

Nourishing the Future: Sustainable Food Systems for Nutrition and Dietetic Students



JOHNS HOPKINS
CENTER *for* A LIVABLE FUTURE

FOOD + PLANET

Presented by:
Johns Hopkins Center for a Livable Future
Food + Planet

Food Systems for All

Module 2



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Four Modules



Module 1

Introduction to
Sustainable Food
Systems

Module 2

**Food Systems
for All**

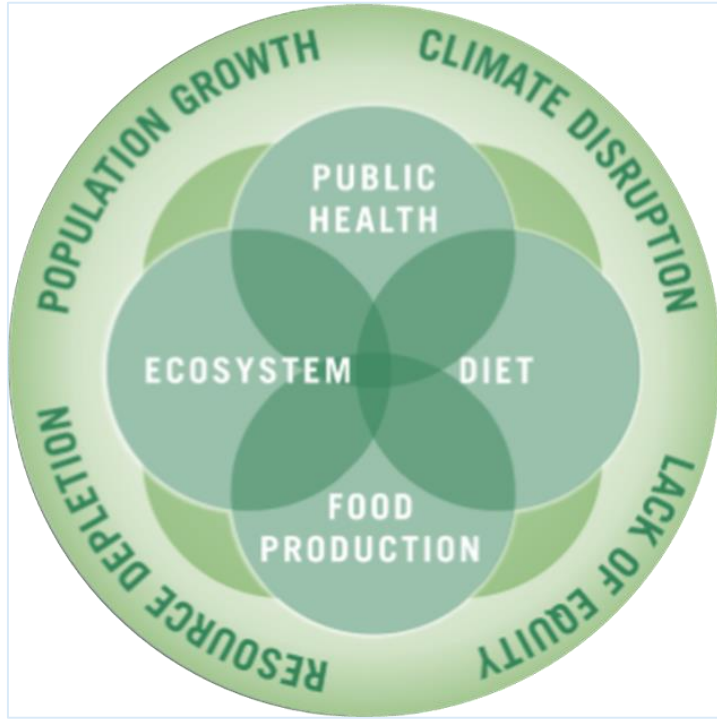
Module 3

Food and
our Climate

Module 4

Aquatic Foods,
Nutrition, and
Sustainability

The Johns Hopkins Center for a Livable Future



- ▶ Interdisciplinary academic center at the Johns Hopkins Bloomberg School of Public Health
- ▶ Education, research, policy, and practice
- ▶ Vision: a healthier, sustainable and resilient food system for all

Food + Planet

- A collective, visionary 501c3 founded by four registered dietitians with varied experience in the food system
- Aim: empower health care professionals to be leaders in sustainable food systems

Vision: a science and practice of nutrition that honors nature as the foundation of health through the four dimensions of sustainability



Image source: Vogliano, C., Geagan, K., Chou, S., Palmer, S. (2021). Figure 1. The 4 dimensions of sustainable diets [Infographic]. Empowering nutrition professionals to advance sustainable food systems [White Paper]. Food and Planet. Retrieved September 14, 2025, from <https://7157e75ac0509b6a8f5c5b19c577d01b9ccfe75d2f9e4b17ab55.ssl.cf1.rackcdn.com/GVJSUTJL-PDF-1-675987-4519061561.pdf>

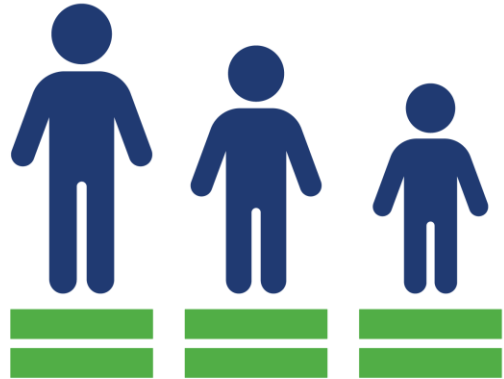
Learning Objectives

- ▶ Describe factors that contribute to inequity in the food system
- ▶ Explain the unique and outsized impact of food system inequities on workers and communities
- ▶ Discuss how food insecurity interacts with sustainable and healthy food and water systems
- ▶ Identify actions that dietitians can take to address food system inequities



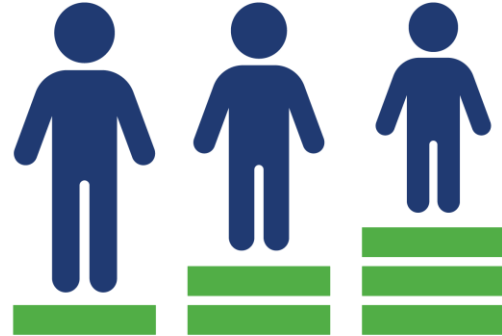
Section A: Defining Equity in the Context of Nutrition and Health

Equality Versus Equity



EQUALITY

VS



EQUITY

Social Determinants of Health



Social and Economic Factors Drive Health Outcomes

Economic Stability	Neighborhood and Physical Environment	Education	Food	Community and Social Context	Health Care System
Racism and Discrimination					
Employment	Housing	Literacy	Food security	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		Stress	Quality of care
Medical bills	Playgrounds	Higher education		Exposure to violence/trauma	
Support	Walkability				
	Zip code / geography				
Health Outcomes: Mortality, Morbidity, Life Expectancy, Health Care Expenditures, Health Status, Functional Limitations					

Watch This CDC Video About the Social Determinants of Health



Where Do You See Inequity and the Social Determinants of Health in this Framework?

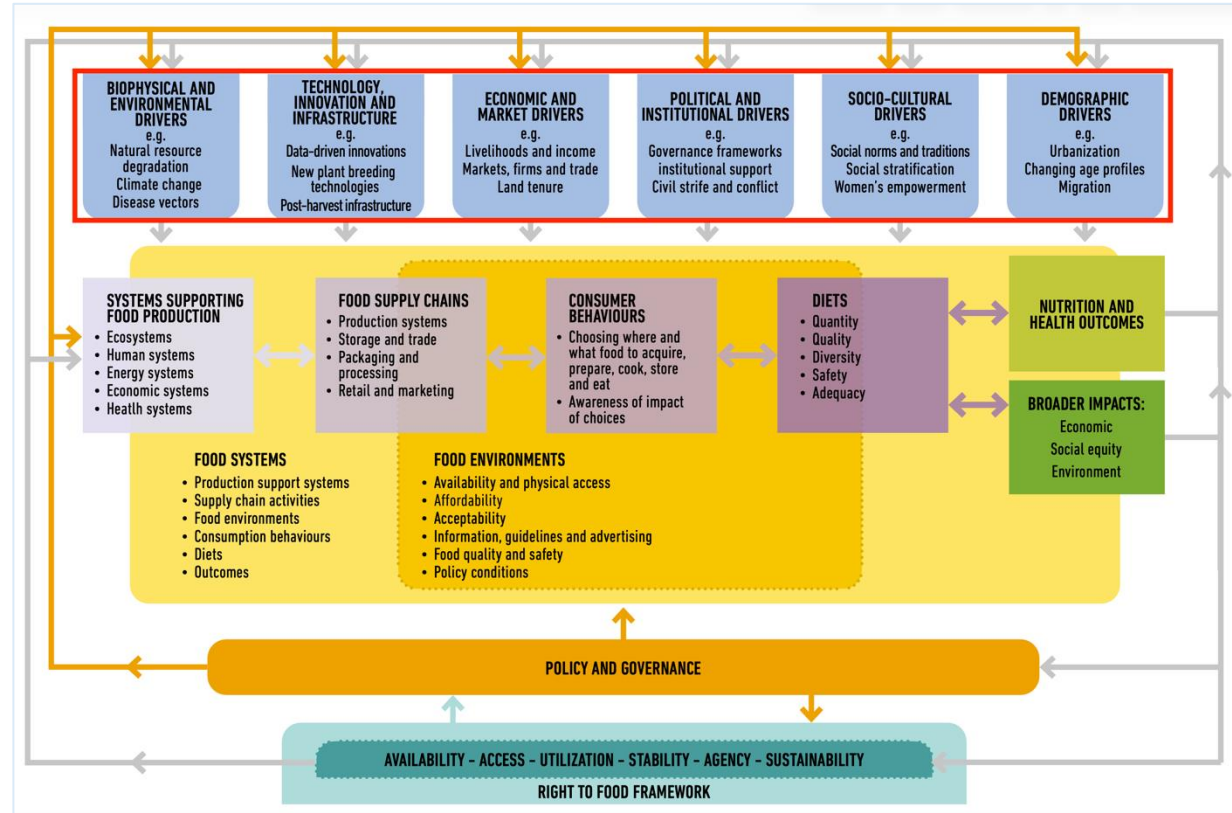
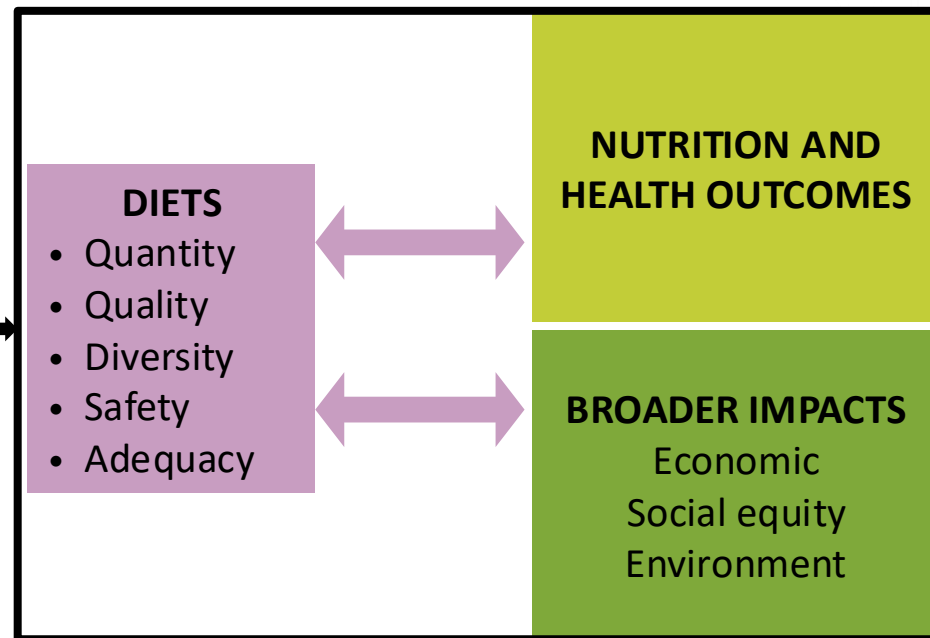
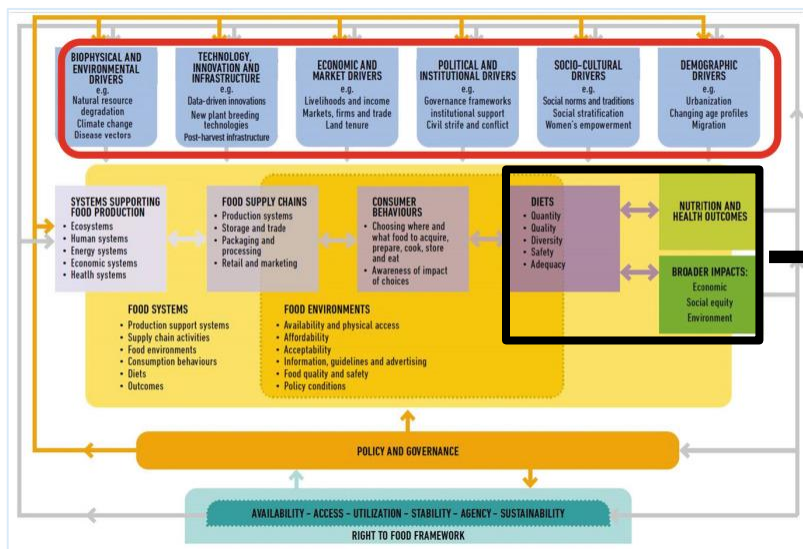


