NIMHD Perspectives on Tobacco Related Health Disparities

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Tobacco Related Disparities

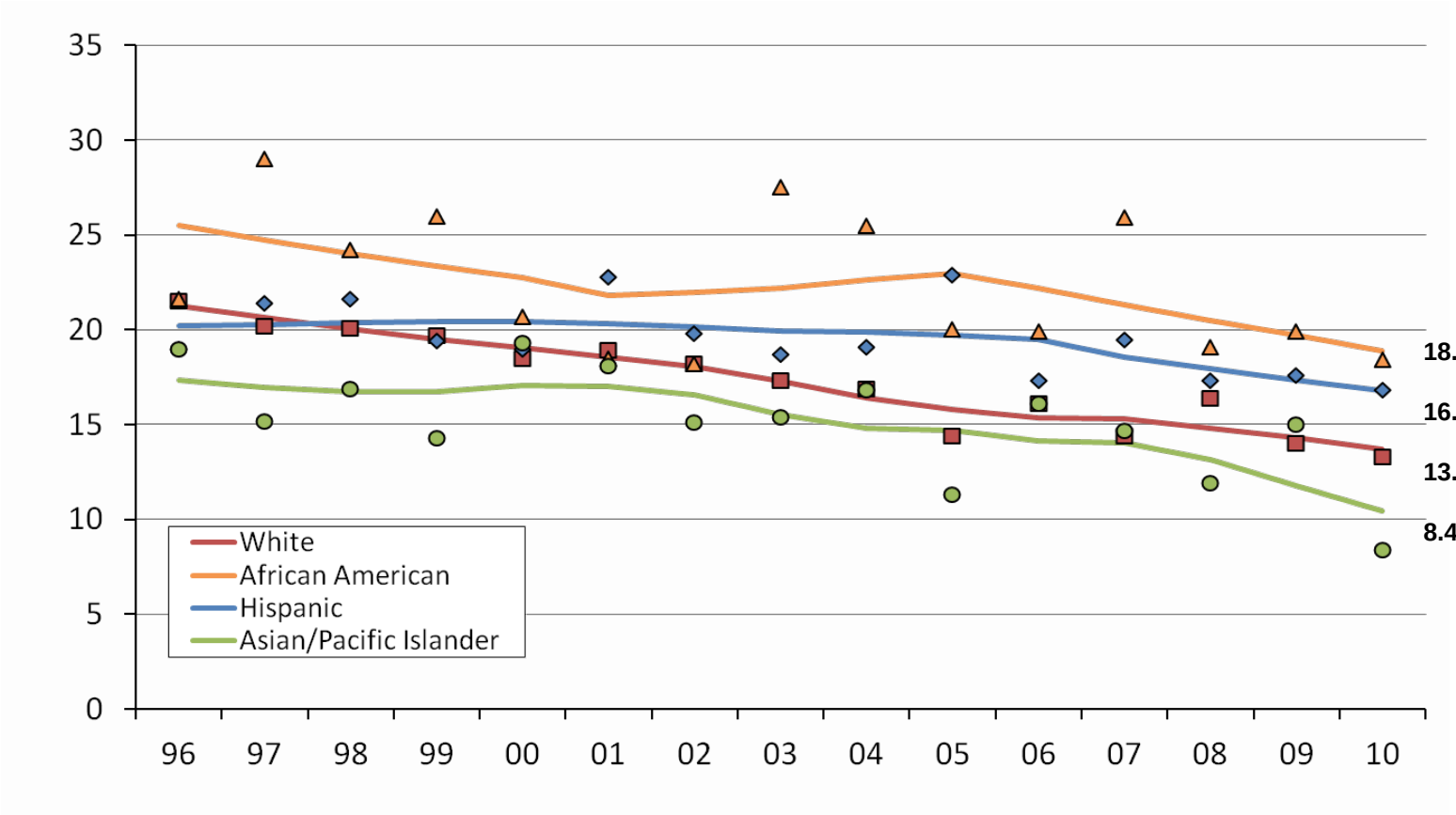
- **Overall lower prevalence rates by race/ethnicity but men smoke at higher rate in California**
- **Light and non-daily smoking is the new paradigm –– not addiction**
- **Cessation interventions lacking**
- **Second-hand smoke exposure affects Blacks and poor disproportionately**
- **Biological factors affect lung cancer**

