AAMC
Tomorrow's Doctors, Tomorrow's Cures®

Physician Behavior and Practice Patterns Related to Smoking Cessation

Full Report

A Report Prepared for the American Legacy Foundation

By

Association of American Medical Colleges
2450 N Street, N.W.
Washington, D.C. 20037-1127

In cooperation with

Center for Health Workforce Studies
University at Albany
7 University Place
Rensselaer, NY 12144-3458

2007

Association of
American Medical Colleges

Listing of Contents Tables and Figures

Preface 6
Introduction 7
Project Goals 7
Background 8
Overview of the Report 9
Findings of the Study 10
Profile of Physicians 12
Physician Demographics 12
Figure 4. Gender Distribution of Physicians in study specialties across Age Groups, 2005 12
Figure 5. Race/Ethnicity of Physicians across Study Specialties, 2005 13
Figure 6. Smoking Status of Physicians in Study specialties across Age Groups, 2005 13
Figure 7. Location of Medical School of Physicians across Study Specialties, 2005 14
Figure 8. Year of medical School Graduation of Physicians in Study Specialties, 2005 14
Figure 9. Specialty Distribution of physicians in Study Specialties, 2005 15
Figure 10. Organization Settings of Physicians across study Specialties, 2005 15
Figure 11. Physicians with Rural Practice Locations across Study Specialties, 2005 16
Figure 12. Hours per Week Spent to Direct Patient Care among Physicians in Study Specialties, 2005 16
Figure 13. Percentage of Smokers among Patients of Physicians in Study Specialties, 2005 17
Figure 14. Percentage of Smokers among Patients across Study Specialties, 2005 17
Table 5. Physicians with More Than 25% of Patients with Selected Risk Conditions Across Study Specialties, 2005 18
Summary Description of Results of Research Activities 19
What Physicians Do 20
Table 6. Percent of Physicians who "Usually" Engage in Specific Cessation Activities with Patients who Smoke 20
Table 7. Smoking Cessation Practices by Specialty 21
Table 8. Per Cent of Physicians Reporting Clinical Practice Requirements to Document Smoking Cessation Activities 21
Table 9. Smoking Cessation Practices by Medical School Location 22
Resources to Assist Patients to Stop Smoking 22
Table 10. Percent of Physicians Reporting the Following Resources/Organizational Supports Were available to Help Patients Quit Smoking 22
Table 11. Available Resources by Physician Specialty 23
Table 12. Available Resources by Organizational Setting 23
Figure 15. Average Number of Significant barriers Reported by Number of Resources Available 24
Figure 16. Majority of Patients Covered for Counseling, Quitlines, and Medication/ Pharamcotherapy 25
Figure 17. Percent of Patients Covered by Medicaid 26
Barriers to Assisting Patients to Stop Smoking 26
Table 13. Physicians Report of Barriers to Helping Patients Stop Smoking by Specialty 27

Table 14. Physicians Reporting significant Barriers to Helping Patients Stop Smoking by Specialty 28
Table 15. Percent of Physicians reporting Significant Barriers, by Race/Ethnicity 29
Figure 18. Physicians who reported more resources available reported fewer significant barriers. 29
Perspectives and Attitudes Related to Tobacco Use 30
Barriers to Assisting Patients to Stop Smoking 30
Table 17. Differences in Perceptions of Physician Role by Specialty 30
Table 18. Physician Perspectives on Successful Outcomes in Smoking Cessation 31
Figure 19. Attitudes and Perspectives Reported by Physicians About Patients Who Smoke 33
Physician Understanding of Tobacco Use and Effective Treatment Interventions 33
Figure 20. Evaluation of Formal Preparation in Smoking Cessation. 33
Table 19. Percent reporting being "Somewhat Well or Very Well Prepared by Educational Preparation 34
Table 20. Percent replying "Somewhat well" or "Very well" to Educational preparation by Specialty (Q16) 34
Table 21. Evaluation of Undergraduate medical Education Preparation on Helping Patients Quit Smoking by Location of Medical School and Graduation Year 34
Table 22. Desired Topics of Additional information, by Physician Specialty 36
Table 23. Physician Responses to Questions About Tobacco use and Treatment Effectiveness 37
Figure 21. Distribution of Knowledge Scores by Race/Ethnicity 38
Figure 22. Distribution of Knowledge Scores by Physician Age 38
Table 24. Distribution of Knowledge Scores by Location of Medical School and Degree Type 39
Figure 23. Perceptions of Significant barriers by Physician Knowledge 39
Table 25. Physician Assessment of the Effectiveness of Smoking Cessation Interventions 40
Confidence and Motivating 42
Figure 24. Percent of Physicians Reporting "High" Levels of Confidence in Skills by Cessation Activities 42
Table 26. Percent of Physicians by Practice Reporting High Confidence 42
Table 27. Percent of Physicians by Age Reporting High Confidence 43
Table 28. Percent of Physicians by Education Reporting High Confidence 44
Figure 25. Percent of physicians Who Feel Very Effective at Influencing Patients Behavior 44
Table 29. Top Three Physician Motivators by Specialty 45
Figure 26. Percent of Physicians "Very Much Motivated" by Better Documentation and feedback, by Practice Requirements 46
Table 30. Percent Reporting They Would be "Motivated Very Much" to Help Patients Quit Smoking, by Gender 46
Table 31. Percent Reporting They Would be "Motivated Very Much" to Help Patients Quit Smoking, by Race/Ethnicity 47
Examination of The Relationship Between State Tobacco Control Investment and Physician Practices 47
Figure 27. Physicians Reporting Making Referrals to Others for Appropriate Treatment. 48

Figure 28. Availability of Group Programs and Informational Material by Level of State per Capita Investment in Tobacco Control 49
Figure 29. Referral to Quitlines by Level of State investment in Tobacco Control. 49
Figure 30. Percent of Physicians Referring to Others for Treatment, by State Tobacco Control Expenditures and Specialty. 50
Figure 31. Percent of Physicians Reporting Availability of Informational Materials in Waiting Room, by State Tobacco Control Expenditures and Specialty. 51
Table 32. Association between state investment and physician practices, by organizational setting. 52
Special Topics. 53
Figure 32. Time Spent by Physicians Discussing Quitting Smoking with Patients per Visit, on Average 53
Figure 33. Frequency of Discussing Counseling Options With Patients Who Are Willing to Try to Quit Smoking 54
Table 33. Perceived Effectiveness of Counseling Interventions. 54
Figure 34. Frequency of Referral to Others, by Specialty and Overall. 55
Figure 35. Average number of resources reported, by frequency of referral to others. 56
Figure 36. Pattern of Quitline Referrals by Frequency of Referring Patients to Others. 56
Table 34. Differences in Perceptions of Significant Barriers, by Frequency of Monitoring 58
Figure 37. Percent of Physicians Who "Usually Refer" patients to Quitlines by Medical Specialty 59
Table 35. Services Provided by Quitline Programs 59
Figure 38. Percent of Physicians Referring to Quitline by Organizational Setting of Practice. 60
Figure 39. Use and Familiarity with Quitlines by Physician Age Group 60
Figure 40. Percent of Physician Referring to Quitlines by Availability of Resources 61
Figure 42. Percentage of Referrals to Quitlines by range of patients Who Had Mental Health Diagnosis 62
Figure 43. Patterns of Referral to Quitlines by Availability of Coverage for Quitlines 62
Table 36. Quitline Services Available in States Where Higher Percentages of Physicians "Usually Refer" Patients to Services. 63
Table 37. Quitline Services Available in Selected States Where Physicians Make Fewest. 64
Figure 45. Percent of Physicians Who Reported Being "Very Well" Prepared by their Continuing Education on Smoking Cessation 68
Findings of the Study 71
Discussions of Findings 72
What Physicians Do 72
Table 38. Percent of Physicians who "Usually" engage in Specific Cessation Activities with Patients who Smoke. 72
Table 39. Smoking Cessation Practices by Medical School Location. 73
Figure 46. Frequency of Discussing Counseling Options with Patients Who Are Willing to Try to Quit Smoking 73
Shortage of Cessation Tools. 74

Table 40. Percent of Physicians Reporting the Following Resources/Organizational Supports Were Available to Help Patients Quit Smoking . . . 74
Figure 47. Average Number of Significant Barriers reported by Number of Resources Available . . . 75
Table 41. Physician Assessments of the Effectiveness of Smoking Cessation . . . 76
Learning Opportunities Limited . . . 76
Figure 48. Evaluation of Formal Preparation in Smoking Cessation . . . 77
Table 42. Self-reported Physician Effectiveness at Influencing Behavioral Changes . . . 78
Significant Barriers . . . 78
Table 43. Physicians Reporting Significant Barriers to Helping Patients Stop Smoking by Specialty . . . 79
Practice Requirements Matter . . . 80
Figure 49. Physician Requirements for Cessation Intervention by Types of Resources Available . . . 81
State Investment In Tobacco Control Matters . . . 81
Figure 50. Referral to Quitlines by Level of State Investment in Tobacco Control . . . 82
Physician Use of Quitlines Limited . . . 82
Figure 51. Physicians Reporting Making Referral to Others for Appropriate Treatment . . . 83
Figure 52. Patterns of Referral to Quitlines Availability of coverage for Quitlines . . . 83
Steps to Encourage and Assist Physicians to Help Patients Who Smoke . . . 84
Increase the Use and Availability of Tobacco Control Tools . . . 84
Increase Coverage for Tobacco Control Treatment, Services, and Physician Time . . . 85
Increase Frequency of Physician Assistance to Patients Who Smoke to Reduce Their Use of Tobacco . . . 86
Increase Physician Knowledge on Tobacco Use and Control Interventions . . . 86
Promote Development of more Effective Interventions . . . 88
Increase Marketing and Public Information to Motivate Smokers to Stop Smoking . . . 88
Support Investment in Tobacco Control . . . 89
Appendix A: Advisory Committee Members . . . 90
National Advisory Committe . . . 90
Medical Specialty Advisory Committee . . . 90
Research Project Team . . . 91
Appendix B: Survey Instruments . . . 92
Appendix C: Letter of validation . . . 96
Appendix D: Literature Review . . . 98
Why Focus on Physicians? An Overview . . . 99
Recommended Smoking Cessation Practices for Physicians . . . 101
Smoking Cessation Practices Among Primary care Physicians . . . 104
Physician Smoking Cessation Practices in Four Medical Specialties . . . 106
Factors Influencing Physician Smoking Cessation Practices . . . 114
How Can Physician Involvement in Smoking Cessation be Increased? . . . 118
Appendix E: Survey Methods . . . 125
Legacy Survey Methods Appendix . . . 125

Preface

While significant strides have been made in reducing tobacco use in the United States, smoking remains the number one cause of preventable death and illness in this country. Nearly 70% of smokers want to quit, but many lack access to treatments that support ongoing abstinence. Physician involvement greatly increases the likelihood that patients who try to quit smoking would achieve long-term success. However, physicians are not being used as effectively as they could be to help patients quit. Greater understanding of physician experiences in treating individuals who smoke is important in developing strategies to increase physicians' sustained participation in cessation activities.

Through the generous support of the American Legacy Foundation (Legacy), the Center for Workforce Studies, Association of American Medical Colleges (AAMC) was able to conduct a national physician study examining physician knowledge, perspectives, and practice patterns in assisting patients to stop smoking. AAMC collaborated on this project with the Center for Health Workforce Studies (CHWS), School of Public Health, University at Albany. Both research centers are dedicated to helping providers, educators, policy makers, and the public better understand issues related to the health workforce.

AAMC appreciates the interest and valuable support provided to this research effort by Donna Vallone, Ph.D., Jennifer Duke, Ph.D., and Kristen McCausland, M.S.W. at Legacy. Further, we would like to thank members of our two advisory boards whose expertise and insights contributed to the development of our survey instruments and informed our analyses. National Advisory Committee members include Michael Eriksen, Sc.D.; Michael Fiore, M.D., M.P.H.; Howard Koh, M.D.; Steven Schroeder, M.D.; Susan Swartz, M.D., M.P.H.; and Christine Williams, M.Ed. Medical Specialty Committee members include Jacqelyn Admire-Borgelt, M.S.P.H.; Steven Bernstein, M.D.; Wayne Bylsma, Ph.D.; Janet Chapin, R.N., M.P.H.; Donna Grande, M.G.A.; Jeanne Mahoney; Michael Weitzman, M.D.; Josh Wilk, Ph.D.; and Richard Yoast, Ph.D.

Bonnie Primus Cohen, M.S., Associate Director of CHWS/Albany; Sandra McGinnis, Ph.D., Research Associate at CHWS/Albany; and Edward Salsberg, M.P.A., Director of CHWS/AAMC prepared this report. Other contributors include Guy Forte, Tracey Continelli, MS, Debra Krohl, and Lyrysa Smith of the CHWS/ Albany and Hisachi Yamagata, Ph.D. of AAMC. Ideas expressed in this report are those of the authors and do not represent the views of Legacy, AAMC, or the University at Albany.

I. Introduction

Significant strides in reducing smoking and tobacco use have been made in the United States. For the first time, there are more former smokers in the country than smokers. However, approximately 45 million citizens continue to smoke, and of these, an estimated 70 percent report they want to quit (Centers for Disease Control and Prevention, 2004). While the steady decline in consumption of tobacco is to be applauded, tobacco use continues to be the major cause of preventable death and illness in the country.

Physicians have the ability to be a major contributor to efforts to further reduce smoking and tobacco use. They are one of the most important sources of information for patients and their families on health issues and health risks, and more than two-thirds of Americans see a physician at least once a year. Research suggests that physician intervention has the potential to increase long-term cessation rates to 30% from only 7% among adult smokers attempting to quit on their own (Orleans & Alper, 2003). Further, physicians have the ability to influence the types and design of services accessed by patients within health care systems. Their regular contact, authority, and central role in referring patients to services suggest they can and should play a major role in assisting patients to stop smoking.

Unfortunately, the number of patients reporting that they received advice to quit smoking from their physicians falls short of national goals established to address smoking cessation. Healthy People 2000 proposed a goal of 75% of physicians regularly advising patients against smoking and providing cessation assistance and regular follow-up. Recent evidence indicates that only 66% of primary care physicians and fewer specialists had tobacco related discussions with patients who smoke. Further, physicians are not providing services such as counseling or connections to medication, programs, and other supports consistent with current practice guidelines (Thorndike et. al., 1998, Borum, 1999).

The American Legacy Foundation (Legacy) funded the Association of American Medical Colleges (AAMC) to undertake a study to assess physician knowledge, attitudes, and practice patterns related to smoking cessation and tobacco use. This information was seen as important for optimizing the role of physicians in reducing dependence on tobacco and for increasing understanding of why some doctors are more effective than others in addressing smoking cessation in their practices. AAMC, in collaboration with the Center for Health Workforce Studies (CHWS) at the School of Public Health, University at Albany, completed a comprehensive, national study of physicians and smoking cessation in 2006.

Project Goals

The overarching goal of the project was to promote the health of Americans by informing development of more effective programs and policies that would improve medical treatment and prevention activities related to tobacco dependence. In order to reach this goal, the project was designed to:

- identify physician perspectives, knowledge, and practice patterns related to helping patients quit smoking;
- identify strategies to make more effective use of physician in reducing and preventing smoking; and
- inform future investment in state tobacco control initiatives.

This report describes and discusses the study findings. Ideally, this information will be useful to a range of stakeholder groups including medical educators, professional medical associations, public health agencies, smoking cessation advocates, and policy makers. It is hoped that the findings will also inform the design, development, and investment of resources in cessation initiatives at community, state, and national levels.

Background

The research project targeted physicians for study in four medical specialties: Family Medicine, General Internal Medicine, Obstetrics/Gynecology and Psychiatry.[4] The specialties selected have extensive contact with patients and are likely to treat patients who are smokers. Physicians in the primary care specialties and Obstetrics/Gynecology (Ob/Gyn) are likely to be the first point of contact for patients experiencing medical problems, and these physicians typically have long-term relationships with patients and their families. Psychiatrists were selected because individuals with mental health diagnoses are more likely to be smokers than others and these physicians are also likely to have regular and long-term relationships with patients.

Two advisory committees were established to serve as resources to investigators in designing the survey instrument, interpreting findings, and identifying strategies to support physician involvement in smoking cessation with patients. One of the committees included national experts in smoking cessation, and the other included representatives of medical specialties targeted in the study. Additionally, representatives of two other medical specialties, Emergency Medicine and Pediatrics, and representatives of the American Medical Association also participated on the medical specialty advisory committee. A listing of committee members can be found in Appendix A.