Image source: HLPE. (2020). *Figure 2. Sustainable Food System Framework* [Chart]. *Food security and nutrition: building a global narrative towards 2030. A report by the High Level Panel.*

<https://openknowledge.fao.org/server/api/core/bitstreams/8357b6eb-8010-4254-814a-1493faaf4a93/content>

Inequities in the Food System Influence Outcomes



What Is a Sustainable Food System?



A sustainable food system ... delivers food security and nutrition for all in such a way that the economic, social and environmental bases to generate food security and nutrition for future generations are not compromised.

—United Nations, 2015





Section B: Inequities Across the Food System

Essential Workers

Production

Farmers and farm labor

Processing

Food, meat, and poultry

Distribution and service

Grocery, restaurants, food service

Communities

Rural, urban



Food Systems Global Workforce

- ▶ Estimated 1.23 billion people employed in **agrifood systems** with an additional 2.6 billion in connected households
- ▶ Over 600 million farms across the globe, though the number is expected to decrease throughout the 21st century



Sources: Davis, B., et al. (2023). *Estimating global and country-level employment in agrifood systems*. Food and Agriculture Organization of the United Nations. <https://openknowledge.fao.org/handle/20.500.14283/cc4337en>; Mehrabi, Z. (2023). Likely decline in the number of farms globally by the middle of the century. *Nature Sustainability*, 6(8), 949–954. <https://doi.org/10.1038/s41893-023-01110-y>; Photo on left is from Microsoft Stock Images; photo on right is from Shatabdi Chakrabarti, Open Wing Alliance / We Animals.

Food Sector Employment

22.1 million people in the US—over 10% of the nation's workforce—work in the food sector



The largest share (12.7 million) works in the food service industry, followed by food retail (3.3 million) and farmers (2.6 million)

Sources: Hernandez, T., & Gabbard, S. (2018). *Findings from the National Agricultural Workers Survey (NAWS) 2015–2016: A demographic and employment profile of United States farmworkers* (No. 13). JBS International. https://www.dol.gov/sites/dolgov/files/ETA/publications/ETAOP_2019-01_NAWS_Research_Report_13.pdf; USDA ERS. (2025a). *Ag and food sectors and the economy*. USDA Economic Research Service. <https://www.ers.usda.gov/data-products/ag-and-food-statistics-charting-the-essentials/ag-and-food-sectors-and-the-economy>; photos are from Microsoft Stock Images.

US Agricultural Workers

- ▶ Between 800,000 and 2.2 million hired farmworkers
 - ▶ Plus “unpaid” and contracted labor
- ▶ According to the US Department of Labor, immigrants make up two-thirds (68%) of the nation’s crop farmworkers
- ▶ Long history of discrimination and oppression
- ▶ Fair Labor Standards Act of 1938 exemptions for some agricultural workers include:
 - ▶ Minimum wage
 - ▶ Overtime



Sources: Fung, W., Prado, K., Gold, A., Padovani, A., Carroll, D., & Finchum-Mason, E. (2023). *Findings from the National Agricultural Workers Survey (NAWS) 2021–2022: A demographic and employment profile of United States crop workers* (No. 17). JBS International. <https://www.dol.gov/sites/dolgov/files/ETA/naaws/pdfs/NAWS%20Research%20Report%202017.pdf>; Vilsack, T., & Hamer, H. (2024). *2022 Census of Agriculture* (No. AC-22-A-51; Geographic Area). USDA National Agricultural Statistics Service. https://www.nass.usda.gov/Publications/AgCensus/2022/Full_Report/Volume_1_Chapter_1_US/usv1.pdf; USDA ERS. (2025b). *Farm Labor*. USDA Economic Research Service. <https://www.ers.usda.gov/topics/farm-economy/farm-labor#size>; Photo from Mike Milli, The Johns Hopkins Center for a Livable Future.

Crop Workers and Public Health



► Health risks

- Chemical exposures, exposure to heat and extreme weather, musculoskeletal injuries

► Quality of life

- Poverty, poor housing, lack of breaks or time off, lack of access to health care and social support, wage theft, harassment

► Societal context

- Immigration policy, discrimination, low job security, lack of political power, uncertainty

Livestock Workers and Public Health

- ▶ Exposure to zoonotic diseases and antibiotic-resistant bacteria
- ▶ Increased susceptibility to Methicillin-resistant *Staphylococcus aureus* (MRSA), avian influenza
- ▶ Respiratory illnesses from exposure to chemicals, dust, ammonia, manure, methane
- ▶ Physical injuries
- ▶ Mental and psychological health



Processing Workers and Public Health



- ▶ **Health risks**
 - ▶ High injury rates and disease exposure
 - ▶ Mental and psychological stress
- ▶ **Quality of life**
 - ▶ Lack of breaks or time off
 - ▶ Low wages
- ▶ **Societal context**
 - ▶ Discrimination
 - ▶ Lack of political power

Neighboring Communities and Public Health



► Health risks

- Respiratory illnesses, drug-resistant infections, chemical exposures

► Quality of life

- Noise, odors, social disruptions, flies, water contamination
- Reduced property values

► Societal context

- Disproportionate impact on communities of color and those with high poverty rates
- Industry concentration
- Lack of political power

Food Service and Retail Workers and Public Health



- ▶ **Health risks**
 - ▶ Physical strain and injuries, exposure to chemicals, disease transmission

- ▶ **Quality of life**
 - ▶ Low wages
 - ▶ No sick leave, long hours, unpredictable schedules, pressure to work fast
 - ▶ Public-facing

- ▶ **Societal context**
 - ▶ Lack of employee protections and minimum wage laws
 - ▶ Low job security

What Have We *not* Covered in This Section? A Lot!



