

REPORT 5 OF THE COUNCIL ON SCIENCE AND PUBLIC HEALTH (A-12)
Taxes on Beverages with Added Sweeteners
(Resolution 417-A-11)
(Reference Committee D)

EXECUTIVE SUMMARY

Objective: To determine if the scientific literature supports the assertion that limiting consumption of beverages with added sweeteners (sugar-sweetened beverages (SSBs)) is likely to improve health outcomes; and, if so, whether taxation of SSBs would be an effective public health strategy to help reduce consumption.

Methods: English language reports were selected from searches of the PubMed, Google Scholar, and Cochrane Library databases from 2001 to March 2012 using the search terms “sugar sweetened beverages,” “soda,” “sugar,” “artificial sweeteners,” “health effects,” “obesity,” “diabetes,” “taxes,” and “taxing.” Additional articles were identified by manual review of the reference lists of pertinent publications. Web sites managed by federal agencies and applicable professional and advocacy organizations also were reviewed for relevant information.

Results: The AMA and other organizations currently recommend limiting intake of added sweeteners in order to reduce the risk of obesity and other chronic diseases. SSBs, which comprise nearly half (46%) of Americans’ added sugar intake, often displace other foods and beverages rich in micronutrients from the diet, such as skim milk and whole fruit, and minimize consumers’ ability to meet the rest of their daily nutrient requirements without exceeding their calorie needs. Experimental trials have found that people generally do not compensate for calories from beverages as well as they do from foods. This often results in higher daily energy intakes than when solid foods equally high in added sugars and calories are consumed. SSB consumption has been strongly and consistently associated with increased body weight and a number of related cardiometabolic conditions, including type 2 diabetes and coronary heart disease. Efforts to discourage consumption of SSBs may result in increased consumption of diet beverages, since they do not directly contribute to added sugar intakes. Some studies suggest that high and chronic consumption of diet beverages may increase the risk of metabolic syndrome, type 2 diabetes, and vascular events, although other studies do not. Concern also exists that diet beverages may displace more healthful beverages such as milk in children, and may alter taste preferences and energy regulation. Current research models predict that increasing taxes on SSBs to a penny per ounce would result in a 5% reduction in the prevalence of overweight and obesity and reduce medical costs by \$17 billion over ten years. Greater health benefits are predicted if SSB tax revenues will be used for programs to prevent and/or treat obesity and related conditions, such as educational campaigns and improved access to potable drinking water in public places.

Conclusions: Reducing intake of SSBs is a simple way to reduce intake of added sweeteners without compromising the nutrient adequacy of the overall diet. Given the strong and consistent associations of SSBs with body weight and several cardiometabolic conditions, limiting consumption of SSBs is likely to improve health outcomes. More long-term studies are warranted on the potential health benefits or harms of regular diet beverage consumption, particularly in children and adolescents. While SSB taxes alone are unlikely to significantly impact the prevalence of obesity and other adverse outcomes, the Council recognizes that a wide array of efforts are necessary to reduce SSB consumption and improve public health; SSB taxes are one means by which local, state, or federal governments may choose to finance these efforts.

REPORT OF THE COUNCIL ON SCIENCE AND PUBLIC HEALTH

CSAPH Report 5-A-12

Subject: Taxes on Beverages with Added Sweeteners
(Resolution 417-A-11)

Presented by: Lee R. Morisy, MD, Chair

Referred to: Reference Committee D
(John P. Evans, MD, Chair)

1 INTRODUCTION

2
3 Resolution 417-A-11, "Taxes on Beverages with Added Sweeteners," introduced by the Oklahoma
4 Delegation at the 2011 American Medical Association (AMA) Annual Meeting and referred to the
5 Board of Trustees, asks:

6
7 That our AMA: (1) support the adoption of a state tax on sugar-sweetened soft drinks with a
8 substantial portion of the revenue from these taxes to be earmarked for the prevention and
9 treatment of obesity; (2) work for and encourage all levels of the Federation and other
10 interested groups to pass a tax on sugar sweetened beverages at the municipal and state levels;
11 and, (3) work with its national partners and Federation members on developing and
12 implementing a national strategy to pass municipal and state taxes on sugar sweetened
13 beverages.

14
15 Two reports by the Board of Trustees previously addressed this issue at the 2006 Annual and
16 Interim Meetings. Both reports recommended that the AMA support adoption of small local, state,
17 and federal taxes on soft drinks sweetened with caloric sugars, with a substantial portion of the
18 revenue from these taxes being earmarked for the prevention and treatment of obesity, as well as
19 public health and medical programs that serve vulnerable populations. However, these
20 recommendations were not adopted.

21
22 This report examines literature that has emerged in the last six years, as well as some earlier
23 studies, to determine if limiting consumption of beverages with added sweeteners is likely to
24 improve health outcomes; and, if so, whether taxation of sweetened beverages would be an
25 effective public health strategy to help reduce consumption.

26
27 CURRENT AMA POLICY RELATED TO TAXES AND BEVERAGES WITH ADDED
28 SWEETENERS

29
30 Current AMA policy does not directly address taxes on food or beverages, other than alcohol.
31 However, several AMA policies support public health efforts to promote the consumption of
32 naturally nutritious beverages and to discourage consumption of added sweeteners and of
33 beverages high in calories and naturally low in other nutrients, particularly as obesity reduction
34 strategies (Appendix). AMA policies also support taxes as a public health strategy to discourage

1 consumption of alcohol and tobacco products and to use the resultant funds for health education,
2 disease treatment, and counter-advertising efforts.

