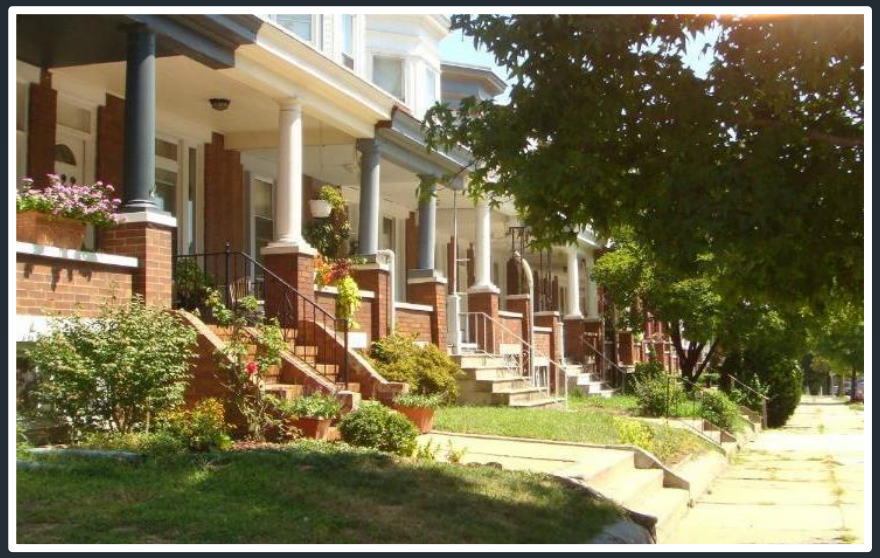
NATIONAL CANCER INSTITUTE

www.cancer.gov www.cancer.gov/espanol

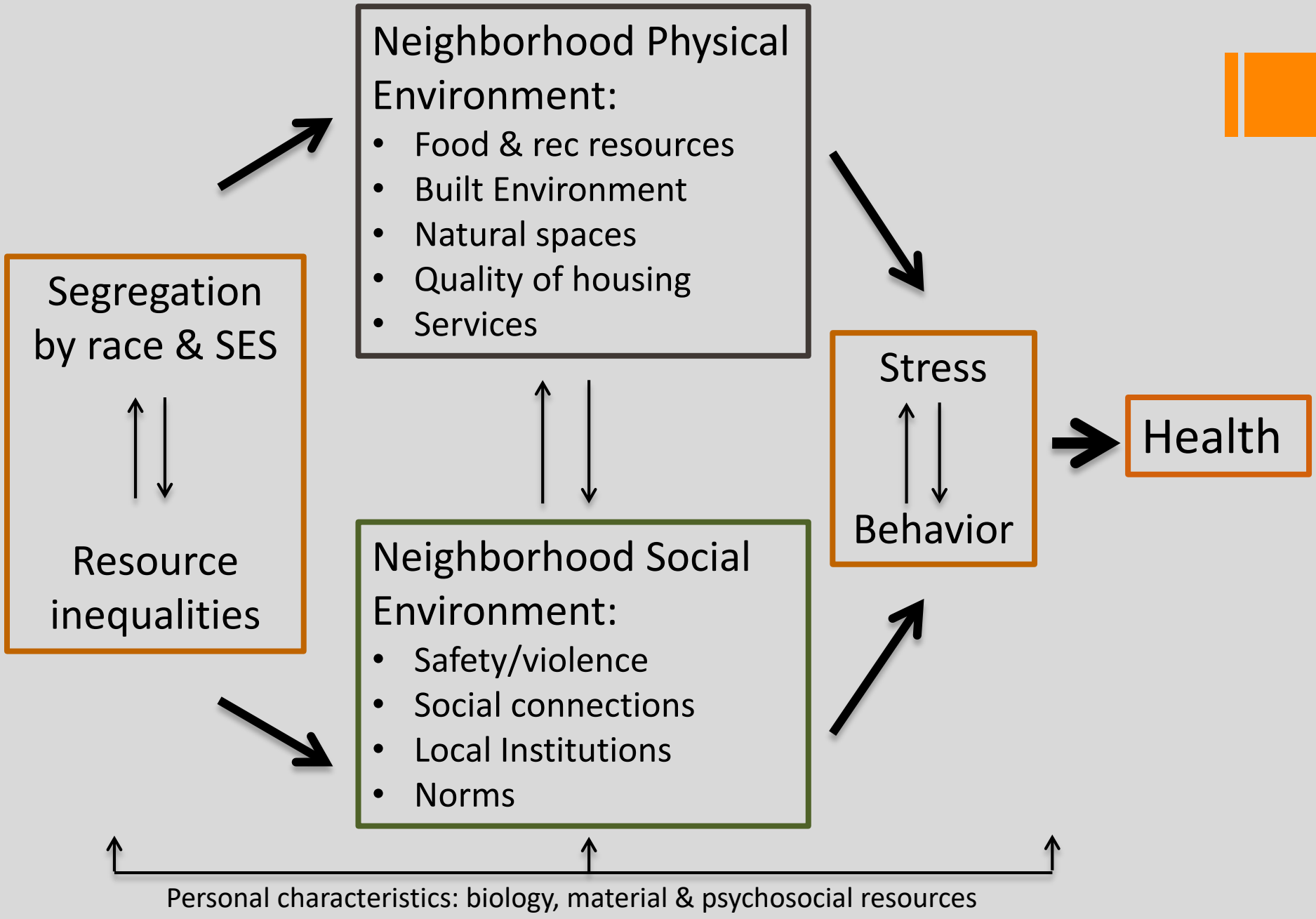
Place-Based Strategies for Disease, Violence, and Injury Prevention in Urban Areas

Michelle C. Kondo, Ph.D.

Research Social Scientist USDA Forest Service Northern Research Station @usfs_nrs
Philadelphia Field Station #phillyfieldstation michelle.c.kondo@usda.gov @MichelleCKondo