- ▶ Historical inequities that are the foundation of almost all health and food justice inequity
- ▶ Continued lack of access to land for farmers of color and new/beginning farmers
- ▶ Concentration of power leading to a lack of competition across the food sector limits choices for farmers and consumers
- ▶ Laws and policies that perpetuate these systems



Section C: Food Security and Access to Nutritious Food

Evolving Definition of Food Security

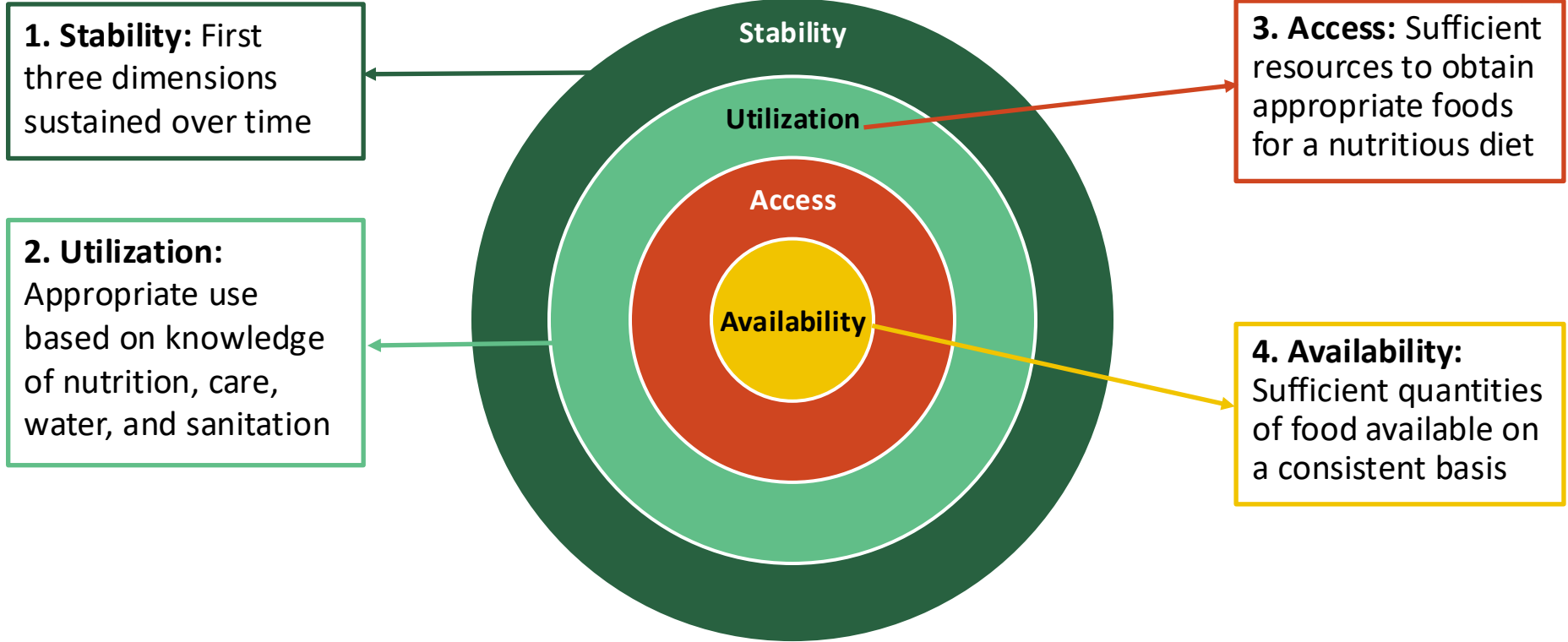
“Food security exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life.

—Food and Agriculture
Organization of the United
Nations

... “and food is produced in ways that are environmentally sound and socially just”

- ▶ Quality
- ▶ Sustainability
- ▶ Equity

Four Dimensions of Food Security



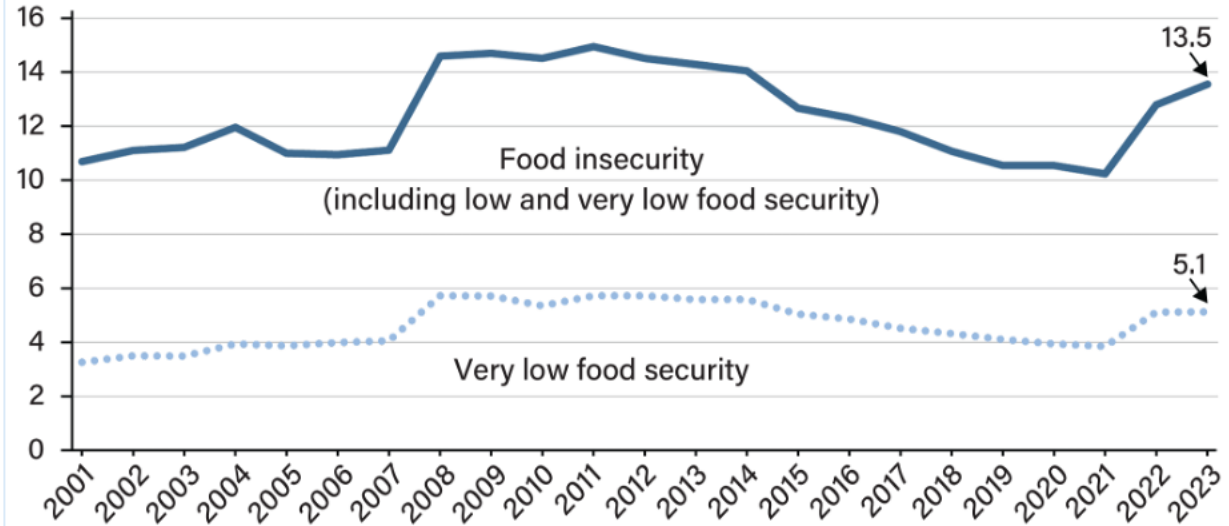
US Food Insecurity Fluctuates Yet Persists

Prevalence of food insecurity and very low food security in U.S. households, 2001–23



Economic Research Service
U.S. DEPARTMENT OF AGRICULTURE

Percent of households



Note: **Low food security** means at least one or more household members reported reduced quality, variety, or desirability of their diet at some time during the year. **Very low food security** means at least one or more household members reported disrupted eating patterns and/or had their food intake reduced at least some time during the year because they could not afford enough food.

Who Does Food Insecurity Impact?



Those most impacted by the food system are:

- ▶ BIPOC communities
- ▶ Low-income households
- ▶ Children
- ▶ Elderly individuals
- ▶ Rural communities
- ▶ College students

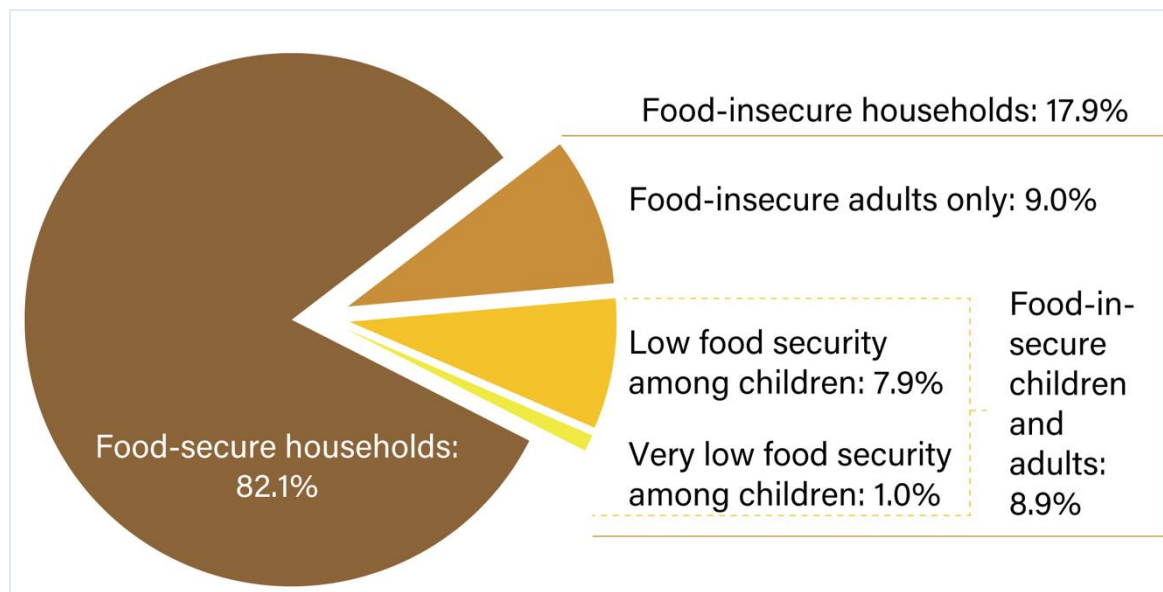


Physical and economic access to food is deeply connected to systemic inequities and the social determinants of health

