

June 25, 2015

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Division of Nutrition Research Coordination  
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Dear Dr. Fleischhacker:

On behalf of our 158,000 members, we are pleased to comment on the Interagency Committee on Human Nutrition Research (ICHNR) Draft National Nutrition Research Roadmap (NNRR) 2015-2020. The NNRR identifies critical knowledge gaps in human nutrition research and establishes priorities to help close those gaps. We offer these comments in response your Federal Register notice of May 26, 2015 (80 FR 30081).

We applaud the ICHNR for recognizing how the field of human nutrition research can be strengthened by conducting more interdisciplinary research with other health professions. However, we are extremely concerned that the NNRR contains no mention of oral health or collaborations with dentists, dental schools, and dental researchers.

Science has been pointing to an interdependent relationship between diet, nutrition, and oral health for some time. From a dental perspective, a steady diet of natural and added sugars, processed starches, and low pH-level acids can damage teeth. Conversely, a lack of certain nutrients can make it difficult for tissues in the mouth to resist infection.

Our specific comments and recommendations, which are enclosed, may be summarized as follows.

- We urge you to incorporate dentists, dental research, oral health, and dental care throughout the report. Dentists and nutritionists can both benefit from more research examining how dietary patterns and nutritional status impact oral health; however, the draft NNRR contains no mention of the need for (and promise of) inter-professional collaborations with dentistry.
- We urge you to consult with the National Institute of Dental and Craniofacial Research (NIDCR) about the state of research examining how dietary patterns and nutritional status impact oral health. NIDCR spent \$9.3 million on nutrition-related research in fiscal year 2014. The Institute is well positioned to consider how the Committee's recommendations will advance research in this area.

The field of nutrition science can benefit from more research examining relationship between diet, nutrition, and oral health. The NNRR is an opportunity to promote more interdisciplinary research in that area.

June 25, 2015

Page 2

Again, we urge you to incorporate the enclosed changes in the NNRR. Doing so would be a sign of progress in advancing the oral health goals and objectives in Healthy People 2020. It would also reflect the dramatic shift in the way people view oral health—as an essential part of overall health and well-being.

If you have any questions, please contact Mr. Robert J. Burns at 202-789-5176 or [burnsr@ada.org](mailto:burnsr@ada.org).

Sincerely,

/s/

Maxine Feinberg, D.D.S.  
President

MF:KTO:rjb

/s/

Kathleen T. O'Loughlin, D.M.D., M.P.H.  
Executive Director

## Comments on the Draft National Nutrition Research Roadmap 2015-2020

June 25, 2015

The Interagency Committee on Human Nutrition Research (ICHNR) is seeking comments on its Draft National Nutrition Research Roadmap 2015-2020 (80 FR 30081). The roadmap is a strategic plan to identify critical knowledge gaps in human nutrition research and establish priorities to help close those gaps.

We applaud the ICHNR for recognizing how the field of human nutrition research can be strengthened by conducting more interdisciplinary research with other health professions. However, we are extremely concerned that the NNRR contains no mention of oral health or collaborations with dentists, dental schools, and dental researchers.

Science has been pointing to an interdependent relationship between diet, nutrition, and oral health for some time. From a dental perspective, a steady diet of natural and added sugars, processed starches, and low pH-level acids can damage teeth. Conversely, a lack of certain nutrients can make it difficult for tissues in the mouth to resist infection.

Two examples of where nutrition science could benefit from collaborations with the dental research community are salivary diagnostics and in-office nutrition counseling.

A pioneering area of dental research is examining whether and how saliva can be used to monitor micro and macro nutrient intake. If successful, a salivary diagnostic test could eventually help nutritionists quickly assess an individual's risk for developing excess body weight and type-2 diabetes based on their dietary habits.

Dental researchers are also investigating the viability of conducting nutrition-related screening, counseling, and referral in dental settings. The current parameters of exactly what activities over what time comprise nutritional counseling are vague. Published outcomes from nutritional counseling studies are limited. More research could lead third-party payers to pay for this service, which already has a dental procedure code.

Dentists and nutritionists can both benefit from more research examining how dietary patterns and nutritional status impact oral health, and vice versa. The NNRR is an opportunity to promote more interdisciplinary research in that area.

We urge you to incorporate the following changes in the NNRR. Doing so would be a sign of progress in advancing the oral health goals and objectives in Healthy People 2020. It would also reflect the dramatic shift in the way people view oral health—as an essential part of overall health and well-being.

## Introduction

Line 372: We recommend inserting “dentistry” after “medicine” on line 372.