3 METHODS

4
5 English language reports were selected from searches of the PubMed, Google Scholar, and
6 Cochrane Library databases from 2001 to March 2012 using the search terms “sugar sweetened
7 beverages,” “soda,” “sugar,” “artificial sweeteners,” “health effects,” “obesity,” “diabetes,”
8 “taxes,” and “taxing.” Additional articles were identified by manual review of the reference lists of
9 pertinent publications. Websites managed by federal agencies and applicable professional and
10 advocacy organizations also were reviewed for relevant information.

11 12 BACKGROUND

13
14 Taxation of sugar-sweetened beverages (SSBs) has become an increasingly popular proposal to
15 help reduce the prevalence of obesity and related conditions in the United States. Academic
16 research into the relationships between SSBs and obesity and related health outcomes, as well as
17 the potential health impact of SSB taxes, has increased substantially since 2006 when the Board of
18 Trustees last examined the issue. However, opinions on this issue within academic and larger
19 public spheres remain divided.

20
21 Supporters of SSB taxes cite the success of tobacco and alcohol taxes in reducing rates of smoking
22 and alcohol consumption, particularly in concert with other public health measures such as
23 smoking bans, educational campaigns, and tougher alcohol-impaired driving laws. Opponents of
24 SSB taxes are generally skeptical that SSBs should be singled out among the many factors that
25 contribute to obesity and related conditions, such as overconsumption of other foods and lack of
26 physical activity, and/or they believe that such taxes will have little impact on total calorie
27 consumption. These issues are discussed in more detail below.

28 29 DEFINITIONS AND CONSUMPTION PATTERNS

30
31 The terms “added sweeteners” and “added sugars” are generally used interchangeably to refer to all
32 sugars and syrups added to foods and beverages during processing, preparation, or at the table.^{1,2}
33 Although these terms could refer to both caloric and non-caloric sweeteners, they generally refer
34 only to caloric sweeteners, such as sugar (sucrose), high fructose corn syrup, honey, and fruit juice
35 concentrates, all of which provide 4 kcal per gram (g). Non-caloric sweeteners approved for use in
36 the US include the artificial sweeteners acesulfame potassium, aspartame, neotame, saccharin, and
37 sucralose, and the natural sweetener rebaudioside A (a highly purified extract from the stevia
38 plant). These non-nutritive sweeteners do not contain any calories, except for aspartame, which
39 has 4 kcal/g. Due to their intense sweetness, very small quantities are needed, making the amount
40 of energy actually consumed even from aspartame negligible.³

41
42 SSBs generally refer to all non-alcoholic beverages that contain any amount of added caloric
43 sweeteners, excluding 100% fruit and vegetable juices, infant formulas, and dietary aids for
44 medical conditions, although some studies also exclude sweetened milk and milk substitutes.

45
46 Added caloric sweeteners in the US food supply increased 27% since 1966, from 113 pounds per
47 person annually to 143 pounds per person annually in 2005.⁴ Increased consumption of soft drinks
48 and fruit drinks contributed to more than half of this increase in added sugar intake.⁵ Consumption
49 of added sugars has decreased since then, in both adults and children, due primarily to decreased
50 SSB consumption.^{6,7} Nevertheless, consumption of added sugars continues to exceed
51 recommended limits, averaging 77 grams per day (18 tsp); sodas, fruit drinks, and sports drinks

1 remain the largest contributors to added sugar intakes.⁶ Half of Americans over age 2 consume
2 SSBs on any given day, not including sweetened teas or flavored milks, with average intakes of
3 175 kcal/d for males and 94 kcal/d for females.⁸ Intakes are highest among adolescents (12 to 19
4 years of age) and young adults (20 to 39 years of age), with 70% of boys and 60% of girls aged 2 to
5 19 years consuming SSBs on any given day.⁸ The percentage of daily calories from SSBs is
6 highest among Non-Hispanic Blacks (9%) and among lower-income individuals (8-9% in children
7 and adults with incomes below 130% of the poverty line).⁸

8
9 The percentage of Americans consuming non-caloric sweeteners has increased from 3% in 1965 to
10 15% in 2004.⁹ Beverages are the most widely consumed source of non-caloric sweeteners, with
11 11% of Americans consuming non-calorically sweetened (diet) beverages in 2004.⁹ Per capita
12 intake of diet beverages was 129 g per day in 2004, although intake among consumers of diet
13 beverages was 752 g daily.⁹ Daily intakes of diet beverages range from 27 mL/d in children 2 to 6
14 years of age to 290 mL/d in adults aged 40 to 59.¹⁰

15 16 HEALTH EFFECTS OF CALORICALLY SWEETENED BEVERAGES

17
18 The 2010 Dietary Guidelines for Americans,¹ the American Heart Association (AHA)² and the
19 AMA (Policy D-150.981, AMA Policy Database) recommend that consumers limit the amount of
20 added caloric sweeteners in their diet. The recommended USDA food patterns for a standard 2,000
21 kcal/d diet limit intake of solid fats and added sugars, combined, to 258 kcal/d (13% of calories).¹
22 The AHA divides this “discretionary calorie” allowance in half (assuming no discretionary calories
23 from alcohol consumption), and recommends that most women consume no more than 100 kcal/d
24 (6 tsp) and men no more than 150 kcal/d (9 tsp) of added sugars.²

