The Oral Health Alliance, a 2030 Healthy People Champion, that represents nutrition, oral health education, and public health professional organizations, oral health providers, groups representing the community, children, pregnant women, and older adults, industry, and consumer groups, submits this document to justify a change under the *Strategies for Individuals and Families Related to Diet Quality and Weight Management* in the scientific question – *What is the relationship between parental and caregiver feeding practices during childhood and adolescence and--*

Under *Strategies for Individuals and Families Related to Diet Quality and Weight Management*

1. Suggesting changes to the proposed question *What is the relationship between parental and caregiver feeding practices during childhood and adolescence and--*
    *a.* Add to list: *Tooth development, incidence of dental caries, and retention of teeth essential for good nutrition and weight management*

**Relevance**

Inclusion of tooth development, incidence of dental caries, and retention of teeth are relevant topics for the 2025-30 *Dietary Guidelines,* because oral health recommendations appear in previous versions of the Dietary Guidelines and the DGAC reports. The 2020 DGAs recognized dental caries as an evidence-based chronic disease of public health importance, noted the importance of the ability to chew upon consumption of a healthy diet, and set a 10% of calorie limit for added sugar based on high rates of dental caries.[1] The *2020-25 DGAC Report* includes NCHS prevalence data on treated and untreated dental caries, adds "preventing dental caries" among other topics to include in the Dietary Guidelines for Americans, and suggests that "the translation of the Committee's scientific review into the Dietary Guidelines for Americans should extend beyond topics incorporated within the specific questions addressed by the Committee and should include related dietary practices that remain of public health concern including those that have been reviewed by previous Committees." This 2020 DGAC also puts forth "oral health" as an important topic that is relevant to diet and nutrition for future Dietary Guidelines and suggests future committees "investigate a process to identify topics that can be carried forward into a future cycle of the Dietary Guidelines without additional review by the Advisory Committee." The *2010 DGA* recommended drinking fluoridated water and/or using fluoride-containing dental products helps and noted that during the time that sugars and starches are in contact with teeth, they also contribute to dental caries. The combined approaches of reducing the amount of time sugars and starches are in the mouth, drinking fluoridated water, and brushing and flossing teeth, are the most effective ways to reduce the risk and burden of dental caries." The *2005 DGA* recommended "reducing the incidence of dental caries by practicing good oral hygiene and consuming sugar and starch containing foods and beverages less frequently." Creative interventions such as motivational interviewing are needed to promote positive health practices among parents of young children to lower the risk for dental caries in children. [2]

Children and adolescents from families with low incomes are more than twice as likely to have untreated tooth decay in their permanent teeth as compared to those from families with higher incomes.[3] Children and adolescents with missing teeth may have chewing problems that limit their food choices and result in nutritionally inadequate diets.[4] Inadequate nutrition during childhood can have detrimental effects on children's cognitive development and on productivity in adulthood. Nutritional deficiencies also negatively affect children's school performance, their ability to concentrate and perform complex tasks, and their behavior.[5] With more than half of all children and adolescents aged 1-17 years not receiving instruction on self-care oral hygiene in a given year,[6] dietary recommendations to limit the frequency of consumption of fermentable carbohydrates[7], encouraging adequate intake of fluoride, calcium, and vitamin D , and chewing sugar-free gum for 20 minutes after

meals[8,9] are important recommendations for parents and caregivers of vulnerable children and adolescents to model.[10,11]

**Importance**

Dental caries (tooth decay) is a silent epidemic; it is not only the most prevalent and largely preventable oral disease worldwide, but also, it is the most prevalent disease that affects both children and adults in the United States. Dental caries is fully preventable through simple and basic routine dietary and oral health practices. NCHS Data in this table shows that the dental caries rates are high for all age groups, and they begin with the primary teeth and continue through the permanent dentition. Throughout the lifespan, the prevalence of dental caries is close to the prevalence of obesity among 2–5-year-olds and significantly higher than the prevalence of overweight and obesity for all other age groups.

| **Prevalence of Dental Caries in the U.S. Population United States, National Health and Nutrition Examination Survey, 1999–2004 to 2011–2014[12]** | | | | | | | | | **Prevalence of Obesity 2017–2018[13]** | **Prevalence of Obesity and Severe Obesity Among Adults 2017–2018[14]** |
|---|---|---|---|---|---|---|---|---|---|---|
| Age | Percent with dental caries experience (primary teeth) | | Percent with untreated dental caries (primary teeth) | | Percent with dental caries experience* (permanent teeth) | | Percent with untreated dental caries (permanent teeth) | | Percent | Percent |
| | 1999-2004 | 2011-2016 | 1999-2004 | 2011-2016 | 1999-2004 | 2011-2016 | 1999-2004 | 2011-2016 | | |
| 2-5 | 27.9 | 23.3 | 20.5 | 10.4 | | | | | 13.4 | |
| 6-11 | 51.5 | 52.1 | 27.8 | 16.4 | 21.2 | 17.4 | 7.7 | 5.2 | 20.3 | |
| 12-19 | | | | | 59.4 | 56.8 | 19.6 | 16.6 | 21.2 | |
| 20-64 | | | | | 91.6 | 89.9 | 25.3 | 26.1 | | 40.0 (20-39 y.o). 44.8 (40-59 y.o.) |
| 65+ | | | | | 93.0 | 96.2 | 18.1 | 15.9 | | 42.8 (60 plus y.o) |
| ***Includes missing or filled permanent teeth.* | | | | | | | | | | |