Place matters



Diez Roux AJPH, 2010

Improving Urban Environments as a Public Health Strategy

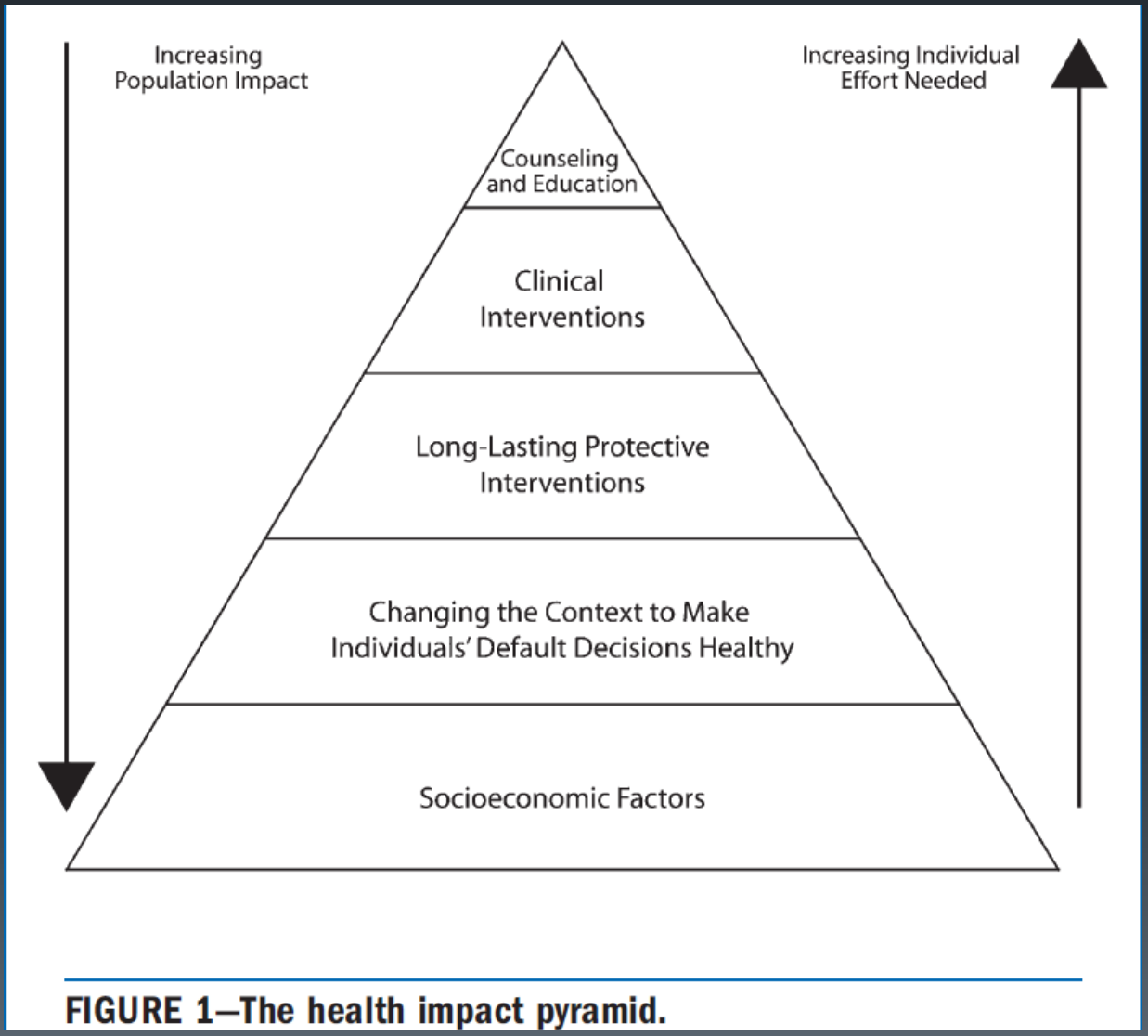


FIGURE 1—The health impact pyramid.

Frieden (2010). A Framework for Public Health Action: The Health Impact Pyramid. *American Journal of Public Health*, 100(4): 590-595.

Can urban place- and nature-based interventions improve public health and safety?

vacant-lot greening

doors & windows treatment

Health Outcomes Tied to Urban Nature Exposure

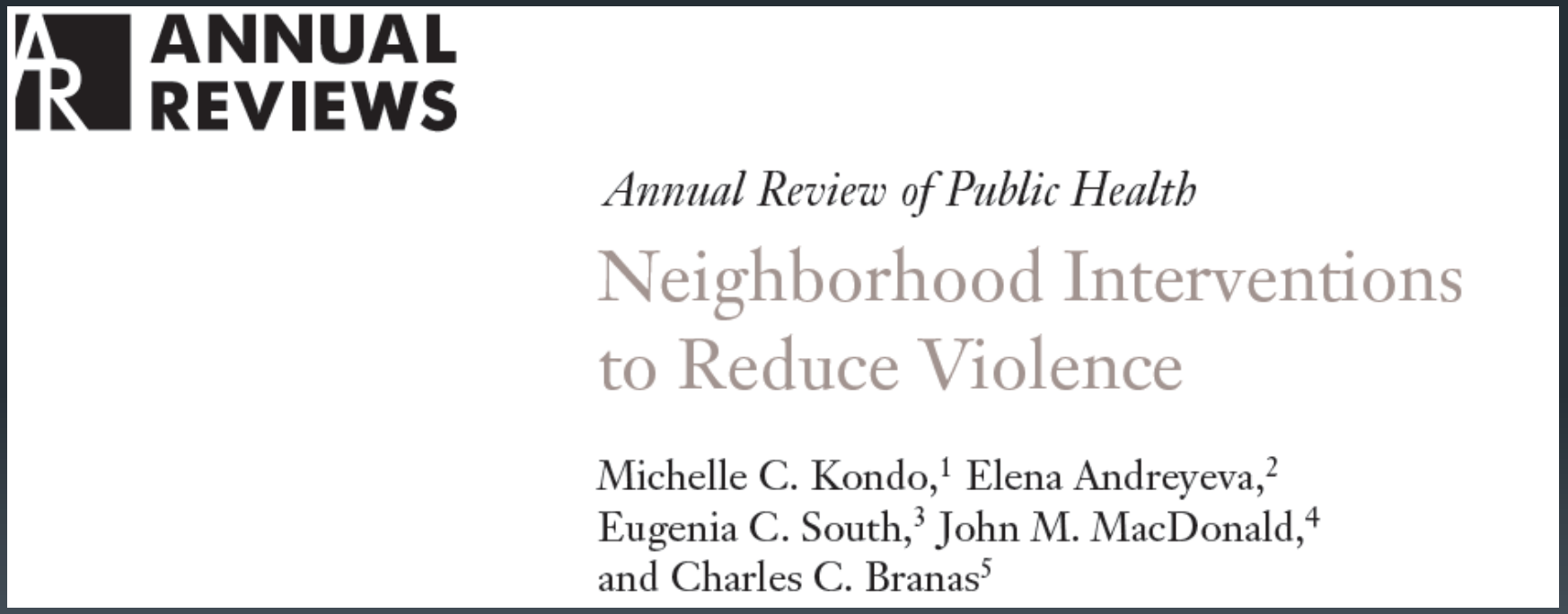
–

- Mortality
- Heart rate
- Mental health
- Crime & violence
- Post-operative recovery

