



Key Messages on

# SODIUM

and Sodium Reduction

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**U.S. Department of  
Health and Human Services**  
Centers for Disease  
Control and Prevention







# Key Messages on **SODIUM** and Sodium Reduction

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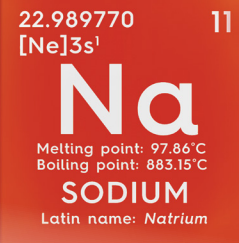
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## What is Sodium?

- Sodium is a mineral that can be found naturally in foods, added during the manufacturing process, or both.<sup>1</sup>
- Sodium, typically in the form of sodium chloride (commonly referred to as “salt”), has many functional uses.<sup>2</sup>
- For example, salt is used to preserve food, add flavor, and give a firmer texture.<sup>2</sup>
- About 90% of the sodium we consume is in the form of salt.<sup>2</sup>
- Only a small amount of sodium comes from salt added during cooking or at the table.<sup>3</sup> Most of the sodium consumed (70%) comes from restaurant, prepackaged, and processed foods.<sup>4</sup>

## 2020-2025 Dietary Guidelines for Americans

- [The most recent Dietary Guidelines for Americans](#) recommend Americans consume less than 2,300 milligrams (mg) of sodium each day as part of a healthy eating pattern.<sup>5</sup> One level teaspoon of table salt contains about 2,300 mg of sodium.<sup>1</sup>

### Sodium Intake Recommendations for Children<sup>5</sup>

- Healthy children:
  - ◇ aged 1 through 3 years should consume less than 1,200 mg of sodium per day.
  - ◇ aged 4 through 8 years should consume less than 1,500 mg of sodium per day.
  - ◇ aged 9 through 13 years should consume less than 1,800 mg of sodium per day.
  - ◇ aged 14 years and older should consume less than 2,300 mg of sodium per day.

## Sodium Intake

### Sources of Sodium:

- 40% of the sodium we eat each day comes from only 10 types of foods.<sup>6</sup>
- The average sodium intake for those ages 1 and older is 3,393 milligrams per day.<sup>5</sup>
  - ◇ Adult men (aged 19-59) generally consume more than 4,000 mg of sodium per day.
  - ◇ Adult women (aged 19-59) generally consume more than 3,000 mg of sodium per day.
- In 2015-2016, Americans aged 2 years or older consumed an average of 3,410 mg of sodium each day.<sup>5,6</sup>
- In 2014, US adults aged 20 to 69 years consumed an average of 3,608 mg of sodium each day, based on 24-hour urinary sodium excretion, the gold standard assessment method.<sup>7</sup>
- 89.8% of non-Hispanic whites, 84.6% of non-Hispanic blacks, and 88.6% of Hispanics aged 19 years and older consumed more than 2300 mg of sodium each day.<sup>8</sup>



## □ Top 10 Sources of Sodium<sup>9</sup>

1. Deli meat sandwiches
2. Pizza
3. Burritos and tacos
4. Soups
5. Savory snacks (e.g., chips, crackers, popcorn)
6. Poultry (excluding nuggets and tenders\*\*)
7. Pasta mixed dishes (excluding macaroni and cheese)
8. Vegetables (excluding white potatoes)
9. Burgers
10. Eggs and omelets

\*\*Nuggets and tenders were not ranked among the top 10 sodium food sources overall but contributed to  $\geq 3\%$  sodium intake.  
Note: Items 6-10 are prepared items with added sodium.

- The body needs only a small amount of sodium to function properly,<sup>2</sup> but Americans consume much more than is needed.
- 99.2% of adults worldwide consume above the World Health Organization (WHO) recommendation of 5g of salt per day<sup>10</sup>.

## Intake Among Children<sup>11</sup>

- Approximately 9 in 10 U.S. children consume more sodium than recommended.
- Children's Sodium Intake at Meals
  - ◇ 14% at breakfast
  - ◇ 31% at lunch
  - ◇ 39% at dinner
  - ◇ 16% at snack time

## Top Food Sources of Sodium for Children Ages 6-18<sup>12</sup>

1. Pizza
2. Yeast breads/rolls/buns
3. Cold cuts and cured meats
4. Savory snacks (e.g., Tortilla, corn, and other chips/pretzels/snack mix/potato chips/popcorn)
5. Sandwiches
6. Cheese
7. Chicken patties/nuggets/tenders
8. Pasta mixed dishes (excludes macaroni and cheese)
9. Burritos and tacos, nachos, other Mexican mixed dishes
10. Poultry





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## Risks of Excess Sodium Intake

- Excess sodium can lead to high blood pressure (hypertension), which is a major risk factor for heart disease and stroke. <sup>13</sup>
- Heart disease and stroke are the leading causes of death in the United States. <sup>13</sup>
- High blood pressure was a primary or contributing cause of death in 2019 for more than 515,000 people in the United States. That's approximately 1,400 deaths each day. <sup>14</sup>
- Nearly 108 million U.S. adults (45%) have hypertension defined as a systolic blood pressure greater than or equal to 130 mm Hg or a diastolic pressure greater than or equal to 80 mm Hg or are taking medication for hypertension. <sup>15</sup>
  - ◇ A greater percentage of men (47%) have high blood pressure than women (43%). <sup>15</sup>
  - ◇ High blood pressure is more common in non-Hispanic black adults (54%), than in non-Hispanic white adults (46%), non-Hispanic Asian adults (39%), or Hispanic adults (36%). <sup>15</sup>
- In addition to health and quality of life impacts from hypertension, heart disease and stroke, these conditions also have an economic impact. <sup>16</sup>
- High blood pressure costs the United States between \$131-\$198 billion annually. <sup>17,18</sup>
- A population-level sodium reduction of 1200 mg per day can help lower the number of individuals with hypertension by an estimated 11 million, and over ten years, prevent 280,000 to 500,000 deaths, and save \$10 to \$24 billion in health care costs <sup>16,19,20</sup>
- Approximately 1 in 7 children in the U.S. had elevated blood pressure or hypertension during 2013-2016. <sup>21</sup>
- Hypertension among youths is associated with increased risk for hypertension and other markers of cardiovascular risk during adulthood. <sup>21</sup>







## Sodium Reduction Benefits

- Sodium reduction continues to be an effective and safe strategy to lower blood pressure.<sup>22</sup>
- When salt intake is reduced, blood pressure begins falling within weeks, on average.<sup>22</sup>
- Lowering high blood pressure reduces the risk of heart disease and stroke.<sup>22</sup>
- There is evidence that demonstrates consumer support for sodium reduction.
  - ◇ In a study that examined U.S. consumers' attitudes over time (between 2012 and 2015) about actions or policies to limit sodium in a range of food environments, the number of respondents who supported environment-specific policies to lower sodium in school cafeterias, workplace cafeterias, and quick-serve restaurants increased. Support for environment-specific policies to lower sodium in school cafeterias increased from 80.0% to 84.9%; workplace cafeterias increased from 71.2% to 76.6%; and quick-serve restaurants increased from 70.8% to 76.7%. Overall, more than 75% of respondents supported policies to reduce or limit sodium in these food outlets.<sup>23</sup>



