Acknowledgments

The FTC Cigarette Test Method for Determining Tar, Nicotine, and Carbon Monoxide Yields of U.S. Cigarettes: Report of the NCI Expert Committee was developed under the general editorship of the Smoking and Tobacco Control Program (STCP), National Cancer Institute (NCI), **Donald R. Shopland**, Coordinator.

In organizing the December 5-6, 1994, meeting of the NCI Ad Hoc Committee of the President's Cancer Panel on the FTC Test Method for Determining Tar, Nicotine, and Carbon Monoxide Levels in Cigarettes, NCI had the expert advice and assistance of many individuals both in and out of Government service. In particular, the Coordinator and STCP staff members would like to acknowledge the following individuals who served as part of an informal planning group for the conference:

Judith Wilkenfeld, Esq.

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Jack E. Henningfield, Ph.D.

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Special recognition is due **John M. Pinney** and **Joseph G. Gitchell**, Pinney Associates, Bethesda, MD, for their help with overall conference organization and planning. Mr. Pinney also served as facilitator for all consensus deliberations by the expert panel.

We would like to express our sincere appreciation to the following members of the NCI Ad Hoc Committee of the President's Cancer Panel.

| Chairman, President's Cancer Panel | Harold P. Freeman, M.D. Director of Surgery Harlem Hospital Center New York; NY |
|--|--|
| Executive Secretary, President's Cancer Panel | Maureen O. Wilson, Ph.D. National Cancer Institute Bethesda, MD |

| Panelists | Fred Bock, Ph.D. Miami, FL |
|-----------|--|
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| | Diana Petitti, M.D., M.P.H. Director Division of Research and Evaluation Kaiser Permanente Pasadena, CA |
| | William S. Rickert, Ph.D. President Labstat, Inc. Kitchener, Ontario CANADA |
| | Saul Shiffman, Ph.D. Professor Department of Psychology University of Pittsburgh Pittsburgh, PA |
| | Maxine L. Stitzer, Ph.D. Professor Department of Psychiatry and Behavioral Sciences Johns Hopkins University School of Medicine Francis Scott Key Medical Center Baltimore, MD |
| | |

Invited Speakers

Ray Woosley, M.D., Ph.D. Chair Department of Clinical Pharmacology Georgetown University Washington, DC

Neal L. Benowitz, M.D. Professor of Medicine and Chief Division of Clinical Pharmacology and Experimental Therapeutics University of California, San Francisco San Francisco, CA

Joel B. Cohen, Ph.D. Distinguished Service Professor and Director Center for Consumer Research University of Florida Gainesville, FL

Gary A. Giovino, Ph.D., M.S. Chief Epidemiology Branch Centers for Disease Control and Prevention Atlanta, GA

Michael R. Guerin, Ph.D. Section Head, Organic Chemistry Oak Ridge National Laboratory Oak Ridge, TN

Jeffrey E. Harris, M.D., Ph.D Massachusetts General Hospital Associate Professor Department of Economics Massachusetts Institute of Technology Cambridge, MA

Jack E. Henningfield, Ph.D. Chief Clinical Pharmacology Branch Addiction Research Center National Institute on Drug Abuse Baltimore, MD

Dietrich Hoffmann, Ph.D. Associate Director and Chief Division of Environmental Carcinogenesis American Health Foundation Valhalla, NY Lynn T. Kozlowski, Ph.D. Professor and Head Department of Biobehavioral Health Pennsylvania State University University Park, PA

C. Lee Peeler, Esq. Associate Director Division of Advertising Practices Federal Trade Commission Washington, DC

Harold C. Pillsbury, Jr. Rockville, MD

Jonathan M. Samet, M.D., M.S. Chairman Department of Epidemiology Johns Hopkins University School of Hygiene and Public Health Baltimore, MD

James P. Zacny, Ph.D. Assistant Professor Department of Anesthesia and Critical Care University of Chicago Chicago, IL

J. Donald deBethizy, Ph.D. Vice President, Product Evaluation R.J. Reynolds Tobacco Company Bowman Gray Technical Center Winston-Salem, NC

David E. Townsend, Ph.D. Principal Scientist R.J. Reynolds Tobacco Company Bowman Gray Technical Center Winston-Salem, NC

The Coordinator and STCP staff members also gratefully acknowledge the authors who made this monograph possible. Attributions for those chapters with authors follow.

| Chapter 1. | Cigarette Testing and the | C. Lee Peeler, Esq. |
|------------|---------------------------|--------------------------|
| - | Federal Trade Commission: | Federal Trade Commission |
| | A Historical Overview | Washington, DC |

