

STRENGTHENING NATIONAL NUTRITION RESEARCH

How the US Can Advance Nutrition
Research and Protect the Health
and Security of the Nation



CENTER *for* HEALTH LAW
and POLICY INNOVATION
HARVARD LAW SCHOOL



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ABOUT THIS BRIEF

This issue brief is adapted from research presented in [Strengthening national nutrition research: Rationale and options for a new coordinated federal research effort and authority](#), published in the *American Journal of Clinical Nutrition* in July 2020.¹ The Tufts Friedman School of Nutrition Science and Policy collaborated with the [Center for Health Law & Policy Innovation at Harvard Law School \(CHLPI\)](#) to create an educational brief for federal lawmakers, administrative officials, and other interested stakeholders, that highlight key legislative and executive opportunities for meaningful change in support for and coordination of federal nutrition research. CHLPI worked closely with several authors of *Strengthening National Nutrition Research* to create this brief, including Drs. Dariush Mozaffarian and Sheila Fleischhacker. Figures and content from *Strengthening national nutrition research* appear with permission of the authors. Authors of this issue brief from CHLPI include Emily Broad Leib, Sarah Downer, Robert Greenwald, Brianna Johnson-King, and Allison Kolberg.

ABOUT STRENGTHENING NATIONAL NUTRITION RESEARCH: RATIONALE AND OPTIONS FOR A NEW COORDINATED FEDERAL RESEARCH EFFORT AND AUTHORITY

Strengthening national nutrition research: Rationale and options for a new coordinated federal research effort and authority, written by Sheila E Fleischhacker, Catherine E Woteki, Paul M Coates, Van S Hubbard, Grace E Flaherty, Daniel R Glickman, Thomas R Harkin, David Kessler, William W Li, Joseph Loscalzo, Anand Parekh, Sylvia Rowe, Patrick J Stover, Angie Tagtow, Anthony Joon Yun, and Dariush Mozaffarian, is a 2020 review of the mounting diet-related health burdens facing our nation, the current federal nutrition research landscape and mechanisms for its coordination, and the opportunities for new nutrition discoveries. It reviews specific key options for strengthening and accelerating federal nutrition research, including the advantages, disadvantages, and paths forward for each.

ABOUT THE FEDERAL NUTRITION RESEARCH ADVISORY GROUP

[The Federal Nutrition Research Advisory Group](#) includes thought leaders from diverse backgrounds who are volunteering their knowledge and expertise to help consider and develop a strategy toward a new, robust, coordinated federal nutrition research effort. The group convenes regularly for discussions and to publish commentary on issues relevant to such an effort, bringing evidence, objectivity, and actionable policy recommendations, and offered critical advisory comments and input on *Strengthening national nutrition research*. Many, though not all, of the members of the Federal Nutrition Research Advisory Group are also authors of the article on which this issue brief is based. More information can be found at the website: <https://sites.tufts.edu/nutritionadvisory/>.

ABOUT THE CENTER FOR HEALTH LAW & POLICY INNOVATION OF HARVARD LAW SCHOOL (CHLPI)

CHLPI advocates for legal, regulatory, and policy reforms to improve the health of individuals with inequitable access to health care and food, with a focus on the needs of low-income people living with chronic diseases. CHLPI works to expand access to high-quality health care and nutritious, affordable food; to reduce health disparities; and to promote more equitable and effective health care and food systems. Within CHLPI, the Food Law & Policy Clinic (FLPC) serves partner organizations and communities by providing guidance on cutting-edge food system issues while engaging law students in the practice of food law and policy. FLPC focuses on increasing access to healthy foods, supporting sustainable and equitable food production, reducing waste of healthy, wholesome food, and promoting community-led food system change. CHLPI is a clinical teaching program of Harvard Law School and mentors students to become skilled, innovative, and thoughtful practitioners as well as leaders in health, public health, and food law and policy.

ABOUT TUFTS UNIVERSITY GERALD J. AND DOROTHY R. FRIEDMAN SCHOOL OF NUTRITION SCIENCE & POLICY

The Friedman School of Nutrition Science & Policy at Tufts University brings together five Divisions, the Feinstein International Center, the Food & Nutrition Innovation Institute, and diverse academic programs to produce trusted science, future leaders, and real-world impact. The School's unique breadth, credibility, engagement with the world, and entrepreneurial spirit make it a leading global institution for nutrition education, research, and public policy. Areas of focus range from cell to society, including: molecular nutrition, human metabolism, data science, behavior change and community interventions, business innovation and entrepreneurship, nutrition communication, sustainable nutrition and food systems, hunger and food security, humanitarian crisis, and food policy and economics. Friedman School graduates are leaders in academia, US and international government, policy, advocacy, industry, public health, community service, and entrepreneurship.

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Nutrition: Meeting the Challenge We Face

The United States is experiencing a significant and growing burden of diet-related chronic disease, associated racial inequities in food access and health, skyrocketing health care costs, nutrition-related threats to our economy and national security, and an increase in extreme climate events. Despite these challenges, the country's nutrition and food policies are fragmented. The lack of coordination in the nutrition research landscape reflects this reality.

It has become increasingly clear — and never more so than during the COVID-19 pandemic — that fragmentation, lack of leadership, and lack of robust investment in nutrition research contributes to our country's vulnerability to food system disruption, economic instability, and disease. The solution is:

- **A stronger nutrition research infrastructure at the largest biomedical research agency — the National Institutes of Health — through establishment of a National Institute of Nutrition, along with**
- **active collaboration and increased research investment across federal agencies, especially the US Department of Agriculture,**
- **all overseen by a cabinet-level office within the executive branch spearheading innovations in nutrition, agriculture, and food systems.**

As stated by Commissioner of the US Food & Drug Administration (FDA) in 2018, "Improvements in diet and nutrition offer us one of our greatest opportunities to have a profound and generational impact on human health... The public health gains of such efforts would almost certainly dwarf any single medical innovation or intervention we could discover."²

Addressing our country's fundamental nutrition-related challenges requires a better understanding of their multi-factoral, inter-related biologic, individual, social, and environmental determinants, and the effectiveness of corresponding solutions. Unfortunately, the current scope and pace of federal nutrition research is insufficient. While more than 10 federal departments and agencies currently invest in critical nutrition research, their relative investments have remained flat or declined over the last several decades—even as diet-related conditions and their corresponding societal burdens have increased. At the National Institutes of Health (NIH), which receives approximately 90% of federal nutrition research dollars, nutrition research is spread across 27 Institutes, Centers, and Offices, and only 1.3% of total NIH funding focuses on diet for the prevention or treatment of disease in humans.³ The federal agency with the second largest nutrition research budget, the US Department of Agriculture (USDA), has faced declining appropriations for nutrition-relevant research and statistics, compounded by the declining public investment in agrifood research and development.