## Sodium Reduction Challenges

- The reduction of sodium in the food supply is a complex challenge that involves multiple stakeholders. <sup>24</sup>
- The timeline for reducing sodium in a product may be months or even years. <sup>25</sup> Obstacles such as negative consumer test results can lengthen this timeline or even terminate the project altogether if the product would not be acceptable to consumers. <sup>25</sup>
- Some foods that don't taste salty can still be high in sodium, which is why using taste alone is not an accurate way to judge a food's sodium content. For example, while some foods that are high in sodium (like pickles and soy sauce) taste salty, there are also many foods (like cereals and pastries) that contain sodium but don't taste salty. Also, some foods that you may eat several times a day (such as breads) can add up to a lot of sodium over the course of a day, even though an individual serving may not be high in sodium. <sup>26</sup>
- Product taste, shelf life and safety, and other physical attributes of foods can change and become unacceptable if too much sodium is removed and not replaced with other functional ingredients. In addition, costs of reformulation are seen as prohibitive for some products. <sup>27</sup>
  - ◇ For other foods, reducing sodium content has the potential to increase food spoilage rates and the presence of pathogens. For these foods, product reformulation, changes in processing, and changes in handling may be required to ensure that the product has an adequate shelf life and to prevent pathogen growth. Such efforts incur additional costs and require careful attention to ensure that new formulations and processes are sufficient to ensure product safety. <sup>24</sup>



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## Sodium Reduction Initiatives

- In March 2011, the U.S. Department of Health and Human Services (HHS) and the U.S. General Services Administration (GSA) released the first food service guidance for federal facilities in an effort to make healthier food and beverage choices.<sup>28</sup>
- Those guidelines were updated in 2017 and renamed, [Food Service Guidelines for Federal Facilities](#).
  - ◇ Its purpose is to provide specific standards for food, nutrition, facility efficiency, environmental support, community development, food safety, and behavioral design for use in food service concession and vending operations at federal facilities.<sup>28</sup>
- The standards in the Food Service Guidelines for Federal Facilities are designed to achieve three primary goals. These goals ensure that:
  - ◇ Healthier foods and beverages are available and encouraged at federal facilities.
  - ◇ Environmentally responsible practices are conducted in federal food service venues, and communities are economically supported through local food sourcing.
  - ◇ Food safety practices are followed to minimize the risk of foodborne illnesses.<sup>28</sup>
- These guidelines are intended primarily for developing contracts and permits for the delivery of food service in these settings.<sup>28</sup>
- In 2016, the **U.S. Food and Drug Administration** (FDA) issued [draft guidance](#) for public comment that provided voluntary sodium reduction targets for the food industry.
- The draft short-term (two-year) and long-term (10-year) voluntary targets for industry were intended to help the American public gradually reduce sodium intake to 2,300 milligrams (mg) per day.
- The targets were also intended to complement many existing efforts by food manufacturers, restaurants, and food service operations to reduce sodium in foods.<sup>29</sup>
- The **Centers for Disease Control and Prevention** (CDC) works with national, state, and local partners to gradually reduce sodium consumption, increase blood pressure control, and improve nutrition in the United States.
  - ◇ Led by the agency's Division for Heart Disease and Stroke Prevention (DHDSPP), CDC is actively monitoring the following:
    1. High blood pressure and cardiovascular disease (CVD) deaths
    2. Sodium consumption
    3. Sodium content in foods
    4. Consumer readiness to reduce sodium intake<sup>30</sup>
  - ◇ In support of this effort, CDC publishes data and research about sodium, educates and provides technical assistance to funded programs and partners working to reduce sodium in communities, and engages the food industry to understand challenges and solutions to sodium reduction in the food supply.<sup>30</sup>
- CDC supports the [Million Hearts® 2022](#) aim of preventing 1 million heart attacks and strokes through a small set of evidence-based public health and health care actions. The Million Hearts® initiative has established a goal to reduce sodium intake by 20% to help meet this aim.<sup>30</sup>

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- The [Sodium Reduction in Communities \(SRCP\) program](#) was launched in 2010 and is administered by CDC's Division for Heart Disease and Stroke Prevention. <sup>31</sup>
    - ◇ This first round of the program, 2010-2013 was a demonstration project that sought to reduce sodium consumption and find out whether consumers would accept the reduction. It was determined that consumers in the project's communities accepted sodium reduction.
    - ◇ In the second round (2013-2016), CDC funded ten communities to test promising sodium reduction strategies and demonstrate the impact of strategies on availability, accessibility, and purchase of lower sodium food. <sup>31</sup>
      - ◆ During this second round of the program, the average sodium content of targeted foods or meals decreased by 261 mg from 946 mg at baseline, to 685 mg at final follow-up in the 12 food service settings that submitted data.
      - ◆ SRCP activities led to an increase in the number of people with access to environments with healthy food options, including lower sodium foods.
        - Across all 20 food service settings of various types, the number of organizations offering new lower-sodium foods increased to an estimated 455 from a baseline of 0 organizations. Combined, these organizations reached an estimated 2,029,408 people.
      - ◆ SRCP activities also increased the sales of lower-sodium foods. From baseline, lower-sodium food items purchased by patrons in the 5 food service settings that reported this measure increased by 250,701 (from 62,793 items at baseline to 313,494 items at final follow-up). Most of this increase was from worksites (248,542 items).
      - ◆ SRCP also influenced the number of people who reduced their sodium intake through the purchase of lower sodium foods. Across 11 food service settings, an estimated 140,596 more people purchased lower sodium food items compared with baseline (from 18,107 people at baseline to 158,704 people at final follow-up). The outcome was greatest in worksites (71,314 people), followed by congregate meals (39,908 people), restaurants (28,807 people), and hospitals (568 people). <sup>32</sup>
    - ◇ The third round of the program was launched in 2016 and concludes in 2021. Eight communities were funded to implement strategies to reduce sodium intake and collaborate with food industry partners. <sup>31</sup>
      - ◆ Strategies include implementing:
        - Food Service Guidelines
        - Procurement Practices
        - Meal and/or Menu Modifications
        - Environmental Strategies and Behavioral Economics approaches
      - ◆ SRCP recipients' partner with local organizations that serve or sell food, such as schools, hospitals, and worksites, to implement sodium reduction strategies. <sup>31</sup>
      - ◆ During the first two years of the third round of SRCP, recipients implemented comprehensive food service standards in 159 entities, replaced 1,688 products or ingredients with lower sodium alternatives, affected 2,292 menu items through recipe modification, and implemented environmental choice architecture in 151 entities. <sup>33</sup>





## Implementing Effective Standards and Strategies for Sodium Reduction

- Sodium reduction efforts may have greater success when new products and new formulations/recipes can be implemented gradually, allowing people's palates to adjust.
- An organization may begin with implementing a single strategy then add additional strategies using a phased approach or execute multiple strategies simultaneously.
- Strategies can be tailored to meet the needs of partners and venues.
  - ◇ For example, product replacement can focus on top-selling prepared food items or base products used with the most frequency.<sup>34</sup>
- The following questions may help an organization choose potential strategies for reducing sodium in targeted venues:<sup>34</sup>

### **Feasibility:**

1. What resources (human and financial) are needed to implement this strategy?
2. Would this strategy have a significant negative effect on the bottom line?
3. Are the necessary supports or infrastructure in place for the strategy to be successfully implemented?
4. Are there significant barriers to implementation?