25
26 A single 12 oz serving of most SSBs easily meets or exceeds the AHA limits, with roughly 130-
27 150 kcal and 34-38g (8 to 9 tsp) of added sugar,^{2,11} leaving no room in the diet for added sugars
28 from other foods, such as sweetened yogurt, breakfast cereal, or even spaghetti sauce. SSB
29 consumption often crowds out consumption of other foods and beverages rich in micronutrients,
30 such as skim milk and whole fruit, and minimizes consumers’ ability to meet the rest of their daily
31 nutrient requirements without exceeding their calorie needs. SSB consumption has been inversely
32 associated with consumption of milk, calcium, fruit, and dietary fiber, and with overall dietary
33 quality.¹² Reducing intake of SSBs, which comprise nearly half (46%) of Americans’ added sugar
34 intake, is a simple way to reduce intake of added sugars without compromising the nutrient
35 adequacy of a person’s overall diet.¹ Thus, the Dietary Guidelines and MyPlate explicitly advise
36 the public to “drink water instead of sugary drinks.”^{1,13}

37
38 SSB consumption has been strongly and consistently associated with higher total calorie
39 consumption in cross-sectional, longitudinal, and experimental studies.¹² Experimental trials have
40 found that people generally do not compensate for calories from beverages as well as they do from
41 foods.¹² This means that after drinking a calorie-containing beverage, people eat nearly as many
42 calories at a subsequent meal as when they do not consume any liquid calories beforehand.^{12,14} In
43 contrast, after eating a snack of solid food, people generally eat less at their subsequent meal, so
44 that their total energy intake for the day remains relatively constant, even when they consume food,
45 such as jelly beans, that contains as many added sugars and calories as an SSB.¹⁵ In several
46 studies, people actually consumed *more* calories at a subsequent meal after consuming SSBs than
47 after consuming no calories.^{12,15} In other words, daily calorie intakes increased from both the
48 additional calories from the SSBs as well as from additional calories consumed at subsequent
49 meals. This suggests that SSBs reduce feelings of satiety, increase hunger, and/or acclimate
50 individuals to prefer sweeter and generally more calorie-dense foods.¹²

51

1 Research in animal models suggests that simple sugars, particularly fructose, may be responsible
2 for decreased satiety signals, inducing symptoms of “habituation” and possibly addiction signals
3 similar to those observed with alcohol.¹⁶ However, evidence of addiction in humans remains
4 anecdotal.^{16,17} Furthermore, a recent meta-analysis reported that fructose per se, independent of
5 excess calories, does not appear to be the primary contributor to weight gain.¹⁸ The lack of energy
6 compensation after SSB consumption may have more to do with its liquid form than its fructose
7 content. A recent randomized trial in humans found that consumption of liquids, or *perceived*
8 liquids, resulted in more rapid gastric-emptying and orocecal transit times compared to semi-solid
9 foods (gelatin cubes), as well as lower insulin and glucagon-like peptide 1 (GLP-1) release and less
10 ghrelin suppression.¹⁹ As GLP-1 promotes satiety and ghrelin increases hunger and appetite, it was
11 unsurprising that individuals then consumed more calories at subsequent meals after consuming a
12 liquid, or a perceived liquid, than after consuming a solid or a perceived solid.¹⁹ It appears that the
13 human body and mind find liquids less satiating than solid foods, even if they contain the same
14 amounts of sugars and calories.

15
16 Intake of SSBs has been strongly and consistently associated with increased body weight and a
17 number of related cardiometabolic conditions in cross-sectional, longitudinal, and long-term
18 experimental studies,^{5,12,14,20} particularly in those studies not funded by the beverage industry.²⁰
19 SSBs have been associated with increased blood pressure,^{2,21,22} triglyceride levels; total
20 cholesterol; and liver, visceral and skeletal muscle fat.²³ SSBs also have been associated with
21 decreased HDL cholesterol,² as well as markers of inflammation^{2,14,24} and oxidative stress,^{2,14}
22 dental caries, and kidney stones.¹² SSB consumption also is related to increased risk for type 2
23 diabetes^{14,25} and coronary heart disease (CHD),^{14,24} with increased body weight explaining only
24 part of the excess risk.¹⁴

25 26 HEALTH EFFECTS OF NON-CALORICALLY SWEETENED BEVERAGES

27
28 Efforts to discourage consumption of SSBs may result in increased consumption of diet beverages
29 as a comparable substitute beverage. Relatively short-term randomized trials (less than 3 months)
30 find modest benefits of artificial sweetener use on weight loss, prevention of weight gain, blood
31 pressure, and inflammatory markers.^{26,27,28} A recent 6-month intervention trial also reported a
32 modest benefit of replacing 2 servings/d of SSBs with 2 servings of diet beverages, resulting in an
33 average weight loss of 2 kg over 6 months (a serving was equal to 12–16 oz).²⁹ Another recent 6-
34 month intervention trial observed a slight increase in weight among those randomized to 1L/d
35 (approximately 34 oz) of regular soft-drinks (or semi-skim milk) compared to those randomized to
36 diet soft drinks or water, although the results were not statistically significant.²³ These modest
37 benefits may add up to greater weight loss, or at least weight maintenance, over time, particularly
38 at the population-level.²⁹

39
40 Despite the negligible calorie content of diet beverages and the intervention trials noted above,
41 several, although not all, large cross-sectional and prospective observational studies find direct
42 associations between consumption of artificial sweeteners and body weight.^{30,31} It has been
43 suggested that those struggling to control or reduce their weight may be more likely to consume
44 diet beverages.³² Consumers of diet beverages also may believe the lack of calories allows them to
45 consume more calories from other foods.²⁰ In addition, regular consumption of intensely sweet
46 artificial sweeteners may foster a preference for sweet tastes²⁰ and make less sweet, but healthier
47 foods such as fruits, vegetables, and legumes less appealing.³³ Some have suggested that by
48 disassociating sweetness from calories, artificial sweetener consumption may alter normal
49 hormonal and neurobehavioral pathways that control hunger and satiety.³³ Evidence in animal
50 models finds that artificially sweetened foods and beverages lead to increased food intake, weight

1 gain, body fat, and reduced calorie compensation compared to foods and beverages containing
2 glucose.³⁴ However, direct evidence in humans is lacking.

