



MUMS Agent-Based Modeling and Uncertainty Quantification Workshop March 11-12, 2019

SPEAKER TITLES/ABSTRACTS

Junxiu Liu

Tufts University

“Cost-Effectiveness of the U.S. Federal Restaurant Menu Calorie Labeling Law for Improving Diet and Health: A Microsimulation Modeling Study”

Objectives Excess caloric intake is linked to weight gain, obesity and related diseases including type 2 diabetes and cardiovascular disease (CVD). Obesity incidence has been on the rise, with almost 2 of 3 people being overweight or obese in the US. In 2018, the US federal government passed a law mandating the labeling of calories on all menu items across chain restaurants, as a strategy to support informed consumer choice and reduce caloric intake. Yet, potential health and economic impacts of this policy remain unclear.

Methods We used a validated microsimulation model (CVD-PREDICT) to estimate reductions in CVD events, diabetes cases, gains in quality-adjusted life-years (QALYs), costs, and cost-effectiveness of two policy scenarios: (1) implementation of the federal menu calorie labelling (*menu calorie label*), and (2) further accounting for corresponding industry reformulation (*menu calorie label + reformulation*). The model utilized nationally representative demographic and dietary data from NHANES 2009-2016; policy effects on consumer intake and BMI-disease effects from published meta-analyses; and policy effects on industry reformulation, policy costs (policy administration, industry compliance and reformulation) and health-related costs (formal and informal healthcare costs, productivity costs) from established sources. We conservatively modeled change in calories to change in weight using an established dynamic weight-change model. Findings were evaluated over 10 years and lifetime from a healthcare and societal perspective. Costs were inflated to constant 2018 USD, and costs and QALYs were discounted at 3% annually. We performed probabilistic analyses and a range of one-way sensitivity and subgroup analyses to assess the robustness of our findings.

Results Sample statistics were shown (Table). American adults (35+) consume ~21% calorie from restaurants (Figure) that would be reduced by 2% due to this law at the population level. Government administration costs were estimated at 11.6\$M, industry compliance costs at 652\$M, and industry reformulation costs at 9.2\$B. Findings for all other analyses will be presented at the meeting.

Conclusions These findings will provide much needed evidence on the health and economic impacts of the US menu calorie labeling law.