

OSU Center of Excellence in Regulatory Tobacco Science (OSU-CERTS)

Understanding Adolescent Trajectories, Exposures and Susceptibilities (Project 2)

Shields, Peter G.

P50 CA-180908-01

Abstract:

Most smokers and smokeless tobacco (ST) users begin before the age of 18. In adolescents, the prevalence of ST use has been increasing and the prevalence of dual use for ST use and smoking is high and even higher in Ohio than many other states. However, almost nothing is known about adolescent initiation of ST and dual use with their trajectories to regular use and dependence; exposures through biomarkers, and environmental and genetic risk factors. We will follow a cohort of adolescents and establish their trajectories from experimentation to regular use and dependence, their degree of nicotine exposure with biochemical confirmation, and their level of nicotine dependence (n=2,010, including a projected 661 tobacco users at the end of the study). We will measure carcinogen exposures and with concurrent cohort and family based association designs, we will consider various genetic risk factors. The Specific Aims are: 1) To determine the time from experimentation to regular use/dependence for tobacco products (smoking, ST and dual use, including new and emerging products), based on nicotine levels in products and adjusted for predictors of initiation from the environment (e.g., family and peer tobacco use, advertising and media). We hypothesize that the time to regular use and dependence is less for dual users than for exclusive ST use or smoking. 2) To determine the differences in exposure to tobacco toxicants for daily or almost daily ST users, smokers, and dual users among adolescents using conventional and novel biomarkers of exposure (e.g. metabolomics). We hypothesize that exposures in dual users are higher than for ST users or smokers. 3) To identify genetics of susceptibility that influence ST use, smoking and dual use, i.e., the nicotine metabolic ratio and genes of nicotine metabolism, neurobehavior and taste perception. We hypothesize that genetic susceptibilities and gene-environment interactions leads to increased initiation and type of tobacco use, including dual use. To enhance the generalizability of our research results, we will study both rural and urban adolescent males, and their families. The information from this study will help FDA decision making about what restrictions, if any, to place on the marketing of tobacco products in the context of youth initiation and dual use, the regulation of tobacco marketing and promotion, the decision to target health-related communications to adolescents susceptible to dual use, development of product standards related to exposures and flavorings, and the development of better tests to identify tobacco-related health risks.