### **Potential for impact:**

1. How much will this strategy contribute to lower sodium content of foods?
2. To what extent will this strategy increase availability and access to lower sodium foods?
3. To what extent will this strategy result in reduced sodium consumption?

**Will:**

1. Is there enthusiasm for this strategy?
  2. From the consumer, to line staff and managers, to administrators and policy makers, will this strategy be met with support?
- The *Food Service Guidelines* for Federal Facilities represents **a set of voluntary best business practices** that can be implemented at federal departments and agencies to increase healthy and safe food options for employees, while also improving facility efficiency and supporting the community through sourcing and procurement of local and regional foods.<sup>28</sup>
  - The standards in the *Food Service Guidelines for Federal Facilities* are categorized into the following four sections:
    - ◇ Food and Nutrition
    - ◇ Facility Efficiency, Environmental Support, and Community Development
    - ◇ Food Safety
    - ◇ Behavioral Design<sup>28</sup>
  - These guidelines identify two levels of implementation: Standard and Innovative. The criteria for both implementation levels are supported by the scientific literature to be beneficial to health and/or the environment, or align with existing national policy or guidance. These terms are defined as follows:
    - ◇ **Standard** criteria are considered to be widely achievable within food service. Implementation at the standard level is expected.
    - ◇ **Innovative** criteria promote exceptional performance in various areas of food service. Implementation at the innovative level is encouraged.<sup>28</sup>







## **Food and Nutrition Standards** <sup>28</sup>

- The U.S. government encourages the availability, promotion, and consumption of healthier foods and beverages as a way to support optimal health and prevent nutrition related chronic diseases.
  - ◇ Examples of criteria in these guidelines:
    - ◆ “Standard criteria” for Sodium include:
      - All meals offered contain  $\leq 800$  mg sodium\*\*
      - All entrees offered contain  $\leq 600$  mg sodium\*\*
      - All side items contain  $\leq 230$  mg sodium\*\*
    - ◆ “Standard criteria” for Sodium on Packaged Snacks include:
      - All packaged snacks contain  $\leq 200$  mg sodium per package.

\*\*The Food Service Guidelines for Federal Facilities defines a meal as consisting of an entrée and two side items.

\*\*The United States Department of Agriculture (USDA) defines an entrée as “an item that includes only the following three categories of main dish food items:

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- ◇ A combination food of meat / meat alternate and whole grain-rich food, or
  - ◇ A combination food of vegetable or fruit and meat / meat alternate, or
  - ◇ A meat / meat alternate alone, with exception of yogurt, low-fat or reduced fat cheese, nuts, seeds and nut or seed butters, and meat snacks (i.e., dried beef jerky and meat sticks)."

\*\*The Food Service Guidelines for Federal Facilities defines a side item as a single serving of a food or beverage that may accompany a meal or entrée or eaten on its own.

□ State and Local Examples:

- ◇ The County of **San Diego Board of Supervisors** adopted the *Eat Well Practices* (Practices), nutrition and sustainability guidance for all County food service operations, in December 2016. The Practices include sodium limits and strategies to reduce sodium and have been included in Requests for Proposals (RFPs), including in an Aging and Independence Services Senior Meals RFP. <sup>35</sup>
- ◇ The **New York City Food Standards** were established in 2008 and are required in all NYC government agencies. They were developed to help lower the risk of obesity, diabetes and cardiovascular disease for New Yorkers served by City agencies.
  - ◆ The Standards set guidelines for any government facility where food is served, including vending machines, meetings/events and in commissaries at correctional facilities.
  - ◆ They apply to more than 238 million meals and snacks served each year at the city's facilities and programs, including schools, senior centers, homeless shelters, child care centers, after school programs, correctional facilities and public hospitals. They also apply to foods and beverages served in meetings/events, vending machines and commissaries at correctional facilities.
  - ◆ They apply to cafeterias/cafés on a voluntary basis.
  - ◆ Mandatory Standards and Implementation Guides for City Facilities and Vendors
    - [Meals/Snacks Purchased and Served Standards](#) <sup>36</sup>
    - [Meetings and Events Standards](#) <sup>37</sup>
    - [Beverage Vending Machines Standards](#) <sup>38</sup>
    - [Food Vending Machines Standards](#) <sup>39</sup>
    - [Commissaries Standards](#) <sup>40</sup>
  - ◆ New York City's Voluntary Adoption of the Standards <sup>41</sup>
    - The Health Department encourages private businesses and community- and faith-based organizations to adopt the NYC Food Standards.
    - Currently, about 20 hospital and higher learning education cafeterias or cafés are working on adopting the [Cafeterias/Cafés Standards](#) <sup>42</sup> to improve the foods and beverages offered. Between 2012 and 2014, at least 40 NYC hospitals committed to implementing the Standards in their patient meals, food and beverage vending machines and cafeterias and cafés.
    - Over 20 community- and faith-based organizations have committed to implementing the Standards for meetings/events.