A review of the literature examining physician participation in activities addressing tobacco use was completed. The review included an examination of factors that influenced physician behavior generally as well as the practices of physicians in the targeted specialties related to helping control tobacco use. The literature review is provided in Appendix D.

A comprehensive survey instrument was developed and field-tested in spring, 2005. Survey questions addressed physician practice patterns related to smoking cessation; perspectives on issues related to helping patients quit smoking, such as availability of resources and presence of barriers; general knowledge about tobacco use and effectiveness of interventions; evaluation of formal training and education; attitudes about smokers and smoking related issues; and practice characteristics.

The survey instrument was mailed to 17,941 physicians in the targeted specialties randomly selected from the AMA Masterfile of Physicians. The survey achieved a 17.1% response rate, with more than 3000 physicians returning questionnaires. As the response rate was significantly lower than had been anticipated, a second validation survey was developed from the original survey.

The intent of the validation survey was to assess potential bias from the high level of nonresponse to the original survey. The validation survey was sent to 650 nonrespondents, with one follow-up mailing to nonrespondents. The response rate to the validation survey was much higher at 56%.

[4] The American Academy of Pediatrics had just concluded fielding a survey that addressed issues related to tobacco cessation counseling among patients and parents to its members when this project began. This specialty was therefore not targeted in the AAMC study.

Based on a comparison of responses to both surveys, it was determined that little bias existed in responses to the original survey. This determination enabled the investigators to proceed with the analysis of the original survey responses and to generalize findings to all physicians in the four specialties with greater confidence.

Both survey questionnaires are provided in Appendix B. Steven Samuels, Ph.D., a national expert in survey research, reviewed the methodology approach; his observations are presented in Appendix C.

Findings presented in the report were drawn from a weighted database of survey responses from the original survey mirroring the profile of the targeted specialties. AAMC/CHWS also used information on levels of state tobacco control investment and information on quitlines to further examine physician practice patterns.

Overview of the Report

The material that follows describes and discusses physician practices and experiences in addressing control of tobacco use with patients who smoke. Chapter II profiles physicians in the four targeted specialties, providing background information on physician demographics, education, and practice characteristics. Chapter III presents information on physician practice patterns, perspectives, and experiences in addressing control of tobacco with patients who smoke. Chapter IV presents the findings of the study and Chapter V presents a discussion of the key findings. Chapter VI identifies potential next steps in developing programs and polices that would support and provide more effective use of physicians in addressing smoking with patients.

[5] North American Quitlines Consortium. (2006). *Quitline Map and Facts.* Retrieved on January 20, 2006, from http://www.naquitline.org/index.asp?dbsection=map&dbid=1
Tauras, J.A., Chaloupka, F.J., Farrelly, M.C., Giovino, G.A., Wakefield, M., et al. (2005). State tobacco control spending and youth smoking. *American Journal of Public Health*, 95(2):338-344.

Summary of Findings

Assessing Physician Knowledge, Attitudes and Practice Patterns Related to Smoking Cessation

A greater understanding of the factors that facilitate or impede physician participation in activities to control use of tobacco is needed to inform the design of programs and policies aimed at further reducing smoking. To this end, the American Legacy Foundation commissioned a study by the Association of American Medical Colleges Center for Workforce Studies. The Center conducted a comprehensive, national survey of physicians from Family Practice, Internal Medicine, Obstetrics/Gynecology, and Psychiatry regarding their perspectives, knowledge, and practice patterns related to smoking cessation.

Findings

- All physicians surveyed believe it is their role to help patients quit smoking.
- While most physicians consistently ask patients who smoke about their smoking status and advise them to stop (86%), they do not regularly provide extensive assistance to help patients try to quit. For example, only 13% say they usually refer smokers to others for appropriate treatment and only 17% say they usually arrange for follow-up visits to address smoking.
- Physicians regard current smoking cessation tools as inadequate, citing:
  - o Insufficient services, resources, and organizational supports;
  - o Interventions that have only limited effectiveness; and
  - o Limited education and training for physicians on addressing tobacco use and cessation interventions
- The five factors cited most often by physicians as significant barriers to successful interventions are: (1) lack of patient motivation (63%); (2) limited coverage for interventions (54%); (3) limited reimbursement for a physician's time (52%); time with patients is limited (41%); and too few available cessation programs (39%).
- Physicians believe patients bear a significant responsibility for both smoking and quitting. However, these beliefs were not found to be associated with levels of participation in cessation activities.
- Physicians identified "More effective interventions" (78%) and "Increased availability of interventions" (60%) as the factors that would most motivate them to more frequently assist patients quit smoking. Increased insurance coverage for both cessation interventions (61%) and physician services (43%) to support their helping patients to quit smoking would also motivate physicians.
- Physicians who viewed incremental reductions in levels of tobacco use as successful outcomes were more likely to participate in cessation activities than those regarding success as complete abstinence only.

- Physicians reported they are not confident in their ability to motivate smokers to quit (44%), make referrals (34%), or monitor patient progress (33%).
- Physicians required by their medical practices to perform cessation activities were more likely to participate in a greater depth and breadth of activities to address tobacco use.
- Conversely, physicians who participated in a greater breadth and depth of cessation activities reported they had more resources available and/or were more positive in assessments of intervention effectiveness.
- The cessation practices and attitudes of Psychiatrists were significantly different from the other physician specialties targeted.
- Greater per capita investment in state tobacco control programs was associated with increased rates of physician referrals to cessation services as well as increased awareness of some resources.
- Quitline referrals were higher in states with established quitline programs and with a greater investment in tobacco control.

Decreasing the rate of tobacco use in the US will require greater activity on the part of the nation's physicians in cessation activities. This will require increased familiarity with available resources as well as sustained efforts to improve the quantity and quality of these resources through increased investment in smoking cessation activities and improved awareness and knowledge on the part of physicians.

II. Profile of Physicians

The AAMC survey was distributed to physicians in four medical specialties that have extensive and ongoing contact with patients and are likely to treat patients who are smokers. These included: Family Medicine, General Internal Medicine, Obstetrics/Gynecology, and Psychiatry. Together, these four specialties represented about 42% of all physicians practicing in the United States in 2005.

The overview that follows provides background information on physicians in these specialties, including details about their demographics, education, and practice characteristics. This information provides a context for interpreting study results and findings. The information presented was drawn from a number of sources, including the AMA Masterfile and the AAMC survey responses.

References to "physicians" in this chapter, and throughout the report, refer to those practicing in the targeted specialties.

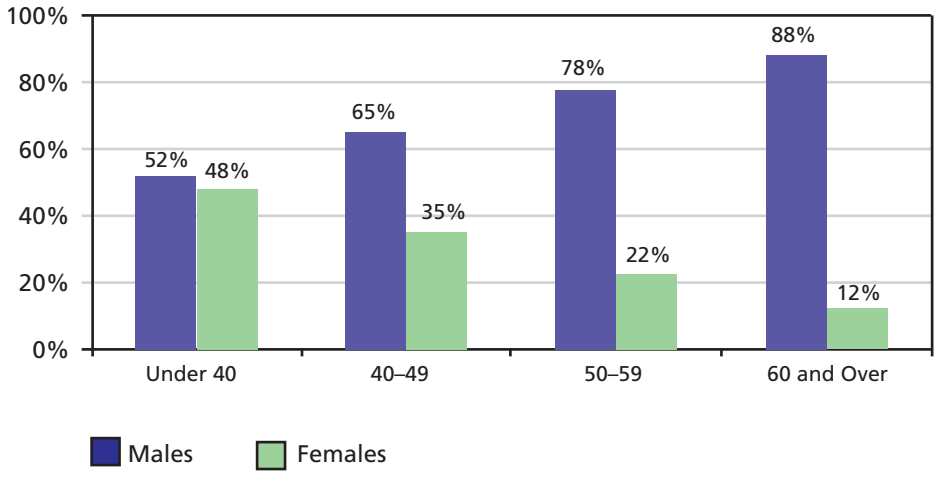
Physician Demographics

Gender and Age

Physicians in the study specialties were primarily male (73%). The median age of the population was 51 years. The majority were in their middle years, with 65% between 40 and 59 years of age. Female physicians in the study specialties were substantially younger, with a median age of 47 years compared to 53 years for male physicians. As shown in Figure 4, larger proportions of older physicians were men, while larger proportions of younger physicians were women.

Figure 4. Gender Distribution of Physicians in Study Specialties across Age Groups, 2005

Larger proportions of older physicians were men, while larger proportions of younger physicians were women.

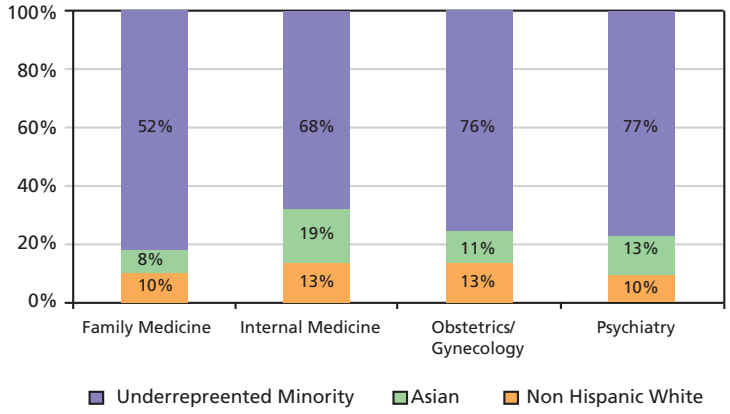


Race/Ethnicity

Seventy-five percent of physicians in the study specialties were non-Hispanic White, 13% were Asian, and 12% were members of underrepresented minority groups (URMs). As shown in Figure 5, physicians in General Internal Medicine were more racially and ethnically diverse than physicians in the other specialties.

Figure 5. Race/Ethnicity of Physicians across Study Specialties, 2005[7]

Internists were more racially and ethnically diverse than physicians in the other targeted medical specialties.

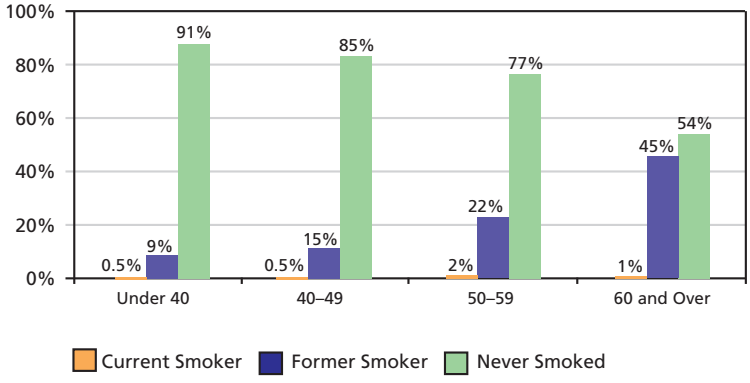


Smoking Status of Physicians

Seventy-six percent of the physicians in the study specialties never smoked. Only 1% of the physicians were current smokers. Women were more likely to have never smoked than men (86% compared to 72%). Asian Americans were more likely to have never smoked than other physicians (84% compared to 75% Non-Hispanic White and 71% URMs). Figure 6 illustrates the dramatic increase in the percentage of physicians that have never smoked in comparisons of physicians by age.

Figure 6. Smoking Status of Physicians in Study Specialties across Age Groups, 2005

Younger physicians were much more likely to have never smoked than older physicians.



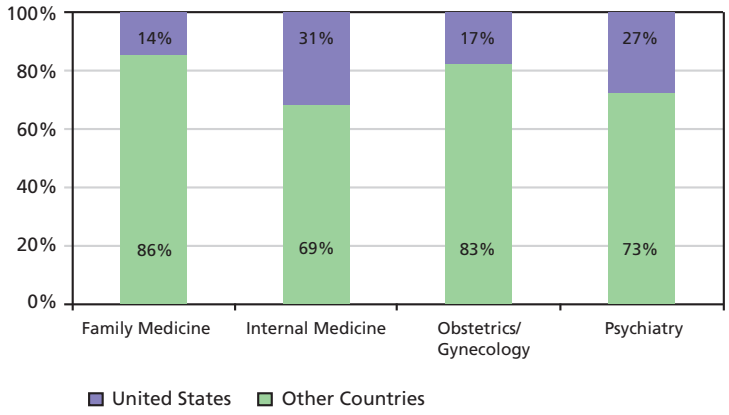
Physician Education

Location and Type of Medical School

Approximately three-quarters of the physicians in the study specialties were graduates of U.S. medical schools (77%). Ninety-five percent were graduates of allopathic schools of medicine, and 5% were graduates of osteopathic schools of medicine. As shown in Figure 7, higher percentages of the physicians in Internal Medicine (31%) and Psychiatry (27%) were international medical school graduates (IMGs) as compared with physicians in Obstetrics/Gynecology (17%) and Family Medicine (14%).

Figure 7. Location of Medical School of Physicians across Study Specialties, 2005

International medical graduates made up a larger proportion of Internists and Psychiatrists than the other specialties.

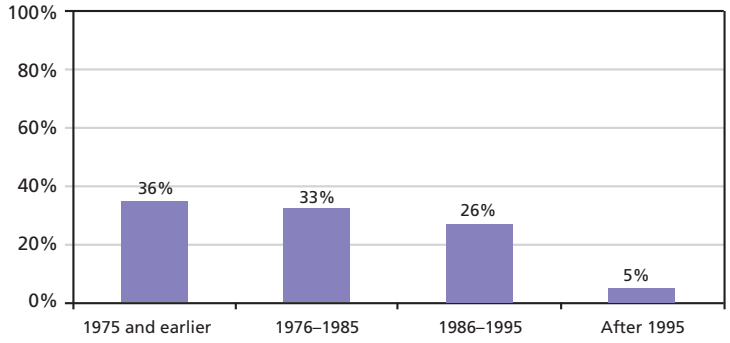


Year of Medical School Graduation

Slightly more than one-third (36%) of the physicians in the study specialties graduated from medical school prior to 1976, while another third completed medical school between 1976 and 1985. Even fewer physicians graduated from medical school between 1986 and 1995, and only 5% graduated medical school after 1995.

Figure 8. Year of Medical School Graduation of Physicians in Study Specialties, 2005

Most Physicians in the selected specialties completed medical school prior to 1986.

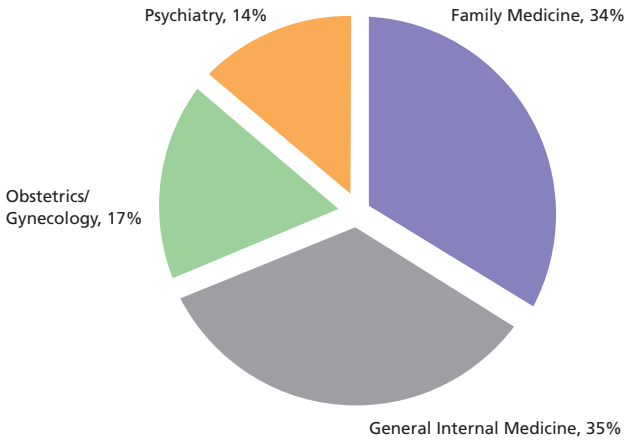


Practice Characteristics

Medical Specialty

The distribution of the physicians by medical specialty was as follows: 35% were in General Internal Medicine, 34% were in Family Medicine, 17% were in Obstetrics/Gynecology, and 14% were in Psychiatry.

Figure 9. Specialty Distribution of Physicians in Study Specialties, 2005

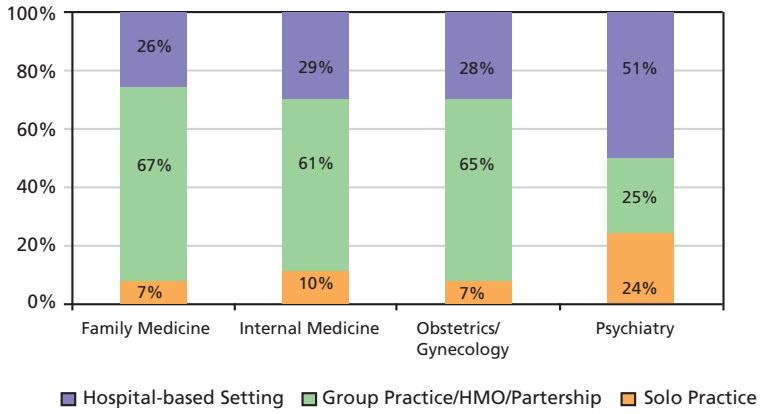


Organizational Practice Setting

Nearly three-fifths (59%) of physicians in the study specialties practiced in some type of group setting, e.g., two physician partnerships, group practices, or health maintenance organizations. Close to one-third (31%) were in solo practice, and 10% practiced in hospital-based settings. As shown in Figure 10, Psychiatrists were more likely to be in solo practices than physicians in the other study specialties.

