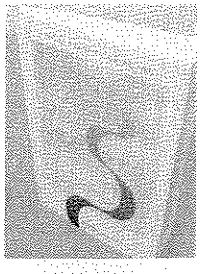
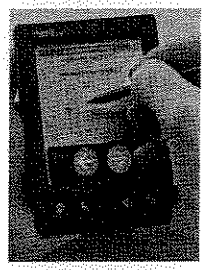
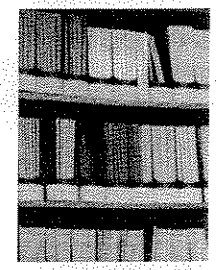
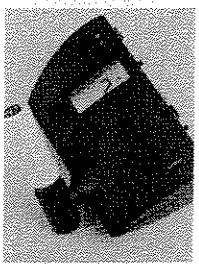
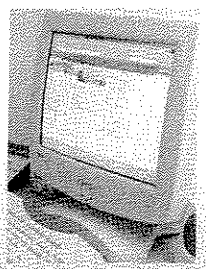










THE FIRST DECADE:
Advancing the Science and Treatment of Tobacco Dependence
1992-2002

CONTENTS

Treating Tobacco Dependence

In 1992, when the Center for Tobacco Research and Intervention (CTRI) was created by the University of Wisconsin Medical School, tobacco dependence treatment research was in its infancy. The Surgeon General's Reports on *Nicotine Addiction* (1988) and *The Benefits of Smoking Cessation* (1990) stimulated great interest in this critical public health and medical challenge. Scientists were looking for new ways to help people quit smoking.

Moreover, for the first time physicians were addressing tobacco use with their patients and medical schools were discussing how to train physicians in treating tobacco dependence. Communities across the United States began to embrace the need to help more Americans quit smoking to prevent the 400,000 deaths that result each year from tobacco use. UW-CTRI was established to help achieve this noble goal and, for the past decade, has been at the forefront of those efforts.

Recognizing the need for more effective, evidence-based treatments of tobacco dependence, UW-CTRI conducted clinical trials on the nicotine patch, bupropion and other medications. In addition, the Center advanced the science of counseling addicted smokers by studying a variety of counseling approaches.

The Center also investigated the effectiveness of combinations of medication and counseling.

Dr. Michael Fiore pioneered the institutionalization of smoking status as a vital sign, to be taken at each clinic visit like blood pressure and temperature. If doctors and other healthcare providers are to treat smoking dependence, they have to identify it and document it as they do other chronic diseases. Recent research shows that over 70 percent of smokers now report that they have been asked about their tobacco use – evidence that the vital sign initiative has been adopted nationally.

Another milestone was the creation of national guidelines for the treatment of tobacco addiction – one in 1996 and a major revision in 2000. Dr. Fiore served as chair of the panel that created both documents. The 2000 U.S. Public Health Service Clinical Practice Guideline: *Treating Tobacco Use and Dependence* is now the national standard, providing clinicians with evidence-based tobacco dependence treatments.

Developing medications and counseling treatments is the first step. Educating healthcare providers in using these treatments is the next. UW-CTRI is now committed to the next essential component – working with federal and private sector partners to ensure that Guideline recommendations are disseminated and implemented in every clinic across America.

Center Milestones

1990
Surgeon General's report *The Benefits of Smoking Cessation*

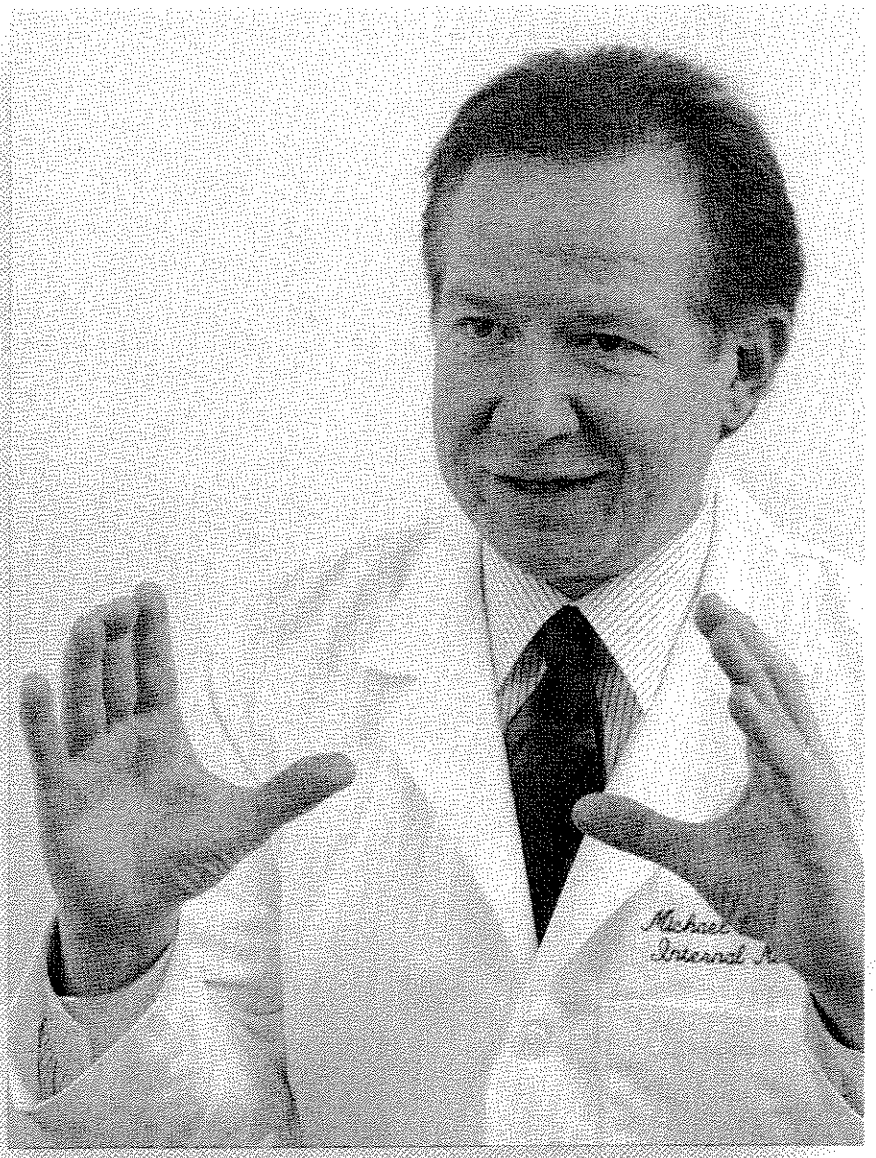
1990
UW-CTRI nicotine patch clinical trials

1991
Smoking As a Vital Sign published

1992
UW-CTRI innovative research on quitting smoking counseling approaches

"The past decade has been one of tremendous progress in our understanding of tobacco dependence. Ten years ago, smoking was still viewed as a 'bad habit.' Advances over the last decade, including many developed at our Center, have led to the recognition of tobacco use as a chronic disease that can be effectively treated."

Michael Fiore, M.D., M.P.H.
UW-CTRI founder and Director
Professor of Internal Medicine
UW Medical School



1994

Medical School smoking cessation curriculum recommendations published by UW-CTRI

1996

AHCPR Clinical Practice Guideline: *Smoking Cessation* published.
UW-CTRI headed panel

1997

UW-CTRI bupropion clinical trials

2000

U.S. Public Health Service Clinical Practice Guideline: *Treating Tobacco Use and Dependence* published.
UW-CTRI headed panel

Understanding Tobacco Dependence and Withdrawal

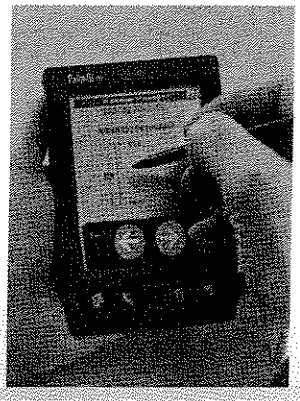
Dr. Timothy Baker, Associate Director of UW-CTRI and Research, has an ongoing interest in the nature of tobacco addiction. He believes that addiction and withdrawal reflect not only factors that are common to addiction in general but also those that differ from one person to another, thus making each person's struggle with addiction unique. For more than a decade, UW-CTRI has been exploring the nature of tobacco dependence. This has led to publications on the nature of addiction in 1993, nicotine withdrawal in 1995, women and withdrawal in 1998 and withdrawal and relapse in 2001.

UW-CTRI gained a tremendous opportunity to conduct major research on dependence and withdrawal with the receipt of a five-year, $10 million grant from the National Cancer Institute and the National Institute on Drug Abuse in 1999. UW-CTRI was designated as one of seven Transdisciplinary Tobacco Use Research Centers (TTURC) in the United States. The theme of the UW-TTURC is "Understanding and Preventing Relapse."

This research involves three large clinical trials. One trial is aimed at creating new measures of tobacco dependence based on the psychological and emotional bases of smoking. Another is aimed at gaining real-time data on withdrawal using hand-held electronic diaries. A third uses a computer program to provide treatments that are matched to each person's performance and needs.

"What we learn from this research will help us devise better treatments for smoking cessation in the future – treatments that will recognize physical, psychological, cultural and situational differences."

Tim Baker
Associate Director



Research Discovery Milestones

1990

JAMA Cessation Epidemiology Study documents that 90 percent of smokers try to quit cold turkey without medical assistance

1993

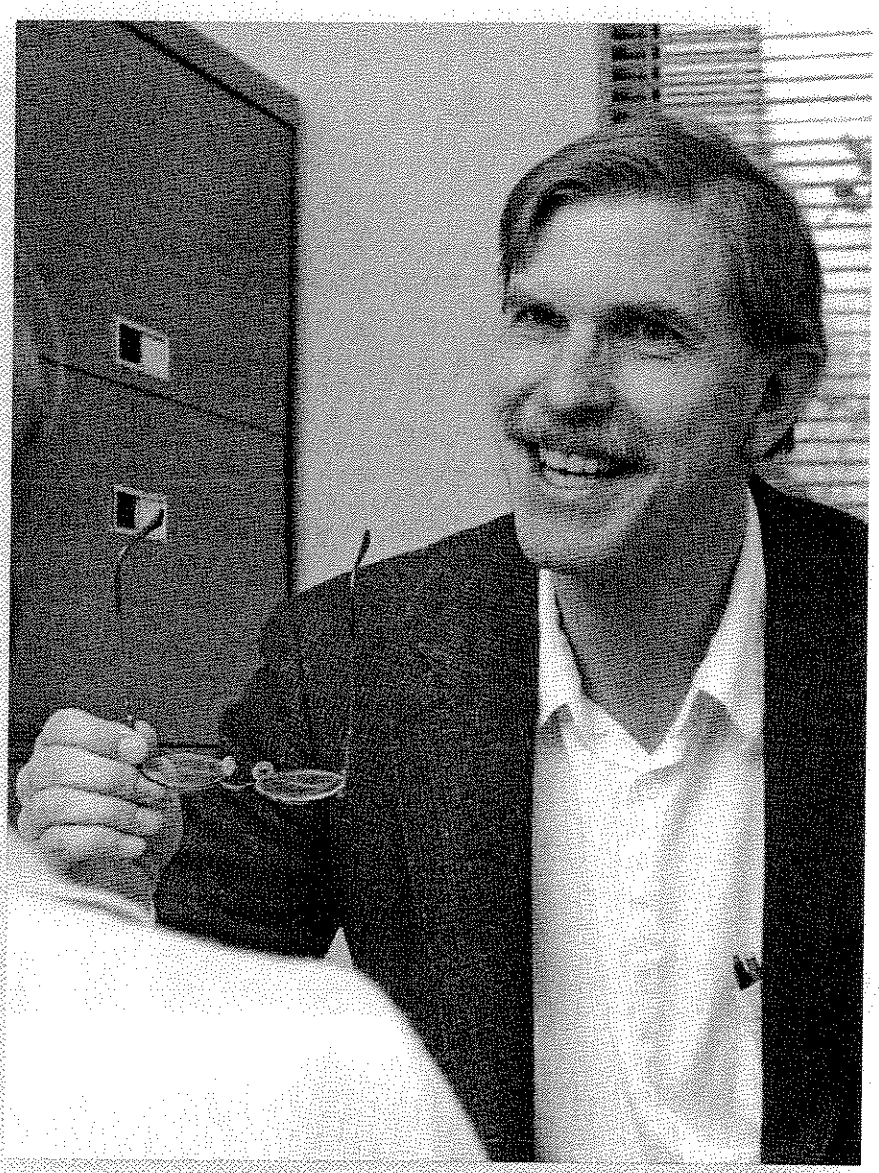
First epidemiological study on UW student smoking prevalence

1994

Relapse studies show most relapses begin within one week into quit attempt

"Our research is demonstrating that tobacco dependence and withdrawal are not unitary phenomena. Each is multi-dimensional, with tremendous individual variation. We need to understand the various indications of dependence and withdrawal among individuals trying to quit if we are to prevent relapse to smoking."