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- ◆ New York City's [Sodium Warning Icon](#) requires chain restaurants with 15 or more locations nationwide to post a warning icon next to items that contain at least 2300 mg of sodium. <sup>43</sup>
  - ◆ [National Salt and Sugar Reduction Initiative \(NSSRI\)](#) <sup>44</sup>
    - New York City developed voluntary industry sodium targets as part of the National Salt Reduction Initiative in 2009.
    - New York involved industry by requesting feedback during the target-setting process and encouraging industry commitments.
    - Progress and industry commitments were monitored and publicly reported, with a clear framework for making decisions if targets were not met by the end date.
    - Reductions in the sales-weighted mean salt density of 7% were reported in packaged food over 5 years.
  - In 2014, the **City of Philadelphia** issued [Executive Order 4-14](#), establishing citywide nutrition standards for foods and beverages purchased, prepared or served by City agencies. The Department of Public Health also developed voluntary standards for hospitals interested in offering healthier options to their patients, staff, and visitors. <sup>45</sup> See City of Philadelphia specific resources here:
    - ◇ [Required and recommended guidelines designed to help agencies that purchase, serve, sell, or otherwise provide food to clients, patients, employees and the general public](#) <sup>46</sup>
    - ◇ [Revisions to the Philadelphia Comprehensive Nutrition Standards](#) <sup>47</sup>
    - ◇ [Recommended and required guidelines and practical tools to assist agencies in planning, purchasing or serving food](#) <sup>48</sup>
    - ◇ [Recommended standards for nutrition, physical activity and screen time in early care and education programs](#) <sup>49</sup>
    - ◇ [Recommended standards designed to help hospitals set and achieve nutrition goals](#) <sup>50</sup>
    - ◇ [A 2017 Board of Health resolution recommending nutrition and screen time standards for early care and education programs](#) <sup>51</sup>
  - The [Washington State Healthy Nutrition Guidelines \(Guidelines\)](#) <sup>52</sup> increase the availability of healthier food and beverage options available in state agencies. The Guidelines are based on the 2015-2020 Dietary Guidelines for Americans. As part of [Executive Order 13-06](#), <sup>53</sup> State Executive Agencies are required to adopt healthful food and beverage policies that meet the Healthy Nutrition Guidelines. They allow for other agencies and organizations to voluntarily adopt the guidelines. The guidelines apply to food and beverages available through:
    - ◇ [Vending & Micro-Markets](#) <sup>54</sup>
    - ◇ [Meetings and events](#) <sup>55</sup>
    - ◇ [Cafeterias, cafes, on-site retail, and other concessions](#) <sup>56</sup>
    - ◇ [Institutions](#) <sup>57</sup>

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- The **Oregon Department of Human Services (DHS) and the Oregon Health Authority (OHA)** developed a [Healthy Meetings, Conferences, and Events Policy](#).<sup>58</sup>
    - ◇ The policy applies to all DHS and OHA staff including employees, volunteers, trainees, interns, contractors and sub-contractors:
    - ◇ For meetings, conferences and events organized by DHS and OHA and paid for using state funds, agency staff and contractors shall provide healthy foods and beverages.
      - ◆ DHS and OHA shall not use state funds to provide fried foods, including french fries, potato chips, tortilla chips and donuts. Exceptions to this section of the policy may apply.
      - ◆ If food is to be provided, staff, volunteers and contractors shall make a good faith effort to provide healthy food and beverages that meet the recommendations of the USDA Dietary Guidelines for Americans 2015-2020 related to healthy selections and portion sizes.
  - The [County of Los Angeles' Vending Machine Nutrition Policy](#) encourages healthier diets by increasing access to healthy food and beverages and reducing access to unhealthy food and beverage options for County employees and the public at County facilities.
    - ◇ The Department of Public Health is asked to periodically monitor the implementation and impact of the policy by collecting data (e.g. food production, sales records, nutritional analysis) to assess the nutritional content of foods and beverages and show consumption trends.<sup>59</sup>

### **Food Procurement Guideline Standards & Strategies**<sup>28</sup>

- The United States government encourages practices that are beneficial to the environment, largely through the efforts of federal departments and agencies, such as the USDA and U.S. Environmental Protection Agency (EPA).
- Food service, as part of overall building operations, is a key area in which strategies and policies can be implemented to reduce environmental impact, increase energy efficiency, and improve facility management of natural resources.
  - ◇ Executive Order 13693, which was released in March 2015, directs government agencies to increase energy and efficiency and improve environmental performance.
  - ◇ Among the goals set forth in the Executive Order, was a goal for 50% diversion of non-hazardous waste, including food and compostable material.
  - ◇ Additionally, in 2015, USDA and EPA announced the “first-ever national food waste reduction goal, calling for a 50-percent reduction by 2030.”
- A definition of healthy food procurement that has been used in a review of policies is — *“a process which encompasses not just how public bodies procure food, but also how they determine what food they want to buy and from whom; receive and store food; prepare and serve food; dispose of waste food; and monitor their costs.”*<sup>60</sup>
- According to the Public Health Law Center, government facilities, businesses, and organizations may promote easier access to healthy foods and beverages for their employees, guests, and community members by establishing food vending and procurement policies that include evidence-based nutrition standards, and by making sure that these policies are incorporated into their food vendor contracts and bids.<sup>61</sup>



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- A systematic review of the evidence base for healthy food procurement policies found that the implementation of these policies in schools, worksites, hospitals, care homes, correctional facilities, government institutions, and remote communities increase markers of healthy eating.<sup>61</sup>

#### **State and local examples:**

- ◇ The **NYC Department of Health and Mental Hygiene** works with two large national food distributors on Good Choice, a tool that makes it easier for distributors to highlight healthier products that meet the NYC Food Standards and for customers to buy lower-sodium foods. Good Choice is now available to New York State agencies and Los Angeles and San Diego Counties.<sup>62</sup>
- ◇ Using a Health Impact Assessment model, the **County of Los Angeles** estimated the potential health impact and costs of implementing a local policy for food procurement to reduce the consumption of sodium in the County.<sup>63</sup> Findings suggested that a food-procurement policy aimed at reducing the consumption of sodium at various food-service settings operated or funded by the County of Los Angeles government could achieve positive health and economic effects (i.e., 388 fewer cases of uncontrolled hypertension and more than half a million dollars in reduced health care costs annually).
- ◇ **Health and Hospital Corporation of Marion County**<sup>64</sup>
  - ◆ Chef for Hire Food Procurement Nutrition Standards for Child & Adult Care Food Program (CACFP) Meals and Snacks encourages food vendors, distributors, and manufacturers to meet the Food Procurement Nutrition Standards.
  - ◆ CACFP nutritional guidelines for sodium limits include:
    - Snack items: less than 200 mg.
    - Side items: less than 230 mg.
    - Entrée items: less than 480 mg.
    - Meat & meat alternative products.
    - Preference for unprocessed or minimally processed products that do not contain added ingredients such as fat, sugars, or sodium.
    - Vegetables and Fruit Products.
      - Must be whole vegetables and fruit, including fresh, frozen, canned and dried fruits and vegetables that are unprocessed or minimally processed and do not contain added ingredients such as fat, sugars, or sodium.
      - Preference for seasonal, fresh vegetables and fruits (Goal 75%) over canned or frozen.
      - Canned vegetable must be labeled as reduced sodium or lower sodium.
    - Condiments, Dressings, Gravies and Sauces
      - ▶ Condiments and dressings must be no more than 12g (1 Tablespoon) portion and contain no more than 90 milligrams of sodium.