Figure 10. Organization Settings of Physicians across Study Specialties, 2005

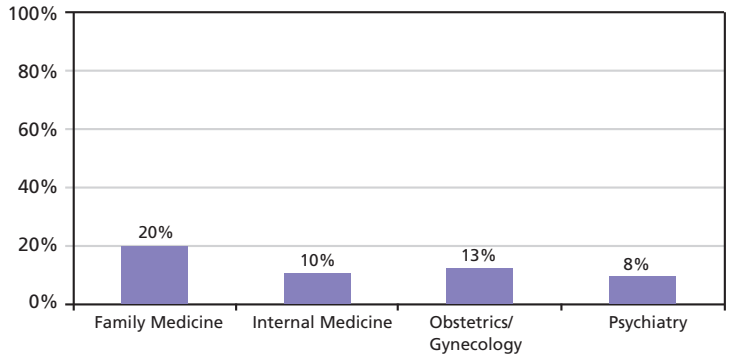
Psychiatrists were more likely to be in solo practice than physicians in the other targeted specialties.



Practice Location
Eighty-six percent of physicians in the study specialties practiced in urban areas in 2005, while 14% practiced in rural areas. Family Medicine physicians practiced in rural areas at the greatest rate (20%), followed by Obstetrician/Gynecologists (10%). Internists and Psychiatrists practiced in rural locations at lower rates (10% and 8%, respectively).

Figure 11. Physicians with Rural Practice Locations across Study Specialties, 2005

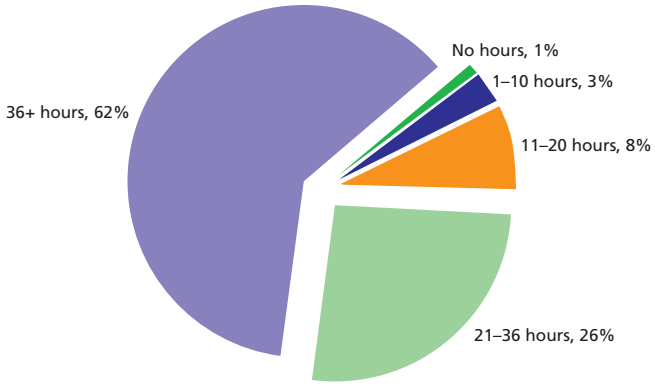
Family Medicine Physicians were significantly more likely to practice in rural areas than physicians in the other targeted specialties.



Time Spent in Patient Care
Physicians in the AAMC study specialties were in active practice. Three-fifths (62%) spent 36 or more hours in direct patient care per week. Another quarter (26%) provided patient care between 21 and 35 hours per week. The remainder (12%) provided 20 or fewer hours of patient care per week.

Figure 12. Hours per Week Spent to Direct Patient Care among Physicians in Study Specialties, 2005

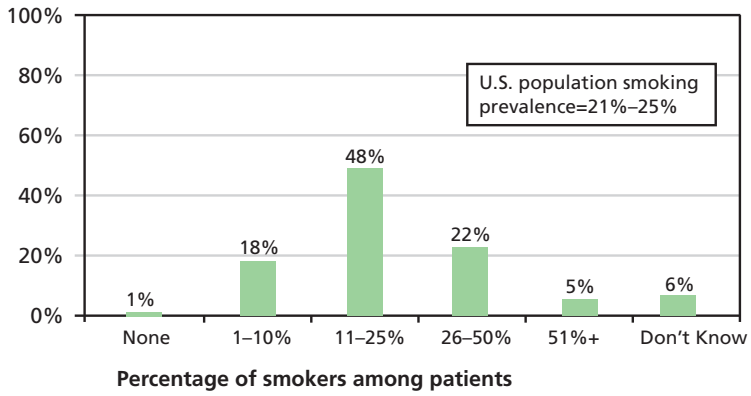
The majority of physicians spent more than 20 hours per week in direct patient care.



Smoking Status of Patients

Virtually all physicians in the study specialties had patients who smoke. Smokers represented between 11% and 25% of patients for almost half (48%) of the physicians. National reports suggest that smoking prevalence in the U.S. population is between 21% and 25%.[6]

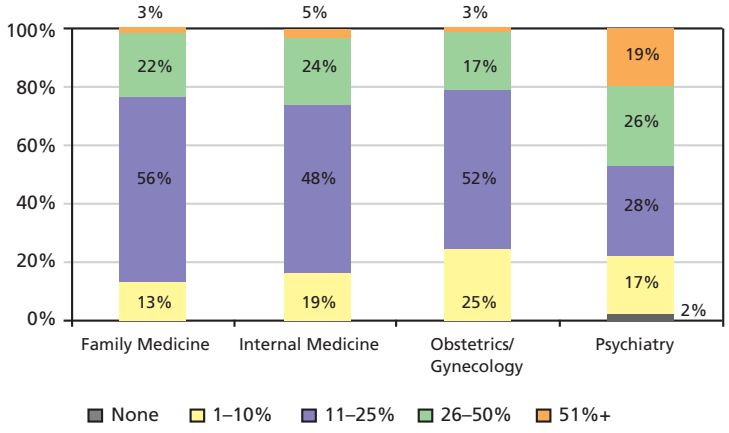
Figure 13. Percentage of Smokers among Patients of Physicians in Study Specialties, 2005



Physicians in hospital-based practice settings were more likely to have a majority of patients who were smokers (19%) than physicians working in group practice/HMO/partnership settings or solo practice (both 4%). Prevalence of smoking among patients also varied by specialty, with Psychiatrists (19%) being much more likely than others to report that more than half of their patients smoked.

Figure 14. Percent of Smokers among Patients across Study Specialties, 2005

Psychiatrists were most likely to have larger proportions of their patients be current smokers.



[6] CDC Cigarette Smoking among Adults United States—2004, MMWR 2005, 54(44) 509-12.

[7] Columns do not total to 100% due to omission of "Don't know" category.

As seen in Table 5, more than 25% of the targeted physicians had more than a quarter of their patients with mental health diagnoses (28%) or affected by a smoking related illness (27%). Not surprisingly, Obstetricians/Gynecologists were most likely to have large percentages of pregnant women among their patients. Psychiatrists were most likely to have high percentages of patients with mental health and chemical dependency conditions. Internists were most likely to have high percentages of patients with smoking related illnesses.

Table 5. Physicians with More Than 25% of Patients with Selected Risk Conditions Across Study Specialties, 2005

Risk Conditions	Family Medicine	Internal Medicine	Obstetrics/ Gynecology	Psychiatry	All Study Specialties
Pregnant	1%	0%	59%	0%	10%
Smoking-related illness	31%	40%	4%	11%	27%
Mental health diagnosis	21%	18%	4%	97%	28%
Chemical dependency	4%	5%	2%	45%	10%

III. Summary Description of Results of Research Activities

AAMC/CHWS conducted a series of activities to gather data and perspectives on physician experiences in addressing control of tobacco with patients who smoke. Most of the data that is presented in the chapter that follows was derived from responses to the national survey of physicians undertaken in 2005.

Additionally, some analyses that are presented utilize state-level data on quitline services and tobacco control investment. The former is taken from the North American Quitline Consortium, and includes state-by-state data on time since quitline inception, populations served by quitlines in the state, and services offered. The latter is a measure of state tobacco control spending constructed by researchers at RTI International, an independent, nonprofit, 501(c)(3) corporation specializing in scientific research and technology development. These data were matched to the physician's practice state, and used to examine practice patterns and perspectives within a policy/resources context (See Appendix E, Study Methodology). In addition, a review of the literature was conducted to further inform understanding of results related to physician practices in addressing smoking cessation with patients (See Appendix D.)

It should be noted that the term "physicians" as used in this chapter and throughout the report refers only to physicians practicing in the four groups identified. Findings should not be generalized as conclusions about practice patterns for all licensed physicians. As previously described, the survey targeted physicians practicing in four medical specialties: Family Medicine, Internal Medicine, Obstetrics/Gynecology, and Psychiatry.

In this chapter, differences by physician characteristics are highlighted when relevant. As will be noted, investigators highlighted differences between groups when they exceeded ten percentage points. This threshold was used rather than statistical significance[8] because the large sample size caused many very minor differences to show statistical significance. When multiple groups are compared in tabular form, the lowest and highest group values are highlighted to allow quick interpretation of tables that are sometimes complex and detailed.

Most of the results presented below are results of bivariate analyses, primarily cross-tabulations. More detailed analyses were performed using the data including factor analyses of various constructs (e.g., barriers, confidence, physician practices) that resulted in the development of some indices, and ordinary least squares (OLS) multiple regression to predict the relationship between certain indices net of other variables. These analyses are not included in this report, but results were used to interpret and better understand the nature of the bivariate relationship discussed below.

[8] A statistical construct based on probability theory to demonstrate whether particular differences could have resulted purely from random chance.

What Physicians Do

Physician Practice Patterns in Addressing Smoking Cessation with Patients
More than four-fifths of physicians reported that they usually ask patients about smoking status and advise them to stop smoking. More than three-fifths discussed pharmacotherapies and assessed patients' willingness to quit. Considerably fewer reported assisting patients by discussing counseling options, recommending NRT, discussing enlisting support for quitting, monitoring patient progress, or prescribing other medication. These physicians were least likely to arrange follow up visits or to refer patients for other services.

Table 6. Percent of Physicians who "Usually" Engage in Specific Cessation Activities with Patients who Smoke.

Advise patients to stop smoking	86%
Ask about smoking status	84%
Discuss pharmacotherapies	68%
Assess patient willingness to quit	63%
Discuss counseling options	37%
Recommend nicotine replacement therapy	31%
Discuss enlisting support for quitting	29%
Monitor patient progress in attempting to quit	27%
Prescribe other medication	25%
Provide brochures/self help materials	24%
Arrange follow-up visits with patient to address smoking	17%
Refer patients who smoke to others for appropriate cessation treatment	13%
Refer patients to a quitline	7%

This broad variation in involvement by task is consistent with findings of other physician studies. The AAMC respondents appear more likely to report that they discussed pharmacotherapies and arranged follow up visits with patients than physicians participating in other recent studies[9]

Medical Specialty
Physician participation in smoking cessation activities varied across the targeted medical specialties. Some differences are desirable, since some specific interventions may be contraindicated when treating specific patient groups, e.g., nicotine replacement therapies are not recommended for pregnant women. Controlling for other variables[10], only the Psychiatrists had practice patterns that were

[9] Studies examined include: Goldstein et al., 1998; Ellerbeck, et al., 2003; Saywell et al., 1996; Ellerbeck, et al. 2001; Chapin and Root, 2004; Grimley et al., 2001; Quinn et al., 2005; Easton et al., 2001; and Partnership for Tobacco Prevention and Cessation for Women of Reproductive Age, 2005.

[10] Variables controlled using OLS regression included barriers, resources, confidence, perspectives, specialty, setting, expectations, roles, preparation, practice requirements, patient characteristics, location of medical school, year of graduation, effectiveness, physician age, physician smoking status.

significantly different statistically from other specialties. As seen in Table 7, Psychiatrists were less likely than the other targeted specialties to participate in many smoking cessation activities. Internists and Family Medicine physicians were the most likely to participate in most cessation activities.

Table 7. Smoking Cessation Practices by Specialty.

Percent of Physicians Who "Usually"	Family Medicine	Internal Medicine	Obstetrics and Gynecology	Psychiatry	All
Advise patients to stop smoking	87%	93%	90%	62%	86%
Ask about smoking status	86%	89%	89%	62%	84%
Discuss pharmacotherapies	77%	71%	52%	61%	68%
Assess patient willingness to quit	60%	73%	65%	44%	63%
Discuss counseling options	39%	36%	35%	37%	37%
Recommend nicotine replacement therapy	30%	39%	23%	23%	31%
Discuss enlisting support for quitting	30%	30%	29%	24%	29%
Monitor patient progress in attempting to quit	30%	30%	10%	28%	26%
Prescribe other medications	26%	30%	17%	20%	25%
Provide brochures/ self-help materials	25%	24%	30%	13%	24%
Arrange follow-up visits with patient to address smoking	19%	19%	7%	14%	17%
Refer patients who smoke to others for appropriate cessation treatment	10%	15%	14%	11%	13%
Refer patients to a quitline	9%	7%	7%	2%	7%

Organizational Setting and Policies

There was generally little relationship between smoking cessation practices and organizational setting. Physicians in hospitals were much more likely than those in other settings to report that they "usually" assessed willingness to quit or prescribe medication. They did not differ in their use of other interventions.

Physicians were asked whether clinical guidelines within their practices required them to perform specific tasks related to tobacco use. As seen in Table 8, more than half were required to document smoking status in patient records and to ask about use of tobacco. Approximately one-third (32%) were required to document discussion of treatment strategies.

Table 8. Per Cent of Physicians Reporting Clinical Practice Requirements to Document Smoking Cessation Activities.

Are you required to...	Yes	No
Ask patients about tobacco use?	53%	47%
Document patient smoking status?	59%	41%
Document discussion of treatment strategies?	32%	68%

Demographics and Location of Medical Education
Physicians' practice patterns did not vary substantially by gender, race/ethnicity, or age. Those younger than age 40 were less likely to monitor patient progress than older physicians (15% versus 25% for ages 40 to 49, 28% for ages 50 to 59 and 33% for those 60 and older).

USMGs and IMGs did not differ in most smoking cessation practices. However, IMGs were much more likely than USMGs to participate in several activities, as presented in Table 9.

Table 9. Smoking Cessation Practices by Medical School Location.

Percent who "usually"…	USMG	IMG
Discuss counseling options	35%	47%
Discuss enlisting support for quitting	27%	37%
Prescribe other medication	23%	34%
Provide brochures/ self-help materials	22%	34%
Arrange follow-up visits with patient to address smoking	15%	25%
Refer patients who smoke to others for appropriate cessation treatment	11%	22%

Resources to Assist Patients to Stop Smoking

Availability of Smoking Cessation Resources
A significant percentage of survey respondents reported that resources were unavailable to assist patients stop smoking. About half reported that individual counseling (53%) and group programs (49%) were available either by referral or onsite. Only one-third had Tobacco User ID systems in place within their practices, and less than one-fourth had access to Web-based programs, multilingual resources, or staff dedicated to providing tobacco dependence treatment.

Thirteen percent of physicians reported that no resources or organizational supports listed in the survey were available to help smokers quit. Notably, a high percentage of physicians indicated that they would use resources to help patients quit if they were available. Nine out of 10 reporting that individual counseling or group programs were unavailable would have used these resources. Seven in 10 reporting that Web-based smoking programs and/or multilingual resources were unavailable would have used these resources.

Table 10. Percent of Physicians Reporting the Following Resources/Organizational Supports Were Available to Help Patients Quit Smoking.

	Available	Not Available	Would Use if Available (% of Not Available)
Informational poster / pamphlets in waiting room	50%	50%	N/A
Group programs available by referral	46%	54%	91%
Individual counseling available by referral	41%	59%	92%
Tobacco user identification system	33%	67%	N/A
Individual counseling available onsite	27%	73%	90%
Web-based smoking cessation programs available	26%	74%	70%
Multilingual resources available	18%	82%	69%
Staff dedicated to providing tobacco dependence treatment	13%	87%	N/A
Group programs available onsite	10%	90%	84%
None of the above	13%	N/A	N/A

Note: Physicians were not asked if they would use informational posters/pamphlets, Tobacco User ID systems or dedicated staff.

Medical Specialty
Physicians in the targeted medical specialties varied in their reports of resource availability. Psychiatrists were generally less likely to report that resources were available to patients, with the major exception being individual counseling. Internists were more likely to report limited resources than physicians in other primary care specialties. Those in Family Medicine were more likely to have Tobacco User ID systems available within their practices.

As seen in Table 11, medical specialties did not differ significantly in describing resource availability for group programs (either onsite or by referral), Web-based programs, multilingual resources, or staff dedicated to providing tobacco dependence treatment.

Table 11. Available Resources by Physician Specialty.

	Family Medicine	Internal Medicine	Obstetrics/ Gynecology	Psychiatry	All
Individual counseling (onsite or by referral)	53%	48%	56%	61%	53%
Informational poster/pamphlets in waiting room	57%	51%	57%	23%	50%
Group programs (onsite or by referral)	51%	47%	51%	45%	49%
Tobacco user identification system	44%	30%	33%	12%	33%
Web-Based smoking cessation programs	29%	24%	26%	25%	26%
Multilingual resources	19%	18%	22%	15%	18%
Staff dedicated to providing tobacco dependence treatment	13%	13%	13%	11%	13%

Organizational Setting and Policies
Reports of resource availability did not differ among physicians across organizational settings with a few exceptions. Physicians in group practice, HMO, or other settings were more likely to have Tobacco User ID systems in place and to have greater access to posters and pamphlets. Group programs were more available to physicians in hospitals and group practice, and less available to solo practitioners

Table 12. Available Resources by Organizational Setting.

