

# 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*

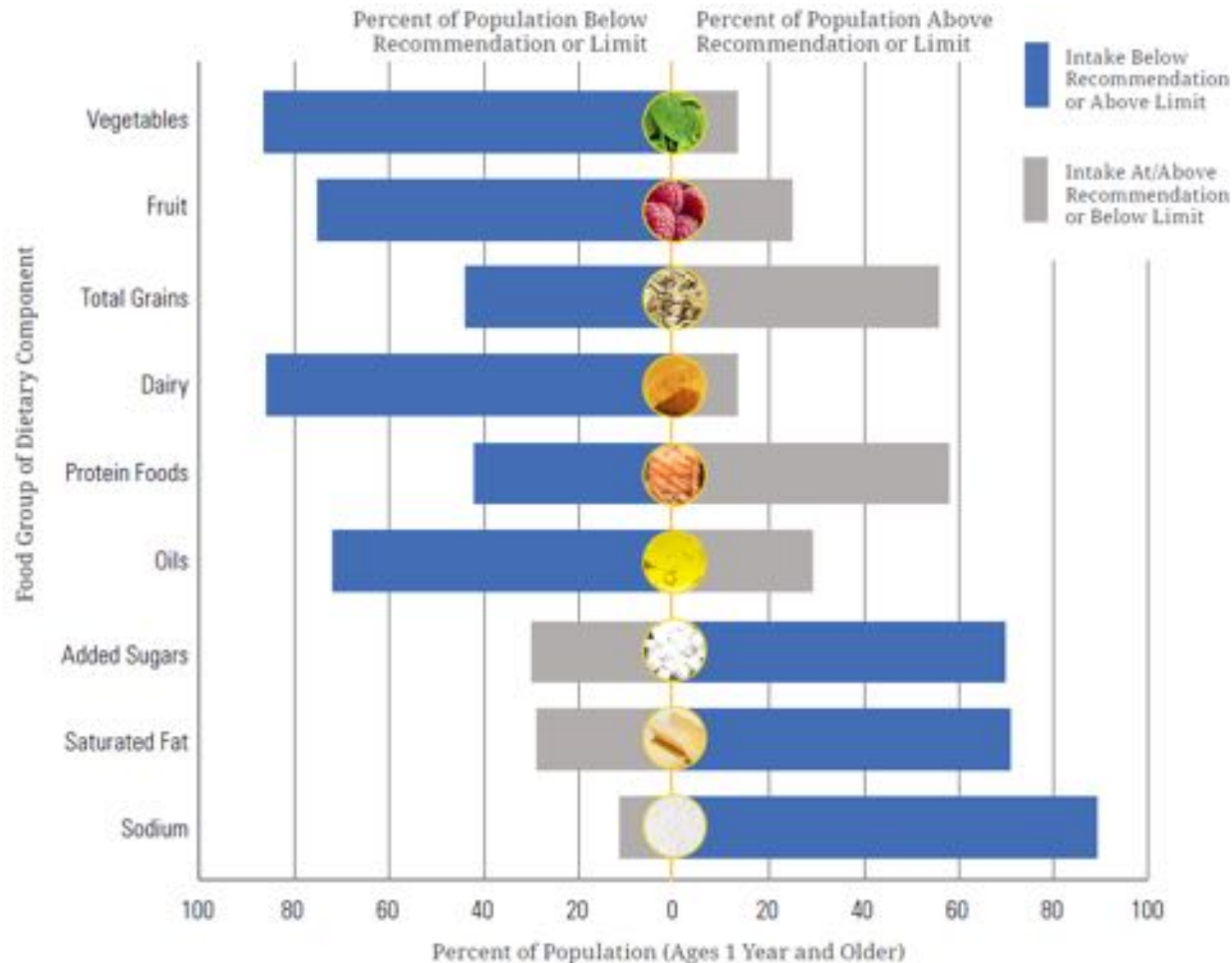
Angie Tagtow, MS, RD, LD, *Gaining Ground: A Webinar for the Academy of Nutrition and Dietetics Foundation*, March 20, 2019





# 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.

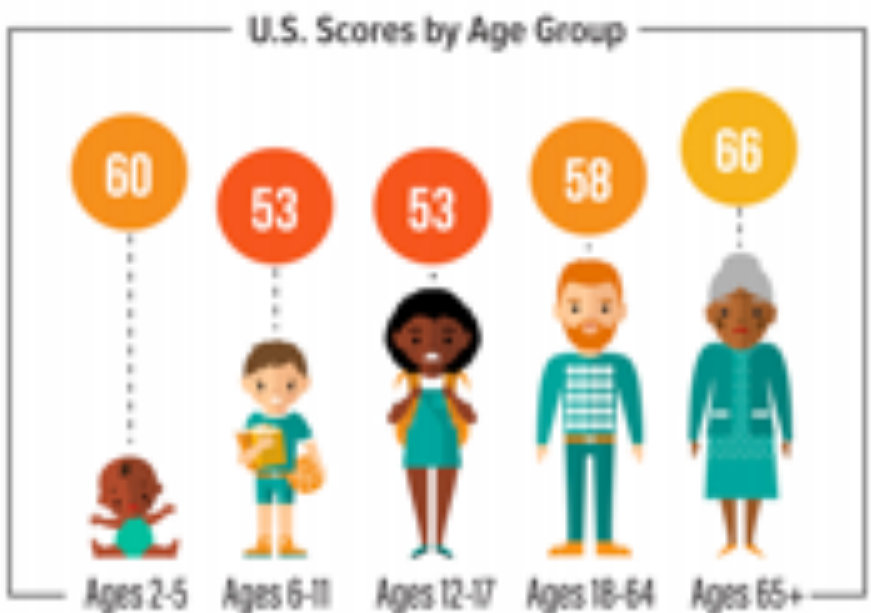
Adapted from Figure 2-1 (page 39), U.S. Department of Health and Human Services and U.S. Department of Agriculture. 2015–2020 Dietary Guidelines for Americans. 8th Edition. December 2015.