+

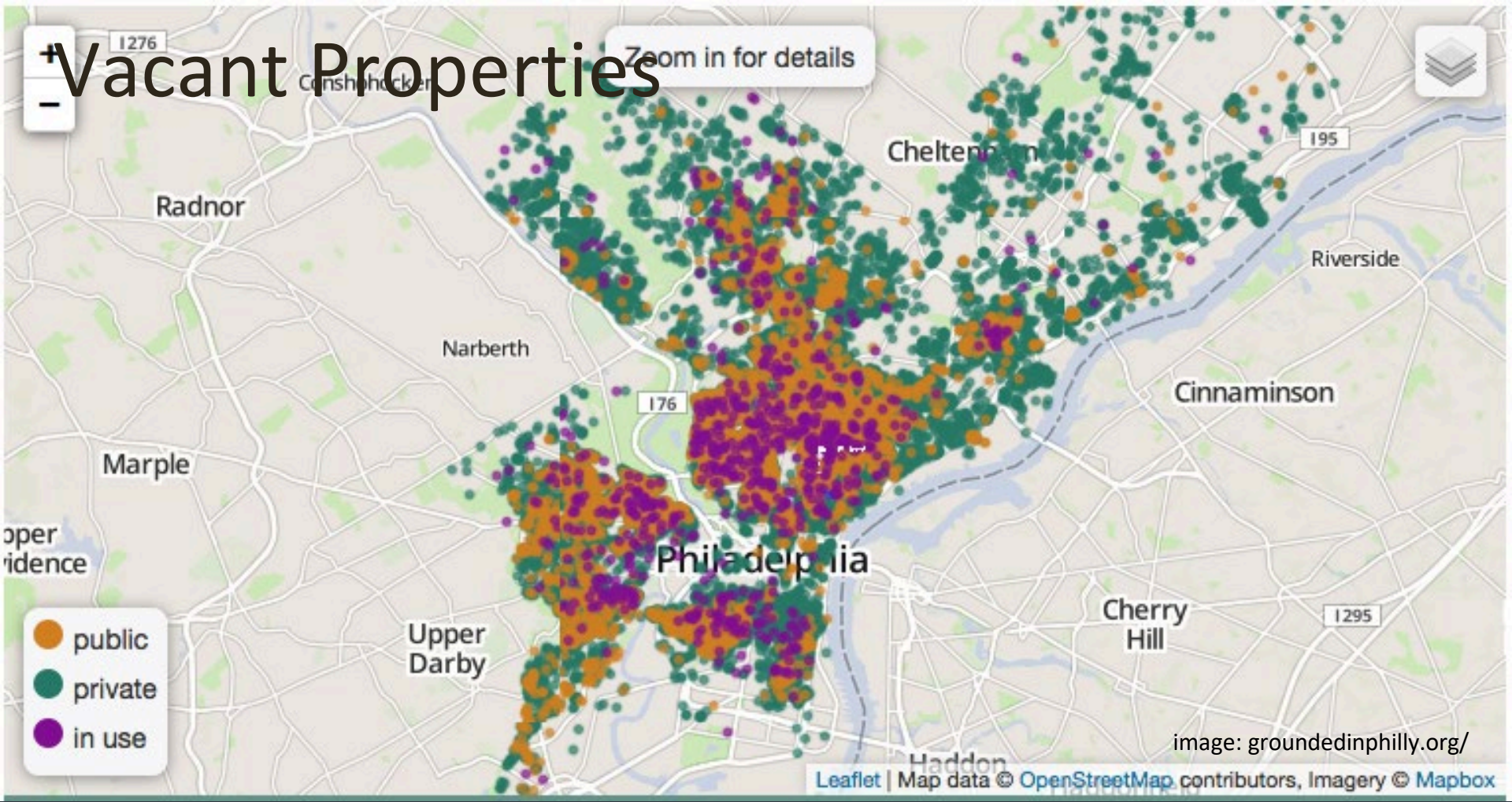
- Attention
- Mood

Kondo, Fluehr, McKeon, Branas (2018). Urban Green Space and its Impact on Human Health. *International Journal of Environmental Research and Public Health* 15(3): 445.



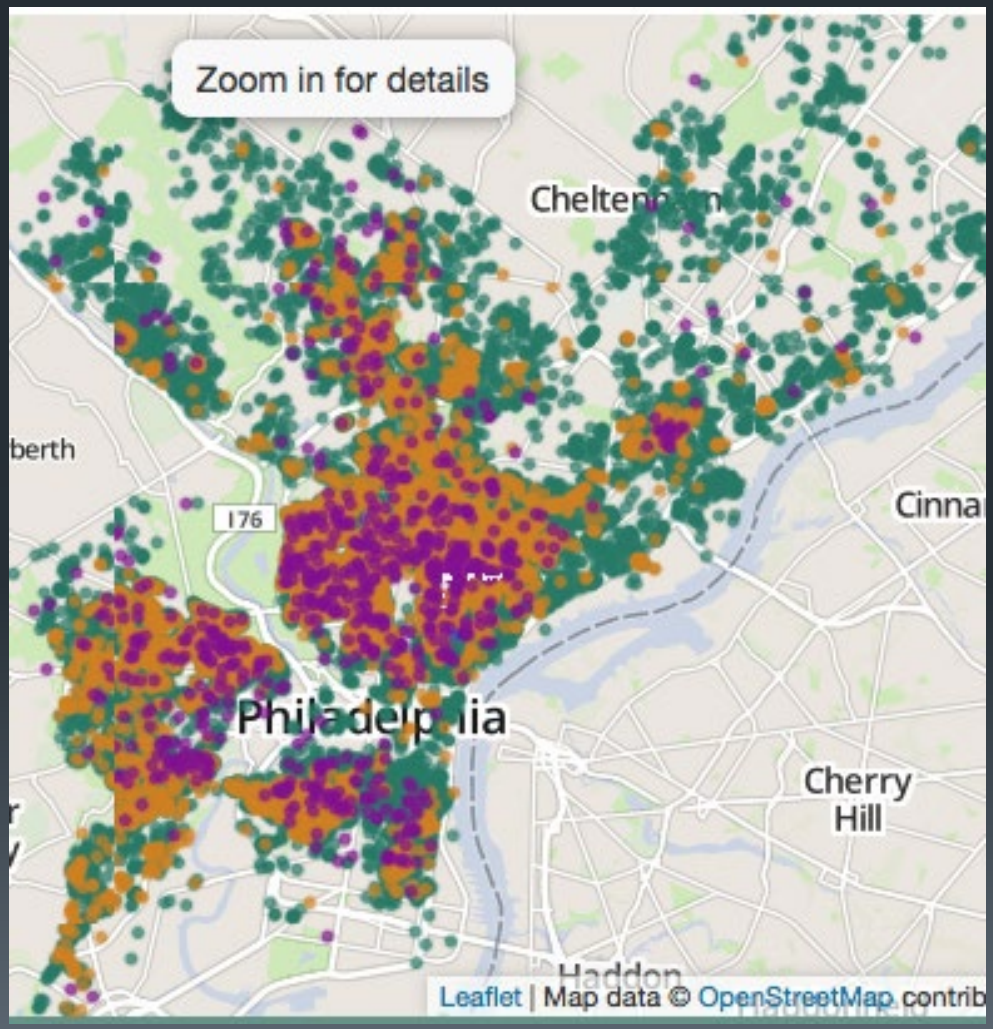
Kondo, Andreyeva, South, MacDonald, Branas (2018). Neighborhood Interventions to Reduce Violence. *Annual Reviews of Public Health* 39: 253-271.

Vacant Properties



- Trash dumping
- Rodents
- Pathogens
- Illicit activity
- Fear, anxiety, stress, depression

Vacant Properties in Philadelphia

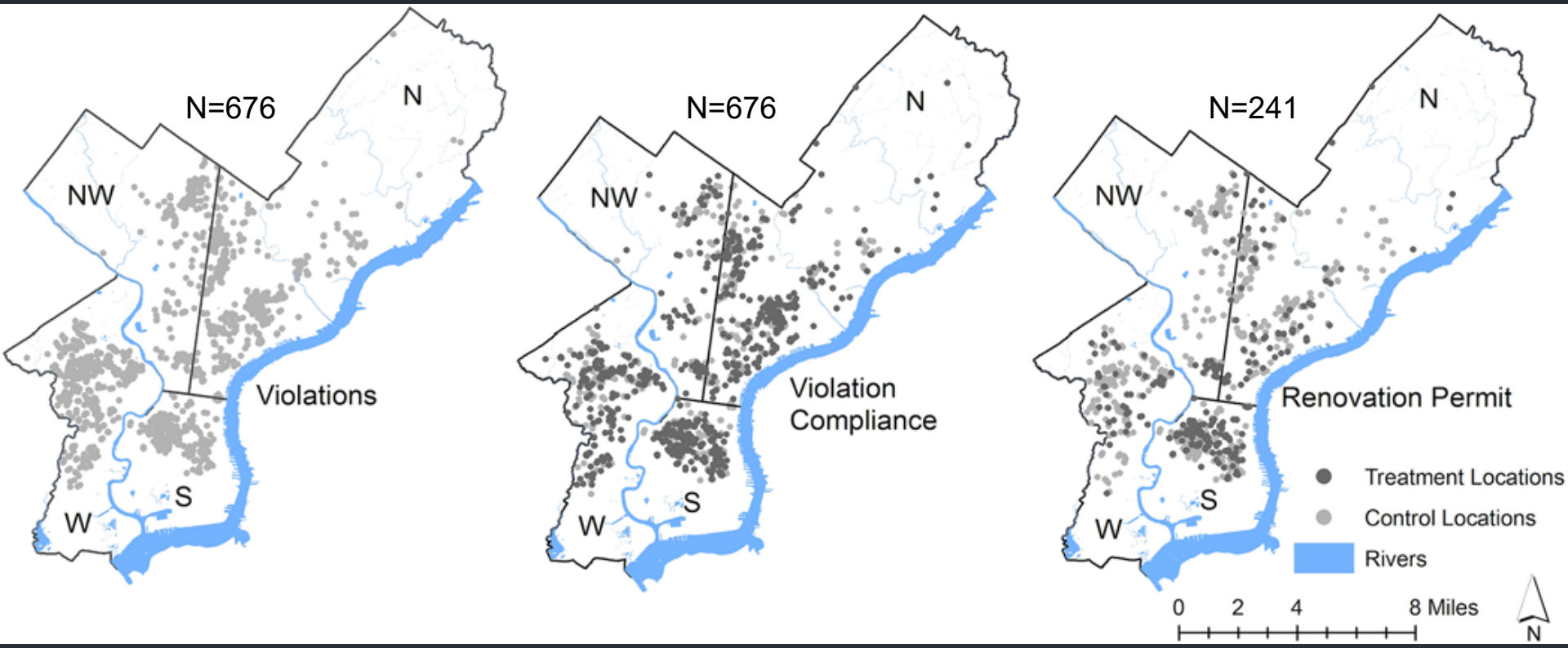


- 40,000 vacant land parcels
  - 23.1% owned by city
  - 76.9% privately owned
- Abandoned buildings per capita:
  - 1st Baltimore
  - 2nd Detroit
  - 3rd Philadelphia