	Solo practice	Group practice/ HMO/ Other	Hospital	All
Individual counseling (onsite or by referral)	57%	51%	54%	53%
Informational poster / pamphlets	44%	54%	44%	50%
Group programs (onsite or by referral)	42%	52%	53%	49%
Tobacco User Id system	26%	37%	28%	33%
Web-Based programs	26%	27%	23%	26%
Multilingual resources	17%	18%	25%	18%
Dedicated Staff	11%	13%	16%	13%

Interestingly, higher percentages of physicians who reported that many resources were available worked in practices where clinical guidelines required them to perform specific interventions. Each of the guidelines they were asked about was positively associated with resource availability, e.g., requirements to ask patients about tobacco use, document patient smoking status, or document treatment strategies discussed. Understanding the relationship between access to resources and the establishment of these guidelines will be a useful focus for future studies.

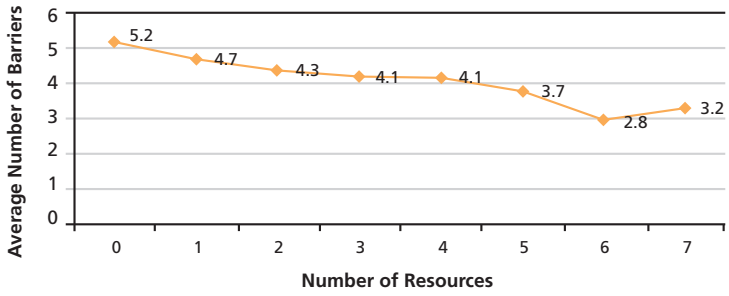
Demographics
Male and female physicians did not differ substantially in reporting about resource availability, nor did physicians younger than 60 years of age differ by age. Those age 60 and older were more likely than other physicians to have individual counseling (either onsite or by referral) available to patients, but to lack Tobacco User ID systems in their practices.

Non-Hispanic White physicians were more likely to report that smoking cessation resources were available to assist patients to quit smoking than minority physicians. While these differences tended not to be large overall, non-Hispanic White physicians were substantially more likely to have Tobacco User ID systems in place in their practices (36%) compared to underrepresented minority (URM)[11] and Asian-American physicians (25% and 20%, respectively). They were also substantially more likely to report that group programs were available by referral (49% compared to 36% and 37%, respectively).

Other Factors
As seen in Figure 15, physicians who reported that more resources were available were less likely to experience significant barriers in assisting patients to stop smoking.

Figure 15. Average Number of Significant Barriers Reported by Number of Resources Available.

Physicians who reported more resources available reported fewer significant barriers.



Physicians who participated in a greater breadth and depth of cessation activities reported greater availability of all smoking cessation resources. Differences were most pronounced in relation to the availability of pamphlets and brochures in waiting rooms, and the availability of both individual counseling and group programs by referral. Interestingly, these physicians were also more likely to know the status of patient coverage for medication/pharmacotherapy, counseling, and quitlines. They were not more likely than others to indicate that the majority of patients actually had coverage for these services.

[11] Underrepresented minority (URM) physicians are defined as African-American, Hispanic/Latino, or Native American/Alaskan Native.

A greater number of resources were also associated with higher physician confidence in addressing smoking cessation with patients. Characteristics of patients did not generally vary with the resources reported available by physicians. Physicians with the fewest resources available were less likely to treat patients who were pregnant or on Medicaid. These physicians were also more likely to report that more than half their patients had mental health diagnoses. Those with the most resources were more likely to report that patients had insurance coverage for quitlines.

Insurance Coverage for Cessation Services

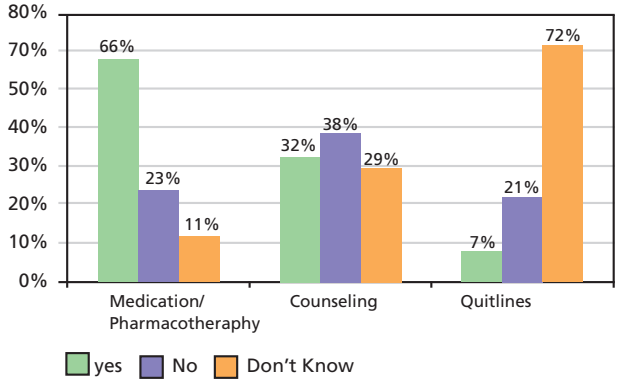
Access to health care improves with access to insurance coverage for both medical treatment and related support services. For this reason, understanding the availability of health coverage for smoking cessation interventions becomes important. The following information describes physicians' reports about the types of coverage available to patients who are trying to stop smoking.

Nine out of 10 physicians knew whether a majority of their patients had health insurance coverage for medication/pharmacotherapy interventions. Two-thirds reported that their patients did indeed have such coverage. Almost one in three did not know whether coverage was available for counseling. Of those that did know, more physicians reported that it was not available to a majority of patients than reported that it was.

Only 7% of physicians reported that a majority of patients had insurance coverage for quitline services, while more than 70% did not know whether such coverage was available.

Figure 16. Majority of Patients Covered for Counseling, Quitlines, and Medication/Pharamcotherapy Interventions.

Physicians were less aware wether patients had coverage for counseling and quitlines than they were medication/pharmacotheraphy interventions.



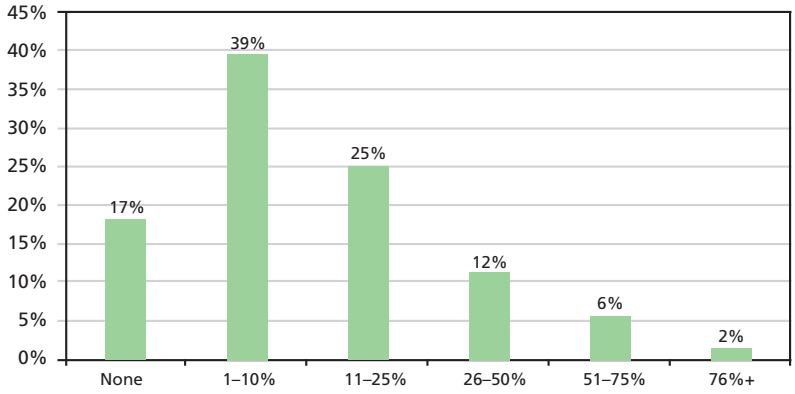
Physicians who knew the status of coverage, i.e., whether or not it was available, were more likely to participate in a greater depth and breadth of cessation activities.

Medicaid

Approximately four-fifths of physicians treated some patients who have health coverage through Medicaid. While Medicaid programs vary by state both in terms of the eligibility requirements and services covered, a range of interventions are typically covered. Thus, it would appear that a majority of physicians treated at least some patients who have a source of reimbursement for some smoking cessation services.

A higher percentage of physicians in hospitals reported that a majority of their patients receive health coverage through Medicaid (21%) than those in solo practice (7%) or group practices, HMO, and partnerships (8%).

Figure 17. Percent of Patients Covered by Medicaid.



The percent of patients covered by Medicaid varied by physician specialty. Psychiatrists were more likely than physicians in other targeted specialties to report treating no Medicaid patients in their practices (30% versus 15% for Family Medicine and Obstetrics/Gynecology, and 14% for Internal Medicine). However, they were also more likely than other specialties to report that more than half of their patients were covered by Medicaid (18% versus 12% for Obstetricians/Gynecologists, 7% for Internists, and 6% for Family Medicine physicians). This is likely related to practice setting, with Psychiatrists in psychiatric hospitals serving predominantly Medicaid patients and Psychiatrists in private practice serving very few.

The percent of patients covered by Medicaid was not found to have a strong association with the level of physician participation in smoking cessation interventions.

Barriers to Assisting Patients to Stop Smoking

In describing their experience of barriers to assisting patients to stop smoking, more than half of physicians identified three barriers as significant. These included:

- Patients are not motivated to quit;
- Coverage for cessation interventions is limited; and
- Reimbursement for physician time is limited.

Table 13. Physicians Reports of Barriers to Helping Patients Stop Smoking by Specialty.

Percent reporting barrier as significant	Not a barrier	Somewhat of a barrier	A significant barrier
Patients are not motivated to quit	7%	30%	63%
Coverage for cessation interventions is limited	17%	30%	54%
Reimbursement for physician time is limited	19%	29%	52%
Time with patients is limited	24%	34%	41%
Too few cessation programs are available	22%	40%	39%
My understanding of CPT codes for smoking treatment is limited	25%	39%	36%
Patients have more immediate problems to address	23%	43%	35%
Patients usually fail to quit	27%	39%	35%
Other practice priorities reduce my ability to address smoking w/ patients	28%	42%	30%
Staff are unfamiliar with interventions to help smokers quit	40%	40%	20%
Colleagues do not believe in the efficacy of cessation interventions	64%	27%	9%
Cessation heightens patients' other symptoms	61%	30%	9%
My experience in intervening with smokers is limited	66%	26%	8%

Medical Specialties

Perceptions of barriers varied among physicians in the targeted medical specialties. For example, those in Family Medicine and Internal Medicine were less likely to describe their "Experience in intervening with patients around smoking as limited" or to cite "Other practice priorities," as compared to physicians in Obstetrics/ Gynecology and Psychiatry. Psychiatrists were least likely to cite limited financial resources (coverage for interventions or reimbursement for physician time) or "Time with patients" as significant barriers, but they were most likely to believe that patients had "More immediate problems to address than quitting smoking."

Table 14. Physicians Reporting Significant Barriers to Helping Patients Stop Smoking by Specialty.

Percent reporting barrier as significant	Family Medicine	Internal Medicine	Obstetrics/ Gynecology	Psychiatry	All Respondents
Patients are not motivated to quit	59%	67%	67%	58%	63%
Coverage for cessation interviews is limited	56%	55%	54%	45%	54%
Reimbursement for physician time is limited	58%	51%	48%	46%	52%
Time with patients is limited	45%	43%	41%	30%	41%
Too few cessation programs are available	32%	44%	34%	47%	39%
My understanding of CPT codes for smoking treatment is limited	32%	36%	42%	40%	36%
Patients have more immediate problems to address	31%	34%	34%	47%	35%
Patients usually fail to quit	30%	38%	37%	35%	35%
Other practice priorities reduce my ability to address smoking w/ patients	27%	25%	37%	40%	30%
Staff are unfamiliar with interventions to help smokers quit	15%	19%	26%	28%	20%
Colleagues do not believe in the efficacy of cessation interventions	8%	9%	11%	12%	9%
Cessation heightens patients' other symptoms	6%	10%	6%	22%	9%
My experience in intervening with smokers is limited	3%	5%	14%	19%	8%

Organizational Setting
There were few differences in reports of barriers by organizational setting. However, solo practitioners were less likely to regard "Time with patients" as a significant problem as compared with physicians working in other settings. They also were more likely to report that their "Understanding of CPT codes was limited" and that "Patients usually fail to quit." Physicians in hospitals were more likely to describe "Staff being unfamiliar with smoking cessation" as a significant barrier to helping patients stop smoking.

Demographics
Perceptions of barriers also did not differ substantially by gender or race. Women were less likely than men to report that "Patients usually fail to quit" (26% versus 38%). Asian physicians were more likely to report that "Patients usually fail to quit" and/or that "Patients have more immediate problems to address" than other physicians. Physicians from underrepresented minority groups (URMs) were more likely to report that "Too few cessation programs were available."

Table 15. Percent of Physicians Reporting Significant Barriers, by Race/Ethnicity.

	White	Asian American	Under-represented minority
Patients usually fail to quit.	33%	44%	36%
Patients have more immediate problems to address.	32%	47%	35%
Too few cessation programs are available.	36%	42%	53%

While perceptions of barriers generally did not differ by physician age, some proved to be substantial. The younger the physician, the more likely they were to report that "Time with patients is limited" (51% of those younger than 40 compared to 43% of those age 40 to 49, 42% of those age 50 to59, and 31% of those age 60 and older) and the less likely they were to report that "Patients usually fail to quit" (24% of those younger than 40 compared to 33% of those age 40 to 49; 34% of those age 50 to 59, and 44% of those age 60 and older).

Physicians younger than 40 were most likely to report "Patients have more immediate problems to address" (43% compared to 33% among those age 40 to 49 and 50 to 59, and 35% of those age 60 and older). Physicians 60 years and older were most likely to report that "Cessation heightens patient's other symptoms" (17% compared to 8% among those age 50 to 59, 7% of those age 40 to 49, and 8% of those younger than 40), but were less likely to feel that "Time with patients is limited" (31% versus 42% for those age 50 to 59, 43% for those age 40 to 49, and 51% for those younger than 40).

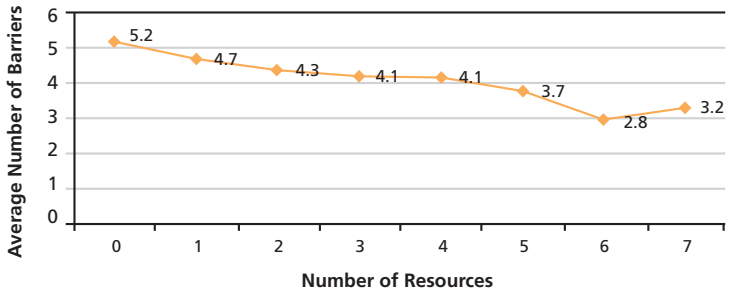
Physicians who participated in a greater breadth and depth of cessation activities were less likely to perceive many barriers as significant. These physicians were more likely to identify barriers involving financial resources as significant, e.g., "Limited coverage for cessation interventions" and "Limited reimbursement for a physician's time."

Physicians whose participation in cessation activities was limited were more likely to report all other barriers as significant. The relationship between limited participation and increased perceptions of significant barriers were strongest for barriers related to professional expertise and support, e.g., "My experience in intervening with smokers is limited," "Staff are unfamiliar with interventions to help smokers quit," and "Colleagues do not believe in efficacy of cessation interventions."

And notably, the primary barrier identified by respondents as significant, "Patients are not motivated to quit," was not associated with level of physician participation in cessation activities.

Physicians who were more confident in their ability to address smoking with patients were less likely to perceive barriers. And, as seen in Figure 18, those reporting more resources also were less likely to identify barriers as significant.

Figure 18. Physicians who reported more resources available reported fewer significant barriers.



Perspectives and Attitudes Related to Tobacco Use

Role of Physicians in Addressing Smoking Cessation with Patients
AAMC survey respondents believed that it is a physician's role to address smoking cessation with patients. As seen in Table 16, a significant majority agreed that each possibility suggested in the survey was part of a physician's role. In fact, more than half believed that all potential roles are part of a physician's role (54%).

Virtually all respondents reported that a physician's role includes helping patients who are motivated to stop smoking, discussing smoking behavior with patients, and motivating patients to stop smoking. More than 90% further agreed that it is a physician's role to monitor patient progress in attempting to quit, as well as to refer smokers to others for treatment. Approximately three-quarters thought establishing smoking cessations practices for staff and speaking with family about supporting patients to try to quit are also part of this role.

Barriers To Assisting Patients To Stop Smoking.

	Total
Role to help patients who are motivated	100%
Role to discuss smoking	99%
Role to motivate patients	98%
Role to discuss relapse	98%
Role to monitor patient progress	92%
Role to refer smokers to others	90%
Role to establish cessation practices for staff	74%
Role to speak with family	73%

Medical Specialties
Perceptions of a physician's role in addressing tobacco use varied little among the medical specialties. Family Medicine physicians were the most likely to define all roles as part of a physician's responsibilities. Obstetricians/Gynecologists were much less likely than others to regard speaking with family about supporting the patient or monitoring patient progress in attempting to quit as part of a physician's role. Psychiatrists were less likely than others to feel that establishing smoking cessation practices for staff is the physician's role.

Table 17. Differences in Perceptions of Physician Role by Specialty.

	Family Medicine	Internal Medicine	Obstetrics/ Gynecology	Psychiatry	All
Speak with family about supporting the patient in trying to quit smoking	82%	74%	55%	73%	73%
Monitor patient progress in attempting to quit	95%	93%	83%	96%	92%
Establish smoking cessation practices for staff	78%	72%	74%	68%	74%

Organizational Setting and Demographics
The number or type of cessation related activities perceived to be part of a physician's role did not vary by organizational setting, gender, race/ethnicity, or age, with a couple of exceptions.

