

Letter to the Editor

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Response to Mortality Benefits From US Population-Wide Reduction in Sodium Consumption: Projections From 3 Modeling Approaches

The authors¹ misstate our methodology and motivation. The Trials of Hypertension Prevention (TOHP) outcomes are statistically significant for lower cardiovascular disease (CVD) incidence. The statistical uncertainty is discussed in our Methods and was a motivation for the comparison of TOHP projections with other projections. Despite the uncertainty, TOHP's strengths are considerable. The study was designed to collect information on later incident CVD events, with a prespecified comparison of randomized groups. All events were included, and response rates did not differ by groups. Although end point ascertainment was incomplete, the follow-up was unbiased and demonstrated a statistically significant reduction in CVD incidence with reduced sodium. The mortality analysis was underpowered but complete, with effect estimates supporting the CVD incidence findings. TOHP compared randomized groups and, therefore, had little confounding, bias, or biased ascertainment of baseline exposure, all considerable limitations that are common in observational studies.

The authors cite studies in high-risk populations (diabetes mellitus, glucose intolerance, renal insufficiency, prior myocardial infarction) that fail to find CVD benefit from systolic blood pressure lowering <140 mmHg, data that will likely inform modification of guidelines for lower targets in these groups. The authors also cite trials in heart failure patients with considerable fluid restriction (1–2 L) and high diuretic use (500–1000 mg/d furosemide) that found adverse events with very low sodium consumption (1800 mg/d). These findings question the prior dogma on low sodium as a treatment modality in heart failure and cannot be ignored by clinicians caring for these patients. While important, these studies have little bearing on our projections.

We model the impact of public health interventions that gradually lower sodium consumption from the current high of 3600 mg/d.² The benefits we describe derive mainly from CVD reductions in the broad base of the population with isolated hypertension or in the setting of smoking and hyperlipidemia and are supported by multiple randomized, controlled trials of sodium reduction in these groups. Thus, although the observations that high-risk individuals may not benefit from systolic blood pressure reduction beyond standard thresholds or that the dynamic volume-sensitive state of heart failure may not be compatible with very low sodium consumption are important, particularly for physicians treating these patients, these data do not lower the expectation from our projections that small, steady population-wide reductions in sodium consumption will yield substantial health benefits across the population.

We agree with the authors about the urgent need to lower excessive sodium consumption (from high to moderate levels).³ In the United States, where most sodium consumed is already added to foods we eat, this goal is most likely achieved through lowering sodium content in processed foods. Such an approach yields the greatest population-wide benefit and also maximizes choice for all individuals to consume their desired amount of sodium (those wishing to consume more sodium can do so by simply adding salt while cooking or eating). Persons in frail chronic disease states will be

more able to keep their sodium intake in the appropriate therapeutic range, and healthier people will lower their CVD risk without considerable changes in their dietary patterns. Although additional studies may be helpful, our projections confirm that small, steady reduction in sodium in processed food remains an important public health target for the United States.

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Disclosures

None.

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