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TURNING SCIENCE INTO ACTION

Mortality Benefits from Population-Level Sodium Reduction

The following is a synopsis of "Mortality Benefits from US Population-wide Reduction in Sodium Consumption: Projections from 3 Modeling Approaches," published online ahead of print in *Hypertension*.

What is already known on this topic?

Cardiovascular disease (CVD) is the leading cause of death among U.S. adults. High blood pressure is a primary or contributing cause in nearly half of these deaths.

One factor that can increase risk for high blood pressure is high sodium intake. Observational studies have shown that higher sodium intake is positively associated with elevated blood pressure. Randomized controlled trials have found that modest reductions in sodium intake can result in significant decreases in blood pressure. Furthermore, a follow-up observational study found a 25% reduction in CVD events and mortality among participants in the reduced sodium diet group compared with those in the control group.

The *2010 Dietary Guidelines for Americans* recommend that persons aged 2 years and up consume less than 2,300 milligrams (mg) of sodium per day. Adults aged 51 years and older and those of any age who are African American or who have high blood pressure, diabetes, or chronic kidney disease should consume 1,500 mg of sodium per day. However, Americans consume an average of 3,600 mg of sodium per day according to published estimates.

Due to the health consequences of high sodium intake on blood pressure, CVD, and mortality, reducing population sodium intake is a current priority for the Centers for Disease Control and Prevention.

What is added by this document?

The authors aimed to build consensus on the health impact of population-wide sodium reduction efforts by investigating the mortality benefits of three sodium-reduction scenarios:

Scenario A: gradual uniform reduction of 40%, culminating in average intake of 2,200 mg of sodium per day by year 10.

Scenario B: immediate 40% reduction to 2,200 mg of sodium per day and sustained for 10 years.

Scenario C: immediate reduction to 1,500 mg of sodium per day and sustained for 10 years.

Three methods were used to model each scenario's effect on CVD mortality. All methods showed substantial sodium reduction benefits under each scenario. Scenario A (gradual reduction) could prevent 280,000 to 500,000 CVD deaths over

10 years. Scenarios B and C (immediate reduction to 2,200 mg and 1,500 mg, respectively) represent the maximum benefits that could be achieved—prevention of 700,000 to 1.2 million CVD deaths over 10 years.

What are the applications for these findings?

Although Scenario C (immediate reduction to 1,500 mg) would have the greatest impact on mortality, a population-level reduction in sodium intake of this magnitude would be difficult to achieve instantaneously. Most of the sodium Americans consume comes from packaged, processed, and prepared foods that already contain sodium at the time of purchase. To gradually lower the average sodium consumption among U.S. adults, public health approaches that target lower levels of added sodium could include:

- A combination of regulation, consumer education, and food labeling.
- Voluntary partnership with food manufacturers.
- Federal, state, and local procurement policies that reinforce healthy diets.

What are the implications for public health practice?

An estimated 280,000 to 500,000 deaths could be prevented over the next 10 years if gradual reductions in sodium intake—averaging a reduction of about 5% of a teaspoon of salt per person per day—can be achieved each year. Although achieving such a reduction will require many different interventions and efforts, these estimates show that the potential benefits from population-wide sodium reduction are substantial.

Resources

Centers for Disease Control and Prevention
Fast Stats: Leading Causes of Death
www.cdc.gov/nchs/fastats/lcod.htm

Most Americans Should Consume Less Sodium
www.cdc.gov/salt

U.S. Department of Agriculture
Dietary Guidelines for Americans
www.cnpp.usda.gov/dietaryguidelines.htm

Institute of Medicine
Strategies to Reduce Sodium Intake in the United States
www.iom.edu/Reports/2010/Strategies-to-Reduce-Sodium-Intake-in-the-United-States.aspx

Cook NR, Cutler JA, Obarzanek E, Buring JE, Rexrode KM, Kumanyika SK, et al. Long term effects of dietary sodium reduction on cardiovascular disease outcomes: observational follow-up of the trials of hypertension prevention (TOHP). *BMJ.* 2007;334:885–8.

Citation

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