

American Heart Association Tobacco Center for Regulatory Science (A-TRAC) 2.0

Institution: American Heart Association

2-U54-HL120163-06

Project 3: Cardiovascular Effects of Tobacco Products in Community-based Cohorts

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Project 3 Abstract:

While overwhelming evidence supports the association between cigarette smoking and cardiovascular disease, the cardiovascular effects of other tobacco products such as cigar, pipe, smokeless tobacco (ST), and ecigarettes remain unclear. Hence, the overall goal of ATRAC as well as this project is to assess the cardiovascular health impact of alternative and new tobacco products. Hence, this project address the domain of Health Effects. To overcome the limitation on insufficient power in individual NIH/NHLBI cohorts, Project 3 will leverage the Cross Cohort Collaboration (CCC) to harmonize tobacco data across 18 cohort studies, creating the largest cardiovascular study of cigar, pipe, and ST users yet undertaken. Amongst 200,000 total participants, there are 65,000 former smokers, 24,000 current smokers, 2,900 cigars users, 3,300 pipe users, and 1,900 smokeless tobacco users. In addition, Project 3 investigators will develop the emerging e-cigarette data from the traditional cardiovascular cohort studies, allowing the first-of-its-kind study of the cardiovascular health effects of e-cigarettes in a large geographically dispersed, community-based sample (~1500-2000 ever ecigarette users, ~600 current e-cigarette users). Finally, to link harm to exposure, Project 3 investigators will measure urinary metabolites of volatile organic compounds (VOC) in all tobacco users from four cohort studies, as well as in 1:1 matched non-tobacco using controls. Aggregate data from these aims will be used to test the hypothesis that the use of non-cigarette tobacco products is associated with significant cardiovascular injury, which is attributable, in part, to VOCs generated or present in these products. Results of this project will have direct regulatory implications as they address 4 of the 10 CTP interest areas (#2, 3, 4, 5 - toxicity of cigars, ST, pipes, and e-cigarettes), potentially informing regulatory policy relevant to the manufacture and design of tobacco products, as well communications regarding health effects of new tobacco products.