

**QUESTIONS AND ANSWERS FROM THE APHA WEBINAR ON
SODIUM REDUCTION POLICIES
MAY 4TH 2010**

Question: How much salt should an adult consume a day? Also please explain how to read labels on pre packaged foods (can or frozen foods). Should consumers eat deli lunch meat that contains no more than 450mg?

Response: The 2005 Dietary Guidelines recommendation for daily sodium intake for those who are either middle-aged or older, black, or hypertensive is to limit consumption to 1500 mg/day (these populations comprise nearly 70 percent of the population). For everyone else, the recommendation is \leq 2300 mg/day. The 2010 Dietary Guidelines will be released this Fall. When purchasing food, consumers should look at the label to see how many mg of sodium are in the product. According to the FDA, foods listed as 5% or less of the %DV per serving are low in sodium and foods above 20% of the %DV for sodium per serving are considered high. FDA suggests selecting foods that provide 5% or less of the %DV for sodium per serving.

Question: Males appear to consume a much greater amount of sodium than females. What are the thoughts of the presenters as to why this is the case?

Response: On average, males consume more calories than females and these extra calories are the major source of male's greater sodium intake. Many of the calories all Americans consume are from processed and restaurant foods with excess sodium.

Question: Because females consume fewer calories than males, should there be a separate dietary guideline recommendation for females of less than 2300 mg?

Response: It is impractical to have different standards for males and females. Moreover, there is considerable overlap in the distribution of caloric intake of men and women. The IOM report, Strategies to Reduce Sodium Intake in the United States, and the sixth report of the 2010 Dietary Guidelines Advisory Committee recommended that 1500 mg be the reference intake for the entire population.

Question: A question for health educators is: what proportion of dietary salt comes from the salt shaker on the table?

Response: Only about 5% to 10% comes from the salt shaker or from salt added in cooking at home. Roughly 75-80% comes from processed and restaurant foods and the remainder is naturally present in foods.

Question: Can you explain the upper range of 6 gm?

Response: The upper level of 6 grams (~2,400 mg) of salt was established because even those who are not middle-aged or older, hypertensive, or black, are adversely affected by chronic exposure to high salt intake.

Question: What is the rationale for determining that 2300 mg/d is the requirement for sodium?

Response: 2300 mg is not a requirement. The IOM recommends 1500 mg as an adequate intake to consume sodium at safe levels while allowing for adequate intake of other essential nutrients. The 2005 Dietary Guidelines for Americans recommend ≤ 2300 mg/day for the general population. Special populations, including blacks, people with hypertension, and middle aged and older adults (together comprising nearly 70% of the population) are recommended to limit intake to 1500 mg/day.

Question: Looking at the NHANES it doesn't seem like the US has ever met the 1500 mg recommendation. Is the 1500 mg recommendation met in other countries at the population level?

Response: Sodium intake has steadily increased over the last several decades. Currently, an estimated 5% of U.S. adults recommended to limit intake to 1500 mg/day are successful in doing so. Only in isolated, primitive populations is sodium intake below 1500 mg on average. Reducing sodium in processed foods and restaurants will help bring sodium intake to within recommended limits.

Question: Is there any way to report on the history/status of conversation about support by agencies such as USDA thus far?

Response: Federal agencies are working in a coordinated fashion on sodium reduction. As the work proceeds efforts and status will be made public.

Question: Last year, the IOM released a report on school meals, which called for significant sodium reduction in school breakfasts and lunches. Did the sodium committee discuss any strategies for reducing sodium specifically in schools?

Response: No strategies were discussed other than procurement strategies to purchase healthy foods for schools as well as other organizations and institutions.

Question: Does the reduction of sodium intake apply from elementary to high school?

Response: Yes, the recommendation extends across the population. Chronic exposure to sodium leads to elevations in blood pressure over time in most individuals; the earlier that exposure begins, the greater the cumulative effect on blood pressure. A moderate body of evidence suggests that as sodium intake decreases, so does blood pressure in children, from birth to 18 years of age. Moreover, higher sodium intake may lead to deleterious health effects beyond those due to elevated blood pressure.

Question: What is the level of effort in educational environments K-12 and higher education...little kids can't make "choices."