Food Insecurity in Households with Children

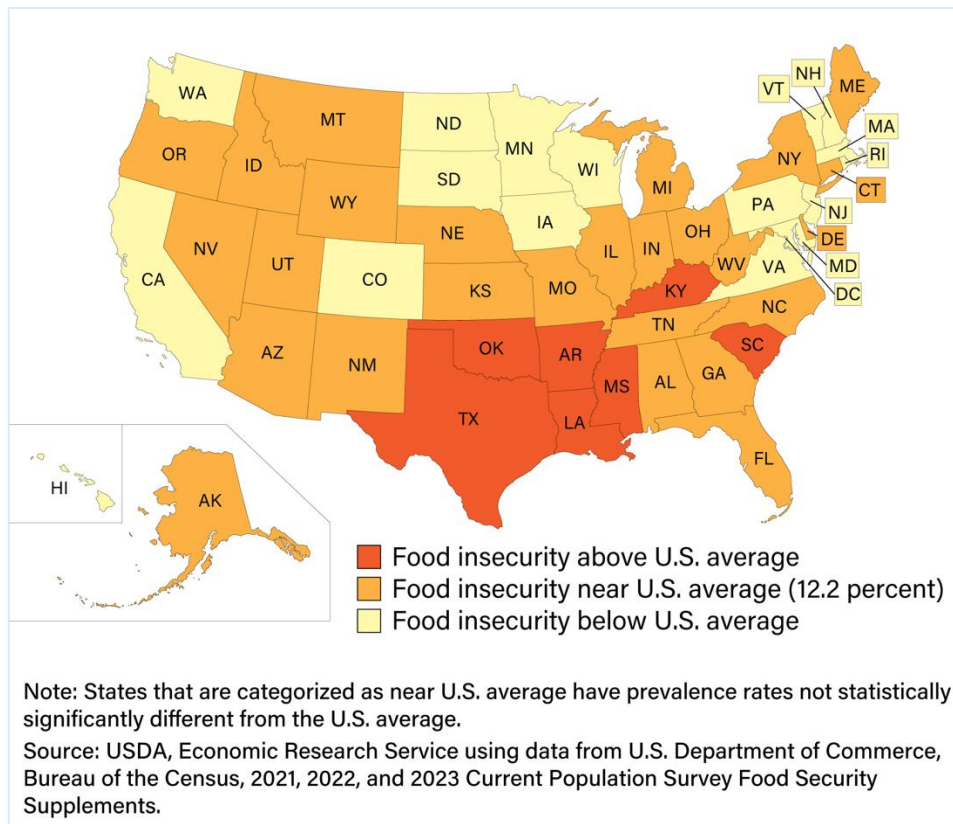


US households with children by food security status of adults and children, 2023



Rates of Food Insecurity by State

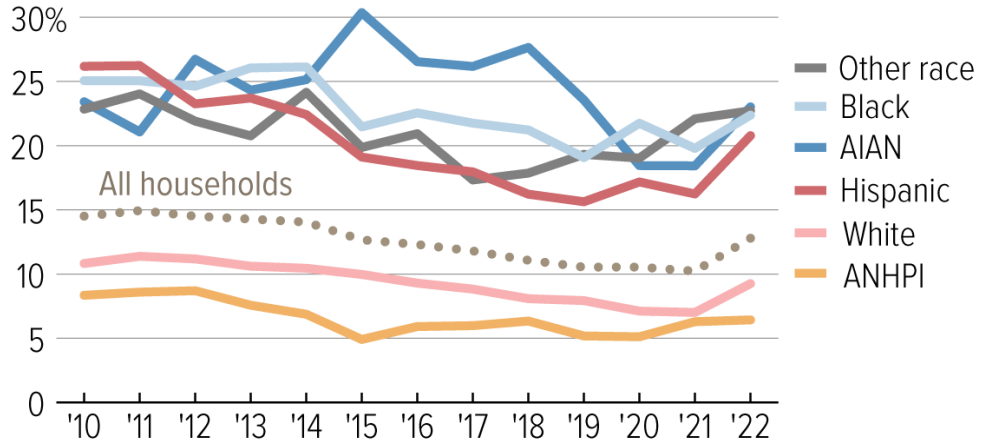
Prevalence of food insecurity, average 2021–23



Risk of Food Insecurity by Race/Ethnicity

Food Insecurity by Race and Ethnicity Reveals Stark Disparities

Households that lacked access to adequate food at some point in the year



Note: Other race = people who are more than one race. AIAN = people who are American Indian or Alaska Native. ANHPI = people who are Asian, Native Hawaiian, or Pacific Islander. Hispanic households may be of any race. Race and ethnicity for the household are based on that of the household reference person (in whose name the housing unit is owned or rented).

Source: U.S. Department of Agriculture, Current Population Survey Food Security Supplement 2010-2022

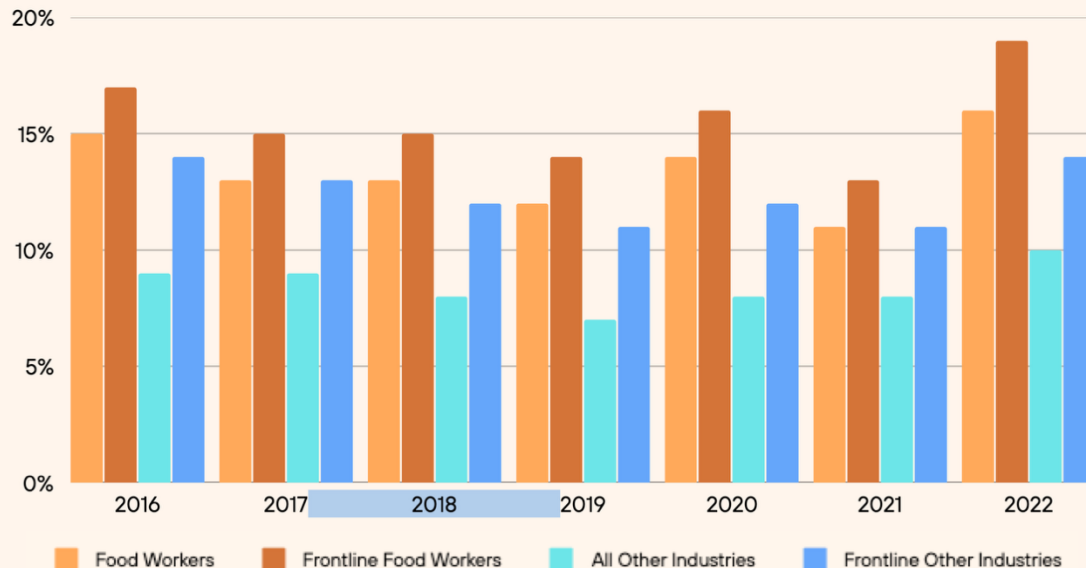
CENTER ON BUDGET AND POLICY PRIORITIES | CBPP.ORG

People Who Work in the Food Chain Have 2–3 Times Higher Risk for Low and Very Low Food Security

Food workers use Supplemental Nutrition Assistance Program (SNAP) benefits at double the rate of all other US workers

Food workers are **more likely to be food insecure** than workers in any other industry.

Rate of Food Insecurity among Food Workers vs. All Other Industries, 2016–2022



Factors Driving Food Insecurity in the United States

We have
enough food!
US agricultural
production is
enough to
feed **136%** of
its population

Factors

▶ Economic

- ▶ Poverty, low wages, unemployment, underemployment
- ▶ High cost of living: housing, transportation, health, education

▶ Social

- ▶ Neighborhood and community factors, food environments

▶ Environmental

- ▶ Extreme weather, natural disasters, and impacts of climate change; global pandemics and other supply chain disruptions (COVID-19)

Food Desert Versus Food Apartheid

Food desert

- Focuses on lack of *physical* access to food
- Geographic location and other factors
- “Desert” = *natural* landscape