3 Prospective follow-up studies have linked artificial sweeteners to increased risks of metabolic
4 syndrome, type 2 diabetes,^{35,36,37} and vascular events (stroke, myocardial infarction, or vascular
5 death).³² In some studies, the associations were observed only with diet beverages, but not
6 SSBs,^{32,35} although others found SSBs, but not diet beverages, increased the risk of CHD^{24,38} and
7 diabetes.²⁵ Adding to the lack of clarity was an observation that diet, non-cola carbonated
8 beverages, but not diet colas, were associated with increased risk for CHD equal to that for SSBs.²⁴

9
10 If potentially harmful effects of diet beverages exist, children may be particularly susceptible due
11 to their smaller body size and relatively high intake of beverages.³¹ Like SSBs, diet beverages may
12 displace nutrient-rich milk and 100% juice at mealtimes.³¹ It has been suggested that diet
13 beverages may not even protect against dental caries when consumed in acidic beverages such as
14 sodas.³⁹ Concern also exists that the potentially adverse metabolic and behavioral effects (e.g.,
15 habituation to sweet cravings) of artificial sweeteners have not been adequately studied in children
16 and adolescents, as such effects may persist into adulthood.³¹ Other ingredients in diet beverages,
17 including caffeine and artificial colors, also have raised potential health concerns, particularly in
18 children, although the evidence remains inconclusive.⁴⁰

19
20 Not all public health advocates recommend taxing diet beverages, since they are calorie-free and
21 the long-term adverse health effects of regular consumption are not as well established as for
22 SSBs.²⁰ Nevertheless, neither artificial sweeteners nor diet beverages are explicitly recommended
23 by the 2010 Dietary Guidelines for Americans, even as a means of reducing added sugar intake.¹
24 As in SSBs, the water in diet beverages contributes to hydration, although non-caloric sweeteners
25 are not required nutrients and do not appear to confer any known health benefits in and of
26 themselves; their only apparent benefit, at present, is as a short-term aid to weight loss or weight
27 maintenance.

28 29 POTENTIAL HEALTH EFFECTS OF TAX STRATEGIES

30
31 As of July 1, 2011, sugar-sweetened sodas were taxed in 35 states (40 taxed sugar-sweetened sodas
32 sold in vending machines).⁴¹ In 14 states, sodas were taxed at a higher rate than other foods. The
33 other 21 states did not tax food, but did not consider soda a food.⁴¹ Most of the SSB taxes were in
34 the form of sales taxes, although seven states also imposed other types of taxes and fees.^{42, 43} At an
35 average rate of 5.2% (maximum 7%),⁴¹ these taxes appear to have had minimal impact on rates of
36 overweight and obesity.^{44,45,46} Currently, these soda taxes do not include other SSBs, but some
37 include diet sodas. In most cases, the taxes are not intended to influence consumption patterns or
38 fund health related programs.⁴⁷

39
40 The minimal impact of existing soda taxes on obesity rates is unsurprising. Sales taxes are
41 generally paid after the purchase decision has been made⁴⁸ and are easily minimized through
42 purchases of larger containers, cheaper brands, other SSBs, or by ordering beverages in restaurants
43 offering free refills.²⁰ In addition, studies indicate that small price increases (< 10%) are unlikely
44 to impact consumer behavior.^{44, 49}

45
46 Therefore, a larger excise tax of a penny per ounce on sodas and other SSBs has been increasingly
47 proposed as a more effective public health strategy to reduce the prevalence of obesity and related
48 health conditions.^{20,46,50} The penny per ounce tax represents roughly a 15-25% increase in price
49 and would include taxes on syrups and powders equivalent to one cent per ounce.⁴⁶ Taxing per
50 ounce, rather than per bottle or glass, ensures that the tax is applied equally to beverages of

1 different sizes. Excise taxes, which tax beverage producers and wholesalers, are preferred because
2 they are generally passed on directly to consumers and reflected in the shelf price.²⁰

3 A penny per ounce SSB excise tax is estimated to decrease SSB consumption by 10-25%,^{20,46}
4 depending on how much consumers actually change their purchases in response to the tax (price
5 elasticity), and which beverages or foods they consume instead (compensation).⁴⁶ On average, soft
6 drink prices are relatively elastic,⁵¹ particularly among youth, and low-income and obese
7 individuals.⁵² Less established is the extent to which consumers will substitute other high calorie
8 foods and beverages for SSBs; analyses have assumed calorie compensations ranging from 0% to
9 100%.^{46,53}