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

# How Healthy Is the American Diet?









**The Healthy Eating Index Score**  
shows that Americans do not align their eating choices with the Dietary Guidelines.  
(on a scale from 0-100)



Data source for Healthy Eating Index scores: What We Eat in America, National Health and Nutrition Examination Survey (updated data are from 2013-2014).

# Leading Causes of Death in the US, 1980 & 2015

(adapted from National Center for Health Statistics 2017, Table 19)

Rank	1980		2015	
	Cause of Death	# Deaths	Cause of Death	# Deaths
	All causes	1,989,841	All causes	2,712,630
1	Diseases of heart	761,085	Diseases of heart 	633,842
2	Malignant neoplasms	416,509	Malignant neoplasms 	595,930
3	Cerebrovascular diseases	170,225	Chronic lower respiratory diseases <sup>1,2</sup>	155,041
4	Unintentional injuries	105,781	Unintentional injuries	146,571
5	Chronic obstructive pulmonary diseases <sup>1</sup>	56,050	Cerebrovascular diseases 	140,323
6	Pneumonia and influenza <sup>2</sup>	54,619	Alzheimer's disease 	110,561
7	Diabetes mellitus	34,851	Diabetes mellitus <sup>3</sup> 	79,535
8	Chronic liver disease and cirrhosis	30,583	Influenza and pneumonia <sup>2</sup>	57,062
9	Atherosclerosis	29,449	Nephritis, nephrotic syndrome and nephrosis <sup>3</sup> 	49,959
10	Suicide	26,869	Suicide	44,193



# GDP & National Health & Prescription Drug Expenditures in the US, 1980 & 2015

(adapted from National Center for Health Statistics 2017, Tables 93 and 94)

	1980	2015	
	<i>Amount, in billions</i>		
<b>Gross Domestic Product (GDP)</b>	\$2,863	\$18,037	↑ 530%
<b>National Health Expenditures</b>	\$255.3	\$3,206.6	↑ 1,156%
<b>National Health Expenditures as Percent of GDP</b>	8.9%	17.8%	
<b>Prescription Drug Expenditures</b>	\$12.0	\$324.6	↑ 2,605%
<b>Prescription Drug Expenditures as Percent of GDP</b>	0.4%	1.8%	

