

Tobacco Control Research Priorities at the National Cancer Institute

**Mark Parascandola, PhD, MPH
Epidemiologist/Program Director
Tobacco Control Research Branch
National Cancer Institute**

Mortality from Tobacco

Tobacco is the leading cause of premature death in the United States.

- > 400,000 deaths annually (2/3 male, 1/3 female)
- 1 in 5 U.S. deaths attributed to tobacco

HALF of all long-term smokers can expect to die from tobacco caused illness

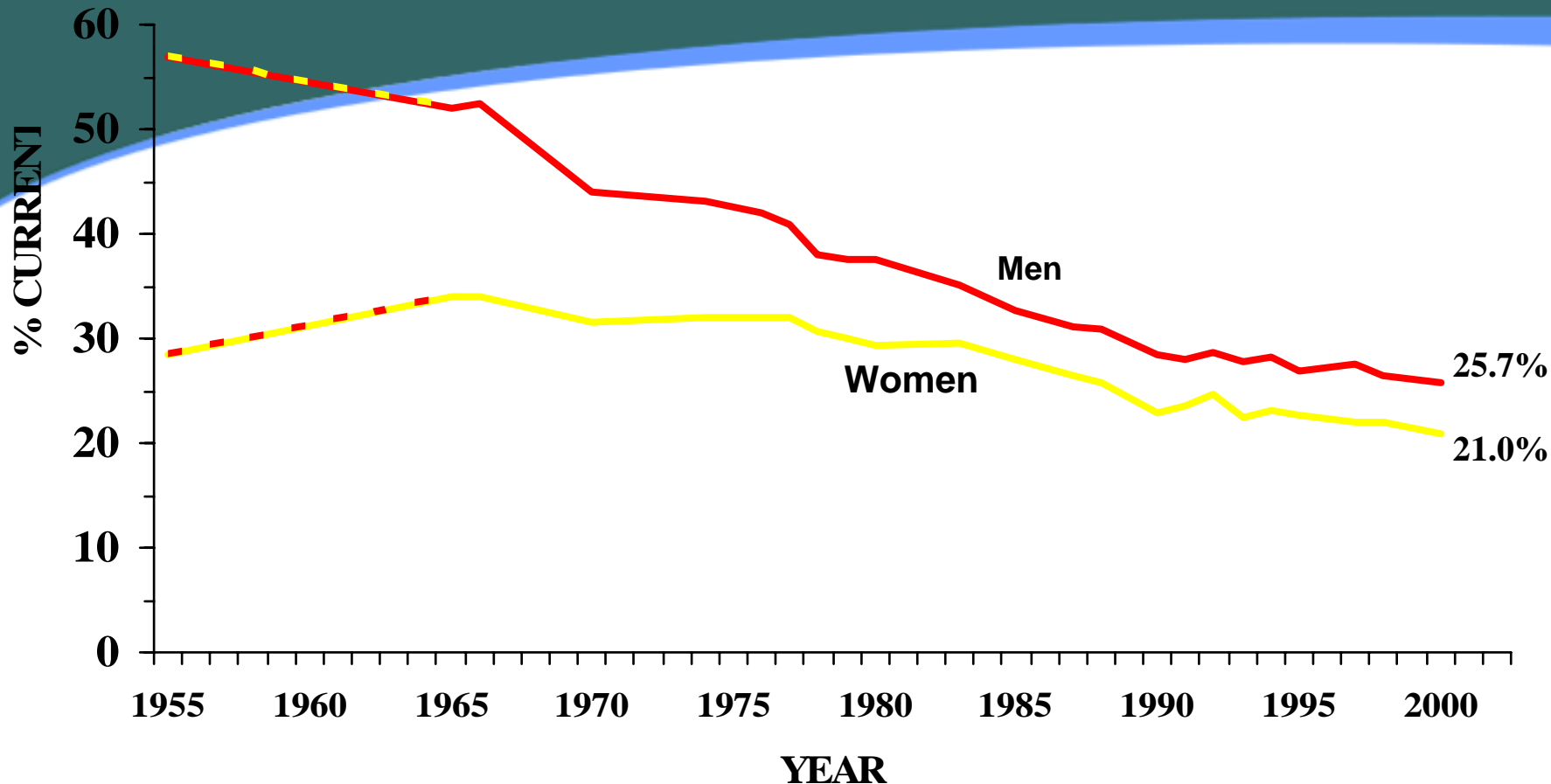
- Old age (70+) lose 5-10 years
- Middle age (35-69) lose 20-25 years