Cigarette Smoking in the U.S. – 2013 National Health Interview Survey

	% Men	% Women
White	**21.2**	**17.8**
African Am	**21.8**	**15.4**
Latino	**17.3**	**7.0**
Asian	**15.1**	**4.8**
Am Ind/AN	**32.1**	**22.0**
Multi-racial	**29.1**	**24.8**
8 years or less	**21.9**	**9.2**
9-11 yrs school	**40.0**	**26.6**
GED	**42.9**	**39.7**
High School diplo	**26.7**	**17.6**
College degree	**10.4**	**7.9**

***MMWR* 2014;63:1108-1112**

Smoking Prevalence Among California Men By Race/Ethnicity, 1994-2010



BRFSS and California Adult Tobacco Survey data are combined for 1993-2010. The data are weighted to the 2000 California population. California Department of Public Health, California Tobacco Control Program.

Cigarette Smoking Rates, Daily and Some Days, Study of Latinos, 2009

Kaplan RC, Am J Prev Med 2014; 46:496-506

National Origin	*Men (6532)* *16.9% / 9.9%*	*Women (9790)* *10.7% / 5.8%*
Cuban	**26.2% / 4.9%**	**18.2% / 3.7%**
Puerto Rican	**27.0% / 9.0%**	**24.2% / 7.4%**
Dominican	**8.8% / 2.3%**	**7.5% / 4.3%**
Mexican	**10.3% / 15.5%**	**4.4% / 6.2%**
Central Am	**12.1% / 9.8%**	**5.0% / 3.3%**