“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

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





# Expanding Our Toolbox to Support Change

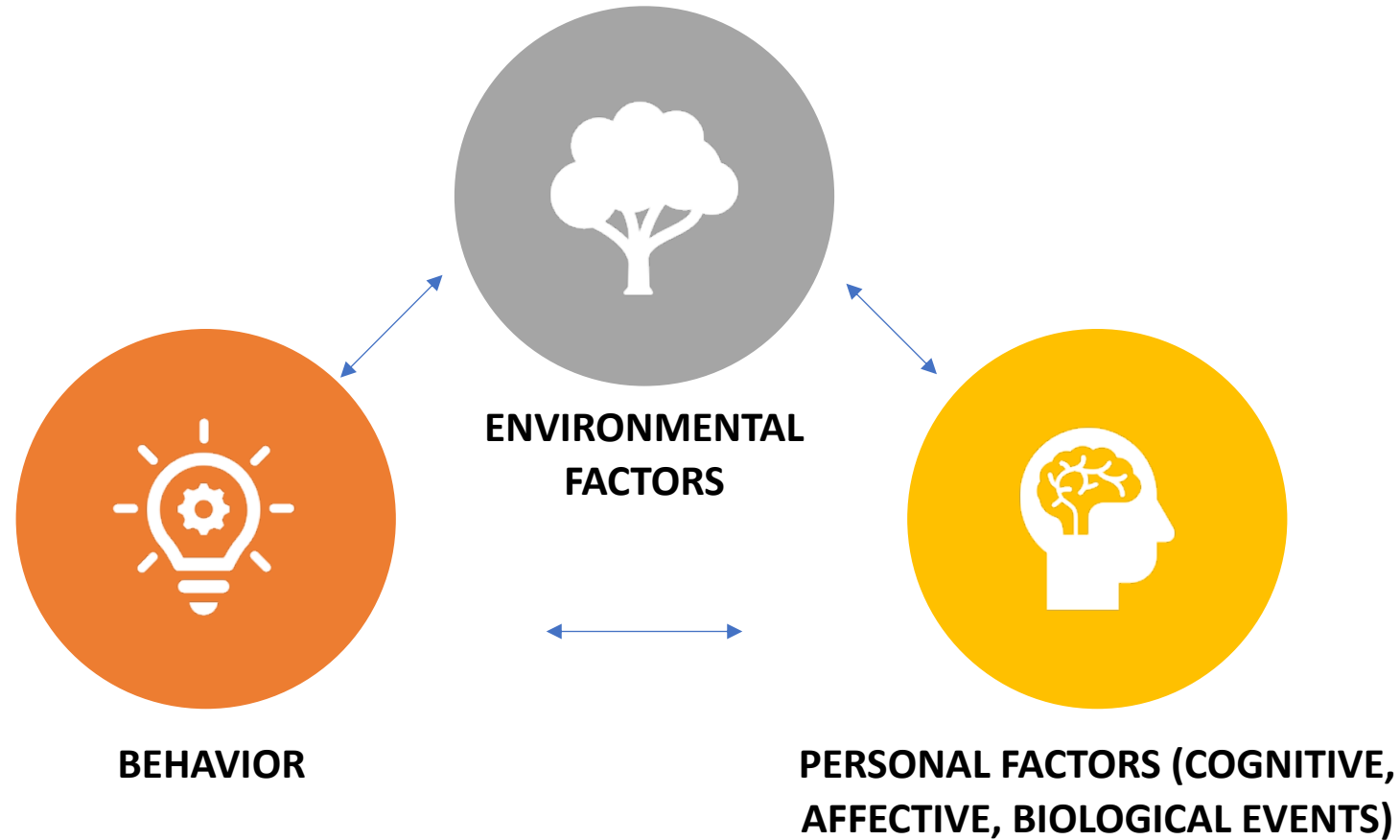


# Individual Behavioral Change Theories

- 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)\*

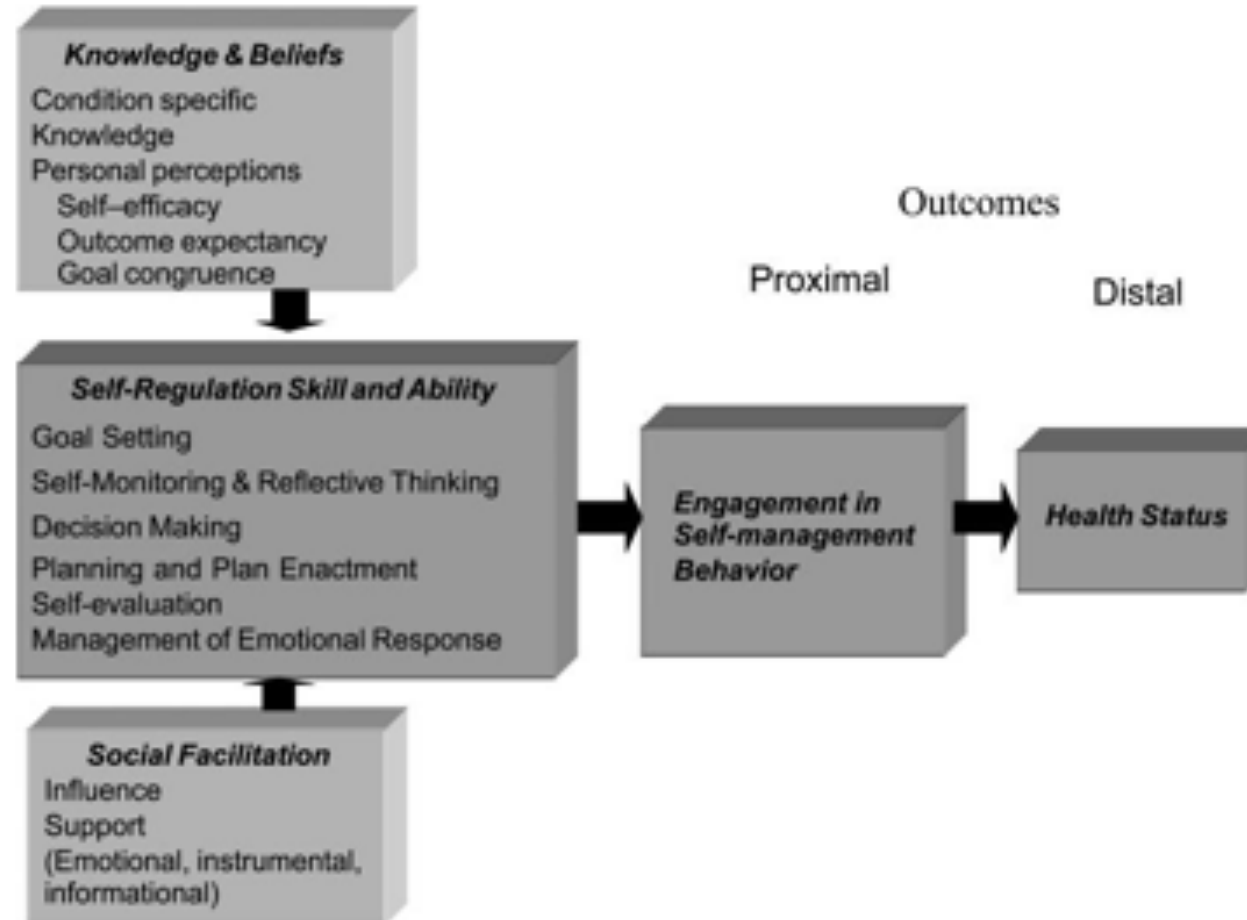


# Social Cognitive Theory



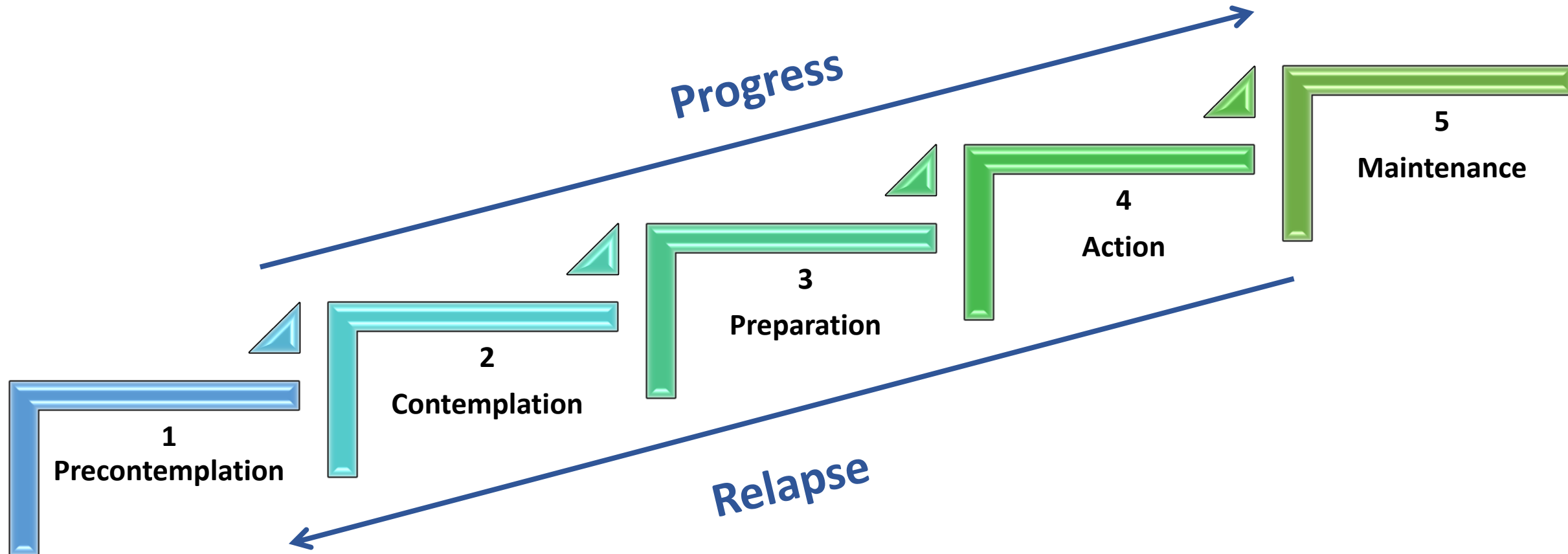
Adapted from Bandura, A. *Social foundations of thought and action: A social cognitive theory*. 1986. Prentice-Hall, Inc.