Tim Baker, Ph.D.
UW-CTRI Associate Director
Professor, Department of Psychology



1997

Smoking treatments are found to be cost-effective

1999

UW-CTRI receives $10 million, five-year grant and is designated a Transdisciplinary Tobacco Use Research Center by the National Institutes of Health

1999

Bupropion is an effective treatment for smoking cessation and produces long-term abstinence levels

2001

The smoking withdrawal syndrome has several components related to a smoker's likelihood of relapsing

Helping Smokers Quit

In 1989, UW-CTRI developed the University of Wisconsin Smoking Cessation and Prevention Clinic to provide outpatient care for individuals who want to successfully quit smoking. For inpatients at the University of Wisconsin Hospital and Clinics, UW-CTRI has created the Smoking Cessation Consult Service.

The clinic staff—physicians, clinical psychologists, and others—are trained experts in the field of smoking cessation. Working as a team under the direction of Douglas Jorenby, Ph.D., clinic staff members help smokers understand the physical and psychological aspects of quitting tobacco use and help them use a variety of strategies to successfully quit smoking. These strategies include individual and group counseling, medications such as nicotine replacement therapy or bupropion, and individual feedback on the health effects of smoking.

In 1993, the clinic underwent a major restructuring based on new research on smoking cessation counseling. A twice-weekly support group was added and the intake process was streamlined. According to satisfaction data gathered as part of follow up, approximately 60 percent of clinic participants attend the support group and do so for an average of six weeks. Many indicate that the group is critical to their ability to maintain a smokefree life.

A major change for the clinic in 2000 was relocating from University of Wisconsin Hospital and Clinics to UW-CTRI's new offices on Monroe Street. With dedicated space on site, the clinic is able to provide services and long-term group support in a readily accessible location.

"Being part of a research center means that we can use the latest and best evidence-based treatments. Hundreds of smokers have found at our clinic the right combination of counseling, support, and medication to help them quit smoking for good."

Douglas Jorenby, Ph.D.
Director of Clinical Services

Clinical Milestones

1989
Establishment of the University of Wisconsin Smoking Cessation and Prevention Clinic

1991
Nicotine patch added as treatment

1993
Change in clinic practice to include support group and streamlined intake

"For over 10 years, our smoking cessation clinic has provided state-of-the-art treatment for people who want to quit smoking. Every week people who truly want to quit come to us for help."

Sara Pfister
Smoking Cessation and
Prevention Clinic Manager

"The clinic has been the proving ground for the science. In addition, as we listen to our patients, we gain insight that aids us in our research."

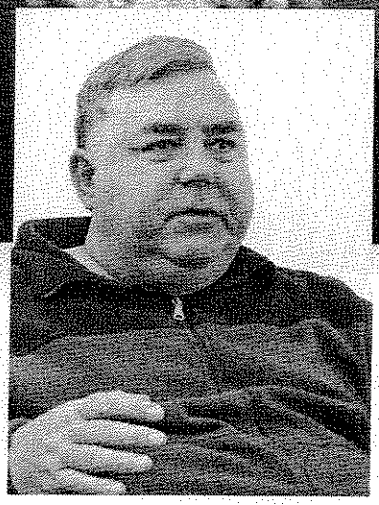
Douglas Jorenby, Ph.D.
Director of Clinical Services

1997

Bupropion added as treatment

2000

Relocation to improved facilities on Monroe Street



"We tried everything to quit smoking – the patch, hypnosis, acupuncture. Nothing stuck. The clinic used the right combination of medications and coming to the group meetings was key."

Ron and Judy Conard
Quit 2000

"I can't tell you how much better I feel since I quit smoking. I am so glad that I escaped the trap of addiction to smoking. The clinic hit all the right buttons for me. Everything worked to keep me moving toward total abstinence."

Helen Boley
Quit 1996

"Quitting was very hard for me. I went to the group for three or four months as a smoker. Once I lied and said I quit and everyone applauded. By the next meeting I quit for real because I wanted the applause to be real."

Mike Kennelly
Quit 1999

Success Stories

Wonderful Synergies

Research and Intervention

Research at UW-CTRI concentrates primarily in two areas – understanding tobacco dependence and finding treatments to help tobacco users quit. Many of the clinical trials conducted over the last decade involved a new treatment or a new combination of treatments. Recent research has been aimed at preventing relapse. As soon as new treatment approaches are identified and tested in a research setting, they are incorporated into treatment in the UW-CTRI cessation clinic.

"One of the strengths of our Center is that from the beginning, there has been a dynamic synergy between the research and the clinical programs. Our Center is truly unique because it has both a significant research program and a clinic with patients who are in the act of quitting smoking."

Stevens Smith, Ph.D.
Assistant Professor
Department of Medicine

Medicine and Psychology

An additional synergistic characteristic of UW-CTRI over the last decade has been the bringing together the disciplines of medicine and psychology to reduce tobacco use rates in the United States. Invoking the unique approaches of these disciplines in both research and clinical treatments, UW-CTRI has addressed the challenge of tobacco dependence in a highly effective way.

Reaching Out – Madison and Dane County

The 1990s brought not only advances in treatment, but also a new activism toward preventing youth smoking and environmental smoke exposure. UW-CTRI directed a smokefree policy for the University of Wisconsin-Madison campus in 1992. The Center also issued white papers in 1995 concerning *Excise Fees, Children at Risk* and *The Dangers of Environmental Tobacco Smoke.*

A cooperative effort among UW-CTRI and the Madison and Dane County Health Departments resulted in the first tobacco vendor compliance checks in Madison in the mid-1990s. Presentations to schools, community groups, parent organizations and healthcare groups accented the importance of prevention and cessation for adolescents.

In 1995, just as the President and the nation began to focus on youth smoking, UW-CTRI intensified its youth prevention activities. UW-CTRI worked directly with teens through Teens Against Tobacco Use, a peer training and teen cessation program. The Adolescent Cessation Clinic, within the General Pediatrics and Adolescent Clinic at UW Hospital, began in 1997. UW-CTRI partnered with other organizations in holding the biennial Smoke Free Kids at the Capitol where as many as 12,000 middle school students came to Madison to learn about tobacco use dangers and meet with legislators.

UW-CTRI worked as part of the Special Legislative Council's Committee on Minors and Tobacco which recommended a cigarette tax increase and created the Thomas T. Melvin Youth Tobacco Prevention and Education Program.

Regional Milestones

1992
UW-Madison campus buildings become smokefree

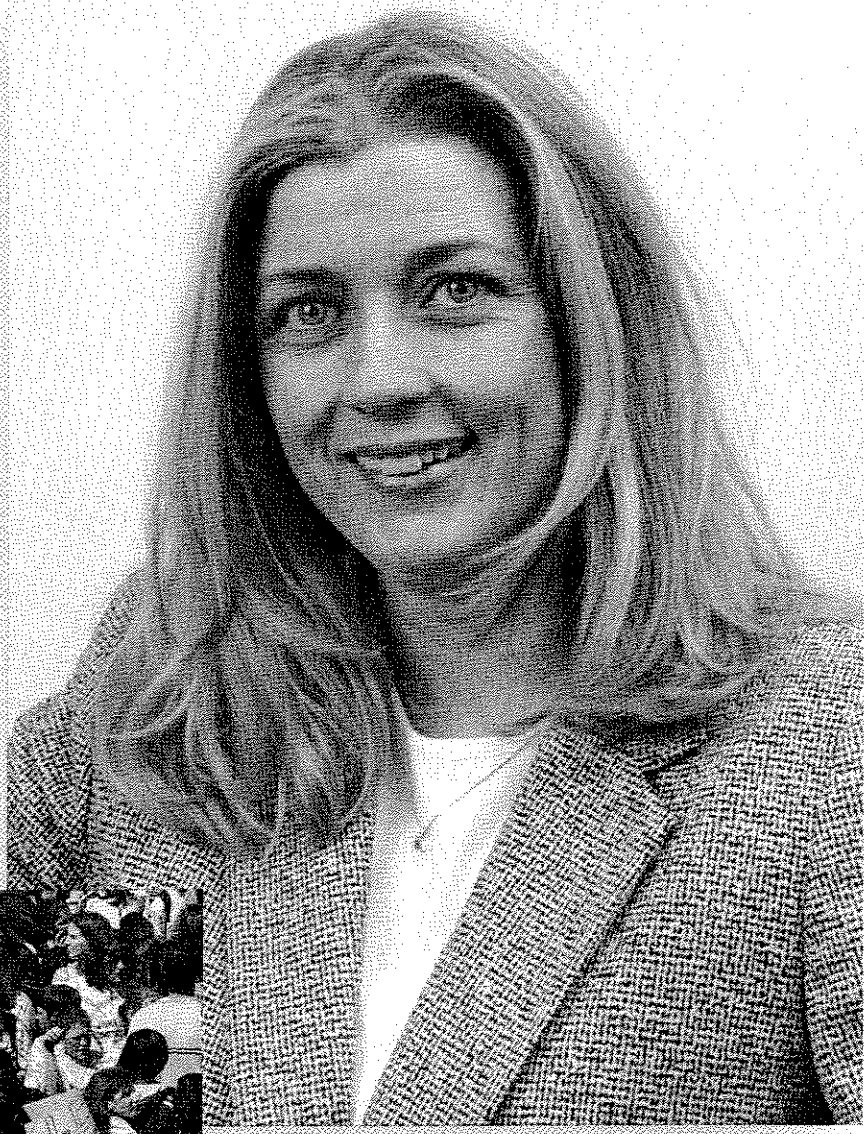
1993
First youth access compliance checks in Madison

1994
Surgeon General's Report on Youth Smoking

1994
First Kids at the Capitol

"Because reducing smoking requires a comprehensive effort, we joined with others in Dane County to prevent youth access and to encourage smokefree environments."

Ann Schensky
Statewide Training and
Program Coordinator



1995

UW-CTRI white papers on ETS, children, excise fees

1996

Peer training groups

1997

Adolescent Cessation Clinic begins

1997

Tax increase, Thomas T. Melvin Program begins

Extending Outreach to All of Wisconsin

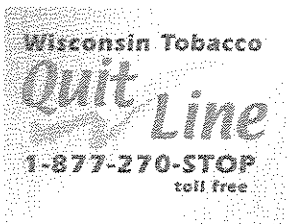
In 1998, UW-CTRI committed to expanding its very successful outreach program from Dane County to the entire state of Wisconsin. This goal of expansion coincided with the formation of the Wisconsin Tobacco Control Board as a result of the funding coming to Wisconsin from the Master Settlement Agreement with the tobacco companies. The Board created a comprehensive program which included a goal of reducing tobacco use by 20 percent by the year 2005. To achieve that goal, adult cessation was designated as an essential component.

This cessation goal provided an opportunity for UW-CTRI and the Wisconsin Tobacco Control Board to create a partnership to decrease smoking in the state. Included in UW-CTRI's plan for reducing tobacco use were a number of components. First, UW-CTRI hired six outreach specialists based in regional public health offices across the state. These outreach specialists provide training and technical assistance to clinics, physicians, hospitals, businesses, and others on using evidence-based treatments to help people quit smoking.

Another way UW-CTRI extended access to smoking cessation treatment was the creation of the Wisconsin Tobacco Quit Line. A free, proactive, telephone counseling service that provides callers anywhere in Wisconsin with individualized help in quitting smoking, the Quit Line immediately addressed a demand for cessation services. The Quit Line received 5000 calls in its first month of operation and almost 20,000 in its first nine months.

UW-CTRI also pioneered a new way of disseminating advances in clinical practice to healthcare providers. Called "The Wisconsin Model," this approach combines traditional outreach with a procedure named "academic detailing," which involves personal visits and specific follow-up by UW-CTRI outreach staff.

Other components of the UW-CTRI outreach program include: The Wisconsin Tobacco Use Survey, the first in-depth survey of Wisconsin tobacco users that documents actions, attitudes, and perceptions regarding tobacco use; a statewide program of mini-grants for locally initiated, innovative tobacco research programs; and a partnership with the Wisconsin Women's Health Foundation, providing tobacco use expertise for programs aimed at women and girls.



Statewide Milestones

1997
Master Settlement Agreement reached

1999
Legislative appropriation for UW-CTRI to create a statewide outreach program

1999
Wisconsin Tobacco Control Board formed

"Our goal is to provide every Wisconsin resident with access to the very latest, evidence-based smoking cessation treatment. We are partnering with healthcare providers, workplaces, schools and community organizations to reach as many people as possible."