Smoking Attributable Deaths in the US

(CDC MMWR, April 2002)

- 82 % of lung cancer deaths
(152,888 persons/year)
- 16 % of deaths from cardiovascular diseases
(148,605 persons/year)
- 52 % of deaths from respiratory diseases
(98,007 persons/year)

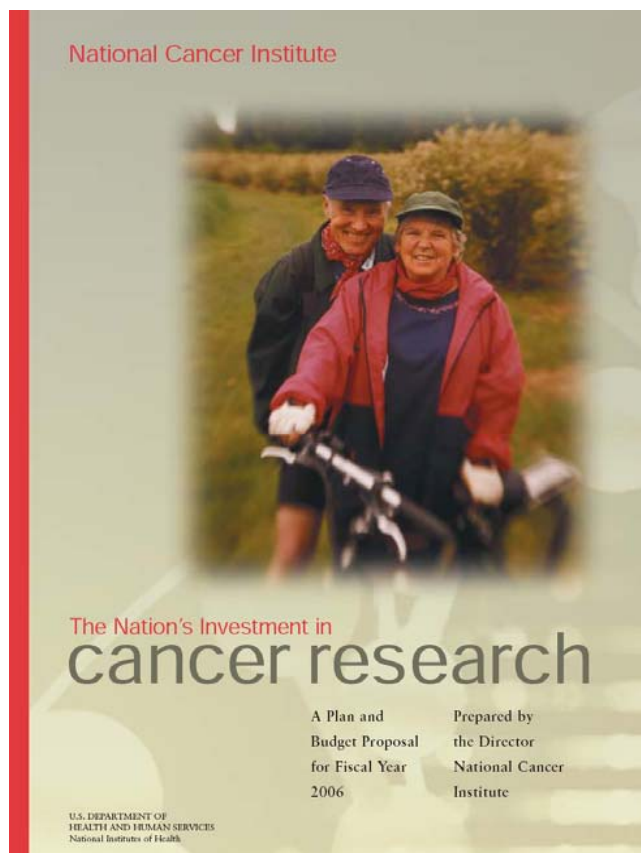
Trends in cigarette smoking* among adults aged ≥ 18 years, by sex - United States, 1955-2000



*Before 1992, current smokers were defined as persons who reported having smoked ≥ 100 cigarettes and who currently smoked. Since 1992, current smokers were defined as persons who reported having smoked ≥ 100 cigarettes during their lifetime and who reported now smoking every day or some days.

Source: 1955 Current Population Survey; 1965-2000 National Health Interview Survey.

Research Priorities: NCI Bypass Budget 2006



Website:
<http://plan.cancer.gov/>

Research Priorities: NCI Bypass Budget 2006

Our Goal

Substantially reduce the incidence of cancer and integrate early detection with markers of prognosis, through the development and effective delivery of medical approaches to prevention and early detection and the promotion of effective, evidence-based public health interventions and policies.

Prevention is our first line of defense against cancer.

The Nation's Investment in Cancer Research

<http://plan.cancer.gov/>

Research Priorities: NCI Bypass Budget 2006

Strategic Investments in Cancer Prevention:

- Fund research to increase our knowledge of effective State and community program and policy interventions for tobacco control and prevention.
- Support IARC tobacco control and prevention research and dissemination activities to benefit low- and middle-income nations.
- Fund multidisciplinary research on the interplay of behavior, chemistry, toxicology, and biology to determine the cancer risk potential of reduced-exposure tobacco products.