# Integrated Theory of Health Behavior Change



Adapted from Ryan P. Integrated theory of health behavior change. Background and intervention development. *Clin Nurs Spec.* 2009; 23(3):161-172.

# Transtheoretical Model – Stages of Change



Adapted from Prochaska J, DiClemente C, Norcross J. In search of how people change: Applications to the addictive behaviors. *American Psychologist*. 1992;47, 1102-1114. PMID: 1329589.

# 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

From Vision to Action. A Framework and Measures to Mobilize Health.  
Robert Wood Johnson Foundation.  
2015. Available at  
[https://www.cultureofhealth.org/content/dam/COH/RWJ000\\_COH-Update\\_CoH\\_Report\\_1b.pdf](https://www.cultureofhealth.org/content/dam/COH/RWJ000_COH-Update_CoH_Report_1b.pdf)



# Social Ecological Model



FIGURE 3-1. A Social-Ecological Model for Food and Physical Activity Decisions (page 65), 2015-2020 Dietary Guidelines for Americans.

**Data Source:** Adapted from: (1) Centers for Disease Control and Prevention. Division of Nutrition, Physical Activity, and Obesity. National Center for Chronic Disease Prevention and Health Promotion. Addressing Obesity Disparities: Social Ecological Model. Available at: [http://www.cdc.gov/obesity/health\\_equity/addressingtheissue.html](http://www.cdc.gov/obesity/health_equity/addressingtheissue.html). Accessed October 19, 2015. (2) Institute of Medicine. Preventing Childhood Obesity: Health in the Balance, Washington (DC): The National Academies Press; 2005, page 85. (3) Story M, Kaphingst KM, Robinson-O'Brien R, Glanz K. Creating healthy food and eating environments: Policy and environmental approaches. *Annu Rev Public Health* 2008; 29:253-272.

# Social Determinants of Health

Helman H, Artiga S. Beyond Health Care: The Role of Social Determinants of Health and Health Equity. Kaiser Family Foundation. 2015.  
<https://www.kff.org/disparities-policy/issue-brief/beyond-health-care-the-role-of-social-determinants-in-promoting-health-and-health-equity/>

Economic Stability	Neighborhood and Physical Environment	Education	Food	Community and Social Context	Health Care System
Employment	Housing	Literacy	Hunger	Social integration	Health coverage
Income	Transportation	Language	Access to healthy options	Support systems	Provider availability
Expenses	Safety	Early childhood education		Community engagement	Provider linguistic and cultural competency
Debt	Parks	Vocational training		Discrimination	Quality of care
Medical bills	Playgrounds	Higher education			
Support	Walkability				
<b>Health Outcomes</b> Mortality, Morbidity, Life Expectancy, Health Care Expenditures, Health Status, Functional Limitations					



# 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.”

Campbell Erwin P, Brownson R. The Public Health Practitioner of the Future. 2017. *Am J Public Health* 107(8):1227-1232.

***“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**



## **Public Health 3.0**

**A Call to Action to Create a 21<sup>st</sup>  
Century Public Health Infrastructure**

# 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



A hand is shown holding a large black gear. Several other black gears of various sizes are scattered around it, some overlapping. The background is a blurred image of a person in a blue lab coat. A semi-transparent blue banner is at the bottom, containing the title text.

# *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?

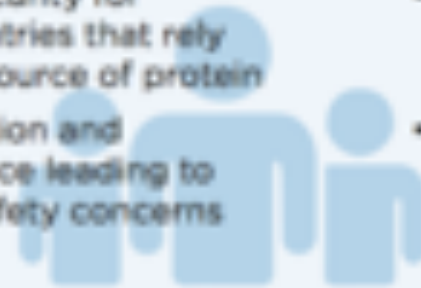
## ENVIRONMENTAL

- 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](http://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.?*