Lezli Redmond. M.P.H.
Director, UW-CTRI Education and Outreach Programs

Quit Line Success Stories

"The Quit Line supported me through that dreadful period between nicotine dependency and freedom. The gift of being smokefree is priceless!"

Sharon Kelley, Madison

"The best thing about not smoking is not wheezing any more. What I needed to quit was a boost from the Quit Line."

Fred Redman, Mosinee

2000

UW-CTRI creates Statewide Education and Outreach Program

2001

Six outreach specialists placed in five regional Division of Public Health Offices

2001

Wisconsin Tobacco Quit Line launched by UW-CTRI and Wisconsin Tobacco Control Board

2001

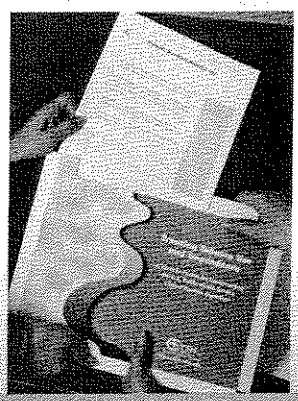
Wisconsin Tobacco Use Survey conducted

Changing Systems – Clinicians, Managed Care, Insurers

Creating the Guideline

In 1989, the U.S. Department of Health and Human Services recognized that "smoking cessation interventions offer clinicians and healthcare providers their greatest opportunity to improve the current and future health of all Americans." As a result, the newly created Agency for Health Care Policy and Research impaneled a group of experts, headed by Dr. Michael Fiore of UW-CTRI, to identify effective, evidence-based treatments for tobacco dependence. The product of this work was the Clinical Practice Guideline: *Smoking Cessation,* published in 1996.

Soon after the publication of the first Guideline, the accelerating pace of tobacco research demanded an updated version. Analysis of over 3000 articles, published between 1975 and 1994, was included in the first Guideline. But another 3000 articles were published between 1994 and 1999—necessitating a review and update. In addition, new, effective treatments had been identified in the intervening years. As a result, a new Guideline: *Treating Tobacco Use and Dependence,* created by the same expert panel also headed by Dr. Fiore, was published in 2000 by the U.S. Public Health Service (PHS). Since its publication, the 2000 PHS Guideline has been recognized as the national standard of care for treating the chronic disease of tobacco dependence.



Disseminating the Guideline to Healthcare Providers

To achieve the goal of implementing Guideline recommendations, UW-CTRI is now engaged in a national program aimed at ensuring that healthcare providers and systems use evidence-based interventions when treating their patients. Beginning in September 2001, UW-CTRI guideline dissemination staff began working with federal agencies and national organizations to create a national plan for increasing tobacco use cessation in the United States. The result is a document called "A National Blueprint for Disseminating and Implementing Evidence-Based Clinical and Community Strategies to Promote Tobacco Use Cessation." This blueprint identifies clinical, systems, community, and consumer-based strategies that will promote cessation nationwide.

UW-CTRI is also creating tools for disseminating tobacco dependence treatments. One such tool is a clinician packet that is a self-contained resource kit to assist clinicians in intervening more effectively with their patients. The packets also contain information on successfully integrating cessation interventions across the clinical setting, with other clinicians, and with community resources. Other tools include healthcare systems tools, clinician training programs, and consumer materials.

Policy Milestones

1996 Guideline cost effectiveness article published

1996 AHCRP Clinical Practice Guideline: *Smoking Cessation* published

1997 Addressing Tobacco in Managed Care program starts

1997 Dissemination program for 1996 Smoking Cessation Guideline created

"Creating the U.S. Public Health Service Clinical Practice Guideline for treating tobacco dependence was only the first step. Now we must disseminate its recommendations to every healthcare provider who treats smokers and encourage the use of tobacco dependence treatments that we know work."

Brion Fox, S.M., J.D.
Assistant Scientist

1999

First round of ATMC grants awarded

2000

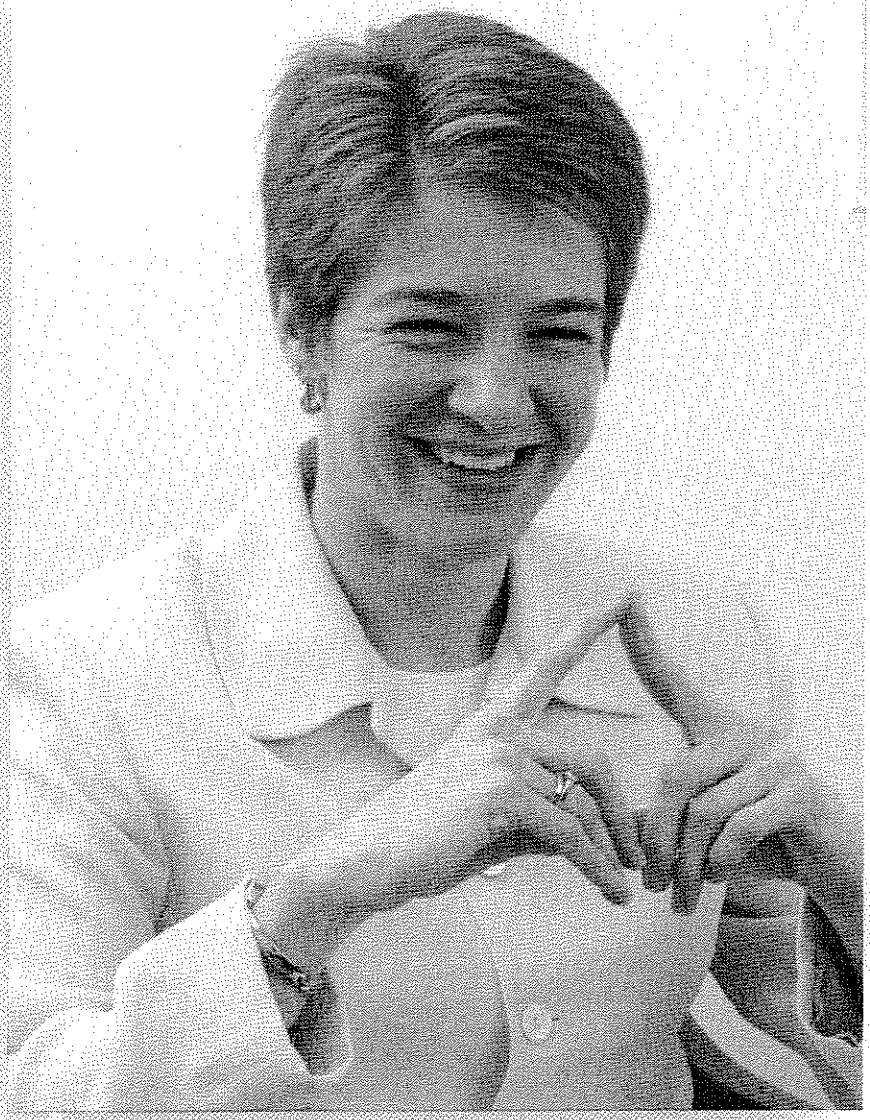
PHS Clinical Practice Guideline: *Treating Tobacco Use and Dependence* published

2002

Second round of ATMC grants awarded

2002

National blueprint for disseminating smoking cessation interventions developed



"Managed Care Organizations are one of the keys to gaining widespread implementation of smoking cessation programs. The Addressing Tobacco in Managed Care program encourages their involvement by evaluating and publicizing effective strategies."

Paula Keller, M.P.H.
ATMC Deputy Director

Encouraging Cessation Treatment by Managed Care Organizations

In 1997, The Robert Wood Johnson Foundation (RWJF) recognized the need for a systematic approach to encourage managed care organizations to integrate effective smoking cessation treatments into the basic health care they provide. To reach this objective, RWJF created the Addressing Tobacco in Managed Care (ATMC) program and UW-CTRI became the National Program Office. Dr. Michael Fiore of UW-CTRI and Dr. Susan Curry of the University of Illinois are the ATMC National Program directors.

As a RWJF National Program Office, UW-CTRI awards grants to evaluate policies to increase the delivery of tobacco dependence treatment to people enrolled in health plans. The seven-year, $6.7 million initiative awarded five grants in 1999 and ten grants in 2002.

Grantee research topics include evaluating whether using an electronic medical record feedback system increases the percentage of tobacco users who choose to quit, measuring the costs and impact of providing telephone cessation counseling, and assessing whether a managed care organization-sponsored tobacco cessation system can be implemented effectively in dental offices.

Healthcare Purchasers' Role in Treating Smoking Cessation

To help insure the widespread use of evidence-based smoking cessation treatments, insurance coverage for smoking cessation treatment must be widely available, and health care purchasers must demand that coverage.

In 1999 and 2000, UW-CTRI worked with the State of Wisconsin and others to extend insurance coverage of smoking cessation treatment to all State of Wisconsin employees. On January 1, 2001, this new benefit went into effect. Now UW-CTRI is using that experience and the experience of other organizations across the country to determine how the decision to add these insurance benefits is made, if research has a role in the decision, and the salient parts of the business case for coverage.

"As far back as 1996, the U.S. Agency for Healthcare Policy and Research recommended insurance coverage for smoking cessation treatment as a key part of a comprehensive tobacco control strategy. We are currently conducting research on how the decision to provide such coverage is made and, once made, what it costs a large public healthcare purchaser. These findings, we hope, will reduce some of the uncertainty that impedes healthcare purchasers' demand for this coverage."

Marguerite Burns, M.A.
Associate Researcher

Preparing for the Future – New Researchers

UW-CTRI has long served as a training ground for researchers and clinicians in psychology. In fact, work at UW-CTRI is part of the training rotation for the Clinical Psychology Program. Postdoctoral students in other fields have also been a part of the UW-CTRI research program – learning, publishing, and moving on to use their acquired knowledge and skills at other institutions.

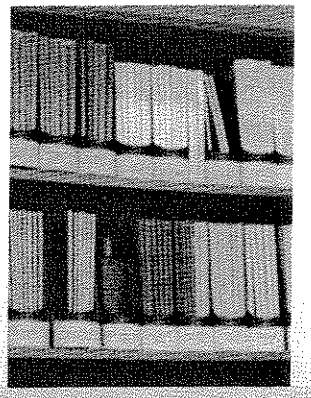
In addition, a number of undergraduates who have worked at UW-CTRI have gone on to medical school, influenced by the program and the people in the Center. Some gained research and clinical experience between medical school and residency, and all have left imbued with the knowledge that tobacco use is a chronic condition which requires ongoing treatment.

In 1994, UW-CTRI created recommendations for smoking cessation curricula in medical schools; and in 2002, a "Treating Tobacco Use and Dependence" clinical elective for fourth-year students was created for the University of Wisconsin Medical School.

With the awarding of the Transdisciplinary Tobacco Use Research Center (TTURC) grant in 1999, however, a new emphasis was placed on preparing for the future. The UW-TTURC Training Tobacco Scientists program includes a systematic approach to ensuring the future of tobacco research. Postdoctoral, graduate, undergraduate, and even high school students come to the Center to be part of ongoing research or to engage in their own research projects. Brown bag discussions also allow students to present their ideas and receive comment and encouragement from senior researchers.

"In the 20 months that I've been at UW-CTRI, I have been exposed to a wide array of issues in tobacco control science, from molecular genetics to healthcare policy research. I look forward to applying lessons learned from these diverse fields to my continuing research on relapse in the coming years."

Danielle McCarthy
Graduate student in psychology
UW-Madison



Training Milestones

1994
Medical School smoking cessation curriculum recommendations published

1995
Clinic becomes part of rotation for psychology students

1999
Training Tobacco Scientists program starts

2002
Curriculum for UW Medical School students approved

"To continue the fight to reduce the burden of tobacco use, we have to encourage young people to enter the field of tobacco control research. They bring fresh ideas and a new perspective. And, we need to educate medical school students about the importance of treating tobacco dependence and provide them with tools for doing so."

Tammy Sims, M.D., M.S.
Director, CTRI/TTURC Training
Assistant Professor
Department of Pediatrics

"Working with Dr. Fiore and the health professionals at UW-CTRI gave me perspective into the critically important role of prevention in healthcare, both for the individual and for society. My patients are grateful to me for the support I can give them in their quit process, and I'm grateful to UW-CTRI for the training and inspiration."

Jane Anderson, M.D.
Family medicine resident physician
Mercy Hospital, Janesville

Completing the Picture – A Comprehensive Program

"UW-CTRI has experienced tremendous growth in the past 10 years. We have grown from under 10 employees to our current staff of more than 70. But, we have not just added people, we have grown with a purpose: broadening our program in all the vital areas – research, clinical, training, outreach, and policy – and becoming a much more comprehensive center."