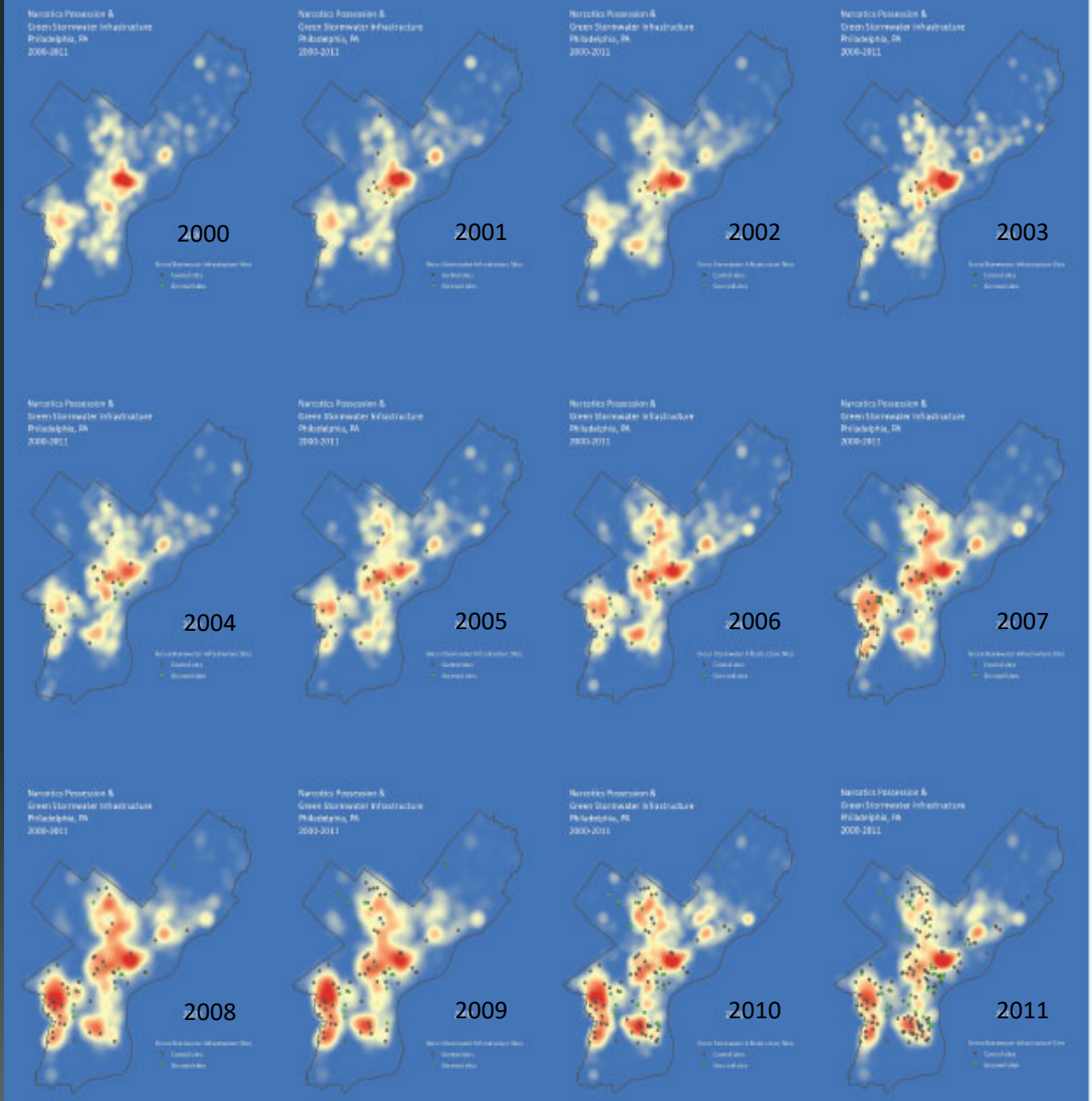
Doors and Windows Treatment & Crime

An evaluation of effects of Doors & Windows treatment on crime in Philadelphia, PA (2011-2014)

Kondo, Keene, Hohl, MacDonald, Branas (2015). The effects of a new vacant building remediation strategy on safety. *PlosOne,* 10(7).



Kondo, Keene, Hohl, MacDonald, Branas (2015). The effects of a new vacant building remediation strategy on safety. *PlosOne,* 10(7).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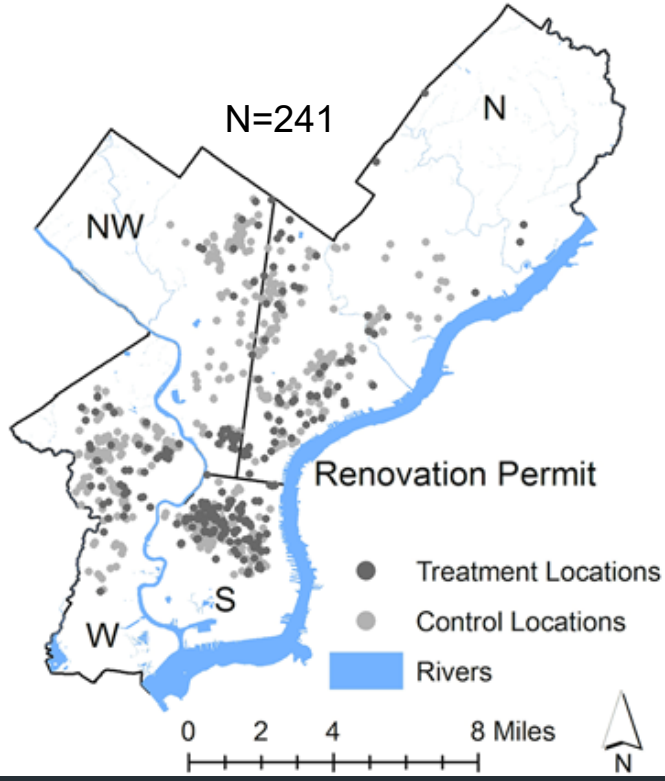


Adjusted Difference-in-Differences Estimates of Violation Compliance on Point-Level Crime Outcomes

	All Philadelphia		
	IRR	SE	
All crimes	0.99	0.00	**
Violent gun crimes	1.00	0.01	
All assaults	0.98	0.00	***
Gun assaults	0.96	0.01	***
Robberies	1.01	0.00	**
Narcotics sales & possession	1.03	0.00	***
Property crimes	1.03	0.00	***
Vandalism & illegal dumping	0.99	0.00	
All nuisance crimes	0.99	0.00	***

Adjusted Difference-in-Differences Estimates of Renovation Permits on Point-Level Crime Outcomes

	All Philadelphia		
	IRR	SE	
All crimes	0.96	0.00	***
Violent gun crimes	0.90	0.01	***
All assaults	0.92	0.00	***
Gun assaults	-	-	
Robberies	0.98	0.01	***
Narcotics sales & possession	0.87	0.01	***
Property crimes	0.87	0.01	***
Vandalism & illegal dumping	0.98	0.01	***
All nuisance crimes	0.98	0.00	***