HHS and Healthy People 2030 have identified oral health as one of the twelve leading health indicators. Dental caries is not only the most prevalent oral disease; it is the most prevalent disease for both children and adults in the U.S. Unlike medical maladies, dental caries (tooth decay) is largely preventable through simple and basic routine dietary and oral health practices. NCHS data, from the CDC 2019 Oral Health Surveillance Report, shows in the table above that the dental caries rates are high for all ages and are twice the rate of overweight/obesity in individuals across their lifespan. For

American Indian (AI)/Alaska Native (AN) children – approximately 39% of AI/AN children have experienced dental caries by the age of 2, rising to 76% by the age of 5. A full 86% of AI/AN children have had a cavity in their primary (baby) teeth compared with 56% of the general U.S. population.[15] Dental caries is a major public health concern as it is a chronic disease that can lead to life-threatening conditions and even death in the absence of oral health care.[16,17] Also, early-life diseases can lead to biological scarring of the organ systems affecting healthy development during childhood and having a direct impact later in life.[18] Beginning with the first eruption of the primary teeth in infancy and continuing throughout life, approaching both chronic diseases with advice about diet and preventive oral health practices permits dietitians[19], dentists, health professionals, educators, and caregivers one set of messages to advance habits to help children, adolescents, their parents, and their caregivers adopt healthy eating habits and manage weight.[20]

**Potential Impact on Federal Programs**

DGAs provide the framework for health promotion and weight management in nutrition education that reaches SNAP children and families, WIC pregnant and lactating mothers, infants and children, and children in schools and early childhood sites. Fundamental to developing healthy eating habits and managing weight gain from infancy to young adulthood are messages about dietary intake and oral hygiene essential to early tooth development, prevention of dental caries, and retention of permanent teeth. Given the public health significance of dental caries and poor oral health, the final 2025-30 DGAs should include recommendations to educate and motivate children, adolescent and their caregivers through multiple education and care settings, on oral health preventive practices. Federal programs offer excellent opportunities for providers to incorporate education about the benefits of oral heal health during pregnancy and extending through childhood and old age and reinforce the parental messaging. Along with audience-centered dietary advice, messages should reinforce routine brushing teeth effectively with a soft brush and fluoridated toothpaste, cleaning between teeth, chewing sugarfree gum, drinking fluoridated water, and limiting the frequent and constant use of fermentable carbohydrates and added sugar. For example, the USDA FNS WIC Works provided a webinar to staff on the relationship of poor oral health and infection related to heart disease and promoted the importance of starting oral health promotion with pregnant women.

**Avoiding Duplication**

The Healthy People (HP) 2030 focuses on “reducing tooth decay and other oral health conditions and helping people get oral health care services.” The HP 2030 Oral Condition Objectives[21] note that “many people don’t get the care they need” and suggest strategies to teach people how to take care of their own teeth and gums to prevent oral health problems. Increasing water systems with the recommended fluoride levels is also a goal. There is a related nutrition goal to “reduce the consumption of added sugar” In addition to this nutrition goal, the 2025-30 DGA could recommend additional changes in dietary patterns - reducing the frequency of intakes of fermentable carbohydrates, drinking fluoridated water, chewing sugarfree gum (a food) to stimulate saliva and clean mouth[22,23], and including foods with adequate calcium and vitamin D. National Maternal and Child Oral Health Resource Center catalogs the extensive research in this area and offers valuable education materials including the Oral Health Practices, 3rd Edition for the HRSA Bright Futures Program.

**Research Availability**

A scoping project has begun and should help provide evidence on which oral health prevention strategies have a positive effect on dental caries and the adoption of preventive practices. The review

will also identify which factors – community support, multiple sites for education, and family engagement – facilitate the adoption of one or more preventive practices.

---

[1] World Health Organization. Guidance on *Sugar Intake for Adults and Children.* March 4, 2015. WHO Reference Number: WHO/NMH/NHD/15.2. https://www.who.int/publications/i/item/9789241549028

[2] Freudenthal JJ, Bowen DM. 2010. Motivational interviewing to decrease parental risk-related behaviors for early childhood caries. *Journal Of Dental Hygiene* 84(1):29–34.