Light and Non-Daily Smokers Tobacco Use Supplement, CPS, 2003

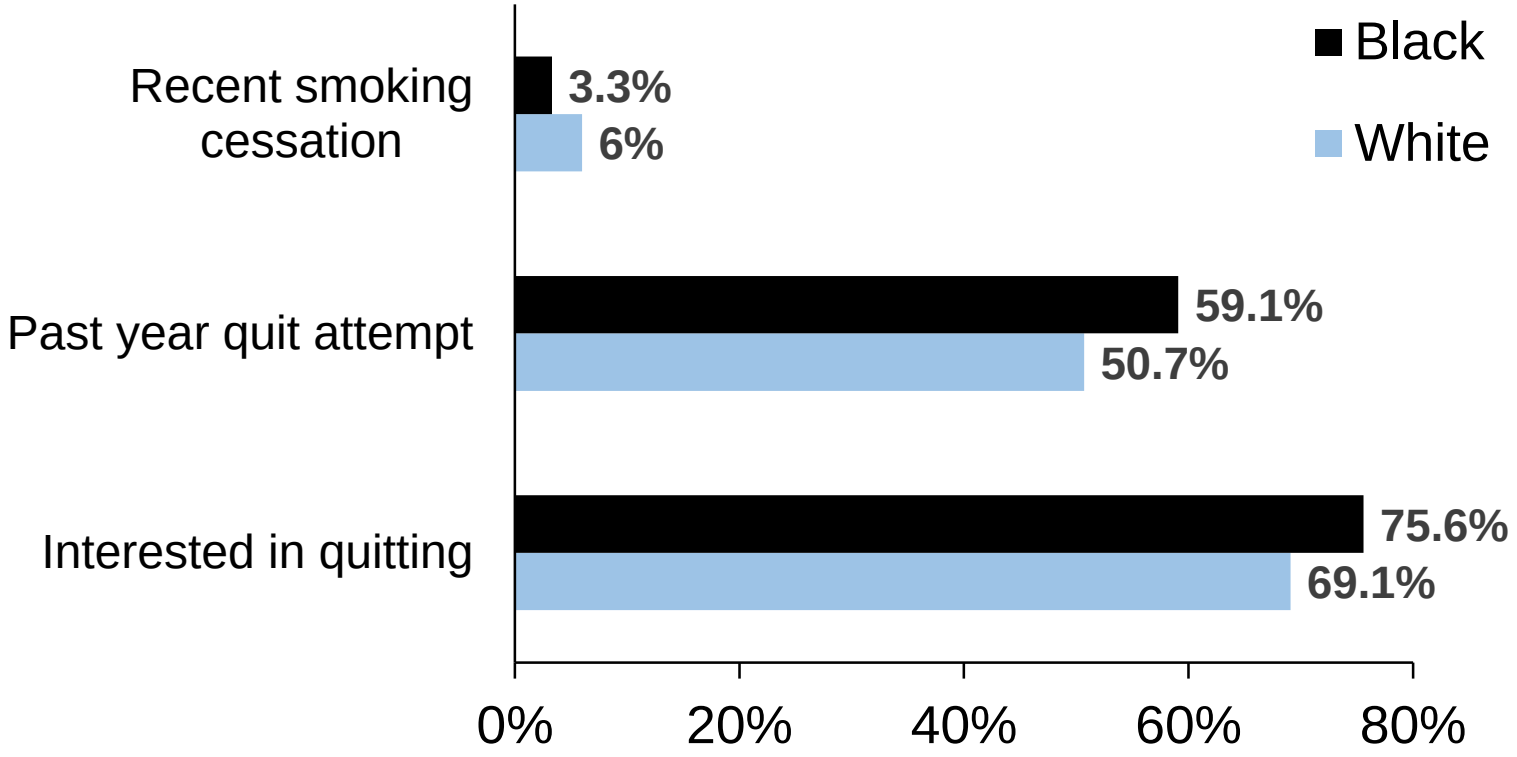
	% Current	% Non-Daily / 1-5
White	24.5	17/ 5
African Am	20.3	24/12
Latino	14.2	35/18
Asian/PI	12.3	30/14

Trinidad D, et al, NTR, 2009; 11:203-210

Light and Non-Daily Smokers
Tobacco Use Supplement CPS, 2003

- **Smoke average 11.7 days / month**
- **Younger, more educated, women**
- **Smoke an average of 3.7 cigarettes on days they do smoke**
- **Cigarettes per month metric?**
- **Daily smokers averaged 10.8 cigarettes per day**

African American Smokers Show Greater Nicotine Dependence



National Health Interview Survey, United States, 2010

Smoking Cessation Patterns

- **Light smoking has not translated to more success in cessation**
- **Complete home smoking bans more common among Latinos and Asians and less common among African Americans**
- **Less frequent use of NRT**
- **No difference in advice by clinicians**

Home Smoking Bans in US Households with Children and Smokers

Tobacco Use Supplement, Am J Prev Med 2011; 41: 559-65

	1992-1993	2006-2007
Total	**14.1%**	**50%**
Asian/PI	**28.5%**	**65.9%**
Whites	**12.7%**	**48%**
African Am	**9.2%**	**32.8%**
Latinos	**26.7%**	**72.2%**
HS Grad or <	**11.1%**	**42%**

Pharmacological Treatment of Smoking Cessation

- **Almost all RCT data in studies with Whites**
- **No published drug trials with Asian/PI and 2 NRT studies with Latinos**
- **6 trials with African Americans: NRT and bupropion are effective**
- **Dependence measures predicted success in African Americans**
- **Smokers of mentholated cigarettes were less successful at quitting**