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## **Modified Kitchen Preparation Methods/Culinary Techniques to Enhance Flavor** <sup>34</sup>

- Examples include:
  - ◇ Replace salt in recipes with more herbs, spices, and fresh garnishes.
  - ◇ Make scratch marinades or dressings.
  - ◇ Use basic ingredients versus prepackaged items.
  - ◇ Use techniques such as roasting, searing, and sautéing instead of frying to reduce salt and fat content from the oil and coating.
  - ◇ State examples:
    - ◆ The **Onondaga County Health Department in collaboration with the New York State Department of Health** engaged food service management staff, chefs, and dieticians in an interactive, hands-on, chef-led training to demonstrate ways to decrease sodium in recipes that are regularly offered in their cafeterias.
      - Within 1 year of the training, all partnering sites replaced their products with lower-sodium alternatives and many altered recipes to be lower in sodium using the techniques they had learned. <sup>31</sup>
    - ◆ Suggestions for **Prepared Foods**:
      - Consider using aromatics and umami
        - ▶ Umami literally means “the presence of glutamic acid” translated to mean “deliciousness or wonderful taste.”
        - ▶ It’s considered to be the 5th taste as well as having the property to enhance the flavor of savory foods, has little effect on sweet foods, and is very helpful in lowering sodium.
        - ▶ Umami rich foods include seafood, vegetables, aged, fermented and cured foods, green tea, grapefruit, and aged cheese.
      - Consider using acids with flavor, such as lemon, lime, orange, vinegars.
        - ▶ In taste tests, most subjects preferred the reduced salt recipes with lemon juice and zest to the original recipes.
      - Consider the Maillard effect, toasting, and browning, caramelization.
      - Fermentation may add flavor and interest.
        - ▶ Although many fermented foods are high in sodium (soy sauce, fish sauce, miso, cheese, salami, etc.) they may be helpful in reducing sodium in the US diet. <sup>65</sup>



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### **Group Purchasing for Lower Sodium Products**

- Some food service settings, such as hospitals, use group purchasing in order to leverage purchasing power by buying products or services with other organizations.
- Group purchasing has an advantage in allowing the negotiation of pricing and product inventory – such as demonstrating the demand for lower sodium products.<sup>34</sup>

### **Food Safety Standards**

- The primary Food Safety standard *in the Food Service Guidelines for Federal Facilities* states that contractors operating in federal facilities are expected to adhere to the most recently published Food Code and its Supplements.
- The Food Safety standards included in the *Food Service Guidelines for Federal Facilities* apply to concessions (such as cafeterias, cafés, and grills) where food is prepared and sold or served.
- They also apply to merchandising and vending operations that offer foods that require temperature control for safety.<sup>28</sup>

### **Product Replacement and Reformulation**

- Consider ingredients and foods that contribute to the sodium content of meals or dishes, as well as lower-sodium alternatives to reduce overall sodium content without compromising on flavor.
  - ◇ This could involve assessing pantries, dishes, and recipes for high sodium products and substituting them with lower sodium options such as low-sodium beans, soup stock, and tomato-based products.<sup>34</sup>
- Several studies have shown that manufacturer reformulation of products like breads, dairy, and meats has been an effective sodium reduction strategy.<sup>66, 67, 68</sup>
- Product reformulation strategies differ by product and may include adding salt substitutes like potassium chloride and mineral salts, adding naturally brewed soy sauces, and slowly and gradually reducing sodium without affecting consumer acceptance. Local example:<sup>69</sup>
  - ◆ The **Philadelphia Department of Health** partners with Drexel University's Food Lab (DFL) and local manufacturers to reformulate high-sodium products (e.g., breads, rolls) while maintaining quality, safety, shelf life, consumer acceptance, and cost.<sup>31</sup>

### **Portion Size Reduction**

- Portion sizes may contribute to healthy eating overall by ensuring that consumers are eating recommended portions and not consuming more calories and nutrients than recommended.
- Portion size can also be guided by consumer preference and acceptance – such as offering snack-size portions and that also meet guidelines for sodium content.
  - ◇ Examples of portion size modifications to reduce sodium include:
    - ◆ Consider using smaller/thinner sliced breads or sandwich buns to reduce sodium.
    - ◆ Take into consideration portion-controlled items in the kitchen, such as using limited amounts of high sodium cheeses and cured meats and using more naturally lower-sodium foods such as fruits and vegetables to fill the plate without adding sodium.

- ◆ Suggest higher sodium menu items be packaged in smaller bowls, on smaller plates, or pre-portioned, such as dressing packages.
- ◆ Kitchen staff can measure ingredients used and food served by utilizing measuring spoons and cups to prepare recipes and plate food.<sup>34</sup>

### **Behavioral Design Standards**<sup>28</sup>

- The Behavioral Design standards included in the *Food Service Guidelines for Federal Facilities* encourage the use of influencers to make healthier food and beverage items easier for consumers to choose.
  - ◇ The selection and consumption of foods and beverages that are sold or served are influenced by how they are prepared, placed, presented, promoted, or priced.
  - ◇ These standards are suggested at the Innovative level of implementation because they augment the Food and Nutrition standards and because the feasibility of their implementation may vary across different types of food service venues. Examples of “Standard criteria” for Behavioral Design Standards include:
    - ◆ Strategically place foods and beverages and design the layout of food service venues to foster selection of healthier foods and beverages.
    - ◆ Use product innovations and the inclusion of healthier options as default choices at decision points to encourage healthier choices.
    - ◆ Use price incentives and marketing strategies to highlight healthier food and beverage items.
    - ◆ Promote healthy portion sizes by optimizing the size of plates, bowls, glasses, other dishware, and serving ware.
    - ◆ Use information, displays, decorations, and signage to highlight healthier choices.
    - ◆ Work with worksite wellness programs or other employee organizations to promote healthier options.





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## **Behavioral Economics and Marketing** <sup>34</sup>

### **Behavioral Economics**

- These approaches may involve altering features of the physical or social environments that lead to behavior changes to increase purchase and/or selection of lower sodium foods.
  - ◇ Low or no-cost examples that can have a positive impact on sales include:
    - ◆ Display and presentation of lower-sodium options.
    - ◆ Strategic placement of lower-sodium options.
    - ◆ Taste testing/sampling.
    - ◆ Labeling and other promotional strategies.

