Center for the Assessment of the Public Health Impact of Tobacco Regulations
Institution: University of Michigan at Ann Arbor
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Project 1: Comparative Modeling of the Impact of E-cigarettes use on Smoking and Long-Term Health Outcomes
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Project 1 Abstract:
Under the Family Smoking Prevention and Tobacco Control Act, the FDA is required to show that any new rule to regulate the marketing, sale or content of tobacco products is "appropriate for the protection of the public health." To provide the FDA with a framework to assess the potential health impacts of tobacco regulations, this TCORS Project will harmonize and extend four established tobacco control simulation models to examine the impact of different possible FDA regulatory actions on future trends in cigarette and e-cigarette use, and associated health outcomes. The Project will focus on Impact Analysis (Aim 3, 4, and 5) and Health Effects (Aims 2 and 3), with a secondary emphasis on Behavior (Aim 1). Using a generalized harm reduction framework and statistical approaches to distinguish experimentation from long-term tobacco product use, we will develop initial prevalence rates for the models; a range of plausible future status quo transitions by age and gender for initiation and cessation for cigarettes and e-cigarettes; and a range of plausible switching rates between cigarettes and e-cigarettes. Using literature reviews and expert elicitation panels to develop relative risk estimates for specific health outcomes, we will extend the models from all-cause mortality to also project tobacco-related mortality due to cardiovascular and chronic obstructive pulmonary disease, and adverse maternal and child health outcomes. We will also extend the models to consider the impact of specific policies related to cigarette and e-cigarette use, such as the provision of information about health effects, using literature reviews and expert panels to develop policy effect estimates. Upon incorporating the common initial prevalence and transition rates for cigarette and e-cigarette use, the extensions regarding health outcomes, and the policy parameters, we will use the four models with their different structures to examine the impact of current and projected future e-cigarette use on overall harms. We will also project how specific potential FDA regulations individually and in combination will likely impact cigarette and e-cigarette use rates and associated health outcomes over a 50-year future period. Comparative analyses of the four models' predictions will be conducted to further refine the likely best-case, worst-case, and most likely projected scenarios and better assess regulatory impacts. In addition, the models will have the capacity and flexibility to rapidly use new data from national surveillance cohorts and incorporate new regulatory policy options as these emerge. Our models will also be made flexible enough to further consider substitution into and away from other alternative nicotine delivery products, including cigars, smokeless tobacco and heat-not-burn products.