Using Systems Thinking and Collaborative Modeling to Inform State Policy-making on Childhood Obesity in GA

A presentation for the Innovations in Collaborative Modeling Conference
June 5, 2015

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Purpose

• Demonstrate the use of simulation-based learning labs to build legislator capacity to think systemically

• Provide an overview of developing and applying a specific lab: childhood obesity
The Policymaker Perspective

• Spiraling health costs, yet dubious outcome
  ★ More $  
  ★ More regulations  
  ★ More subsidies

• Aging infrastructure – invest now or later

• Economic disruptions – bubbles & regulation

• Social media and technology – net neutrality
Legislative Gridlock: Polarization increasing (at least in US)!

Peter Orszag’s analysis of voting records

Voting records

90th Congress (1967-1968)

110th Congress (2007-2008)

Compromise zone
YOU FIRST.

AREA OF AGREEMENT.
Routine Problems vs. Adaptive Challenges

Routine/technical Problems
- Easily defined
- An obvious, proven solution
- Often an expert on whom we can call to solve the problem for us

There is, in other words, a routine for dealing with the problem.

Adaptive Challenges
- Often hard to define
- No clear solution, and different people hold different views about its source
- No expert who can solve the problem for us

Improving population health is one issue where there is a preponderence of adaptive challenges – so learning is essential!

100 % Routine=BIAS for ACTION

100 % Adaptive=BIAS for LEARNING
When Addressing Adaptive Challenges, Policymakers are Caught in Conundrum

- It is difficult to imagine a politician saying the above statements without political retribution from their party
- Unlikely that politicians expressing even one of these statements will remain in office – or get elected
Legislative Health Policy Certificate Program

• Sponsored by the Georgia Health Policy Center

• Designed to prepare legislators and their staff to address challenging health issues

• Eight educational sessions over nine months

• Topics chosen based on priorities set by participants

• Those who complete 3 of 4 sessions receive Health Policy Certificate from Andrew Young School of Policy Studies
Legislative Health Policy Certificate Program

Core Sessions:
• Evaluating Health Policy: The Framework
• The Impact of Health Status on the State
• Financing Health Care: Challenges and Opportunities
• Health Coverage and Access to Care

Issue Specific Sessions (Sample):
• Children’s Behavioral Health
• The Mental Health System
• Addressing Georgia’s Trauma Care Network
• Public Health Challenges
• Interventions to Reduce Childhood Obesity
• Health Reform
• Healthcare Financing II: Program Specifics & Payer Interactions
Course Curriculum

Four Sessions

1 2 3 4

Health policy content

Systems thinking & conversational capacity skills

Application
The Iceberg

A Framework for Guiding Systemic Thinking

Looking Deeper to Find Higher Leverage

Events

Patterns of Behavior

Systemic Structure

Mindsets

Increasing Leverage
A Range of Systems THINKING Skills
–Barry Richmond

- Apply Systems Thinking Skills: 95-100%
- Build Simple Maps: 40-50%
- Build Simple Models: 15-20%
- Build Complex Models: 2%
Background on the Collaborative Systems Inquiry

- GHPC received funding from the Georgia Health Foundation to build upon the work of the Legislative Health Policy Certificate Program (LHPCP)

- LHPCP participants chose childhood obesity as an issue about which they wanted to learn more

- A team of 12 (mostly volunteers) worked for five months on developing the model and supporting materials

- The CSI project provided a tool for legislators trained in basic systems thinking to have a more rigorous discussion about an important policy issue
Collaborative Modeling

The Process

- Develop Purpose
- Build/Revise Model
- Test Model
- Add/Revise Policies
- Test Policies
- Engage Policymakers

Experts provide input to model:
- Legislators & Staff
- Nutritionists
- Epidemiologists
- Physical Activity Experts
- Economists

Model is used to rigorously tests assumptions.
Members of the Childhood Obesity Collaborative Systems Inquiry Team

- Jeremy Betts, Georgia House of Representatives
- Margie Coggins, Georgia House Budget Office
- Rep. Sharon Cooper, R-Marietta, Chair, Health and Human Services Committee
- Heather Devlin, MA, Georgia Health Policy Center
- Rachel Ferencik, MPA, Georgia Health Policy Center
- Mara Galic, RD, BlazeSports America
- Dafna Kanny, Ph.D., Georgia Division of Public Health
- Patricia Ketsche, Ph.D., Georgia State University
- Debra Kibbe, MS, ILSI Research Foundation
- Rep. John Lunsford, R-McDonough
- Karen Minyard, Ph.D., Georgia Health Policy Center
- Mary Ann Phillips, MPH, Georgia Health Policy Center
- Kenneth Powell, M.D., MPH, Consultant
- Robin Tanner, RD, DeKalb County Board of Health
- Fredrick Trowbridge, M.D., Consultant
- Jesse Weathington, Georgia House of Representatives
How to BE when using the Lab

A Learner

**MINDSET = Learner!**

✦ Participate with intention to learn
✦ Participant goals
✦ Articulate "theories" and predict outcomes
✦ Engage with any gap between a prediction and simulated outcome

I’m here to learn about
- the issues
- myself
- my colleagues’ perspectives

What do I know about childhood trauma?
If we did X, what do I predict would happen?