Results: Significant reductions in all crimes, assaults, gun assaults, nuisance crimes

Contractor vs. Community Greening in Youngstown, OH 2011-2014

v1.0: “clean & green”

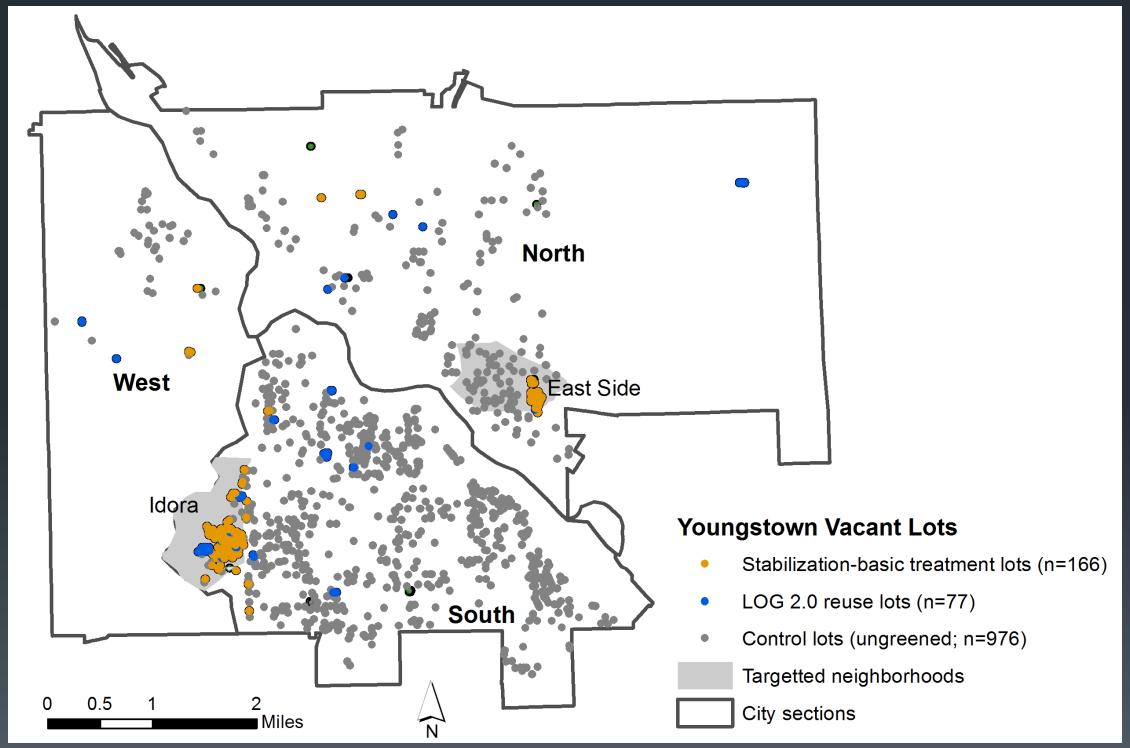
v2.0: “community reuse”

Kondo, Hohl, Han, Branas (2016). Effects of Greening and Community Reuse of Vacant Lots on Crime. *Urban Studies* 53(15): 3279-3295.

Photos: Youngstown Lots of Green Overview Report

Contractor vs. Community Greening in Youngstown, OH

244 greened lots randomly matched with 959 control vacant lots



Kondo, Hohl, Han, Branas (2016). Effects of Greening and Community Reuse of Vacant Lots on Crime. *Urban Studies* 53(15): 3279-3295.

Contractor vs. Community Greening in Youngstown, OH

- Significant reductions in burglaries and robberies (all lots & clean&green lots); reductions in assaults and violent felonies (community reuse lots)
- Increases in motor vehicle theft (all lots)
- Spill-over crime-reduction effects into neighboring areas, especially with community reuse lots


v1.0: "clean & green"

v2.0: "community reuse"

Kondo, Hohl, Han, Branas (2016). Effects of Greening and Community Reuse of Vacant Lots on Crime. *Urban Studies* 53(15): 3279-3295.

Vacant Lot Greening Studies

Outcomes: crime, safety, stress, mental health

Citywide cluster randomized trial to restore blighted vacant land and its effects on violence, crime, and fear

Charles C. Branas[a,b,1], Eugenia South[c], Michelle C. Kondo[d], Bernadette C. Hohl[e,f], Philippe Bourgois[g], Douglas J. Wiebe[b], and John M. MacDonald[h]

[a]Department of Epidemiology, Mailman School of Public Health, Columbia University, New York, NY 10032; [b]Department of Biostatistics, Epidemiology, and Informatics, Perelman School of Medicine, University of Pennsylvania, Philadelphia, PA 19104; [c]Department of Emergency Medicine, Perelman School of Medicine, University of Pennsylvania, Philadelphia, PA 19104; [d]Northern Research Station, Forest Service, US Department of Agriculture, Philadelphia, PA 19103; [e]Department of Epidemiology, School of Public Health, Rutgers University, Piscataway, NJ 08854; [f]School of Criminal Justice, Rutgers University, Newark, NJ 07102; [g]Center for Social Medicine, Department of Psychiatry, Geffen School of Medicine, University of California, Los Angeles, CA 90095; and [h]Department of Criminology, School of Arts and Sciences, University of Pennsylvania, Philadelphia, PA 19104

Methods:

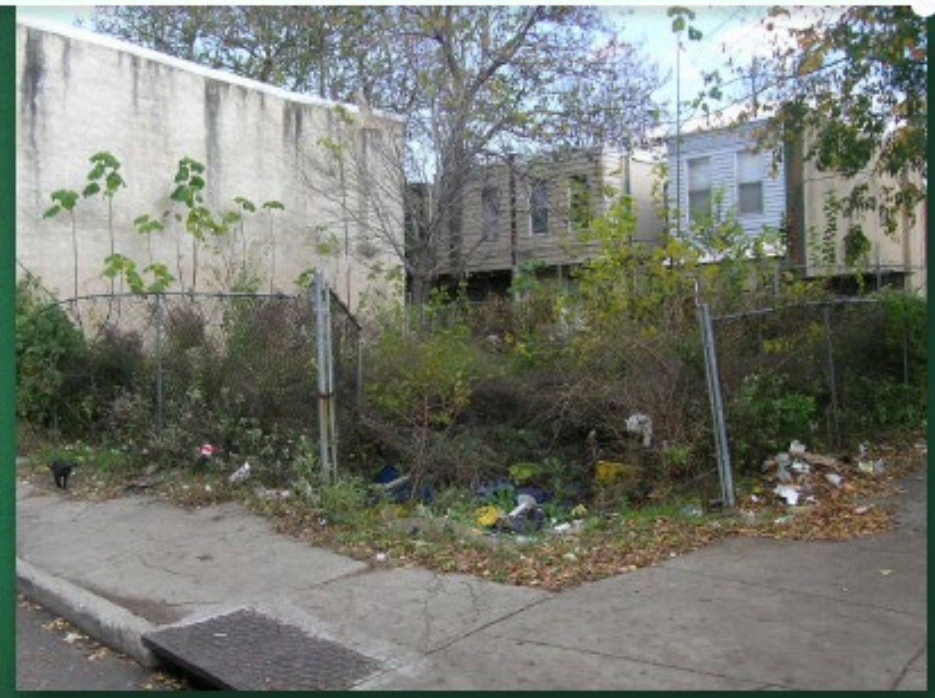
- 541 vacant lots randomly assigned to treatment and control
- Outcomes: crime/violence data; health outcomes from 445 participants; ethnographic observations
- 38-month study period
- Intention to Treat Analysis (ITT)

Funders:

- National Institute on Alcohol Abuse and Alcoholism (NIAAA)
- National Institute on Drug Abuse (NIDA)
- CDC

Branas, South, Kondo, Hohl, Bourgois, Wiebe, MacDonald (2018). Citywide cluster randomized trial to restore blighted vacant land and its effects on violence, crime and fear. *Proceedings of the National Academies of Science* 115(12): 2946-2951.