### **Marketing**

- Research has found that sodium reductions of up to 20% are not noticeable to consumers, depending on the food product.
- “Stealth health” is incorporating healthier ingredients or preparation methods into food items without drawing consumer attention.
  - ◇ This may be an effective strategy when reducing sodium in dishes, if the changes are gradual over time and do not “hide” ingredients from consumers who have food intolerances, allergies, and dietary preferences.
  - ◇ Depending on the food item, reducing sodium content in foods by up to 20% may not be noticeable by consumers.
  - ◇ Consider a labeling system that identifies food as “heart healthy.” Using colors or other image/naming conventions.
- **Examples of Combinations of these Strategies Implemented at the State or Local Level** <sup>31</sup>
  - ◇ Strategies implemented by the **Oregon Department of Corrections (DOC) and the Oregon Health Authority (OHA)** led to a 17% reduction in the amount of sodium in meals served between 2016 and 2019 to adults in custody at the state’s 14 correctional institutions. DOC’s food services staff and inmates serve more than 16 million meals a year. With a food budget of just \$2.55 per adult in custody per day, the DOC, in consultation with OHA, lowered sodium in meals by purchasing and substituting lower-sodium versions of food products and revising recipes and food preparation techniques.
  - ◇ **The Los Angeles County Department of Public Health** leads the Los Angeles County Sodium Reduction Initiative (LACSRI) in partnership with the County of San Diego Health and Human Services Agency. As of 2019, they have collaborated with 14 large-scale food purchasing institutions. The LACSRI team designed and launched a consumer education campaign called “Eat Your Best, Less Salt, More Plants” to support institutional and community efforts to reduce sodium in food services venues operated by LACSRI partners. At one private sector hospital, achievements included replacing six high-sodium ingredients such as canned tomatoes, resulting in an average sodium decrease of 58%.

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- ◇ **The New York City Department of Health and Mental Hygiene** has expanded its food standards work to private venues by partnering with retail food outlets in hospitals and worksites, such as cafeterias. Richmond University Medical Center has worked to adopt the Cafeteria Standards, by removing all high-sodium soups (more than 480 mg sodium per 8 oz) and five entrees (more than 700 mg sodium per serving) from their menu cycle. Environmental changes have been made such as including the removal of high-calorie and high-sodium items from the checkout area and replacing them with fresh fruits and healthier snacks.
  - ◇ **Public Health–Seattle and King County** together with **University of Washington Center for Public Health Nutrition**, partners with school districts a statewide food distributor, and emergency food coalitions.
    - ◆ Successes from 2016 to 2019 include adoption of nutrition standards by the statewide food banks and one local emergency food coalition, as well as implementation of behavioral economics strategies in more than 15 food pantries.
      - As a result of procurement changes and recipe modifications, average sodium content in schools decreased in cold sandwiches (35% reduction), rice-based entrees (28% reduction), grab-and-go meals (24% reduction), and dishes containing Mexican seasonings and spices (13% reduction).
      - Slightly more than half of all school meals served in two districts were affected by lower-sodium ingredients in one 6-week sample in 2018.

## Building Partnerships with the Food Industry

Sodium reduction initiatives, led by public health professionals at the local, state, and national levels in collaboration with the food industry, have yielded valuable lessons for how to build strong partnerships.<sup>34</sup>

### Recognition of the Value and Expertise of Food Industry Partners

- Consider consulting with partners as expert advisors at every step, including the earliest stages of planning.<sup>34</sup>
- Strategies that may be used to engage the food industry include:<sup>70</sup>
  - ◇ Developing a clear concise project definition.
  - ◇ Ensuring operational ownership is on board.
  - ◇ Making appointments 2-3 weeks out and confirm appointments 2 days prior.
  - ◇ Signing off on commitment.
  - ◇ Defining what is in it for them.
  - ◇ Learning about their business.
  - ◇ Being cognizant that each request costs the operator money.
  - ◇ Knowing how you can help operators.
  - ◇ Translating public health goals to business initiatives.
  - ◇ Being prepared to quantify a return on investment (ROI).

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### **Making the Business Case**<sup>34</sup>

- Sodium reduction can reduce costs and provide additional benefits:
  - ◇ For employers offering food service to their employees, reduced sodium can improve health outcomes and thereby improve employee productivity and reduce absenteeism.
  - ◇ For employers who self-insure, reduced sodium consumption can lead to the additional benefit of reduced health care costs.
  - ◇ Sodium reduction in institutional settings can lead to lower health care costs and taxpayer savings.
  - ◇ Reduced sodium consumption among the entire population will lead to decreased health care costs overall.

### **Understanding Consumer Needs**

- Edelman's 2019 Annual report said "...there is a clear evolution toward a more natural and holistic approach to nutrition and its role in overall wellbeing, beyond weight management."
- According to the National Restaurant Association's 2020 Culinary Forecast <sup>72</sup>, three of the top four trends are also useful approaches to take to reduce sodium:
  1. Eco-friendly packaging
  2. Made from scratch
  3. Plant-based proteins
  4. Healthy bowls

### **Value of Public Health and Food Service Provider Partnership on Overall Sodium Reduction Efforts**<sup>34</sup>

- Public health practitioners can help food service providers:
  - ◇ Establish nutrition goals and healthy food service guidelines.
  - ◇ Leverage the resources and learnings of other nutrition initiatives.
  - ◇ Communicate the benefits of sodium reduction to different stakeholders or constituencies based on their needs and circumstances.
  - ◇ Provide training and education.
  - ◇ Establish systems to evaluate outcomes and success in meeting sodium reduction benchmarks.

### **Additional Food Service Tips Public Health Practitioners Can Consider:**<sup>34</sup>

- Give thought to the workflow of the food service setting of your partner, and their related challenges in implementing sodium reduction strategies.



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- Explore the food service provider's needs in implementing sodium reduction strategies:
    - ◇ What needs or concerns do they have related to training?
    - ◇ Cost?
    - ◇ Facilities?
    - ◇ Expertise?
    - ◇ What can you offer?
  - Reflect on the trends in food and food service and how one might align sodium reduction efforts with market demand and trends.
  - Consider seeking input and feedback from food service staff at all levels impacted by the implementation of sodium reduction strategies, and throughout the process.

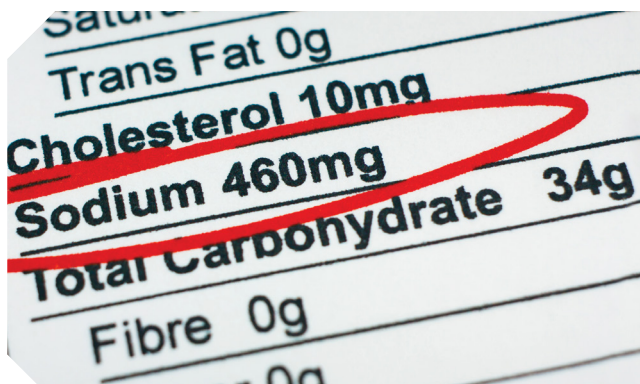
### Industry Salt Reduction Targets <sup>73</sup>

#### **Background**

- Targets may allow for gradual salt reduction in packaged food products over time, often aiming for an average reduction of 20 – 25% in salt content over 5 years.
- Salt reduction targets can be mandatory or voluntary and may be most effective if they include public monitoring and a clear plan with interim goals.
- Effective targets are set for specific food categories (e.g. bread) and take into account functional aspects of the salt content of foods and the flavor profile.
- Targets can be a maximum threshold or the average salt content of products in a category, weighted by sales.