Tomando Control 3

1000 randomized smokers with 70% follow-up

12 month quit rates by Condition

Guia alone	**19.8%**
Guia + ITEM	**19.1%**
Guia + ITEM + MM	**20.7%**
Guia + ITEM + MM + VG	**22.7%**

http://stopsmoking.ucsf.edu

Randomized Smoking Cessation Trial on the Web

Muñoz RF, et al. Nicotine and Tobacco Research, 2009

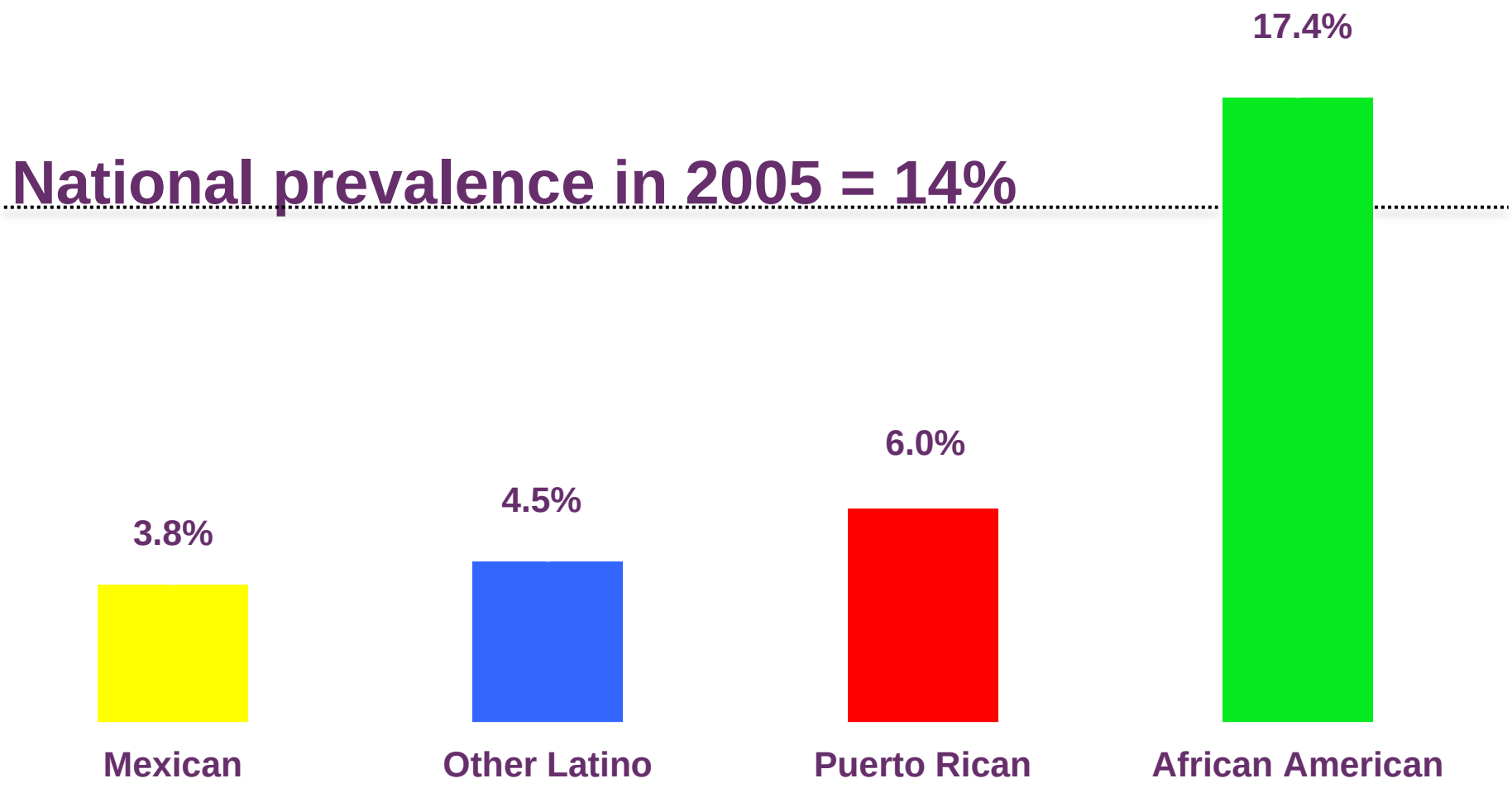
Questions in Cessation Research

- **Tailoring messages by race/ethnicity: What is the evidence that cultural tailoring works?**
- **Smoking reduction as an intermediate outcome ––incremental change?**
- **Serious quit attempt (24 h) as mediating outcome associated with quitting**
- **Recruitment of diverse samples to cessation intervention trials needed**

