Gaining Ground:
Applying Individual, Policy, System & Environmental Change to Sustainable Food System Initiatives

Webinar with Angie Tagtow, MS, RD, LD
Wednesday March 20, 2019
Future of Food Initiative

• The Sustainable, Resilient, and Healthy Food and Water Systems curriculum was developed through the Academy of Nutrition and Dietetics Foundation’s Future of Food Initiative
  • Started in 2012
  • Funded by an educational grant from National Dairy Council

• Goal of the initiative: sustainable food systems and a safe and nutritious food supply for the growing world population

• Key people:
  • Amanda Hege, MPH, RDN, LD, Project Manager
  • Marie Spiker, MSPH, RDN, Healthy & Sustainable Food Systems Fellow
Part I - Gaining Ground: Applying Individual, Policy, System, & Environmental Change to Advance Sustainable Food System Initiatives

Academy of Nutrition & Dietetics Foundation
SRHFWS Curriculum

Angie Tagtow, MS, RD, LD
Founder & Chief Strategist, Äkta Strategies, LLC
March 20, 2019
Discussion

Nutrition, Food Systems & Public Health
- Food Consumption
- Diet Quality
- Mortality
- Health Expenditures

Theoretical Models
- Individual Behavior Change
- Systems Science
- System Change

I+ PSE Approaches
- Food Systems Policy, System & Environmental Change

Angie Tagtow, MS, RD, LD, Gaining Ground: A Webinar for the Academy of Nutrition and Dietetics Foundation, March 19, 2020
Setting the Table for Better Health...

Connecting Nutrition, Food Systems, and Public Health

Angie Tagtow, MS, RD, LD, Gaining Ground: A Webinar for the Academy of Nutrition and Dietetics Foundation, March 20, 2019
Current Eating Patterns in the United States
Percent of the U.S. Population Ages 1 Year and Older Who are Below, At, or Above Each Dietary Goal or Limit (Figure 2-1)

Note: The center (0) line is the goal or limit. For most, those represented by the blue sections of the bars, shifting toward the center line will improve their eating pattern.

Data Source: What We Eat in America, NHANES 2007-2010 for average intakes by age-sex group. Healthy U.S.-Style Food Patterns, which vary based on age, sex, and activity level, for recommended intakes and limits.


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How Healthy Is the American Diet?

U.S. Scores Over Time

<table>
<thead>
<tr>
<th>Year</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005-2006</td>
<td>56</td>
</tr>
<tr>
<td>2007-2008</td>
<td>57</td>
</tr>
<tr>
<td>2009-2010</td>
<td>59</td>
</tr>
<tr>
<td>2011-2012</td>
<td>60</td>
</tr>
<tr>
<td>2013-2014</td>
<td>59</td>
</tr>
</tbody>
</table>

The Healthy Eating Index Score shows that Americans do not align their eating choices with the Dietary Guidelines.

(on a scale from 0-100)

U.S. Scores by Age Group

- Ages 2-5: 60
- Ages 6-11: 53
- Ages 12-17: 53
- Ages 18-64: 58
- Ages 65+: 66

Data source for Healthy Eating Index scores: What We Eat in America, National Health and Nutrition Examination Survey (undated data are from 2013-2014).
# Leading Causes of Death in the US, 1980 & 2015
(adapted from National Center for Health Statistics 2017, Table 19)

<table>
<thead>
<tr>
<th>Rank</th>
<th>Cause of Death</th>
<th>1980 # Deaths</th>
<th>Cause of Death</th>
<th>2015 # Deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All causes</td>
<td>1,989,841</td>
<td>All causes</td>
<td>2,712,630</td>
</tr>
<tr>
<td>1</td>
<td>Diseases of heart</td>
<td>761,085</td>
<td>Diseases of heart</td>
<td>633,842</td>
</tr>
<tr>
<td>2</td>
<td>Malignant neoplasms</td>
<td>416,509</td>
<td>Malignant neoplasms</td>
<td>595,930</td>
</tr>
<tr>
<td>3</td>
<td>Cerebrovascular diseases</td>
<td>170,225</td>
<td>Chronic lower respiratory diseases</td>
<td>155,041</td>
</tr>
<tr>
<td>4</td>
<td>Unintentional injuries</td>
<td>105,781</td>
<td>Unintentional injuries</td>
<td>146,571</td>
</tr>
<tr>
<td>5</td>
<td>Chronic obstructive pulmonary diseases</td>
<td>56,050</td>
<td>Cerebrovascular diseases</td>
<td>140,323</td>
</tr>
<tr>
<td>6</td>
<td>Pneumonia and influenza</td>
<td>54,619</td>
<td>Alzheimer’s disease</td>
<td>110,561</td>
</tr>
<tr>
<td>7</td>
<td>Diabetes mellitus</td>
<td>34,851</td>
<td>Diabetes mellitus</td>
<td>79,535</td>
</tr>
<tr>
<td>8</td>
<td>Chronic liver disease and cirrhosis</td>
<td>30,583</td>
<td>Influenza and pneumonia</td>
<td>57,062</td>
</tr>
<tr>
<td>9</td>
<td>Atherosclerosis</td>
<td>29,449</td>
<td>Nephritis, nephrotic syndrome and nephrosis</td>
<td>49,959</td>
</tr>
<tr>
<td>10</td>
<td>Suicide</td>
<td>26,869</td>
<td>Suicide</td>
<td>44,193</td>
</tr>
</tbody>
</table>
## GDP & National Health & Prescription Drug Expenditures in the US, 1980 & 2015 (adapted from National Center for Health Statistics 2017, Tables 93 and 94)

