

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

## EXECUTIVE SUMMARY

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Poor nutrition is challenging almost every aspect of our society, contributing to poor health, health disparities, and preventable healthcare spending. Greater federal coordination and investment in nutrition research could accelerate discoveries across numerous critical areas and positively impact public health, equity, the economy, national security, and the nation's resilience to new threats.

This white paper reviews 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.

This white paper also reviews specific key options for strengthening and accelerating federal nutrition research, including the advantages, disadvantages, and paths forward for each.

The conclusions make clear that a strengthening of federal nutrition research will provide a significant return on investment, creating the foundation to improve and sustain the health of all Americans, reduce health disparities, lower healthcare spending, strengthen our food system, improve military readiness, reinvigorate our farms and rural communities, and advance innovation, new jobs, and economic growth.

The options outlined herein provide a roadmap of choices to grasp the opportunity before us.

## THE BURDEN

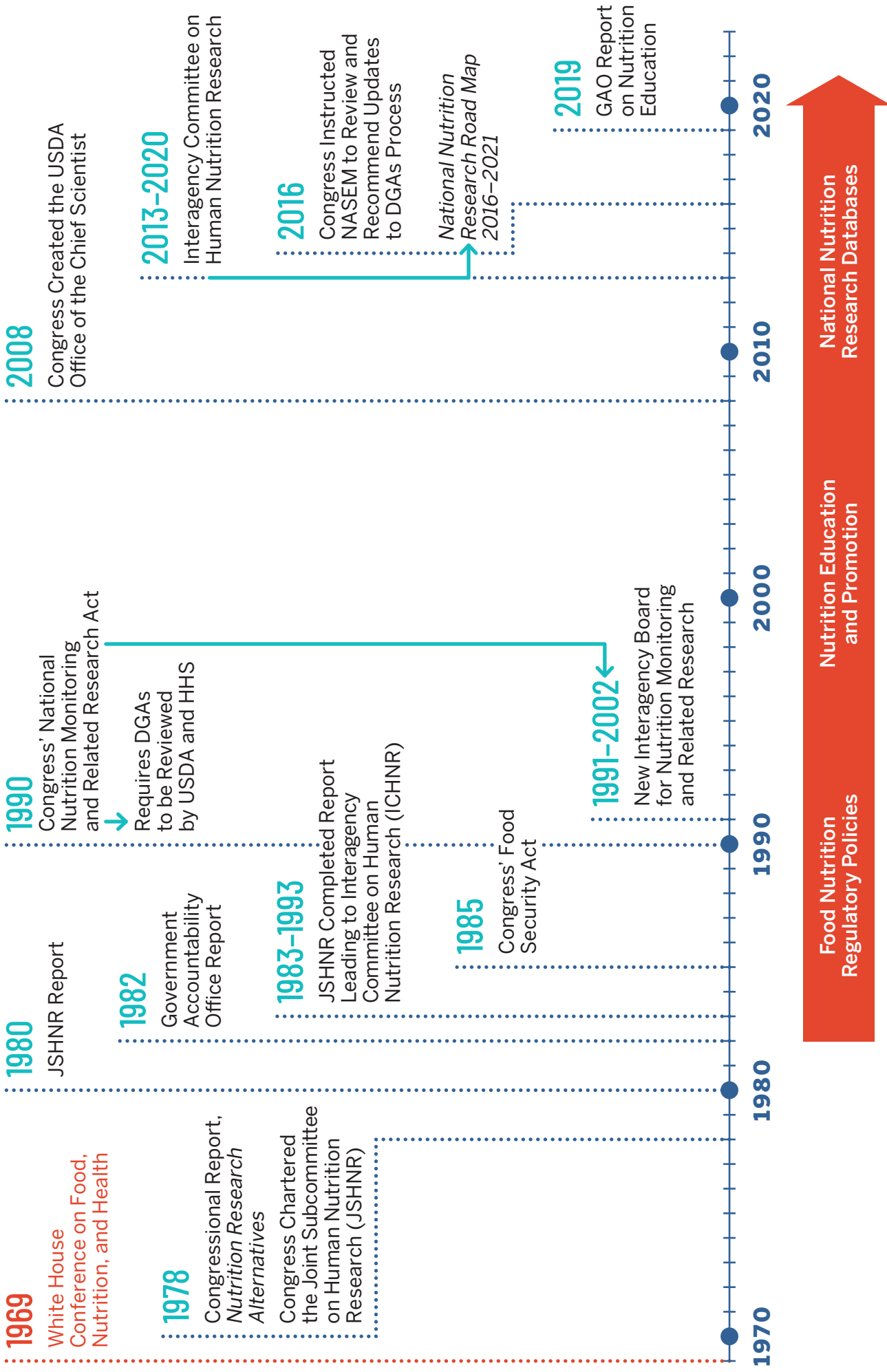
Diet-related illnesses are the leading source of poor health in the U.S. Nearly 3 in 4 American adults are overweight or obese, and 1 in 2 have diabetes or prediabetes – and these rates continue to rise. Poor nutrition further contributes to cardiovascular diseases, several cancers, poor gut health, and many other disorders. Beyond effects on health, these diet-related diseases create enormous strains on productivity, healthcare spending, health disparities, and military readiness. Our food system also strains our natural resources, a crucial new area of intersecting science and policy.