For more than 50 years, multiple government and national organizations have identified the need for greater food and nutrition coordination, but each effort has failed to achieve its goals due to lack of sufficient structure, authority, and funding. Establishing a new, cabinet-level National Director of Food and Nutrition is the natural culmination of five decades of recognition of these challenges and the need to open a new era of successful food and nutrition policy in the United States.

The time has come to reshape our current federal nutrition research landscape and promote nutrition and food policy coordination so that they adequately support the vital efforts that are critical for better health outcomes and diet-related disease treatment and prevention — a more vital workforce and economy, and a strong country with equitable access to healthy food for all.

Given the significance and complexity of the nutrition-related challenges we face, bold

action is needed especially by Congress. To strengthen national nutrition research, this issue brief argues that, in addition to taking action to strengthen research investment and capacity at agencies such as the USDA, we must establish a new cabinet-level authority for cross-governmental coordination and leadership of nutrition research and create a National Institute of Nutrition within the National Institutes of Health.

The Burden of Poor Nutrition

The burden of poor nutrition touches almost every aspect of American life. Inaccurate and insufficient scientific information about nutrition results in a wide variety of human, institutional, and societal costs that harm the US population, overburden our institutions, and decrease our global competitiveness. Lack of scientific studies and publicly available information about proper nutrition exacerbates these harms; prioritizing nutrition research and coordinating existing initiatives can help to alleviate them.

Improving the federal nutrition research landscape is critical to addressing the Biden Administration's four key priorities: COVID-19, the economy, climate change, and racism.

- **Chronic disease:** 6 in 10 Americans are sick or suffer from major medical conditions, and many of these conditions are diet-related, including diabetes, heart disease, chronic kidney disease, and certain cancers.⁴ Poor diet is the leading cause of illness in the US, and is responsible for half a million deaths per year.⁵ Evidence has shown that individuals with certain diet-related comorbidities such as diabetes and serious heart conditions, may be at higher risk for hospitalization and death from COVID-19.⁶ More than half (63%) of COVID-19 hospitalizations in the US—about 600,000 hospitalizations in 2020—may have been preventable if the country had had a metabolically healthy population.⁷



- **Health care costs:** Roughly 75% of all healthcare spending is related to management of diet-related chronic disease.⁹ In the last 50 years, federal healthcare spending has risen from 5% to 28% of the federal budget, with a similar rise in state health care spending. Rising health care expenditures for private companies threaten the growth and competitiveness of U.S. businesses.⁹
- **U.S. economic competitiveness:** The growing cost of health care strains government budgets and private business growth, limiting the ability to support other national, state, and business priorities; contributing to stagnating wages; and bankrupting individuals, families, and small businesses.¹⁰
- **Health disparities:** Nutrition-related health effects are not felt evenly across the country. Profound disparities in both diet-related chronic disease and food insecurity are experienced by low-income, rural, minority, and other populations.¹¹ This is often due to “structural inequities and deliberate public and private resource allocation decisions that exclude[s] healthy food from communities of color and poor communities.”¹² Finding solutions to disparities in food access and diet quality requires increased investment in research that yields a better understanding of the individual, social, structural, and environmental factors that create them.
- **Food insecurity:** Prior to the COVID-19 pandemic, 1 in 10 households in the US was food insecure, with significantly higher rates of food insecurity in Latinx (16.2%), Black households (21.2%), and Native American households (though there is inadequate national monitoring of data of this racial/ethnic group).¹³ With the advent of COVID-19, hunger and food insecurity have risen dramatically, with current estimates as high as 38%, compared to 11% in 2019.¹⁴ Black and Latinx households are twice as likely to be food insecure as white households, and the gap between white and Latinx households continues to grow.¹⁵ Children are suffering, with 16% of households surveyed by the Census Bureau reporting in June 2020 that children had not gotten enough to eat in the previous week.¹⁶
- **Military readiness:** Nearly 3 in 4 young Americans do not qualify for military service, with obesity being the leading medical disqualifier.¹⁷ Mission: Readiness, a group more than 750 retired US generals, admirals and other top military leaders, has declared poor nutrition for US children and youth to be a major national security threat.¹⁸



- **Sustainability:** Our food system is creating challenges to our climate and natural resources; for example, agricultural production accounts for more than 80% of the country's consumptive water use,¹⁹ and agriculture contributes to 10% of the country's greenhouse gas emissions.²⁰ The future productivity of US agriculture faces growing environmental challenges such as resource scarcity, loss of biodiversity, and soil degradation.²¹
- **Public confusion:** Consumers are inundated with often conflicting advice from multiple sources, making it difficult

to discern what information to use when making dietary choices.²² There is a large and growing appetite among Americans for credible, rigorous nutrition science information. Compounding this issue, medical and health professional training in the US generally does not include education about diet and nutrition, meaning doctors do not feel qualified to counsel patients on food choices.²³ Poor eating habits and a lack of proper information about nutrition could cost the US on average \$50 billion per year from a handful of diet-related diseases alone.²⁴

The Path Forward

Adequate investment, coordination, and leadership of federal nutrition research—integral to creating the evidence base for sorely-needed changes in nutrition policy—is necessary to ensure a healthy population and reduce burdens and costs stemming from poor nutrition. Our nation cannot afford the human, economic, and environmental cost of inaction; and the potential yield of robust research investment is too great to ignore.

This issue brief calls for two primary actions:

1. **Create a new cabinet-level Office of the National Director of Food and Nutrition (ONDFN).**
2. **Increase the profile and prioritization of nutrition research within the National Institutes of Health (NIH), the nation's largest federal funder of such research, by creating a National Institute of Nutrition in NIH.**



In lieu of, or in addition to, these critical actions, Congress, the President, and federal agencies can act in other ways to increase coordination

of nutrition research, as described in this issue brief (See Table 1).