NCI Tobacco Control Research Branch

- Established in October 1998 to provide a focal point for tobacco control research within the Division of Cancer Control and Population Sciences.
- One of five branches under the Behavioral Research Program.
 - Tobacco Control
 - Applied Cancer Screening
 - Basic Bio-behavioral
 - Health Communications and Informatics
 - Health Promotion

Tobacco Control Research Branch

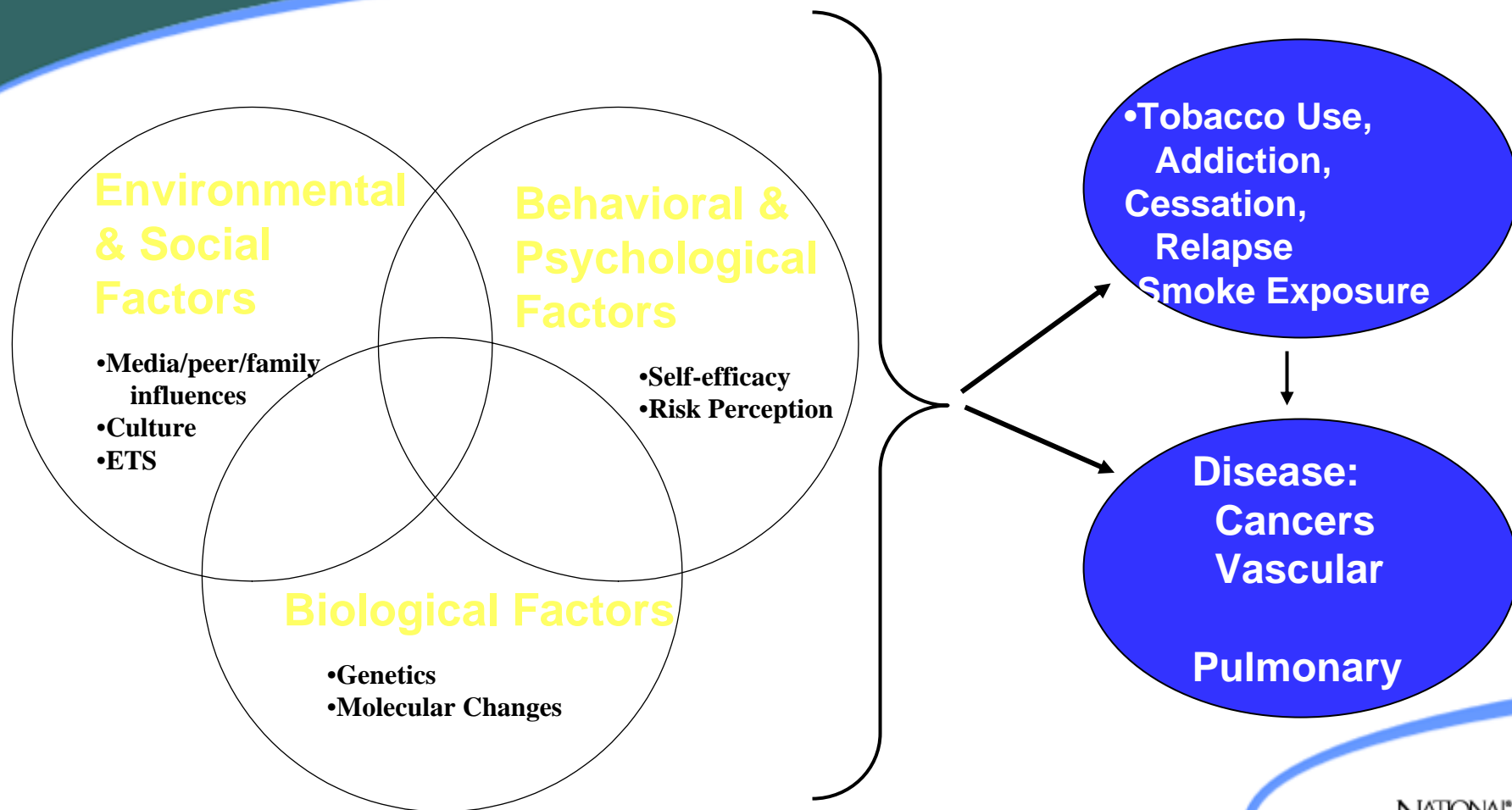
Our Vision: A world free of tobacco use and related cancer and suffering.

Our Mission: to lead and collaborate on research, and to disseminate evidence-based findings to prevent, treat, and control tobacco use.