Variance in the Cessation Paradigm?

- **Light smokers are less dependent on nicotine**
- **Non-daily smokers are not addicted**
- **Pharmacological treatment needs to be modified for these smokers**
- **Adapt behavioral interventions directed at light smokers for use in self-help, internet and quit line**

Maternal Smoking by Race/Ethnicity



SHS Exposure in California

California Health Interview Survey, 2005-2007; California Tobacco Surveys, 2002-2005; Public Health Reports 2012; 127: 81-88

	At Home	At Work
Total adults	**6.0%**	**12.9%**
Latinos	**4.0%**	**19.5%**
Whites	**6.7%**	**9.7%**
African Am	**11.3%**	**10.4%**
Asian/PI	**5.9%**	**10.5%**
Children	**3.4%**	**R/E: 1.9, 4.1, 11.2, 3.3**
Adolescents	**4.7%**	**R/E: 3.3, 5.1, 11.8, 3.8**

SHS Exposure: %
Non-smokers with cotinine ≥ 0.05 ng/ml

	1999-2000	2007-2008
Total	**52.5**	**40.1**
Age 3 to 11	**64.9**	**53.6**
Whites	**49.6**	**40.1**
African Am	**74.2**	**55.9**
Mexican Am	**44.3**	**36.7**
Below poverty	**71.6**	**60.5**

Optimal Serum Cotinine for Distinguishing Smokers and Nonsmokers

- **NHANES: 13,078 nonsmokers and 3,078 smokers; based on ROC curves**
- **Whites: 5.92 ng/ml**
- **African Americans: 4.85 ng/ml**
- **Mexican Americans: 0.84 ng/ml**
- **Overall cut point is 3.08 ng/ml; 96% sensitivity and 97% specificity**
- **14 ng/ml underestimates smokers**

Benowitz N, Am J Epidemiol, November 19, 2008

Nicotine Metabolism in Blacks, Whites, Chinese and Latinos

- **Metabolic clearance of nicotine & cotinine in Latinos was similar to Whites, higher among Blacks and lower among Chinese**
- **Intake of nicotine (mg) per cigarette:**
  - **Chinese: 0.73**
  - **Latinos: 1.05**
  - **Whites: 1.10**
  - **Blacks: 1.41**
- **Nicotine intake = tobacco smoke**

JAMA 1999 280:152-156; JNCI 2002; 94:108-115

1998;JAMA

Lung Cancer Incidence by Race/Ethnicity and Sex

	White	African American	Latino	Asian/PI
Women				
Lung	52.7	50.8	25.1	28.5
Men				
Lung	70.3	90.9	37.9	49.0

These rates are per 100,000 population and are based on cases diagnosed in 2008-2012 from 17 SEER geographic areas.

Multiethnic Cohort Study: Lung Cancer by Smoking Intensity

- **183,813 African Americans, Japanese Americans, Latinos, Native Hawaiians, Whites; age 45 - 75, in California and Hawaii**
- **1979 cases lung cancer, from SEER, 1993-2001; 1135 in men**
- **African Americans as referent group**
- **Stratify by smoking intensity**
- **Relative risk of lung cancer by race/ethnicity within smoking level**