#### **Implementation**

- The UK government led a voluntary program.
  - ◇ Targets were first set in 2005 and salt intake, as measured by urinary excretion, decreased by approximately 15% over 7 years.
  - ◇ A detailed nutrition database and consistent monitoring were crucial to success.
- Argentina, Belgium, Bulgaria, Greece, Hungary, Mauritius, Netherlands, Paraguay, Portugal, Slovak Republic and South Africa have all set mandatory maximum levels of salt in at least one food category, often bread.
  - ◇ Argentina's and South Africa's regulations are the most extensive, with 18 and 13 categories, respectively.
  - ◇ Argentina's approach includes both mandatory targets for packaged food and voluntary targets for local producers, such as small bakeries.
    - ◆ Most packaged foods met the mandatory salt targets and there was a reduction of 18% in the salt content of bread between 2009 and 2010.
    - ◆ Penalties were established for companies if mandatory requirements were not met.
  - ◇ In Kuwait, the largest manufacturer of bread, responsible for 80% of the market, reduced the salt content of bread by 20%.



#### [Front-of-pack Labels for Packaged Food](#) <sup>74</sup>

- Prominent labels on the front of packaged food containers that use a simple graphic to indicate if an item meets certain nutrition standards.
- There are multiple types, but interpretive labels that clearly warn consumers of items that are high in sugar, salt and saturated fat are most effective in guiding consumers to healthier items.
- The labels can clearly highlight products with high levels of unhealthy ingredients. They are easily understandable and difficult to miss.
- Labels may drive product reformulation as companies do not want products to be clearly labeled as unhealthy.
- This may link to government nutrition standards and rules for marketing to children. Products with warning labels cannot be marketed or purchased for/by institutions.
- Nutrient content information on the back of products is hard for most consumers to interpret.
- Chile's mandatory front of pack labeling program requires packaged foods to use black octagons on the front of packaged foods if they are high in salt, sugar, saturated fat or calories.
  - ◇ Chile's policy is linked to its school food standards, preventing school from buying items with one or more warning labels.
- Finland implemented a mandatory "high salt" warning label in 1993 for select food categories.
  - ◇ As a result of multiple interventions on salt, there was an observed reduction of about 15% in average salt intake between 1979 and 2007.

#### **CDC's [Spotlight on Sodium Reduction Policies: Policy Evidence Assessment Report \(PEAR\)](#)** <sup>75</sup>

- This report assesses the **strength** and **quality** of the best available evidence for six policy interventions to reduce sodium consumption among the adult population (aged 18 or older).
- The current evidence levels are described as "best with strong potential public health impact", "promising impact or promising quality, could also have positive impacts, but the quantity and quality of the evidence for public health impact is limited at this time or "emerging, weaker evidence for potential impact." Each of these policy interventions was addressed in at least one state or local US law in effect as of January 1, 2019; recommended by subject matter experts on sodium; and addressed in relevant published and grey literature.

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## Descriptions of the Six Policy Interventions:<sup>75</sup>

### **“Best” Available Evidence, with Strong Potential Public Health Impact and High Quality of Evidence**

#### **1. Daily Meal Providers Serving Lower Sodium Items**

- ◇ Meal service providers offer prepared foods, packaged snacks, and/or beverages that are consistent with nutrition guidance.
- ◇ Along with corresponding nutrition education, encourage participants to adopt dietary patterns that promote nutritional health and reduce the risk of diet-related chronic disease.
- ◇ **Example of state law addressing this type of intervention**
  - ◆ **North Carolina:** “Agencies providing congregate nutrition or home delivered meal services must comply with the following menu planning requirements: . . . The sodium content shall not exceed 1,300 mg per meal.”
- ◇ **Example of local law addressing this type of intervention**
  - ◆ **New York City, NY:** “All City agencies shall follow the Food Standards [New York City Food Standards, which set several limits on sodium content] for all meals that are purchased, prepared or served by the agency.”

#### **2. Sodium Limits on Items Served in Workplaces**

- ◇ Limiting sodium in prepared foods, packaged snacks, and beverages served in workplaces or worksites may be achieved by
  - ◆ Setting nutrition standards.
  - ◆ Increasing the availability of and access to lower sodium options in locations serving employees and potentially other patrons.
  - ◆ Restricting the sodium content in foods or beverages served at work events or meetings.
- ◇ **Example of state law addressing this type of intervention**
  - ◆ **Vermont:** “The Commissioner of Health shall establish and post on the Department’s website nutrition procurement standards that . . . consider both positive and negative contributions of nutrients, ingredients, and food groups to diets, including calories, portion size, saturated fat, trans fat, sodium, sugar, and the presence of fruits, vegetables, whole grains, and other nutrients of concern in Americans’ diets.
  - ◆ Foods and beverages purchased, sold, served, or otherwise provided by the State or any entity, subdivision, or employee on behalf of the State shall meet the minimum nutrition procurement standards established by the Commissioner of Health.”
- ◇ **Example of local law addressing this type of intervention**
  - ◆ **San Francisco, CA:** “City departments shall use their best efforts to adhere to the following recommended nutritional guidelines for food and/or beverages that are (A) served at City Meetings or City-Sponsored Events and (B) purchased using City funds.
  - ◆ Healthy food items should be served, such as the following: . . . Minimally processed foods that are made or produced without added sugar and are ‘low sodium.’



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### 3. Item and Menu Labeling Based on Sodium Content

- ◇ Manufacturers providing nutrition content on the front of packages and on menus can influence purchasing habits and sodium consumption.
- ◇ By displaying numeric or symbolic indicators of the sodium content in items (i.e., prepared foods, packaged snacks, and/or beverages), manufacturers are likely to reduce sodium in their items and positively affect consumer health.
- ◇ Labels can come in the form of traffic lights, text labels with sodium amounts, or scores based on nutrient content.
- ◇ **Example of state law addressing this type of intervention**
  - ◆ **Oregon:** “Each chain restaurant shall accurately ascertain and make available on site, and in written format, the typical nutrient values for each menu item and combination meal menu item, as the item is usually prepared and offered for sale on menus, menu boards and food tags, including condiments routinely added to a menu item as part of a standard recipe: ... Total milligrams of sodium.”
- ◇ **Example of local law addressing this type of intervention**
  - ◆ **New York City, NY:** Sodium Warning Rule “A covered establishment [chain restaurants with 15 or more locations operating nationally] that offers for sale any food item with a high sodium content must provide the following warning:
    - ◆ A warning label must appear on a menu or menu board next to any food item with a high sodium content, or on a tag next to any food on display that is a food item with a high sodium content.
    - ◆ The icon must be a black and white equilateral triangle as wide as it is tall and equal in height to the largest letter in the food item’s name, as displayed on the menu, menu board, or tag next to any food on display.
    - ◆ The following statement must be posted conspicuously at the point of purchase: ‘Warning: [symbol] indicates that the sodium (salt) content of this item is higher than the total daily recommended limit (2300 mg). High sodium intake can increase blood pressure and risk of heart disease and stroke.’ Items in stores meeting sodium limits Incentivizing or requiring stores to limit sodium in prepared foods, packaged snacks, and/or beverages they are selling may reduce consumer sodium intake by increasing the availability of lower sodium products.
    - ◆ Encouraging consumers to purchase food with lower sodium content.
- ◇ Influencing consumer ordering decisions and intentions; and supporting community programs that promote access to healthy foods and the reduction of sodium intake.
- ◇ **Example of state law addressing this type of intervention**
  - ◆ **Oklahoma:** “A healthy corner store shall meet the following requirements to be certified by the Department:
    - Actively promote healthy foods through signage and premium shelf space.
    - Stock items that include... a minimum of six (6) types of fresh produce... low-sodium or unsweetened canned fruits and vegetables.”