Our Research Spans:

- Discovery: generate new information about the causes of tobacco use, addiction, and tobacco-related cancers.
- Development: create and evaluate tools and interventions to understand and treat tobacco use and addiction.
- Delivery: apply, promote, and disseminate evidence-based interventions in clinical and public health practice, and policy development.

Biopsychosocial Model of Nicotine Addiction and Tobacco-Related Disease



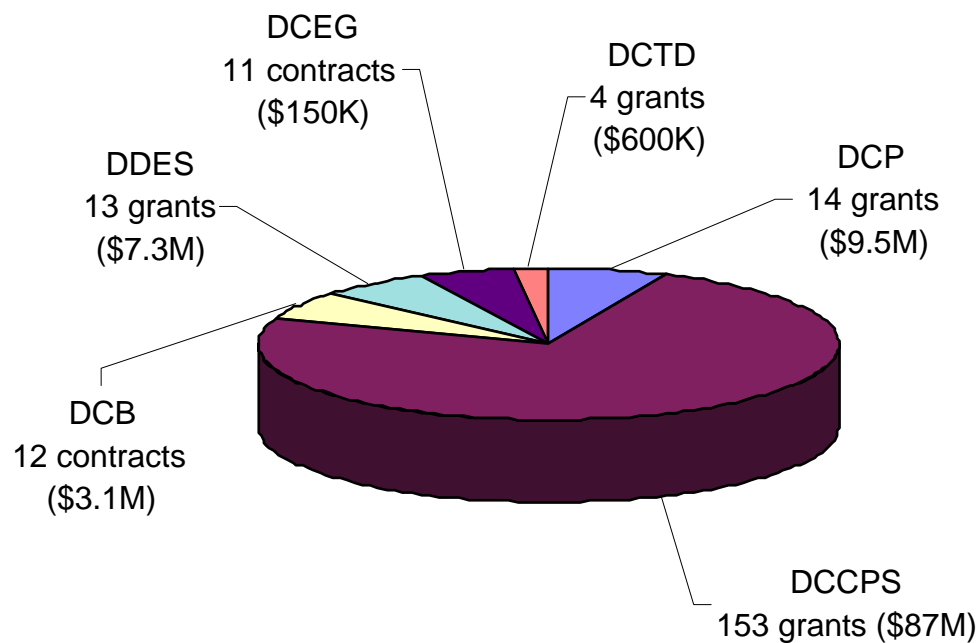
Applications Submitted to NIH

- ~ 46,000 grant applications submitted each year
- ~ 25-30% are funded
- ~ 3,200 review meetings
- ~ 80 National Advisory Committees
- > 200 million pieces of paper
- Electronic submission updates



Distribution of NCI Funded Tobacco Research (40-100%) by Division in FY2001

207 Grants; \$108 Million



Current TCRB Funding Initiatives

- Transdisciplinary Tobacco Use Research Centers (TTURC)
- Research in State and Community Tobacco Control Interventions
- Prevention and Cessation of Tobacco Use by Children and Youth in the U.S.
- International Tobacco Research and Capacity Building
- Analysis of Tobacco Industry Documents
- Testing Tobacco Products Promoted to Reduce Harm

TTURCs

- Purpose: To facilitate a **transdisciplinary** approach to the full spectrum of basic and applied research on tobacco use to advance our understanding of tobacco use and nicotine addiction, and to help translate the results and implications of the work for policy makers, practitioners, and the public.
- 7 centers currently funded for 5 years.
- \$12m from NCI, NIDA, NIAAA

TTURC Research Centers

- Brown University and The Miriam Hospital, *Raymond Niaura, Ph.D.*
- University of Wisconsin, *Timothy B. Baker, Ph.D.*
- Roswell Park Cancer Institute, *K. Michael Cummings, Ph.D., MPH*
- University of Minnesota, *Dorothy K. Hatsukami, Ph.D.*
- University of Southern California, *C. Anderson Johnson, Ph.D.*
- University of Pennsylvania, *Caryn E. Lerman, Ph.D.*
- Yale University, *Stephanie S. O'Malley, Ph.D.*

TTURCs

Tobacco Exposure Reduction

PI- Dorothy Hatsukami, University of Minnesota

- Goal: investigate methods for reducing harm in relation to tobacco use.
- Take into consideration not only the impact on the individual's health but also broader public health issues.
- Multiple disciplines including chemists and biochemists, toxicologists, pharmacologists, behavioral scientists, economists, sociologists and epidemiologists.