Male physicians were more likely than females to feel that speaking to a patient's family was part of their role (76% versus 66%). Those younger than 40—regardless of gender or race—were less likely to feel that speaking with family was their role as compared with older physicians (61% for those younger than 40; 71% for those age 40 to 49; 78% for those age 50 to 59; and 77% for those 60 and older).

Type and Location of Medical Education
Few differences in perceptions of what constitutes a physician's role emerged by type or location of medical education. Osteopathic physicians were more likely than allopathic physicians to perceive establishing smoking cessation practices for staff to be part of their role (83% versus 74%). IMGs were more likely than U.S. medical school graduates to include speaking with family (81% versus 72%) and establishing smoking cessation practices for staff (80% versus 73%) as part of a physician's role. IMGs were less likely to perceive a physician's role to include patient referrals to others for appropriate treatment (84% versus 91%).

Other Factors
Physicians with the broadest definition of a physician's role in addressing use of tobacco were more likely to participate in a greater breadth and depth of cessation activities. They were also more likely to report having greater confidence in their ability to assist patients to quit smoking; perspectives on smoking and smoking cessation more consistent with clinical research findings; and greater access to cessation resources. These physicians also identified more factors that could motivate them to more frequently assist patients to quit smoking. In particular, they cited greater availability of staff familiar with smoking cessation, more information on patients (documentation of status and progress), increased availability of interventions, and more effective interventions as motivators.

Defining a Successful Outcome
Almost all physicians in the targeted specialties believed that a patient who quit using tobacco and did not relapse would have achieved a very successful outcome. While fewer than one in five saw anything less than total abstinence as very successful, a majority viewed attempts to reduce use of tobacco as achieving some success.

Table 18. Physician Perspectives on Successful Outcomes in Smoking Cessation.

	Not at all a successful outcome	Somewhat a successful outcome	Very much a successful outcome
Patient quits smoking completely and has not relapsed	0.5%	5%	94%
Patient quits smoking completely, then relapses	16%	70%	14%
Patient cuts down on cigarette use substantially	14%	69%	16%
Patient cuts down on cigarette use moderately	30%	58%	7%
Patient agrees to try to quit smoking	19%	60%	16%

Few substantial differences in perceptions of outcomes were apparent by medical specialty, organizational setting, gender, race/ethnicity, age, or graduation year. Underrepresented minority physicians (URMs) were more likely than Non-Hispanic White physicians to perceive that a patient agreeing to try to quit smoking was a very successful outcome (25% versus 15%). Internists and Family Medicine physicians were less likely to perceive patients who cut down on tobacco use substantially as very successful as compared with Psychiatrists (both 14% compared to 25%). IMGs were less likely than USMGs to perceive that a patient quitting without relapse was very much a success (86% versus 96%).

Other Factors
Physicians with broader views of successful outcomes were more likely to participate in most cessation related activities. The activities that were exceptions include asking about smoking status, assessing patient willingness to quit and advising patients to stop smoking.

Physicians who were more confident, who defined their role more broadly and/or who had greater knowledge about tobacco use were more likely to have a more inclusive definition of successful smoking cessation outcomes. These physicians also were more likely to report that they have more available resources and experience fewer barriers in assisting patients to address smoking.

Physicians with broader views of successful outcomes were more likely to be motivated to help patients who smoke by: greater availability of staff familiar with smoking cessation, increases in the number and effectiveness of treatment interventions available, improvement in one's own skills in helping smokers quit and increased patient interest in quitting.

Views of Patients Who Smoke
The survey asked physicians their perspectives about patients who smoke. Almost two-thirds of physicians reported "Patients are not motivated to quit." As stated previously, this was the most significant barrier to a physician's helping patients stop smoking cited by respondents. "Patients usually fail to quit" was identified as a significant barrier by one-third of respondents. Almost two-thirds believed that "Smokers choose to continue smoking," while two-fifths believed "Most smokers quit on their own."

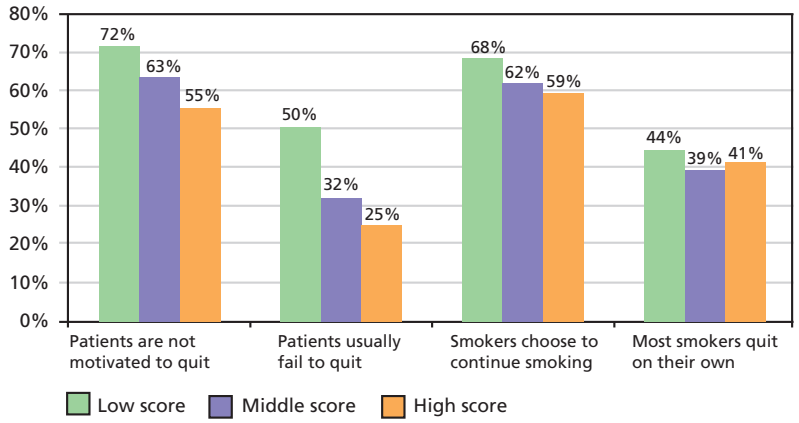
Ten percent of physicians agreed with all four of these statements, and 10% disagreed. Psychiatrists were twice as likely as Internists to disagree with all of the statements (16% versus 8%), while Family Medicine physicians and Obstetricians/Gynecologists fell into the middle (11% and 9% respectively). MDs were more likely to agree with none of these statements as compared with DOs (11% versus 2%). There were no differences in the percent among those agreeing with all four of the statements.

Agreement with these statements—or any of the individual attitudes and perspectives—was not found to be associated with physicians' level of participation in cessation activities. That is, while these may be strongly held views, they did not appear to influence physician practice patterns.

Physicians who scored higher on knowledge questions posed in the survey were less likely to agree either that "Patients were not motivated to quit" or that "Patients usually fail to quit" were significant barriers. The relationship was less pronounced for "Smokers choose to continue smoking" and "Most smokers quit on their own," as shown below.

Figure 19. Attitudes and Perspectives Reported by Physicians About Patients Who Smoke.

As knowledge about tobacco increased, physicians were less likely to hold negative perceptions and attitudes about patients who smoke.



There was little variation in the percent of physicians agreeing with none or all of the statements described above by physician age, gender, race/ethnicity, organizational setting, graduation year, or location of medical school.

These responses clearly show that many physicians feel that patients bear significant responsibility for smoking and for quitting. Their responses also suggest the challenges and frustrations many experience trying to assist patients who are smokers to reduce tobacco use.

Physician Understanding of Tobacco Use and Effective Treatment Interventions

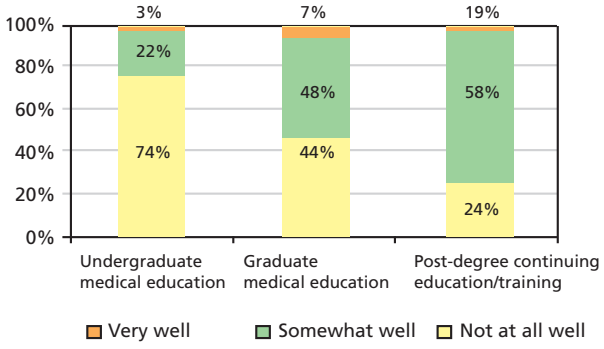
Evaluation of Preparation in Smoking Cessation

Adequacy of Formal Preparation

Few physicians reported being "very well" prepared to address use of tobacco by their formal medical education programs. Less than 2% reported being "very well" prepared across their undergraduate, graduate, and continuing education programs.

Figure 20. Evaluation of Formal Preparation in Smoking Cessation.

More physicians reported that CE programs on cessation did not prepare them very well.



Notably, assessments of education and training were less negative the more recent the date of a physician's graduation from medical school. Graduate medical education programs appear to have made the greatest advances in this area, with 42% of physicians graduating prior to 1975 reporting they were "somewhat" or "very well" prepared as compared to 80% of graduates since 1995. However, there is still significant room for improvement. For example, seven in 10 physicians graduating since 1995 felt they were "not well prepared" in smoking cessation by their undergraduate medical education.

Table 19. Percent reporting being "Somewhat Well" or "Very Well Prepared by Educational Preparation.

Educational Program	1975 and earlier	1976-1985	1986-1995	After 1995
Undergraduate medical education	19%	26%	32%	31%
Graduate medical education	42%	55%	64%	80%
Post-degree continuing education	72%	79%	77%	80%

Understanding factors that could improve education and training in this area is important as physicians who reported being "very well" prepared were more likely to participate in smoking cessation activities within their practices than other physicians.

Table 20. Percent replying "Somewhat well" or "Very well" to Educational Preparation by Specialty (Q16).

	Family Medicine	Internal Medicine	Obstetrics/ Gynecology	Psychiatry	All
Undergraduate medical education	29%	27%	23%	20%	26%
Graduate medical education	68%	53%	45%	44%	56%
Post-degree continuing education/training	87%	77%	64%	67%	76%

IMGs were more likely to report being "somewhat" or "very well" prepared by their undergraduate medical education than USMGs, although the gap also appears to be narrowing among more recent graduates.

Table 21. Evaluation of Undergraduate Medical Education Preparation on Helping Patients Quit Smoking, by Location of Medical School and Graduation Year.

	1975 and earlier		1976-1985		1986-1995		1996 & up	
	USMG	IMG	USMG	IMG	USMG	IMG	USMG	IMG
Very well	3%	6%	1%	4%	3%	4%	5%	N/A
Somewhat well	12%	26%	23%	26%	29%	32%	27%	N/A
Not at all well	85%	68%	75%	70%	69%	63%	68%	N/A

Note: Only 4 IMGs in the sample graduated after 1995, making their numbers too small to make valid inferences.

Limited Availability of Continuing Education
Significant percentages of physicians reported that continuing education on smoking cessation was unavailable. Twenty-eight percent reported that no programs were available. Only 2% reported having many continuing education options.

Among the medical specialties, physicians in Family Medicine were least likely to report that continuing education programs on cessation were unavailable (19%), as compared to more than 30% of those in Internal Medicine (31%), Obstetrics/Gynecology (32%), and Psychiatry (35%). However, having one-fifth to one-third of physicians reporting lack of training opportunities was still quite high for all the specialties.

Notably, physicians in Family Medicine were most likely to report being well prepared by continuing education programs on smoking cessation (26%). The American Academy of Family Medicine physicians has identified smoking cessation as a practice priority since the 1990s, and this early focus among primary care professional medical associations may account for some of the differences reported.

Solo practitioners (32%) were more likely to report that continuing education was not available as compared to physicians working in hospitals or in group practice (27% and 26%, respectively). URM and Asian physicians were more likely to report limited availability than non-Hispanic White physicians (36% and 33% versus 26%). However, IMGs were more likely to report limited continuing education programs than those graduating from U.S. medical schools (36% versus 26%).

Types of Additional Information on Smoking Cessation of Interest to Physicians
Approximately three-fifths of all respondents were interested in having additional information on two topics: selecting self-help materials for patients who smoke, and motivating patients to quit who continue to smoke. Almost two-fifths wanted additional information on addressing second-hand smoke in the home, treating patients with psychiatric or chemical dependency conditions, and providing social support to patients as part of cessation treatment.

Topics of interest varied among the targeted specialties. As seen in Table 22, this often reflected the patient populations served, e.g., Obstetricians/ Gynecologists were more interested than others in information on treating pregnant women while Family Medicine physicians were more interested in information on treating patients younger than 18 years of age. Specialties also differed in their levels of interest about information on specific types of skill training. Psychiatrists and Obstetricians/ Gynecologists were much more likely to want additional information on how best to "ask" and "advise" patients to stop smoking as compared to physicians in Family Medicine and Internal Medicine.

Interestingly, approximately 30% of physicians across the specialties were interested in information on improving office procedures so that patients' smoking status was addressed at follow-ups.

Table 22. Desired Topics of Additional Information, by Physician Specialty.

Additional information desired on:	Family Medicine	Internal Medicine	Obstetrics/ Gynecology	Psychiatry	All
Selecting self-help materials to give to patients who smoke	60%	58%	65%	65%	61%
Motivating patients who continue to smoke to quit	59%	57%	58%	62%	58%
Addressing second-hand smoke in the home	39%	39%	47%	39%	40%
Treating smokers with psychiatric or chemical dependency conditions	38%	34%	22%	66%	38%
Providing social support to patients as part of cessation treatment	33%	36%	38%	45%	37%
Counseling former smokers to avoid relapse	31%	35%	30%	36%	33%
Treating smokers under the age of 18	44%	19%	41%	31%	33%
Advising patients to stop smoking	29%	30%	40%	38%	33%
Treating pregnant smokers	29%	19%	64%	34%	32%
Improving office procedures so that patients smoking status is addressed at follow-up	30%	28%	31%	26%	29%
Asking patients about smoking status	13%	16%	21%	27%	18%
None	11%	12%	8%	10%	11%

General Knowledge about Tobacco Use and Treatment Interventions
Table 23 compares physician responses to a series of eight general questions on tobacco use and treatment effectiveness with findings of clinical studies on tobacco use described in recent scientific literature.

A majority of physicians reported perspectives consistent with the literature. As can be seen, more than four-fifths correctly knew that physician advice motivates patients to quit and that smoking is a chronic relapsing disorder. Half incorrectly agreed that medication was effective only when accompanied by counseling. Approximately one-third were unsure whether intensive interventions were more effective than brief treatment, or whether smoking cessation interferes with recovery from chemical dependency. Notably, more than one-fifth of physicians reported not knowing answers to half the general knowledge questions that were asked.

Table 23. Physician Responses to Questions About Tobacco Use and Treatment Effectiveness.

	Clinical Findings	Agree	Disagree	Don't Know
Physician advice motivates patients to quit [USPHS]	True	85%	10%	6%
Smoking is a chronic relapsing disorder q8c [An et al., 2004]	True	82%	14%	5%
Use of a nicotine patch increases successful quitting [USPHS]	True	78%	11%	12%
Medication is a cost-effective intervention [Cromwell et al., 1997]	True	66%	12%	22%
Intensive interventions are more effective than brief treatment [USPHS]	True	57%	12%	32%
Brief treatment is ineffective [USPHS]	False	25%	55%	20%
Smoking cessation interferes with recovery from chemical dependency [Bobo et al., 1999; Pletcher, 1993]	False	29%	44%	27%
Medication is effective only when accompanied by counseling [Hughes, 1999]	False	50%	35%	15%

Note: The citations for clinical literature are given with each statement. See bibliography for complete citations.

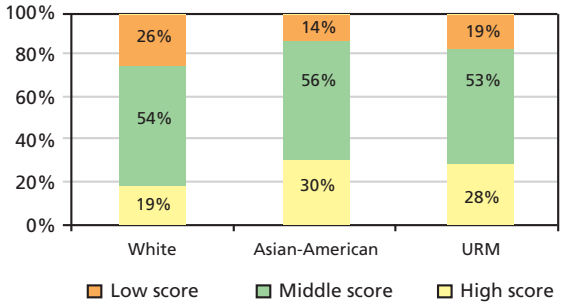
To facilitate comparisons among physicians, investigators created an "understanding of smoking cessation" index by summing individual physician responses[12]. This permitted comparisons of physicians by the number of answers consistent with evidence-based literature on smoking cessation, e.g., the 20% of physicians with the perspectives most consistent with evidence-based research (most knowledgeable) and the 20% whose perspectives were least consistent with this research (least knowledgeable).

Significant differences did not emerge in physicians' general knowledge about tobacco use and treatment interventions by medical specialty, organizational setting, or gender. However, larger percentages of non-Hispanic Whites achieved higher scores on the survey's knowledge questions than minority physicians.

[12] Correct responses were worth 1 point, incorrect responses were worth –1 point, and "don't know" responses were worth 0 points.

Figure 21. Distribution of Knowledge Scores by Race/Ethnicity.

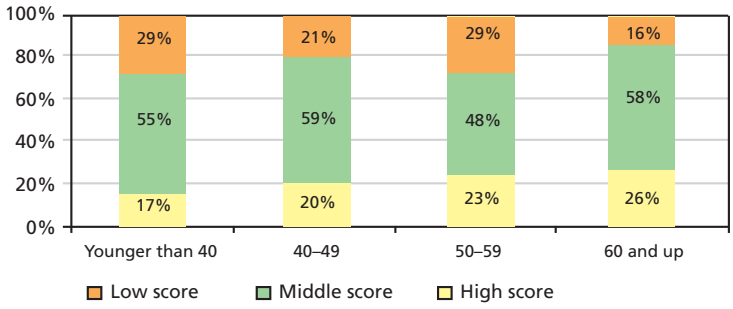
Non-Hispanic White physicians were more likely to have high knowledge scores than minority physicians.