Profound disparities in both diet-related chronic diseases and food insecurity, for example, are experienced by low-income, rural, minority, and other underserved populations. Nearly 3 in 4 young Americans do not qualify for military service, with obesity being the leading medical disqualifier. Obesity and other diet-related chronic diseases are endemic among veterans, while obesity and food security co-exist in many active duty military families. Over just 50 years, federal healthcare spending has risen from 5% to 28% of the federal budget, while US business (inflation-adjusted) spending on healthcare has increased from \$79 billion to \$1,180 billion. About 85% of current healthcare spending is related to management of diet-related chronic diseases. For diabetes alone, the U.S. government spends ~\$160 billion/year on direct medical care, dwarfing the annual budgets of many individual federal departments and agencies including the Departments of Education, Homeland Security, and Justice; and the National Institutes of Health (NIH), Centers for Disease Control and Prevention, Environmental Protection Agency, and Food and Drug Administration.

These strains have been further exposed and exacerbated by COVID-19. This includes, for example, challenges related to hunger and food insecurity; major diet-related comorbidities for poor outcomes from COVID-19; insufficient evidence on optimal population resilience through better nutrition; and inadequate surveillance and coordination of our food system. Addressing each of these issues requires a better understanding of their multi-level, inter-related biologic, individual, social, and environmental determinants, and the corresponding translational solutions. However, the current scope and pace of nutritional knowledge and discovery is insufficient to address the fundamental nutrition-related challenges facing the nation.

To read the white paper, support this effort, or learn more, visit [sites.tufts.edu/nutritionadvisory](https://sites.tufts.edu/nutritionadvisory) or contact [federalnutritionresearch@tufts.edu](mailto:federalnutritionresearch@tufts.edu).





# CALLS FOR GREATER FEDERAL NUTRITION RESEARCH COORDINATION



This timeline includes select key examples of calls for greater federal nutrition research coordination in the last decades. To read the full white paper, please visit [SITES.TUFTS.EDU / NutritionAdvisory/The-White-Paper](https://sites.tufts.edu/nutritionadvisory/the-white-paper).