BEFORE



AFTER

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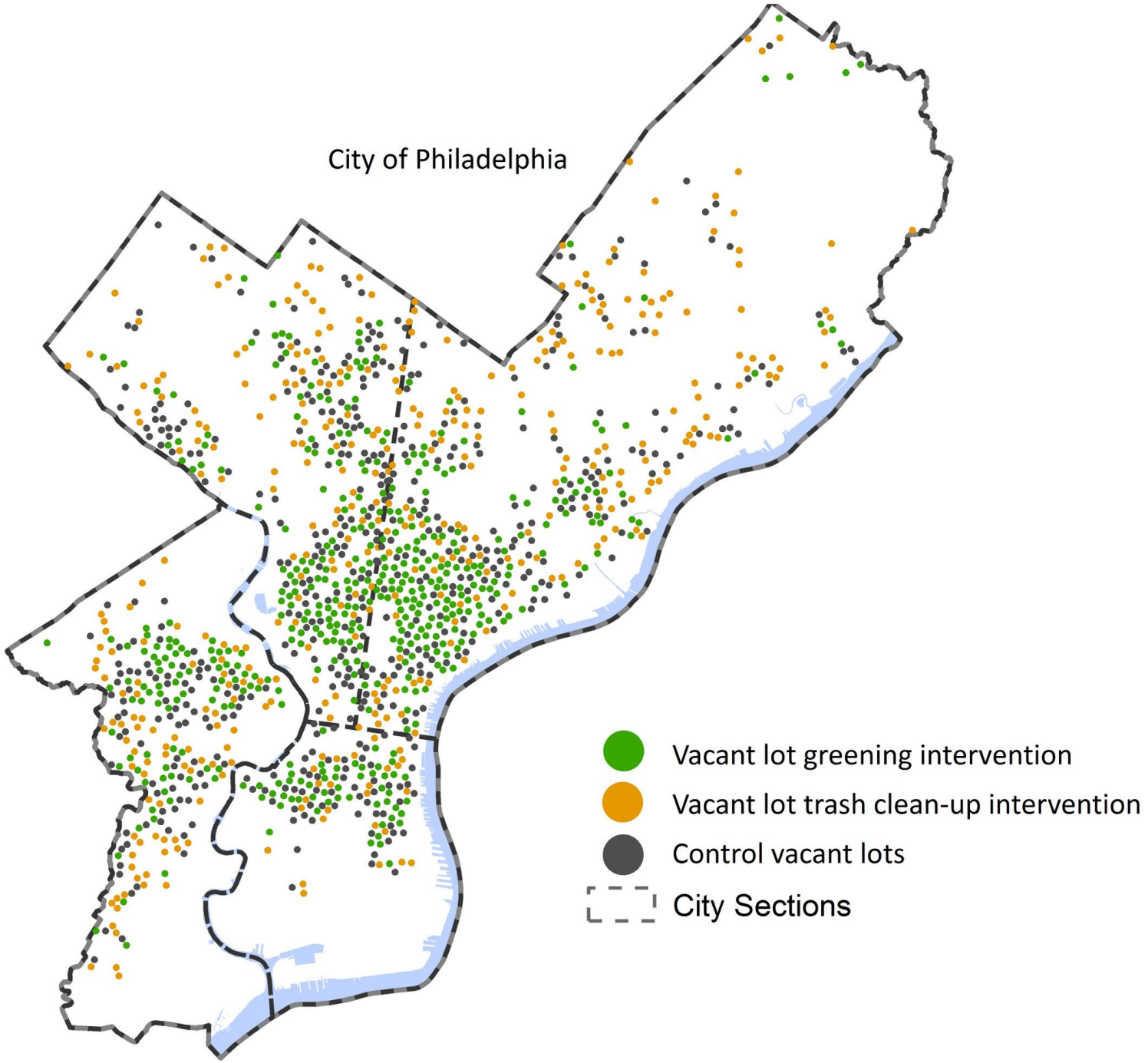

City of Philadelphia
Vacant lot greening intervention
Vacant lot trash clean-up intervention
Control vacant lots
City Sections

Citywide cluster randomized trial to restore blighted vacant land and its effects on violence, crime, and fear

Charles C. Branas[a,b,1], Eugenia South[c], Michelle C. Kondo[d], Bernadette C. Hohl[e,f], Philippe Bourgois[g], Douglas J. Wiebe[b], and John M. MacDonald[h]

[a]Department of Epidemiology, Mailman School of Public Health, Columbia University, New York, NY 10032; [b]Department of Biostatistics, Epidemiology, and Informatics, Perelman School of Medicine, University of Pennsylvania, Philadelphia, PA 19104; [c]Department of Emergency Medicine, Perelman School of Medicine, University of Pennsylvania, Philadelphia, PA 19104; [d]Northern Research Station, Forest Service, US Department of Agriculture, Philadelphia, PA 19103; [e]Department of Epidemiology, School of Public Health, Rutgers University, Piscataway, NJ 08854; [f]School of Criminal Justice, Rutgers University, Newark, NJ 07102; [g]Center for Social Medicine, Department of Psychiatry, Geffen School of Medicine, University of California, Los Angeles, CA 90095; and [h]Department of Criminology, School of Arts and Sciences, University of Pennsylvania, Philadelphia, PA 19104

Findings:

- Significant reductions in crime overall (−13%), gun violence (−29%), burglary (−22%), and nuisances (−30%) in neighborhoods below the poverty line
- Significantly reduced perceptions of crime, vandalism, and safety concerns; and significantly increased use of outside spaces for relaxing and socializing

Branas, South, Kondo, Hohl, Bourgois, Wiebe, MacDonald (2018). Citywide cluster randomized trial to restore blighted vacant land and its effects on violence, crime and fear. *Proceedings of the National Academies of Science* 115(12): 2946-2951.

JAMA Network | Open

Original Investigation | Public Health

Effect of Greening Vacant Land on Mental Health of Community-Dwelling Adults
A Cluster Randomized Trial