Tobacco Industry Representatives

Chapter 2. Review of the Federal Trade Harold C. Pillsbury, Jr. Rockville, MD **Commission Method for Determining Cigarette Tar** and Nicotine Yield **Changes in Cigarette Design** Dietrich Hoffmann, Ph.D. Chapter 3. and Composition Over Time American Health Foundation and How They Influence the Valhalla, NY **Yields of Smoke Constituents** Mirjana V. Djordjevic, Ph.D. American Health Foundation Valhalla. NY Klaus D. Brunnemann, M.S. American Health Foundation Valhalla, NY Gary A. Giovino, Ph.D., M.S. Chapter 4. Attitudes, Knowledge, and **Beliefs About Low-Yield** Centers for Disease Control and **Cigarettes Among** Prevention Adolescents and Adults Atlanta, GA Scott L. Tomar, D.M.D., Dr.P.H. Centers for Disease Control and Prevention Atlanta, GA Murli N. Reddy, M.S. Centers for Disease Control and Prevention Atlanta, GA John P. Peddicord, M.S. Centers for Disease Control and Prevention Atlanta. GA Bao-Ping Zhu, Ph.D., M.B.B.S., M.S. Centers for Disease Control and Prevention Atlanta, GA Luis G. Escobedo, M.D., M.P.H. Centers for Disease Control and Prevention Atlanta, GA Michael P. Eriksen, Sc.D. Centers for Disease Control and Prevention Atlanta, GA

| Chapter 5. | Cigarette Smoke Components and Disease: Cigarette Smoke Is More Than a Triad of Tar, Nicotine, and Carbon Monoxide | Jeffrey E. Harris, M.D., Ph.D. Massachusetts General Hospital Massachusetts Institute of Technology Cambridge, MA |
|-------------|---|---|
| Chapter 6. | The Changing Cigarette and Disease Risk: Current Status of the Evidence | Jonathan M. Samet, M.D., M.S. Johns Hopkins University School of Hygiene and Public Health Baltimore, MD |
| Chapter 7. | Biomarkers of Cigarette Smoking | Neal L. Benowitz, M.D. University of California, San Francisco San Francisco, CA |
| Chapter 8. | Pharmacology and Markers: Nicotine Pharmacology and Addictive Effects | Jack E. Henningfield, Ph.D. Addiction Research Center National Institute on Drug Abuse Baltimore, MD |
| | | Leslie M. Schuh, Ph.D. Wayne State University Detroit, MI |
| Chapter 9. | Consumer/Smoker Perceptions of Féderal Trade Commission Tar Ratings | Joel B. Cohen, Ph.D. University of Florida Gainesville, FL |
| Chapter 10. | Sensitivity of the Federal Trade Commission Test Method to Analytical Parameters | Michael R. Guerin, Ph.D. Oak Ridge National Laboratory Oak Ridge, TN |
| Chapter 11. | Human Smoking Patterns | James P. Zacny, Ph.D. University of Chicago Chicago, IL |
| | | Maxine L. Stitzer, Ph.D. Johns Hopkins University School of Medicine Francis Scott Key Medical Center Baltimore, MD |
| Chapter 12. | Compensation for Nicotine by Smokers of Lower Yield Cigarettes | Lynn T. Kozlowski, Ph.D. Pennsylvania State University University Park, PA |
| | | Janine L. Pillitteri Pennsylvania State University University Park, PA |

Chapter 13. Cigarette Design Technologies Reduce Smoke Yield and Expand Consumer Choices: The Role and Utility of the FTC Test Method

David E. Townsend, Ph.D. R.J. Reynolds Tobacco Company Bowman Gray Technical Center Winston-Salem, NC

SECTION IV. Overview of 1980 to 1994 Research Related to the Standard Federal Trade Commission Test Method for Cigarettes

> Finally, the Coordinator and STCP staff members would like to acknowledge the significant contributions of the following staff members of R.O.W. Sciences, Inc., Rockville, MD, and MasiMax Resources, Inc., Rockville, MD, who provided technical and editorial assistance in the preparation of this monograph. In particular, we would like to acknowledge the contribution of Richard H. Amacher, M.S., who served as Project Manager from September 1989 through August 1995 for the contract under which this publication was produced. We would also like to thank Marilyn M. Massev, M.P.H., MasiMax Resources, and Jacqueline M. Tressler, R.O.W. Sciences, who currently serve as Project Manager and Subcontract Manager, respectively, for the contract under which this publication was produced, for their valuable contribution during the final phases of the mongraph's development. Special recognition is also due to James R. Libbev. M.P.I.A., who served as Managing Editor for this publication, and Traci Cherrier, who served as Senior Conference Specialist for the NCI ad hoc committee meeting that resulted in this monograph.

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ABOUT THE MONOGRAPH

This volume is the seventh in the series of Smoking and Tobacco Control monographs published by the National Cancer Institute since 1991. The monographs were specifically established by NCI to provide an authoritative source of information about issues important to those individuals and institutions involved in smoking and tobacco use control.

This report was compiled in response to a request to the National Cancer Institute by the then Chairman of the Subcommittee on Health and the Environment, U.S. House of Representatives, asking that a scientific panel of experts be convened to review and make recommendations on the accuracy and appropriateness of the Federal Trade Commission's test method for assessing constituent yields for cigarettes on the U.S. market. The NCI received a similar but more detailed letter from the Chairman of the Federal Trade Commission in which the Commission outlined several areas for the NCI ad hoc committee to consider (see page xix).