Lisa Rogers
Assistant Director for Finance

Building on the synergies of research and clinical interaction, the expansion of the outreach and policy programs in 2000 and 2001 has enhanced UW-CTRI's ability to advance the treatment of tobacco dependence. Synergies exist across Center departments. The clinic and the statewide outreach program benefit from the latest research, and the research program has a real-world laboratory through the Quit Line, mini-grants, and the Wisconsin Tobacco Use Survey.

The policy studies are a natural outgrowth of the recommendations of the Clinical Practice Guideline and add a vital component – a systems approach to treating tobacco dependence. The dissemination program, for the first time, brings together federal agencies and non-profit organizations to forge a comprehensive plan for reducing the burdern of tobacco use.

Although UW-CTRI has always provided career advancement and mentoring opportunities for students, the TTURC-funded Training Tobacco Scientists program has widened the audience and increased the potential for learning and mentoring.

Summary

"I have thought about how the Center has been able to stay on course through this rapid growth. I think the answer is that the organization has two very important components– a clear mission and consistent leadership. These two elements have given a clarity to where we are going and have helped our people fit their goals into the mission of the organization."

David Fraser, M.S.
Assistant Director for Research Administration

"Ask CTRI staff about why the Center has grown in size and accomplishment and the answer is . . . the people – those who work here and those who seek treatment."

Lisa Rogers
Assistant Director for Finance

"CTRI has all the characteristics of an effective learning organization. As I work with companies to help them develop their people's capability to learn and change, I am grateful that I have personally lived in a learning organization like UW-CTRI."

Fangying Stephanie Shi, Ph.D.
Management psychologist
Former UW-CTRI graduate student

"Working for CTRI had a huge impact on my decision to pursue medicine as a career. I will always be grateful to Drs. Fiore and Jorenby, as employers, mentors and friends, for providing me with this opportunity."

Melanie Schrank-Krueger
Medical student
Medical College of Milwaukee

The Numbers – Then and Now

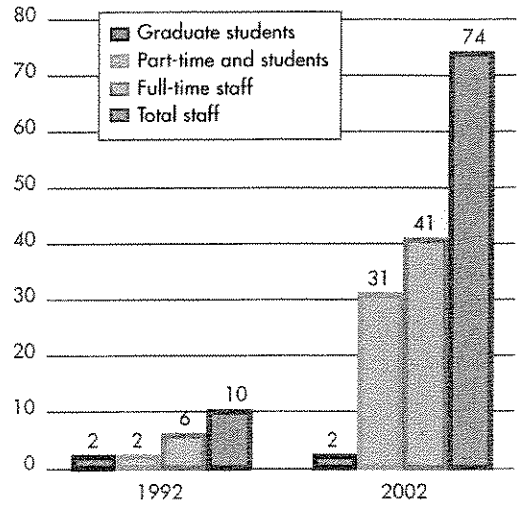
UW-CTRI growth in the past 10 years has occurred in all areas—number of staff, size of the operating budget, facilities, and influence in the realm of tobacco control. The Center has expanded from less than 10 to more than 70 employees, from five offices to more than 50, and from five computers to 100 workstations.

The Center's growth has not just been in number of staff but in the diversity of programs and funding sources. Early research was primarily clinical trials of new medications. In 1997, UW-CTRI was awarded the Addressing Tobacco in Managed Care program by The Robert Wood Johnson Foundation. In 1999, UW-CTRI began a five-year, $10 million research program focused on preventing relapse to tobacco use, funded by the National Cancer Institute (NCI) and the National Institute on Drug Abuse (NIDA). The Robert Wood Johnson Foundation in partnership with NCI and NIDA added grants for communication and policy programs. Overall from 1992-2002, just under $20 million has come from sources outside the State of Wisconsin and benefited the state economy.

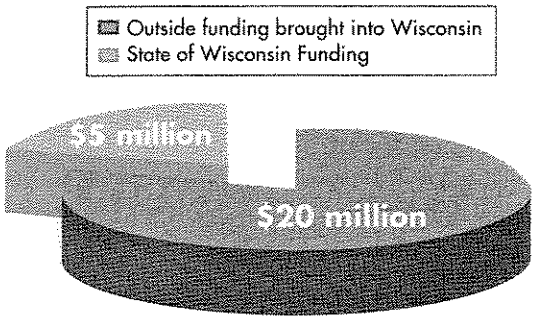
State funding, primarily through the Master Settlement Agreement, has resulted in a major expansion of the outreach program and an addition of nine staff members since October 2000. It has also meant the creation of the Wisconsin Tobacco Quit Line, the mini-grant program and the Wisconsin Tobacco Use Survey.

This diversification of UW-CTRI funding has resulted in a more comprehensive program to reduce the effects of tobacco dependence on individuals, the state, and the country.

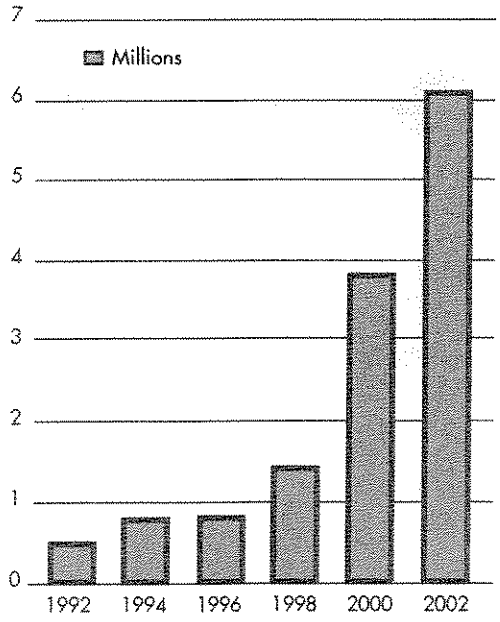
UW-CTRI
Staff Growth



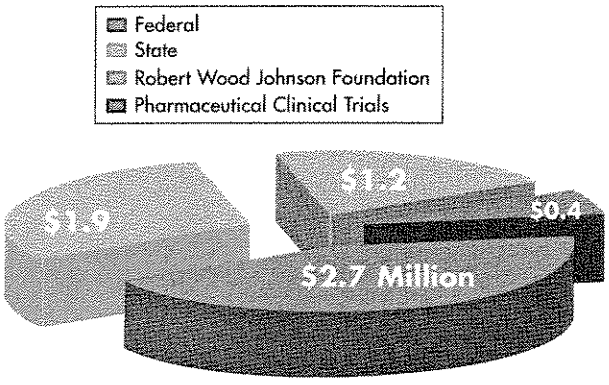
Income 1992-2002
(Total =$25 million)



Operating Budgets
1992-2002



Sources of Income 2002
(Total =$6.1 million)



PUBLICATIONS

Targeting Smokers at Increased Risk for Relapse: Treating Women and Those with a History of Depression. Smith SS, Jorenby DE, Leischow SJ, Nides MA, Rennard SI, Johnston JA, Jamerson B, Fiore MC, Baker TB. NICOTINE & TOBACCO RESEARCH, In Press.

Addressing Tobacco in Managed Care: Documenting the Challenges and Potential for Systems-Level Change. Curry SJ, Fiore MC, Orleans CT, Keller P. NICOTINE & TOBACCO RESEARCH, 2002.

Treating Tobacco Use and Dependence – An Evidence-Based Clinical Practice Guideline for Tobacco Cessation. Anderson JE, Jorenby DE, Scott WJ, Fiore MC. CHEST, 2002.

Gender and Racial/Ethnic Differences in Tobacco Dependence Treatment: A Commentary and Research Recommendations. Piper ME, Fox BJ, Welsch SK, Fiore MC, Baker TB. RESEARCH IN NICOTINE & TOBACCO, 2001.

Strike While the Iron is Hot: Can Stepped Care Treatments Resurrect Relapsing Smokers? Smith SS, Jorenby DE, Fiore MC, Anderson JE, Mielke MM, Beach KE, Piasecki TM, Baker TB. JOURNAL OF CONSULTING AND CLINICAL PSYCHOLOGY, 2001.

Removing Barriers to Local Tobacco Regulation (review). Fox, BJ. JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 2001.

Under-use of Tobacco Dependence Treatment Among Wisconsin's Fee-for-Service Medicaid Recipients. Burns ME, Fiore MC. WISCONSIN MEDICAL JOURNAL, 2001.

Treating Tobacco Use and Dependence. Clinical Practice Guideline. Fiore MC, Bailey WC, Cohen, SJ, et al. US DHHS PUBLIC HEALTH SERVICE, 2000.

Smoking Withdrawal Dynamics in Unaided Quitters. Piasecki TM, Niaura R, Shadel WG, Abrams D, Goldstein M, Fiore MC, Baker TB. JOURNAL OF ABNORMAL PSYCHOLOGY, 2000.

A Controlled Trial of Sustained-Release Bupropion, A Nicotine Patch, or Both For Smoking Cessation. Jorenby DE, Smith SS, Fiore MC, Baker TB. NEW ENGLAND JOURNAL OF MEDICINE, 1999.

Gender Differences in Smoking Cessation. Fiore MC, Jorenby DE, Baker TB, Smith SS. JOURNAL OF CONSULTING AND CLINICAL PSYCHOLOGY, 1999.

Transdermal Nicotine Replacement for Hospitalized Patients: A Randomized Clinical Trial. Lewis SF, Piasecki TM, Fiore MC, Anderson JE, Baker TB. PREVENTIVE MEDICINE, 1998.

Profiles in Discouragement: Two Studies of Variability in the Time Course of Smoking Withdrawal Symptoms. Piasecki TM, Fiore MC, Baker TB. THE JOURNAL OF ABNORMAL PSYCHOLOGY, 1998.

Cost Effectiveness of the Clinical Practice Recommendations in the AHCPR Guideline, 1996. Cromwell J, Fiore MC, Baker TB. JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 1997.

PUBLICATIONS

Withdrawal Dynamics and Smoking Relapse: Implications for Theory, Assessment, and Intervention. Piasecki TM, Fiore MC, Baker TB. JOURNAL OF ADDICTIVE DISEASES, 1997.

Youth Tobacco Sale Compliance Checks: Impact on Vendor Practices and Community Policy. Schensky AE, Smith SS, Icenogle DL, Fiore MC. WISCONSIN MEDICAL JOURNAL, 1996.

Smoking Cessation. Clinical Practice Guideline No. 18. Fiore MC, Bailey WC, Cohen SJ et al. US DHHS AGENCY FOR HEALTH CARE POLICY AND RESEARCH, 1996.

Varying Nicotine Patch Dose and Type of Smoking Cessation Counseling. Jorenby DE, Smith SS, Fiore MC, Hurt RD, Offord KP, Croghan IT, et al. JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 1995.

Smoking Status as the New Vital Sign: Effect on Assessment and Intervention in Smokers. Jorenby DE, Fiore MC, Keehn D. MAYO CLINIC PROCEEDINGS, 1995.

Tobacco Withdrawal and Nicotine Replacement Influence Objective Measures of Sleep. Wetter DW, Fiore MC, Baker TB, Young TB. JOURNAL OF CONSULTING AND CLINICAL PSYCHOLOGY, 1995.

Smoking Cessation Treatment and the Good Doctor Club (editorial). Fiore MC, Baker TB. AMERICAN JOURNAL OF PUBLIC HEALTH, 1995.

Two Studies of Clinical Effectiveness of the Nicotine Patch with Different Counseling. Fiore MC, Kenford SL, Jorenby DE, Wetter DW, Smith SS, Baker TB. CHEST, 1994.

Predicting Smoking Cessation: Who Will Quit With and Without the Nicotine Patch. Fiore MC, Kenford SL, Jorenby DE, Smith SS, Wetter DW, Baker TB. JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 1994.

The Effectiveness of the Nicotine Patch: A Meta-Analysis. Fiore MC, Smith SS, Jorenby DE, Baker TB. JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 1994.

Tobacco Dependence and the Nicotine Patch: Clinical Guidelines for Effective Use. Fiore MC, Jorenby DE, Baker TB, Kenford SL. JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 1992.

Smoke-Free Hospitals: A Time for Universal Action. Fiore MC, Jorenby DE. CHEST, 1992.

The New Vital Sign: Assessing and Documenting Smoking Status. Fiore MC. JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 1991.

Cigarette Smoking: The Clinician's Role in Cessation, Prevention, and Public Health. Fiore MC, Pierce JP, Remington PL, Fiore BJ. DISEASE-A-MONTH, 1990.

Methods Used to Quit Smoking in the United States – Do Cessation Programs Help? Fiore MC, Novotny TE, Pierce JP, et al. JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 1990.

Trends in Cigarette Smoking in the United States – The Changing Influence of Gender and Race. Fiore MC, Novotny TE, Pierce JP, Hatziandreu EJ, Patel KM, Davis RM. JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 1989.

