Institute of Medicine Reports: Sodium Reduction and Obesity Prevention

Written by Toni Rizzo

In this special session, Cheryl Anderson, PhD, University of California, San Diego, La Jolla, California, USA, and Lawrence W. Green, DrPH, University of California, San Francisco, San Francisco, California, USA, discussed the recent Institute of Medicine (IOM) report on sodium reduction and obesity prevention.

REVIEW SUPPORTS LOWERING EXCESSIVE SODIUM INTAKE IN THE GENERAL POPULATION

The *Dietary Guidelines for Americans, 2010* set a goal for the general population to reduce sodium intake to <2300 mg/day [US Department of Agriculture (USDA) and US Department of Health and Human Services. *Dietary Guidelines for Americans,* Washington, DC: US Government Printing Office, December 2010]. For persons ≥51 years old, of African American race, or with hypertension, diabetes, or chronic kidney disease, the guidelines recommend a sodium intake of <1500 mg/day. The recommendations and goals supported by the American Heart Association (<1500 mg/day), World Health Organization (<2000 mg/day), and National Heart, Lung, and Blood Institute (<2400 mg/day) vary somewhat from the goals of the *Dietary Guidelines*. Some have expressed concern that low sodium intake might adversely affect blood lipids, insulin resistance, and cardiovascular disease (CVD) risk; thus, the IOM report was designed to objectively evaluate the evidence regarding sodium intake and health outcomes.

Dr. Anderson summarized the IOM report *Sodium Intake in Populations: Assessment of Evidence* [IOM. Washington, DC: The National Academies Press, 2013]. The purpose of the report was to consider the implications for population-based sodium reduction strategies. Studies published between January 2003 and December 2012 were evaluated for generalizability to the general population and subgroups defined in the USDA recommendations. Criteria for methodological appropriateness included study design, quantitative measures of dietary sodium intake, adjustment for potential confounders, and the number and consistency of available relevant studies. The abstracts and studies that failed to meet the criteria were removed, yielding 39 studies. The studies were stratified by the disease state that was studied.

The evaluation of the studies was influenced by several factors, including variability in the types and quality of measures used. The extreme variability in sodium intake levels between and among population groups precluded the committee from establishing a "healthy" intake range. Because of these factors, the committee was able to consider sodium intake levels only within individual studies.

In the general population, studies linking sodium intake with health outcomes had highly variable methods for measuring intake and collecting data. Evidence on direct health outcomes was insufficient and inconsistent regarding an association between sodium intake <2300 mg/day and cardiovascular outcomes or all-cause mortality. Given these limitations, the evidence indicated a relationship between higher sodium intake and increased CVD risk, but the committee was not able to recommend lowering sodium intake to <2300 mg/day.

Data from 2 related studies of prehypertensive subjects suggested a benefit of reducing sodium intake to ≤2300 mg/day. Sodium intakes of 1500 to 2300 mg/day were not associated with benefit, and some evidence suggested adverse effects with sodium restriction in other disease states. No relevant evidence was found on health outcomes for persons ≥51 years old or in people of African American race.

The IOM committee concluded that the available evidence on sodium intake and direct health outcomes is consistent with population-based efforts to lower excessive sodium intakes but is not consistent with reducing dietary sodium in the general population to 1500 mg/day. The evidence also suggests that sodium intake may affect heart disease risk through effects on blood pressure as well as other pathways.

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EVALUATING PROGRESS IN OBESITY PREVENTION

Dr. Green was chair of the IOM Committee on Evaluating Progress of Obesity Prevention Efforts, which produced the publication *Evaluating Obesity Prevention Efforts: A Plan for Measuring Progress* [IOM. *Evaluating Obesity Prevention Efforts: A Plan for Measuring Progress*. Washington, DC: The National Academies Press, 2013]. According to Dr. Green, more practice-based evidence is needed to achieve evidence-based practice. In addition to evaluating outcomes and surveillance of population trends, monitoring the implementation of interventions is necessary. A key question addressed by the IOM committee was how to evaluate local adaptations of evidence-based interventions from randomized controlled trials for implementation in other populations, particularly in controlling obesity with environmental and policy reforms.