Haiman CA, et al. N Engl J Med. 2006;354(4):333-42

Relative Risk of Lung Cancer by Ethnicity and Smoking Intensity

Cigs/d	Af Am	Hawaii	Latino	Japan	White
1-9	1.0	0.88	*0.21*	*0.25*	*0.45*
11-20	1.0	0.90	*0.36*	*0.39*	*0.57*
21-30	1.0	0.93	*0.61*	*0.61*	*0.73*
31+	1.0	0.95	0.79	0.75	0.82

Haiman CA, et al. N Engl J Med. 2006;354(4):333-42

Possible Explanations

- **Genetic factors linked to African ancestry**
- **Genetic-Environmental factors triggered by tobacco carcinogens**
- **Metabolism differences lead to greater intake of carcinogens despite similar CPD intensity**
- **Mentholated brands**
- **Smoking topography**
- **Protective factors for other grou**ps

National Institute of Minority Health and Health Disparities

Mission is to lead scientific research improve minority health and health disparities

- **Plans, coordinates, reviews and evaluates NIH minority health and health disparities research**
- **Conducts and supports research in minority health and health disparities**
- **Supports training of a diverse research workforce**
- **Translates and disseminates research information**
- **Fosters innovative collaborations and partnerships**





NIMHD Strategy to Advance the Science of Health Disparities

- **Define Minority Health and Health Disparities distinctively in order to:**
  - **scientifically investigate the health of race/ethnic minority groups**
  - **better design projects to reduce health disparities among disadvantaged groups**

- **Ensure the best scientific strategies to address minority health and health disparities are included in the NIH and NIMHD strategic planning process**

Minority Health Research Activity Strategies

- **Understand the etiology of adverse health outcomes associated with a particular racial/ethnic group**
- **Understand mechanisms of beneficial health outcomes within a particular race/ethnic group**
- **Define mechanisms of interaction of social, behavioral, biological and clinical factors that determine health disparities outcomes**
- **Develop/test interventions to improve the health status and reduce health disparities in target conditions**
- **Develop a diverse workforce that can conduct biomedical research in all areas of science**
- **Engage under-represented populations to participate in clinical research and Precision Medicine Initiative**

NIMHD Definition of Health Disparities

- **A health disparity is defined as a health difference in a clinical outcome that adversely affects disadvantaged populations based on one or more of the health determinants**

- **Health Disparities Research is a multi-disciplinary field of study devoted to gaining greater scientific knowledge about the influence of health determinants, and translating this knowledge into interventions to reduce health disparities and promote health equity**

Health Disparities Research Activity Strategies

- **Identify health disparity based on the health outcomes**
- **Understand the etiology of the health disparity with respect to social, behavioral, environmental, and biological determinants**
- **Develop and test interventions to reduce disparities**
- **Establish the science of health disparities, including identifying methodologies, metrics, and tools to conduct research**
- **Train a workforce in health disparities methodologies**
- **Improve strategies for data management by developing a common taxonomy and creating data sharing platforms**
- **Facilitate the implementation of promising practices**

Health Disparity Populations

OMB standards – Minority Racial/Ethnic Classification

Other Populations with Health Disparities
(2012 Health Disparities Report AHRQ)

- **Poor (low income)**
- **Rural**
- Urban
- Sexual and Gender Minorities (SGM)
- Child and Adolescent Health
- Immigrant and Migrant
- Special Needs: Disabled, Chronic Care, End-of-life, Medically Underserved, Disadvantaged

Next Generation of Health Disparities Research

- **When does the difference in health indicators shift to a health disparity?**
- **What are the social determinants that interact with the environment and biology to create the health disparity?**
- **Why do differences exist in transitions to a disparity by populations?**
- **How and where does one intervene?**
- **What defines better health outcomes among traditionally disadvantaged groups?**

NIMHD Agenda on Tobacco Research

- **Address SHS exposure differences**
- **Cessation paradigm needs to adapt to light and non-daily smokers**
- **Generate evidence on cessation interventions in diverse samples**
- **Biological pathways to define addiction and identify why lung cancer differs**
- **Community-based and real clinical settings needed**

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