AADR®
American Association for Dental Research

August 13, 2020

Kristin Koegel, MBA, RD
USDA Food and Nutrition Service,
Center for Nutrition Policy and Promotion;
1320 Braddock Place, Room 4094;
Alexandria, VA 22314

Re: Scientific Report of the 2020 Dietary Guidelines Advisory Committee

Via: https://www.regulations.gov/docket?D=FNS-2020-0015

Dear Ms. Koegel,

The American Association for Dental Research (AADR) is a nonprofit organization with over 3,400 individual and 107 institutional members in the United States. Its mission is to drive dental, oral and craniofacial research to advance health and well-being.

AADR is pleased to provide feedback on the Scientific Report of the 2020 Dietary Guidelines Advisory Committee (DGAC) specific to chapter 1, which details "Current Intakes of Food, Beverages and Nutrients". To develop these comments, AADR engaged its Board of Directors and its Science Information Committee. As this report will be used to inform the next edition of the Dietary Guidelines, AADR views this scientific report as a timely and necessary update that details how scientific advancements since 2015 can be utilized to improve the oral health of the U.S. population.

AADR applauds the section on "Dental Health" that addresses the prevalence of total dental caries in both youths and adults. AADR supports the inclusion of the prevalence of dental caries specific to different demographic and socio-economic groups as well as the analysis of treated and untreated dental caries. To provide a quantitative rationale for addressing this significant issue, AADR supports the inclusion of scientific data that also characterizes preventive oral health practices. Please see below for recommendations for inclusion of data related to the epidemiology of dental caries and diet, including sugars sweetened beverages and snacks.

Prevalence

- Dental caries is a major public health problem globally and is the most widespread noncommunicable disease (NCD)[1]. It is also the most prevalent condition included in the 2017 Global Burden of Disease Study, ranking first for decay of permanent teeth (2.3 billion people) and 12th for deciduous teeth (530 million children)[3].
- Dental caries treatment consumes 5–10% of healthcare budgets in industrialized countries and is a major reason for hospitalization of children in some high-income countries[4].
  It is also important to note that although the report highlights comparisons in prevalence in children of different ages, this is not reported for adults. NHANES data for adults and caries also

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show that the prevalence of the disease is high and does not change much from ages 20 through 64[17].

Sugars and Dental Caries

The causative role of sugars in the development of dental caries is well-established by biological and epidemiologic data, including several systematic reviews. As reported, when free sugars intake decreased, caries experience decreased; the caries experience was greater when free sugars intake increased[7]. Some of these data include:

- Rates of dental caries are higher when the intake of free sugars is above 10% of total energy intake.
- Free sugars are the essential dietary factor in the development of dental caries. Dental caries develops when bacteria in the mouth metabolize sugars to produce acid that demineralizes the hard tissues of the teeth (enamel and dentin)[5].
- Sugar-sweetened beverages, including fruit-based and milk-based drinks and including 100% fruit juices, are primary sources of free sugars, and supplemented by confectionery, cakes, biscuits, sweetened cereals, sweet desserts, sucrose, honey, syrups and preserves[1,6].
- Children and adults should limit calories obtained from free sugars to less than 10% of total daily caloric intake (about 12 leveled teaspoons in a 2000 calorie diet) and that further reduction to less than 5% (about 6 leveled teaspoons) would likely have added benefits[1,7].

Malnutrition and Dental Health

Evidence suggests that the severity of dental caries in the primary dentition is associated with undernutrition (wasting and stunting)[15]. Additionally, being malnourished or a lack of proper nutrients can negatively affect the mouth (e.g., teeth and gums) leading to increased risk of gum disease and other oral health-related problems[12].

- In Early Childhood Caries (ECC) patients, 13.7% weighed less than 80% of their ideal weight[15]. There was a significant correlation between severe ECC (S-ECC) and decreased body weight and height when compared to other children with no or low caries, suggesting that S-ECC children had inadequate caloric consumption[16].

Therapeutic dental intervention in these ECC children resulted in catch-up growth, where they exhibited significantly increased growth velocities through the course of the follow-up period[15,16].

- Malnutrition negatively affects the development of craniofacial structures and teeth. Nutrient deficiencies during amelogenesis and dentinogenesis lead to defective tooth structures, which tend to harbor cariogenic bacteria[13].
- The mean decayed, missing, and filled teeth index was 1.38 for the adequately nourished children, 3.04 for those with mild malnutrition, 2.5 for those with moderate malnutrition and 2.4 for those with severe malnutrition[14].

Dental Health impacts on Mental Health

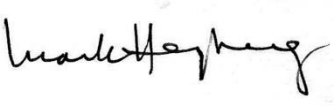
ECC is common in pre-school children, which, when untreated, can have profound impact on children's lives ranging from nutritional to sociological[8].

- Poor dental health affects speech and bad breath, which can exacerbate social anxiety[9].

Finally, AADR strongly suggests that this report emphasize that oral health is part of total health. The changes in diet that are needed to have a profound impact on caries experience, also affect wellbeing and quality of life. Dietary modification represents a common strategy to address multiple conditions and promote health. Therefore, AADR supports interventions that will show multiple health benefits.

Once again, AADR appreciates the opportunity to provide input on this important scientific report. AADR stands ready to work with both USDA and HHS to advance the understanding of the etiologic relationship between nutrition and dental health. If you have any further questions, please contact Dr. Makyba Charles-Ayinde, Director of Science Policy, at mcayinde@iadr.org.

Sincerely,



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