While obesity is well studied, there is much to learn about the determinants of obesity and the efficacy of interventions to reduce its incidence, prevalence, and consequences. The IOM committee explored questions of assessment, monitoring and surveillance, effectiveness of population-based strategies, and the unintended consequences of prevention efforts. In a previous report, *Accelerating Progress in Obesity Prevention: Solving the Weight of the Nation* [IOM. Washington, DC: The National Academies Press, 2012], a committee identified 5 areas of focus—message and media, education, physical activity, food and beverage, and health care and work environments. From these areas, 5 solutions for changing communities were recommended: integrating physical activity into daily life, involving employers and health care professionals in the effort to reduce obesity, marketing a healthy diet and lifestyle, increasing the availability of healthy foods, and strengthening school-based programs. According to Dr. Green, any one of these solutions might help speed progress in preventing obesity, but together their effects could be synergistic. A call to action was made, urging engagement, leadership, and responsibility by individuals, families, communities, and society to address this epidemic. Environmental and policy changes were called for to support practitioners in addressing obesity. The report *Evaluating Obesity Prevention Efforts* [IOM. Washington, DC: The National Academies Press, 2013] focused on assessment, monitoring, and summative evaluation of these efforts.

Current evaluation efforts were reviewed, including the evaluation of users' needs and interests, the strengths and limitations of the current monitoring and surveillance system, and the investments and systems science approach to the evaluation of national, state, and local monitoring and surveillance systems. Based on this review, national and community obesity plans were developed to implement the strategies recommended in the *Accelerating Progress in Obesity Prevention* report [IOM. Washington, DC: The National Academies Press, 2012] and the *Evaluating Obesity Prevention Efforts* report (Tables 1 and 2) [IOM. Washington, DC: The National Academies Press, 2013].

Finally, the committee began development of a set of core indicators for measuring progress in obesity prevention at the national and community levels. Based on a review of some 400 currently available indicators, the committee recommended 83 indicators for possible use by program evaluators. From these, core indicators can be developed for incorporation into evaluation plans. Comprehensive information on the plan components and progress indicators can be found in the *Evaluating Obesity Prevention Efforts: A Plan for Measuring Progress* report [IOM. Washington, DC: The National Academies Press, 2013; http://www.nap.edu/catalog.php?record_id=18334] or in related dissemination materials (eg, interactive indicator table, a pullout summary of the indicators, a report brief) [www.iom.edu/evaluatingprogress].

Table 1. National Obesity Evaluation Plan Activities[a]

1.	Establish national leadership, infrastructure, and priorities.
2.	Identify current federal evaluation efforts and gaps.
3.	Harmonize and expand data collection and address gaps.
4.	Increase capacity.
5.	Provide feedback.
6.	Use core indicators and common measures.
7.	Encourage new methodologies.

[a]The activities in this table have been abbreviated. The report provides a complete set of recommended core components and related activities of the National Obesity Evaluation Plan.

Source: Adapted from Institute of Medicine. *Evaluating Obesity Prevention Efforts: A Plan for Measuring Progress*. Washington, DC: National Academies Press, 2013.

Table 2. Community-Level Obesity Assessment, Surveillance, Monitoring, and Summative Evaluation Plan Components[a]

Assessment and Surveillance Plan Components	Intervention Monitoring and Summative Evaluation Plan Components
1. Define community boundaries.	1. Design stakeholder involvement.
2. Engage community members and other key stakeholders in as many of these steps as feasible.	2. Identify resources for the monitoring and summative evaluation.
3. Plan assessment and surveillance.	3. Describe the intervention's framework, logic model, or theory of change.
4. Collect data.	4. Focus the monitoring and summative evaluation plan.
5. Analyze and evaluate the data.	5. Plan for credible methods.
6. Disseminate and develop policy and program plans from findings.	6. Synthesize and generalize.

[a]The components in this table have been abbreviated. The report provides complete descriptions of recommended components and related activities of the Community-Level Obesity Evaluation Plans.

Source: Adapted from Institute of Medicine. *Evaluating Obesity Prevention Efforts: A Plan for Measuring Progress*. Washington, DC: National Academies Press, 2013.

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