Hmm! Why didn’t what I expect happen?!
What assumptions are different in the lab than mine?
Realist

I use models all the time to make decisions, they’re just implicit and usually untested.

I can use a model to make my assumptions explicit, share them, improve them, and test them. It will improve our ability to rigorously discuss the issues!

Perspectives on Models

Mystic

It can predict the future.

If I can just get everything into the model, then it will be perfect.

All models are wrong, some are useful!
— George Box & Ed Deming

Cynic

It’s only a model!
The world is much more complex, so it’s not useful.

Our situation is unique so your model doesn’t apply.

All models are wrong. Some are useful!
— George Box & Ed Deming
Obesity in the US

Number (in Millions) of Civilian/Noninstitutionalized Persons with Diagnosed Diabetes, United States, 1980–2006

From 1980 through 2006, the number of Americans with diabetes tripled (from 5.6 million to 16.8 million).

- Increased $42 billion since 2002 (32% increase!)
- $8 billion more each year
- Per capita annual health care costs diabetics is $11,744 a year
- $6,649 (57%) is attributed to diabetes.


One out of every five health care dollars is spent caring for someone with diagnosed diabetes, while one in the health care dollars is attributed to diabetes.
Childhood Obesity in GA

http://stateofobesity.org/states/ga/

Source: stateofobesity.org/children24
Source: stateofobesity.org/children1017
Source: stateofobesity.org/high-school-obesity

Source: Finkelstein and Brown.25
Objective:
Find strategies for reducing future childhood obesity* prevalence

Projections are for childhood obesity prevalence to remain level in the future...with a possible slight decline.

Normally, this might be considered a success, but...

This means an unacceptably high and still increasing population with diabetes and other obesity-related conditions for years to come.

1. What strategies can be employed to bring down the % of children who are obese?
2. How long might it take to see some significant drop?
3. How large a drop could be expected?

*Moderately obese and above
The lab’s model assumes children are in different categories:
1. **Obese**: Severely Obese & Moderately Obese
2. **Non Obese**: Moderately Overweight and Not Overweight

They **age**, and within age categories, they can **stay the same** or **change categories**

We will use the lab to examine different **interventions** to help children **stay not obese** or **become not obese**
Policy Options

The CSI Team chose a sampling of interventions in schools, communities and health care. They include the following:

• Increase the proportion of school-aged children who walk to school.
• Reimburse for Medical Nutrition Therapy by Georgia Medicaid Care Management Organizations (CMOs).
• Impose limitations on a la carte foods sold in public schools.
• Increase the number of minutes of Physical Education (PE) in school every week and improve the quality of PE activities.
• Increase the number of licensed preschool programs that incorporate a nutrition education and physical activity component into existing curriculum.
• Increase the number of elementary and middle school children in Georgia participating in after school programs that meet specified nutrition and activity standards.
• Increase classroom physical activity.
• Mandate recess and/or modify existing recess time.
• Increase breastfeeding prevalence.
The Control Panel

3. Practice Field: Test Policies

Obese % by Age Category - Bar Chart (pg 1) & Trend Chart (pg 2)

<table>
<thead>
<tr>
<th>Age Category</th>
<th>Obese %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ages 0 to 1</td>
<td>10.96%</td>
</tr>
<tr>
<td>Ages 2 to 4</td>
<td>13.06%</td>
</tr>
<tr>
<td>Ages 5 to 10</td>
<td>21.46%</td>
</tr>
<tr>
<td>Ages 11 to 13</td>
<td>23.96%</td>
</tr>
<tr>
<td>Ages 14 to 18</td>
<td>17.46%</td>
</tr>
</tbody>
</table>

Bar Chart of Obese % by Age

Obesity Prevalence (pg 1) and Cumulative Costs of Obesity (pg 2)

Comparative Graphs

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Classified as Obese - Comparative Graph</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>40.00</td>
</tr>
<tr>
<td>2022</td>
<td>20.00</td>
</tr>
</tbody>
</table>

Instructions

POLICIES

- Physical Education
  - Keep status quo?
  - Require?
  - Increase quality?
  - Require & increase quality?

- After School Programs
  - Keep status quo?
  - Increase afterschool participation?
  - Add physical activity?
  - Increase participation & physical activity?

- Classroom activity
  - Increase classroom activity?

- Recess
  - Keep status quo?
  - Mandate recess?
  - Modify recess?
  - Mandate & modify recess?

% of schools w/o a la Carte Lunch Options

- Elementary: 13
- Middle: 13
- High: 13

% of Students in Preschool Programs

- Elementary: 62
- Middle: 62
- High: 62

School Nutrition

- % chg in obesity
  - Elementary: -10.56%
  - Middle: -10.56%
  - High: -10.56%

- Annual Obesity Cost $M
  - Elementary: $40
  - Middle: $40
  - High: $40

- Cumulative Obesity Cost $M
  - Elementary: $40
  - Middle: $40
  - High: $40

Medicaid

- Reimbursement for nutrition counseling
  - Elementary: $5
  - Middle: $5
  - High: $5

Breastfeeding

- Increase breastfeeding prevalence

Intervention Details
- Run
- Reset All
- Reset Output

Community Based
- Develop Safe Routes to School
Contact Info

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