Opportunities and challenges for promoting urban health

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Outline

• Six reasons why we should be focused on urban health

• The SALURBAL Project

• Opportunities
Reason 1: The future of humanity is largely in cities
Urban Population by Urban Area Size
WORLD URBAN AREAS: MORE DEVELOPED WORLD: 2013

- Under 500,000: 41.6%
- 500,000-1 Million: 8.2%
- 1.25 Million: 11.7%
- 2.5-5 Million: 11.4%
- 5-10 Million: 11.5%
- 10-20 Million: 6.2%
- 20 Million & Over: 9.4%

Urban Population by Urban Area Size
WORLD URBAN AREAS: DEVELOPING WORLD: 2013

- Under 500,000: 53.5%
- 500,000-1 Million: 7.4%
- 1-2.5 Million: 11.4%
- 2.5-5 Million: 9.0%
- 5-10 Million: 6.5%
- 10-20 Million: 7.0%
- 20 Million & Over: 5.3%

http://www.newgeography.com/content/003608-annual-update-world-urbanization-2013
Reason 2: The health implications of city living are variable and malleable
Correlates of city living

- Higher population density
- Diversity in race, ethnicity, national origin, and social class
- Concentration of economic activity
- More intense (and qualitatively different) social interactions
- Innovation and creativity
Possible health consequences of city living -minuses

• Adverse environmental exposures concentrated and magnified – air pollution, industrial exposures, poor housing, heat/climate change

• Physical environment effects on behaviors: urban design and sedentarism, processed foods

• Limited access to services (overcrowding, housing, water and sanitation, health, social)

• Social stressors, conflict, violence, discrimination
Possible health consequences of city living - pluses

• Income and work benefits
• Potential for better access to services as a result of proximity and greater availability
• Positive social interactions, cohesion, support, advocacy
• Creativity, social interaction as health enhancing
• Urban policies can promote health
What does the data show?
Urbanization decreases from left to right
Prevalence of overweight and obesity among women in selected countries

Prasad et al Ann Rev Public Health 2016, World Urbanization Prospects UN/WHO data
What does the data show?

Effects are highly context dependent.

All cities are not the same …..
Heterogeneity in health across (and within) cities

Figure 2: Box-plots for avoidable mortality in small areas of 15 European cities. The box-plots show the range of mortality between the areas with the lowest and highest mortality in each city. The rectangles are the range between the 25th and 75th percentile and single dots represent single areas that are considered as outliers with very high mortality. The box-plot for “ALL” at the bottom shows the simple aggregation of all areas of all cities and is therefore dominated by cities with many areas. With these graphs it is possible to compare the level of mortality of a city relative to the EU-average, and to see the range of mortality across areas of one city.

Hoffman et al Int J Health Geographics 2014
Life expectancy at age 40 by income in four US cities

Chetty et al JAMA 2016
Reason 3: The health consequences of city living are not the same for all
Cities are characterized by large social (and health) inequalities
Inequality in Big Cities Exceeds the National Average

- 50 Largest Cities:
  - 20th Percentile Income: $18,137
  - 95th Percentile Income: $196,409
  - 95/20 Ratio = 10.8

- United States:
  - 20th Percentile Income: $20,968
  - 95th Percentile Income: $191,770
  - 95/20 Ratio = 9.1

Source: Brookings Institution analysis of 2012 American Community Survey data
Figure 5: Urban and rural Gini coefficients for selected developing countries

Reproduced from (UN-HABITAT 2008) with permission
Health inequality is often manifested spatially
Residential segregation by race/ethnicity and socioeconomic position

Inequalities in resource distribution

Neighborhood physical environments
- Environmental exposures
- Food and recreational resources
- Built environment
- Aesthetic quality/natural spaces
- Services
- Quality of housing

Neighborhood social environments
- Safety/violence
- Social connections/cohesion
- Local institutions
- Norms

Behavioral mediators

Stress

Personal characteristics
- Material resources
- Psychosocial resources
- Biological attributes

Health
Reason 4: Health in cities is driven by factors at multiple levels---opportunities for multilevel intervention

Barton, A Health Map for Urban Planners *Built Environment* Volume 31, No 4, 2005
Conceptual model of key drivers of urban health, equity and sustainability

**Global Trends**
- Globalization
- Urbanization
- Climate Change

**Local structural determinants**
- Demographic change: aging, immigration
- Actions of governments, markets and civil society

**Urban Policies/Interventions**
- Fiscal and economic factors, services, civic participation
- Markets: labor, housing, food, technology, & other goods
- Urban development: urban form, mobility
- Demographics (age, gender, ethnicity). Social stratification & spatial segregation

**Local and Individual Determinants**
- Health sector: health care, public health systems
- Outside health sector:
  - Economic policies and social inclusion
  - Mobility and emissions control
  - Urban redevelopment and housing;
  - Food policy and taxation
  - Climate and environment
  - Water and sanitation.