Our heartfelt thanks to all the people who have contributed so much to the growth and success of this Center.

INSIGHTS: SMOKING IN WISCONSIN

A series of papers analyzing Wisconsin tobacco use and providing recommendations for action, based on interviews with 6000 Wisconsin residents.

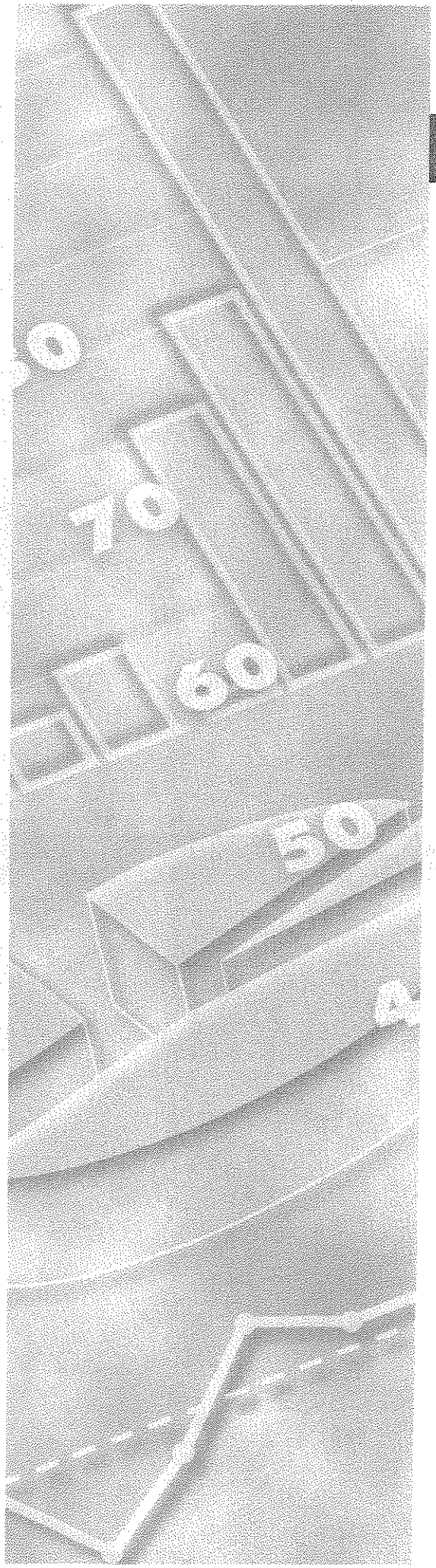
Why People Smoke

Action Paper Number 1

CTRI
Center for
Tobacco Research
and Intervention
University of Wisconsin
Medical School

WISCONSIN
TOBACCO
CONTROL BOARD

University of Wisconsin
Comprehensive Cancer Center



WHY PEOPLE SMOKE

TABLE OF CONTENTS

EXECUTIVE SUMMARY

Through over 6000 interviews conducted with Wisconsin residents, the Wisconsin Tobacco Survey (WTS) offers insight into the perplexing problem of why people continue to smoke. This report examines: the smoking climate, smokers' attitudes toward tobacco use, reasons for smoking, relapsing after a quit attempt, and why some smokers don't try to quit. This report also makes recommendations, based on these findings, that are designed to reduce tobacco use in Wisconsin.

In this report, respondents were categorized into three groups: never smokers, former smokers and current smokers. In this paper, current smokers are further divided into three groups: light (5 or fewer cigarettes a day and occasional smokers); moderate (6-20 cigarettes a day); and heavy (21 plus). In the study 23 percent of current smokers were light, 61 percent moderate and 16 percent heavy. The terms "light" and "moderate" are not intended to indicate risk from smoking. They are used to designate relative consumption.

The WTS shows that smokers tend to live and work in a climate of smoking. They are more likely than other Wisconsin residents to have smokers in their households and to have spouses, friends and family members who smoke. Moderate and heavy smokers are especially likely to be surrounded by other smokers. Smokers are also more likely to work in environments that allow smoking. This is especially true of heavy smokers.

Most smokers believe that smoking is addictive—65 percent of light smokers, 86 percent of moderate smokers and 95 percent of heavy smokers. Most smokers, especially heavy smokers, believe that smoking has negatively affected their health.

Most smokers offer similar reasons for their smoking. Typically, they report that smoking is an addictive habit that they enjoy and that relieves stress. Light smokers tend to smoke more for social reasons while heavy smokers are more likely to report that they smoke because of the addictive nature of tobacco.

Asked why they relapse to smoking after a quit attempt, smokers mention cravings, addiction, not trying hard enough, not being ready, and being around other smokers. Light smokers were more likely to cite being around others and stress reduction. Smokers cite cravings, losing a way to handle stress, nicotine withdrawal, fear of failure and cost of medicines as reasons for not making a quit attempt.

Taken together these findings indicate that a comprehensive program is necessary to reduce smoking in Wisconsin. Reducing the climate of smoking by creating smoke-free workplaces and recreational areas is an important component. Providing assistance to smokers that helps them plan their quit attempts and encourages them in a positive, supportive way is vital to cessation success. Finally, the many reasons offered for continued smoking necessitates further research in order to provide more individualized treatment for tobacco dependence.

PURPOSE AND INTRODUCTION

The Wisconsin Tobacco Survey (WTS) provides a comprehensive look at Wisconsin smoking patterns, attitudes, and climate. Based on interviews with over 6000 Wisconsin residents, including current, former and never smokers, the WTS provides valuable insights into the phenomena of tobacco dependence, attempts at cessation and support for those attempts. Findings from the survey are summarized in a series of action papers. The purpose of these action papers is twofold: to communicate these insights and to offer recommendations for actions to reduce tobacco dependence.

This action paper describes the reasons Wisconsin adults continue to smoke. Currently, 23 percent of Wisconsin residents are smokers. This has changed little over the past 15 years (see *Tobacco Trends in Wisconsin,* Spring 2001). Tobacco dependence is a complex phenomenon with marked variability. Smokers are not a homogeneous group. Their reasons for smoking, their withdrawal, their failures to quit and their ultimate success in overcoming tobacco dependence are individualized. The more information we can gather about smokers and the reasons they smoke, the more we can design treatments to meet the goal set by the Wisconsin Tobacco Control Board (WTCB) to reduce smoking in Wisconsin by 20 percent by 2005.

In this paper, a number of influences on smoking behavior are examined in order to provide a more comprehensive view of tobacco use. These influences include:

- **The tobacco use climate.** Are there other smokers in the household? Do friends, family and/or spouse smoke? Do respondents work in an environment that includes smoking?
- **The smoker's attitude toward his/her tobacco use.** Do smokers believe that nicotine is addictive? Do they believe smoking has affected their health?
- **Stated reasons for smoking.** What reasons do smokers offer for their smoking? What are the main reasons?
- **Reasons for relapsing.** Each quit attempt is a learning experience. What do smokers report are the reasons they returned to smoking? What can we learn about dependence from a quit failure?
- **Reasons for not quitting.** What keeps smokers smoking? What prevents them from trying again to quit?

Because of the large number of interviews completed for the Wisconsin Tobacco Survey, we can examine these questions from a number of viewpoints. In terms of the climate, we can assess the differences between current smokers, former smokers and never smokers. We can also examine the differences between light smokers (5 or fewer cigarettes per day and occasional smokers), moderate smokers (from 6 to 21 cigarettes a day) and heavy smokers (over 21 a day). In the study, 23 percent of smokers were light, 61 percent moderate and 16 percent heavy. As noted above, the terms "light" and "moderate" are used to designate relative consumption and are unrelated to health effects. In fact, scientific evidence has documented that smoking even as few as four or fewer cigarettes per day is associated with a marked increase in heart attacks and strokes.

THE DATA

SMOKING CLIMATE: HOME AND SOCIAL SITUATIONS

Compared to non-smokers, current smokers are more likely to have another smoker in the household, to have a spouse or partner who smokes and to have friends and family members who are smokers. There are also some differences between light smokers and moderate and heavy smokers in terms of household members, spouse, and friends and family who smoke. For example, 43 percent of heavy smokers have another smoker in their household versus 31 percent of light smokers and 12 percent of never smokers. A similar pattern is seen regarding a spouse who smokes. About 38 percent of heavy smokers, 32 percent of light smokers, 13 percent of former smokers and 10 percent of never smokers report they have a spouse or partner who smokes.

FIGURE 1

Percentage of respondents with smokers in their household

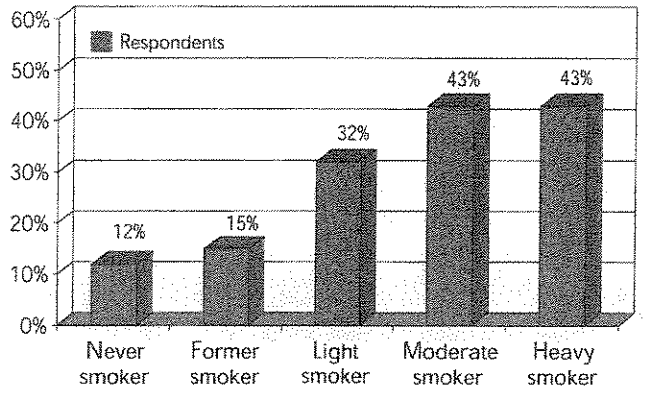


FIGURE 2

Percentage of respondents with spouse or partner who smokes

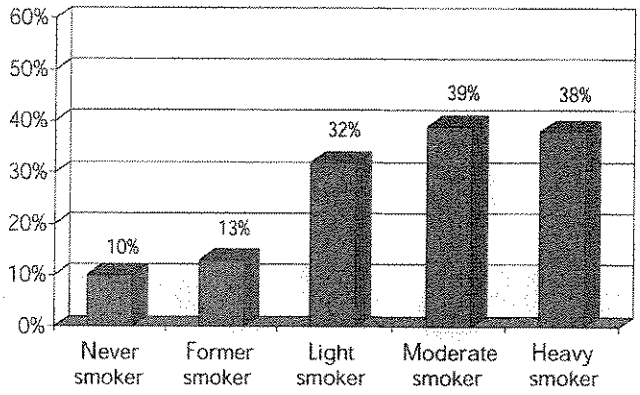
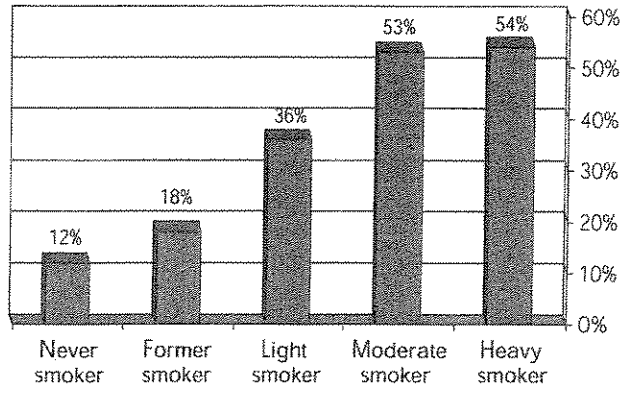


FIGURE 3

Percentage of respondents who report that half or more of their family and friends smoke



In terms of those respondents who report half or more of their family and friends smoke (Figure 3), the differences are dramatic: 54 percent of heavy smokers responded affirmatively to this question versus 18 percent of former smokers and 12 percent of never smokers. These data indicate a marked difference between smokers, former smokers and never smokers in terms of the extent to which smoking permeates daily life.

SMOKING CLIMATE: WORK ENVIRONMENT

The work environment may also have an effect on smoking patterns. Questions on the survey asked about smoking restrictions at work, including smoking restrictions in work areas and in common or public areas.