The Coordinator of NCI's Smoking and Tobacco Control Program, who was given overall responsibility for the project, established a small informal advisory group consisting of individuals from the FTC and various PHS agencies to help organize the conference, suggest committee members, and plan the agenda.

The NCI Ad Hoc Committee of the President's Cancer Panel on the FTC Test Method for Determining Tar, Nicotine, and Carbon Monoxide Levels in Cigarettes was convened December 5-6, 1994, in Bethesda, MD. Harold P. Freeman, M.D., Chairman of the President's Cancer Panel, also chaired these proceedings.

However, prior to the December conference the 11 members of the NCI ad hoc committee (these individuals are identified in the "Acknowledgments" to the monograph) were provided several resource materials in support of their deliberations. These resources included copies of the 1981 Surgeon General's report *The Health Consequences of Smoking: The Changing Cigarette. A Report of the Surgeon General*, a detailed bibliography of the relevant worldwide scientific literature, and a copy of an NCI-commissioned White Paper titled "Overview of 1980 to 1994 Research Related to the Standard Federal Trade Commission Test Method for Cigarettes." The White Paper, which is published as Section IV of this monograph, represents a noncritical summary of those research findings published since the 1981 Surgeon General's report. Full copies of all articles were made available on demand to members of the NCI ad hoc committee by NCI's information science contractor, R.O.W. Sciences, Inc., of Rockville, MD.

The December 5-6, 1994, conference was organized similar to a consensus conference. Prior to the formal opening of the conference, the committee was asked to consider the three questions laid out on page vi of the "Foreword."

On the first day, subject matter experts were invited to make formal, structured presentations before the NCI ad hoc committee. (See "Acknowledgments" for list of speakers.) The 13 individual chapters published in Section I of this monograph are based on these presentations. Each presentation was approximately 30 minutes in length, followed by a question-and-answer session. Both members of the NCI ad hoc committee and invited speakers fully participated in these discussions. During the second day of deliberations, committee members and invited speakers participated in a more open-ended discussion, with the goal of reaching consensus on the three questions.

Open discussions ended midday December 6. Members of the NCI ad hoc committee then met to finalize their recommendations and findings; these were presented to the public during a press conference midafternoon December 6. The FTC Cigarette Test Method for Determining Tar, Nicotine, and Carbon Monoxide Yields of U.S. Cigarettes: Report of the NCI Ad Hoc Committee is the culmination of that effort.

Individuals wishing to receive a copy of the audiotapes of the December meeting may order these directly from Caset Associates at (703) 352-0091. The cost per set is \$75. Those individuals interested in receiving a copy of the written transcript should contact Mr. Donald R. Shopland, National Cancer Institute, Executive Plaza North, Room 241, 6130 Executive Boulevard, Bethesda, MD 20892-7337.

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ONE HUNDRED THIRD CONGRESS

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June 7, 1994

Dr. Samuel Broder Director National Cancer Institute National Institutes of Health Building 31 Room 11A48 9000 Rockville Pike Bethesda, Maryland 20892

Dear Dr. Broder:

I am writing to request that the National Cancer Institute sponsor a scientific conference which would review and make recommendations on the accuracy and appropriateness of the Federal Trade Commission's method for determining the relative "tar" and nicotine content of cigarettes. As you know, there is growing concern over the current testing method because many public health and addiction experts believe it may mislead smokers about the relative safety of a low tar, low nicotine product.

It has been suggested that a major reason for reliance upon the FTC test procedure is to allow consumers the option of reducing their risk of disease by smoking a brand deemed low in "tar" and nicotine. Consumer preference for low tar and nicotine rated cigarettes accelerated during the 1970's when NCI supported research strongly suggested that such cigarettes offered the consumer a reduced risk of lung cancer. The shift in consumer demand to these newer low yield cigarettes was quite rapid. In 1972 less than 2 percent of all cigarettes sold in the U.S. had a tar yield of less than 15 mg. However, the major cigarette manufacturers were quick to use the FTC tar and nicotine numbers in their advertising and by the end of the decade 40 percent of all cigarettes sold were under 15 mg. During the 1980's considerable doubt was expressed by many public health officials as to whether the tar and nicotine yields of cigarettes based on a protocol developed in the 1950's accurately reflect actual exposure and health risk levels when smoking today's cigarettes. Today approximately 60 percent of all brands are considered low-tar. The NCI can provide an invaluable public service in sponsoring a scientific forum to address these issues and formulate alternative recommendations. It would be particularly helpful if a conference on this matter, perhaps in collaboration with the National Institute on Drug Abuse and the Federal Trade Commission, could be convened by October 1994.

Your consideration of this request is greatly appreciated. Please do not hesitate to contact me or Ripley Forbes of the Subcommittee staff if we can answer any questions or provide assistance in developing a conference agenda. I look forward to hearing from you.

With every good wish, I am

Sincerely,

ng a W c kan

HENRY A. WAXMAN Chairman, Subcommittee on Health and the Environment