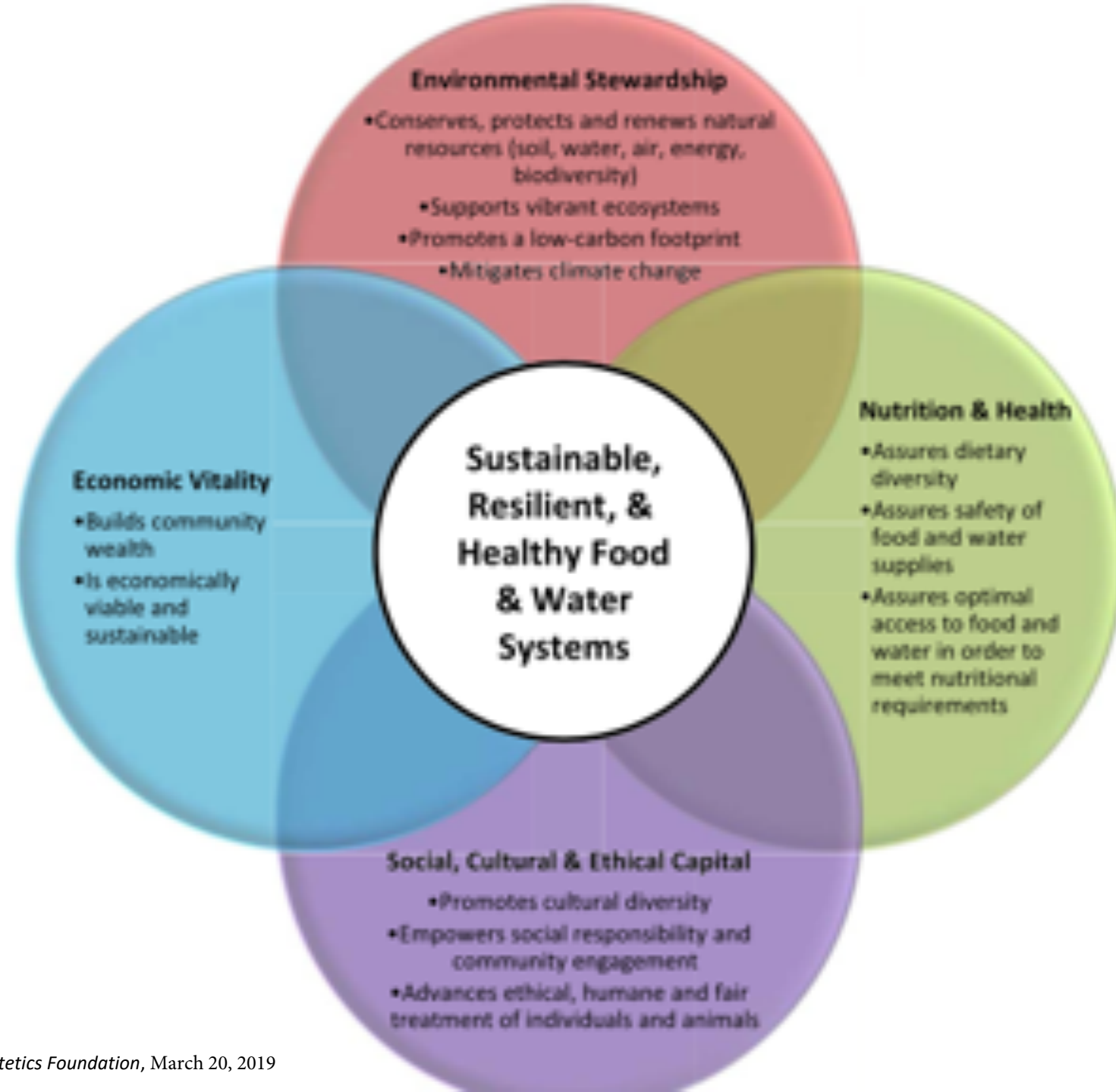
Angie Tagtow, MS, RD, LD, *Gaining Ground: A Webinar for the Academy of Nutrition and Dietetics Foundation*, March 20, 2019





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

Tagtow A, et al. Academy of Nutrition and Dietetics: Standards of Professional Performance for Registered Dietitian Nutritionists (Competent, Proficient, and Expert) in Sustainable, Resilient and Healthy Food and Water Systems. *J Academy Nutr Diet.* 2014;114(3);475-488.e24.



# What is a Food System?

Tagtow A. *Healthy Food, Healthy Iowans, Healthy Communities. Public Health Tools to Advance Healthy, Sustainable Food Systems.* Iowa Department of Public Health. 2013.





# Framework for Assessing the Effects of the Food System

Institute of Medicine. A Framework for Assessing Effects of the Food System. 2015. Available at <http://www.nationalacademies.org/hmd/~media/Files/Report%20Files/2015/FoodSystem/FoodSystemKeyFigures.pdf>.



# Intersection of Nutrition, Food Systems & Public Health

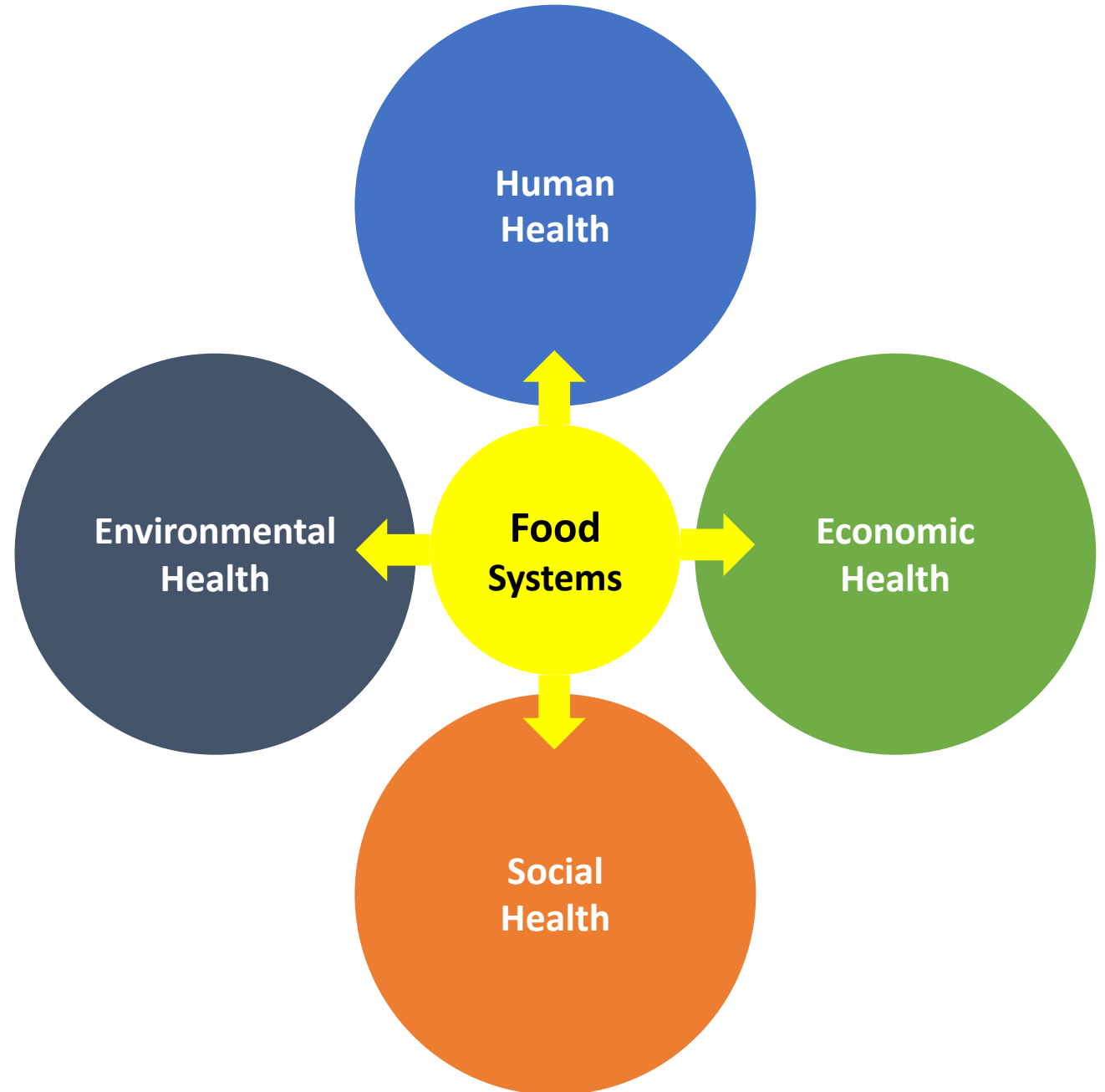
- Food safety
- Food access
- Food affordability
- Food availability
- Nutrition assistance
- Emergency food
- Climate change
- Diet quality
- Chronic disease
- Health equity
- Water quality
- Air quality
- Growing conditions
- Community capital
- Economic development
- Workforce opportunities
- Chemical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


