

## BIOGRAPHICAL SKETCH

NAME: Barrington-Trimis, Jessica Louise

eRA COMMONS USER NAME (credential, e.g., agency login): JTRIMIS

POSITION TITLE: Assistant Professor of Preventive Medicine

EDUCATION/TRAINING (*Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable.*)

INSTITUTION AND LOCATION	DEGREE (if applicable)	START DATE MM/YYYY	END DATE MM/YYYY	FIELD OF STUDY
Bucknell University	BA	08/2003	05/2007	Philosophy
Loyola Marymount University	MA	08/2007	05/2009	Secondary Education
University of Southern California	MS	08/2009	08/2010	Global Medicine
University of Southern California	PHD	08/2011	08/2014	Epidemiology
University of Southern California	Postdoctoral Fellow	08/2014	12/2016	Tobacco Regulatory Science

### A. Personal Statement

I am an epidemiologist with training in tobacco regulatory science whose research focuses on identifying behavioral and psychological factors associated with tobacco product use (including e-cigarette use) in adolescence and early adulthood, and the biobehavioral consequences of adolescent tobacco use. My research aims to examine the most critical questions regarding e-cigarettes facing the tobacco control community today – will e-cigarette use lead to nicotine dependence among youth who otherwise would never have smoked? If so, what factors that can be targeted in prevention programs and regulatory policy that contribute to development of dependent nicotine use behaviors?

I am well-positioned for membership in the USC Norris Comprehensive Cancer Center, as evidenced by my track record to date. Position. I successfully competed for a tenure track Assistant Professor position in one of the strongest research preventive medicine departments in the country. Publications. I am on a promising initial trajectory, which includes a first authored commentary and co-authored research letter in *JAMA*, a total of 24 publications (10 first authored)—of which most were written and published during my first year as a faculty member and two years as a Tobacco Center of Regulatory Science (TCORS) postdoctoral fellow, showing a high rate of productivity in publication of research findings. Funding. As a postdoctoral fellow, I wrote 3 successful pilot grants funded internally by our TCORS, one of which led to an R21 that (because of administrative reasons) was PI-ed by my post-doc faculty mentor. Recently, I received a K01 award to gain skills in measurement development and to develop survey measures to identify youth at risk of combustible tobacco use and nicotine dependence due to e-cigarette use. I also submitted a total of 4 R01 or R01 equivalent proposals since beginning my faculty position at USC (January 2017), which are all broadly focused on conducting research to understand factors that contribute to adolescent nicotine use and dependence, or cannabis use and dependence, in order to inform regulatory action to reduce the adverse public health impact of adolescent vaping (of nicotine or cannabis products) that may result in an increase to the overall cancer burden. As such, my research is closely aligned with the mission of the Cancer Control Research division of the USC Norris Comprehensive Cancer Center.

### B. Positions and Honors

#### Positions and Employment

2007 - 2009	Teacher, Chemistry, Los Angeles Unified School District, Los Angeles, CA
2011 - 2011	PhD Summer Institute Fellow, University of Southern California, Los Angeles, CA
2011 - 2012	Research Assistant, Department of Preventive Medicine, University of Southern California, Los Angeles, CA
2011 - 2014	Teaching Assistant, Department of Preventive Medicine, University of Southern California, Los Angeles, CA
2012 - 2012	Course Coordinator, Seminar in Biostatistics and Epidemiology, Department of Preventive Medicine, University of Southern California, Los Angeles, CA

- 2012 - 2012 Pediatric Oncology Student Training (POST) Program Fello, Alex's Lemonade Stand Foundation, Los Angeles, CA
- 2012 - 2014 Pre-Doctoral Trainee, NIEHS T32: "Environmental Genomics", Department of Preventive Medicine, University of Southern California, Los Angeles, CA
- 2014 - Instructor, PM511a "Data Analysis", University of Southern California Master of Public Health program, Los Angeles, CA
- 2014 - 2016 Postdoctoral Scholar-Research Associate, University of Southern California Tobacco Center of Regulatory Science, Los Angeles, CA
- 2017 - Assistant Professor of Preventive Medicine, University of Southern California, Los Angeles, CA

