January 29, 2018

The Honorable Sonny Perdue
Secretary
U.S. Department of Agriculture
1400 Independence Ave., S.W.
Washington, DC 20250

Dear Secretary Perdue:

We, the undersigned scientists and academics, oppose the three-year delay (from School Year 2017-2018 to School Year 2021-2022) of the second sodium reduction targets (Target 2) for the National School Lunch and Breakfast programs proposed by the U.S. Department of Agriculture (USDA) in the "Child Nutrition Programs: Flexibilities for Milk, Whole Grains, and Sodium Requirements" interim final rule (IFR) (82 FR 56703). The delay is inconsistent with expert nutrition recommendations and the evidence base on the effects of high sodium on children's health.

Sodium is an essential nutrient, but the average amounts children consume far exceed biologic needs and maximum recommended levels.[1,2] Schools have been encouraged (but not required) to lower sodium since 1995. In 2010, the Healthy, Hunger-Free Kids Act made the first major changes to school nutrition in 15 years. The updated standards released in 2012 by USDA align school meals with the latest nutrition science. As part of that alignment, the USDA set sodium limits for school meals. Sodium levels are to gradually decrease in three phases until final target levels are reached in School Year 2022-2023. These sodium reduction levels are based on recommendations from the National Academy of Medicine's (formerly, Institute of Medicine) 2009 report, *School Meals: Building Blocks for Healthy Children*[3] and aligned with the 2010 and 2015 *Dietary Guidelines for Americans*[4] and other expert recommendations.

The 2015 DGA recommends that children consume no more than 1,900 to 2,300 mg of sodium per day.[5] Unfortunately, children on average consume considerably more than that: between 2,500 to 4,200 mg of sodium per day, well over the recommended levels.[6] Along with the

---

[1] Institute of Medicine. *Dietary Reference Intakes for Water, Potassium, Sodium, Chloride, and Sulfate*. Washington, DC: The National Academies Press; 2004.
[2] U.S. Department of Agriculture. Nutrient Intakes from Food: Mean Amounts Consumed per Individual, by Gender and Age, What We Eat in America, NHANES 2009-2010. Washington, DC: Agricultural Research Service; 2012.
[3] Institute of Medicine. *School Meals: Building Blocks for Healthy Children*. Washington, DC: The National Academies Press; 2010.
[4] U.S. Department of Health and Human Services and U.S. Department of Agriculture. *2015-2020 Dietary Guidelines for Americans*, 8th Edition. Washington, DC: U.S. Government Printing Office, 2015.
[5] *Id.*, Institute of Medicine. *Dietary Reference Intakes for Water, Potassium, Sodium, Chloride, and Sulfate.* Tolerable Upper Intake Levels (UL): children aged 4-8: UL 1,900 mg; children aged 9-13: UL 2,200 mg; children aged 14-18: UL 2,300 mg.
[6] *Id.*, U.S. Department of Health and Human Services and U.S. Department of Agriculture. *2015-2020 Dietary Guidelines for Americans. Average intake for males:* children aged 4-8: 2,710 mg; children aged 9-13: 3,505 mg; children aged 14-18: 4,272 mg. *Average intake for females:* children aged 4-8: 2,576 mg; children aged 9-13: 2,962 mg; children aged 14-18: 3,030 mg. Data source: U.S. Department of Agriculture and U.S. Department of Health and Human Services. *What We Eat in America, NHANES 2007-2010*. Beltsville, MD: USDA, 2010.

DGAs, the Centers for Disease Control and Prevention, the World Health Organization, the American Heart Association, and other experts recommend limiting sodium intake to less than 2,300 mg.[7] At the current levels (Target 1), an elementary school lunch has on average 1,230 mg, or about two-thirds a day's worth of sodium for a child in one meal. A high school lunch has on average 1,420 mg, or about half a day's worth. The Target 2 sodium levels align with the DGA by *lowering* high levels of sodium in school meals to support a healthy diet and do not constitute a *low-sodium* diet.