<http://www.tturc.umn.edu/page/research.html>

TTURCs

Tobacco Exposure Reduction

PI- Dorothy Hatsukami, University of Minnesota

Specific aims:

- 1) effective methods to reduce tobacco toxin exposure and disease risk
- 2) biomarkers to assess this reduction
- 3) mechanisms associated with reductions in tobacco toxin exposure
- 4) individual differences that moderate exposure and disease risk
- 5) the role of this approach in the treatment of smokers

TTURCs

Building the Evidence Base for Tobacco Control Policies

PI- K Michael Cummings, Roswell Park Cancer Institute Corporation

- Goal: Expand the science base for policy approaches for controlling tobacco by fostering transdisciplinary research and develop and empirically based model of how and why policies influence tobacco related behaviors.
- The recently adopted Framework Convention on Tobacco Control has set the stage for countries to implement a comprehensive set of tobacco control policies over the next few years.
- Collaboration with scientists at CDC's Tobacco Analysis Laboratory to assess how cigarette design and smoke chemistries change in relationship to policies and how product modifications alter smokers' perceptions, behaviors, and exposures.

Research in State and Community Tobacco Control Interventions

- Aims: Designed to support research on innovative tobacco prevention at the community, state, or multi-state level, and emphasize collaboration between researchers and state programs.
- 19 grants awarded.
- Total support ~19-20 million per year.

Collaborations and Networks with a Goal of Translating Research to Practice

- Building on our long history of, and commitment to, major comprehensive tobacco control initiatives at NCI: COMMIT, ASSIST, investigator-initiated research
- Collaborating with CDC/OSH, especially the National Tobacco Control Program
- Building networks of people doing state & community tobacco control research
- Focusing on translating research to practice—major priority
- Promoting the concept & practice of “Community-Based Participatory Research”

Youth Prevention and Cessation

- Aims: Designed to fund innovative research which has clear implications for the immediate and significant reduction of tobacco use by youth in the United States.
- 29 grants, 20 of which are funded through NCI (others by NIDA - 5, NICHD – 2, NIDCR – 1, NINR – 1).

Fogarty International Research

- Aims: Reduce the burden of tobacco in low- and middle-income nations by conducting observational, intervention, and policy research of local relevance.
- Build capacity in epidemiological and behavioral research, prevention, treatment, communications, health services, and policy research.
- Build greater understanding of the many socio-cultural issues related to tobacco.

Fogarty International Research

- 14 research and training grants funded.
- Total support ~\$20.5M over 5 years.
- Partners include NCI, NHLBI, NICHD, NIDA, NINR, CDC, the Canadian Institutes of Health Research, and the World Health Organization's Tobacco Free Initiative.
- Countries: South Africa, Cambodia, China, Egypt, India, Indonesia, Senegal, Tanzania, Dominican Republic, Argentina, Russia, Brazil, Mexico, Eastern Mediterranean.