*“Human nutrition research now requires approaches that cross traditional health-related fields such as agricultural sciences, biochemistry, dietetics, endocrinology, food technology, genetics, medicine, dentistry, microbiology, molecular biology, physiology, and psychology.”*

## Question 1: How can we better understand and define eating patterns to improve and sustain health?

**Q1T1: How do we enhance our understanding of the role of nutrition in health promotion and disease prevention and treatment?**

### Research Gaps and Opportunities

Line 626: We recommend inserting the following sentence after “populations” on line 626.

*“In the arena of disease treatment and management, research is needed to explore the complex interactions of nutrients and eating and activity patterns related to management of multiple co-morbid diseases—particularly among older populations. An example is the relationship between xerostomia and nutritional status exacerbated by aging or in the treatment of certain medical conditions. The Precision Medicine Initiative could contribute on this front if exposure data on nutrition and eating patterns are included in that initiative.”*

Lines 635-636: We recommend inserting the following paragraph between lines 635 and 636.

*“Another area for exploration is the interdependent relationship between nutritional status and oral health. Among other things, questions remain about whether reducing total added sugar intake from present levels will reduce dental caries rates. Research is also needed to determine whether low-pH level acids increase the risk for dental caries, either alone or in conjunction with sugar. A promising area of dental research is examining whether and how saliva can be used to monitor micro and macro nutrient intake. Interprofessional collaborations could produce better research methods to explore these and other questions.”*

**Q1T2: How do we enhance our understanding of individual differences in nutritional status and variability in response to diet?**

### Rationale

Line 769: We recommend inserting the following sentence to the paragraph ending on line 769.

*“Furthermore, at present, the gut microbiome is recognized as contributing to absorbable nutrients, thus affecting overall nutritional status; however, the degree of contribution is*

*difficult to measure and thereby not well understood. Similarly, the impact of the oral microbiome on overall nutritional status and on the gut microbiome has not been established.*

Research and Resource Initiatives

Line 869: We recommend replacing “gut microbiome” with “oral and gut microbiomes” on line 869.

*“Support research to understand the potential health effects of consuming nutrients (i.e., prebiotics) that alter the gut microbiome oral and gut microbiomes.”*

**Q1T3: How do we enhance population-level food-and nutrition-related health monitoring systems and their integration with other data systems to increase our ability to evaluate change in food supply, composition, consumption, and health status?**

Research and Resource Initiatives

Line 1105: We recommend inserting “adolescents” after “infants and toddlers” on line 1105.

*“Ensure collection of dietary and nutrition status information on key population subgroups such as infants and toddlers, adolescents, older adults, pregnant and lactating women, and racial/ethnic groups and in key population settings with limited data such as early care and education centers and worksites.”*

**Question 2: What can be done to help people choose healthy eating patterns?**

**Q2T1: How can we more effectively characterize the interactions among the demographic, behavioral, lifestyle, social, cultural, economic, and environmental factors that influence eating choices?**

We offer no comment on this section.

**Q2T2: How do we develop, enhance and evaluate interventions at multiple levels to improve and sustain healthy eating patterns?**

Research Gaps and Opportunities

We recommend inserting “dentists” after “physicians” on line 1557, and “dental hygienists” after “nurses” on line 1558.

*“In order to reach the large number of patients in need of nutrition interventions, strategies must be tested to identify effective approaches for delivery of such interventions that involve the broad range of health care professionals such as physicians, dentists, medical assistants, nurses, dental hygienists, nutritionists, registered dietitians, and other health professionals (e.g., health counselors, exercise specialists, psychologists, community health workers).”*

Dentists and dental hygienists are well positioned to briefly screen, counsel, and refer patients for more involved nutrition-based interventions. Routine dental care is a primary care service and general dentists are primary care clinicians. Many individuals see their dentist more frequently than their physician. There is even a dental procedure code for nutrition counseling in dental offices.

More research is needed to determine the parameters for (and extent to which) dietary counseling in dental offices improves health outcomes. Interprofessional collaborations could also promote a greater understanding of how to effectively counsel patients in the dental office. However, the potential to leverage dental offices for brief nutrition screening, counseling, and referral certainly exists.

**Q2T3: Applying systems science in nutrition research, how can simulation modeling advance exploration of the impact of multiple interventions?**

Rationale

Line 1663: We recommend replacing “microbiome” with “oral and intestinal microbiomes” on line 1663.

*“Human nutrition takes place in a complex ecosystem influenced by many factors including, but not limited to: genetic make-up of the host (human) and the microbiomeoral and intestinal microbiomes; timing (including critical periods of development); presence or absence of risk or protective factors alone or in combination (e.g., physical activity levels, presence of disease, antibiotic treatment); proximal and distal dietary history and patterns; gender; food availability; poverty; competing demands for limited resources; family and cultural food practices; food and beverage industry practices; and the regulatory environment.”*

Research and Resource Development Initiatives

While this section does not single out specific health research disciplines, we recommend including dental researchers in face-to-face meetings to identify the most pressing research questions to address with simulation modeling and develop a framework for how those questions should be addressed (see lines 1775-1778).