Higher percentages of physicians "Younger than 40" and between the ages of "50 to 59" were among the highest scorers, as compared with other physicians. The percent of physicians with low scores increased steadily with age. This appears to reflect the trend by graduation year, as well.

Figure 22. Distribution of Knowledge Scores by Physician Age.

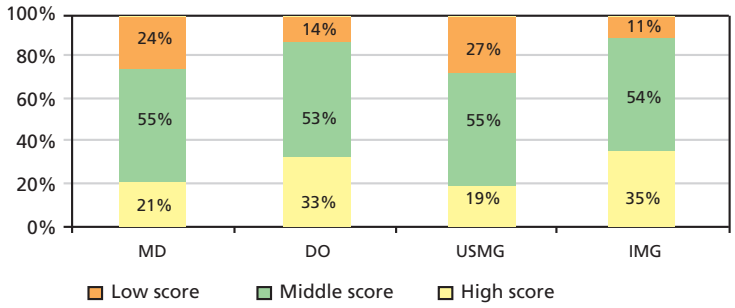
The percent of physicians with low knowledge scores increased with age.



USMGs were more likely to have high knowledge scores and less likely to have low scores than IMGs. Doctors of allopathic medicine were more likely to have high knowledge scores and less likely to have low scores than osteopaths.

Table 24. Distribution of Knowledge Scores by Location of Medical School and Degree Type.

USMGs had higher knowledge scores than IMGs.



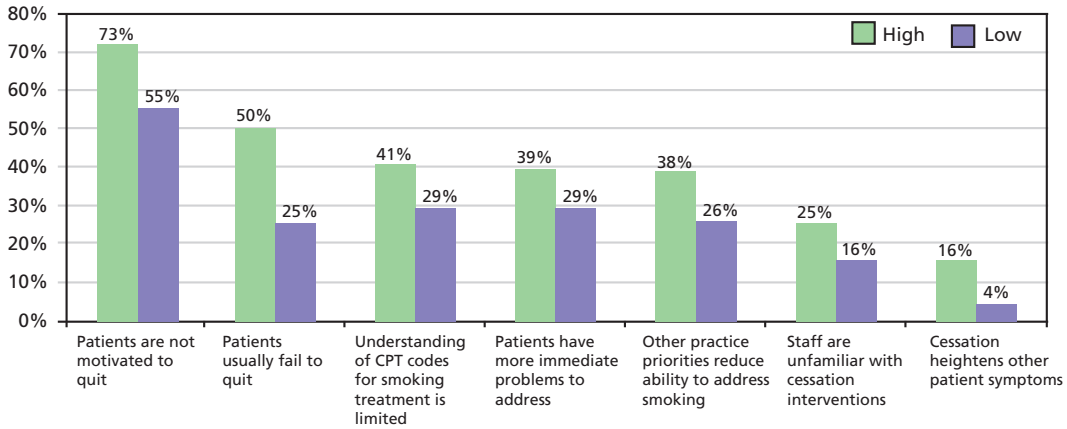
Physicians who reported being well prepared by Continuing Medical Education smoking cessation programs (CME) were more likely to have scores in the top quintile as compared to those who reported being poorly prepared by these programs (27% versus 17%). They were also less likely to have scores in the bottom quintile (16% versus 32%). Knowledge scores did not vary substantially based upon evaluations of undergraduate and graduate medical education programs.

Physicians in the top quintile of the knowledge index were more likely to report that cessation resources were available to help patients quit smoking, and less likely to report that only limited resources were available. This suggests their identification of resources may be associated with their understanding of smoking cessation issues. These physicians also tended to be more confident than other physicians.

Higher scorers were also much less likely to perceive certain barriers as being significant in assisting patients quit smoking. These included "Patients are not motivated to quit" and "Patients fail to quit."

Figure 23. Perceptions of Significant Barriers by Physician Knowledge.

Physicians with greater knowledge about tobacco use perceived patient motivation and failure to quit as less significant barriers than other physicians.



Physician Assessments of Cessation Intervention Effectiveness
Physicians were asked to evaluate the effectiveness of cessation interventions they had used to assist patients to quit smoking. Table 25 identifies the interventions evaluated, as well as the percentages of physicians who had not used specific interventions.

Cessation interventions were grouped by level of effectiveness reflecting their association with tobacco abstinence rates reported in the medical science literature. It is important to note that no single intervention has been associated with an abstinence rate of more than 38.8% in clinical trials[13]. It also should be noted that physicians were asked about specific interventions and not about optimal standards of care, i.e., the effectiveness of combinations of interventions. Future studies may want to examine how physicians evaluate and incorporate these standards within their practices.

As seen in Table 25, physicians responding to the AAMC survey tended to describe most interventions as having "some" effectiveness. Fewer than one-third rated any single cessation intervention as being "highly" effective in assisting patients to quit smoking.

The interventions most likely to be perceived as having "high effectiveness" by respondents include Bupropion and nicotine replacement therapy [NRT] (29%), NRT and counseling (21%), and family support (19%).

Table 25. Physician Assessments of the Effectiveness of Smoking Cessation Interventions.

	Never used	Low effectiveness	Some effectiveness	High effectiveness
High effectiveness interventions				
Bupropion + nicotine replacement therapy	16%	5%	50%	29%
Bupropion (e.g., Zyban)	4%	12%	68%	16%
Nortriptyline	63%	27%	10%	1%
Nicotine replacement therapy alone	3%	26%	68%	3%
Nicotine replacement therapy and counseling	8%	7%	64%	21%
Face-to-face intensive counseling	34%	13%	41%	12%
Moderate effectiveness interventions				
Family support	14%	17%	51%	19%
Support group/peer support	36%	12%	42%	10%
Face-to-face brief counseling	3%	35%	56%	6%
Quit line	55%	20%	23%	2%
Low effectiveness interventions				
Brochures / self-help materials	10%	46%	41%	3%
Hypnotherapy	41%	26%	30%	4%

[13] Abstinence rate for the combination of buproprion and NRT in Jorenby et al., 1999.

Level of Agreement with Evidence-Based Practices
Physicians' overall assessments of cessation interventions did not mirror clinical evidence associated with the various interventions. None of the respondents identified all six of the high effectiveness interventions as "high," and only 9% correctly identified three or more of the six as "high."

Physicians were more consistent with evidence-based research in characterizing cessation interventions as having "low" effectiveness. Forty-two percent either accurately assessed interventions as "low" or reported not using these interventions. However, respondents were almost as likely to incorrectly rate "high" interventions as "low," and "low" as "high" (14%) as they were to rate them accurately (17%). This suggests that there is need to better educate physicians about intervention effectiveness, recognizing that there are limitations in the effectiveness of each treatment strategy.

Variations in physician assessments of interventions did not emerge by medical specialty, organizational setting, type of degree, location of medical school, or gender. Physicians younger than age 40 were twice as likely as older physicians to differentiate correctly between "high effectiveness" and "low effectiveness" strategies (21% versus 11% of those age 40 to 49, 10% of those age 50 to 59, and 11% of those age 60 and older). Underrepresented minority physicians were slightly more likely to differentiate correctly between "high effectiveness" and "low effectiveness" strategies (18% versus 11% for both non-Hispanic White and Asian physicians).

Physicians who were more active in participating in cessation activities differed in their perceptions of intervention effectiveness from other physicians. They were more likely to hold positive perceptions of interventions overall and less likely to hold negative perceptions. However, more active physicians were not much more likely than others to accurately assess intervention effectiveness consistent with evidence-based findings. This reinforces the need to improve physicians' knowledge about tobacco and interventions generally. But it also suggests the importance of encouraging physicians to see "the glass half full" when assessing the potential of existing tools.

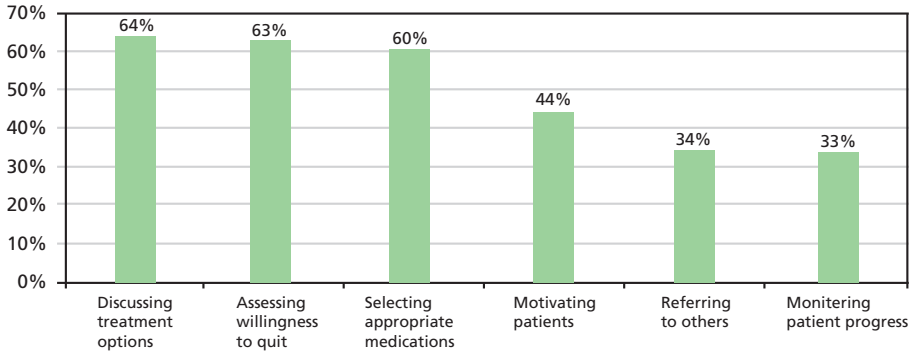
Physicians who reported being well prepared by their undergraduate medical education were more likely to be accurate (22%) than those who felt they were somewhat or not well prepared (14% and 11%, respectively). Graduate medical education and continuing education did not have a substantial effect on assessments of interventions. Physicians who answered more knowledge questions correctly were no more likely than other physicians to accurately differentiate between "high" and "low" effectiveness interventions.

Confidence and Motivating Factors

Confidence

Physicians reported different levels of confidence in performing tasks to address smoking with patients. Three-fifths were highly confident in their ability to assess a patient's willingness to quit smoking, discuss treatment options, and select prescription medications. As seen in Figure 24, they were least confident in "Referring to others for appropriate treatment" and "Monitoring patient progress." Level of confidence was positively associated with participation in cessation activities.

Figure 24. Percent of Physicians Reporting "High" Levels of Confidence in Skills by Cessation Activities.



Medical Specialties

Physicians in the targeted medical specialties reported various levels of confidence in assisting patients to stop smoking. Family Medicine physicians were typically the most confident, while those in Obstetrics/ Gynecology were generally the least. "Referring to others for appropriate treatment" was the only activity that evidenced little variation among the specialties.

Table 26. Percent of Physicians by Practice Reporting High Confidence.

Confidence in...	Family Medicine	Internal Medicine	Obstetrics/ Gynecology	Psychiatry
Assess patient willingness to quit	68%	67%	48%	59%
Discuss treatment options with patients	75%	67%	45%	54%
Select prescription medications	74%	62%	33%	54%
Refer to others for treatment	34%	31%	39%	35%
Motivate patients to consider quitting	49%	46%	41%	32%
Monitor patient progress	36%	36%	17%	39%

Organizational Setting and Demographics
Confidence levels did not vary by organizational setting, gender, or race/ethnicity, with a few notable exceptions:

- Physicians practicing in group settings, HMOs, or partnerships were more confident than others in selecting appropriate medication (65% versus 51% for both those in solo practice and hospitals).
- Women were more confident than men in motivating patients to consider quitting (50% versus 42%) and in assessing patient willingness to quit (68% versus 61%).
- Non-Hispanic White physicians were less confident than minority physicians in referring to others (31% versus 47% for both Asian and URM physicians) and in motivating patients to quit (29% versus 45% for Asian and 43% for URM physicians).

Physicians in their middle years were more confident than colleagues both "Younger than 40" and "60 and Older," as seen in Table 27 below. This pattern is encouraging. It would be anticipated that younger, less experienced physicians would be less confident. The responses suggest that among more experienced physicians, only the oldest active physicians had not seen significant increases in confidence levels.

Table 27. Percent of Physicians by Age Reporting High Confidence.

Confidence In....	Younger than 40	40-49	50-59	60 and Older
Assessing patient willingness to quit	14%	34%	36%	17%
Discuss treatment options with patients	13%	33%	38%	17%
Select appropriate prescription medications	13%	33%	39%	15%
Refer to others for appropriate treatment	12%	30%	39%	19%
Motivate patients to consider quitting	13%	34%	34%	19%
Monitor patient progress in attempting to quit	11%	31%	36%	22%

Medical Education
Variations in levels of confidence did emerge by type and location of medical school. Nine of 10 osteopaths reported feeling confident in "selecting medication" as compared to half the allopathic physicians. Conversely, allopathic physicians were more likely to feel confident "Making referrals for appropriate treatment" (35% versus 14%).

Table 28. Percent of Physicians by Education Reporting High Confidence.

	MD	DO	USMG	IMG
Assessing patient willingness to quit	59%	55%	61%	54%
Discussing treatment options with patients	54%	46%	52%	59%
Selecting appropriate prescription medications	54%	91%	54%	53%
Referring to others for appropriate treatment	35%	14%	32%	44%
Motivating patients to consider quitting	32%	41%	29%	43%
Monitoring patient progress in attempting to quit	40%	32%	39%	40%

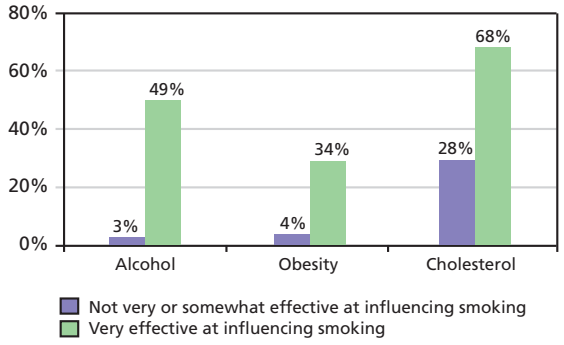
Other Factors

Physicians whose knowledge about tobacco use was most consistent with findings of evidenced-based research tended to be more confident than others. Those who felt well prepared to address smoking cessation with patients by undergraduate, graduate, and/or continuing education also were more confident than other physicians.

Interestingly, physicians who reported that they were "very" effective at influencing patient behavior related to smoking were also more likely to report being effective at helping patients address a range of health related lifestyle changes. These behavioral changes included use of alcohol, chemical dependency, cholesterol, and obesity. Physicians who felt "very" effective at influencing any of these behaviors were more likely to actively participate in cessation activities.

Figure 25. Percent of Physicians Who Feel Very Effective at Influencing Patient Behavior.

Physicians who feel very effective in helping smokers reduce use of tobacco are likely to feel very effective in influencing other behavior changes.



Motivating Factors
Physicians were asked what would motivate them to assist patients try to stop smoking more frequently. The following are the five top motivating factors reported:

More effective interventions	78%
Increased coverage of cessation interventions for patients	61%
Increased availability of interventions	60%
If more patients asked for help	54%
Increased reimbursement for time helping patients stop smoking	43%

Physicians who were more active in cessation activities were more likely to report that all potential motivators would influence them to assist patients to attempt to quit smoking more frequently.

Medical Specialties
"More effective interventions" and "Increased availability of interventions" were cited as top motivators across the four targeted specialties. All but Psychiatrists included "Increased coverage of cessation interventions for patients" among their top three choices. Psychiatrists cited "If more patients asked for Help" in their lists.

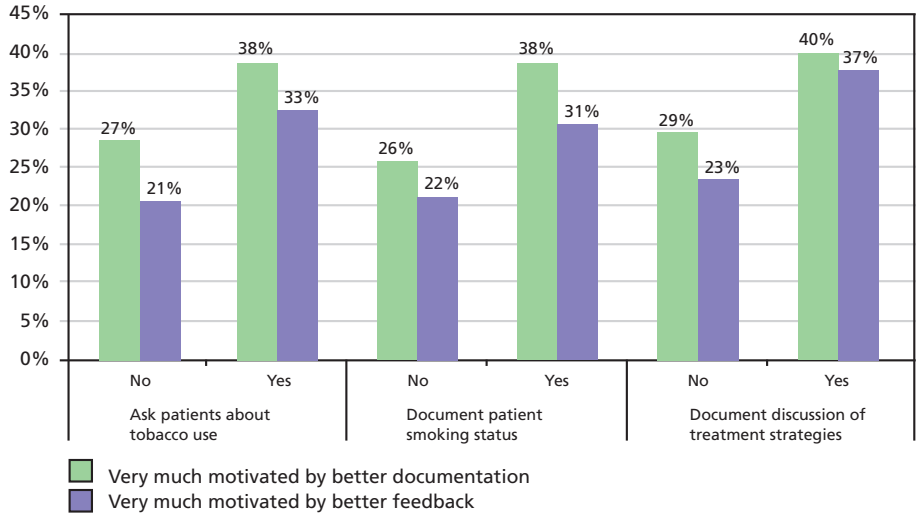
Table 29. Top Three Physician Motivators by Specialty.