RECOMMENDATION 1: ESTABLISH AN OFFICE OF THE NATIONAL DIRECTOR OF FOOD AND NUTRITION

The urgent need for leadership, coordination, and investment in nutrition research requires establishing a new authority for cross-governmental action on nutrition research and policy—a Congressionally authorized and funded agency led by a new, cabinet-level National Director of Food and Nutrition.*

A new Office of the National Director of Food and Nutrition (ONDFN) would increase the effectiveness and coordination of food and nutrition policy nationally, and provide the institutional infrastructure, authority, and leadership, needed to advance nutrition research and policy across diverse federal departments and agencies. ONDFN would provide essential guidance to the President, and would be empowered to support and coordinate food and nutrition policy and research efforts between the 10+ US departments and agencies comprising the federal nutrition community, including the NIH, the US Department of Agriculture (USDA), the Centers for Disease Control & Prevention (CDC), the FDA, and the Department of Defense (DOD), among others (see Appendix I).

The proposed structure of the ONDFN is similar to a tested and successful model for coordinating work across departments and agencies, the Office of the Director of National Intelligence (ODNI).²⁵ ODNI was created under the Intelligence Reform and Terrorism Prevention Act of 2004²⁶ and integrated intelligence efforts across the 16 departments and agencies that have relevant authority. Some of the

ODNI staff are individuals rotating within 16 existing departments and agencies, allowing in-depth knowledge of existing efforts and maximizing cross-agency information sharing and coordination among stakeholders.²⁷

ONDFN functions could include:

- Updating and implementing the National Nutrition Research Roadmap (2016-2021), which will guide research investments across more than 10 departments and agencies;²⁸
- Developing or supporting the development of a National Food Strategy, or a strategic plan to improve resilience of the nation's food system in the face of security threats and environmental or health crises by coordinating across the many agencies that currently regulate the food system, and aligning nutrition needs with other health, environmental, safety, and equity challenges facing the US food and agricultural system;
- Reviewing and coordinating relevant agencies' priorities and strategies to maximize nutrition research efforts and impact across various federal investments;
- Establishing objectives and priorities for the collection, analysis, and dissemination of national nutrition monitoring and surveillance;
- Evaluating and improving the effectiveness and synergies between evidence gleaned from federal nutrition

* Some calls for this type of cabinet-level leadership in food policy have used the term "Food Czar."

research and policy efforts that impact national food and nutrition availability;

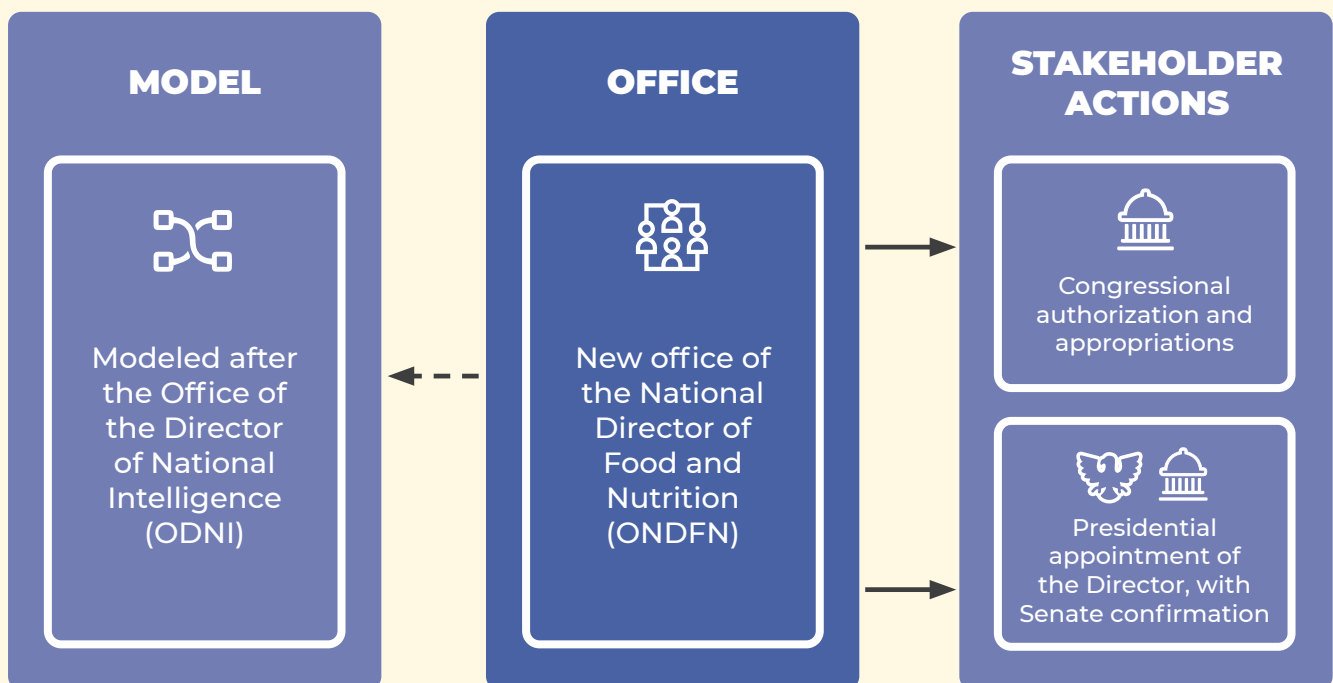
- Overseeing the coordination of external advisory groups and public-private partnerships around nutrition research and policy; and
- Coordinating with departments and agencies supporting nutrition research to develop budget requests that call for funding that is commensurate to address identified gaps and opportunities.

ONDFN would be similar to ODNI, collaborating with 10+ departments and agencies that currently make up the federal nutrition research infrastructure, and utilizing staff members who focus on federal nutrition research and policy, providing a crucial bridge between research and implementation. ONDFN would have a strong platform to create effective coordination.

The current global pandemic underscores the need for the ONDFN. COVID-19 has stressed

every part of our food system and continues to threaten our residents' food security and our nation's supply chains.²⁹ There is insufficient evidence on optimal population resilience through better nutrition and inadequate surveillance and coordination of our food system. A critical output of the ONDFN could be, in addition to updating and implementing the National Nutrition Research Roadmap, development of a National Food Strategy,³⁰ or a "coordinated, strategic federal approach to food system policy and regulation," which will "engage the various agencies and stakeholders implicated by the food system, identify food system goals as well as tradeoffs, [and] prioritize among them."³¹ Complex situations, like COVID-19, require immediate and ongoing leadership and coordination at the highest levels of the government.³² A high level, cross-governmental structure like ONDFN can enable effective and timely responses on urgent nutrition and food challenges, and emphasizing the ONDFN's role in coordinat-

Process to Create the ONDFN with Congressional Action





ing nutrition research will ensure that a robust body of evidence informs current and future activities. ONDFN should be created via legislation enacted by Congress.*

Creation of the ONDFN by Congress

- Congress authorizes the establishment of ONDFN to advise the President on food and nutrition and lead the coordination of multiple federal departments and agencies, policies, budgets, and programs. The mandate should include a clear emphasis on strengthening national nutrition research and harmonizing the 10+ agencies that currently engage in nutrition research, as well as coordinating between the nutrition ecosystem and broader food system regulatory infrastructure to meet national food goals.