### **Other Experience and Professional Memberships**

- 2011 - Associate Member, American Association for Cancer Research
- 2011 - 2014 President (2013-2014), Public Relations Chair (2012-2013), Vice President (2011-2012), Graduate Society for Biostatistics and Epidemiology, University of Southern California
- 2012 - Member, Society for Epidemiologic Research
- 2014 - Member, International Genetic Epidemiology Society
- 2014 - Member, Society for Research on Nicotine and Tobacco
- 2016 - Associate Editor, Nicotine and Tobacco Research

### **Honors**

- 2012 Nominee for USC Center for Excellence in Teaching, Outstanding Teaching Assistant Award, USC Center for Excellence in Teaching
- 2012 Travel award, Childhood Cancer 2012, Children with Cancer UK
- 2013 Participant - Society for Epidemiologic Research Student Dissertation Workshop and travel award, Society for Epidemiologic Research
- 2014 Travel award, Latinos with Cancer Annual Meeting (invited speaker), Latinos with Cancer
- 2014 Member - Phi Kappa Phi Honor Society, Phi Kappa Phi Honor Society
- 2015 Participant with Travel Award, National Research Mentoring Network Grant Writing Program
- 2015 Loan Repayment Program Recipient, National Institutes of Health Loan Repayment Program
- 2016 Travel award, Society for Research on Nicotine and Tobacco Health Disparities Network
- 2016 Training and Travel Award, University of Southern California Office of Postdoctoral Affairs and USC Postdoctoral Association
- 2016 Trainee Network Spotlight Award, Society for Research on Nicotine and Tobacco Trainee Network

### **C. Contribution to Science**

1. **Epidemiology of Adolescent E-cigarette use:** I have led or co-led some of the first papers on patterns of e-cigarette use in adolescence and risk factors associated with use. In a study of adolescents in Southern California, we found that more than 40% of youth who were using e-cigarettes had never smoked a combustible cigarette, not even one or two puffs. We also found that a positive e-cigarette social environment was strongly associated with both e-cigarette use and with cigarette use. A second study of adolescents found that e-cigarette users had greater psychiatric comorbidity than non-users of any tobacco products, but less than cigarette users. In a collaborative study of more than 2000 e-cigarette users from 8 studies across the US show that adolescents and young adults prefer later generation e-cigarette devices.
  - a. Barrington-Trimis JL, Gibson LA, Halpern-Felsher B, Harrell MB, Kong G, Krishnan-Sarin S, Leventhal AM, Loukas A, McConnell R, Weaver SR. Type of E-Cigarette Device Used among Adolescents and Young Adults: Findings from a pooled analysis of 8 studies of 2,166 vapers. *Nicotine Tob Res.* 2017 Mar 22; PubMed PMID: [28371890](#).
  - b. Barrington-Trimis JL, Berhane K, Unger JB, Cruz TB, Urman R, Chou CP, Howland S, Wang K, Pentz MA, Gilreath TD, Huh J, Leventhal AM, Samet JM, McConnell R. The E-cigarette Social Environment, E-cigarette Use, and Susceptibility to Cigarette Smoking. *J Adolesc Health.* 2016 Jul;59(1):75-80. PubMed PMID: [27161417](#); PubMed Central PMCID: [PMC4920702](#).

- c. Leventhal AM, Strong DR, Sussman S, Kirkpatrick MG, Unger JB, Barrington-Trimis JL, Audrain-McGovern J. Psychiatric comorbidity in adolescent electronic and conventional cigarette use. *J Psychiatr Res.* 2016 Feb;73:71-8. PubMed PMID: [26688438](#); PubMed Central PMCID: [PMC4738156](#).
- d. Barrington-Trimis JL, Berhane K, Unger JB, Cruz TB, Huh J, Leventhal AM, Urman R, Wang K, Howland S, Gilreath TD, Chou CP, Pentz MA, McConnell R. Psychosocial Factors Associated With Adolescent Electronic Cigarette and Cigarette Use. *Pediatrics.* 2015 Aug;136(2):308-17. PubMed PMID: [26216326](#); PubMed Central PMCID: [PMC4516947](#).