<table>
<thead>
<tr>
<th></th>
<th>1980</th>
<th>2015</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gross Domestic Product (GDP)</strong></td>
<td>$2,863</td>
<td>$18,037</td>
<td>530%</td>
</tr>
<tr>
<td><strong>National Health Expenditures</strong></td>
<td>$255.3</td>
<td>$3,206.6</td>
<td>1,156%</td>
</tr>
<tr>
<td><strong>National Health Expenditures as Percent of GDP</strong></td>
<td>8.9%</td>
<td>17.8%</td>
<td></td>
</tr>
<tr>
<td><strong>Prescription Drug Expenditures</strong></td>
<td>$12.0</td>
<td>$324.6</td>
<td>2,605%</td>
</tr>
<tr>
<td><strong>Prescription Drug Expenditures as Percent of GDP</strong></td>
<td>0.4%</td>
<td>1.8%</td>
<td></td>
</tr>
</tbody>
</table>
“Nutrition is the most powerful tool in our toolbox to combat chronic disease and skyrocketing healthcare costs in this country. We need a serious and sustainable investment in nutrition education, nutrition policy, and food systems that support healthy eating. Our failure to do so will lead to greater health disparities, weaker domestic nutrition security, and a drain on the global economy.”

- A. Tagtow, 2018
Expanding Our Toolbox to Support Change

Angie Tagtow, MS, RD, LD, Gaining Ground: A Webinar for the Academy of Nutrition and Dietetics Foundation, March 20, 2019
Individual Behavioral Change Theories

- Health Belief Model
- Health Promotion Model
- Theory of Planned Behavior
- Theory of Reasoned Action
- Social Cognitive Theory*
- Self-Regulation Model
- Integrated Theory of Health Behavior Change*
- Transtheoretical Model (Stages of Change)*
Social Cognitive Theory

Adapted from Bandura, A. Social foundations of thought and action: A social cognitive theory. 1986. Prentice-Hall, Inc.
Integrated Theory of Health Behavior Change

Transtheoretical Model – Stages of Change

1. Precontemplation
2. Contemplation
3. Preparation
4. Action
5. Maintenance

Progress

Relapse

System Change Theories

• Policy, System, and Environmental Change Model
• PRECEDE-PROCEED Framework
• Culture of Health Framework*
• Diffusion of Innovation Theory
• Community Organization Model
• Organizational Change Model
• Social-Ecological Model*
• Social Determinants of Health*
Culture of Health Framework


Social Determinants of Health


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Systems Science + Public Health
The Future of Public Health

“Practitioners require new skills, knowledge, and abilities – as well as new ways of conceptualizing - to successfully attend to the many forces of change affecting their practice environment...(this includes) greater understanding of how systems thinking are being supported by a variety of systems methods.”

“This modern public health world that we are quickly moving into, one in which public health as the local governmental institution has a responsibility and an opportunity to lead our collective impact around improving the public’s health. This is a multi-sectoral approach that takes the opportunity to address environmental, systems and policy-level change.”

Dr. Karen DeSalvo
Former HHS Assistant Secretary for Health
October 26, 2015
Systems Science

• A transdisciplinary study of interactions, and the degree of those interactions, among components. This includes identifying the intended and unintended consequences of those interactions.

• Applies theories and models from various sciences (biological, social, economic, environmental) to analyze and solve problems.

• Formulates multidimensional/holistic approaches or representations of different systems to effectively solve problems and avoid negative consequences.

Tagtow, A. 2017
Unintended Consequences
What if Americans ate more fish?

The 2010 Dietary Guidelines for Americans recommend consuming 8 ounces of fish every week—almost double the amount most Americans currently eat. This recommendation was made only on the basis of the possible health benefits of eating more fish (reduced risk for cardiovascular disease in adults and better cognitive development in children). But what are some of the other possible effects across domains?