- Congress appropriates funding for the establishment of this Office and annual appropriations thereafter.
- Congress indicates the required frequency of reporting (e.g., annual reporting and quadrennial assessments of progress on a national food strategy) and the Committees of oversight in the House of Representatives and Senate.
- The President appoints a National Director of Food and Nutrition; as with any Cabinet-level position, Senate confirmation would be required.
- The National Director of Food and Nutrition forms their staff based on the scope of the mandate, budget, and number of representatives from pre-existing agencies.

* Absent legislative action from Congress, the President could establish the ONDFN by Executive Order, similar to President Clinton's creation of the Office of National AIDS Policy in 1993. However, this route leaves the office vulnerable to elimination in the next Administration, and likely under-resourced to make a meaningful impact on strengthening food and nutrition research.

RECOMMENDATION 2: CREATE A NATIONAL INSTITUTE OF NUTRITION WITHIN NIH

NIH, as the nation's largest funder of health research, is an essential home for increased authority, coordination, and funding for nutrition science. Currently, nutrition research occurs across 27 Institutes, Centers, and Offices that focus on diseases or specific subsets of the population, rather than one lead Institute or Center focused on food or nutrition. NIH nutrition research investments were \$1.9 billion annually (~5% of total NIH funding) for fiscal year 2019.³³ About 25% of this funding (1.3% of total NIH funding) focuses on diet for the prevention or treatment of disease in humans.³⁴ Coordination of these efforts has been challenged by successively smaller NIH coordinating offices with decreasing stature, staff, and resources.

However, with 1 in 4 adults in the US managing two or more chronic conditions, and half of all seniors managing three or more chronic

conditions, coordination and oversight of nutrition research should be carried out by an Institute with a broad scope and focus.³⁵ Creating a new National Institute of Nutrition (NIN) within NIH, led by its own Director, with new, additive funding, would leverage and amplify NIH's existing research efforts across all of the NIH Institutes, Centers, and Offices, as well as other federal departments and agencies. The NIN would also benefit from an external advisory mechanism, composed of research experts, health professionals, and community members.

NIN functions would include:

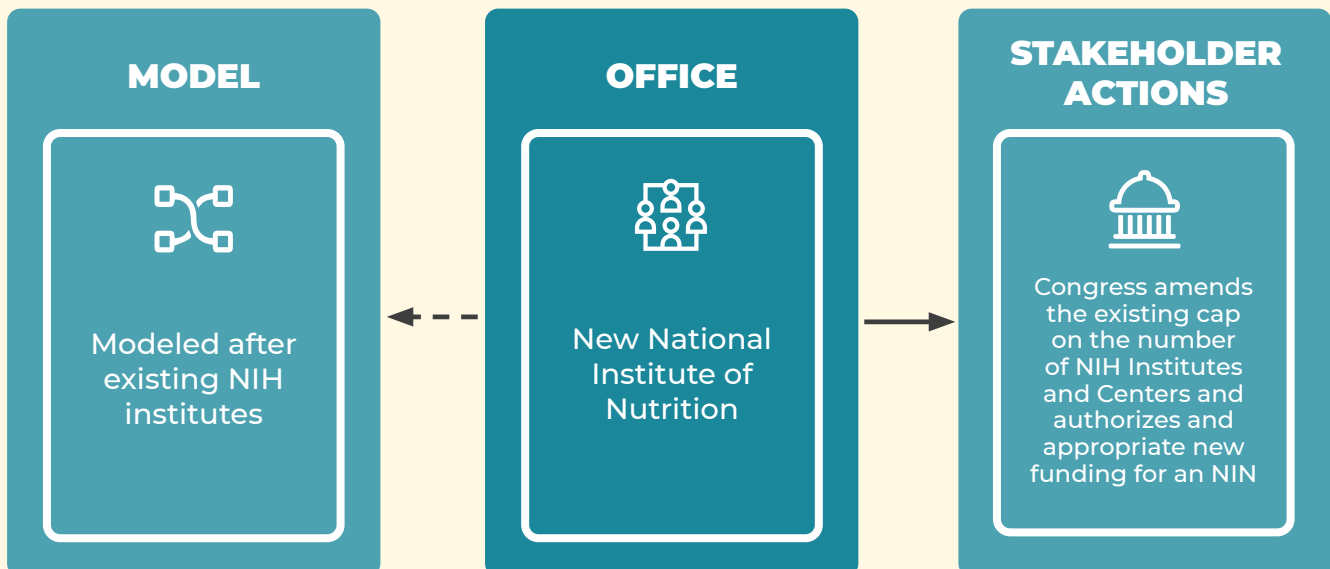
- Expanding the research and knowledge base on diet-related illnesses and their intersections with other fields through strategic planning, coordination, and evaluation of NIH nutrition research;



- Amplifying key science relevant to other NIH institutes, centers, and offices, such as on nutrition and cancer, brain health, minority health and disparities, child health, and more;
 - Partnering in the effort to review evidence and address new scientific needs for the Dietary Guidelines for Americans;
 - Support collaborative science to inform Dietary Reference Intakes, FDA food safety and regulatory activities, USDA nutrition assistance programs, CDC surveillance and public health activities, and CMS and the Center for Medicare & Medicaid Innovation (CMMI) efforts to use nutrition interventions to reduce diet-related illness and associated health care costs;
 - Promoting and supporting the training of a diverse 21st century nutrition science workforce, including in cross-disciplinary priority areas like quantitative methods and technology;
 - Providing required leadership, staff, expertise, and resources to build meaningful partnerships on nutrition-related activities and research priorities of other federal departments and agencies, in particular USDA, as well as the FDA, the CDC, the DoD, the Department of Veteran Affairs, and the Centers for Medicare & Medicaid Services, among others;
 - Working with and investing in research capacity at universities throughout the US; and
 - Leading and engaging meaningfully in public-private partnerships with non-profit organizations and international entities like the World Health Organization and World Bank.
- NIH recently transferred the Office of Nutrition Research (ONR) from the National Institute of Diabetes and Digestive and Kidney Diseases to the Division of Program Coordination, Planning, and Strategic Initiatives (DPCPSI) in the NIH Office of the Director.³⁶ This is a positive first

Process to Create a National Institute of Nutrition

- Congressional action is needed to expand the statutory cap that limits NIH to only 27 Institutes and Centers, and to direct NIH to create an National Institute of Nutrition.³⁹
- Congress appropriates additional resources to support NIN's staffing and research budget.





step toward increasing the profile and improving the trans-NIH coordination of NIH nutrition research. Establishing an Institute focused on nutrition within NIH and an Office of the

National Director of Food and Nutrition would build on this progress to give nutrition research and policy the platform and resources they need to meet modern challenges.

