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May 8, 2015

Honorable Sylvia Mathews Burwell
Secretary of Health and Human Services
200 Independence Avenue SW
Washington, DC 20201

Honorable Thomas J. Vilsack
Secretary of Agriculture
1400 Independence Avenue SW
Washington, DC 20250

Dear Secretary Burwell and Secretary Vilsack:

On behalf of our 158,000 members, we are pleased to comment on the Scientific Report of the 2015 Dietary Guidelines Advisory Committee (DGAC). The report, which is advisory only, will serve as the basis for developing the next edition of Dietary Guidelines for Americans policy.

We offer these comments in response to the Department of Health and Human Services and Department of Agriculture joint Federal Register notices of February, 23, 2015 (80 FR 9465) and April 8, 2015 (80 FR 18852).

Eating patterns and food choices play an important role in maintaining good oral health. From a dental perspective, a steady diet of sugary foods and beverages, including all-natural fruit juices and artificially sweetened sports drinks, can damage teeth. A lack of certain nutrients can also make it difficult for tissues in the mouth to resist infection.

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

- We are pleased with the DGAC definition for added sugar(s), which is identical to the definition in the Food and Drug Administration (FDA) proposal to modernize the Nutrition and Supplement Facts labels for conventional foods and dietary supplements.

- We commend the DGAC's due diligence in finding there is a moderate degree of consistent evidence about whether dental caries rates fluctuate based on the volume of added sugar(s) consumed. We hope the final 2015 Dietary Guidelines for Americans policy will include a recommendation to support additional research in this area.

- The DGAC recommendation to limit added sugar(s) to a maximum of 10 percent of total daily caloric intake seems like a reasonable public health goal. We recommend consulting the Academy of Nutrition and Dietetics about the scientific support for establishing minimum or maximum recommended daily values (RDVs) for non-nutrients.

- We support the DGAC recommendation to require a separate line for added sugar(s) (in grams and teaspoons) on Nutrition and Supplement Facts labels. We also support the FDA proposal to encourage manufacturers to list the fluoride content on bottled water.

- We applaud the DGAC recommendation to make potable water more readily available and encourage consumers to drink more of it. We hope the final 2015 Dietary Guidelines for Americans policy will address the oral health benefits of drinking optimally fluoridated water.

- We agree that consumers may benefit from standard front-of-package (FOP) labels that list the added sugar(s) content in more relatable terms (e.g., teaspoons, etc.). We have dental-specific concerns about rating the "healthfulness" of food and beverage products.

- We encourage support for public health research projects evaluating whether sugar-sweetened beverage taxes and other disincentive pricing strategies will have any noticeable impact on oral health outcomes.

We applaud the DGAC for recognizing dental caries in its report. The attention given to dental caries is a sign of progress in advancing the oral health goals and objectives in Healthy People 2020. It also reflects 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.

Sincerely,

/s/

Maxine Feinberg, D.D.S.
President

/s/

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

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ADA American Dental Association®

TECHNICAL COMMENTS OF THE

AMERICAN DENTAL ASSOCIATION

TO THE

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

AND THE

U.S. DEPARTMENT OF AGRICULTURE

ON THE

SCIENTIFIC ADVISORY REPORT OF THE 2015 DIETARY GUIDELINES ADVISORY COMMITTEE

May 8, 2015

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Part D: Science Base

Chapter D-6: Cross-Cutting Topics of Public Health Importance

Added Sugars and Low-Calorie Sweeteners

The 2015 Dietary Guidelines Advisory Committee (DGAC) examined the latest evidence on added sugar(s) to evaluate whether revisions to the *Dietary Guidelines for Americans, 2010* were warranted. The DGAC defined added sugar(s) as "sugars that are either added during the processing of foods, or are packaged as such, and include sugars (free, mono- and disaccharides), syrups, naturally occurring sugars that are isolated from a whole food and concentrated so that sugar is the primary component (e.g., fruit juice concentrates), and other caloric sweeteners."

The ADA supports this definition for added sugar(s), which is part of the Food and Drug Administration (FDA) proposal to include a separate line for added sugar(s) (in grams and teaspoons) on a revised Nutrition and Supplement Facts label.