Top 3 Motivators	
Family Medicine	**Internal Medicine**
More effective interventions (77%) Increased coverage of cessation Interventions for patients (65%) Increased availability of interventions (57%)	More effective interventions (80%) Increased coverage of cessation Interventions for patients (59%) Increased availability of interventions (58%)
Obstetrics and Gynecology	**Psychiatry**
More effective interventions (77%) Increased availability of interventions (61%) Increased coverage of cessation Interventions for patients (60%)	More effective interventions (79%) Increased availability of interventions (68%) If more patients asked for help (60%)

Organizational Setting and Policies
Motivating factors were not related to organizational setting. As has been previously described, physicians were least likely to report that they would be motivated by "Feedback on patient progress" (32%) or "Routine documentation of smoking cessation assessments in patient charts" (27%). Interestingly, analyses showed that physicians currently required by clinical practice guidelines to ask patients about smoking status, document smoking status, and document discussion of treatment strategies were more likely than others to report that documentation and feedback on patients would be motivating to them.

Figure 26. Percent of Physicians "Very Much Motivated" by Better Documentation and Feedback, by Practice Requirements.

Physicians are more likely to see documentation and feedback on patient progress as motivators for assisting smokers if they already are required to perform related tasks.



Demographics

Men and women did not differ in ranking motivators. However, higher percentages of female physicians reported that these motivators would influence them to assist patients. As seen in Table 30, these differences were greatest for "Increased availability of smoking cessation interventions" and "Increased coverage for interventions."

Table 30. Percent Reporting They Would be "Motivated Very Much" to Help Patients Quit Smoking, by Gender.

	Male	Female
More effective interventions	77%	80%
Increased coverage of cessation interventions for patients	58%	69%
Increased availability of interventions	56%	68%
If more patients asked for help	54%	54%
Increased reimbursement for time helping patients stop smoking	42%	44%
Improvement in your own skills in helping smokers try to quit	34%	42%
Better feedback on patient progress in attempts to quit	31%	37%
Greater availability of staff familiar with smoking cessation	31%	41%
Smoking assessment routinely documented in patient chart	25%	32%

Non-Hispanic White physicians were generally less likely than minority physicians to report that any specific motivator would cause them to assist patients more frequently. They were much less likely than minority physicians to be motivated by improvement in their own skills, better feedback on patient progress in attempting to quit smoking, or by routine documentation in patient charts.

Table 31. Percent Reporting They Would be "Motivated Very Much" to Help Patients Quit Smoking, by Race/Ethnicity.

	White	Asian	Under-represented minority
More effective interventions	79%	76%	74%
Increased coverage of cessation interventions for patients	59%	67%	68%
Increased availability of interventions	56%	72%	69%
If more patients asked for help	52%	58%	61%
Increased reimbursement for time helping patients stop smoking	41%	49%	50%
Improvement in your own skills in helping smokers try to quit	31%	54%	51%
Better feedback on patient progress in attempts to quit	27%	50%	47%
Greater availability of staff familiar with smoking cessation	30%	47%	45%
Smoking assessment routinely documented in patient chart	23%	44%	36%

Other Factors
Notably, physicians who reported more "significant barriers" to helping patients quit also reported a greater number of factors that would encourage them to assist smokers. This suggests that these physicians experienced greater frustration at not being able to assist smokers as they would like to. Reported motivators were almost all positively and strongly correlated with perceived barriers.

Examination of The Relationship Between State Tobacco Control Investment and Physician Practices

States vary in their approach to controlling use of tobacco among their residents. In the late 1990s, significant Master Settlement Agreement funds from the tobacco industry became available to states to fund programs that address tobacco use. Additionally, many states have utilized funds to address smoking that were obtained through state appropriations, cigarette excise taxes, state and national voluntary organization initiatives, and federal funding of specific projects.

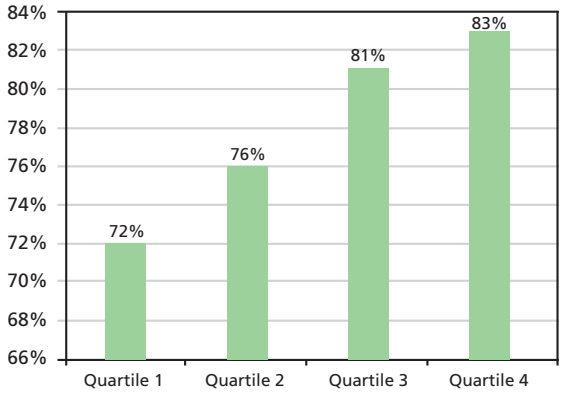
Only a small number of states have developed comprehensive systems to address smoking and tobacco use. Many have multiple initiatives in place, though the design and funding levels for various components differ state to state. Typically state tobacco control programs will include a range of initiatives such as public information campaigns to increase awareness of the hazards of tobacco use, cessation programs including information and referral resources, smoking prevention school programs, development and distribution of educational material, and public policy initiatives intended to reduce smoking.

AAMC/CHWS examined how levels of investment in state tobacco control might be associated with physician practices. Specifically, analysis was undertaken to determine if and how such investment was associated with either general or specific practices, and whether specific groups of physicians were differentially affected. AAMC/CHWS used a measure developed by RTI that described state level expenditures on tobacco control[14] to complete this analysis. State investments were further standardized to permit comparisons on a per capita investment level. For purposes of comparison, states were grouped into quartiles based on these rates of funding.

Physician practices were associated with levels of state investment in tobacco control in some key areas: As per capita investment increased, physicians were generally more likely to make referrals to others and to report the availability of specific types of resources. For example, Figure 27 illustrates that the percentage of physicians who have ever made referrals to others for appropriate treatment increased with the level of state investment in tobacco control.

Figure 27: Physicians Reporting Making Referrals to Others for Appropriate Treatment.

More physicians had "ever" made referrals to others in states with higher per capita investment in tobacco control initiatives.

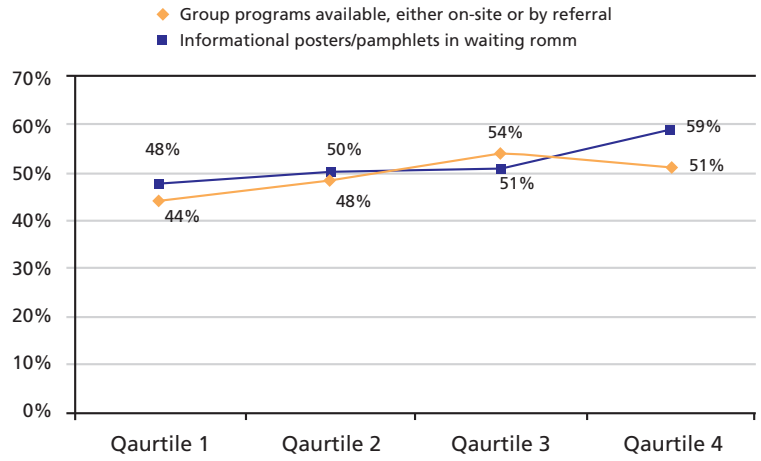


Those practicing in states with higher levels of investment were more likely to report that group programs—particularly off-site programs requiring referrals—were available to help patients try to stop smoking. Physicians in these states also were more likely to report the availability of informational pamphlets, brochures, and posters in waiting rooms.

[14] The impact of tobacco control program expenditures on aggregate cigarette sales: 1981- 2000, Matthew C. Farrelly, Terry F. Pechaecek, Frank J. Chaloupka, Journal of Health Economics, 2003.

Figure 28. Availability of Group Programs and Informational Material by Level of State Per Capita Investment in Tobacco Control.

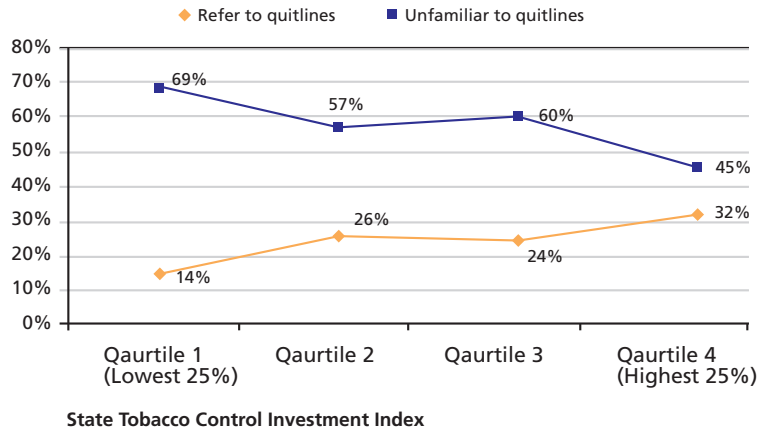
Group programs and informational material were more available in states with greater investment in tobacco control.



The relationship between state investment in tobacco control and physicians' knowledge and use of quitlines was also dramatic. Quitlines are a type of cessation resource that has been expanding in use across the country. These programs typically provide a range of direct and referral services to smokers. Physicians in states with greatest per capita investment in tobacco control were more than twice as likely to make referrals to quitlines as those practicing in states with lowest levels of investment. Consistent with this, physician awareness of quitlines increased as expenditures on tobacco control programs grew.

Figure 29. Referral to Quitlines by Level of State Investment in Tobacco Control.

Physicians were more likely to know about refer to quitlines as state investment in tobacco control increased.



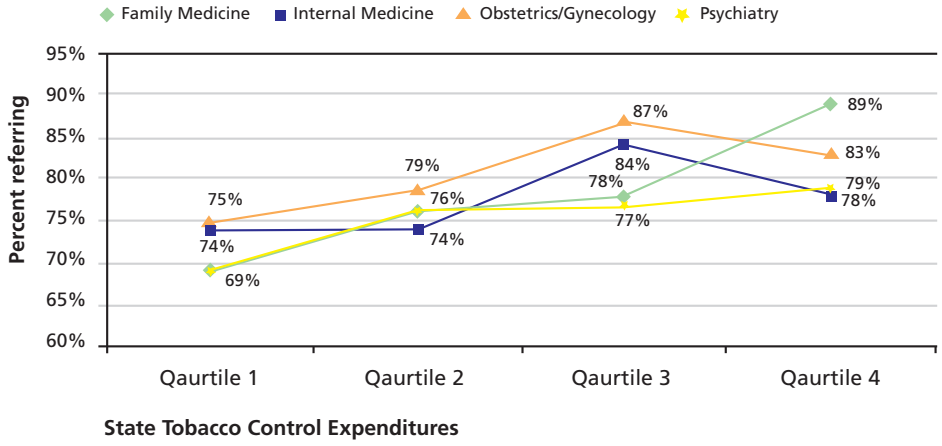
These associations further validate physicians' reports that if more resources were available, they would be used.

Medical Specialties
Practices associated with levels of state investment in tobacco control differed among the targeted medical specialties. Physicians in Family Medicine were more likely to refer and to report awareness and/or availability of resources than others.

As seen in Figure 30, increased state expenditures on tobacco control were more likely to be associated with referrals to others for treatment by physicians in Family Medicine and Psychiatry. Associations also were stronger for these two specialties in reports of the availability of group programs by referral.

Figure 30. Percent of Physicians Referring to Others for Treatment, by State Tobacco Control Expenditures and Specialty.

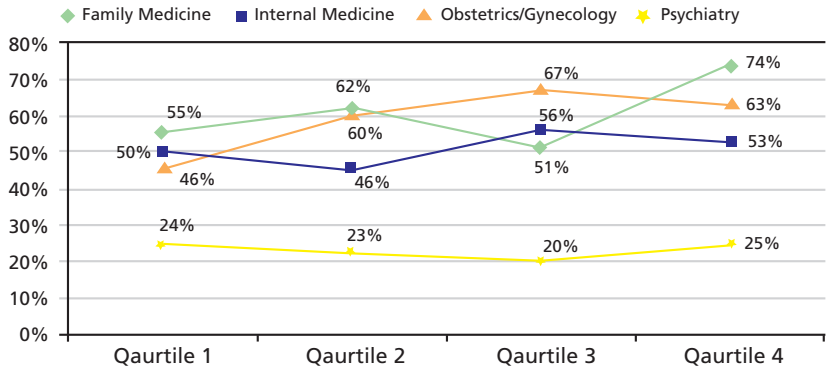
The association between state expenditures on tobacco control and referral was strongest for physicians in Family Medicine.



While increased funding levels were positively associated with the availability of informational materials in waiting rooms, Obstetricians/Gynecologists reported most dramatic changes in availability at a much earlier stage of funding increase than those in Family Medicine. It's possible that this reflects the populations targeted by tobacco control programs at different levels of funding, e.g., pregnant women being one of the earlier groups encouraged to learn about or participate in cessation programs.

Figure 31. Percent of Physicians Reporting Availability of Informational Materials in Waiting Room, by State Tobacco Control Expenditures and Specialty.

Obstetrician/Gynecologists reported more availability of informational materials as investments increase, while internists reported little.



As noted previously, Internists are highly likely to report that they lack resources and supports, and less likely to refer patients to others for appropriate cessation treatment. This pattern appeared to persist even as state expenditures increased. Further studies examining why practices within this specialty proved to be less associated with state tobacco control efforts would be useful.

Organizational Setting

Within the areas that state investment was seen to be associated with physician practices, solo practitioners had stronger associations with levels of per capita expenditure than physicians in other settings, with one exception. Those practicing in hospitals were much more likely to be familiar with and/or refer to quitlines.

Table 32. Association between state investment and physician practices, by organizational setting.

Percentage reporting the availability of group programs by referral

	Quartile 1	Quartile 2	Quartile 3	Quartile 4
Solo practice	34%	41%	40%	50%
Group practice	47%	47%	54%	50%
Hospital	46%	50%	53%	50%

Percentage reporting the usage of informational pamphlets/posters in the waiting room

	Quartile 1	Quartile 2	Quartile 3	Quartile 4
Solo practice	40%	45%	44%	59%
Group practice	53%	54%	55%	60%
Hospital	47%	43%	40%	55%

Percentage of physicians who have referred patients who smoke to others for appropriate cessation treatment

	Quartile 1	Quartile 2	Quartile 3	Quartile 4
Solo practice	64%	69%	75%	77%
Group practice	76%	79%	84%	86%
Hospital	75%	80%	82%	81%

Percentage of physicians who have referred patients to quitlines

	Quartile 1	Quartile 2	Quartile 3	Quartile 4
Solo practice	11%	21%	18%	24%
Group practice	16%	29%	27%	33%
Hospital	13%	21%	20%	50%

Demographics

Associations with increased state investment in tobacco control were consistently stronger for female as compared with male physicians in both referring to others for treatment and reporting availability of resources. However, levels of investment were positively associated with the practices of both men and women. Similarly, the associations of investment on referring smokers to others and reporting increased availability of resources were stronger among non-Hispanic White physicians than with minorities. No consistent pattern emerged by age.

Special Topics

Focus on Physician Practices
Some activities seen to be positively associated with physician participation in tobacco control are interventions that few physicians in the AAMC study felt confident in and/or performed regularly. Additional data on some of these physician practices is being provided to further inform efforts to make more effective use of physicians in addressing control of tobacco with smokers.

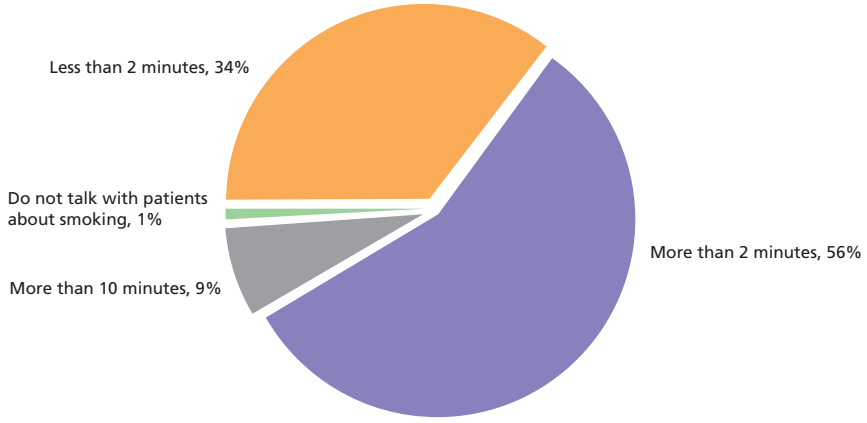
Summary results from the AAMC study related to three types of cessation activities follow—counseling, referral to others for appropriate cessation treatment, and monitoring patient progress in attempting to quit.

Counseling
Since it became clear in researching this topic that physicians and organizations define "counseling" very differently, the AAMC survey did not ask physicians whether they personally "counsel" patients about smoking. However, a number of questions about cessation counseling were posed.