OTHER GOVERNMENT ACTION TO INCREASE NUTRITION RESEARCH COORDINATION

Currently, the Interagency Committee on Human Nutrition Research (ICHNR) plays the most prominent role in attempting to coordinate federal nutrition research. The Committee meets about twice a year to monitor and assess the progress of the following activities, among others: food and nutrition monitoring and surveillance, the joint USDA-HHS activities to produce the Dietary Guidelines for Americans, and assorted other regulatory, communication, and educational activities.³⁷ The Committee provides an oversight and coordination role, while staff at USDA, HHS, NIH, and other agencies lead and contribute to these efforts on an ongoing basis throughout the year. Despite the good work of the Committee, its mandate and activities are not sufficient to provide the needed federal investment in research or coordination needed to address diet-related disease burdens,

healthcare spending, health disparities, and other issues noted in this brief.

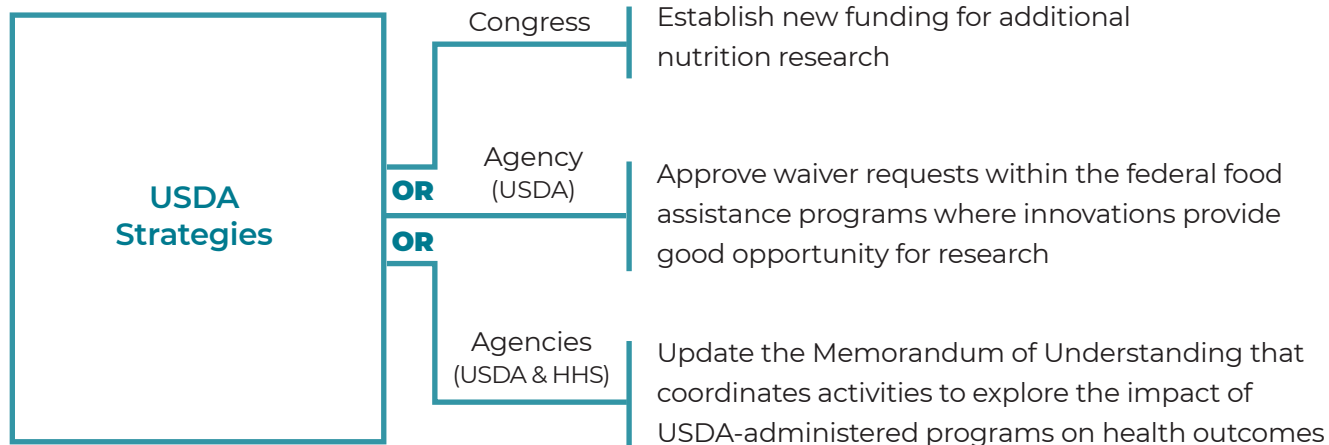
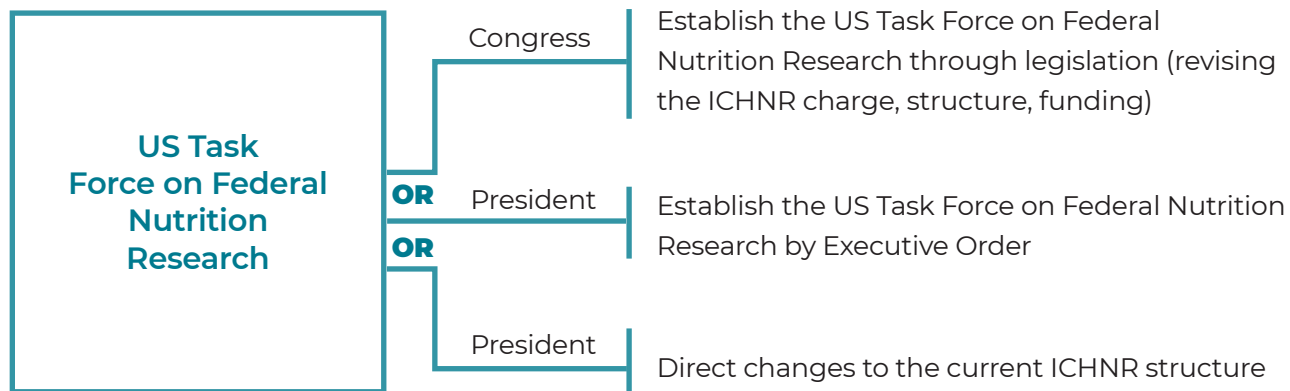
There are many other actions that Congress, the President, and individual federal agencies could take to expand cross-governmental coordination efforts. These actions could be small steps that would have a significant impact, like the recent transfer of the NIDDK ONR to the NIH Office of the Director.³⁸ All of these actions can be paired with the creation of the ONFDN and new National Institute of Nutrition, mentioned above. They should address the need for increased research investment and capacity building within the USDA, including in the Agricultural Research Service, the National Institute of Food & Agriculture, and the Economic Research Service. Table 1 describes these possible actions, their advantages, and the relevant decision-makers.