Tobacco Industry Documents

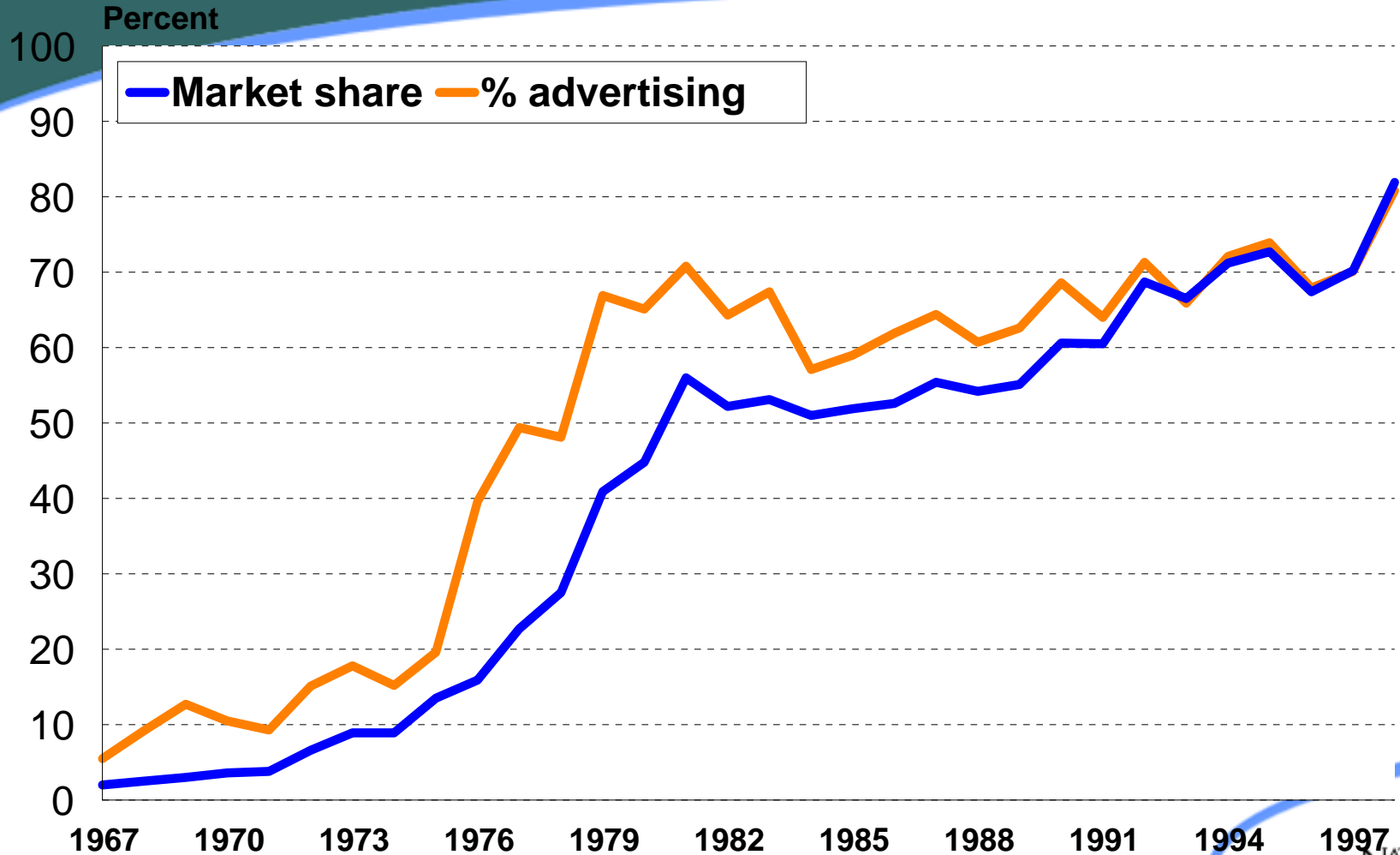
- Aims: Designed to stimulate research on a wide variety of scientific, technical, marketing, and tactical undertakings by the tobacco industry, which were documented in previously confidential industry records.
- 17 grants funded.
- Approximately \$6-7 million per year.

