SYSTEMS APPROACHES TO URBAN HEALTH

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SYSTEMS PROBLEMS

- Characteristics
  - Resist change
  - Counterintuitive results
  - Complex determinants
  - Require multiple interventions
  - Affected by multiple actors
  - Related to other problems

Source: http://www.innovationmanagement.se/2010/06/14/complexity-science-and-innovation/
CONSEQUENCES OF COMPLEXITY

- Knowing the relationship between two variables doesn’t tell you how they will behave in the real world.
- Actions have unintended consequences, often across sectors.

AEDES AEGYPTI INFESTATION

Source: Spiegel et al. (2005). Barriers and Bridges to Prevention and Control of Dengue: The Need for a Social–Ecological Approach
COMPLEXITY AND FOCUS

- Real systems have many parts (feedback loops)
- Understanding parts ≠ understanding system
- Silos lead to restricted focus

Source: Barry Newell & Katrina Proust
ECOSOCIAL VIEW OF HEALTH

Official municipal and metropolitan boundaries compares with urban agglomerations

Source: Own calculations using GHSL data and census data.

SYSTEMS APPROACHES

- Eco-social view of health recognizing systemic nature of problems
- Systems methods to:
  - Characterize and measure feedback
  - Identify leverage points for action
  - Forecast likely outcomes and compare policy scenarios
- Collaborative work to:
  - Improve communication
  - Provide more complete understanding of systems
  - Assess feasibility of actions
  - Promote stakeholder ownership

Based on Batterman et al (2009). Sustainable Control of Water-Related Infectious Diseases: A Review and Proposal for Interdisciplinary Health-Based Systems Research
SYSTEMS INSIGHTS


Source: Siri et al., 2016

Source: Barry Newell and Katrina Proust
SYSTEMS THINKING AND DRUG VIOLENCE


Figure 1: Illicit Cartel Activities

Figure 2: Illegal Immigration and Cartels

Figure 3: Systemic Enablers of Cartels in Mexico
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