Table 1: Beyond the ONDFN and the NIN: Government Actions to Increase Coordination of Nutrition Research

OPTION	DESCRIPTION	ADVANTAGES	RELEVANT DECISION-MAKERS
<p>New US Global Nutrition Research Program (GNRP)</p>	<ul style="list-style-type: none"> Charged with improving coordination and integration of federal research on food and nutrition and the implications for the nation Modeled after the US Global Change Research Program Overseen by the Executive Office of the President and facilitated by a National Coordination Office Funded by a small portion of relevant research budgets from the participating departments and agencies 	<ul style="list-style-type: none"> Tested, effective model Dedicated structure, staff, and budget Builds on the ICHNR Clear mandate for coordination, with explicit requirements for strategic planning, rigorous assessments, and annual reporting 	<ul style="list-style-type: none"> Presidential initiative (with or without subsequent Congressional codification) Congressional authorization, ideally with Congressional appropriations
<p>New Associate Director for Nutrition Science in the White House Office of Science and Technology Policy (OSTP)</p>	<ul style="list-style-type: none"> Non-cabinet level senior position in the White House Serves as the President's advisor on issues related to nutrition research Modeled on other Associate Director positions and initiatives (e.g. 15-2014 Director of Nutrition) Provides high-level leadership to leverage and translate federal and non-federal nutrition research efforts Identify and help develop more coordinated and innovative nutrition research initiatives 	<ul style="list-style-type: none"> Brings a key leader to the White House for improved coordination, communication, and strategic planning Elevates work and impact of individual federal departments and agencies and the ICHNR Can hire advisors, special assistants, and fellows to deepen expertise and impact Creates collaborations with private sector, state and local governments, academic communities, other countries 	<ul style="list-style-type: none"> Presidential appointment
<p>New US Task Force on Federal Nutrition Research</p>	<ul style="list-style-type: none"> Charged with improving coordination and integration of federal nutrition research Modeled after the successful US Task Force for Combating Antibiotic-Resistant Bacteria Co-chaired by the Secretaries of HHS, USDA, DoD, and possibly the Department of Veterans Affairs, with additional membership from other departments and agencies Would develop a five-year National Food Strategy with required annual reporting to the President on progress 	<ul style="list-style-type: none"> Tested, successful model Cabinet-level leadership Concrete National Food Strategy with required annual reports Advisory Council to leverage external expertise Strengthen coordination, communication, and budgetary priorities toward the highest-impact shared agenda 	<ul style="list-style-type: none"> Presidential Executive Order Presidential directive to revise the ICHNR structure Legislation to revise the ICHNR charge, structure, and funding
<p>New Strategies at the USDA</p>	<p>Internal opportunities at USDA include:</p> <ul style="list-style-type: none"> Increase investment for nutrition research in the Research, Education, and Economic mission area Ensure full staffing and sufficient resources for research within the Agricultural Research Service, the Economic Research Service, and the National Institute of Food and Agriculture Increase evaluation infrastructure within SNAP-Ed, the education arm of the Supplemental Nutrition Assistance Program. Expand research on nutrition education within the Special Supplemental Nutrition Program for Women, Infants, and Children Increase pilots and waivers that evaluate various innovations to increase healthy eating within our federal food assistance programs Coordinate efforts with Medicaid and Medicare to collect data on health outcomes Ensure evaluation of any waivers to USDA-administered program requirements approved during COVID-19, with a focus on implications for current and future program operation during crises 	<ul style="list-style-type: none"> As the federal agency with the second largest investment in nutrition research, investment in the USDA's capacity to conduct and coordinate research would change the nutrition research landscape. Increased evaluation of innovation within the federal food assistance programs offer the opportunity to affect the diet of hundreds of tens of millions of Americans. The USDA's dual focus on agriculture and nutrition makes it uniquely equipped to conduct research looking at the impact of sustainability innovations on nutrition and vice versa. 	<ul style="list-style-type: none"> Appropriations by Congress for additional research Agency approval of new federal food assistance program waiver requests Coordination between USDA and HHS to understand impact of USDA-administered programs on health outcomes

RECOMMENDATIONS TO MEET THE CHALLENGE OF POOR NUTRITION IN THE UNITED STATES: SUMMARY (PRIORITIES IN YELLOW)

POLICY	DECISION MAKER	ACTION
<p>Cabinet-level Office of the National Director of Food and Nutrition</p>	<p>Congress</p>	<p>Establish an Office of the National Director of Food and Nutrition through legislation</p>
<p>National Institute of Nutrition within NIH</p>	<p>Congress</p>	<p>Lift the cap on Institutes, Centers, and Offices within NIH through legislation and create a National Institute of Nutrition.</p>
<p>US Global Nutrition Research Program (GNRP)</p>	<p>Congress OR President</p>	<p>Establish US GNRP through legislation</p> <p>Establish the US GNRP by Executive Order</p>
<p>Associate Director for Nutrition Science in the White House Office of Science and Technology Policy (OSTP)</p>	<p>President</p>	<p>Establish the Associate Director of Nutrition Science by Presidential appointment</p>



As food writer M.F.K. Fisher said, “First we eat, then we do everything else.” The health of our residents and the security of our nation depends on prioritized, coordinated, and well-resourced nutrition science and policy. The actions highlighted in this brief are critical steps to a better, healthier future.

Conclusion

The current scope of nutrition knowledge and pace of nutritional discovery is insufficient to address the significant nutrition-related challenges facing our nation. Food insecurity, a persistent problem in the United States even before COVID-19, has dramatically increased with a pandemic that is exposing weaknesses in our food system and putting a spotlight on the medical vulnerability associated with diet-related chronic disease. The consequences of a fragmented food system are disproportionately experienced by communities of color, whose rates of food insecurity are significantly higher than those of white people and who have higher rates of severe illness and death from COVID-19. We can no longer afford or tolerate a food system with persistent gaps in critical knowledge, leadership, and coordination that leaves our nation vulnerable to external global threats, disease, and economic instability. Even before COVID-19, diet-related disease was the most common and costly health-related concern facing the nation, contributing to rising health care costs that are simply unsustainable. Now is the time for bold action to create the infra-

structure and institutions imbued with the necessary authority to effectively respond to the complex circumstances we confront. With increased investment in nutrition research that centers racial equity in design, execution, and dissemination, we can begin to address centuries of policies and practices that have created the disparities we see today. We can turn the tide on health care costs by knowing more about the relationship between nutrition and health. Therefore, Congress must act to create an Office of the National Director of Food and Nutrition. Given all that we stand to gain, from discoveries that could transform individual and community health to research that supports maximally efficient use of government nutrition resources and programs, we must also prioritize nutrition research within our largest health research institution. To that end, Congress should act to establish and fund a National Institute of Nutrition to guide strategic planning, funding, and coordination of nutrition research across the NIH and beyond. Increased, complementary investments in nutrition research should also occur at USDA and other key federal agencies.