Nine out of ten children consume excess sodium.[8] Excess sodium consumption is strongly associated with the development and worsening of high blood pressure and an increased risk of coronary heart disease, stroke, heart failure, kidney failure, gastric cancer, and osteoporosis.[9] A substantial number of studies show that as dietary sodium intake rises, so does blood pressure.[10] Studies have shown a link between high blood pressure in childhood and high blood pressure in adulthood, and high blood pressure in childhood is linked to early development of heart disease and risk for premature death later in life.[11]

The American Heart Association reviewed studies that reported inconsistent findings regarding sodium and cardiovascular disease and found an average of three to four methodological issues per study.[12] Those flaws limit the usefulness of those studies in setting, much less reversing, sodium intake recommendations. On balance, a vast body of diverse research indicates that lowering sodium intake lowers blood pressure, a major risk factor for heart disease, in adults and children.[13]

The prevalence of high blood pressure is increasing in American children.[14] Approximately one in six children aged 8-17 have raised blood pressure.[15] Children who eat high-sodium diets are about 40 percent more likely to have elevated blood pressure than children who eat lower-sodium diets.[16]

---

[7] Institute of Medicine. *Sodium Intake in Populations: Assessment of Evidence*. Washington, DC: The National Academies Press; 2013.
[8] Jackson SL, King SM, Zhao L, Cogswell ME. Prevalence of Excess Sodium Intake in the United States—NHANES, 2009-2012. *MMWR Morb Mortal Wkly Rep*. 2016 8;64:1393-7. doi:10.15585/mmwr.mm6452a1.
[9] Lawes CM, Vandler HS, Rodgers A. Global Burden of Blood-Pressure-Related-Disease, 2001. *Lancet*. 2008;371:1513-8. doi: 10.1016/S0140-6736(08)60655-8.
[10] Whelton PK, Appel LJ, Sacco RL, et al. Sodium, Blood Pressure, and Cardiovascular Disease: Further Evidence Supporting the American Heart Association Sodium Reduction Recommendations. *Circulation*. 2012;126:2880-89. doi:10.1161/CIR.0b013e318279acbf.
[11] Appel LJ, Lichtenstein AH, Callahan EA, Sinaiko A, Van Horn L, Whitsel L. Reducing Sodium Intake in Children: A Public Health Investment. *J Clin Hypertens*. 2015;17(9):657-62. doi:10.1111/jch.12615.
[12] Cobb LK, Anderson CA, Elliott P, et al. Methodological Issues in Cohort Studies that Relate Salt Intake to Cardiovascular Disease Outcomes: A Science Advisory from the American Heart Association. *Circulation*. 2014;129:1173-86. doi:10.1161/CIR.0000000000000015.
[13] *Id.*, Whelton PK.
[14] Lloyd-Jones DM, Hong Y, Labarthe D, et al. Defining and Setting National Goals for Cardiovascular Health Promotion and Disease Reduction: The American Heart Association's Strategic Impact Goal through 2020 and Beyond. *Circulation*. 2010;121:586-613. doi:10.1161/CIRCULATIONAHA.109.192703.
[15] Rosner B, Cook NR, Daniels S, Falkner B. Childhood Blood Pressure Trends and Risk Factors for High Blood Pressure: the NHANES Experience 1988–2008. *Hypertension.* 2013;62:247–54. doi:10.1161/HYPERTENSIONAHA.111.00831.
[16] *Id.*, Rosner B.

Lowering sodium consumption can have a tremendous impact on public health. Studies have shown that reduced sodium intake can lower blood pressure, control hypertension, and prevent cardiovascular disease.[17,18] In addition, lowering sodium consumption, and thereby lowering blood pressure, can reduce medical costs. From 2012 to 2013, high blood pressure cost the United States an estimated $51.2 billion in direct and indirect costs.[19] The U.S. is lagging behind other countries to bring sodium down to safe levels; more than 50 countries have adopted reductions in the sodium content of certain foods.[20]

Taste preferences for salty foods may be established early in life, so children's liking for salt may remain lower if they are exposed to less sodium in their diets at a young age.[21,22] Repeated exposure to lower-sodium foods can lead to decreased preference for salty taste over time,[23] consistent with the gradual, phased-in approach to reduce sodium in school meals.

Sodium does occur naturally in some foods, but more than 75 percent of the sodium in Americans' diets is added to food during processing.[24] Luckily a variety of methods and technologies are available to help reduce this amount in many food categories.[25]

The totality of the existing body of high-quality scientific research supports reducing sodium intake to moderate levels for better health. Thus, we urge USDA not to delay sodium reduction in school meals.