We note that in recent years the ADA has collaborated on two position papers adopted by the Academy of Nutrition and Dietetics (AND): *Oral Health and Nutrition* (May 2013) and *The Impact of Fluoride on Health (September 2012)*. Both position papers are available on the Academy's website.

DGAC Question D-6.6: What is the relationship between the intake of added sugars and cardiovascular disease, body weight/obesity, type 2 diabetes, and dental caries?

We commend the DGAC's due diligence in finding there is a moderate degree of consistent evidence about whether dental caries rates fluctuate based on the volume of added sugar(s) consumed (see Appendix E-2.46).

We also commend the DGAC's due diligence in finding there is a moderate degree of consistent evidence indicating dental caries would be lower when free-sugar(s) consumption is less than 10 percent of energy intake, and a low degree of consistent evidence when the energy intake cutoff is 5 percent.

The DGAC finding is largely based on the systematic review commissioned by the World Health Organization for its 2015 guideline on sugars intake for adults and children. The WHO evidence review is perhaps the most thorough and reliable evidence review on this subject to date.[1]

It would have been valuable had the DGAC been able to complement the WHO evidence review with an original Nutrition Evidence Library (NEL) systematic review on dental caries. We understand that time and resources were not sufficient to complete such a review. We also agree that sufficient evidence is probably not available to address oral health outcomes.

We understand the methodological challenges of investigating the relationship between added sugar(s) and dental caries, which is a multifactorial disease. It is exceptionally difficult to isolate

the causative nature of any individual causative agent. Meal patterns and oral hygiene practices can easily influence oral health outcomes. Individual foods are also not consumed in isolation.

The DGAC exercised due diligence to track down the best and most reliable evidence to date about the relationship between the amount of free sugars intake and the development of dental caries in all populations. We fully agree with the moderate grade given to the current state of evidence.

We hope the final 2015 Dietary Guidelines for Americans policy will include a recommendation to support additional research in this area.

Implications (and Recommendations)

The DGAC recommended several specific approaches for reducing added sugar(s) intake. We are pleased to comment on those recommendations.

DGAC Recommendation D-6.1: Limit added sugars to a maximum of 10 percent daily caloric intake.

The DGAC recommendation to limit added sugar(s) to a maximum of 10 percent of total daily caloric intake seems like a reasonable public health goal. We note the DGAC finding in Appendix E-2.46—that there is a moderate degree of consistent evidence indicating dental caries would be lower when free-sugar(s) consumption is less than 10 percent of energy intake, and a low degree of consistent evidence when the energy intake cutoff is 5 percent.

It is extremely difficult to quantify a threshold at which the risk for dental caries increases from added sugar(s) intake. Unlike obesity, which is tied to caloric intake, the risk for dental caries depends on a number of interdependent diet-related factors. The amount of added sugar(s) an individual consumes is certainly a factor, but so is the frequency and duration of exposure. Other diet-related risk factors include, among others:

- Frequency, amount, and duration of exposure to other fermentable carbohydrates (e.g., natural sugar(s), processed starches, etc.);
- Frequency, amount, and duration of exposure to low pH-level acid(s) (incl. those in fruit and natural fruit juices);
- Water consumption patterns (incl. consumption of fluoridated water);
- Salivary flow (e.g., chewing sugar-free gum after meals); and
- Oral hygiene patterns (e.g., brushing and flossing after meals, etc.).

We again note the DGAC finding in Appendix E-2.46—that there is a moderate degree of consistent evidence indicating dental caries would be lower when free-sugars intake is less than 10 percent of energy intake. The DGAC also found a low degree of consistent evidence that dental caries rates would be lower when a less than 5 percent energy intake cutoff was used.

From an oral health perspective, it is a worthwhile goal to recommend that consumers minimize their intake of added sugar(s) overall. It would also be worthwhile to recommend that consumers minimize their intake of other fermentable carbohydrates, drink optimally fluoridated water, limit between-meal snacks, and brush and floss as recommended.