The Low Tar Experience

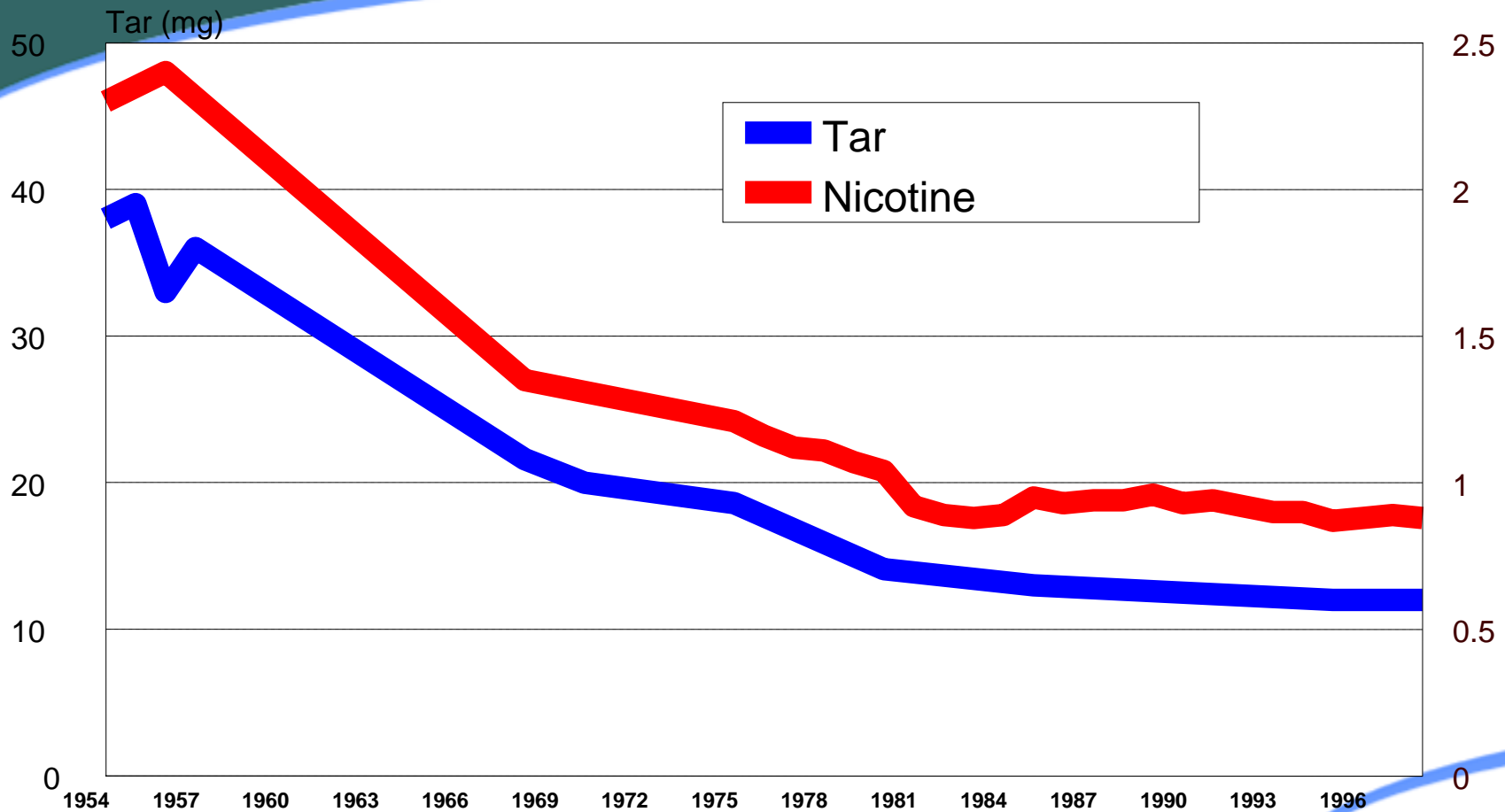
“In what ways can we apply the practical fact that by reducing dosage we reduce risk? The best way, of course, is to eliminate exposure. ... But since it is quite evident that we are not going to succeed totally in these endeavors, we need to build further on the concept of reduced dosage.”

Surgeon General William H. Stewart (1967)

Domestic market share of low tar cigarettes (15 mg or less) and % expenditures for advertising and other promotional activities