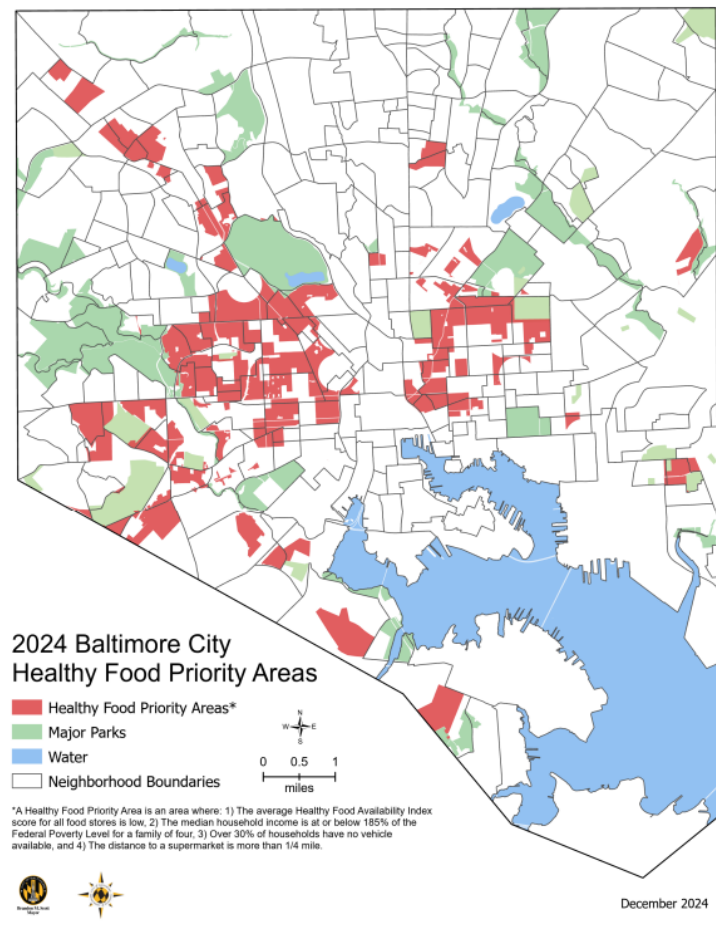
Food apartheid

- Coined by food advocate Karen Washington
- Focuses on lack of *economic* access to food
- Root causes of food insecurity are not *natural* but systemic
 - For many communities, the causes stem from a long history of racial discrimination
- Acknowledges the resilience and agency of communities

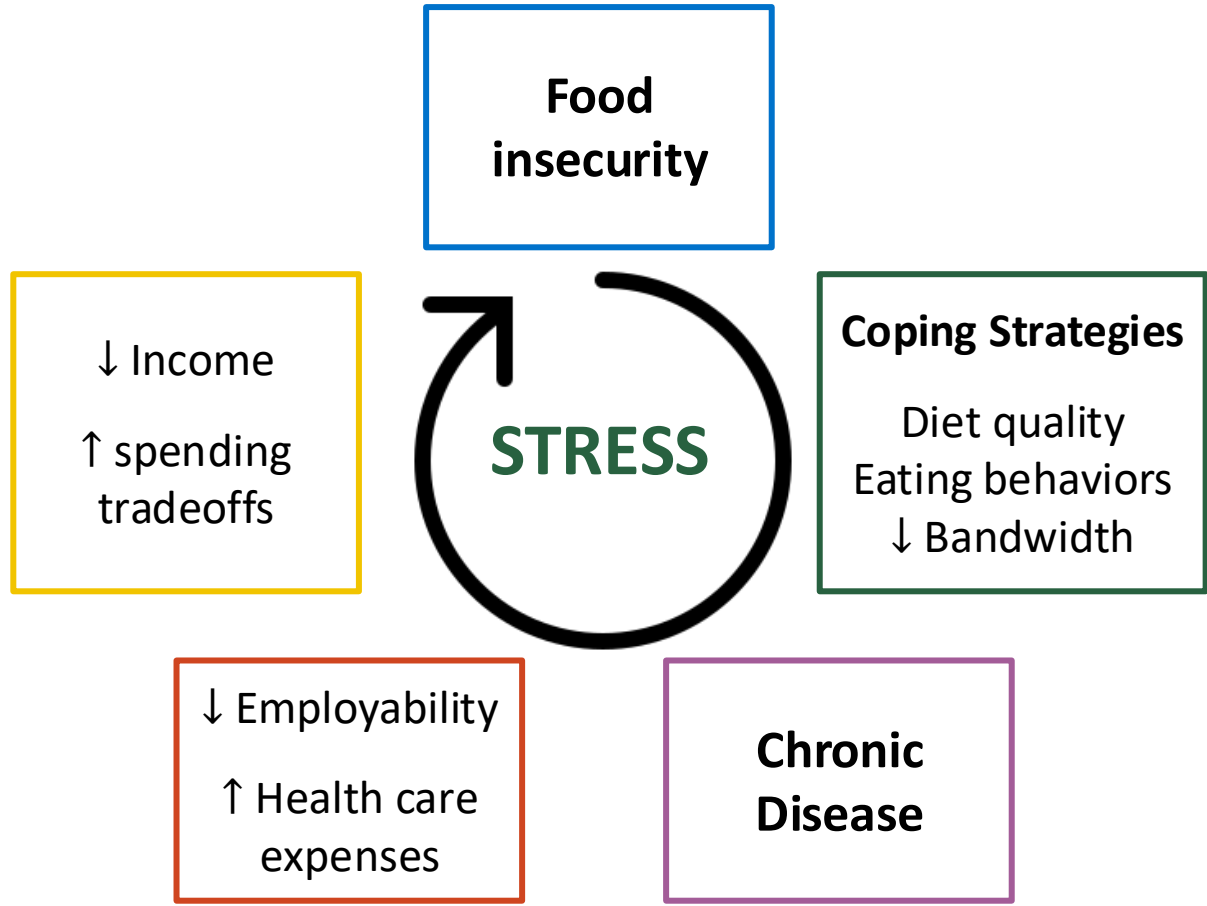
Baltimore City: Healthy Food Priority Areas

*Neighborhood
environments directly
influence food choices and
health*

- ▶ **Healthy Food Priority Areas** reflect access to and distance from healthy food retail outlets and household income
- ▶ Data (not shown) shows strong correlation between healthy food access, cardiovascular disease, and premature deaths

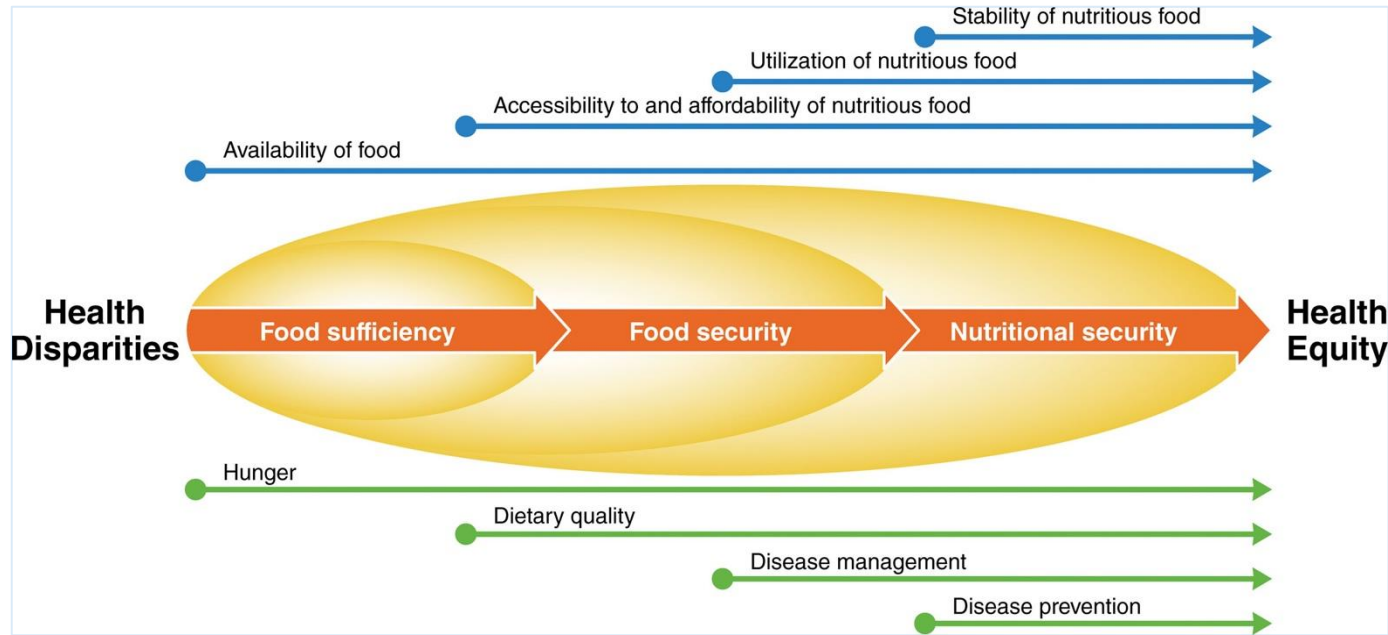


Cycle of Food Insecurity



Sources: Liu, Y., & Eicher-Miller, H. A. (2021). Food Insecurity and Cardiovascular Disease Risk. *Current Atherosclerosis Reports*, 23(6), 24. <https://doi.org/10.1007/s11883-021-00923-6>; Parekh, T., Xue, H., Cheskin, L. J., & Cuellar, A. E. (2022). Food insecurity and housing instability as determinants of cardiovascular health outcomes: A systematic review. *Nutrition, Metabolism and Cardiovascular Diseases*, 32(7), 1590–1608. <https://doi.org/10.1016/j.numecd.2022.03.025>; Odoms-Young, A., Brown, A. G. M., Agurs-Collins, T., & Glanz, K. (2024). Food Insecurity, Neighborhood Food Environment, and Health Disparities: State of the Science, Research Gaps and Opportunities. *The American Journal of Clinical Nutrition*, 119(3), 850–861. <https://doi.org/10.1016/j.ajcnut.2023.12.019>