APPENDIX I: FEDERAL AGENCIES THAT PLAY A ROLE IN HUMAN NUTRITION RESEARCH⁴⁰

DEPARTMENT OR AGENCY (DEPARTMENT)	DESCRIPTION	ESTIMATED ANNUAL EXPENDITURES ON NUTRITION RESEARCH* (MILLIONS)
National Institutes of Health (HHS)⁴¹	Supports biomedical research, training, and infrastructure in nutrition to improve health and this work is carried out by investigators in research organizations and settings throughout the country, primarily in universities and biomedical research centers	\$1,900
Agricultural Research Service (USDA)⁴²	Works to advance human nutrition research in a variety of ways, drawing from a number of its national programs, including the Human Nutrition National Program that works to: (1) link agricultural practices and beneficial health outcomes; (2) monitor food composition and nutrient intake of the nation; (3) determine the scientific basis for dietary guidance; (4) prevent obesity and obesity-related diseases; and (5) understand life-stage nutrition and metabolism	\$88
National Institute of Food and Agriculture (USDA)⁴³	Invests in and advances agricultural research, education, and extension and through its food, nutrition, and health programs works to strengthen the nation's capacity to address issues related to diet, health, food safety, food security, and food science and technology	\$42
Food and Nutrition Service (USDA)⁴⁴	Conducts research and makes use of the nutrition research sponsored by other federal agencies to help assess and improve the 15 FNS programs and conducts secondary research such as systematic reviews and policy-related research to develop and disseminate the latest edition of the dietary guidelines every five years, including development of USDA Food Patterns, Healthy Eating Index, USDA Food Plans, and communications research	\$41
Centers for Disease Control and Prevention (HHS)⁴⁵	Addresses nutritional issues related to population health through surveillance, intramural and extramural research, the translation of research into practice, and program implementation	\$9
Food and Drug Administration (HHS)⁴⁶	Depends on nutrition research to inform its many regulatory and other activities on food labeling, oversight of food additives and constituents of foods, nutrition education activities, and other nutrition-related work; and conducts its own research activities including consumer studies to support nutrition labeling and claims, assessments of constituents of the food supply, development of methods for analyzing food constituents, surveys on health, analyses of dietary intake, monitoring of adverse events from dietary foods and supplements, and cost/benefit analyses of various nutrition regulatory activities	\$8

* There is no annual budget reporting for federal nutrition research and related activities so the footnotes indicate the activities and, where possible, the fiscal year associated with the estimate provided.

DEPARTMENT OR AGENCY (DEPARTMENT)	DESCRIPTION	ESTIMATED ANNUAL EXPENDITURES ON NUTRITION RESEARCH* (MILLIONS)
Department of Defense ⁴⁷	Develops, implements, and evaluates effective nutritional strategies to optimize performance before, during, and after training and operations	\$5
Agency for International Development ⁴⁸	Adopts, adapts, modifies, and increases the information, evidence, practices, and technologies of US institutions in human nutrition to be applicable to USAID target populations in developing countries to: improve food security and nutrient adequacies; increase access to safe water; and reduce infectious diseases, environmental toxins, poor sanitation, and parasitism	\$4
Economic Research Service (USDA) ⁴⁹	Conducts and supports studies examining the actions of and interactions among consumers, food industry, and government as they relate to food supply and access; food choice and its impact on diet quality; and federal nutrition assistance, regulation, and other aspects of food policy	N/A
Department of Commerce ⁵⁰	National Institute of Standards and Technology (NIST) provides food-matrix Standard Reference Materials (SRMs) for the determination of trace element content, including both nutrient elements (minerals) and toxic metal contaminants. National Oceanic and Atmospheric Administration (NOAA) contributes to advancing human nutrition research through its work on seafood	N/A
National Aeronautics and Space Administration ⁵¹	Conducts life sciences research in space flight on the International Space Station (ISS) and in ground-based analogs of space flight (e.g., extended bed rest, Antarctic winters, undersea habitats)	N/A
Federal Trade Commission ⁵²	Relevant work and interest primarily focuses on food marketing to children	N/A
Environmental Protection Agency ⁵³	Conducts risk assessments regarding dietary exposure of chemicals	N/A
Health Resources and Services Administration (HHS) ⁵⁴	Provides health care to people who are geographically isolated, economically or medically vulnerable, including people living with HIV/AIDS, women who are pregnant, mothers and their families, and those in need of high-quality primary health care, and supports the training of health professionals, the distribution of providers to areas where they are needed most, and improvements in health care delivery	N/A