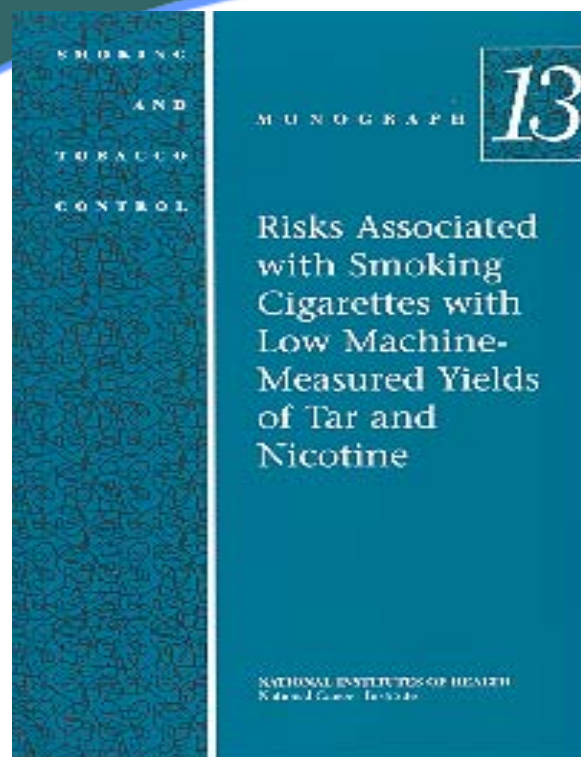


Trend in sales-weighted tar and nicotine yields 1954-1998



NCI Smoking and Tobacco Control Monograph 13

Risks Associated With Smoking Cigarettes With Low Machine-Measured Yields of Tar and Nicotine (2001)



“There is no convincing evidence that changes in cigarette design between 1950 and the mid 1980s have resulted in an important decrease in the disease burden caused by cigarette use either for smokers as a group or for the whole population.”

NCI Smoking and Tobacco Control Monograph 13 Risks Associated With Smoking Cigarettes With Low Machine-Measured Yields of Tar and Nicotine (2001)

- “Cigarettes with low machine-measured yields by the FTC method are designed to allow compensatory smoking behaviors that enable a smoker to derive a wide range of tar and nicotine yields from the same brand, offsetting much of the theoretical benefit of a reduced-yield cigarette.”
- “Many smokers switch to lower yield cigarettes out of concern for their health, believing these cigarettes to be less risky or to be a step toward quitting. Advertising and marketing of lower yield cigarettes may promote initiation and impede cessation, more important determinants of smoking related diseases.”

2004 Surgeon General's Report: The Health Consequences of Smoking

- Smoking cigarettes with lower machine-measured yields of tar and nicotine provides no clear benefit to health.
- Although characteristics of cigarettes have changed during the last 50 years and yields of tar and nicotine have declined substantially, as assessed by the Federal Trade Commission's test protocol, the risk of lung cancer in smokers has not declined.
- Quitting smoking has immediate as well as long term benefits, reducing risks for diseases caused by smoking and improving health in general.

TESTING TOBACCO PRODUCTS PROMOTED TO REDUCE HARM (PA-04-103, May 5, 2004)

Objective: to stimulate multidisciplinary research on the chemical composition, behavior of use, exposure to toxic agents, addictive properties, differential toxicity, and individual and public health impact of potential reduced-exposure tobacco products.

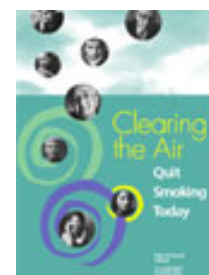
TESTING TOBACCO PRODUCTS PROMOTED TO REDUCE HARM (PA-04-103, May 5, 2004)

Possible Research Areas:

- Studying behavioral changes that accompany use of new tobacco products and how these behaviors impact delivered dosages of addictive agents and toxins
- Validating currently available tobacco exposure and candidate disease-specific surrogate biomarkers
- Developing new biomarkers that accurately reflect mechanisms of disease to serve as intermediate indicators of disease risk
- Exploring differential toxicity of various tobacco and nicotine products using in vitro and in vivo models
- Developing surveillance systems to monitor marketing, patterns of use, and health consequences of new potential reduced-exposure tobacco products
- Examining the impact of marketing on consumers' and healthcare providers' attitudes, knowledge, and perceptions about new products, and exploring ways to communicate accurate information about these products.

Other Activities and Resources

- National Network of Tobacco Cessation Quitlines
1-800-QUIT NOW
- NCI online assistance for quitting smoking
www.smokefree.gov
- Monograph 15: Those Who Continue to Smoke; Is Achieving Abstinence Harder and Do We Need to Change Our Interventions?
- Menthol Cigarettes: Setting the Research Agenda (Nicotine & Tobacco Research, Volume 6, Supplement 1/February 2004)



For more info:

Mark Parascandola

paramark@nih.gov

301-496-8584

www.tobaccocontrol.cancer.gov

NCI Monographs:

<http://cancercontrol.cancer.gov/tcrb/monographs/>