Response: Efforts are underway in a number of cities to set food procurement standards requiring vendors to provide products to schools that are lower in sodium, saturated fat, and calories. Myriad school districts in 29 states have committed to the Healthier US School Challenge, a tenet of the First Lady's *Let's*

Move initiative, which among other things applies sodium standards for school food. The IOM, in its 2009 report *School Meals: Building Blocks for Healthy Children*, recommended gradually reducing salt and sodium in school meals. We are unaware of efforts to reduce sodium intake in institutions of higher education at this time.

Question: Are there any specific efforts focused on reducing sodium in foods intended and marketed toward young children?

Response: The efforts to reduce sodium content in foods focus on the entire food industry and thus include products marketed to children. Separately, the FTC is considering nutrient guidelines for foods that could be marketed to children.

Question: Does the National Salt Reduction Initiative have a school education component to teach the young people about salt consumption, especially when the health behavior is formative in stage?

Response: There is currently no education component focused on children. Efforts are underway in many cities to reduce children's sodium intake at school through modification of food procurement standards and other complementary efforts. Under modified procurement standards, limits would be set on how much sodium would be allowed in foods sold to schools.

Question: Currently we are conducting research in schoolchildren - assessment of salt-sensitivity, and recommend salt-sensitive children and their parents reduce sodium consumption to prevent development of salt-sensitive hypertension in middle-age. Your comments?

Response: There currently is no good test for salt sensitivity. Most people are susceptible to adverse effects from excess sodium over time and benefit from consuming lower levels of sodium. Although it's true that some subgroups may benefit more from sodium reduction than others, sodium reduction lowers average population blood pressure.

Question: Are there any studies on sodium intake in adolescents and any known association with various chronic diseases?

Response: Sodium intake in adolescents in the U.S. is high, they consume amounts similar to adults, largely due to excess consumption of processed and restaurant foods. The major association of high sodium intake is later development of hypertension and increased risk for stroke, as well as heart, cerebrovascular, and kidney disease.

Question: Is there any particular reason why systolic BP was used rather than diastolic?

Response: Systolic blood pressure is a better predictor of risk for developing heart disease and stroke than is diastolic blood pressure. Data from the Framingham Heart Study demonstrated this in the early 1970s, but it has taken many years to enhance the focus on systolic blood pressure.

Question: Please describe the physiological process which links hypertension to cardiovascular disease and stroke.

Response: Hypertension leads to constricted vessel walls and increased blood volume. Over time this increased blood volume translates to more work for the heart and subsequent increased blood pressure. A greater workload on the heart and increased blood pressure increase the risk of having a heart attack or stroke.

Question: It is my understanding that sodium affects blood pressure among those with Hypertension, but for individuals with healthy blood pressure, sodium at liberal levels doesn't affect them adversely. What about the healthy population?

Response: As sodium intake increases, blood pressure increases. Lower blood pressure levels are associated with lower risk for heart disease, even if still within the “normal” range.

Question: Should persons with low blood pressure also attempt to lower their sodium intake?

Response: As sodium intake increases, blood pressure increases even in populations with blood pressure in the normal range. There are rare cases/conditions in which one might be advised to increase sodium intake and these people should talk to their doctor.

Question: Does salt or sodium cause hypertension?

Response: Salt is accountable for about 90% of sodium in the diet. Increased sodium intake from salt has been causally linked to the development of hypertension and increased risk for heart disease and stroke.

Question: Is hypertension still a risk factor if controlled by medication?

Response: Hypertension would still be a risk factor for heart and stroke related illnesses even if one is on antihypertensive medication, however their risk is reduced.

Question: The effect of sodium on blood pressure is a transient increase in blood volume. The effect of meat consumption is long term clogging of the arteries with inflammatory plaques. Are you planning any campaigns to reduce meat consumption? All the well done research in the past few decades points to the fact that meat consumption is by far more detrimental to the public's health than salt intake. Meat consumption, in all its varieties, is the underlying cause of hypertension, heart attacks and strokes, not salt intake. Does APHA have any plans to address this?