10
11 Decreased SSB consumption is expected to result in modest reductions in calorie intake, body
12 weight, and disease outcomes.²⁰ Most population-level estimates range from no impact on total
13 calories and body weight to as high as 37 fewer kcal/d in adults and 43 fewer kcal/d in children,
14 resulting in annual weight losses up to 4 pounds in adults and 4.5 lbs in children.^{46,54} Overall, a
15 penny per ounce SSB tax could reduce the prevalence of overweight and obesity by 5% in children
16 and adults.⁵⁴ These seemingly small reductions could have a larger impact on health outcomes and
17 medical cost savings at a population-level. A recent analysis determined that a penny per ounce tax
18 would decrease SSB consumption by 15% and diabetes incidence by 2.6%, and prevent 95,000
19 coronary heart events, 8,000 strokes, and 26,000 premature deaths over the next ten years. It would
20 also reduce medical costs by \$17 billion over ten years.⁴⁶ Since the greatest impact on
21 consumption and body weight is expected in younger adults, even greater health and cost savings
22 are likely longer-term.⁴⁶

23
24 Most SSBs have relatively high profit margins, so many manufacturers could, in theory, absorb the
25 cost of an excise tax without passing it on, at least in full, to consumers. Therefore, effective tax
26 proposals would have to clearly specify that the tax be passed on to consumers.⁵⁰ Nevertheless,
27 some suspect that special sales and coupon offers would minimize the impact of the tax on final
28 purchase prices.⁴⁹

29
30 Other concerns are that taxing SSBs will drive consumers to other beverages and foods with
31 equally high, or even higher, calorie content, such as 100% fruit juice and whole milk; however,
32 100% compensation seems unlikely.^{55, 56} Currently, 100% fruit juices and unsweetened milk cost
33 as much or more than most SSBs, particularly in restaurants and vending machines, and their price
34 will not decrease simply because SSBs are taxed. Equal calorie substitution with foods is also
35 unlikely, as they tend to be more satiating than liquid SSBs. As an added benefit, even some
36 skeptics of SSB taxes point out that decreased SSB consumption may in turn decrease demand for
37 foods often consumed with SSBs, such as salty snacks.⁵⁶

38
39 The high sugar and calorie content of 100% fruit juices remains a concern,⁴⁹ although most SSB
40 tax proposals exempt them from tax.^{20, 46, 50} The US Dietary Guidelines count 100% fruit and
41 vegetable juices as servings of fruits and vegetables and not as added sugars.¹ Furthermore,
42 increased consumption of micronutrient-rich 100% juices and milk would likely improve other
43 health outcomes,⁵³ including diabetes and heart disease, even if calorie intakes and BMI did not
44 decrease, since only part of the association between SSBs and these diseases is due to body
45 weight.^{20,46} Nevertheless, continued consumer education about adequate serving sizes, even of
46 healthy foods, is warranted, and the impact of SSB taxes is likely to be enhanced if the revenues
47 were channeled toward obesity prevention and health promotion efforts.⁵³

48
49 The literature remains divided on whether to tax sweetened milk/milk substitutes and diet
50 beverages. Milk provides protein and several vitamins and minerals, yet intake of milk and milk

1 products is below recommended levels.¹ Sweetened milk contains about 2-6 tsp of added sugars
2 per 8 oz serving, which is less than most SSBs, but still a significant amount, especially if
3 Americans meet their 2-3 daily servings of dairy with sweetened milk products. Just as water with
4 added sweeteners (SSBs) is not a necessary component of the diet, sweetened versions of milk are
5 not necessary. A tax on all beverages with added sweeteners would emphasize that the tax is on
6 the added sweetener, not the water or milk. As for diet beverages, most analyses of the health
7 benefits of SSB taxes have excluded diet beverages. Even if SSBs alone, and not diet beverages,
8 were to be taxed, some analyses find that diet beverage purchases also would decrease.⁵⁴ Given the
9 potential for diet beverages to influence taste preferences and their possible associations with
10 adverse health outcomes, particularly in children, it is possible that even greater improvements in
11 long-term health outcomes would be observed by decreased consumption of both SSBs and diet
12 beverages.

13 FINANCIAL AND POLITICAL CONSIDERATIONS

14 Public support for SSB taxes varies by year and survey design,²⁰ but overall, roughly one-third to
15 one-half of consumers support SSB taxes.^{20, 57} More than 2/3 support SSB taxes if the revenues
16 will be used for obesity prevention and health promotion.²⁰ Nevertheless, at least 15 states
17 discussed SSB tax proposals to help curb obesity rates in 2011, but none passed.⁴⁶
18
19

20 The beverage industry has spent tens of millions of dollars to successfully block and repeal SSB
21 taxes in recent years.⁵⁶ The industry provides jobs in many communities, both directly in their
22 processing facilities, and indirectly through distributors and retailers.⁵⁶ In recent years, even the
23 paper and trucking industries lobbied against SSB taxes, and many proposals were defeated or even
24 repealed after beverage companies threatened to move their operations out of state.^{20, 58} The
25 potential loss of jobs is a concern, but it is unknown how extensively a penny per ounce tax would
26 decrease industry profits. It is possible that sales of unsweetened waters and teas could replace
27 those lost by SSBs.
28

29 The beverage industry also funds the development of educational resources by a number of
30 prominent medical and health professional organizations, as well as K-12 educational and sports
31 programs in schools. Critics contest that these activities are merely another form of marketing.
32 Industry efforts to encourage greater consumption of highly palatable and affordable SSBs easily
33 exceed both private and public educational efforts to limit SSB consumption.⁴² In 2010 alone,
34 beverage companies spent \$948 million to market SSBs in all measured media.⁵⁹ While beverage
35 companies argue for the need for greater consumer education and “personal responsibility,”²⁰ their
36 excessive advertising budgets suggest that it takes substantial effort to override people’s sense of
37 personal responsibility and desire to eat right and be healthy.
38