# THE BURDEN

**Major nutrition-related burdens, and corresponding fundamental scientific questions to address them, touch almost every aspect of our lives.**

<p><b>CHRONIC DISEASES</b></p>  <p>Poor diet is the leading cause of illness in the US, causing half a million deaths per year related to obesity, diabetes, cardiovascular disease, and cancers.</p>	<p><b>FOOD INSECURITY</b></p>  <p>1 in 9 households — or 37 million Americans, including 11 million children — were food insecure in 2018; and things are much worse with COVID-19.</p>	<p><b>HEALTH DISPARITIES</b></p>  <p>Significant diet-related health disparities are experienced by minority, rural, low-income, and other underserved populations.</p>
<p><b>PUBLIC CONFUSION</b></p>  <p>There is a large and growing appetite among Americans for credible, rigorous nutritional science information.</p>	<p><b>HEALTHCARE COSTS</b></p>  <p>National healthcare spending has skyrocketed to reach nearly 1 in 5 dollars in the entire US economy, with most of this due to diet-related chronic diseases.</p>	<p><b>GOVERNMENT BUDGETS</b></p>  <p>Federal spending on healthcare has risen from 5% to 28% of the total federal budget since 1970. The U.S. government spends \$160 billion annually on direct healthcare for diabetes alone.</p>
<p><b>US ECONOMIC COMPETITIVENESS</b></p>  <p>Healthcare expenditures for U.S. businesses have increased 15-fold since 1970 (adjusted for inflation), harming global competitiveness and contributing to stagnating wages.</p>	<p><b>MILITARY READINESS</b></p>  <p>71% of young people between the ages of 17 and 24 years do not qualify for military service, with obesity being the leading medical disqualifier.</p>	<p><b>LINKS TO SUSTAINABILITY</b></p>  <p>Nutrition security is interrelated with resource scarcity, loss of biodiversity, water shortages, warming climate, and soil degradation from food production.</p>

Poor nutrition is causing escalating diet-related disease burdens, with crippling economic, health equity, national security, and sustainability implications. A new national “moonshot” on nutrition research is needed to create the authority, coordination, and investment the nation requires to address these challenges and grasp the opportunities we face.

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## THE CURRENT LANDSCAPE

More than 10 federal departments and agencies currently invest in critical nutrition research. Their relative investments in nutrition research have remained flat or declined over several decades – even as diet-related conditions and their societal burdens have climbed. The NIH is the largest funder, with nutrition research investments estimated at \$1.9 billion annually (~5% of total NIH funding). About 25% of this funding (1.3% of total NIH funding) focuses on diet for the prevention or treatment of disease in humans. This NIH nutrition research is conducted and supported across nearly all of the 27 current NIH Institutes and Centers. Coordination of these efforts has been challenged by successively smaller NIH coordinating offices with decreasing stature, staff, and resources. The USDA is the second largest funder of U.S. nutrition research, with an estimated annual budget of ~\$0.17 billion across several institutes and services. Several structures work to improve research coordination within USDA, although a recent USDA workshop identified major gaps and needs in nutrition research coordination. Multiple other federal agencies invest in nutrition research, including the CDC, FDA, DOD, USAID, VA, NASA, and others.

Consistent with this segmented infrastructure, multiple major reports over 50 years have called for greater coordination of federal nutrition research. Current coordination efforts include the Interagency Committee on Human Nutrition Research, work to coordinate food and nutrition surveillance, the joint USDA-HHS activity to produce the Dietary Guidelines for Americans (DGAs), and certain regulatory, communication, and educational activities. However, no concrete authority has been created to successfully harmonize and leverage the federal investments in nutrition research.

Overall, this white paper and several prior reports found these efforts to be important but insufficient to address current and rising diet-related disease burdens, food insecurity, health disparities, healthcare costs, challenges to military readiness, and intersections with agricultural production, supply chains, and sustainability.

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Several lines of evidence support a strong return on investment for an expanded and coordinated nutrition research effort. As stated by the FDA Commissioner 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.”