2. **Determinants and Consequences of Adolescent E-cigarette use:** In a second emerging area of research, I am investigating the behavioral and physiological consequences of e-cigarette use. In two prospective cohort studies of adolescents, we found that among never smoking youth at baseline, those who had used e-cigarettes were substantially more likely than never e-cigarette users to begin smoking combustible cigarettes, and to smoke at higher levels. A follow-up study examining tobacco prevalence across two decades also found that the inclusion of e-cigarettes in 2014 resulted in an overall increase in tobacco product use in 2014 - at a rate that was similar to the rate of smoking 10 years earlier. My initial work into the physiological consequences of e-cigarettes has been in examination of the adverse respiratory health effects and abuse liability of flavorings.
  - a. Leventhal AM, Stone MD, Andrabi N, Barrington-Trimis J, Strong DR, Sussman S, Audrain-McGovern J. Association of e-Cigarette Vaping and Progression to Heavier Patterns of Cigarette Smoking. *JAMA.* 2016 Nov 8;316(18):1918-1920. PubMed PMID: [27825000](#).
  - b. Barrington-Trimis JL, Urman R, Leventhal AM, Gauderman WJ, Cruz TB, Gilreath TD, Howland S, Unger JB, Berhane K, Samet JM, McConnell R. E-cigarettes, Cigarettes, and the Prevalence of Adolescent Tobacco Use. *Pediatrics.* 2016 Aug;138(2)PubMed PMID: [27401102](#); PubMed Central PMCID: [PMC4960723](#).
  - c. Barrington-Trimis JL, Urman R, Berhane K, Unger JB, Cruz TB, Pentz MA, Samet JM, Leventhal AM, McConnell R. E-Cigarettes and Future Cigarette Use. *Pediatrics.* 2016 Jul;138(1)PubMed PMID: [27296866](#); PubMed Central PMCID: [PMC4925085](#).
  - d. Barrington-Trimis JL, Samet JM, McConnell R. Flavorings in electronic cigarettes: an unrecognized respiratory health hazard?. *JAMA.* 2014 Dec 17;312(23):2493-4. PubMed PMID: [25383564](#); PubMed Central PMCID: [PMC4361011](#).
3. **Gene-Smoking interactions and risk of childhood cancer:** Another area of research focuses on parental smoking around the time of pregnancy, and interactions with variants in genes in tobacco smoke metabolic pathways. Findings from this research suggest that parental smoking is a risk factor for different childhood cancers, particularly among genetically susceptible children. In a study of tobacco metabolism single nucleotide polymorphisms, we found that genetically susceptible children exposed to tobacco smoke in utero were more likely to be diagnosed with childhood brain tumors. A second study using novel statistical methods to look at gene-smoking interactions using GWAS data found similar results, and is currently under review. We additionally examined trends in both childhood brain tumors - which have remained relatively flat - and childhood leukemia - which has increased in the last two decades among older Hispanic children.
  - a. Barrington-Trimis JL, Cockburn M, Metayer C, Gauderman WJ, Wiemels J, McKean-Cowdin R. Trends in childhood leukemia incidence over two decades from 1992 to 2013. *Int J Cancer.* 2017 Mar 1;140(5):1000-1008. PubMed PMID: [27778348](#).
  - b. Barrington-Trimis JL, Cockburn M, Metayer C, Gauderman WJ, Wiemels J, McKean-Cowdin R. Rising rates of acute lymphoblastic leukemia in Hispanic children: trends in incidence from 1992 to 2011. *Blood.* 2015 May 7;125(19):3033-4. PubMed PMID: [25953979](#); PubMed Central PMCID: [PMC4424421](#).
  - c. McKean-Cowdin R, Razavi P, Barrington-Trimis J, Baldwin RT, Asgharzadeh S, Cockburn M, Tihan T, Preston-Martin S. Trends in childhood brain tumor incidence, 1973-2009. *J Neurooncol.* 2013 Nov;115(2):153-60. PubMed PMID: [23925828](#); PubMed Central PMCID: [PMC4056769](#).