39 It is argued that SSB taxes would disproportionately burden low-income individuals for whom food
40 costs represent a greater proportion of their income.⁵⁵ However, as discussed above, SSBs are not
41 a necessary part of the diet, and tap water is a lower cost and healthier substitute that is readily
42 available in most households and restaurants. Many argue that an SSB tax could disproportionately
43 *benefit* low-income individuals, who currently consume more SSBs than higher income
44 individuals.⁴² Because they are more price sensitive, low-income individuals could reap greater
45 long-term benefits with reduced rates of chronic diseases that currently burden low income groups
46 disproportionately.⁶⁰
47

48 The US spends \$174 billion a year to treat diabetes and at least \$147 billion (9% of US health care
49 expenditures) on health problems related to overweight and obesity.⁴⁶ A nationwide penny per
50 ounce tax on SSBs is estimated to generate roughly \$13-15 billion in its first year,^{20, 47} and taxing
51

1 both SSBs and diet beverages would generate close to \$20 billion annually.^{47,61} These revenues are
2 predicted to have an even larger impact on population health and medical costs if they were used
3 for obesity prevention or other health promotion.⁴² While tap water is the cheapest beverage, many
4 schools and other public places do not have easily accessible, fully functioning water fountains or
5 faucets. Therefore, using tax revenues to improve access to public water supplies would likely
6 improve public support for SSB taxes, as well as health outcomes.

7
8 Just as tobacco taxes have not eliminated heart disease or lung cancer, SSB taxes are not expected
9 to eliminate obesity or diabetes.²⁰ Other efforts must be made to educate and empower people to
10 choose healthier foods. Such efforts, supported at least in part by the revenue from SSB taxes,
11 could have a greater impact on health outcomes than any direct effect of SSB taxes on consumption
12 habits, even at existing tax rates.⁶²

13 14 AREAS REQUIRING FURTHER RESEARCH

15
16 More research is needed about the potential for both caloric and non-caloric sweeteners to induce
17 symptoms of habituation and addiction. Research also is needed on the potential long-term effects,
18 whether beneficial or adverse, of regular consumption of artificial sweeteners, particularly in
19 children and adolescents.^{31,33} Research should compare SSBs to both diet beverages and
20 unsweetened water and should be funded by non-industry sources to reduce the potential for real or
21 perceived bias.

22
23 Long-term data is needed on the influence of other environmental and personal behavioral factors,
24 beyond price, on food and beverage purchase behaviors.⁶³ In the event that higher taxes on SSBs
25 and diet beverages are enacted, it will be important to conduct rigorous evaluations over several
26 years to evaluate the reasons behind their success or failure.⁵⁰

27 28 SUMMARY AND CONCLUSION

29
30 It is interesting to note that in 1942 the AMA Council on Food and Nutrition issued an opinion
31 which stated in part:

32
33 “Some restriction of the consumption of sugar may be desirable from the standpoint of public
34 health. The consumption of sugar and of other relatively pure carbohydrates has become so
35 great during recent years that it represents a serious obstacle to the improved nutrition of the
36 general public.

37
38 “From the health point of view it is desirable especially to have restriction of such use of sugar
39 as is represented by consumption of sweetened carbonated beverages...”

40
41 Nothing has happened in the intervening 70 years to change this view. The Dietary Guidelines for
42 Americans, as well as the AMA, recommend limiting intake of added sweeteners in order to reduce
43 the risk of obesity and other chronic diseases. Reducing intake of SSBs, which comprise nearly
44 half (46%) of Americans’ added sugar intake, is a simple way to reduce intake of added sugars
45 without compromising the nutrient adequacy of the overall diet.¹ In addition, liquid calories have
46 been shown to be less satiating than those from solid foods, and most people compensate poorly for
47 the added calories from SSBs. SSB consumption has been strongly and consistently associated
48 with increased body weight, as well as a number of related cardiometabolic conditions including
49 type 2 diabetes and coronary heart disease. Limiting consumption of SSBs is likely to improve
50 health outcomes.

51

1 While non-caloric (diet) beverages do not directly contribute to added sugar intakes, they do not
2 appear to confer any known health benefits in and of themselves, although they may assist in short-
3 term weight loss efforts in adults. Some recent studies suggest that high and chronic consumption
4 of diet beverages may increase risk of metabolic syndrome, type 2 diabetes, and vascular events,
5 although other studies do not. Concern also exists that diet beverages may displace more healthful
6 beverages such as milk in children, and may alter taste preferences and energy regulation. More
7 long-term studies are warranted, particularly in children and adolescents, in order to confirm the
8 potential health benefits or harms of regular diet beverage consumption.

9
10 Current research models predict that increased taxes on SSBs would result in modest reductions in
11 calorie intake and body weight, resulting in only a 5% reduction in the prevalence of overweight
12 and obesity in children and adults. These small reductions have been predicted to reduce medical
13 costs by \$17 billion over ten years. However, greater health benefits would accrue if SSB tax
14 revenues were used primarily for programs to prevent and/or treat obesity and related conditions,
15 such as educational campaigns and improved access to potable drinking water, particularly in
16 schools and communities disproportionately effected by obesity and related conditions. The tax
17 revenues also could fund research into the population health outcomes that may result from the
18 taxes. The Council recognizes that a wide array of efforts are necessary to reduce SSB
19 consumption and improve overall dietary habits and public health; SSB taxes are one means by
20 which local, state, or federal governments may choose to finance these efforts.