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43. Specific Agriculture and Food Research Initiative (AFRI) programs include Foundational and Applied Sciences [anticipated amount available for new grants in this fiscal year 2020 for this request for funding applications (RFAs) is approximately \$192.6 million], which includes 6 priority areas including the number 3 area, Food Safety Nutrition and Health, and the Nutrition program area priorities are Diet, Nutrition and the Prevention of Chronic Diseases and Food and Human Health; Sustainable Agricultural Systems (anticipated amount available for new grants in this fiscal year 2020 for this RFA is approximately \$90 million); and Education and Workforce Development (anticipated amount available for new grants in fiscal year 2019 for this RFA is approximately \$29.166 million and this fiscal year 2020 has not been determined yet). Selected Higher Education Programs include Distance Education Grants Program for Institutions of Higher Education in Insular Areas (estimated total program funding: \$800,000), Higher Education Challenge Grants (estimated total program funding: \$4,500,000), and Hispanic-Serving Institutions Education Grants Program (estimated total program funding: \$8,800,000). The 2018 Farm Bill increased mandatory commitments to the Gus Schumacher Nutrition Incentive Program up to \$250 million over 5 years and estimated total funding for fiscal year 2019 projects was \$41 million. In addition, the Community Food Projects Competitive Grant Program estimated total program funding in fiscal year 2019 was approximately \$4,800,000. Also relevant, the Women and Minorities in Science, Technology, Engineering, and Mathematics Fields Program (WAMS) estimated total program funding in fiscal year 2019 was \$400,000. There are other RFAs that solicit nutrition-relevant activities including work with the Expanded Food and Nutrition Education Program (EFNEP) (estimated total program funding in fiscal year 2019 was \$68,440,680 to support program implementation by land-grant universities) and partnering with the USDA Food and Nutrition Service (FNS) on Supplemental Nutrition Assistance Program Education (SNAP-Ed) by facilitating communication among federal, state, and local partners and providing programmatic leadership to cooperative extension/land-grant university program implementers for effective nutrition education and obesity-prevention interventions through the land-grant system in conjunction with other implementing agencies and organizations. The USDA National Institute of Food and Agriculture (NIFA) also supports a range of other career development and training programs relevant to human nutrition research.
44. For fiscal year 2020, overall FNS spending on federal nutrition assistance programs: \$97.3 billion; estimated FNS spending on nutrition education and promotion: \$1.2 billion [mostly Supplemental Nutrition Assistance Program (SNAP) and Special Supplemental Nutrition Program for Women, Infants, and Children (WIC)]; and estimated FNS spending on nutrition assistance-related research and analysis: \$34 million [\$14 million SNAP, \$15 million Child Nutrition (CN), \$5 million WIC]. For the Center for Nutrition Policy and Promotion (CNPP), an estimate of approximately \$6.6 million in fiscal year 2020 for nutrition evidence reviews, committee support, and Dietary Guidelines for Americans (DGA)-related educational development. Congress provided CNPP a one-time allocation of \$12.3 million in the fiscal year 2019 appropriations bill to complete the 2020–2025 DGA over the next 3 years.
45. The CDC Division of Nutrition, Physical Activity, and Obesity (DNPAO) funds the Nutrition and Obesity Policy Research Network (NOPREN) at \$300,000 each year, which is their only dedicated research project out of the Obesity Branch. The Obesity Branch has 2 full-time employees (FTEs) dedicated to the epidemiology and surveillance of nutrition/obesity (e.g., fruits and vegetables, added sugars, water, food systems, obesity). The CDC's Childhood Obesity Research Demonstration (CORD) Project 3.0 (2019–2024) is focused on childhood obesity weight-management program applied research and nutrition is a component but not considered traditional nutrition research. Five grants were awarded with a total budget of \$12.5 million. The Infant Feeding Practices III (IFPS III) (2019–2026) study cost estimate is \$3.4 million. The Nutrition Branch has 1 FTE dedicated to the IFPS III. Additional DNPAO funding goes towards other nutrition-relevant surveillance systems. The CDC Division of Population Health School Health Branch addresses nutrition, physical activity, and chronic health conditions in the school setting through research and programmatic activities. The following estimates reflect funds for nutrition-related research activities: 1) Contribution to the Youth Risk Behavior Surveillance System (YRBSS) and School Health Profiles, which is administrated by the CDC's National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention Division of Adolescent and School Health: \$18,500 per year (this is the portion for nutrition topics). Also, 1.5 FTEs work on nutrition research including descriptive and analytic projects, research synthesis, and research translation. The School Health Branch also supports program evaluation relevant to nutrition estimated at 0.5 FTE and \$100,000 per year in 1801 evaluation contract. There are other activities within the CDC's National Center for Chronic Disease Prevention and Health Promotion that are relevant to nutrition and these activities likely account for a 5% estimate of non-DNPAO Divisions' budgets (see the US Department of Health and Human Services, CDC National Center for Chronic Disease Prevention and Health Promotion. Available at <https://www.cdc.gov/chronicdisease/programs-impact-budget/index.htm> (accessed 27 April 2020). The total costs to conduct the NHANES in fiscal year 2019 was approximately \$40 million. This does not include staff salaries or in-kind contributions for work such as laboratory processing or dietary data coding provided by other parts of the CDC or other agencies such as USDA. This also does not include nutrition-related support for the NHANES from outside the CDC. The nutrition-related NHANES activities attributable costs was approximately \$8 million for fiscal year 2019.
46. Report to Congressional Requesters: Food Safety and Nutrition. FDA Can Build on Existing Efforts to Measure Progress and Implement Key Activities. GAO-18-174. THE GOV. ACCOUNTABILITY OFF. January 2018, <https://www.gao.gov/assets/690/689796.pdf> (last visited Feb. 26, 2020).
47. The largest resource for nutrition research in the Department of Defense is the Army, which received about \$3.3 million in fiscal year 2020 for its intramural nutrition research program. The Army nutrition research program also seeks extramural support, which varies from year to year but in fiscal year 2020 is estimated to receive \$1.4 million. The Uniformed Services University of Health Sciences is estimated to receive \$750,000 per year through 2022. Other services, including the Air Force and Navy, conduct nutrition research, although budgets vary and may depend upon extramural funding sources.
48. Report to Congress on Health-Related Research and Development for Fiscal Year 2018, U.S. AGENCY FOR INT'L DEV. <https://www.usaid.gov/open/reports-congress> (last visited 27 February 2020).
49. USDA Economic Research Service (ERS) fiscal year 2019 budget was \$87 million, which covered research led by 3 research divisions: market and trade economics, resource and rural economics, and food economics. The ERS does not have a more specific number for food, food security, and nutrition-relevant research. The Research Innovation and Development Grants in Economics (RIDGE) program was supported by USDA ERS and FNS; it awarded 8 grants in 2019 and will hold a conference to present findings from those awards in 2020 but has no further funding at this point. The RIDGE program has funded >285 products at >100 educational and research institutions during 1998–2019. USDA ERS and FNS have co-sponsored the National Household Food Acquisition and Purchase Survey (FoodAPS-1); research grants for analysis of FoodAPS-1, and methodological research to develop FoodAPS-2, as well as a number of data development activities. Between 2013 and 2018, USDA FNS funded approximately 50 cooperative research agreements and grants between the ERS researchers, university-based centers, and university-based researchers, tallying >\$3 million provided through the ERS. These agreements have covered wide ranging topics including food security, SNAP, WIC, School Meal Programs, promotion of healthier eating, and the food retail environment.
50. There is a specific internal budget for the production of Standard Reference Materials (SRMs), which includes but is not limited to the National Institute of Standards and Technology's (NIST's) food matrix items but there is not an exact estimate at this time for other nutrition research-relevant activities across the NIST. Relevant program descriptions indicating staff support and activities are available on the NIST website (see NIST. Measurements and Standards to Support Nutrition Labeling. Available at <https://www.nist.gov/programs-projects/measurements-and-standards-support-nutrition-labeling> (accessed 27 April 2020). There is no current budget estimate for the National Oceanic and Atmospheric Administration's (NOAA's) nutrition research relevant activities while current staff are actively engaged in this area.
51. The Federal Trade Commission (FTC) has not engaged in any research related to nutrition in recent years. Since about 2010, Congress prohibited the FTC from completing the study they were conducting with FDA, CDC, and USDA on nutrition standards for food marketing to children.
52. There is no specific nutrition research budget as this work is mainly in-house analyses utilizing the National Health and Nutrition Examination Survey (NHANES) data. Other groups within the Environmental Protection Agency such as the Office of Research and Development and the Office of Air and Radiation also rely on the NHANES, but these data are freely available and NHANES is not contracted with the CDC to collect.
53. Nutrition is generally addressed in the context of larger initiatives, so it is not possible for the Health Resources and Services Administration (HRSA) to break out an accurate funding estimate.



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