---

[17] Lichtenstein AH, Appel LJ, Brands M, et al. Diet and Lifestyle Recommendations Revision 2006: A Scientific Statement from the American Heart Association Nutrition Committee. *Circulation*. 2006;114:82-96.
[18] Bibbins-Domingo K, Chertow GM, Coxson PG, et al. Projected Effect of Dietary Salt Reductions on Future Cardiovascular Disease. *N Engl J Med*. 2010;362:590-9. doi:10.1056/NEJMoa0907355.
[19] Benjamin EJ, Blaha MJ, Chiuve SE, et al. Heart Disease and Stroke Statistics—2017 Update: A Report from the American Heart Association. *Circulation*. 2017;135. doi: 10.1161/CIR.0000000000000485.
[20] Center for Science in the Public Interest. International Action on Sodium. Washington, DC: CSPI; 2016. http://cspinet.org/new/pdf/cspi-2015-international-action-on-sodium-fact-sheet.pdf. Published August 2016. Accessed December 2017.
[21] Institute of Medicine. *Strategies to Reduce Sodium Intake in the United States.* Washington, DC: The National Academies Press; 2010.
[22] Centers for Disease Control and Prevention. High Sodium Intake in Children and Adolescents: Cause for Concern. https://www.cdc.gov/salt/pdfs/children_sodium.pdf. Published October 2016. Accessed December 2017.
[23] *Id.*, Institute of Medicine. *Strategies to Reduce Sodium Intake in the United States.*
[24] Mattes RD, Donnelly D. Relative Contributions of Dietary Sodium Sources. *J Am Coll Nutr*. 1991;10:383-393.
[25] Antman EM, Appel LJ, Balentine D, et al. Stakeholder Discussion to Reduce Population-Wide Sodium Intake and Decrease Sodium in the Food Supply: A Conference Report from the American Heart Association Sodium Conference 2013 Planning Group. *Circulation*. 2014;129:660-79. doi:10.1161/CIR.0000000000000051.

Sincerely,

Julian Adams, PhD
Emeritus Professor of Biology and former Chair of the Biology Departtment
University of Michigan

Jennifer Anderson, PhD, RD
Emeritus Professor
Colorado State University

Lawrence J. Appel, MD, MPH
C. David Molina, M.D., M.P.H. Professor of Medicine with Joint
Appointments in Epidemiology, International Health and Nursing
Director, Welch Center for Prevention, Epidemiology, and Clinical Research
Johns Hopkins Medical Institutions

Carlos A. Camargo, MD, DrPH
Professor of Medicine
Harvard Medical School

Zoobia Chaudhry, MD
Assistant Professor of Medicine
Johns Hopkins School of Medicine

Richard J. Deckelbaum, MD, CM
Director, Institute of Human Nutrition
Columbia University

Cathy English, PhD, RD
Professor
University of Rhode Island

Karen Ensle, EdD, RDN, FAND, CFCS
Department Head, FCHS Educator, Professor
Rutgers Cooperative Extension of Union County

Caldwell B. Esselstyn, Jr., MD, FACS, FACC, FACLM
Director, Prevention and Reversal Program
The Cleveland Clinic Wellness Institute

Mary M. Flynn, PhD, RD, LDN
Associate Professor of Medicine
Brown University

Christopher Gardner, PhD
Professor of Medicine
Stanford University

Joan Gussow, EdD
Professor Emerita Nutrition and Education
Teachers College, Columbia University

Kelli Hoover, PhD
Professor
Penn State University

Frank Hu, MD, PhD
Professor and Chair, Department of Nutrition
Harvard T.H. Chan School of Public Health

David Katz, MD, MPH
Director, Yale University Prevention Research Center
Founder/President, True Health Initiative

David A. Kenny, PhD
Professor
University of Connecticut

Lawrence H. Kushi, ScD
Director of Scientific Policy
Division of Research, Kaiser Permanente

Robert Lawrence, MD, MACP
Professor Emeritus
Johns Hopkins University

Steven Levy, DDS, MPH
Wright-Bush-Shreves Professor of Research
Graduate Program Associate Director,
Dental Public Health, Department of
Preventive and Community Dentistry,
Professor, Department of Epidemiology
College of Public Health
University of Iowa

JoAnn E. Manson, MD, DrPH
Chief, Division of Preventive Medicine,
Brigham and Women's Hospital, Professor
of Medicine and the Michael and Lee Bell
Professor of Women's Health
Harvard Medical School
Professor, Department of Epidemiology
Harvard T.H. Chan School of Public Health

William J. McCarthy, PhD
Adjunct Professor, Health Policy &
Management
UCLA Fielding School of Public Health

Barbara Millen, DrPH, RD, FADA
President, Millennium Prevention, Inc.
Chairman, Boston Nutrition Foundation,
Inc.