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



# 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.”*





# Policy, Systems, & Environmental Change

*How Can PSEs Apply to Nutrition, Food Systems and Public Health?*



# 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

Mueller, M. Tagtow A. Roberts S. MacDougall E. Aligning Food Systems Policies to Advance Public Health. *J Hunger Environ Health*. 2009;4:225-240.

# Examples of Policy Influences on Food Systems



International Panel of Experts on Sustainable Food Systems. *The New Science of Sustainable Food Systems. Overcoming Barriers to Food System Reform*. May 2015. [http://www.ipes-food.org/images/Reports/IPES\\_report01\\_1505\\_web\\_br\\_pages.pdf](http://www.ipes-food.org/images/Reports/IPES_report01_1505_web_br_pages.pdf)

# 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





# I+PSE Conceptual Framework for Action

*Advancing Healthy, Sustainable, and Resilient Food and Water Systems*

# Spectrum of Prevention

The Spectrum of Prevention:  
Developing a Comprehensive  
Approach to Injury Prevention. The  
Prevention Institute. Available at  
[http://www.preventioninstitute.org/  
component/jlibrary/article/id-  
105/127.html](http://www.preventioninstitute.org/component/jlibrary/article/id-105/127.html)

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

**Influencing Policy and Legislation**

**Changing Organizational Practices**

**Fostering Coalitions and Networks**

**Educating Providers**

**Promoting Community Education**

**Strengthening Individual Knowledge and Skills**

# 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

<b>Strengthen Individual Knowledge &amp; Skills</b>	Enhance an individual's capability of participating in or benefiting from sustainable food systems
<b>Promote Community Education</b>	Reach groups of people with information and resources to promote sustainable food systems
<b>Educate Providers</b>	Inform providers or intermediaries who will transmit skills and knowledge of sustainable food systems to others
<b>Foster Coalitions &amp; Networks</b>	Convene groups and individuals around sustainable food systems to meet broader goals and greater public health impacts
<b>Change Organizational Practices</b>	Adapt regulations and procedures by shaping norms that support sustainable food systems
<b>Modify Physical Spaces &amp; Natural Settings</b>	Change physical spaces or setting within organizations or larger public environments that support sustainable food systems
<b>Inform Policy &amp; Legislation</b>	Develop strategies to change laws, regulations, and policies that support sustainable food systems

