**Estimating the Benefits of the Proposed FDA Sodium Reformulation Policy on Cardiovascular Disease, Disparities and Economic Costs**

Funding is: grant R01 HL130735, Micha; and grant R01 HL115189, Mozaffarian)

Pearson-Stuttard J\*, Kypridemos C\*, Collins B, Huang Y, Bandosz P, Whitsel L, Capewell S, Mozaffarian D, Wilde P, O’Flaherty M#, Micha R#.

**Background:** Sodium consumption is a leading modifiable risk factor for CVD mortality and morbidity in the US. In 2016, the US Food and Drug Administration (FDA), following recent effective examples in several other countries, proposed voluntary sodium targets for industry to reduce sodium in processed foods.

Aim: We aimed to estimate the potential CVD, equity and economic impacts of implementing this policy.

**Methods:** We used the validated US IMPACT Food Policy microsimulation model to estimate the CVD cases averted, quality-adjusted life-years (QALYs) gained and cost-effectiveness from 2017-2036 of the FDA sodium reformulation policy in US adults (30+ years). Model inputs included national demographics and sodium intakes from NHANES, FDA short- and long-term sodium reformulation targets, sodium effects on blood pressure and of blood pressure on CVD from meta-analyses, government costs to administer and monitor the policy and industry reformulation costs, and validated healthcare and productivity costs. We modelled 3 scenarios:

a) Optimal, 100% compliance of 10-year reformulation targets

b) Modest, 50% compliance of 10-year reformulation targets

c) Pessimistic, 100% compliance of 2-year reformulation targets with no further progress

Costs were inflated to 2017 US dollars and outputs were discounted annually by 3%. We took a societal perspective for this analysis. Rigorous probabilistic sensitivity analyses were conducted.

**Results:** The optimal scenario achieving the 10-year sodium reduction targets could prevent ~ 450,000 CVD cases (95% Uncertainty Interval: 240,000-740,000), gain 2.1 million QALYs (1.7m-2.4m), and produce $41billion ($14bn-$81bn) cost-savings from 2017-2036. The modest and pessimistic scenarios were also cost-saving, with both health gains and savings about one half and one quarter, respectively, of the optimal scenario.

Relative disparities between non-Hispanic white and non-Hispanic black populations would be reduced in all scenarios. The pessimistic scenario yielded the largest reduction in absolute disparities (70,000 CVD cases (33,000-120,000) prevented in non-Hispanic blacks vs. 13,000 (0-54,000) in non-Hispanic whites). The optimal scenario would prevent approximately 4.6% (130,000 cases (65,0000-220,000)) of all CVD cases in non-Hispanic blacks compared to 1.5% (220,000 cases (120,000-360,000)) in non-Hispanic whites. Despite a smaller population, total net savings would be over 50% larger in non-Hispanic blacks than non-Hispanic whites ($19bn vs $12bn) in the optimal scenario.

**Conclusions:** Implementing and even partly achieving the FDA sodium reduction targets could generate substantial health gains and net cost savings. Crucially, this policy could also reduce CVD disparities between non-Hispanic black and non-Hispanic white populations.