FIGURE 4

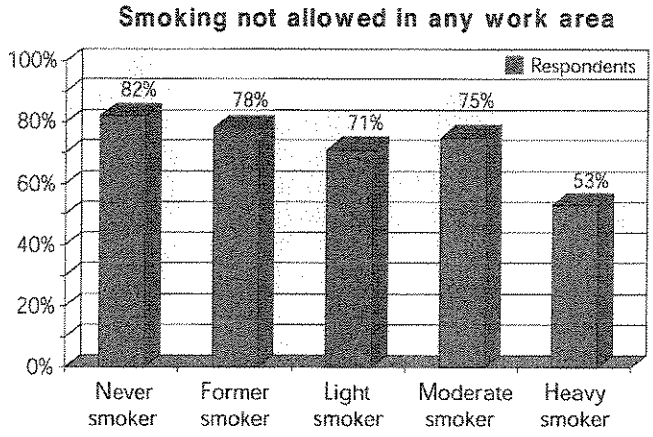


FIGURE 5

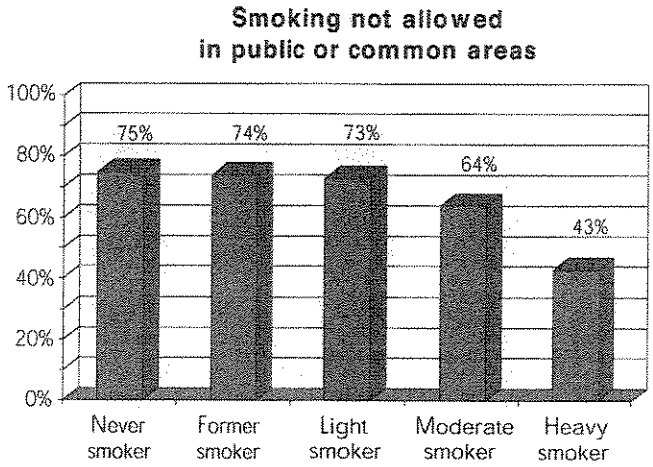
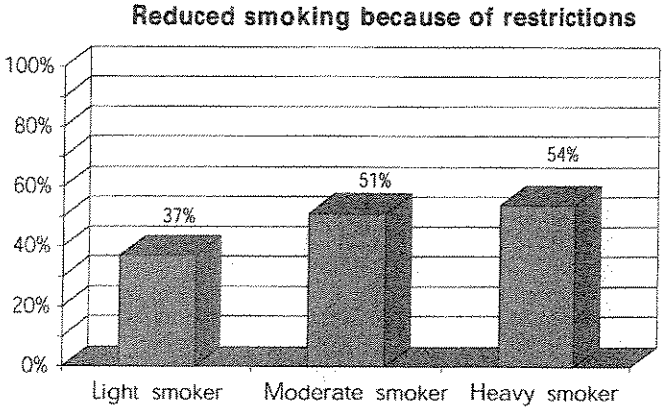


Figure 4 categorizes smoking status based on restrictions on smoking in work areas. Heavy smokers are the least likely to work in an environment where smoking is restricted.

In terms of public or common areas of the workplace (lobbies, restrooms, lunch areas), a similar pattern is seen (Figure 5). Heavy smokers are much less likely to work where smoking is not allowed in public places (or common areas) than are light, moderate, former or never smokers. It is unclear from these data whether heavy smokers select worksites where smoking is permitted or if worksite, smoking restrictions encourage smokers to smoke less or to quit.

When asked, "If you have reduced your smoking because of restrictions at your place of employment?" over 50 percent of heavy and moderate smokers, said, "Yes" and only 37 percent of light smokers said, "Yes" (Figure 6). This finding may suggest another potential benefit of smoke-free worksites.

FIGURE 6



ATTITUDES TOWARD SMOKING: ADDICTION & HEALTH IMPACT

Among respondents who smoke, there were clear differences in attitudes concerning the addictiveness of smoking—65 percent of light smokers, 86 percent of moderate smokers and 95 percent of heavy smokers believe that smoking is addictive. Most smokers also acknowledge the health effects of smoking. When asked, "Do you believe your tobacco use has negatively affected your health in any way?" 56 percent of light smokers, 68 percent of moderate smokers and 70 percent of heavy smokers said, "Yes." The number decreases as smokers become former smokers, with 42 percent of former smokers reporting that smoking has affected their health.

REASONS PEOPLE SMOKE

It is important to look at reasons smokers report that they smoke. First, respondents were asked to review a list of reasons and to indicate as many as were appropriate for them (Table 1). Second, they were asked to select the main reason they smoke (Table 2).

Table 1

REASONS YOU SMOKE *(Check all reasons that apply)*	**Light Smokers (%)**	**Moderate Smokers (%)**	**Heavy Smokers (%)**
It's a habit	79	94	97
I'm addicted	65	86	95
It relaxes me	75	79	80
I enjoy it	70	77	77
Something to do with my hands	47	52	63
It helps me cope	39	48	56
Keeps me going	21	31	35
An excuse to take a break	38	41	34
For social reasons	50	31	28
Helps me concentrate	17	21	27
It wakes me up	17	19	23
Keeps weight down	19	21	19

Among **heavy smokers,** addiction, relaxation, habit, enjoyment, "something to do with my hands," and help with coping were cited by at least 50 percent of respondents (Table 1). Addiction (39 percent), followed by habit (25 percent) were the main reasons heavy smokers reported that they smoke (Table 2).

Among **moderate smokers,** habit, addiction, relaxation, enjoyment and "something to do with my hands" were cited by at least 50 percent of respondents (Table 1). Addiction (38 percent) and habit (24 percent) were the main reasons cited by moderate smokers (Table 2).

At least 50 percent of **light smokers** cited habit, relaxation, enjoyment, addiction and social reasons (Table 1).

In terms of the main reason for smoking, light smokers cited addiction (21 percent), relaxation (16 percent) and social reasons (16 percent). (See Table 2.)

In addition, 33 percent of light smokers who volunteered a reason not included in the standard response list said that smoking "goes well with alcohol." This supports the high rating for smoking as a social activity by light smokers.

Table 2

MAIN REASON FOR SMOKING (Check only one)	Light Smokers (%)	Moderate Smokers (%)	Heavy Smokers (%)
I'm addicted	21	38	39
It's a habit	15	24	25
Relaxes me	16	12	15
Like it or enjoy it	12	15	10
Social reasons	16	1	1

REASONS FOR RELAPSE TO SMOKING AFTER A QUIT ATTEMPT

Previous data have documented that more than 50 percent of Wisconsin smokers have already tried to quit smoking but have relapsed. Until now, we have had little understanding of the reasons that these potential quitters relapsed to smoking. The Wisconsin Tobacco Survey provides key information on this topic.

DATA CONTINUED

Table 3

REASONS BEGAN SMOKING AFTER A QUIT ATTEMPT (Check all that apply)	Light Smokers (%)	Moderate Smokers (%)	Heavy Smokers (%)
Addiction	55	69	83
Cravings	67	75	74
Didn't try hard enough	62	56	61
Not ready to quit	50	57	60
A stressful situation	56	57	58
Being around other smokers	71	60	56
Wanted enjoyment	44	54	49
Withdrawal symptoms	29	40	46
Boredom	40	33	39
Drinking alcohol	44	34	31
No reason in particular	32	30	29
No support	10	17	23
Depressed	27	23	21
Marital/relationship problems	22	22	19
Weight gain	13	13	13
A death or tragedy	24	15	12
Pressure from others	9	10	10

For **heavy smokers** who relapse, addiction, cravings, not trying hard enough, not being ready to quit, stress and being around other smokers were cited by at least 50 percent of respondents (Table 3). Main reasons for relapse after a quit attempt were reported as cravings (21 percent) and not ready to quit (19 percent). (See Table 4.)

For **moderate smokers** who relapse, cravings, addiction, being around others, not ready, stress, didn't try hard enough and wanting the enjoyment of smoking were cited by at least 50 percent (Table 3). The main reasons reported (Table 4) were a stressful situation (21 percent) and cravings (19 percent).

For **light smokers** who relapsed, being around others, cravings, not trying, stress, addiction and not being ready to quit were cited by at least 50 percent of respondents (Table 3). The main reasons reported (Table 4) were a stressful situation (25 percent) and being around other smokers (22 percent).

Table 4

MAIN REASONS BEGAN SMOKING AFTER A QUIT ATTEMPT (Check only one reason)	Light Smokers (%)	Moderate Smokers (%)	Heavy Smokers (%)
Stressful situation	25	21	17
Cravings	12	19	21
Not ready to quit	6	10	19
Being around other smokers	22	12	2

It is apparent that a number of key factors appear to influence both reasons for smoking and reasons for relapsing. Moderate and heavy smokers report more cravings and signs of addiction. Heavy smokers in particular are influenced by addiction and cravings. Light smokers use smoking primarily as a social activity but also use it to reduce stress. Alcohol, although a contributing factor in the array of reasons, was not cited as a major reason for continuing to smoke or for relapse. An exception to this finding was that 33 percent of light smokers cited alcohol as a reason to continue smoking. Also, although addiction was cited before as a reason for smoking, the effects of addiction—cravings, withdrawal symptoms, and feelings of stress—are cited more as causes for relapse.

REASONS FOR NOT TRYING TO QUIT

Finally, the Wisconsin Tobacco Survey looked at reasons that might discourage smokers from trying to quit. Respondents were asked to select all the reasons and the main reason that might keep them from trying to quit.

Table 5 summarizes all the reasons that smokers report that they are not trying to quit. For heavy smokers, more than 50 percent cite nicotine withdrawal and cravings. About 49 percent report the loss of handling stress and bad moods as a reason that they don't try to quit.

In contrast, 72 percent of moderate smokers and 56 percent of light smokers report that cravings is a reason for not quitting. Only 48 percent of moderate smokers and 35 percent of light smokers report that nicotine withdrawal is a reason they don't try to quit.

DATA CONTINUED

Table 5

REASONS FOR NOT TRYING TO QUIT (Check all that apply)	Light Smokers (%)	Moderate Smokers (%)	Heavy Smokers (%)
Cravings	56	72	77
Nicotine withdrawal	35	48	60
Loss of way to handle stress/bad moods	37	36	49
Fear you cannot quit	27	36	42
Discouragement from prior failures	23	27	29
The cost of medicines	24	27	27
The cost of classes or programs	17	20	25
Risk of gaining weight	15	18	18
Inconvenience of classes/programs	10	13	15
Lose social/work relationships	17	9	11

As shown in Table 6, the main reason for not trying to quit for heavy smokers is cravings (32 percent) followed by nicotine withdrawal (20 percent). This points to a powerful role for withdrawal in discouraging quit attempts since cravings is part of the tobacco withdrawal syndrome. The data suggest that for over half of heavy smokers, anticipation of tobacco withdrawal is the main deterrent for making a quit attempt. Among moderate smokers, the main reason for not trying to quit is also cravings (31 percent) followed by loss of a way to handle stress (13 percent) and nicotine withdrawal (12 percent).

Finally, among light smokers, the main reason for not trying to quit is cravings (28 percent) followed by loss of a way to handle stress (17 percent), and nicotine withdrawal (11 percent). Notably, less than 10 percent of respondents cite the cost of medication as the main reason for not trying to quit but about one quarter of all respondents list it as one of the reasons for not trying to quit.

Table 6

MAIN REASON FOR NOT TRYING TO QUIT (Check only one)	Light Smokers (%)	Moderate Smokers (%)	Heavy Smokers (%)
Cravings	28	31	32
Nicotine withdrawal	11	12	20
Loss of a way to handle stress	17	13	11
Fear can't quit	5	11	10
Cost of medicines	8	9	7

CONCLUSIONS

These findings suggest that a range of factors influence why Wisconsin residents smoke. It is a complex phenomenon that includes both environment influences and internal cues. While complex, some factors are particularly relevant. The Wisconsin Tobacco Survey shows that smokers tend to be surrounded by a climate of tobacco use. Smokers are more likely to have friends, family and spouses who smoke. They tend to work in places that have fewer restrictions on smoking.

Moreover, reasons for smoking vary based on whether respondents are light, moderate or heavy smokers. Heavy smokers report more addiction and more habituation of smoking. Light smokers tend to feel the need to smoke in social situations and may be more affected by alcohol use. It is somewhat surprising that light smokers also see themselves as addicted and experiencing cravings. This points to the powerfully addictive nature of tobacco even among those who use relatively less tobacco each day. Most smokers also report that they enjoy smoking, see it as relaxing and use it as a coping mechanism. The power of nicotine to both provide good feelings and mitigate bad feelings is amply demonstrated.

Even though smokers know that smoking is an addiction and that it affects their health, they are reluctant to try to quit. The primary reasons are fear of nicotine withdrawal, fear of losing a way to cope with stress, fear of failure, cost of medications and, for light smokers, social reasons. This indicates that smokers are fairly accurate in their assessment of their situation. They may not, however, understand how to mitigate their fears and conduct a successful quit attempt.

RECOMMENDATIONS

Both Healthy People 2010 (a health promotion and disease prevention agenda from the U.S. Department of Health and Human Services) and the Wisconsin Tobacco Control Board have established ambitious goals for reducing smoking prevalence. To reach those goals, certain definite actions must be taken. Based on the Wisconsin Tobacco Survey and other research, the following action steps are recommended:

CLIMATE OF TOBACCO USE

- This report suggests that the environment surrounding smokers, especially heavy smokers, influences tobacco use. It also demonstrates that an environment with smoking restrictions is correlated with lower tobacco use rates. The WTCB's goal of increasing smoke-free workplaces to 90 percent by 2005 should be implemented to encourage smoking cessation as well as to reduce the dangers of second-hand smoke.