Again, the DGAC recommendation to limit added sugar(s) to a maximum of 10 percent of total daily caloric intake seems like a reasonable public health goal. We recommend consulting the Academy of Nutrition and Dietetics about the scientific support for establishing minimum or maximum recommended daily values for non-nutrients.

DGAC Recommendation D-6.2: Encourage the U.S. population, especially children and adolescents, to drink water when they are thirsty. Make readily accessible, safe water available in public settings, as well as child care facilities, schools, worksites, and other community places and promoted in all settings where beverages are offered.

We applaud the DGAC recommendation to make potable water more readily available and encourage consumers to drink more of it. We regret the DGAC did not address the oral health benefits of drinking optimally *fluoridated* water. We hope the final 2015 Dietary Guidelines for Americans policy will address the health benefits of drinking optimally fluoridated water.

There is a high degree of consistent evidence that prolonged contact with almost any liquid other than water can increase an individual's risk for tooth decay. Water provides hydration without fermentable carbohydrates, which could increase the risk for dental caries. Drinking optimally fluoridated tap water can also help prevent dental caries. Studies demonstrate that fluoridated water reduces tooth decay in children and adults by more than 25 percent.[2,3]

Additionally, we strongly support the FDA proposal for bottled water producers to display the fluoride content on Nutrition and Supplement Facts labels.

Optimal exposure to fluoride is one of the safest and most effective ways to help prevent tooth decay. Unfortunately, consumers who use bottled water as their primary water source often do not realize that the bottling process may actually remove fluoride from the water. The vast majority of bottled waters—especially those treated by reverse osmosis—contain negligible amounts of fluoride or are fluoride-free.

Without such labeling, individuals who use bottled water as their primary water source could, unknowingly, be missing the dental caries-preventing effects of drinking optimally fluoridated water.

We hope the final 2015 Dietary Guidelines for Americans policy will adequately address the importance of drinking optimally fluoridated water.

DGAC Recommendation D-6.3: The Nutrition Facts Panel (NFP) should include added sugars (in grams and teaspoons) and include a percent daily value, to assist consumers in making informed dietary decisions by identifying the amount of added sugars in foods and beverages.

The ADA supports the DGAC recommendation to require a separate line for added sugar(s) (in grams and teaspoons) on Nutrition and Supplement Facts labels for conventional foods and dietary supplements. As stated previously, we have concerns about endorsing any specific minimum or maximum threshold at which added sugar(s) can be consumed while still maintaining optimal oral health (e.g., grams per day, teaspoons per day, calories per day, etc.).

It is extremely difficult to quantify a threshold at which the risk for dental caries increases from added sugar(s) intake. Unlike obesity, which is expressly tied to caloric intake, the risk for dental caries depends on a number of interdependent diet-related factors. The amount of added sugar(s) an individual consumes is certainly a factor, but so is the frequency and duration of exposure. Other diet-related risk factors include, among others:

- Frequency, amount, and duration of exposure to other fermentable carbohydrates (e.g., natural sugar(s), processed starches, etc.);
- Frequency, amount, and duration of exposure to low pH-level acid(s) (incl. those in fruit and natural fruit juices);
- Water consumption patterns (incl. consumption of fluoridated water);
- Salivary flow (e.g., chewing sugar-free gum after meals); and
- Oral hygiene patterns (e.g., brushing and flossing after meals, etc.).

We note the DGAC finding in Appendix E-2.46—that there is a moderate degree of consistent evidence indicating dental caries would be lower when free-sugars intake is less than 10 percent of energy intake. The DGAC also found a low degree of consistent evidence that the dental caries rate would be lower when a less than 5 percent energy intake cutoff was used.

From an oral health perspective, it is a worthwhile goal to recommend that consumers minimize their intake of added sugar(s). It would also be worthwhile to recommend that consumers minimize their intake of other fermentable carbohydrates, drink plenty of water, limit between-meal snacks, and brush and floss as recommended.

The DGAC recommendation to limit added sugar(s) to a maximum of 10 percent of total daily caloric intake seems like a reasonable public health goal. However, we have concerns about endorsing any specific minimum or maximum threshold at which added sugar(s) can be consumed while still maintaining optimal oral health (e.g., grams per day, teaspoons per day, calories per day, etc.).