**Environmental**
- Overfishing and depletion of wild stocks
- Increased fish farming and potential associated environmental effects

**Social**
- Decreased food security for fish-exporting countries that rely on fish as a major source of protein
- Larger fish production and processing workforce leading to potential worker safety concerns

**Economic**
- Need for a larger fish production and processing workforce leading to new jobs
- Increased imports affecting local and global markets and affordability

Because the fish supply chain is global in nature, any policy decision that affects fish consumption in the United States will also impact human health, environmental sustainability, and social and economic systems across the world. The IOM/NRC framework can help decision makers weigh tradeoffs and make decisions that integrate benefits, risks, and priorities across domains.

To learn more about the framework and how it could be applied to existing food and agriculture challenges, download the complete IOM/NRC report at www.iom.edu/foodsystem.

Institute of Medicine and National Research Council of the National Academies
Nutrition, Food Systems, & Public Health

How do food systems influence health in the U.S.?

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SOPP Framework for Sustainable, Resilient and Healthy Food and Water Systems


Angie Tagtow, MS, RD, LD, Gaining Ground: A Webinar for the Academy of Nutrition and Dietetics Foundation, March 20, 2019
What is a Food System?


Angie Tagtow, MS, RD, LD, Gaining Ground: A Webinar for the Academy of Nutrition and Dietetics Foundation, March 20, 2019
Intersection of Nutrition, Food Systems & Public Health

- Food safety
- Food access
- Food affordability
- Food availability
- Nutrition assistance
- Emergency food
- Climate change
- Diet quality
- Chronic disease
- Health equity
- Water quality
- Air quality
- Growing conditions
- Community capital
- Economic development
- Workforce opportunities
- Chemical exposure
- Workforce & labor
- Immigration
- Trade & tariffs
- Dietary Guidelines

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Interconnectivity

“The system that generates our food has significant impact on human, economic, environmental, and social health. Likewise, these domains have profound influence on the quality, quantity and healthfulness of the food system.”

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Policy Change

Definition

A. Organizational & Community Policy – Changes to procedures or organizational practices

B. Public Policy - Changes to or creation of laws, ordinances, resolutions, mandates, regulations or rules

Examples

• Standards in procurement policies and concessions for local foods
• Gardening clause in Homeowners Association contract
• Zoning ordinances for food trucks, fresh produce carts, chickens, bees
• Child Nutrition Act
• Farm Bill


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Examples of Policy Influences on Food Systems


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System Change

Definition

Changes to infrastructure that impacts all elements of an organization, institution, or framework

Result of policy PLUS environmental changes

Examples

• Convert a closed elementary school kitchen into a food hub
• Connecting food retail to the emergency food system to decrease food waste in landfills
• Reimburse employees for signing up for a CSA
Environmental Change

Definition

A. **Built Environment** - Modifications to physical spaces and settings in organizations, institutions, or public areas

B. **Natural Environments** – Changes to landscapes and ecosystems that impact soil, water, energy, climate, biodiversity

Examples

- Greater availability of healthy food choices in worksite cafeteria
- Assess the walkability of neighborhoods and install sidewalks and crosswalks
- Availability of licensed kitchens for food processing
- Establish green and recreational space in new residential developments
- Installation of community gardens on public land

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I+PSE Conceptual Framework for Action

Advancing Healthy, Sustainable, and Resilient Food and Water Systems
Spectrum of Prevention


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I + PSE Conceptual Framework for Action

**Start here**
- Strengthen Individual Knowledge & Skills
- Promote Community Education
- Educate Providers

**Active Words**
- Foster Coalitions & Networks
- Change Organizational Practices

**New**
- Modify Physical Spaces & Natural Settings

**Reframe**
- Inform Policy & Legislation
## Expanding Sustainable Food System Initiatives Using I+PSE Approaches

<table>
<thead>
<tr>
<th>Approach</th>
<th>Description</th>
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</thead>
<tbody>
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<td>Enhance an individual’s capability of participating in or benefiting from sustainable food systems</td>
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<td>Reach groups of people with information and resources to promote sustainable food systems</td>
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<td>Inform providers or intermediaries who will transmit skills and knowledge of sustainable food systems</td>
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<td>Convene groups and individuals around sustainable food systems to meet broader goals and greater public health impacts</td>
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<td><strong>Change Organizational Practices</strong></td>
<td>Adapt regulations and procedures by shaping norms that support sustainable food systems</td>
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<td><strong>Modify Physical Spaces &amp; Natural Settings</strong></td>
<td>Change physical spaces or setting within organizations or larger public environments that support sustainable food systems</td>
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<td><strong>Inform Policy &amp; Legislation</strong></td>
<td>Develop strategies to change laws, regulations, and policies that support sustainable food systems</td>
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IT'S ALL ABOUT RELATIONSHIPS
Building Blocks for Optimal Impact

- Multisectoral
- Interdisciplinary
- Comprehensive
- Adaptable
- Ongoing
- Reciprocal support
- Community and population benefits
- Institutionalization
- Applicability
  - Programs, operations, funding
Call to Action

• Think broadly
• Examine critically
• Engage and build relationships
• Act authentically
• Tell your story
• Document results
• Have fun!
I+PSE and SRHFWS Activity

Local policy priority
Every idea counts!
Work together
Do not spend more than five-minutes per tier!