21 22 RECOMMENDATIONS

23
24 The Council on Science and Public Health recommends that the following statements be adopted in
25 lieu of Resolution 417-A-11 and the remainder of this report be filed:

- 26
27 1. Our American Medical Association (AMA) recognizes the complexity of factors
28 contributing to the obesity epidemic and the need for a multifaceted approach to reduce the
29 prevalence of obesity and improve public health. A key component of such a multifaceted
30 approach is improved consumer education on the adverse health effects of excessive
31 consumption of beverages containing added sweeteners. Taxes on beverages with added
32 sweeteners are one means by which consumer education campaigns and other obesity-
33 related programs could be financed in a stepwise approach to addressing the obesity
34 epidemic. (New HOD Policy)
35
- 36 2. Where taxes on beverages with added sweeteners are implemented, the revenue should be
37 used primarily for programs to prevent and/or treat obesity and related conditions, such as
38 educational ad campaigns and improved access to potable drinking water, particularly in
39 schools and communities disproportionately effected by obesity and related conditions, as
40 well as on research into population health outcomes that may be affected by such taxes.
41 (New HOD Policy)
42
- 43 3. That our AMA advocate for continued research into the potentially adverse effects of long-
44 term consumption of non-caloric sweeteners in beverages, particularly in children and
45 adolescents. (Directive to Take Action)

Fiscal Note: Less than \$500

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APPENDIX.

Current AMA Policies Relevant to the Issue of Taxing Beverages to Improve Public Health

H-150.937 Reducing the Price Disparity Between Calorie-Dense, Nutrition-Poor Foods and Nutrition-Dense Foods

Our AMA supports: (1) *efforts to decrease the price gap between calorie-dense, nutrition-poor foods and naturally nutrition-dense foods to improve health in economically disadvantaged populations* by encouraging the expansion, through increased funds and increased enrollment, of existing programs that seek to improve nutrition and reduce obesity, such as the Farmer's Market Nutrition Program as a part of the Women, Infants, and Children program; and (2) the novel application of the Farmer's Market Nutrition Program to existing programs such as the Supplemental Nutrition Assistance Program (SNAP), and apply program models that incentivize the consumption of naturally nutrition-dense foods in wider food distribution venues than solely farmer's markets as part of the Women, Infants, and Children program. (Res. 414, A-10)

D-150.981 The Health Effects of High Fructose Syrup

Our AMA: (1) recognizes that at the present time, insufficient evidence exists to specifically restrict use of high fructose corn syrup (HFCS) or other fructose-containing sweeteners in the food supply or to require the use of warning labels on products containing HFCS; (2) encourages independent research (including epidemiological studies) on the health effects of HFCS and other sweeteners, and evaluation of the mechanism of action and relationship between fructose dose and response; and (3) in concert with the Dietary Guidelines for Americans, *recommends that consumers limit the amount of added caloric sweeteners in their diet.* (CSAPH Rep. 3, A-08)

D-150.978 Sustainable Food

Our AMA: (1) supports practices and policies in medical schools, hospitals, and other health care facilities that support and model *a healthy and ecologically sustainable food system, which provides food and beverages of naturally high nutritional quality*; (2) encourages the development of a healthier food system through the US Farm Bill and other federal legislation; and (3) will consider working with other health care and public health organizations to educate the health care community and the public about the importance of healthy and ecologically sustainable food systems. (CSAPH Rep. 8, A-09; Reaffirmed in lieu of Res. 411, A-11)

D-150.987 Addition of Alternatives to Soft Drinks in Schools

Our AMA will seek to promote the consumption and availability of nutritious beverages as a healthy alternative to high-calorie, low nutritional-content beverages (such as carbonated sodas and sugar-added juices) in schools. (Res. 413, A-05; Reaffirmation A-07)

H-150.960 Improving Nutritional Value of Snack Foods Available in Primary and Secondary Schools

The AMA supports the position that primary and secondary schools should replace foods in vending machines and snack bars, which are of low nutritional value and are high in fat, salt and/or sugar, with healthier food choices which contribute to the nutritional needs of the students. (Res. 405, A-94; Reaffirmation A-04; Reaffirmed in lieu of Res. 407, A-04; Reaffirmed: CSA Rep. 6, A-04; Reaffirmation A-07)

H-150.944 Combating Obesity and Health Disparities

Our AMA supports efforts to: (1) reduce health disparities by basing food assistance programs on the health needs of their constituents; (2) provide vegetables, fruits, legumes, grains, vegetarian foods, and healthful nondairy beverages in school lunches and food assistance programs; and (3)

ensure that federal subsidies encourage the consumption of products low in fat and cholesterol. (Res. 413, A-07)

D-150.989 Healthy Food in Hospitals

Our AMA will urge: (1) component medical societies, member physicians and other appropriate local groups to encourage palatable, health-promoting foods in hospitals and other health care facilities and *oppose the sale of unhealthy food with inadequate nutritional value or excessive caloric content as part of a comprehensive effort to reduce obesity*; and (2) health care facilities that contract with outside food vendors to select vendors that share their commitment to the health of their patients and community. (Res. 420, A-05)