# THE OPPORTUNITY

**Nutrition is challenging in almost every aspect of our society. Greater federal coordination and investment in nutrition research could accelerate discoveries across numerous critical areas and positively impact the economy, public health, and population resilience to new threats.**

<p><b>Public Guidance</b></p>  <p>Better science to promote optimal dietary guidance for the public, including government investments in the DGAs, food labeling, health claims, menu labeling, SNAP-Ed, and more</p>	<p><b>Fundamental Discovery</b></p>  <p>Fundamental and translational science on nutrition and the microbiome, epigenetics, the first 1000 days, healthy aging, obesity, diabetes, immunity, autism, food allergies, and more</p>	<p><b>Precision Nutrition</b></p>  <p>Big data research on novel technologies, genetic, epigenetic, and metabolomic platforms, personal and environmental sensors, and precision nutrition</p>
<p><b>Health Equity</b></p>  <p>Investigation of nutrition-related health disparities and their complex and insufficiently understood individual, social, and environmental drivers</p>	<p><b>Implementation Science</b></p>  <p>Translational and implementation science on eating behavior, social determinants of health, industry marketing, and community food environments including retail, restaurant, school, and worksite settings</p>	<p><b>Food is Medicine</b></p>  <p>Research on “food is medicine” approaches in healthcare, such as medically-tailored meals, produce prescription programs, and nutrition education for healthcare providers</p>
<p><b>Federal Investments</b></p>  <p>Research to better leverage the large federal investments in 15 federal nutrition assistance programs (~\$100 billion/year), as well as in nutrition-related diplomacy, development, and defense, including at USAID (\$27 billion/year), DoD, VA, and NASA</p>	<p><b>Reduced Healthcare Spending</b></p>  <p>Less federal, state, private, and individual healthcare spending on diet-related chronic diseases</p>	<p><b>Regulation</b></p>  <p>Coordinated science for major regulatory issues, such as on food safety, health claims, food additives, dietary supplements, novel food categories (e.g., plant-based meat alternatives, cellular agriculture), and food and menu labeling</p>
<p><b>Partnerships and Innovation</b></p>  <p>Expanded research to support public-private partnerships and US business and farming innovations and entrepreneurship</p>	<p><b>Agriculture and Sustainability</b></p>  <p>Coordinated research around nutrition, food and agricultural production, food processing and manufacturing, supply chains, and sustainability</p>	<p><b>Monitoring &amp; Surveillance</b></p>  <p>Expanded and harmonized food and nutrition-related monitoring and surveillance</p>

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## THE OPTIONS

Any new federal nutrition research investment and coordination structure must leverage, harmonize, and catalyze—not diminish or replace—the existing efforts being led across multiple federal departments and agencies. Two complementary strategies were identified: (1) a new authority for robust cross-governmental coordination of nutrition research and other nutrition-related policy; and (2) strengthened authority and investment for nutrition research within the National Institute of Health (NIH). A third priority strategy was (3) the need for strengthened investment and coordination in food and agricultural research at USDA. Improved coordination between federal departments and agencies conducting nutrition research was identified as having tremendous potential for accelerating essential basic, clinical, public health, and translational discoveries.

Promising cross-governmental, NIH, and USDA options to strengthen and accelerate national nutrition research, each discussed in detail in the White Paper, are:

### Cross-Governmental

- a new Office of the National Director of Food and Nutrition (ONDFN)
- a new US Global Nutrition Research Program (USGNRP)
- a new Associate Director for Nutrition Science in the White House Office of Science and Technology Policy (OSTP)
- a new US Task Force on Federal Nutrition Research.

### Within NIH

- a new National Institute of Nutrition (NIN)
- a new National Center for Nutrition Research (NCNR)
- a return of the Office for Nutrition Research (ONR) into the NIH Office of the Director
- development of new Trans-NIH Initiatives in Nutrition Research.

### Within USDA

- Increased investment in nutrition research across the USDA Research, Education, and Economics mission area
- Expanded USDA Research to improve public guidance and education
- Innovative USDA research to strengthen benefits of nutrition assistance programs.