We recommend consulting the Academy of Nutrition and Dietetics about the scientific support for establishing minimum or maximum recommended daily values for non-nutrients.

DGAC Recommendation D-6.4: Consumers would benefit from a standardized, easily understood front-of-package (FOP) label on all food and beverage products to give clear guidance about a food's healthfulness. An example is the FOP label recommended by the IOM, which included calories, and 0 to 3 "nutritional" points for added sugars, saturated fat, and sodium. This would be integrated with the NFP, allowing consumers to quickly and easily identify nutrients of concern for over-consumption, in order to make healthier choices.

We agree that consumers may benefit from standard front-of-package (FOP) labels that list the added sugar(s) content in more relatable terms (e.g., teaspoons, etc.). We have dental-specific concerns about rating the "healthfulness" of food and beverage products.

As stated previously, it is exceptionally difficult to isolate the causative nature of any individual ingredient, much less a specific food or beverage. Foods (and ingredients) are not consumed in isolation. Meal patterns and oral hygiene practices play a role.

From a dental perspective, it is quite possible that a food product with essential nutrients could be more cariogenic than a product without essential nutrients. Lemons, for example, are a rich source of vitamin C and other nutrients; however, they also contain glucose, fructose, sucrose, and exceptionally high quantities of low pH-level acid(s).

Rating lemons as dentally "healthful" would not comport with our longstanding position that the use of *any* sugar-containing product (incl. those with natural sugar(s)) can increase the risk for tooth decay and that low-pH acid(s) can contribute to enamel erosion. (A "healthfulness" rating for lemons may be different when tied to other health conditions, such as obesity, cardiovascular disease, and type 2 diabetes.)

We also urge you to consider that rating the "healthfulness" of foods could be compared to the "modified risk" argument for rating the "healthfulness" of tobacco products. Tobacco product manufacturers have long sought to market some of their products (e.g., snus, dissolvable tobacco, etc.) as healthier (or less harmful) alternatives to cigarettes. The argument undermines the public health reality that the use of *any* tobacco-containing product can increase the risk for oral disease(s).

We agree that consumers may benefit from standard FOP labels that list the added sugar(s) content in more relatable terms (e.g., teaspoons, etc.). This would complement a separate line for added sugar(s) on Nutrition and Supplement Facts labels. Both would be sound public health measures.

Again, we agree that consumers may benefit from standard front-of-package (FOP) labels that list the added sugar(s) content in more relatable terms (e.g., teaspoons, etc.). We have dental-specific concerns about rating the "healthfulness" of food and beverage products.

We recommend consulting the Academy of Nutrition and Dietetics about the scientific support for rating the "healthfulness" of foods and beverages.

DGAC Recommendation D-6.5: Economic and pricing approaches, using incentives and disincentives should be explored to promote the purchase of healthier foods and beverages. For example, higher sugar-sweetened beverage taxes may encourage consumers to reduce sugar-sweetened beverage consumption. Using the revenues from the higher sugar-sweetened beverage taxes for nutrition health promotion efforts or to subsidize fruits and vegetables could have public health benefits.

We encourage support for public health research projects evaluating whether sugar-sweetened beverage taxes and other disincentive pricing strategies will lower dental caries rates over the life span, or whether consumers will satisfy their sugar craving by switching from one cariogenic product (i.e., sugar-sweetened beverages) to another (e.g., natural fruit juices, hard candies, sugary cereals, etc.). Research is needed to determine the extent to which restrictive food policies will have any noticeable impact on oral health outcomes.

From a dental public health perspective, we are concerned about potential unintended consequences of disincentive pricing strategies. For example, higher prices may not necessarily lead consumers to purchase non-cariogenic foods and beverages (as intended). Even the

DGAC acknowledged there could be potential unintended consequences of disincentive pricing, like “consumers and manufacturers [replacing] added sugars with low-calorie sweeteners.”

We recognize the growing popularity of singling-out sugar-sweetened beverages as a key driver of dental caries. Advocates postulate that lowering sugar-sweetened beverage consumption rates will lower the prevalence of dental caries. Unfortunately, the evidence is not yet sufficient to single out any one food or beverage product as a key driver of dental caries.