**Outcomes**
- Physical environment: geography, biodiversity, air pollution, climate
- Built environment: housing; public spaces; transportation and food system
- Social environment: social inequalities, social integration/segregation, networks, support, participation & engagement
- Economic opportunities and working conditions
- Services: health care, education, social services
- Norms, culture, behaviors,

LAC Urban Health 2016
Reason 5: Cities are acting, but we know very little about the effects of urban policies on health or health equity
Conceptual model of key drivers of urban health, equity and sustainability

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- Urbanization
- Climate Change

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Outcomes
- Health & social inequalities in health
- Environmental sustainability

LAC Urban Health 2016

DREXEL UNIVERSITY
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School of Public Health

LAC-URBAN HEALTH
Urban Health Network for Latin America and the Caribbean
Impact of cable car on violence in Medellin, Colombia


Diminishing violence in 25 Metrocable intervention (I) neighborhoods and 23 matched control (C) neighborhoods, Medellín, Colombia, 2003–2008.

Reports of Violence (decline in log odds)

$I - C = -1.4$ (95% CI: $-2.2$, $-0.3$)

Homicide (decline in log rate)

$I - C = -1.1$ (95% CI: $-1.7$, $-0.5$)
Reason 6: Urban health and environmental sustainability as linked and reinforcing
Consequences of urbanization: option I

• More sprawl, more energy consumption, more car dependence, more processed foods
  – Growth of urban footprints and adverse impact on biodiversity, biomass, croplands
  – Higher air pollution and GHG emissions
  – Less physical activity
  – More consumption of meats, less F&V
  – Social consequences: isolation, violence, mental health
Consequences of urbanization: option II

- Compact development, energy efficiency, active transportation, sustainable food
  - Less growth of urban footprints and reduced impact on biodiversity, biomass, croplands
  - Reductions in air pollution and GHG emissions
  - Higher physical activity
  - More F&V, less meats
  - Social consequences: inclusion and promotion of equity
Six reasons to focus on urban health

- The future of humanity lies largely in cities
- Consequences of city living are variable and malleable
- Cities home to large social and health inequalities
- Multilevel determinants provide opportunities for intervention
- Cities as systems that can be via influenced via policy
- Urban settings as opportunities to promote health AND environmental sustainability
And yet...

- Major drivers of differences in health across (and within) cities remain underexplored
- Cities are doing things but rigorous evaluation of impacts on health and health equity lacking
- Health AND environmental co-benefits critical but little empirical documentation
- Opportunity for big data, multi-methods and systems approaches
- Power of comparing and sharing across cities untapped
- Global South as untapped resource
The SALURBAL Project

• Five years (April 2017 - March 2022)
• Funded by the Wellcome Trust.
• Implemented by Drexel University and 14 international partners primarily based in Latin America.
• Part of the Wellcome Trust’s “Our Planet, Our Health” global initiative.
Vision

• Create evidence base needed to make Latin American cities (and other cities) healthier, more equitable, and environmentally sustainable.

• Engage policy makers and the public in a new dialogue about urban health and urban sustainability and implications for societal action.

• Create a platform and network that will ensure continued learning and translation.
Why Latin America?
505 million people live in cities, 80% of population

Rapid urbanization
Diverse Urban Landscape
The Most Unequal Region in the World

Gini coefficient for income

19 of the 30 world cities with greatest social inequalities are in LA

Source: World Economic Forum using World Bank data
Policy Innovation and Experimentation

Neoliberal

Pro-equity Rights-based
Our Team: An International Network of Collaborators

Drexel University, Philadelphia, Pennsylvania, USA
National University of Lanus, Buenos Aires, Argentina
Federal University of Minas Gerais, Belo Horizonte, Brazil
Universidade de Sao Paulo, Sao Paulo, Brazil
Oswaldo Cruz Foundation, Salvador Bahia, Brazil
Oswaldo Cruz Foundation, Rio de Janeiro, Brazil
Universidad de Chile, Santiago, Chile
Pontificia Universidad Catolica de Chile, Santiago, Chile
Universidad de los Andes, Bogota, Colombia
Instituto Nacional de Salud Publica, Mexico City, Mexico
Universidad Peruana Cayetano Heredia, Lima, Peru
Institute of Nutrition of Central America and Panama (INCAP), Guatemala City, Guatemala
University of California at Berkeley, Berkeley, California, USA
Washington University in St Louis, St Louis, Missouri, USA
United Nations University International Institute for Global Health (UNU-IIGH), Kuala Lumpur, Malaysia
Economic Commission for Latin America and the Caribbean (ECLAC), Santiago de Chile, Chile
Aims

Aim 1: Identify city and neighborhood drivers of health and health inequalities among and within cities

Aim 2: Evaluate health, environmental and equity impact of policies and interventions

Aim 3: Employ systems-thinking and simulation models to evaluate urban-health-environment links and plausible policy impacts

Aim 4: Engage the scientific community, the public and policy makers to disseminate and translate findings

Lessons from LA about what makes cities healthier, equitable and environmentally sustainable
Aim 1: Identify city and neighborhood drivers of health and health inequalities among and within cities
City Universe