- d. Barrington-Trimis JL, Searles Nielsen S, Preston-Martin S, Gauderman WJ, Holly EA, Farin FM, Mueller BA, McKean-Cowdin R. Parental smoking and risk of childhood brain tumors by functional polymorphisms in polycyclic aromatic hydrocarbon metabolism genes. PLoS One. 2013;8(11):e79110. PubMed PMID: [24260161](#); PubMed Central PMCID: [PMC3832498](#).

Complete List of Published Work in My Bibliography:

<https://www.ncbi.nlm.nih.gov/myncbi/jessica.barrington-trimis.1/bibliography/46142584/public/>

## **D. Research Support**

### **Pending**

1R01CA229617-01, NIH/NCI Jessica Barrington-Trimis and Adam Leventhal (mPI) 2018/9/1-2023/8/30  
Vaping Nicotine and Cannabis Across Adolescence and Young Adulthood

This study will provide new essential information about whether new low-risk users begin nicotine and cannabis use via vaping, and whether vaping may lead to adverse consequences, including cigarette and cannabis smoking. This study will provide public health officials with data regarding the potential adverse public health impact of AYA vaping and clear targets for intervention to reduce AYA vaping and the health consequences that may follow. Role: mPI

1R01DA046688-01, NIH/NIDA Jessica Barrington-Trimis and Rob McConnell (mPI) 2018/9/1-2023/8/30  
Factors that Catalyze Vaping-to-Smoking Transitions in Adolescence

This study will evaluate the risk of interest in, and initiation of e-cigarettes, and transition from e-cigarette use to regular cigarette use and dependence among adolescents and young adults. It will assess the role of product characteristics and marketing on these public health-relevant transitions, and whether products and marketing designed to appeal to youth for recreational use will have larger effects on nonsmokers than on youth and young adults interested in e-cigarettes for smoking cessation. Role: mPI

NA, TRDRP Jessica Barrington-Trimis (PI) 2018/4/1-2021/3/31

The Changing Regulatory Environment and Risk of Nicotine and Cannabis Vaping in Youth

This study proposes to evaluate risk factors for nicotine and cannabis vaping in an ongoing study of adolescents as they age into early adulthood, with a focus on how the changing regulatory environment in California contributes to vaping of either substance (nicotine or cannabis); Role: PI

U54, NIH/FDA Adam Leventhal and Mary Ann Pentz (mPI) 2018/9/1-2023/8/30

Tobacco Regulatory Science at the Intersection of Products with Populations

This Tobacco Center of Regulatory Science (TCORS) proposes to provide a collective body of evidence that addresses e-cigarette product characteristics and marketing approaches hypothesized to increase attraction to and use of tobacco products in the population of non-users, predominately constituted by youth and young adults. We propose an agenda of methods development and research that will help to assure that the activities of the Food and Drug Administration (FDA) reach the diverse groups at risk for nicotine addiction and the adverse consequences of tobacco use. Role: mPI for Project 3 of the Center

### **Ongoing Research Support**

1K01DA042950-01, NIH/NIDA Jessica Barrington-Trimis (PI) 09/01/17-08/31/23

Understanding Transitions from Vaping to Smoking Across Adolescence

The goal of this mentored K01 proposal is to evaluate the risk of transition from e-cigarette use to regular cigarette use and dependence among adolescents, and to examine the influence of the social environment and sensory-pharmacological response to vaping in moderating these transitions.

NA, USC TCORS Pilot Project Core Jessica Barrington-Trimis (PI) 09/01/16-08/31/18

Risk of Cigarette Use Following Experimentation with E-cigarettes and Cigars

The goal of this pilot project is to examine the association between e-cigarette use and cigar use and subsequent initiation and progression to regular smoking, exploring risk taking propensity, product characteristics, and demographic characteristics as moderators of this transition in a joint collaborative project with two prospective cohort studies at USC, and a prospective cohort study at Yale.