The closest model we have to predict the outcome of a sugar-sweetened beverage tax is the longstanding taxation of tobacco products. We note the tobacco model applies to taxing an ingredient (in lieu of a single product containing the ingredient). For example, it does not favor taxing cigarettes over taxing snus, chewing tobacco, dissolvable tobacco, etc. The tobacco data also indicate an excise tax would have to be substantial to observe any noticeable change in consumer behavior.

In theory, the tobacco model suggests a significant tax on added sugar(s) as a whole may have a more noticeable impact on dental caries than taxing only sugar-sweetened beverages. It would certainly limit the option of satisfying a sugar craving by switching from one cariogenic product (i.e., sugar-sweetened beverages) to another (e.g., natural fruit juices, hard candies, sugary cereals, etc.). However, the tax would have to be substantial to observe any noticeable change in dental caries rates.

We would like to see studies done to examine the impact of disincentive pricing policies on dental caries specifically. In particular, we would like to know whether consumers will begin purchasing non-cariogenic foods and beverages (as intended), or simply switch other foods and beverages that are just as cariogenic (e.g., natural fruit juices, hard candies, sugary cereals, etc.).

From an oral health perspective, our recommendation is to emphasize reducing consumption of fermentable carbohydrates overall rather than singling out individual foods and beverages for regulation. This would address our concerns about satisfying a sugar craving by switching from one sugary product (e.g., sugar-sweetened beverages) to another (e.g., natural fruit juices, hard candies, sugary cereals, etc.).

We also recommend investing in long-term demonstration projects examining how disincentive pricing affects dental caries rates over the lifetime (e.g., banning certain foods, imposing excise taxes, restricting portion sizes, etc.).

Finally, we urge you to consult the Academy of Nutrition and Dietetics about the public health impact of economic and pricing disincentives.

DGAC Recommendation D-6.6: Efforts to reduce added sugars in foods and sugar-sweetened beverages in school meals and through the new smart snacks in schools should continue and also be expanded to other settings, including early child care (through the Child and Adult Care Food Program-CACFP), parks, recreation centers, sports leagues, after school programs, work sites and other community settings.

The ADA supports practical, science-based efforts to reduce the consumption of added sugar(s) and other fermentable carbohydrates on school grounds.

We have been working with the USDA for a number of years to establish school food nutrition standards that promote optimal oral health, and applying those standards to all foods sold on school grounds (i.e., vending machines, school stores, a la carte, etc.). We have also been a longtime champion of requiring local educational agencies (LEAs) participating in the National School Lunch Program (NSLP) to establish and maintain local school wellness policies that promote optimal oral health.

We note that the USDA encourages local school wellness policy planning committees to include dentists in their activities. We would be pleased to help recruit more dentists to serve on those committees.

DGAC Recommendation D-6.7: Policies that limit exposure [to] and marketing of foods and beverages high in added sugars to young children, youth and adolescents are needed as dietary preferences are established early in life.

The ADA supports efforts to improve the oral health messages our children receive, particularly the need to maintain a healthy diet, limit consumption of sugary snacks, drink plenty of water, and brush and floss as recommended.

Over the years, the ADA has championed efforts to regulate school pouring rights contracts, which inevitably provide for direct and indirect food product advertising on school grounds (i.e., providing free samples, posting signage, branding school equipment, sponsoring events, etc.). We also spent several years pressing the Federal Trade Commission to develop industry standards for marketing foods to children and adolescents.

We would welcome additional opportunities to improve the nutritional profile of the foods and beverages being marketed to children, particularly if those standards include an oral health component.

DGAC Recommendation D-6.8: Health promotion efforts and policies are needed to reduce sugar-sweetened beverages in settings, such as postsecondary institutions and worksites.

Dentists are well positioned to counsel patients about the importance of maintaining a diet low in added sugar(s), processed starches, low pH-level acid(s), and other food ingredients with cariogenic properties.

As with tobacco cessation counseling, we support efforts to require third-party payers to recognize nutrition counseling in the dental office as an eligible plan benefit. Unfortunately, third-party payers are reluctant to pay for nutrition counseling even though a dental procedure code exists for the service. Parameters of exactly what activities over what time comprise nutritional counseling are vague. Published outcomes from nutritional counseling studies are also extremely limited.