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## STRENGTHENED INVESTMENT WITHIN NIH: ONE KEY OPTION

# NEW NATIONAL INSTITUTE OF NUTRITION (NIN)

### KEY CHARACTERISTICS

- ✓ Leads research, coordination, training, outreach on foundational and cross-cutting topics in nutrition and health
- ✓ Additive funding and focus areas to existing NIH and other federal nutrition research efforts
- ✓ Harmonizes and leverages other nutrition and related research at NIH and other agencies and departments
- ✓ Strong partner to inform, collaborate on, and help address joint research needs of other agencies and departments
- ✓ Promotes and supports training of a diverse 21st century nutrition research workforce
- ✓ Guides and supports training of healthcare professionals for clinical care and basic and translational science in nutrition
- ✓ Translates and disseminates sound nutrition science findings to the public
- ✓ Fosters innovative external collaborations and partnerships

### BENEFITS

- ✓ Strong leadership, robust infrastructure, and investment
- ✓ Can better address nutrition science that is cross-cutting rather than disease specific
- ✓ Includes extramural and intramural research, training, and outreach activities
- ✓ Long-term, leading to unforeseeable positive returns and evolving appropriately with changing science and needs of the population
- ✓ Meaningful external advisory mechanism to solicit diverse relevant insights and input
- ✓ Strong return on investment, in line with or exceeding other NIH research investments



**A new NIN would create strong authority, infrastructure, investment, and external advisory mechanisms for nutrition research at the nation's largest funder of science.**

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## COORDINATION: ONE KEY OPTION

# NEW OFFICE OF THE NATIONAL DIRECTOR OF FOOD AND NUTRITION (ONDFN)

### KEY CHARACTERISTICS

- ✓ President-appointed, Senate-confirmed Director of National Nutrition, serving as the Principal Nutrition Advisor to the White House, heads of executive branch departments and agencies, senior military, and Congress
- ✓ Modeled after the Office of the Director of National Intelligence, created after September 11 to coordinate fragmented national intelligence efforts
- ✓ Coordinate and harmonize the work of the 10+ US departments and agencies that comprise the federal food and nutrition community, including NIH, USDA, USAID, DoD, VA, CDC, FDA, DoE, CMS, CMMI, NASA, and more
- ✓ Assess and improve effectiveness and synergies of federal food and nutrition research and policy
- ✓ Ensure that timely and objective national nutrition information is provided to the White House, federal agency leaders, military commanders, and Congress

### BENEFITS

- ✓ Tested, effective model
- ✓ Dedicated leadership, staff, and funding
- ✓ Builds on the ICHNR, with much stronger coordination and synergies across departments and agencies and a stronger dissemination platform
- ✓ Can be mobilized to advise on urgent situations (e.g., COVID-19) which require pre-existing robust leadership and coordination across agencies and departments
- ✓ Broader than solely nutrition research, intersects with food assistance

**PATH FORWARD**



Congressional authorization and appropriation



Presidential appointment of the Director, with Senate confirmation

**A new ONDFN would efficiently and effectively help identify high-impact topics of strategic interest, accelerate new fundamental and transactional advances, and increase synergies across diverse federal departments and agencies.**

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## CONCLUSIONS

This white paper identified many stark and growing national challenges related to nutrition. Our research further documented a diversity of federal investments in nutrition research across departments and agencies, but with flat or declining funding and with suboptimal coordination authority. The opportunities to be gained by greater coordination and investment in federal nutrition research are clear, with potential for large and rapid return on investment.

This white paper identified and described two priority strategies, including (1) a new authority for cross-governmental coordination; and (2) strengthened authority, investment, and coordination within NIH. Additional important strategies were also identified at USDA. All these strategies were found to be complementary, providing independent as well as synergistic benefits. The identified specific options would help create the new leadership, strategic planning, coordination, and investment the nation requires to address the multiple nutrition-related challenges before us, and grasp the corresponding opportunities.

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