Response: Unfortunately, the effects of excessive salt intake are not transient. An extensive body of excellent research indicates that excess salt consumption is the principal cause of hypertension. The evidence is considered overwhelming. High blood pressure is the major cause of strokes and is also a major risk factor for heart attacks. There is little evidence linking meat consumption to the risk of developing either hypertension or stroke. APHA has no plans to address meat consumption at this time. Consuming a diet rich in potassium and low in sodium,

saturated fat, and trans fat can improve heart health and reduce the risk of heart disease.

Question: Is industry fighting sodium reduction because it reduces shelf life?

Response: We can't speak on behalf of the food industry one way or the other. The advent of refrigeration and modern day advances in food storage and packaging practices have widely diminished the role of salt in preservation. For many foods, reducing the sodium content should not create food safety or spoilage concerns. Processed meats are the major exception. However, the amount of sodium currently added to packaged raw meat, primarily poultry, far exceeds the amount needed for preservation and increases the amount of sodium per serving by up to 500 percent.

Question: Is there any progress to implement sodium reduction in the food processing companies since they are the largest contributors to the general population's sodium intake?

Response: A few companies and restaurants have either made or committed to make reductions in the range of 5% to 25% in some of their products. CDC has been charged by Congress to work with major food manufacturers and chain restaurants to reduce sodium in their foods and will be reporting on that progress annually.

Question: How do we get poultry processors to stop soaking poultry in sodium?

Response: Regulation may be the most effective route. Also, you can refuse to buy poultry that has been enhanced with salty solutions. These products will have a statement on the front of the package that says something similar to "This product has up to 15% salt water added." Check the Nutrition Facts panel of packaged poultry; unenhanced poultry will have less than 75 mg of sodium per serving; enhanced poultry can have up to 500% more sodium.

Question: How accurate are food labels for sodium and overall, both on the shelf products and what restaurants provide to the public?

Response: FDA regulations allow for a variance of < 20 percent of what is stated on the label. So, if the label lists 230 mg of sodium per serving, actual content could be anywhere from 184 mg to 276 mg per serving. The accuracy of restaurant figures is uncertain; the Center for Science in the Public Interest (CSPI) found that the labeling by chain food restaurants of their foods were quite accurate.

Question: Many restaurants have nutritional analyses of their menus but are difficult to find on the web. Can NIH put online a link to the nutritional analysis of restaurant foods?

Response: We cannot speak on behalf of NIH; however, as the interest in regulating sodium intake increases, organizations will be examining the feasibility and cost of posting timely and current nutritional analyses on their websites.

Question: A lot of restaurants have these healthy menus, what assures us that these are healthier than the same dish on the regular menu?

Response: The accuracy of restaurant figures is uncertain; the Center for Science in the Public Interest (CSPI) found that the labeling by chain food restaurants of their foods was quite accurate. However, you can ask the restaurant for data on the levels of sodium, saturated fat, and calories which justify those claims.

Question: How would a restaurant go about having their menu evaluated so they can claim "low sodium?" Is there a program set up with AHA or other organization?

Response: Currently, FDA does not have the authority to regulate claims on restaurant menus. The recent IOM report *Strategies to Reduce Sodium Intake in the United States* recommends that the FDA extend provisions for sodium content and health claims to restaurants. This would mean that sodium content claims (low sodium, reduced sodium), and related health claims ("diets low in sodium are associated with a low prevalence of hypertension") could be stated on menus in a standardized fashion. In many jurisdictions, state and local health departments, and/or Boards of Health could be given regulatory authority to evaluate restaurant menus and designate foods as high, moderate or low in sodium, but there is no one central governmental or non-governmental body that is presently responsible for this activity.

Question: A 20% reduction in population-level sodium intake in 5 years is aggressive, especially given that the UK had only a 10% reduction in 5+ years with a very comprehensive strategy. How will the approach of the US be different than the UK?

Response: A 20% reduction in five years is not that aggressive, it is really only 4% per year. In 2002, APHA adopted a policy calling for a 50% reduction of sodium levels in processed and restaurant foods within ten years and the AMA subsequently called for a minimum 50% reduction within 10 years in 2006. As noted in the recent IOM report, this kind of decrease may be best supported with mandated national standards for gradual reductions. In the UK, the approach has been voluntary and thus far has had only a modest effect.