- Employers should offer smoking cessation programs and/or payment of smoking cessation medication costs for their employees, since cost of medication and the smoking climate have both been shown to be reasons for smokers continuing to smoke. The WTCB, Wisconsin employers, labor unions and employees should work together to develop strong workplace cessation programs. In addition, programs should be expanded to include family members since they contribute to the tobacco use climate.

- Since light smokers are greatly influenced by social situations (and perhaps are stimulated to smoke by drinking alcohol), the WTCB goal of increasing smoke-free restaurant ordinances to 100 municipalities should be supported.

REASONS FOR SMOKING, RELAPSE AND NOT TRYING TO QUIT

- Fear of withdrawal and cravings were cited as reasons for continued smoking. Treatments are currently available that mitigate cravings and nicotine withdrawal. Wisconsin physicians should be trained in smoking cessation treatment and encouraged to intervene with their patients, including the provision of counseling and medication found to be effective. Support of training and technical assistance for healthcare providers should be enhanced.

- Smokers who have tried to quit are discouraged and fear failure. Programs aimed at encouraging cessation must focus on positive reinforcement rather than emphasizing negative health consequences. One means of doing this is to provide continued support for the Wisconsin Tobacco Quit Line to provide the counseling component that is essential to a successful quit attempt. WTCB advertising aimed at smokers should be positive and emphasize available support as well as the potential success from using evidence-based treatments.

- More research on smoking cessation and relapse prevention should be conducted in order to offer more individualized treatment for smokers, especially for light smokers who, according to the survey, are more affected by social situations in which smoking occurs.

TECHNICAL NOTES

The Wisconsin Tobacco Survey was conducted in 2001 by the University of Wisconsin Center for Tobacco Research and Intervention. The survey garnered information from 6135 Wisconsin residents using extensive interviews. The purpose of the survey was to provide important information about: 1) current tobacco use patterns among Wisconsin adults, 2) attitudes towards efforts to regulate tobacco, 3) patterns of smoking cessation attempts, and 4) a number of other tobacco research issues.

The survey included 162 questions on general health, tobacco use, smoking cessation, smokers' use of health care services, smoking during pregnancy, and demographics. The survey consisted of three primary tracks – current cigarette smoker, former cigarette smoker, and never cigarette smoker. Current smoker was defined as someone who smoked 100 cigarettes in a lifetime and now smokes every day or some days. A former smoker was defined as someone who smoked 100 cigarettes in a lifetime and now does not smoke at all. A never smoker was defined as someone who has never smoked a cigarette or has never smoked 100 cigarettes in a lifetime. Questions about tobacco use of any kind (e.g., cigar smokers, pipe smokers, or snuff/chewing tobacco users) were also included. A major goal of the project was to contrast trends in behaviors and attitudes across these different groups defined on the basis of tobacco use status.

Opinion Dynamics Corporation (ODC) was retained to conduct the 2001 Wisconsin Tobacco Survey. The WTS used a scientifically-selected random sample which gave all households with telephones a chance of inclusion in the study. Within a selected household, the respondent was chosen by a procedure that randomly selects the oldest adult male, the youngest adult male, the oldest adult female or the youngest adult female. Household members eligible for inclusion in the survey included all related adults (aged 18 or older), unrelated adults, roomers, and domestic workers who consider the household their home.

The survey was designed to over sample the two most disproportionately African American counties in Wisconsin, Milwaukee and Racine. Out of 6,135 people surveyed, people living in Milwaukee and Racine counties completed 2,226 surveys. African American residents completed four percent or 268 surveys. Neither Native Americans nor Hispanics could be over sampled meaningfully without compromising the rest of the project.

The survey was programmed into a Computer Assisted Telephone Interviewing (CATI) software program to perform the basic data collection tasks of telephone interviewing. As questions were displayed, the interviewer read them to the respondent and keyed in the responses. The survey automatically skipped inappropriate questions and checked for the acceptability of responses. All attempts to contact potential respondents were tracked and coded by sample disposition. This enabled the CATI system to properly designate sample points for calling, schedule callbacks, and administer non-responsive contact attempts.

Before eliminating a respondent from the sample and randomly selecting a replacement, at least five telephone calls were made to reach the household. Efforts were made to ensure a highly representative sample by varying calls at different times of day and on different days of the week. Callbacks were scheduled as requested by respondents. Completed interview status was only assigned once all data was collected for a given interview.

For the purpose of this study, the Council of American Survey Research Organizations (CASRO) methodology was used to calculate response rate. The methodology apportioned dispositions with unknown eligibility status (e.g., no answer, answering machine, busy, etc.) to dispositions representing eligible respondents in the same proportion as exists among all calls of known status. The starting sample (N) for

the entire survey was 33,636. Thirty-six percent of this group was invalidated (e.g., disconnected phone, busy phone), leaving an N of 21,387. The application of the CASRO response rate formula to this sample resulted in an adjusted N of 19,036. A total of 6,155 respondents completed the interview, resulting in a CASRO-adjusted response rate of 32.3%.

Data from 20 respondents were deleted from the final dataset due to inconsistencies in their responses to the tobacco use questions. A total of 6,135 valid surveys were included in the final dataset. Among those people, 4,106 never smoked, 1,071 were former smokers and 958 were current cigarette smokers.

To ensure confidentiality, no respondent identifiers were retained in the interview records, and reports cite only aggregate figures.

WTS data were weighted to more accurately represent the population of Wisconsin. The data were weighted based on five demographic, geographic, and SES characteristics of respondents – age, gender, race, education attainment, and geographic location. Known population information was based on the 2000 Census data for Wisconsin, except for education attainment, which was based on the 1990 Wisconsin Census data. In addition to demographic and SES characteristics, the WTS data were weighted based on two locations – Milwaukee County/Racine County and all other Wisconsin Counties. This was done to adjust the data based on these two locations because the WTS includes an over sample of Milwaukee and Racine Counties, resulting in an over representation of these populations.

REFERENCES

- University of Wisconsin Center for Tobacco Research and Intervention, *Wisconsin Tobacco Survey*, November 2001. Available at http://www.ctri.wisc.edu or call 1-608-265-4597.
- University of Wisconsin Comprehensive Cancer Center, *Wisconsin Tobacco Trends: An Assessment of the Baseline Goals of the Wisconsin Tobacco Control Board*, May 2001. Available at http://www.tobwis.org/
- U. S. Department of Health and Human Services, *Tracking Healthy People 2010.* Washington D.C. U.S. Government Printing Office, November 2000. For more information, visit this website http://www.health.gov/healthypeople/ or call 1-800-367-4725.
- Fiore MC, Bailey WC, Cohen SJ, et al. *Treating Tobacco Use and Dependence.* Clinical Practice Guideline. Rockville, MD: U.S. Department of Health and Human Services. Public Health Service. June 2000. Available at http://www.surgeongeneral/tobacco/default.htm

ACKNOWLEDGEMENTS

The action papers are the result of a joint effort of the University of Wisconsin Center for Tobacco Research and Intervention, the UW Comprehensive Cancer Center's Monitoring and Evaluation Program and the Wisconsin Tobacco Control Board.

KEY INDIVIDUALS INVOLVED IN THE PREPARATION OF THESE PAPERS ARE:

Timothy Baker, Ph.D.; Brion Fox, J.D.; Stevens Smith, Ph.D.; Michael Fiore, M.D., M.P.H.; Gloria Meyer, M.A.; Lezli Redmond, M.P.H.; Patrick Remington, M.D., M.P.H.; David Ahrens, M.S.; and Ann Christianson, M.P.H. Lead author for this paper was Gloria Meyer.
Graphic design: Department of Medical Illustration, UW-Medical School

ADDITIONAL COPIES ARE AVAILABLE FROM:

Deb Christianson
UW Center for Tobacco Research and Intervention
1930 Monroe Street, Suite 200
Madison, WI 53711

608-265-4597
djc@ctri.medicine.wisc.edu

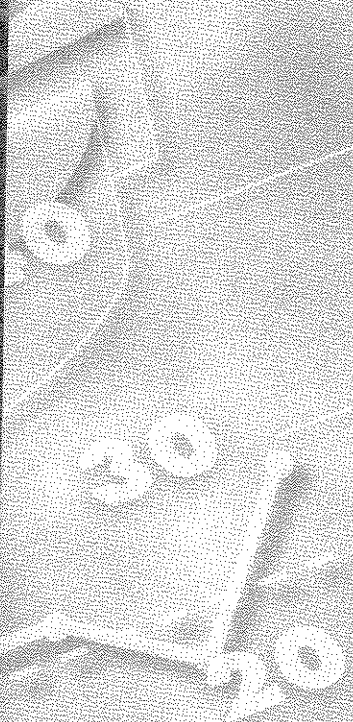
A PDF version is available at:
www.ctri.wisc.edu and www.tobwis.org
Publication date: October 2002

INSIGHTS: SMOKING IN WISCONSIN

A series of papers analyzing Wisconsin tobacco use and providing recommendations for action, based on interviews with 6000 Wisconsin residents.

Smoking and Pregnancy

Action Paper Number 2

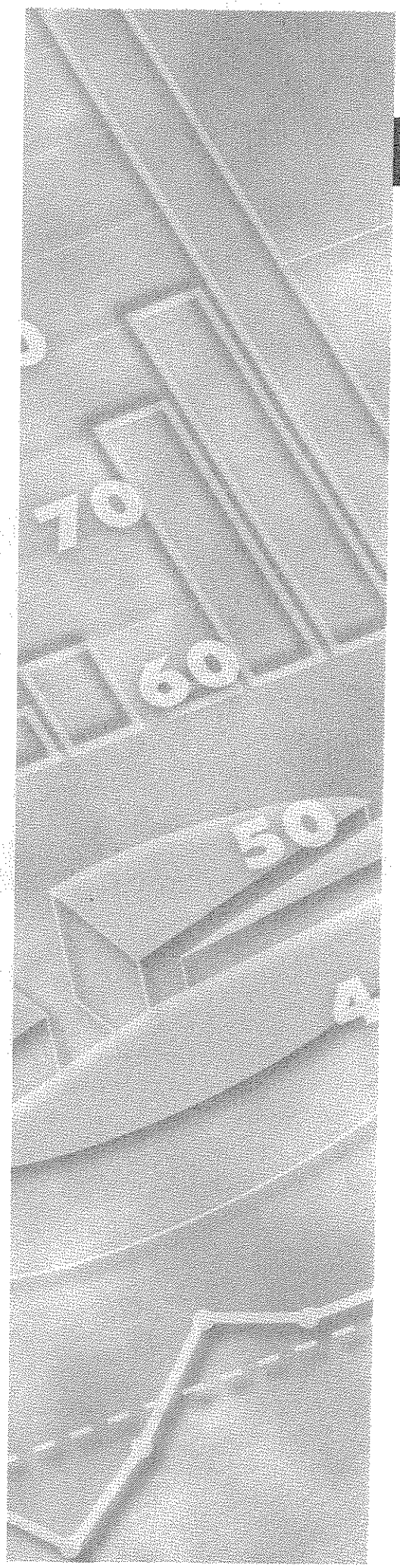


CTRI

Center for Tobacco Research and Intervention
University of Wisconsin Medical School

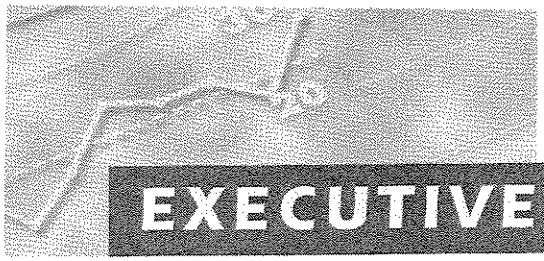
WISCONSIN TOBACCO CONTROL BOARD

University of Wisconsin Comprehensive Cancer Center



SMOKING AND PREGNANCY

TABLE OF CONTENTS



EXECUTIVE SUMMARY

Through over 6000 interviews conducted with Wisconsin residents, the Wisconsin Tobacco Survey (WTS) offers insight into the problem of smoking during and after pregnancy. Research has shown that women who smoke are more likely to have problems becoming pregnant and that pregnant smokers experience higher rates of miscarriage, stillbirth, and pregnancy complications than do nonsmoking pregnant women. Children who are born to mothers who smoke weigh less at birth than children born to nonsmoking mothers and are more likely to be born prematurely. These children are also at greater risk for Sudden Infant Death Syndrome (SIDS) and have more childhood illnesses and school problems than do children born to nonsmoking mothers. Thus, helping pregnant smokers and women of childbearing age to quit smoking is a top public health priority.

Historically, Wisconsin has had one of the highest rates of smoking among pregnant women in the nation. In 2000, 16.5% of pregnant women in Wisconsin smoked during their pregnancy (11,428 out of 69,289 pregnancies) compared with a national rate of approximately 12%. This report examines trends in smoking and quitting smoking among currently-and previously-pregnant adult women in Wisconsin.