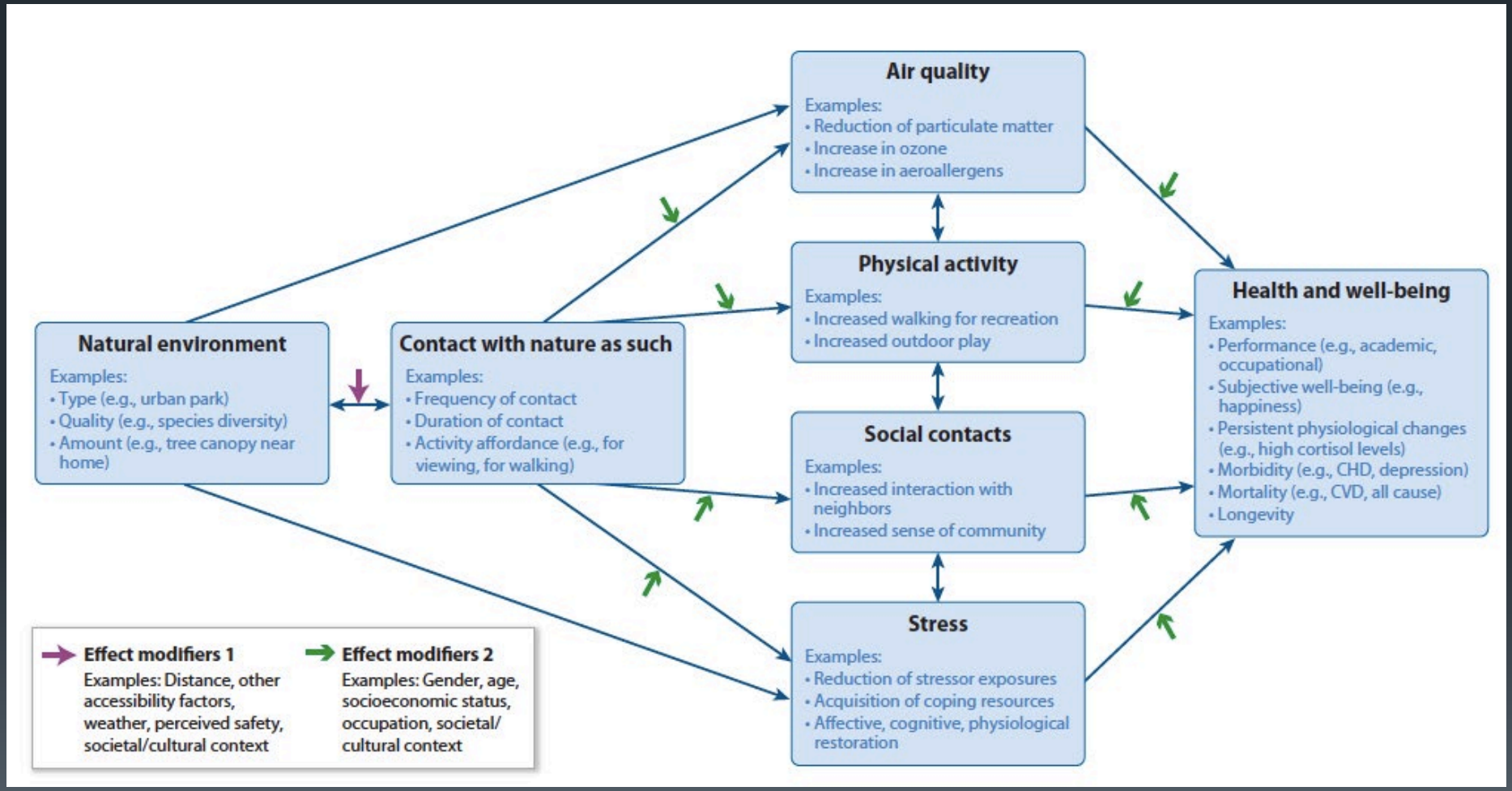
Eugenia C. South, MD, MS; Bernadette C. Hohl, PhD; Michelle C. Kondo, PhD; John M. MacDonald, PhD; Charles C. Branas, PhD

- 442 participants surveyed before and after intervention
- Significant decrease in depression and feeling of worthlessness for participants living near treatment lots
- No change in feeling nervous, hopeless, restless, that everything is an effort, or poor mental health

South, Hohl, Kondo, MacDonald, & Branas (2018). Effect of Greening Vacant Land on Mental Health of Community-Dwelling Adults: A Cluster Randomized Trial. *JAMA Network Open, 1*(3), e180298-e180298.

Places and Health: Mechanisms

Everyday environments can influence health and safety



Hartig, T., R. Mitchell, S. de Vries and H. Frumkin (2014) Nature and health. *Annu Rev Public Health,* 35: 207 - 228.

Health & Place 51 (2018) 136–150

Contents lists available at ScienceDirect

Health & Place

journal homepage: www.elsevier.com/locate/healthplace

Does spending time outdoors reduce stress? A review of real-time stress response to outdoor environments

Michelle C. Kondo[a,*], Sara F. Jacoby[b], Eugenia C. South[c]

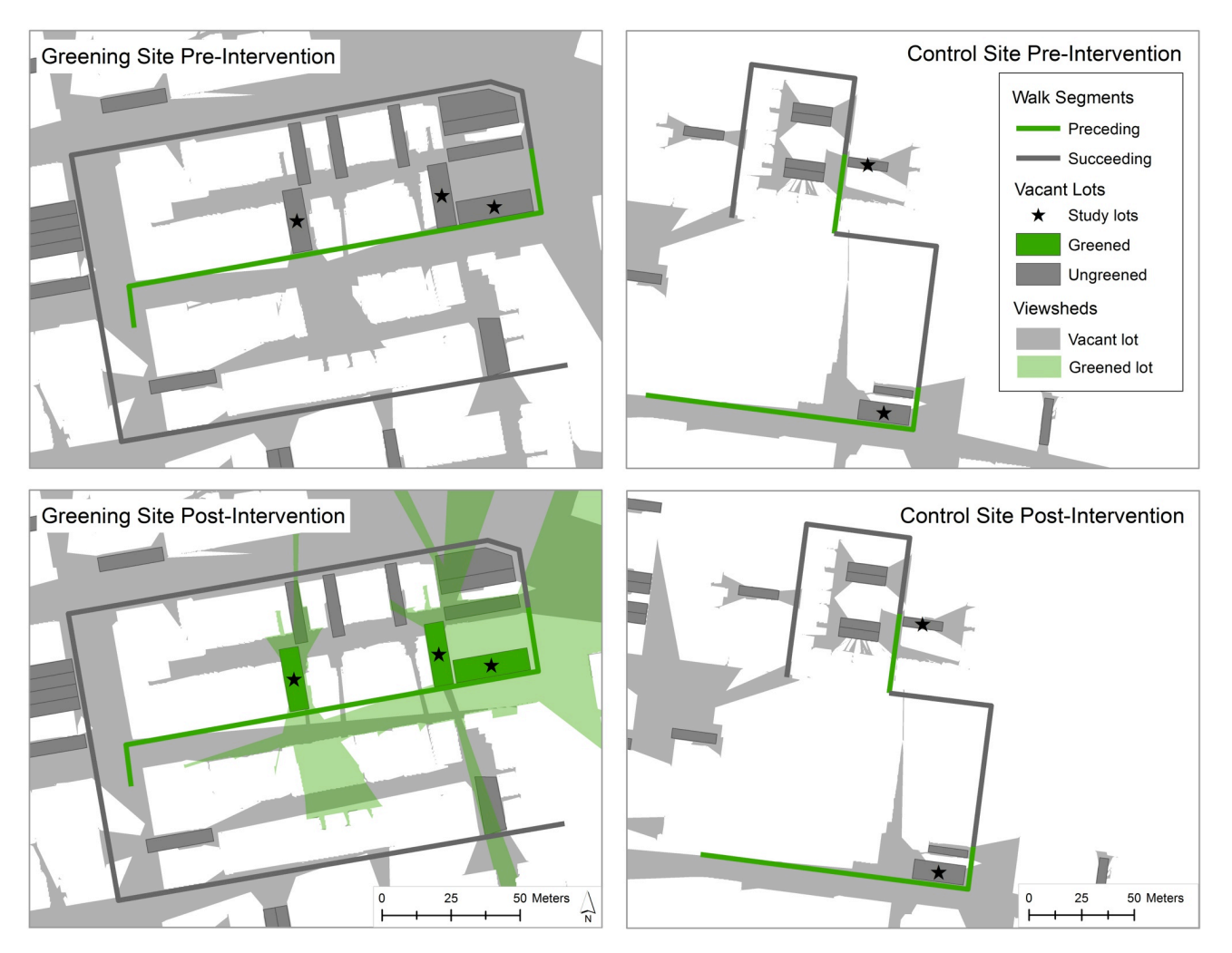
[a] USDA-Forest Service, Northern Research Station, 100 North 20th Street, Ste 205, Philadelphia, PA 19103, USA
[b] School of Nursing at the University of Pennsylvania, Philadelphia, PA, USA
[c] Department of Emergency Medicine, Perelman School of Medicine at the University of Pennsylvania, Philadelphia, PA, USA

ABSTRACT

Everyday environmental conditions impact human health. One mechanism underlying this relationship is the experience of stress. Through systematic review of published literature, we explore how stress has been measured in real-time non-laboratory studies of stress responses to deliberate exposure to outdoor environments. The types of exposures evaluated in this review include: nature viewing, outdoor walks, outdoor exercise and gardening. We characterize study design, modalities of stress measurements, and statistical estimates of effect and significance. Heart rate, blood pressure, and self-report measures provide the most convincing evidence that spending time in outdoor environments, particularly those with green space, may reduce the experience of stress, and ultimately improve health. More work is needed to understand effects of in situ modifications to outdoor environments on residents' stress response.