Food Security Influences Nutrition Security and Health Outcomes

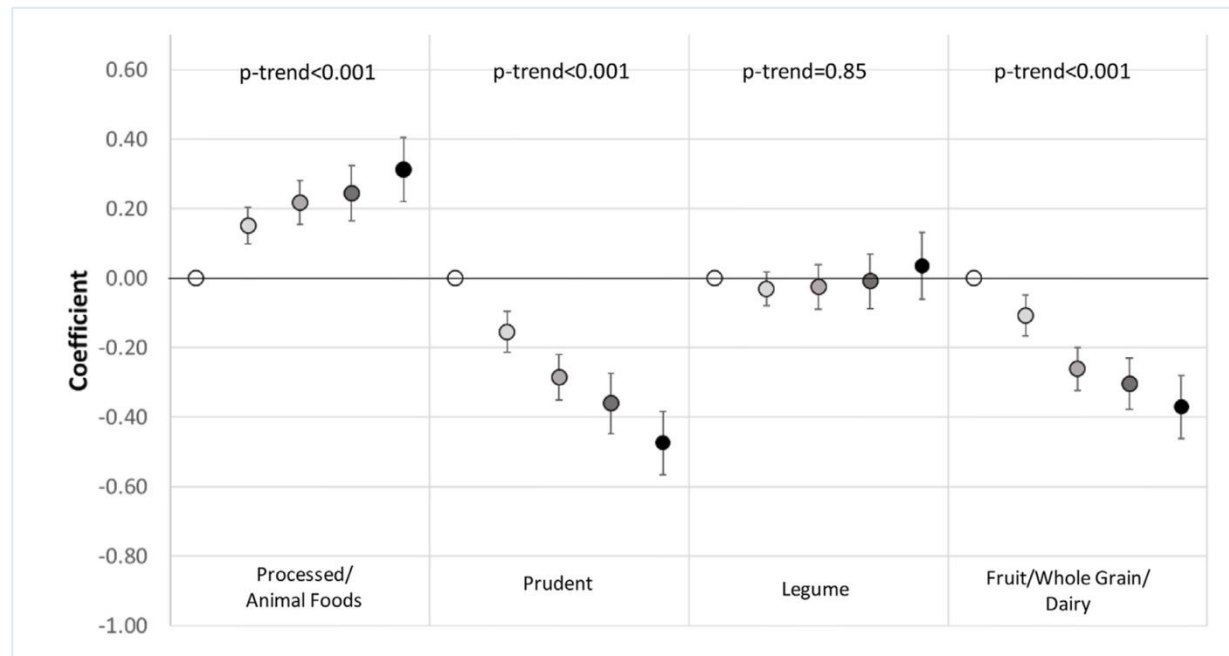


Nutrition security influences

- ▶ Physical health
- ▶ Mental health
- ▶ Life expectancy
- ▶ Maternal health and complications
- ▶ Child health and development

Sources: Braveman, P. (2014). What are health disparities and health equity? We need to be clear. *Public Health Reports*®, 129(1_suppl2), 5–8. <https://doi.org/10.1177/00333549141291S203>; Liu, Y., & Eicher-Miller, H. A. (2021). Food Insecurity and Cardiovascular Disease Risk. *Current Atherosclerosis Reports*, 23(6), 24. <https://doi.org/10.1007/s11883-021-00923-6>; Parekh, T., Xue, H., Cheskin, L. J., & Cuellar, A. E. (2022). Food insecurity and housing instability as determinants of cardiovascular health outcomes: A systematic review. *Nutrition, Metabolism and Cardiovascular Diseases*, 32(7), 1590–1608. <https://doi.org/10.1016/j.numecd.2022.03.025>; Odoms-Young, A., Brown, A. G. M., Agurs-Collins, T., & Glanz, K. (2024). Food Insecurity, Neighborhood Food Environment, and Health Disparities: State of the Science, Research Gaps and Opportunities. *The American Journal of Clinical Nutrition*, 119(3), 850–861. <https://doi.org/10.1016/j.ajcnut.2023.12.019>; Image source: Brandt, E. J., Mozafrarian, D., Leung, C. W., Berkowitz, S. A., & Murthy, V. L. (2023). Figure 1. Moving from food sufficiency to nutrition security in the United States [Chart]. Diet and food and nutrition insecurity and cardiometabolic disease. *Circulation Research*, 132(12), 1692–1706. <https://doi.org/10.1161/CIRCRESAHA.123.322065> (Adapted from Thorndike et al. Illustration credit: Scencyce Studios).

Differences in United States Adult Dietary Patterns by Cardiometabolic Health and Socioeconomic Vulnerability



- 0 Social Risk Factors
- 1 Social Risk Factors
- 2 Social Risk Factors
- 3 Social Risk Factors
- ≥ 4 Social Risk Factors

P-values:

* = <0.05

** = <0.01

*** = <0.001

Case Study 1



Section D: How Can RDNs Help Achieve Sustainable, Healthy Food Systems for All?

Dietitians Are Key Parts of the Solution

“RDNs frequently encounter the nutritional manifestations of unsustainable practices within the food system”

- ▶ Dietitians are on the front lines of many of the most crucial problems related to inequity and sustainability in the food system
- ▶ Inequities in the food system impact food access, hunger, and nutrition-related disease
- ▶ Dietitians have knowledge and skills to address underlying drivers of inequity
- ▶ Dietitians are positioned to address these problems at many levels: Individual, household, community, state, regional, national, international



Striving for Health Equity Is Core to Our Work

Page 33 in *Revised 2024 Scope and Standards of Practice for the Registered Dietitian Nutritionist* report

STANDARD 2. STRIVING FOR HEALTH EQUITY

Standard

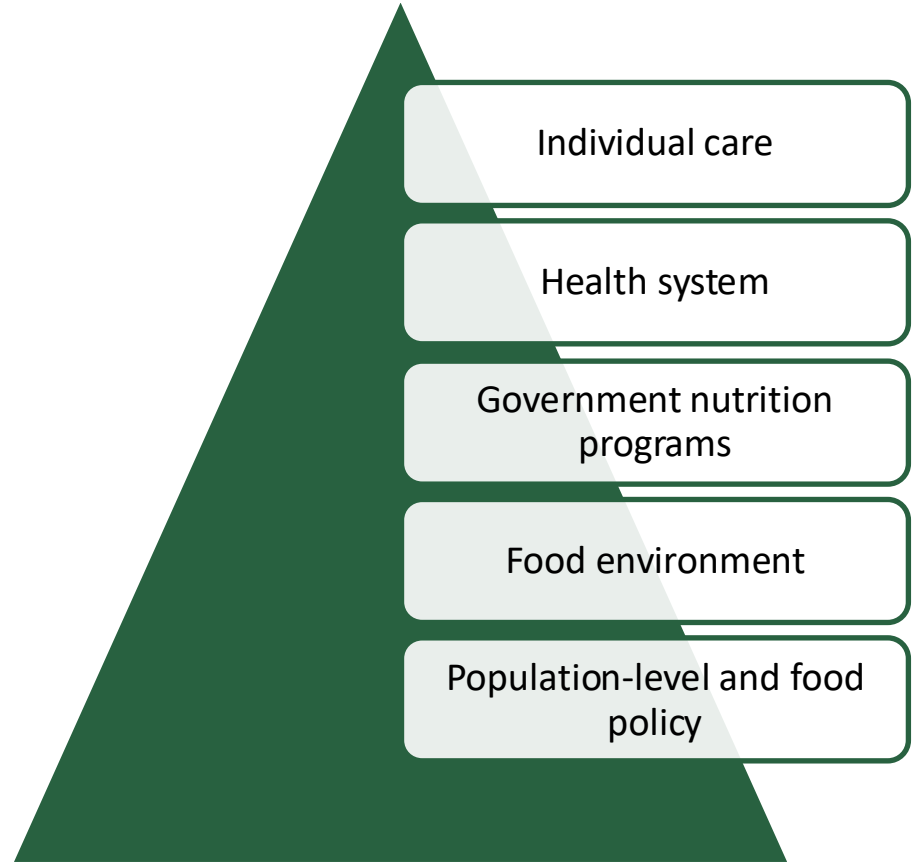
The registered dietitian nutritionist (RDN) approach to practice reflects the value the profession places on health equity in all forms of interaction when delivering care and/or services to colleagues, customers, students/interns, and when interacting with stakeholders.