TRENDS & PROGRESS SINCE 1960

In order to examine trends and progress since 1960 in reducing the prevalence of smoking during pregnancy, female WTS respondents who ever smoked were classified into groups based on the year that they were last pregnant. A total of 663 currently or previously pregnant respondents provided information about the year of their last pregnancy. We grouped these respondents according to the year of their last pregnancy (1960-1969, 1970-1979, 1980-1989, 1990-1999, and 2000-2001) and conducted a set of analyses comparing respondents who smoked during pregnancy with those who did not smoke during pregnancy.

Another set of analyses examined demographic and other factors associated with smoking and quitting smoking during pregnancy. Data for respondents who were last pregnant since 1990 were combined to allow for a sufficiently large sample size of respondents who were pregnant within approximately the last 10 years. These analyses focused on a total of 265 women who had both smoked at some time in their lives and had also been pregnant since 1990. Of these women, 126 reported smoking during their last pregnancy and 139 reported not smoking during their last pregnancy.

The results of this survey showed that a disturbingly high percentage of Wisconsin smokers continued to smoke after learning that they were pregnant (48% in 2000-01) although the average number of cigarettes smoked per day by these pregnant women appears to be decreasing in recent decades. Another promising trend was the increasing percentage over time of pregnant smokers who made a quit attempt lasting 7 days or longer. Only 10% of pregnant smokers made such a quit attempt in the 1960s compared to 31% in 2000-01. Also, an increasing percentage of smokers who made a serious quit attempt have been able to stay abstinent for the duration of pregnancy (44% before 1990; 61% after 1990).

CLINICIAN INTERVENTION WITH PREGNANT SMOKERS

The survey results provide helpful insights into the successes and challenges for physicians and other clinicians who care for pregnant smokers. Most clinicians are asking pregnant smokers about tobacco use (88% in 2000-01) and advising them to quit (78% in 2000-01). However, during the past 10 years, only about 1 in 5 pregnant smokers was encouraged to set a quit date and only 1 in 10 was offered information or referral for specialized smoking cessation treatments. All pregnant women should be asked about tobacco use at every clinic visit and all tobacco-using pregnant women should be offered both encouragement to quit and assistance with quitting. The important role of perinatal and other healthcare providers in treating tobacco use and dependence cannot be overstated.

FACTORS RELATED TO SMOKING AND QUITTING SMOKING DURING PREGNANCY

Consistent with other surveys, several factors appear related to whether Wisconsin pregnant women smoke or not. The most important factors associated with smoking during pregnancy include having a spouse/partner who smokes, having many friends and family members who smoke, less education, and lower income. Major factors associated with making a quit attempt during pregnancy include having fewer friends and family members who smoke and having at least a high school education. Knowledge of these factors may help clinicians and policymakers to reduce further the likelihood that pregnant women will smoke during pregnancy.

SUMMARY

Taken together, these findings indicate that coordinated efforts by clinicians, public health workers, researchers, and policy makers are required to reduce smoking prevalence in pregnant women and women of childbearing age in Wisconsin. The public health benefits of reducing smoking prevalence among pregnant smokers are enormous. The reduction in smoking prevalence should be a top priority given the harmful effects of smoking on both mother and child. There are effective treatments that are available for pregnant smokers including specialized programs such as Wisconsin's First Breath program and the Wisconsin Tobacco Quit Line. This action report highlights progress to date and makes specific recommendations for further reducing the prevalence of smoking among pregnant smokers.

PURPOSE AND INTRODUCTION

The Wisconsin Tobacco Survey provides a comprehensive look at Wisconsin smoking patterns, attitudes, and climate. Based on interviews with over 6000 Wisconsin residents, including current, former, and never smokers, the WTS provides valuable insights into tobacco dependence, attempts at cessation and support for those attempts. Findings from the survey are summarized in a series of action papers. The purpose of these action papers is twofold: to communicate these insights and to offer recommendations for actions to reduce tobacco dependence.

This action paper describes trends in smoking and quitting among current and previously-pregnant women. The harmful effects of smoking on the health of children (before and after birth) and mothers are well documented. Women of childbearing age who smoke have more difficulty getting pregnant and have higher rates of miscarriage, stillbirth, and pregnancy complications than do nonsmoking women. Tobacco use by pregnant women is especially harmful to the unborn child.

Harmful effects of smoking during pregnancy on the unborn child and the child after birth:

- Low birth weight (which can result in greater likelihood of health problems and death)
- Preterm birth (not carrying the baby full-term)
- Slowed or reduced physical growth
- Higher risk (2-4 times higher) for Sudden Infant Death Syndrome (SIDS)
- Problems in school
- More childhood illnesses

Harmful effects on young children of exposure to tobacco smoke after birth:

- Higher risk for SIDS
- Greater risk of lung conditions such as bronchitis, pneumonia, and asthma
- Greater risk of ear infections
- More hospitalizations

Long-term effects of mothers' smoking on children:

- Lower IQ
- Decreased height
- Problems with reading and spelling
- More likely to be hyperactive

PREVALENCE OF SMOKING DURING PREGNANCY IN WISCONSIN

Historically, Wisconsin has had one of the highest rates of smoking among pregnant women in the United States. For example, 22.9% of Wisconsin women who gave birth to a child in 1990 smoked during their pregnancies (7th highest in the nation; Jehn et al., 2001) compared to an overall rate in the United States in 1990 of 18.4% (Mathews, 2001). By 1995, the rate in Wisconsin had decreased to 18.9% and the most recently available data for 2000 show a further decrease to 16.5% (Table 1). Table 1 also highlights two important indicators of the harmful effects of smoking during pregnancy. Pregnant women who smoke are twice as likely to deliver low birth-weight infants and, more tragically, children born to smoking mothers are more than twice as likely to die during infancy than other children.

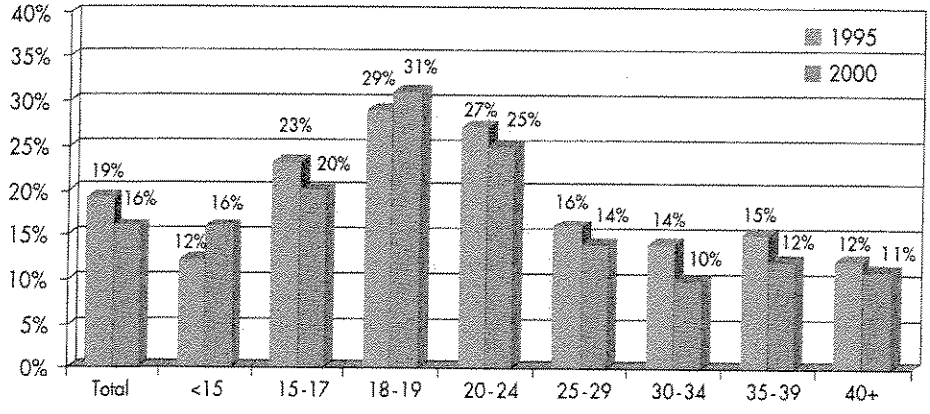
Table 1- Facts on Pregnancy and Smoking in Wisconsin: 1995 and 2000

		1995	2000
Total number of live births		67,493	69,289
Percentage of pregnant women who smoked		18.9%	16.5%
Percentage of low birthweight babies –	**Smokers**	10.0%	10.1%
Percentage of low birthweight babies –	**Non Smokers**	5.1%	5.8%
Infant deaths per 1000 live births –	**Smokers**	11.0	10.3
Infant deaths per 1000 live births –	**Nonsmokers**	6.3	5.8

From: *Wisconsin Births and Infant Deaths,* 1995 and *Wisconsin Births and Infant Deaths,* 2000

The rate of smoking in pregnant women in Wisconsin continues to be higher for younger age groups, with the highest rate of 31% in 2000 for 18-19 year old mothers followed by 25% for 20-24 year old mothers (Figure 1). Figure 2 illustrates the wide variation in smoking rates among racial and ethnic groups in Wisconsin with the highest rate in 2000 of 40% among Native Americans.

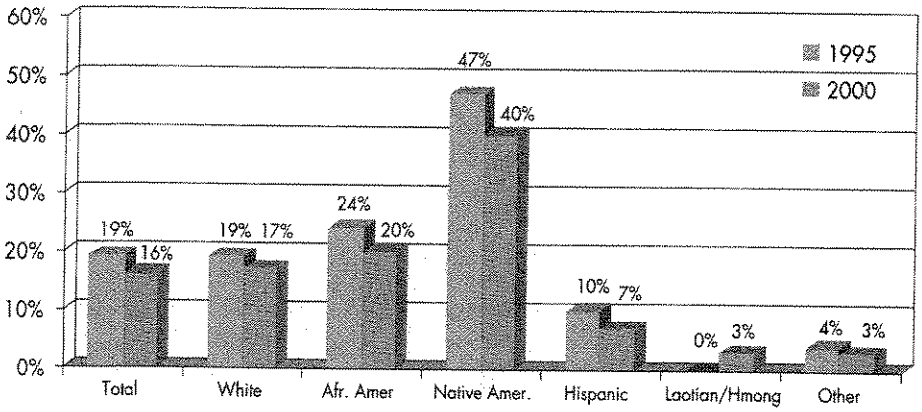
FIGURE 1 **Percentage of women who smoked during pregnancy by age, 1995 and 2000**



From: *Wisconsin Births and Infant Deaths, 1995* and *Wisconsin Births and Infant Deaths, 2000*

FIGURE 2

Percentage of women who smoked during pregnancy by race/ethnicity, 1995 and 2000



From: *Wisconsin Births and Infant Deaths, 1995* and *Wisconsin Births and Infant Deaths, 2000*

SMOKING AMONG WOMEN OF REPRODUCTIVE AGE

In 1989, Wisconsin had one of the highest rates of tobacco use (37%) among women of reproductive age (Centers for Disease Control and Prevention, 1991). By 1996, the tobacco use rate for Wisconsin women of reproductive age had declined to 28% (Wisconsin Behavioral Risk Factor Survey 1996). While this represents some progress, there is a continuing need in Wisconsin to further reduce rates of smoking among women of childbearing age and especially among currently pregnant women. This action paper provides important information about pregnancy and smoking in Wisconsin that can be used in formulating tobacco control policy and strategies to encourage and assist mothers and reproductive-aged women in Wisconsin to avoid tobacco use.

ISSUES ADDRESSED IN "SMOKING AND PREGNANCY"

This action paper addresses the following issues related to pregnancy and smoking:

- **Smoking before and during pregnancy.** What are the trends over time in smoking before and during pregnancy? What are the trends in quit attempts by pregnant smokers?
- **Healthcare provider behavior.** Are doctors and other healthcare professionals who treat pregnant women following the U.S. Public Health Service Clinical Practice Guideline: *Treating Tobacco Use and Dependence* (Fiore et al., 2000)? Are they identifying smokers, encouraging quitting, and providing cessation assistance?
- **Factors associated with smoking during pregnancy.** Are demographic factors (age, education, income) related to smoking during pregnancy? Does having a spouse/partner who smokes make it more likely that a pregnant woman will smoke? How is a pregnant woman's social network (friends and family members) related to smoking during pregnancy?
- **Factors associated with making a quit attempt during pregnancy.** Are demographic factors (age, education, income) related to likelihood of making a quit attempt? Does having a spouse/partner who smokes make a difference? How does having a majority of friends and family members who smoke affect the likelihood of making a quit attempt?

THE WISCONSIN TOBACCO SURVEY

The Wisconsin Tobacco Survey included a weighted total of 884 adult women who were "ever smokers" (current or former cigarette smokers). These female respondents were asked if they had ever been pregnant and, if so, when their last pregnancy occurred. A total of 663 respondents (75% of female ever smokers) were previously pregnant, 28 (3%) were pregnant at the time of the survey, and 191 (22%) were never pregnant. This action paper focuses only on the 691 current or former smokers who reported ever being pregnant.

In order to examine trends over time, respondents were classified by the year that they were last pregnant. We grouped these respondents according to the year of their last pregnancy as follows: 1928-1959, 1960-1969, 1970-1979, 1980-1989, 1990-1999, and 2000-2001. Because the health hazards of smoking were not established until the 1950s, these analyses focus on women who were last pregnant from 1960 through mid-2001 (when the survey was conducted). Results for 46 respondents who were last pregnant before 1960 were not included in the analyses.

To study recently pregnant smokers, data for respondents who were last pregnant since 1990 were combined. These analyses focused on a total of 265 smokers of which 126 reported smoking during their last pregnancy and 139 reported not smoking during their last pregnancy. We assumed that these respondents had first started smoking prior to becoming pregnant and that some individuals continued to smoke and some stopped smoking during pregnancy.