20 Mar.

10 Apr.

Share the highlights of your activities with the larger group
Facilitated discussion

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<table>
<thead>
<tr>
<th>Group</th>
<th>Last Name</th>
<th>Local Policy Priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1</td>
<td>A - C</td>
<td>Integrate gardening and food preparation programs into school district curriculum</td>
</tr>
<tr>
<td>Group 2</td>
<td>D - G</td>
<td>Establish a mobile processing unit and community kitchen in the community</td>
</tr>
<tr>
<td>Group 3</td>
<td>H</td>
<td>Establish procurement policies that give priority to locally/regionally produced foods in public hospitals and municipal cafeterias</td>
</tr>
<tr>
<td>Group 4</td>
<td>I - R</td>
<td>Establish a city ordinance allowing mobile fruit and vegetable vendors in low-income neighborhoods</td>
</tr>
<tr>
<td>Group 5</td>
<td>S - Z</td>
<td>Implement a residential community composting initiative</td>
</tr>
</tbody>
</table>

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### Example: City ordinance that allows homeowners to keep chickens and bees in their yards

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strengthen Individual Knowledge &amp; Skills</td>
<td>Publish an article or op-ed in the local paper on the benefits of raising chickens and bees</td>
</tr>
<tr>
<td>Promote Community Education</td>
<td>Cooperative Extension host classes on raising chickens and bees</td>
</tr>
<tr>
<td>Educate Providers</td>
<td>Provide educational materials to farm, feed, and hardware stores on raising chickens and bees</td>
</tr>
<tr>
<td>Foster Coalitions &amp; Networks</td>
<td>Form a working group of FFA and 4-H kids focused on raising chickens and bees</td>
</tr>
<tr>
<td>Change Organizational Practices</td>
<td>County locates beehives on roof of county courthouse</td>
</tr>
<tr>
<td>Modify Physical Spaces &amp; Natural Settings</td>
<td>City parks and recreation reserves public land for beehives</td>
</tr>
<tr>
<td>Inform Policy &amp; Legislation</td>
<td>City council passes ordinance for homeowners to have chickens and bees</td>
</tr>
</tbody>
</table>

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Thank you!

Angie Tagtow, MS, RD, LD
Founder & Chief Strategist
Äkta Strategies, LLC
angie.tagtow@mac.com
Part II - Gaining Ground: Applying Individual, Policy, System, & Environmental Change to Advance Sustainable Food System Initiatives

Academy of Nutrition & Dietetics Foundation
SRHFWS Curriculum

Angie Tagtow, MS, RD, LD
Founder & Chief Strategist, Äkta Strategies, LLC
April 10, 2019
“Food is the nexus between agriculture and health; therefore, sustainability is essential to public health”
<table>
<thead>
<tr>
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Expanding Sustainable Food System Initiatives Using I+PSE Approaches

Angie Tagtow, MS, RD, LD, Gaining Ground: A Webinar for the Academy of Nutrition and Dietetics Foundation, April 10, 2019
Discussion

Demonstrating collective impact

Angie Tagtow, MS, RD, LD, Gaining Ground: A Webinar for the Academy of Nutrition and Dietetics Foundation, April 10, 2019
What is a Food System?


Angie Tagtow, MS, RD, LD, Gaining Ground: A Webinar for the Academy of Nutrition and Dietetics Foundation, April 10, 2019
Integrate gardening and food preparation programs into school district curriculum.

Establish a mobile processing unit and community kitchen in the community.

Establish a city ordinance allowing mobile fruit and vegetable vendors in low-income neighborhoods.

Establish procurement policies that give priority to locally/regionally produced foods in municipal cafeterias.

Implement a residential community composting initiative.

Gaining Ground!

An Example of Collective Impact in SRHFWS

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Facilitated Discussion

• What are your reflections on the activity?
• How can you apply this framework to your current work?
• How can policy be a driver for SRHFWS change?
• What are the key messages in communicating the benefits of I+PSE approaches?
• How does SRHFWS transform the dietetic profession?
Thank you!

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