[3] Griffin SO, Oong E, Kohn W, Vidakovic B, Gooch BF; CDC Dental Sealant Systematic Review Work Group, Bader J, Clarkson J, Fontana MR, Meyer DM, Rozier RG, Weintraub JA, Zero DT. 2008. "e effectiveness of sealants in managing caries lesions. Journal of Dental Research 87(2):169–174. http://www. ncbi.nlm.nih.gov/pubmed/18218845.

[4] Ervin RB, Kit BK, Carroll MD, Ogden CL. 2012. Consumption of Added Sugar Among U.S. Children and Adolescents, 2005–2008. Hyattsville, MD: National Center for Health Statistics. http://www.cdc.gov/nchs/data/data briefs/db87.htm.

[5] Tufts University, Center on Hunger, Poverty and Nutrition Policy. 1994. Statement on the Link Between Nutrition and Cognitive Development in Children. Medford, MA: Tufts University, Center on Hunger, Poverty and Nutrition Policy. http://www.eric.ed.gov/PDFS/ED374903.pdf.

[6] Data Resource Center for Child and Adolescent Health. 2017 National Survey of Children's Health. Available at: http://www.childhealthdata.org/browse/survey/results?q=5016&r=1.

[7] Chi DL, Scott JM. Added sugar and dental caries in children. Dental Clinics of North America. 2019;63(1):17–33.

[8] Peng B, Petersen PE, Bian Z, Tai B, Jiang H. Can school-based oral health education and a sugar-free chewing gum program improve oral health? Results from a two-year study in PR China. Acta Odontol Scand 2004;62(6):328-332.

[9] Kovari H, Pienihakkinen K, Alanen P. Use of xylitol chewing gum in daycare centers: a follow-up study in Savonlinna, Finland. Acta Odontol Scand 2003;61(6):367-370.

[10]M.-L. Mattila, P. Rautava, M. Sillanpää et al. Caries in Five-year-old Children and Associations with Family-related Factors. *J of Den Res*. Volume: 79 (3): 875-881.

[11] Isong IA, Zuckerman KE, Rao SR, Kuhlthau KA, Winickoff JP, Perrin JM. Association between parents' and children's use of oral health services. Pediatrics. 2010;125(3):502–8.

[12] NCHS Oral Health Surveillance Report List of Tables. https://www.cdc.gov/oralhealth/publications/OHSR-2019-list-of-tables.html

[13] Fryar CD, Carroll MD, Afful J. Prevalence of Overweight, Obesity, and Severe Obesity Among Children and Adolescents Aged 2–19 Years: United States, 1963–1965 Through 2017–2018. NCHS Division of Health and Nutrition Examination Surveys. Health-e Stat, Available here https://www.cdc.gov/nchs/data/hestat/obesity-child-17-18/obesity-child.htm#table2

[14] Hales CM, Carroll MD, Fryar CD, Ogden CL. Prevalence of Obesity and Severe Obesity Among Adults: United States, 2017–2018, NCHS Data Brief 360, February 2020. Available https://www.cdc.gov/nchs/data/databriefs/db360-h.pdf

[15] Phipps KR and Ricks TL. The oral health of American Indian and Alaska Native children aged 6-9 years: results of the 2016-2017 IHS oral health survey. Indian Health Service data brief. Rockville, MD: Indian Health Service. 2017.

[16] Norris, L. J. 2007. Testimony of the Public Justice Center on May 2, 2007 to the Subcommittee on Domestic Policy Committee on Oversight and Government Reform, U.S. House of Representatives (110th Congress), on the story of Deamonte Driver and ensuring oral health for children enrolled in Medicaid.

[17]Casamassimo, P. S., S. Thikkurissy, B. L. Edelstein, and E. Maiorini. 2009. Beyond the DMFT: The human and economic cost of early childhood caries. Journal of the American Dental Association 140(6):650-657.

[18]Peele ME. Childhood Conditions Predict Chronic Diseases and Functional Limitations Among Older Adults: The Case of Indonesia. Journal of aging and health. 2018:898264318799550.

[19] Touger-Decker R, Mobley C; Academy of Nutrition and Dietetics. 2013. Position of the Academy of Nutrition and Dietetics: Oral health and nutrition. Journal of the Academy of Nutrition and Dietetics 113(5):693–701.

[20] Tseng R, Vann W, Perrin E. Addressing Overweight and Obesity in the Dental Office: Rationale and Practical Guidance. *Pediatric Dentistry.* October 2010 Vol 35 (5) ppg. 217-23.

[21] HHS ODPHP. Healthy People 2030 https://health.gov/healthypeople/objectives-and-data/browse-objectives/oral-conditions

[22] Oral health promotion: the economic benefits to the NHS of increased use of sugarfree gum in the UK. L. Claxton, M. Taylor1 and E. Kay, British Dental Journal Volume 220 No. 3 Feb 12 2016, pgs. 121-127;

[23] A global approach to assess the economic benefits of increased consumption of sugar-free chewing gum, Reinhardt Rychlik et al. American Journal of Dentistry, Vol. 30, No. 2, April 2017, pgs. 77-83