- 371 Urban Agglomerations with a population of $\geq 100,000$ people by 2010
A comprehensive data resource

City factors
- Economic and social structure
- Built environment
- Emissions and natural environment
- Social and behavioral environment
- Organizational/Institutional factors

Neighborhood factors
- Deprivation/Segregation
- Density/Urban form/Street network/Parks
- Particulate Matter/Temperature
- Crime, housing, work, mobility survey data
- Other resources and transportation infrastructure

Health Outcomes
- Mortality by age, sex, cause, education and ethnicity
- Self-reported/Objective survey data
- Hospital discharge data
- Cohort data from existing studies

Geocoding and data linkages

Multilevel, fixed effects and spatial models
Aim 2: Evaluate health, environmental and equity impact of policies and interventions
Aim 2: Four thematic areas

- Mobility & emissions control
- Comprehensive urban development
- Social inclusion
- Promotion of healthy behaviors
Six policy evaluations

RUCAS, a housing intervention: Chile

Vila Viva, urban redevelopment project: Brazil

Transmisible, transportation in Bogota
Six policy evaluations

Vision Zero: Mexico City

Bike share expansion: Mexico City

Menu labelling: Peru
Aim 3: Employ systems-thinking and simulation models to evaluate urban-health-environment links and plausible policy impacts
Two thematic areas for systems approaches

- Transportation policy
- Food policy

Feedbacks
Dependencies
Health-environment link

Global & regional policy relevance
Team experience
Two complementary approaches

**Participatory Group Model Building (GMB)**

- Engagement of food and transport policy stakeholders
- Qualitative participatory activities
- Generate causal loop diagrams that represent mental models of systems.

**Agent-Based Simulation Modeling**

- Computer-based simulation models
- Incorporate inputs from GMB, data, systematic reviews, policy priorities
- Investigate conditions and strategies necessary to maximize benefits of policies
Evidence for urban health

Aim 1
Observation ↔ Experiments/Action
Systems modeling

Aim 2

Aim 3
Aim 4. Dissemination and policy-maker engagement
Aim 4 Objectives

**Objective 1:** Promote new ways of thinking about drivers of urban health and the types of policies and interventions that could improve health and sustainability in cities

**Objective 2:** Engage various stakeholders in research and evaluation process in order to shape questions and facilitate dissemination

**Objective 3:** Disseminate our vision and our findings broadly

**Objective 4:** Advocate for and support the translation of research findings into policies and interventions
Engagement of stakeholders in our Systems Workshops raised their awareness of both our project and the complex drivers of urban health and the types of policies and interventions that could improve health and sustainability in cities.
Policy and Dissemination Events


- November 15, 2017: Local interventions and policies to improve urban health in Lima. Three external stakeholders presented.

- May 18, 2018: Central American urban health initiatives in Antigua, Guatemala. Three external stakeholders presented.

- May 24, 2019: National interventions and policies for housing and urban development in Belo Horizonte, Brazil. Five external stakeholders presented.
Policy brief series: Lessons from Latin America

- **Sustainable Transport and Urban Health** – launched November 2017
- **Food and Urban Health** – launched May 2018
- **Housing and Neighborhood Development and Urban Health** – launched May 2019
- **Health in All Policies and Urban Health** (collaboration with PAHO) – to be launched in mid-2019
Digital dissemination

- Website: www.lacurbanhealth.org
- Social media: @lacurbanhealth
Knowledge-to-Policy Forum

- First Forum implemented November 8-9 at ECLAC in Mexico City
- 22 invited participants; 11 SALURBAL researchers
- Participants learned about the project and provided feedback on high-priority research questions and recommendations for disseminating results.

Represented organizations:
- Secretario de Salud de la Municipalidad de Cordoba, Argentina
- CDP Cities
- TECHO International
- World Resources Institute (WRI)
- C40 Cities
- Pan American Health Organization (PAHO)
- El Poder del Consumidor AC (non-profit/civil society)
- WIEGO
- Economic Commission for Latin America and the Caribbean
- Municipality of Villa Nueva, Guatemala
- Arup Group International (architecture and urban design)
- Centrico (for-profit consulting agency)
- National Institute of Public Health of Mexico
- The New School – Observatory on Latin America
- Despacio (non-profit/civil society)
- Ministry of Health of Mexico
- Cities Alliance
- Bogota city government
- Ciclovia network of the Americas
- Latin American Confederation of Cities, Municipalities, and Local Government Associations
- Huairou Commission
- Policy Institute for Transport and Development – Mexico
Opportunities

- Knowledge generation – data linkages, new data, data mining and processing, cross-city comparisons
- Policy evaluation for health and environmental impacts
- Capacity building in urban health/urban sustainability research and action
- Dissemination and translation of evidence into programs and policies
- Multistakeholder partnership and engagement
Learn More
www.lacurbanhealth.org
SALURBAL@drexel.edu

Promoting exchange and collaboration to improve urban health in Latin America and the Caribbean.
Thank you, Gracias, Obrigado