1R21HD084812-01 , NIH/NICHD Rob McConnell (PI) 08/01/15-08/01/18  
Diacetyl in e-cigarette flavorings: Acute and subacute pulmonary effects  
This study will evaluate the acute adverse respiratory health effects associated with flavoring components in sweet - flavored electronic nicotine delivery systems (ENDS, or 'electronic cigarettes'), components which have recently been shown to contain chemicals harmful to the lung. Chemical toxins in ENDS flavors are potentially a major public health hazard because of the widespread use of ENDS (particularly among adolescents and young adults). Role: Co-Investigator

1P50CA180905-01 , NIH/NCI/FDA Jon Samet, Mary Ann Pentz (PI) 08/01/13-07/31/18  
USC Tobacco Center of Regulatory Science  
The aim of this project is to address the cross-cutting theme of tobacco use among vulnerable populations, proposing an agenda of methods development and research that will help to assure that the activities of the Food and Drug Administration (FDA) reach to the diverse groups at risk for nicotine addiction and the adverse consequences of tobacco use. Role: Co-Investigator

### **Completed Research Support**

NA, USC TCORS Pilot Project Core McConnell, Rob (PI) 09/01/15-08/31/16  
Evaluation of the Leukosorb for Assessment of Respiratory Health Effects Associated with E-cigarette Use  
The goal of this study is to evaluate the Leukosorb, a low-cost, non-invasive approach for collecting nasal airway epithelial lining fluid with potential utility for assessment of biological markers of airway injury in population studies of effects of e-cigarettes and other airway insults. Role: Co-Investigator

P50-DA036106-02S1, NIH/NCI/FDA Jon Samet, Mary Ann Pentz (PI) 09/01/14-08/31/16  
Abuse Liability of Flavored E-Cigarettes with and Without Nicotine  
This Administrative Supplement Project to the USC Tobacco Center for Regulatory Science will test whether sugary flavoring and nicotine have independent and synergistic effects on the addictiveness of electronic cigarettes in young adults. Role: Co-Investigator

NA, USC TCORS Pilot Project Core Jessica Barrington-Trimis (PI) 09/01/14-08/31/15  
Risks of Flavoring in Electronic Nicotine Devices: Exposure to Flavor-Specific Toxins and Biomarkers of Respiratory Health in Young Adults  
The aim of this pilot project is to evaluate the role of sweet flavorings used in electronic nicotine delivery systems (ENDS) on biomarkers of adverse respiratory health effects in a quasi-experimental study of heavy ENDS users in Southern California. Role: PI

2T32ES013678-06, NIH/NIEHS Duncan Thomas, Stan Azen (PI) 08/01/12-07/31/15  
Environmental Genomics  
The aim of this program is to provide multidisciplinary training in epidemiology, genetics, biostatistics, bioinformatics, and computational biology to future researchers aiming to study genetic and environmental risk factors in disease. Role: Predoctoral Student

2R01ES009137-11A1, NIH/NIEHS Patricia Buffler (PI) 09/30/09-07/31/14  
Environmental and Molecular Epidemiology of Childhood Leukemia  
The specific aims of the project are to examine the environmental and genetic risk factors for childhood leukemia using a hospital based sample of children (0-14 years of age at diagnosis) representing the majority of cases diagnosed in California. Role: Predoctoral Student

NA, Alex's Lemonade Stand Foundation Jessica L. Barrington-Trimis (PI) 06/01/12-08/31/12  
Investigation of the Role of Parental Smoking and a Child's Genetic Susceptibility to Childhood Leukemia  
The aim of this project was to evaluate the role of gene-parental smoking interactions on risk of childhood acute lymphocytic leukemia, using novel two-step statistical methods for GxE interaction analysis that incorporate the use of genome-wide data while maintaining sufficient power to detect interactions in small sample sizes. Role: PI