Standard Rationale

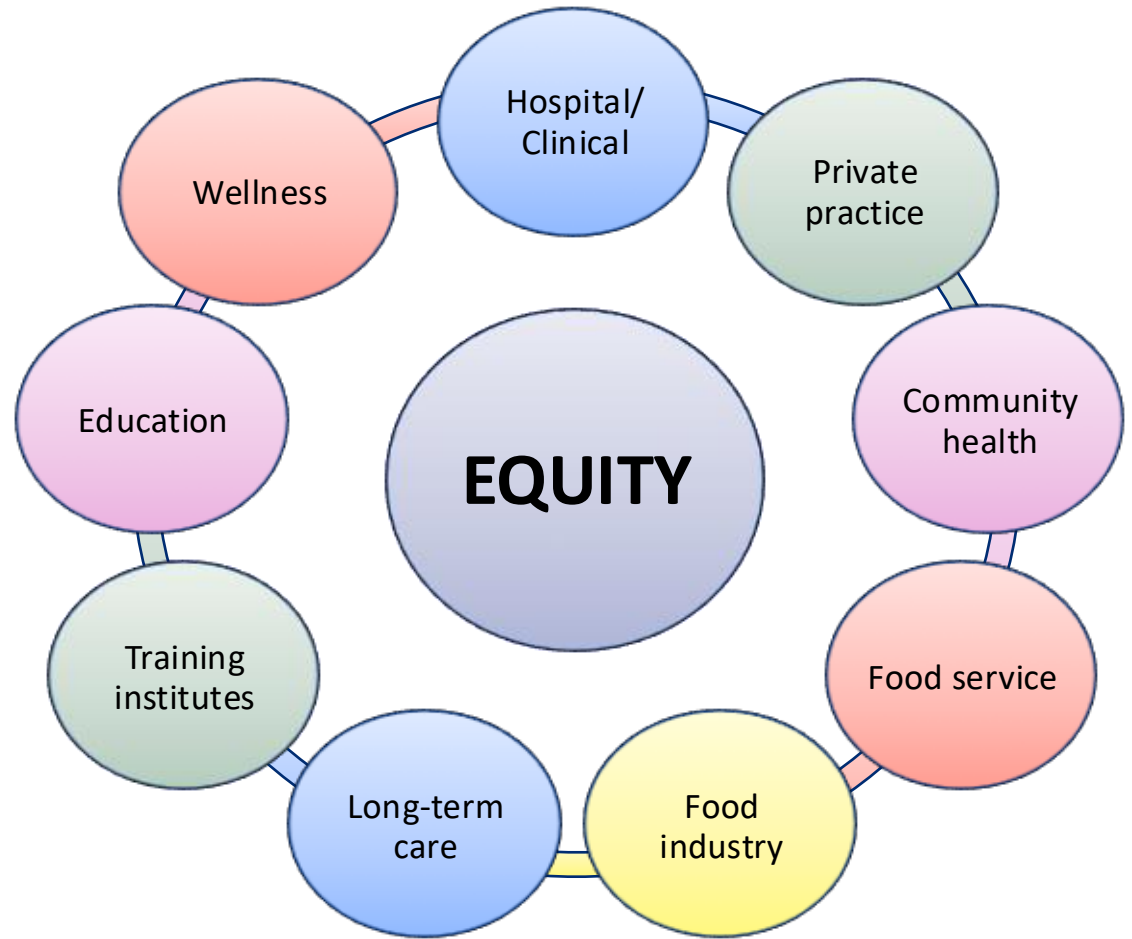
Health equity is at the core of nutrition and dietetics practice where:

- all individuals have the same opportunity and access to healthy food and nutrition;
- RDNs advocate for a world where all people thrive through the transformative power of food and nutrition; and
- RDNs work to accelerate improvements in health and well-being through food and nutrition.

Multilevel Approaches for RDNs to Promote Equity—1



Multilevel Approaches for RDNs to Promote Equity—2

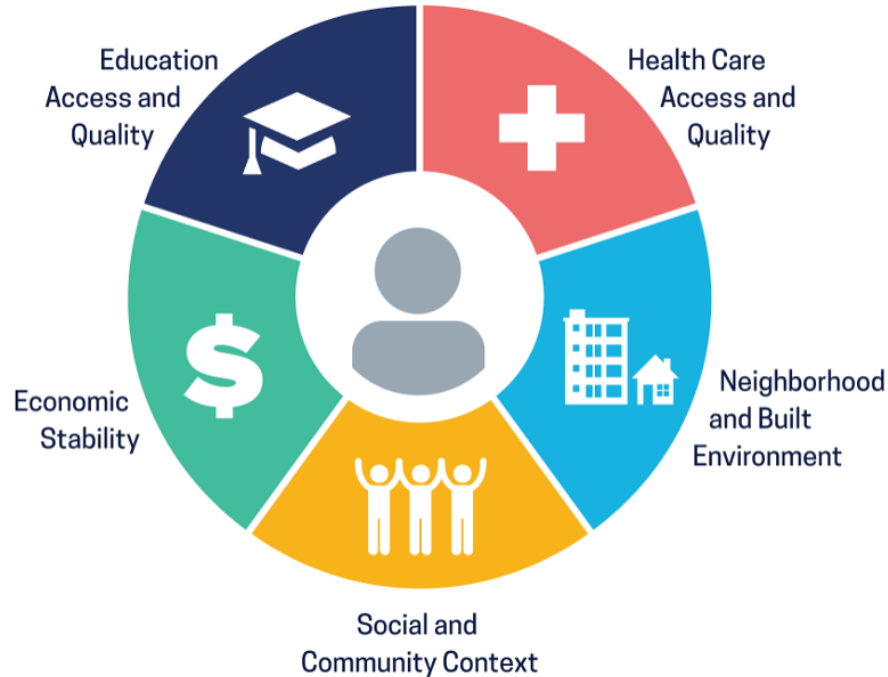


Standards of Practice Toward Health Equity



1. Addresses social determinants of health, nutrition security, food insecurity, and malnutrition
2. Promotes sustainability practices (for example, food systems, food/ingredient/supply choices)
3. Maintains awareness of public health and community nutrition/population health
4. Recognizes global food and nutrition

Standard 1: Identify and Address Social Determinants of Health



1. Explore social determinants of specific nutrition and food issues
2. Seek community and diverse voices in planning and programs
3. Practice **critical inquiry**
4. Develop tools and materials that reflect social determinants of health

Example: The Indigenous Nourishment Scales

- ▶ Encompasses multiple dimensions of nourishment
- ▶ Framework addresses bias in nutrition measurement
- ▶ Grounds health measurement efforts directly in community perspectives and worldviews



It Starts With Us!

- ▶ Examine your own approaches to be more equity-centered:
 - ▶ Explore your own personal biases, worldviews
- ▶ When working with clients:
 - ▶ Practice cultural humility
 - ▶ Ask questions to humbly explore the what, why, how



Discussion 1: Food Justice and Sovereignty



How might nutrition interventions impact these broader food equity matters?

Food justice

A holistic and structural view of the food system that sees healthy food as a human right and addresses structural barriers to that right ...

(FoodPrint)

Food sovereignty

The right of peoples to healthy and culturally appropriate food produced through ecologically sound and sustainable methods and their right to define their own food and agriculture system

(Declaration of Nyéléni)

Standard 2: Promote Sustainable Practices and Healthy Food for All

- ▶ Encourage plant-centric food choices
- ▶ Guide practices to reduce wasted food and packaging
- ▶ Support local food systems in your community
 - Community and school gardens
 - Community-supported agriculture (CSA) programs and local food outlets
 - Farm-to-school programs
- ▶ Center food system workers (often left out of the conversation) in planning, practice, and political advocacy



Healthier Food Environments for All



- ▶ Explore food environments, food access, and affordability in your area
- ▶ Promote programs and businesses that support:
 - ▶ Healthy options in small local stores
 - ▶ Reduced costs of healthy foods
 - ▶ Fruit and vegetable programs and Supplemental Nutrition Assistance Program (SNAP) incentives



**Affordable, Healthy,
Tasty, Sustainable**

Example: ALMA Backyard Farms

Rooted in restorative justice and environmental stewardship, ALMA was started in 2013 to reclaim lives, repurpose land, and reimagine community

ALMA creates opportunities for the previously incarcerated to become agents of health, safety, and community



Source: ALMA Backyard Farms. (n.d.). *Feed the Soil, Feed the Soul*. Retrieved July 31, 2025, from <https://almabackyardfarms.com>; Photos are from Sherene Chou, Food+Planet.