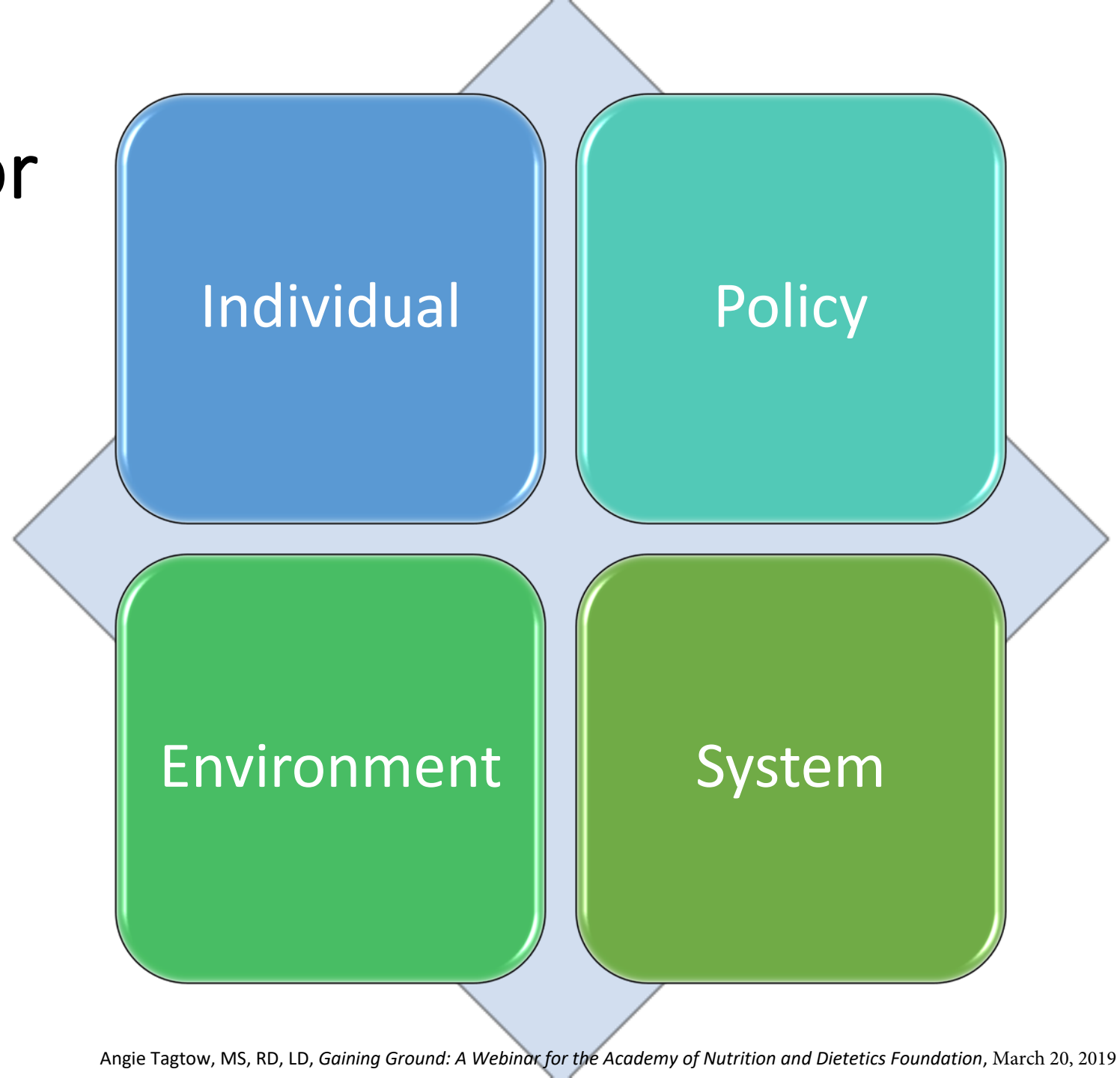




Angie Tagtow, MS, RD, LD, *Gaining Ground: A Webinar for the Academy of Nutrition and Dietetics Foundation*, March 20, 2019

# Building Blocks for Optimal Impact

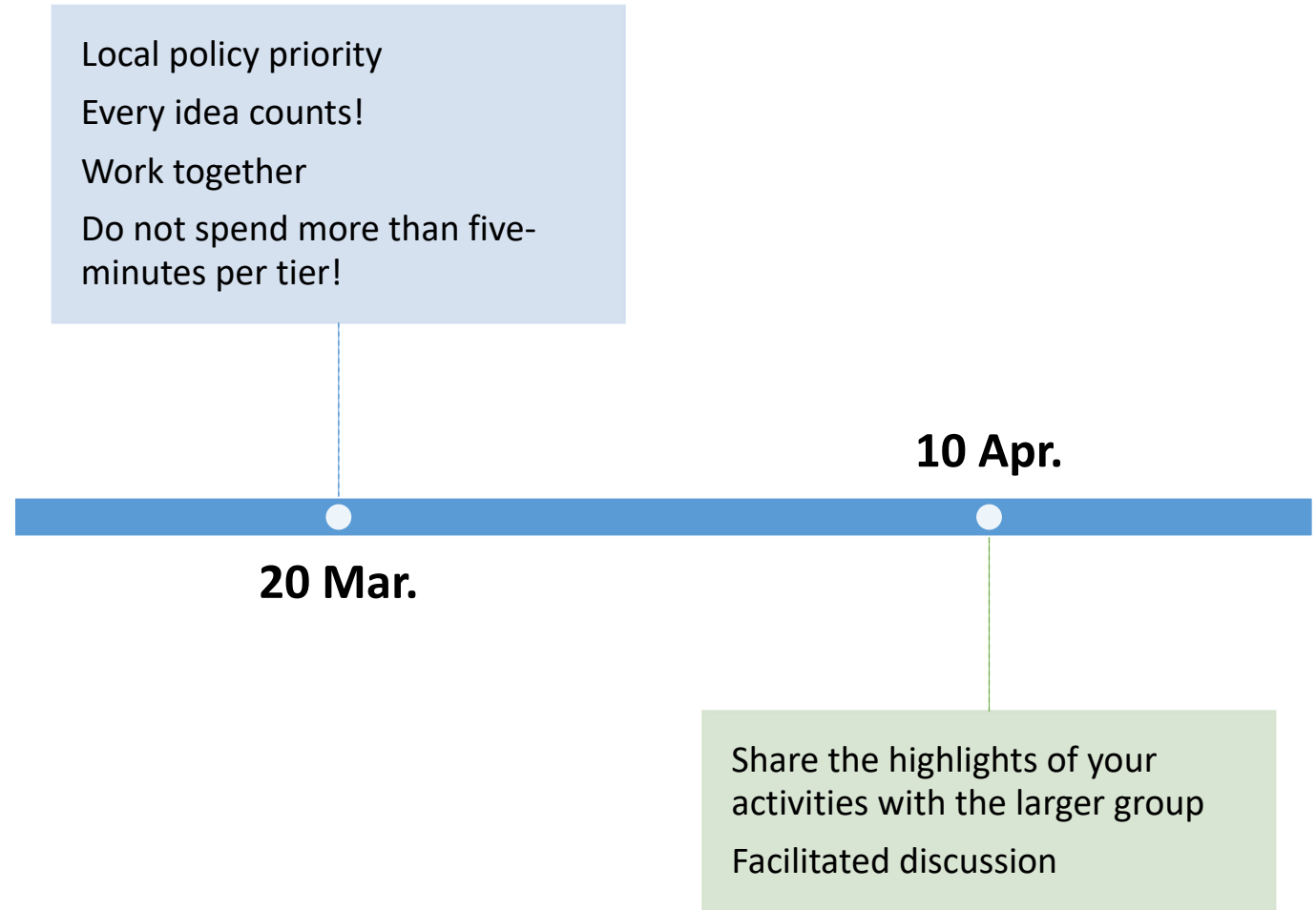
- ✓ Multisectoral
- ✓ Interdisciplinary
- ✓ Comprehensive
- ✓ Adaptable
- ✓ Ongoing
- ✓ Reciprocal support
- ✓ Community and population benefits
- ✓ Institutionalization
- ✓ Applicability
  - Programs, operations, funding