We also recommend inviting the National Institute for Dental and Craniofacial Research (NIDCR) to take part in discussions about how to fund (and coordinate) simulation modeling activities across research agencies (see lines 1786-1787). NIDCR spent \$9.3 million on nutrition-related research in fiscal year 2014. The Institute is well positioned to consider how the Committee’s recommendations will advance research in this area.

**Q2T4: How can interdisciplinary research identify effective approaches to enhance the environmental sustainability of healthy eating patterns?**

Research Gaps and Opportunities

Line 1920: We recommend inserting the following sentence after the paragraph ending on line 1920.

*“For instance, we need a better understanding of the strategies that may influence and help maintain consumer behaviors that promote the purchase and consumption of safe, nutritious, affordable, and sustainable foods and beverages. Investigation of the affordability of healthy, sustainable eating patterns would be helpful to the development of dietary guidance efforts. Including multiple touch points to reinforce messaging from the gamut of health care professionals (medical, dental, mental health, etc.) and educational institutions (daycare, schools, libraries, etc.) will increase engagement by the public.”*

**Question 3: How can we engage innovative methods and systems to accelerate discoveries in human nutrition?**

**Q3T1: How can we enhance innovations in measuring dietary exposure, including use of biomarkers?**

Research Gaps and Opportunities

Line 2159: We recommend replacing “gut microbiome” with “gut and oral microbiomes” on line 2159.

*“Emerging approaches include but are not limited to: identification of food and biochemical pathway-specific metabolic signatures; characterization of exogenous food derived biomolecules such as non-coding regulatory RNA; and profiling of the ~~gut microbiome~~gut and oral microbiomes.”*

Research and Resource Initiatives

Line 2219: We recommend adding “salivary” after “blood” on line 2219.

*“Develop blood, salivary, and/or urine tests for estimation of intakes of high-priority foods and food groups as identified through risk-relationship analyses (e.g., fruits, vegetables, meats).”*

**Q3T2: How can basic biobehavioral science be applied to better understand eating behaviors?”?**

We offer no comment on this section.

**Q3T3: How can we use behavioral economics theories and other social science innovations to improve eating patterns?**

We offer no comment on this section.

**Q3T4: How can we advance nutritional sciences through the use of research innovations involving Big Data?**

Rationale

Line 2608: We recommend adding the following bullet on line 2608.

- *The Consortium for Oral Health Research and Informatics brings together public and private stakeholders to share data to facilitate clinical research in dentistry.*

**Workforce Readiness for Advancing Nutritional Sciences Research**

Line 2820: We recommend replacing “medical education” with “medical and dental education” on line 2820.

*“Recommendations focus on opportunities within graduate and ~~medical education~~medical and dental education, post-doctoral, residency, and fellowship training, as well as continuing education.”*

**Fostering the Next Generation of Human Nutrition Researchers**

Lines 2855-2856: We recommend replacing “medical students” with “medical and dental students” on lines 2855-2856.

*“Special attention should be given to recruiting, cultivating, and developing ~~medical students~~medical and dental students, residents and fellows, and other health professionals during their early training stages to ensure they develop human nutrition research skills and pursue research careers in human nutrition research.”*

**Invigorating an Interdisciplinary Scientific Workforce**

We agree there is a need to strengthen collaborations between nutrition scientists and other types of health researchers. While this section does not single out any specific health research disciplines, we urge you to encourage stronger collaborations between nutrition scientists and the dental research community.

Dentists and dental hygienists are well positioned to briefly screen, counsel, and refer patients for more involved nutrition-based interventions. Routine dental care is a primary care service and general dentists are primary care clinicians. Many individuals see their dentist more frequently than their physician. There is even a dental procedure code for nutrition counseling in dental offices.



The potential to leverage dental offices for brief nutrition screening, counseling, and referral certainly exists. However, more research is needed to determine the parameters for (and extent to which) dietary counseling in dental offices improves health outcomes. Interprofessional collaborations could promote a greater understanding of how to effectively counsel patients in the dental office.

Science has also been pointing to a direct relationship between oral health and overall health and well-being. More research is needed to understand whether and how dietary patterns and nutritional status impact that relationship.

Interdisciplinary collaborations with National Institute of Dental and Craniofacial Research (NIDCR) could help human nutrition researchers understand how the dental research community's models and theories could strengthen future investigations and expand the potential of human nutrition research. NIDCR spent \$9.3 million on nutrition-related research in fiscal year 2014 and is well positioned to help advance research in this area.