Question: If voluntary efforts have failed in the past, what are the carrots and sticks to encourage industry to reduce sodium in processed foods?

Response: The most effective strategy would be to require sodium reduction across the board – create a level playing field for reduction.

Question: What is the likelihood that companies who voluntarily pledge to reduce sodium by certain amounts in foods will actually do so? What has been the UK experience in this regard? (i.e., how many companies actually met the targets they agreed to?)

Response: Companies that publicly pledge to reduce sodium are likely to do so however it may be difficult to accurately track the extent of these reductions. Providing follow up and holding these companies publicly accountable for the reductions they promised would increase the likelihood that the appropriate reductions were made. A lot of companies choose to reduce sodium quietly so as

not to scare off consumers who think reduced salt is associated with reduced taste. In the UK, companies have not always met the recommended voluntary targets, but several have.

Question: Can I get copies of "Sid the Slug" poster used by the Food Standards Agency in the United Kingdom!!

Response: The campaign poster was used in 2004, so we do not know if copies are available, but, the image from the poster can be found on page 6 of the brochure available at <http://www.food.gov.uk/multimedia/pdfs/fsanews42.pdf>.

Question: Similar to reports of Na intake in the UK, Canada, Australia, do you have any reports about the Na intake in the Caribbean?

Response: There are few published reports on sodium intake in the Caribbean.

Question: Georgians consume excessive sodium with meals, especially in certain regions of the country - in Svanetia, population often consumes only salt and bread - incidence of hypertension is very high.

Response: Excess sodium raises blood pressures and causes hypertension throughout the world. Other causal factors include physical inactivity, overweight, a diet low in fruits and vegetables, and excess alcohol.

Question: Are Dr. Labarthe and colleagues interested in expanding their experience on the international level?

Response: CDC has been collaborating with other countries on efforts to reduce sodium in the world's food supply.

Question: One working hypothesis in our efforts in Rochester, NY is that urban populations, African Americans, Latinos and those of lower socio-economic status are at greater risk of having high sodium diets because of easier access to fast foods and prepared foods. Your comments?

Response: According to data from NHANES, mean sodium intake is almost identical among whites, blacks, Mexican Americans, and persons across income ranges. Although these subpopulations may not be at greater risk for high sodium diets, some, such as African Americans, are at a greater risk of high blood pressure in general because they typically have blood pressure levels that are higher than average.

Question: How do we address sodium intake in communities that are heavily laden with food establishments that are high in sodium?

Response: A variety of strategies exist; two effective strategies, as shown by the evidence include: educating consumers to request low-sodium options; and providing consumer-friendly warning labels on items in restaurants that are high in sodium. Warning labels, which have the potential to lead restaurants to reduce levels of sodium, would require regulation at the federal, state, or local level. Further, any systematic approach to lower the sodium across the board in processed and restaurant foods would help communities lower sodium intake.

Question: Would the access to local, fresher foods help in decreasing sodium reduction? Any reports on this? Why has the sodium continued to increase over the years? Is there a relation of sodium intake to poverty, SES, obesity?

Response: Consumption of fresh, unprocessed foods would lead to a lower intake of sodium than consuming comparable processed foods. Sodium intake has increased in part because people are consuming more calories, more processed foods, and eating out in restaurants more frequently. Data suggests that the mean intake of sodium is the same across income ranges.

Question: What are the major barriers encountered by public health officials during the process of enforcing sodium content in processed and restaurant food?

Response: There are currently no regulations at the Federal level aimed at reducing sodium levels in processed and restaurant foods. Major barriers include the ubiquity of salt in the food supply, opposition to sodium reduction by some parties, lack of consumer demand and understanding of the need for reduced sodium intake, and the current Generally Recognized As Safe (GRAS) status of salt.

Question: What implications are involved if sodium loses GRAS status-would sodium and sodium based-additives not be permitted as ingredients?

Response: Currently under GRAS status, the amount of salt that can be added to individual food products is limitless. If salt loses its GRAS status or the GRAS status is modified to GRAS with limits, the sodium and sodium based-additives would be permitted for use in foods, but the FDA would set limits on how much sodium is permitted in individual products or implement food additive requirements.

