A Systems Approach to Childhood Obesity

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Outline

1. Introduction to complex systems and systems issues in obesity
2. Example 1: Community capacity building and grassroots influence on culture
3. Example 2: Cross-sectoral partnership on environmental design to influence local culture
4. Conclusions
UK Foresight Programme, 2007

Key Characteristics of Complex Systems

- Heterogeneous
- Each actor in society matters
- Dynamically interactive
- Feedback loops; learning; adaptation
- Emergent phenomena possible
- Tipping
- Non-equilibrium
- By nature the opposite of reductionism (whole is greater than sum of parts)

Systems Thinking Helps Avoid Common Pitfalls Stemming from Laundry-List Cause-and-Effect Thinking

- Independent effects (from causal factors)
- One-way causality (feedbacks)
- Linearity of effects (dynamically variable over time)
- Instantaneous effects (delays are everywhere)
A Systems Framework of Childhood Obesity with Feedbacks between Individuals and the Environment

- *Local, State, and National Policies*
  - Physical Environment Support
  - Social Environment Support
  - Individual Behavior
  - Family Practice

- *Health Care System, Worksite, Schools*
  - Prevention & Treatment

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Social and physical environments enable and/or constrain family & individual behavior. Individuals also shape their environment.

- Individual empowerment and community mobilization to effect policy change.

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**Some Key Issues to Consider (1)**

- **Community readiness** – how intervention strategies are tailored to the level of community readiness; adaptive interventions; intervention sequencing; true CBPR
- **Implementation dynamics** – Are environmental and policy changes alone good enough? What combinations of interventions are needed to optimize policy impact?
- **Community outcomes** – public opinions, social change, community capacity, etc., more than process measures
Some Key Issues to Consider (2)

- **Sustainability** – How do we ensure sustained interventions and intervention effects?
- **Scalability** – What would it take to diffuse and scale up effective interventions? Note Interventions often only attain cost-effectiveness when they achieve economy of scale.
- **Reach** – How do we ensure all communities benefit from interventions?

Intervening on Systems Elements

- Individuals Matter (not only as passive recipient of information)
- Capacity Building
- Building Trust
- Distributed Actions + Clear Accountability
- Cooperative Teams
- Creative Competition
- Monitoring + Evaluation (understanding failures is just as important)

Goal is to explicitly act on system structures and the feedbacks between system components, not only the components themselves.

Adapted from D. Finegood, 2011
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SaludableOmaha Framework

SaludableOmaha Pillars
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Conclusions

- A systems view asks not only what but how and what if
- Dynamics and interdependencies exist at all levels—hence the importance of figuring out how to integrate bottom-up and top-down approaches
- Systems approach ≠ multilevel ≠ multicomponent
- Need to strengthen systems structures that connect actors/factors (greasing the wheel) – takes effort and time
- Systems science includes both qualitative and quantitative tools
- Shift to a solution-oriented paradigm – need to address the context
- Human-centered design → human-centered public health

Thank You

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