The ADA offers continuing education modules to help dentists counsel patients about the importance of maintaining a healthy diet. Dentists can also distribute ADA brochures to educate their patients about mouth healthy dietary behaviors.

DGAC Recommendation D-6.9: Policy changes within the federal Supplemental Nutrition Assistance Program (SNAP), similar to policies in place for the WIC program, should be considered to encourage purchase of healthier options, including foods and beverages low in added sugars. Pilot studies using incentives and restrictions should be tested and evaluated.

The ADA encourages support for research projects to demonstrate whether and how incentives and restrictions can be used to reduce the incidence of dental caries among those enrolled in food assistance programs.

We note the ADA has been a strong advocate for including oral health education in Team Nutrition, SNAP-Ed, WIC, and other federal food assistance programs.

DGAC Recommendation D-6.10: Public education campaigns are needed to increase the public's awareness of the health effects of added sugars and help consumers reduce added sugars intake and reduce intake of sugar-sweetened beverages through policy, food environment and education initiatives.

The ADA has long supported promotional campaigns to help consumers to improve their oral health through sound dietary habits.

The ADA's National Children's Health Month (NCDHM) may be one vehicle for educating the public about the role of diet and nutrition in maintaining good oral health. This annual observance is an opportunity to promote the benefits of good oral health to children, their caregivers, teachers, and others.

We would welcome opportunities to collaborate on ways to incorporate an oral health message into nationwide nutrition education campaigns.

Needs for Future Research

The DGAC concluded there was a high degree of consistent evidence associating the consumption of added sugar(s) with excess body weight and type 2 diabetes. Comparatively, the DGAC found a *moderate* degree of consistent evidence supporting a relationship between the consumption of added sugar(s) and the development of dental caries.

We recommend the following research endeavors be undertaken to establish a higher degree of consistent evidence about a relationship between added sugar(s) consumption and dental caries.

1. Investigate the impact of reducing added sugar(s) intake from present levels to determine the impact on dental caries rates in all populations.

   Rationale: Questions persist about whether dental caries rates can be reduced by singling out and removing a causative dietary agent (e.g., what is the causative dietary

agent, what are the present consumption rates, how much do we have to remove, how will we remove it, etc.).

2. Investigate the impact of early life reduction of sugar exposure on subsequent caries rates.

   Rationale: Early childhood dental caries are strongly associated with subsequent dental caries. Reduced early exposure to sugars might reduce the disease process throughout the lifespan.

3. Investigate the synergistic effect of acid and sugar on dental caries incidence.

   Rationale: It has been hypothesized that the acidity of foods and beverages supports the dental caries process. More research is needed to determine the relationship between dental caries and low pH-level acid(s), including whether those acid(s) promote dental caries alone or in conjunction with sugar(s).

4. Examine the extent to which dietary counseling in dental offices improves oral health outcomes.

   Rationale: Payment (or non-payment) for nutritional counseling in dental settings is similar to payment (or non-payment) for tobacco cessation counseling. Parameters of exactly what activities over time comprise nutritional counseling are vague. Published outcomes from nutritional counseling studies are limited, so companies are unlikely to provide nutrition counseling benefits even though a CDT code exists to identify this service.

5. Conduct demonstration projects examining the impact restrictive food policies have on dental caries over the lifetime (e.g., banning certain foods, imposing excise taxes, restricting portion sizes, etc.).

   Rationale: Little is known about whether disincentive pricing and other restrictive food policies have any impact on oral health outcomes. We have concerns about whether consumers may simply replace one type of sugar-laden food (e.g., sugar-sweetened beverages) for another (e.g., hard candies, sugared cereals). More research is needed to determine if these policies have any impact on dental caries rates over the lifetime.

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[1] Guideline: Sugars intake for adults and children. Geneva: World Health Organization; 2015.

[2] Guide to Community Preventive Services. Preventing dental caries: community water fluoridation. Centers for Disease Control and Prevention (April 2013).