Question: What can individuals do to reduce sodium intake while the broad strategies take effect?

Response: Read food labels and choose low sodium items. Reading food labels is especially important for the nearly 70% of the population recommended to limit intake to 1500 mg of sodium per day. Pick more fresh and frozen fruits and vegetables. Select only processed foods with low levels of sodium (low sodium foods have less than 140 mg of sodium per serving), cook more items that are fresh and unprocessed, request that restaurants cook your meals without adding salt.

Question: A great public health approach, but the encouragement to eat less processed (e.g., fresh, frozen, whole) foods seems curiously absent in the strategies and supporting strategies. Can the speakers comment?

Response People should be encouraged to eat more fresh foods, such as fresh fruits and vegetables. Since many will continue to use processed foods, however, reductions in sodium levels in processed foods are essential. As we are well aware, individual behavior change is difficult. By reducing sodium in processed

and restaurant foods consumers will have more healthful options from which to choose with little change needed on their part.

Question: What are the key actions that the general population needs to take to reduce sodium in the diet, i.e., what behavior change messages/education should we convey while industry changes are being encouraged?

Response: Limit consumption of processed foods to those that are low in sodium. Ask restaurants to prepare your meal without adding any sodium (or ask which dishes they can prepare that way). Request lower sodium products from your grocery store if they are not available. Consume more fresh fruits and vegetables.

Question: What about adding potassium to processed foods?

Response: This could be done, but it would not negate all the effects of high sodium levels. Also, added potassium could present a concern for populations with certain medical conditions or who are taking medications that negatively interact with potassium.

Question: What concern should we have that potassium chloride substitutes may put certain individuals at risk?

Response: Certain populations, such as those taking medications that negatively interact with potassium, could be at risk from potassium chloride substitutes. Potassium chloride substitutes are not recommended for certain at risk populations.

Question: How about promoting the use of No-Salt, SALT which has the taste of salt but not its detrimental effects on the body for consumers?

Response: It would not be appropriate to recommend any particular product or brand. There are a number of products which can be used as salt substitutes and flavor enhancers as well as a variety of herbs and spices. Salt substitutes could be used at home for cooking or adding salt at the table but this would not affect the excess amount of salt that is already in processed and restaurant foods. The use of salt substitutes in food processing may not be applicable to take the place of table salt.

Question: Could difficulties in reducing sodium intake be due to sodium "addiction"?

Response: People do become habituated to higher levels of sodium, although this is not considered to be an addiction. Desire for higher salt levels can be easily modified as has been shown in a few studies. A gradual reduction could also be done. People are unlikely to notice reductions of < 10%, as shown in both the UK and Finland. Over time, our palates would become accustomed and then prefer a lower level of salt.

Question: Is it possible to identify genetically predisposed risky groups (as salt-sensitives) and recommend them starting to reduce sodium intake from a young age (recommend DASH diet)?

Response: No, this is not possible. As previously noted, most people are susceptible over time to adverse health effects of high sodium diets. Since blood pressure rises with age and with increased sodium intake, children and adults of all ages are recommended to reduce their sodium intake.

Question: What is the average sodium content of monosodium glutamate or MSG?

Response: The average sodium content of MSG is roughly 12%.

Question: Any truth to the rumor I have heard: that MSG does not impact blood pressure?

Response: MSG has a relatively small impact on blood pressure on average, largely because the public consumes relatively small amounts of MSG and thus the sodium from MSG represents only a small percentage of total sodium intake.

Question: Does sodium have something to do with the thickening of blood?

Response: The term "thickening of blood" is unclear.

Question: How important is sodium intake from drinking water (especially softened water)? Is there any consideration of setting a drinking water standard for sodium?

Response: Drinking water normally contains very little sodium, but sodium in well water and softened water is sometimes quite high.

Question: Please discuss a risk of iodine deficiency if we reduce our sodium intake. And respond as to whether processed food and restaurant food contains iodine (i.e., do these places use iodized salt or not).

Response: Most salt used by food processors and restaurants is not iodized and therefore reducing sodium content will likely not affect iodine status.