Example: Farm-to-School Programs

- ▶ USDA estimates that schools spent nearly \$800 million on local food
- ▶ Buying power of farm-to-school could result in an additional \$350 million for family farmers—a full economic impact of \$1 billion
- ▶ Each dollar invested in farm-to-school programs stimulates an additional \$0.60–\$2.16 of local economic activity



Example: The Good Food Purchasing Program

- Uses the power of procurement to create a transparent and equitable food system that prioritizes the health and well-being of people, animals, and the environment
- Provides a framework that encourages large institutions to direct their buying power toward six core values

Equity,
accountability,
transparency

Local
economies

Environmental
sustainability

Valued
workforce

Animal welfare

Community
health and
nutrition



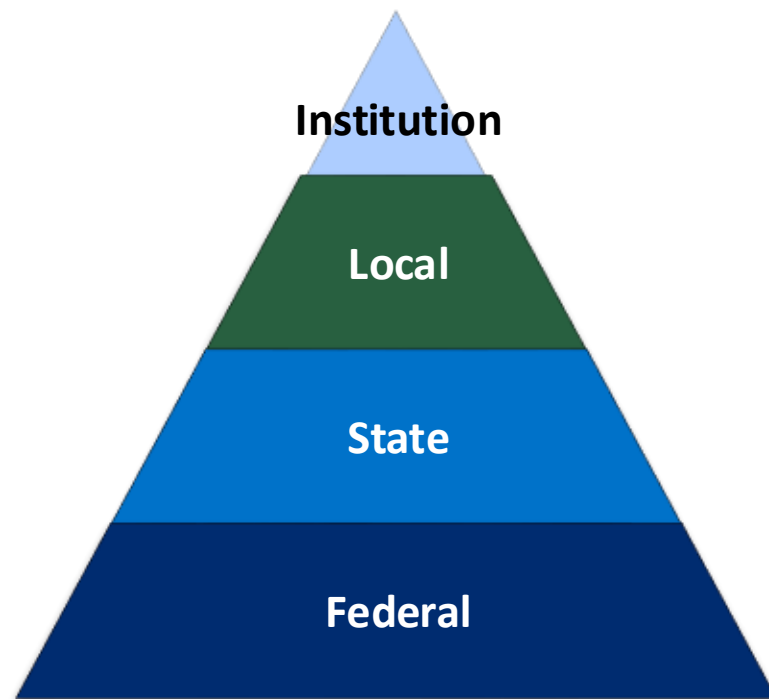
Standard 3: Maintain (and Build) Awareness of Public Health, Community Nutrition, and Population Health

- ▶ Advocate for population-level programs and policies
- ▶ Collaborate with stakeholders and community leaders
- ▶ Train fellow health and food professionals to recognize social determinants, food insecurity, and food system inequities



Advocate for Equity-Focused Food Policies

- ▶ **Federal food policy**
 - ▶ Women, Infants, and Children (WIC)
 - ▶ SNAP
 - ▶ Child and Adult Care Food Program (CACFP)
- ▶ **Nutrition programs (state and federal)**
 - ▶ Farmers market nutrition program
 - ▶ School nutrition programs
 - ▶ SNAP education
- ▶ **Municipal food policy and programs**
 - ▶ Local food policy councils
 - ▶ Good Food cities (C40)



Local Food Policy in Action



Example: The Greater Kansas City Food Policy Coalition—1

- ▶ Convened a **Grocery Access Task Force** of about 30 experts representing government, public health, retail, civic, and community and economic development organizations
- ▶ Explored barriers to grocery store development in underserved neighborhoods
- ▶ Evaluated six bus stops near grocery stores



Example: The Greater Kansas City Food Policy Coalition—2



- ▶ The recommendations were submitted to city manager's office in early 2018
- ▶ Recommendations resulted in **new:**
 - ▶ Bond funding
 - ▶ Complete streets ordinance
 - ▶ Trip planning tools and bus stop signage
- ▶ Dietetic interns also created healthy recipes with ingredients that are:
 - ▶ **Affordable**
 - ▶ **Easy to carry:** Lightweight, fit in single bag, won't spoil on way home

Example: C40 Good Food Cities Declaration



C40 Cities

- ▶ Representing 700+ million citizens and one quarter of the global economy, mayors committed to delivering on the most ambitious goals of the Paris Agreement at the local level
- ▶ Barcelona, Copenhagen, Guadalajara, Lima, London, Los Angeles, Milan, Oslo, Paris, Quezon City, Seoul, Stockholm, Tokyo, and Toronto

Good Food Cities Declaration – by 2030, cities commit to:

- ▶ Align food procurement policies to the Planetary Health Diet
- ▶ Support an overall increase of healthy plant-based food
- ▶ Reduce food loss and waste by 50% from 2015 figures
- ▶ Work with citizens, businesses, public institutions, and other organizations to develop a joint strategy into the city's climate action

Standard 4: Recognize Global Nutrition

- ▶ A lack of research on diverse populations makes it difficult to make nutrition and health recommendations that are culturally appropriate and affordable
- ▶ Communities need to see their cultures and foods represented to make sustainable changes
 - ▶ Cultural does not always mean traditional
 - ▶ Community voice matters



Culturally Appropriate Diets

- ▶ **Cultural responsiveness:**
related to culture-specific foods, culturally responsive distribution methods, and/or culture-specific education around food
- ▶ **Cultural relevancy:**
related to personal taste preference, knowledge on how to prepare the food, dietary restrictions, or religious restrictions



Evaluating Nutrition Education



1. Content: current, accurate, consistent, relevant
2. Behavior focus
3. Cultural sensitivity
4. Written word: simple, positive, active voice
5. Organization/readability: logical order, clear layout

Discussion 2: Social Determinants of Health

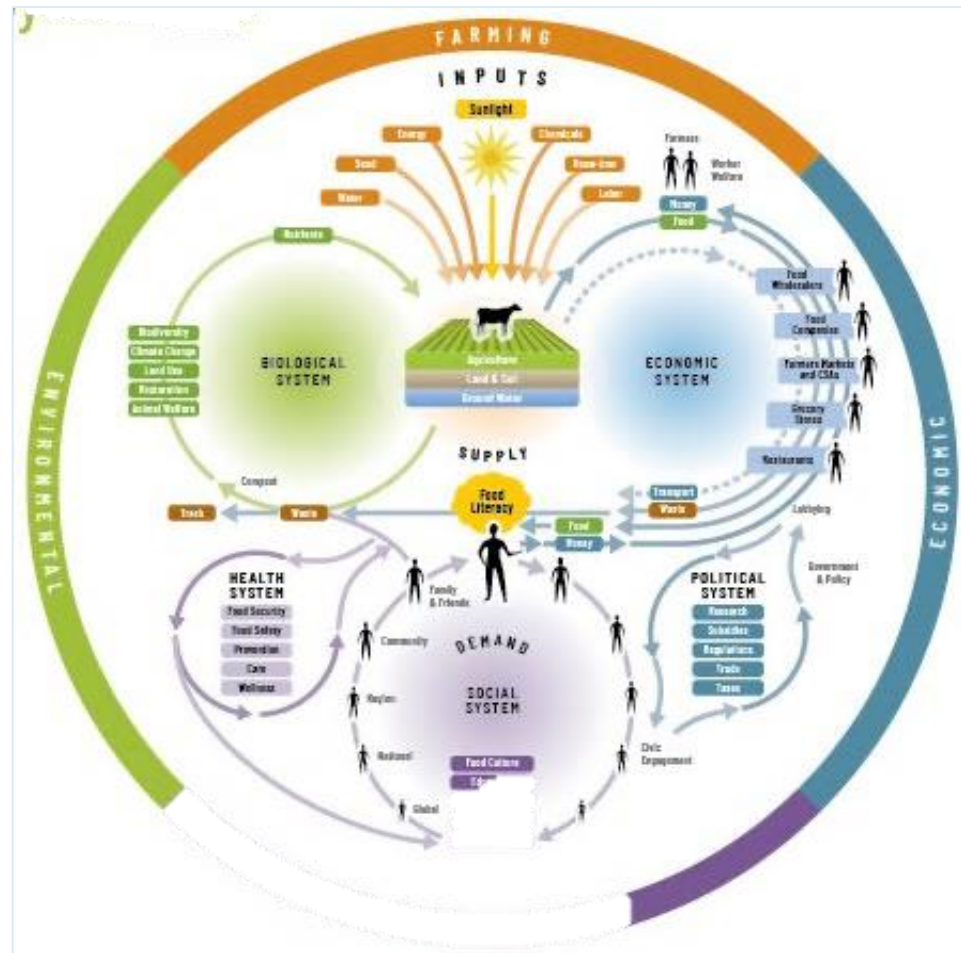


Share some questions you could ask to assess the influence of social determinants of health and nutrition

- ▶ What does it mean to separate individual and social issues?
- ▶ How might your default approach need to be modified to ensure an equity focus?

Pulling it Together

- *Apply a systems perspective*
- *Seek multilevel approaches and collaboration*
- *Use your unique position*



Case Study 2

Case Study 3

Thank You!



The background is a solid dark green color. It features large, faint, organic shapes in a lighter shade of green. On the left, there's a shape resembling a flame or a drop. On the right, there are curved, leaf-like shapes. A thin, horizontal gold-colored line runs across the middle of the page, just below the title.

Practice and Resources Booklet

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