[3] Griffin SO, et al. Effectiveness of fluoride in preventing caries in adults. *J Dent Res* 2007;86(5):410-415

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Part E: Appendices

Appendix E-1: Needs for Future Research

Appendix E-1 is a compilation of the research recommendations presented in Part D of the report.

Cross-Cutting Topics of Public Health Importance (Part D, Chapter 6)

The DGAC concluded there was a high degree of consistent evidence associating the consumption of added sugar(s) with excess body weight and type 2 diabetes. Comparatively, the DGAC found a *moderate* degree of consistent evidence supporting a relationship between the consumption of added sugar(s) and the development of dental caries.

We recommend the following research endeavors be undertaken to establish a higher degree of consistent evidence supporting a relationship between added sugar(s) consumption and dental caries.

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   Rationale: Questions persist about whether dental caries rates can be reduced by singling out and removing a causative dietary agent (e.g., what is the causative dietary agent, what are the present consumption rates, how much do we have to remove, how will we remove it, etc.).

2. Investigate the impact of early life reduction of sugar exposure on subsequent caries rates.

   Rationale: Early childhood dental caries are strongly associated with subsequent dental caries. Reduced early exposure to sugars might reduce the disease process throughout the lifespan.

3. Investigate the synergistic effect of acid and sugar on dental caries incidence.

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   Rationale: Payment (or non-payment) for nutritional counseling in dental settings is similar to payment (or non-payment) for tobacco cessation counseling. Parameters of exactly what activities over time comprise nutritional counseling are vague. Published

outcomes from nutritional counseling studies are limited, so companies are unlikely to provide nutrition counseling benefits even though a CDT code exists to identify this service.

5. Conduct demonstration projects examining the impact restrictive food policies have on dental caries over the lifetime (e.g., banning certain foods, imposing excise taxes, restricting portion sizes, etc.).

   Rationale: Little is known about whether disincentive pricing and other restrictive food policies have any impact on oral health outcomes. We have concerns about whether consumers may simply replace one type of sugar-laden food (e.g., sugar-sweetened beverages) for another (e.g., hard candies, sugared cereals). More research is needed to determine if these policies have any impact on dental caries rates over the lifetime.

Appendix E-2: Supplementary Documentation to the DGAC Report

Appendix E-2 provides a list of supplementary documentation related to the existing sources of evidence and data analyses the DGAC used in evidence reviews.

Appendix E-2.46: Cross-Cutting Topics of Public Health Importance (Part D, Chapter 6) What is the relationship between the intake of added sugars and dental caries?

We commend the DGAC's due diligence in finding there is a moderate degree of consistent evidence about whether dental caries rates fluctuate based on the volume of added sugar(s) consumed (see Appendix E-2.46).

We also commend the DGAC's due diligence in finding there is a moderate degree of consistent evidence indicating dental caries would be lower when free-sugar(s) consumption is less than 10 percent of energy intake, and a low degree of consistent evidence when the energy intake cutoff is 5 percent.

The DGAC finding is largely based on the systematic review commissioned by the World Health Organization for its 2015 guideline on sugars intake for adults and children. The WHO evidence review is perhaps the most thorough and reliable evidence review on this subject to date.[1]

It would have been valuable had the DGAC been able to complement the WHO evidence review with an original Nutrition Evidence Library (NEL) systematic review on dental caries. We understand that time and resources were not sufficient to complete such a review. We also agree that sufficient evidence is probably not available to address oral health outcomes.

We understand the methodological challenges of investigating the relationship between added sugar(s) and dental caries, which is a multifactorial disease. It is exceptionally difficult to isolate the causative nature of any individual causative agent. Meal patterns and oral hygiene practices can easily influence oral health outcomes. Individual foods are also not consumed in isolation.

The DGAC exercised due diligence to track down the best and most reliable evidence to date about the relationship between the amount of free sugars intake and the development of dental

caries in all populations. We fully agree with the moderate grade given to the current state of evidence.

We hope the final 2015 Dietary Guidelines for Americans policy will include a recommendation to support additional research in this area.

[1] Guideline: Sugars intake for adults and children. Geneva: World Health Organization; 2015.