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◇ **Example of local law addressing this type of intervention**

- ◆ **San Francisco, CA:** “There is hereby created a Healthy Food Retailer Incentives Program for the City and County of San Francisco to be administered by the Department.
  - The purpose of the Program shall be to increase access to healthy food.
  - Reduce unhealthy influences such as tobacco, alcohol, and processed foods high in salt, fat, and sugar in underserved parts of the City.
  - Stimulate economic development and job creation by creating incentives for Healthy Food Retailers to open or expand in those underserved areas.”

**“Promising” or “emerging” evidence could also have positive impacts, but the quantity and quality of the evidence for public health impact is limited at this time** <sup>75</sup>

#### 4. Items in Vending Machines Meeting Sodium Limits

- ◇ Packaged snacks and/or beverages sold in vending machines are part of a larger strategy to increase the availability of and access to healthy foods.
- ◇ **Example of state law addressing this type of intervention**
  - ◆ **Washington State:** “By July 1, 2014, all state executive agencies shall adopt and begin to implement a food and beverage service policy for employees.
  - ◆ These policies shall ensure for the provision of healthful food and beverages in vending machines.
  - ◆ These policies shall meet the standard of the Washington State Healthy Nutrition Guidelines.
- ◇ **Example of local law addressing this type of intervention**
  - ◆ **Howard County, MD:** “On all County property, at least 75 percent of the packaged food and beverage options offered in vending machines shall be healthy food or beverage options and healthy food options shall contain no more than 200 mg of sodium per package.”

#### 5. Economic Incentives for Lower Sodium Items

- ◇ “Economic incentives (such as subsidies and reduced licensing fees for restaurants) can potentially lower the cost of lower sodium items such as prepared foods, packaged snacks, and beverages”.
- ◇ **Example of state law addressing this type of intervention**
  - ◆ **Illinois:** “The Department of Human Services shall establish a Healthy Local Food Incentives Program to double the purchasing power of Illinois residents with limited access to fresh fruits and vegetable to purchase any variety of fresh, canned, dried, or frozen whole or cut fruits and vegetables without added sugars, fats, or oils, and salt (i.e. sodium).”
- ◇ **Example of local law addressing this type of intervention**
  - ◆ **Santa Clara County, CA:** “A restaurant may not provide an incentive item linked to the purchase of a single food item or meal if it includes any of the following:
    - More than 480 mg of sodium for a single food item, or more than 600 mg of sodium for a meal.”



## What Can Consumers Do to Lower Sodium Intake?

Sodium reduction at the individual level can be challenging because more than 40% of the sodium we eat each day comes from just 10 types of foods,<sup>6</sup> and the majority of our food is purchased at retail stores. Also, some individuals who get their meals from community institutions (e.g. schools, senior centers, hospitals, correctional facilities) may have limited choice.

Individual tips *for how someone can reduce sodium intake*:

### □ **At the Grocery Store:**

1. Buy fresh, frozen, or canned vegetables with no salt or sauce added.
2. Choose packaged foods labeled “low sodium,” “reduced sodium,” or “no salt added” when available.
3. Purchase whole foods instead of processed.
4. Read food labels and compare the amount of sodium in different products, then choose the options with the lowest amounts of sodium. Different brands of the same foods may have different sodium levels.
5. When buying prepared meals, look for those with less than 600 milligrams (mg) of sodium per meal, which is the upper limit set by the Food and Drug Administration for a meal or main dish to be labeled “healthy.”
6. Check the amount of sodium per serving, and don’t forget to check the number of servings per container.
7. When possible, purchase fresh poultry, fish, pork, and lean meat, rather than cured, salted, smoked, and other processed meats. For fresh items, check to see whether saline or salt solution has been added—if so, choose another brand.



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8. Ask your grocer if they have a lower sodium shopping list available.
  9. Ask to speak to the registered dietitian at your local grocery store to learn more about buying lower sodium products. If your grocer doesn't have a registered dietitian, ask your doctor for a referral. A registered dietitian can provide valuable guidance on reducing your family's sodium intake and managing blood pressure.<sup>76</sup>

□ **At Home:**

1. When cooking, use alternatives to replace or reduce the amount of salt you use, such as garlic, citrus juice, salt-free seasonings, or spices.
2. Prepare rice, pasta, beans, and meats from their most basic forms (dry and fresh) when possible.
3. Eat more fruits and vegetables.
4. Limit sauces, mixes, and "instant" products, including flavored rice and ready-made pasta.<sup>76</sup>

□ **Dining Out:**

1. Ask for nutrition information before you order and select a lower sodium meal.
2. Ask that no salt be added to your meal.
3. Ask for sauces on the side.
4. Order vegetables with no salt added or fruit as a side item.
5. Split a meal with a friend or family member.
6. Keep takeout and fast food to an occasional treat.<sup>76</sup>

□ **Consider a Heart-Healthy Diet, Dietary Approaches to Stop Hypertension (DASH)<sup>77,78</sup>**

- ◇ The DASH (Dietary Approaches to Stop Hypertension) diet is a flexible and balanced eating plan that creates a heart-healthy diet to help prevent or lower high blood pressure.
  - ◆ This diet originated in the 1990s.
  - ◆ It has simple recipes and does not require special foods.
  - ◆ Helped to shape the National Heart, Lung, and Blood Institute (NHLBI) eating plan recommendations.
- ◇ The DASH diet is low in sodium (recommended daily intake less than 1500mg/day), cholesterol, saturated and total fats, and high in fruits and vegetables, fiber, potassium and low-fat dairy products.
- ◇ Following the DASH eating plan and along with making healthy lifestyle changes will have the greatest impact on preventing and controlling high blood pressure:
  - ◆ Being more physically active.
  - ◆ Maintaining a healthy weight.
  - ◆ Limiting alcohol intake.
  - ◆ Managing and cope with stress.
- ◇ Numerous studies have indicated the DASH diet is effective in lowering blood pressure, reducing the risk of cardiac disease, strokes, and other chronic diseases.

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