D-440.954 Addressing Obesity

Our AMA will: (1) assume a leadership role in collaborating with other interested organizations, including national medical specialty societies, the American Public Health Association, the Center for Science in the Public Interest, and the AMA Alliance, to *discuss ways to finance a comprehensive national program for the study, prevention, and treatment of obesity*, as well as public health and medical programs that serve vulnerable populations; (2) encourage state medical societies to collaborate with interested state and local organizations to discuss ways to finance a comprehensive program for the study, prevention, and treatment of obesity, as well as public health and medical programs that serve vulnerable populations; and (3) continue to monitor and support state and national policies and regulations that encourage healthy lifestyles and promote obesity prevention. (BOT Rep. 11, I-06)

H-440.902 Obesity as a Major Health Concern

The AMA: (1) recognizes obesity in children and adults as a major public health problem; (2) will study the medical, psychological and socioeconomic issues associated with obesity, including reimbursement for evaluation and management of obese patients; (3) will work with other professional medical organizations, and other public and private organizations to *develop evidence-based recommendations regarding education, prevention, and treatment of obesity*; (4) recognizes that racial and ethnic disparities exist in the prevalence of obesity and diet-related diseases such as coronary heart disease, cancer, stroke, and diabetes and recommends that physicians use culturally responsive care to improve the treatment and management of obesity and diet-related diseases in minority populations; and (5) supports the use of cultural and socioeconomic considerations in all nutritional and dietary research and guidelines in order to treat overweight and obese patients. (Res. 423, A-98; Reaffirmed and Appended: BOT Rep. 6, A-04; Reaffirmation A-10)

H-150.953 Obesity as a Major Public Health Program

Our AMA will: (1) urge physicians as well as managed care organizations and other third party payers to recognize obesity as a complex disorder involving appetite regulation and energy metabolism that is associated with a variety of comorbid conditions; (2) work with appropriate federal agencies, medical specialty societies, and public health organizations to educate physicians about the prevention and management of overweight and obesity in children and adults, including education in basic principles and practices of physical activity and nutrition counseling; such training should be included in undergraduate and graduate medical education and through accredited continuing medical education programs; (3) urge federal support of research to determine: (a) the causes and mechanisms of overweight and obesity, including biological, social, and epidemiological influences on weight gain, weight loss, and weight maintenance; (b) the long-term safety and efficacy of voluntary weight maintenance and weight loss practices and therapies, including surgery; (c) effective interventions to prevent obesity in children and adults; and (d) the effectiveness of weight loss counseling by physicians; (4) *encourage national efforts to educate the public about the health risks of being overweight and obese and provide information about how to*

achieve and maintain a preferred healthy weight; (5) urge physicians to assess their patients for overweight and obesity during routine medical examinations and discuss with at-risk patients the health consequences of further weight gain; if treatment is indicated, physicians should encourage and facilitate weight maintenance or reduction efforts in their patients or refer them to a physician with special interest and expertise in the clinical management of obesity; (6) urge all physicians and patients to maintain a desired weight and prevent inappropriate weight gain; (7) encourage physicians to become knowledgeable of community resources and referral services that can assist with the management of overweight and obese patients; and (8) urge the appropriate federal agencies to work with organized medicine and the health insurance industry to develop coding and payment mechanisms for the evaluation and management of obesity. (CSA Rep. 6, A-99; Reaffirmation A-09; Reaffirmed: CSAPH Rep. 1, A-09; Reaffirmation A-10; Reaffirmation I-10)

H-495.987 Tobacco Taxes

(1) Our AMA will work for and encourages all levels of the Federation and other interested groups to support efforts, including education and legislation, to pass *increased federal, state, and local excise taxes on tobacco in order to discourage tobacco use.* (2) An increase in federal, state, and local excise taxes for tobacco should *include provisions to make substantial funds available that would be allocated to health care needs and health education, and for the treatment of those who have already been afflicted by tobacco-caused illness, including nicotine dependence, and to support counter-advertising efforts.* (3) Our AMA continues to support legislation to reduce or eliminate the tax deduction presently allowed for the advertisement and promotion of tobacco products; and advocates that the added tax revenues obtained as a result of reducing or eliminating the tobacco advertising/promotion tax deduction be utilized by the federal government for expansion of health care services, health promotion and health education. (CSA Rep. 3, A-04; Modified: BOT Rep. 8, A-05; Reaffirmed: BOT Rep. 8, A-08)

H-30.939 Increasing Taxes on Alcoholic Beverages

It is AMA policy that federal, state, and local tax rates on alcoholic beverages be based on the grams of ethanol present in the beverage, not on the fluid volume of beverages such as beer, wine, and distilled spirits. (Res. 438, A-05)

D-30.995 Increasing Taxes on Alcoholic Beverages

Our AMA will: (1) support increases in federal taxes on beer, wine, and liquor, with a substantial portion of the new revenues to be earmarked to the prevention of alcohol abuse and drunk driving, treatment of persons with alcohol dependence or at-risk drinking patterns, and public health and medical programs that serve vulnerable populations; (2) encourage state and local medical societies to support increases in state and local taxes on beer, wine, and liquor, with a substantial portion of the new revenues to be earmarked to the purposes noted above; (3) support, to the extent possible, state and local efforts to increase taxes on beer, wine, and liquor; (4) collaborate with other national organizations with an interest in this subject, including national medical specialty societies, the American Public Health Association, the Center for Science in the Public Interest, Mothers Against Drunk Driving, and the AMA Alliance; and (5) when state legislative efforts to increase alcohol taxes are stymied, encourage state medical societies to give consideration to the use of ballot initiatives in the 24 states that allow such initiatives. (Res. 438, A-05)