Kathleen T. Morgan, DrMH, DTR
Professor
Rutgers University

Bruce Oakley, PhD
Professor Emeritus, Department of
Molecular, Cellular, and Developmental
Biology
University of Michigan

Melissa Olfert, DrPH, MS, RDN, LD
Associate Professor, Human Nutrition and
Foods, Division of Animal & Nutritional
Sciences, School of Agriculture, Davis
College of Agriculture, Natural Resources &
Design
West Virginia University

Barry Popkin, PhD
W.R. Kenan Jr. Distinguished Professor of
Nutrition, School of Public Health
University of North Carolina at Chapel Hill

John D. Potter, MD, PhD
Professor Emeritus of Epidemiology,
University of Washington
Member and Senior Advisor, Division of
Public Health Sciences, Fred Hutchinson
Cancer Research Center

Bill Reger-Nash, EdD
Professor Emeritus, School of Public Health
West Virginia University

David Rehkopf, ScD, MPH
Assistant Professor of Medicine
Stanford University

Eric Rimm, ScD
Professor of Medicine
Harvard Medical School
Channing Division of Network Medicine,
Brigham and Women's Hospital
Professor of Epidemiology and Nutrition
Director, Program in Cardiovascular
Epidemiology
Harvard T.H. Chan School of Public Health

Lorrene Ritchie, PhD, RD
Director, Nutrition Policy Institute
University of California, Berkeley

Kim Robien, PhD, RD
Associate Professor, Department of Exercise
and Nutrition Sciences, Milken Institute
School of Public Health
The George Washington University

Diego Rose, PhD, MPH, RD
Professor and Director of Nutrition Program,
School of Public Health & Tropical
Medicine
Tulane University

Jennifer Sacheck, PhD
Professor and Chair, Department of Exercise and Nutrition Sciences, Milken Institute School of Public Health
The George Washington University
Adjunct Professor
Friedman School of Nutrition, Tufts University

Frank M. Sacks, MD
Professor of Cardiovascular Disease Prevention, Departments of Nutrition and Genetics & Complex Diseases
Harvard T.H. Chan School of Public Health
Professor of Medicine
Harvard Medical School
Senior Physician
Brigham & Womens' Hospital

Anna Maria Siega-Riz, PhD
Professor and Associate Dean for Research, School of Nursing
University of Virginia

Laura S. Sims, PhD, MPH (retired)
University of North Carolina at Greensboro
Penn State University
University of Maryland

Justin Sonnenburg, PhD
Associate Professor
Stanford University

Marie-Pierre St-Onge, PhD
Associate Professor of Nutritional Medicine, Department of Medicine
Columbia University Medical Center

Allison Sylvetsky, PhD
Assistant Professor, Department of Exercise and Nutrition Sciences
The George Washington University

Sameera A. Talegawkar, PhD
Associate Professor, Department of Exercise and Nutrition Sciences, Milken Institute School of Public Health
The George Washington University

Alison Tovar, PhD
Assistant Professor
University of Rhode Island

Maya Vadiveloo, PhD, RD
Assistant Professor
University of Rhode Island

Howell Wechsler, EdD, MPH
CEO, Alliance for a Healthier Generation

Paul K. Whelton, MB, MD, MSc
Show Chwan Professor of Global Public Health
Tulane University

Walter Willett, MD, DrPH
Professor of Epidemiology and Nutrition
Harvard T.H. Chan School of Public Health

Charles Yocum, PhD
Distinguished University Professor Emeritus
University of Michigan

Lisa R. Young, PhD, RD
Adjunct Professor of Nutrition
New York University

The title and institutional affiliation are for identification purposes only.