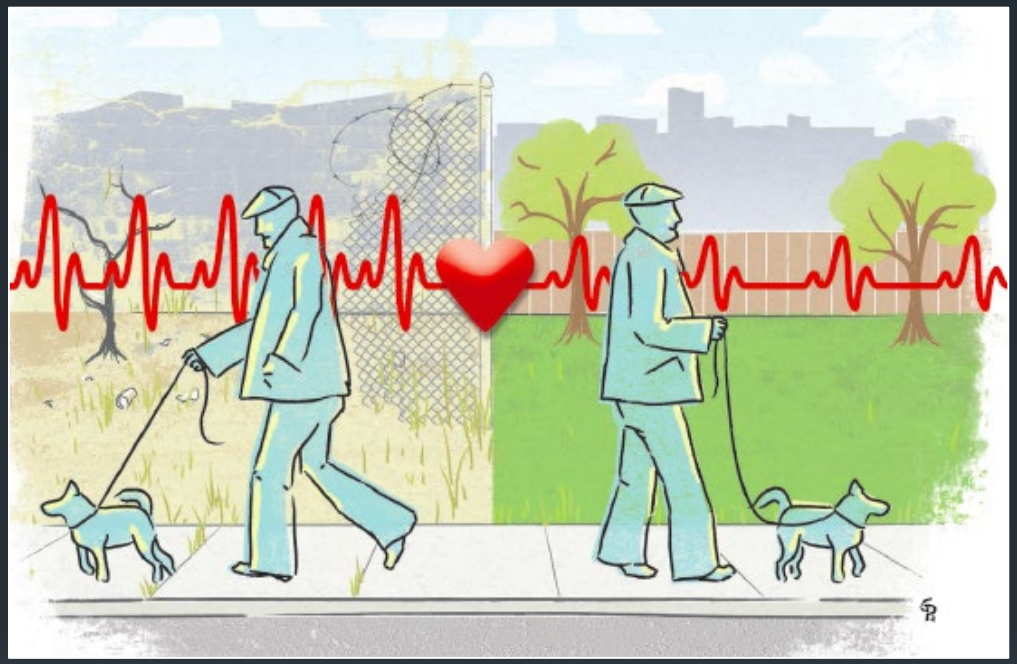
Kondo, Jacoby, South (2018) Does spending time outdoors reduce stress? A review of real-time stress response to outdoor environments. *Health and Place* 51: 136-50.

Does vacant-lot clean & green impact stress levels of nearby residents?



South, Kondo, Cheney, Branas (2015) Neighborhood blight, stress, and health: A walking trial of urban greening and ambulatory heart rate. *American Journal of Public Health*, 105(4):909-913.

Does vacant-lot clean & green impact stress levels of nearby residents?



Greening site:
-15.6 bpm, $p < .001$

Control site:
-1.7bpm

Significant drop in heart rate (marker of acute stress) when walking in view of newly greened vacant lots

South, Kondo, Cheney, Branas (2015) Neighborhood blight, stress, and health: A walking trial of urban greening and ambulatory heart rate. *American Journal of Public Health*, 105(4):909-913.

Return on Investment

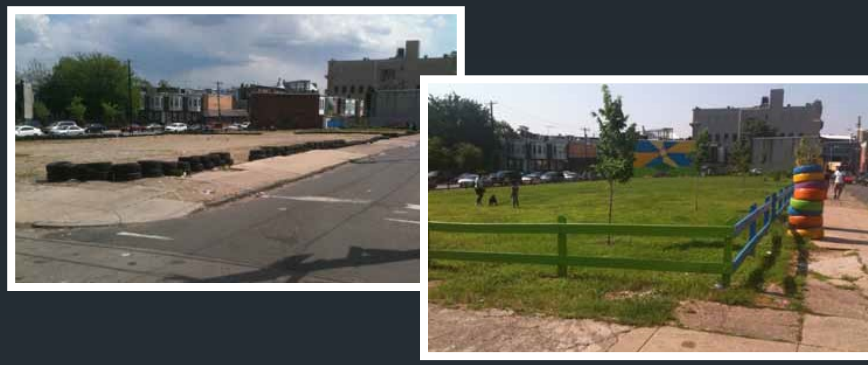


TABLE 2—Percent Reductions in Violence After Implementation of 2 Blight Remediation Strategies: Philadelphia, PA, 1999–2013

Assault Type	Abandoned Building Remediation, % (95% CI)	Vacant Lot Remediation, % (95% CI)
Firearm	−39.2 (−50.1, −27.5)	−4.6 (−5.0, −4.2)
Nonfirearm	−13.0 (−18.5, 7.4)	−0.4 (−0.7, 0.1)
All	−19.6 (−27.7, 11.1)	−2.2 (−2.4, −1.9)
Period of sustained effect	12.0 mo	45.8 mo

Vacant lots:

- Typical cost $1600, $180/year maintenance
- $26 in net benefits to taxpayers and $333 to society at large, for every dollar invested

Branas, Kondo, Murphy, South, Polsky, MacDonald (2016) Urban blight remediation as a cost-beneficial solution to firearm violence. *American Journal of Public Health*, 106(12): 2158-2164.

Potential Long-Term Effects

PNAS

Punishing and toxic neighborhood environments independently predict the intergenerational social mobility of black and white children

Robert Manduca[a] and Robert J. Sampson[a,1]

[a]Department of Sociology, Harvard University, Cambridge, MA 02138

Contributed by Robert J. Sampson, February 25, 2019 (sent for review December 4, 2018; reviewed by John M. MacDonald and Bruce Western)

- "Neighborhood toxicity" a stronger predictor than poverty of lower income mobility, and higher rates of teenage birth and incarceration as an adult
  - High rates of violence, incarceration and lead exposure
- Black children disproportionately burdened by harshness/toxicity

Other Intervention Studies

- Abandoned Building Renovation Study (NIH National Institute on Alcohol Abuse and Alcoholism; C. Branas & J. MacDonald; Philadelphia)
- Youth Violence Prevention Center (CDC; U Mich; M. Zimmerman; Flint, Youngstown, & Camden)
- New Orleans Healthy Neighborhoods Study (NIH National Institute of Child Health and Human Development (NICHD); RWJF; Tulane; K. Theall)
  - To evaluate the impact of blight remediation of neighborhood lots on family violence and youth violence; examine the moderating impact of community level buffers

In development: Baltimore, Wilmington, Pittsburgh

Questions Regarding Practice

- Who is doing vacant land mitigation or other place-based interventions?
- How are they funded?
- What are the practical challenges and barriers?
- What tools do they need?
- What was/is the return on investment?

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National Association of Regional Councils

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IMPACTS

- Human Health
- Economic Development
- Water Quality
- Air Quality
- Public Safety
- Equity
- Transportation
- Education
- City Planning
- Smart Cities Tech
- Urban Wood Reuse

Human Health

Urban forests reduce a variety of health issues, such as respiratory diseases and skin cancer, and promote an active lifestyle, which can reduce obesity.

RESEARCH

Social Impact

Mental Impact

Physical Impact

CASE STUDIES

Little Rock Combats Chronic Diseases Through "Medical Mile Trail"

Philadelphia LandCare Program

El Paso, TX: Campus Expands Urban Forest 60% for Mental Health

Louisville, KY: Green Spaces Make Healthier Places

New York, NY: Streets without trees harm kids and seniors

Amigos de los Rios and the Emerald Necklace

URBAN FORESTRY TOOLKIT

GET STARTED →

- Assess
- Prioritize
- Organize
- Plan
- Build
- Sustain

Thank you

Michelle C. Kondo, Ph.D.

Research Social Scientist USDA Forest Service Northern Research Station @usfs_nrs
Philadelphia Field Station #phillyfieldstation michelle.c.kondo@usda.gov @MichelleCKondo