# 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 Priorities

---

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

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

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

# Thank you!

---

*Angie Tagtow, MS, RD, LD*

*Founder & Chief Strategist*

*Äkta Strategies, LLC*

*[angie.tagtow@mac.com](mailto:angie.tagtow@mac.com)*



**ÄKTA STRATEGIES**  
Authentic Solutions for System Change



## 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”*



# Expanding Sustainable Food System Initiatives Using I+PSE Approaches

<b>Strengthen Individual Knowledge &amp; Skills</b>	Enhance an individual's capability of participating in or benefiting from sustainable food systems
<b>Promote Community Education</b>	Reach groups of people with information and resources to promote sustainable food systems
<b>Educate Providers</b>	Inform providers or intermediaries who will transmit skills and knowledge of sustainable food systems to others
<b>Foster Coalitions &amp; Networks</b>	Convene groups and individuals around sustainable food systems to meet broader goals and greater public health impacts
<b>Change Organizational Practices</b>	Adapt regulations and procedures by shaping norms that support sustainable food systems
<b>Modify Physical Spaces &amp; Natural Settings</b>	Change physical spaces or setting within organizations or larger public environments that support sustainable food systems
<b>Inform Policy &amp; Legislation</b>	Develop strategies to change laws, regulations, and policies that support sustainable food systems

# 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?

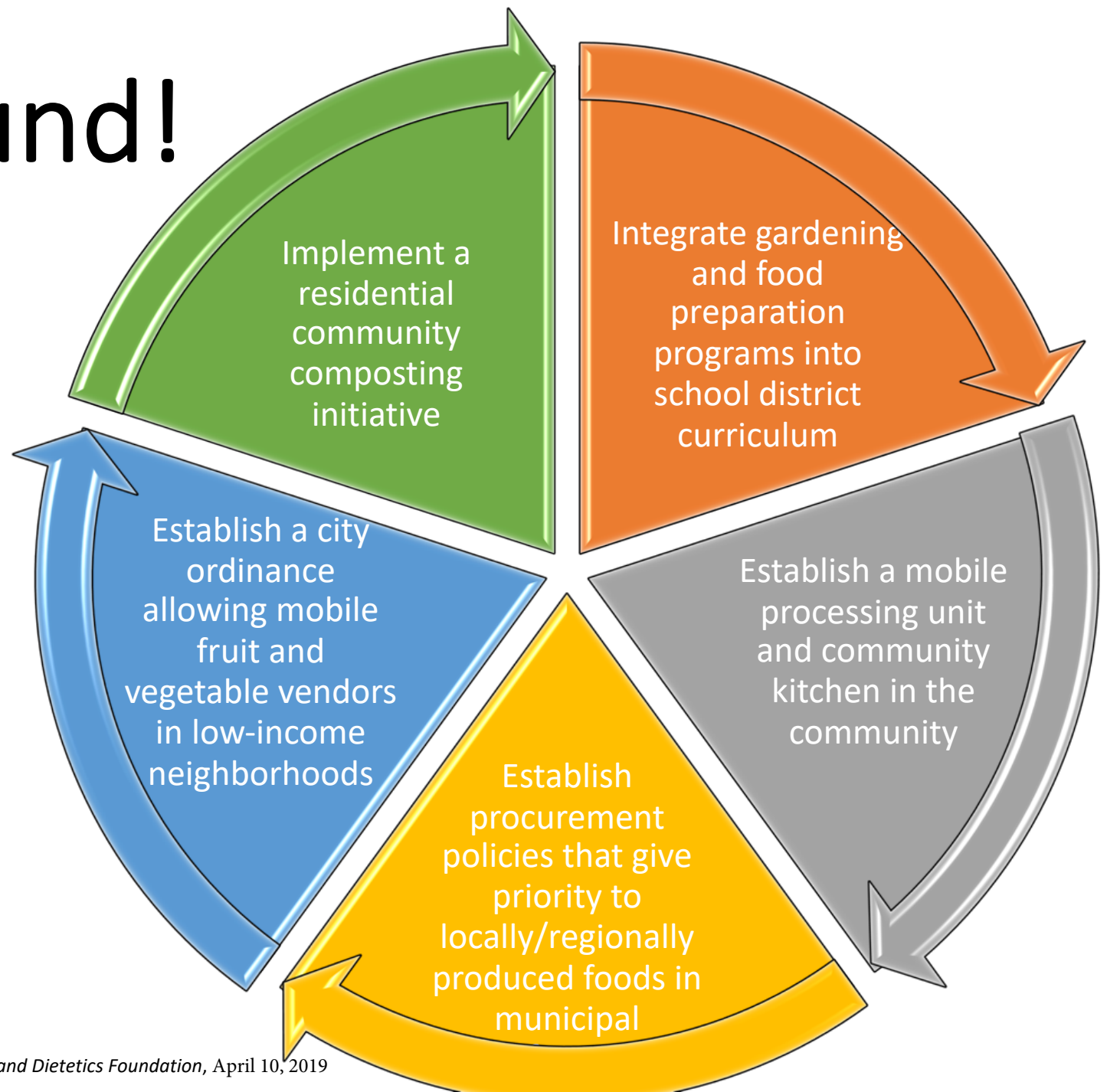
Tagtow A. *Healthy Food, Healthy Iowans, Healthy Communities. Public Health Tools to Advance Healthy, Sustainable Food Systems.* Iowa Department of Public Health. 2013.





# Gaining Ground!

An Example of  
Collective Impact in  
SRHFWS



# 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?

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



# Thank you!

---

*Angie Tagtow, MS, RD, LD*

*Founder & Chief Strategist, Äkta  
Strategies, LLC*

*[angie.tagtow@mac.com](mailto:angie.tagtow@mac.com)*



**ÄKTA STRATEGIES**  
Authentic Solutions for System Change