

Epidemiology of Substance Abuse Progress Report 7/1/2006-6/30/2007

1. Highlights

Denise Kandel's K-5 award was renewed for another five years, years #25-#31, as of 5/15/2007.

2. Staff

Denise B. Kandel, PhD, Chief, Research Scientist VII

Pamela Griesler, PhD, Research Scientist IV

Christine Schaffran, MA, Research Scientist IV

Mei-Chen Hu, PhD, Associate Research Scientist, Dept. of Sociomedical Sciences, School of Public Health (CU)

Mark Davies, MPH, Lecturer, Dept. of Biostatistics, School of Public Health (CU)

3. Overview

This department investigates the natural history of drug involvement, the risk factors and consequences of drug abuse, and comorbidity of substance abuse with problem behaviors and psychiatric disorders among adolescents and adults. Cigarette smoking and nicotine dependence represent a major focus of current research activities with an emphasis on (1) nicotine dependence; (2) ethnic differences in the epidemiology and etiology of adolescent smoking; (3) the impact of maternal smoking during pregnancy and postnatally on smoking and behavior problems in offspring; and (4) the association between psychiatric disorders, smoking patterns and dependence. A major current research activity is *The Transition to Nicotine Dependence in Adolescence* (TND), a longitudinal follow-up of the transition to nicotine dependence in adolescence, which aims to describe the natural history and risk factors in nicotine dependence. We have also initiated a completely novel area of research, focused on the molecular basis of epidemiological paradigms in mice, in collaboration with Drs. Eric Kandel and Amir Levine from the Center for Neurobiology and Behavior.

4. Current Research

We completed the data collection on a cohort of 1,039 urban adolescents and their mothers for our longitudinal study (TND). We implemented the collection of saliva samples for DNA extraction and future investigation of the genetics of nicotine dependence in adolescence. DNA is currently being extracted by Dr. Daniel Price and colleagues from the National Institute of Mental Health, and Dr. David Goldman from the National Institute on Alcohol Abuse and Alcoholism.

This past year, we investigated the various developmental trajectories of dependence symptoms following onset of smoking and the association between nicotine dependence and psychiatric disorders in adolescence.

We also implemented analyses of parent-child similarity on smoking and nicotine dependence in a national US sample.

The recently initiated program of research on the molecular basis of the gateway hypothesis in mice will enable us to establish causal relationships underlying smoking behaviors that are not possible to establish in human populations from epidemiological studies.

5. Education and Training

We are monitoring two post-doctoral fellows: Dr. Hu in our department and Dr. Levine in the Center for Neurobiology and Behavior.

6. Highlights

Does not apply.

7. Awards and Honors

5-year renewal of K-5 award from the National Institute on Drug Abuse.

8. Publications

Griesler, P.C., Kandel, D.B., Schaffran, C., Hu, M-C., Davies, M., 2008. "Inconsistency in self-reported smoking among adolescents: A comparison of reports in school and in household settings." *Publ Opin Q.* (in press).

Kandel, D.B., Yamaguchi, K., Klein, L.C., 2007. "Testing the Gateway Hypothesis." An editorial. *Addiction.* 101:470-2.

Kandel, D.B., Hu, M-C., Schaffran, C., Udry, J.R., Benowitz, N.L., 2007. "Urine nicotine metabolites, smoking and nicotine dependence in a multiracial/ethnic national sample of young adults." *Am J Epidemiol.* 165:901-10.

Kandel, D.B., Hu, M-C., Griesler, P., Schaffran, C., 2007. "On the development of nicotine dependence in adolescence." *Drug Alcohol Depend.* 91: 26-39.

Koob, G. F., Kandel, D., Volkow, N.D., 2008. "Psychiatric Pathophysiology: Addiction" in Tasman, A., Kay, J., Lieberman, J., First, M.B., Maj, M. (eds) *Psychiatry*. Third Edition. John Wiley & Sons (in press).