Time spent discussing quitting smoking. Physicians were asked how much time on average they spent discussing quitting with patients. More than half spent between two and 10 minutes, while one-third spent less than two minutes. Approximately one in 10 "usually" spent more than ten minutes discussing quitting with patients, which was remarkable given the length of the average patient encounter. It was unclear how physicians define such discussions, but this may very well represent their classification of "brief counseling" since only 3% reported not having used this strategy.

Figure 32. Time Spent by Physicians Discussing Quitting Smoking with Patients per Visit, on Average.

Most respondents spent between 2 and 10 minutes discussing quitting smoking per visit.

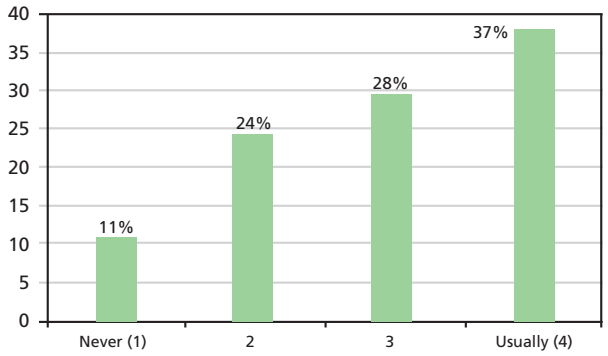


Those spending more time discussing quitting with patients were also more likely than others to see the following as significant barriers to assisting patients: limited coverage for cessation services and for physician time, limited availability of cessation programs, and lack of patient motivation.

Frequency of discussion of counseling options. Four out of 10 physicians reported they "usually" discussed counseling options with smokers, while one in 10 never did. As seen in Figure 33, most recognized that counseling can support patients in quitting smoking.

Figure 33. Frequency of Discussing Counseling Options With Patients Who Are Willing to Try to Quit Smoking.

Most respondents have discussed counseling options with some patients.



The frequency of discussing counseling options did not vary by medical specialty, organizational setting, demographic background, or degree type. IMGs were more likely than USMGs to "usually" discuss counseling options with patients (47% versus 35%). Those reporting greater confidence in their cessation skills spent more time discussing quitting with patients and discussed counseling options with patients more frequently.

Those who "usually" discussed counseling options were more likely to be active in a range of cessation interventions. Notably, neither "time spent" nor "discussion of counseling options" were associated with physicians' general knowledge of tobacco use or patient characteristics.

Use of counseling interventions. Physicians were asked about the effectiveness of a range of counseling interventions. Ninety-seven percent had used brief counseling with patients at some point, while about two-thirds of physicians had used intensive counseling. A majority of physicians believed that both brief and intensive counseling helped patients stop smoking. Almost four-fifths regarded the combination of NRT and counseling to be "somewhat" or "very" effective in helping patients stop smoking (85%).

Table 33. Perceived Effectiveness of Counseling Interventions.

	Never used	Low effectiveness	Some effectiveness	High effectiveness
Nicotine replacement therapy and counseling	8%	7%	64%	21%
Face-to-face intensive counseling	34%	13%	41%	12%
Face-to-face brief counseling	3%	35%	56%	6%

Obstetrician/Gynecologists were less likely to report using intensive counseling to address tobacco use than other physicians (47% versus 67% for Psychiatry and Family Medicine and 69% for Internal Medicine). Psychiatrists were less likely than others to have ever used brief counseling (91% compared to 98% for other specialties).

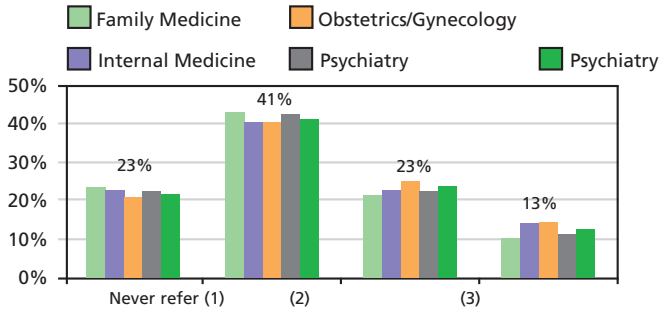
Solo practitioners were more likely to have used intensive counseling (74%) than physicians working in hospitals (65%) or group/HMO practice settings (63%). IMGs (76%) were more likely to have used intensive counseling than USMGs (64%). DOs (80%) were more likely to have ever used intensive counseling than MDs (65%).

Availability of Counseling Services. About one-fourth of physicians reported that tobacco related individual counseling services were available onsite; two-fifths reported these services were available by referral. Ten percent had group programs available onsite, and almost half had these programs available by referral. Thirteen percent reported that staff dedicated to providing tobacco dependence treatment was available in their workplace. About ninety percent of the physicians who lacked counseling services said they would use them if they were available.

Referral to Others for Smoking Cessation Treatment
Only 13% of physicians "usually" referred patients to others for smoking cessation treatment. As seen in Figure 34, about one-fourth of physicians never referred. Ten percent did not believe it was the physician's role to refer patients to others for treatment. Physicians who usually referred were more likely to engage in all smoking cessation interventions examined in the AAMC survey.

Figure 34. Frequency of Referral to Others, by Specialty and Overall.

Referral patterns among the specialties did not differ.



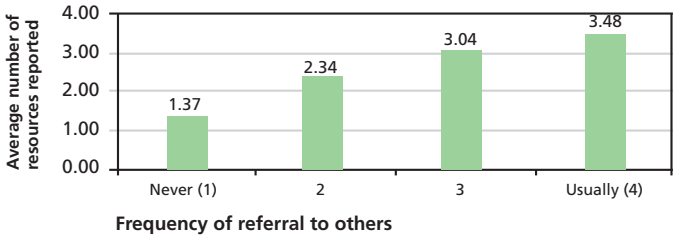
Few differences in referral patterns emerged by medical specialty, organizational setting, gender, age, year of graduation, or type of degree. Asian physicians were more likely to say they usually referred patients to others for treatment than underrepresented minority or non-Hispanic White physicians (22% versus 14% and 11%, respectively). IMGs were more likely to say they usually referred to cessation programs than USMGs (22% versus 11%).

Physicians who usually referred were more likely to feel very well prepared by their continuing medical education (31% versus 15%), although there were no differences in terms of undergraduate or graduate medical education.

As might be anticipated, referral patterns were strongly associated with reports of resource availability, including insurance coverage. Those who "usually" referred patients for cessation assistance were more likely to have access to resources and organizational supports, although it is important to note that deficiencies in available resources persisted in all groups. Physicians who "usually" referred were also more likely to report that most patients had coverage for counseling (44% versus 27%) and for quitlines (17% versus 3%). Physicians who never referred were less likely than other physicians to treat patients covered by Medicaid.

Figure 35. Average number of resources reported[15], by frequency of referral to others.

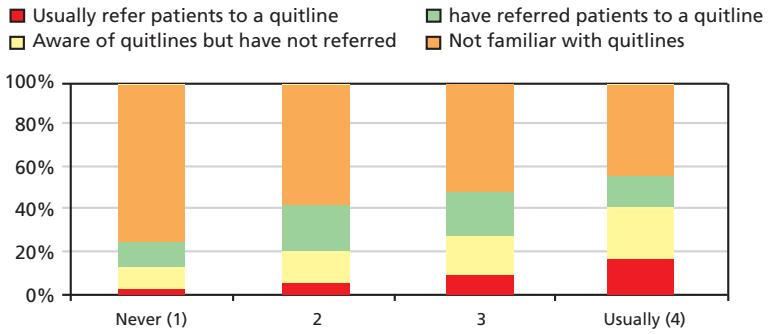
Physicians who usually referred report a larger number of available resources on average than othr physicians.



Physicians who "usually" referred were more likely to be familiar with or to have used quitlines.

Figure 36. Pattern of Quitline Referrals by Frequency of Referring Patients to Others.

As physician referrals increased, so did referrals to quitlines.



Generally, physicians' perceptions of barriers were not related to referral practice patterns. One notable exception was that physicians who "never" referred were more likely to feel that their understanding of CPT codes was a significant barrier to assisting patients to quit smoking compared with those who "usually" referred patients to appropriate treatment (29% versus 43%). Physicians who usually referred were more likely to spend time with patients addressing cessation: 77% spent more than two minutes speaking with patients about smoking, as compared with 61% who never referred. Fourteen percent spent more than 10 minutes as compared with 9% who never referred.

[15] Out of seven resources listed in the survey.

Those who "usually" referred were confident in helping patients address tobacco use. They were more likely than those who never referred to be highly confident in their ability to make cessation referrals (70% versus 16%), motivate patients to quit (59% versus 46%), and monitor patient progress (45% versus 33%).

Physicians who "usually" referred were more likely than physicians who never did to be highly motivated by having routine documentation of smoking assessments (37% versus 22%), better feedback on patient progress (41% versus 30%), and availability of staff familiar with smoking cessation (44% versus 28%).

Monitoring Patient Progress
Approximately one-fourth of physicians reported that they usually monitor the progress of patients who attempt to quit smoking. About one in 10 said they never did. Those physicians who usually monitor patient progress in quitting were more active in cessation interventions than other physicians.

Interestingly, all of the physicians who monitor patients' progress in attempting to quit smoking and 68% of those who never monitor recognized this aspect of practice as part of a physician's role.

Obstetricians/Gynecologists were much less likely to say they "usually" monitor patient progress than physicians in the other targeted specialties (10% versus 30% for both Family Medicine and Internal Medicine and 28% for Psychiatry).

Monitoring practices did not differ by organizational setting. However, physicians required by practice guidelines to document discussion of treatment strategies were more likely to "usually" monitor patient progress than those who were not (35% versus 22%). Requirements to ask patients about smoking status or to document smoking status were not strongly associated with increased monitoring of patient progress.

Those who "usually" monitor were more likely to regard better documentation of progress as a personal motivator influencing increased assistance to patients, as compared to physicians who "never" did monitor (35% versus 23%). They were also less likely to be motivated by the availability of staff (34% versus 46%), but otherwise did not differ from those who never monitored in their identification of motivating factors.

Substantial variation in practice did not emerge by gender, race/ethnicity, type of degree, location of medical school, year of graduation, or availability of patient health insurance. The likelihood that a physician "usually" monitored patient progress in attempting to quit smoking increased with physician age, rising from 15% of those younger than 40 to 33% of those age 60 and older.

Physicians who "usually" monitored patient progress were more likely than those who never did to feel well prepared to address cessation with patients by graduate medical education (14% versus 3%) and continuing education programs (28% versus 11%). Differences were not associated with evaluations of undergraduate medical education.

Physicians who usually monitored smokers' progress were much more likely than those who never monitored to have individual counseling available onsite (37% versus 13%). No other substantial differences emerged in reports about resource availability. Those who "usually" monitored smokers' progress were less likely to perceive many barriers as significant as compared with those who did not, as seen below.

Table 34. Differences in Perceptions of Significant Barriers, by Frequency of Monitoring.

	Never (1)	2	3	Usually (4)
Time with patients significant barrier	50%	45%	42%	33%
Staff are unfamiliar significant barrier	33%	21%	18%	15%
Limited experience significant barrier	21%	8%	5%	4%
Understanding of CPT codes significant barrier	55%	37%	34%	29%
Other practice priorities significant barrier	48%	34%	28%	19%

Those who "usually" monitored were more confident in their abilities to address smoking cessation with patients. They also spent more time discussing treatment strategies with patients. Sixty-one percent spoke to patients for two to 10 minutes (compared to 38% of those who never monitored), and 19% said they talked to patients for more than 10 minutes (compared to 2% of those who never monitored). They were also more likely to report that NRT + counseling, NRT + Bupropion, and intensive counseling were highly effective interventions.

Use of Quitlines
Only about one in five physicians responding to the AAMC survey had referred patients to a quitline. Seven percent reported that they "usually refer" to quitlines in assisting patients who smoke. Sixty percent were unfamiliar with this type of smoking cessation program. While few physicians regularly use quitlines, 84% of all respondents were interested in learning more about them.

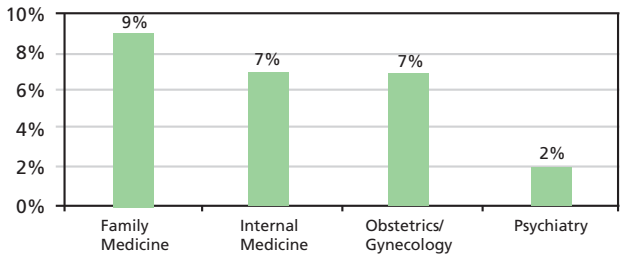
It is important to note that current utilization rates may reflect one or more design factors associated with this resource. The capacity of existing programs to meet potential demand for services, the range of services offered, and the availability of funding and/or health care coverage for patient services are some of the factors that influence current outreach to physicians, as well as use of the programs. Additionally, all quitline services may not be appropriate as currently staffed and structured for specific patient populations, e.g., smokers who have serious and persistent mental health diagnoses.

The information that follows describes patterns of physician use of quitline services as well as services available through quitline programs.

Medical Specialties
Only modest differences in referrals to quitlines were evident among Internists, Family Medicine physicians and Obstetricians/Gynecologists. Psychiatrists were less likely than other physicians to have ever referred to a quitline, or to "usually refer."

Figure 37. Percent of Physicians Who "Usually Refer" Patients to Quitlines by Medical Specialty.

Fewer than one in ten respondents usually refer to quitlines.



Family Medicine physicians and Internists also were less likely to be unfamiliar with quitlines than the other specialties (Family Medicine, 54%; Internists, 59%; Obstetricians/Gynecologists, 64%; and Psychiatrists, 74%). However, more than half of the physicians in each specialty were not familiar with these programs.

A quitline is a service that provides telephone support to individuals who want to stop using tobacco. First established in the 1970s, their numbers have increased. By 2005, 44 states had established state programs and the remaining are being serviced through a national quitline service.

Programs vary in the range of services offered as well as the populations eligible to receive assistance, reflecting both policy and budgetary considerations. As seen in Table 35, these services may include providing smokers with information on quitting, providing referrals to other services, offering telephone counseling, and providing some types of stop smoking medication at low or no cost.

Table 35. Services Provided by Quitline Programs.

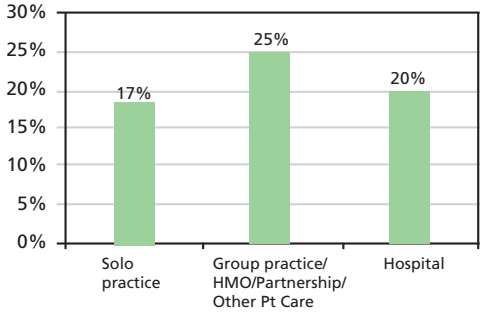
Mail information or self-help resources	100%
Provide referrals to other services	94%
Opportunity to speak to a counselor within set times	90%
Offer reactive quit smoking counseling	79%
Offer proactive quit smoking counseling	73%
Recorded Messages	73%
Offer Web-based information	50%
Email Messages	38%
Web-based interactive information	29%
Live help instant text messaging	23%
Provide quit smoking medication at no cost	21%
Provide quit smoking medication at low cost	13%
Offer group cessation programs	6%
Offer other types of financial help	4%

Compiled from The North American Quitline Consortium at http://www.naquitline.org/index.asp?dbid=1&dbsection=map

Organizational Settings and Policies
Quitline referral patterns were generally consistent across organizational settings. Substantial differences were not associated with requirements to ask patients about smoking status or to document the status of smoking or discussion of treatment strategies.

Figure 38: Percent of Physicians Referring to Quitlines by Organizational Setting of Practice.

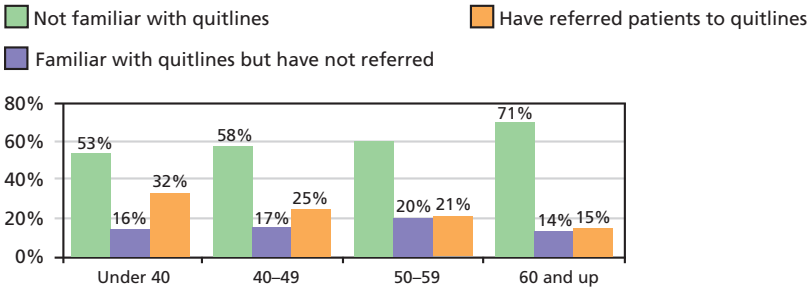
Percent of physicians who had referred patients to quitlines by setting.



Demographics
Younger physicians, i.e., those younger than age 40, were the most likely to have previously referred patients to quitlines (32% v, 21%). As seen in Figure 39, lack of familiarity with quitlines increased with age. Gender and race/ethnicity did not influence physician referral patterns.

Figure 39. Use and Familiarity with Quitlines by Physician Age Group.

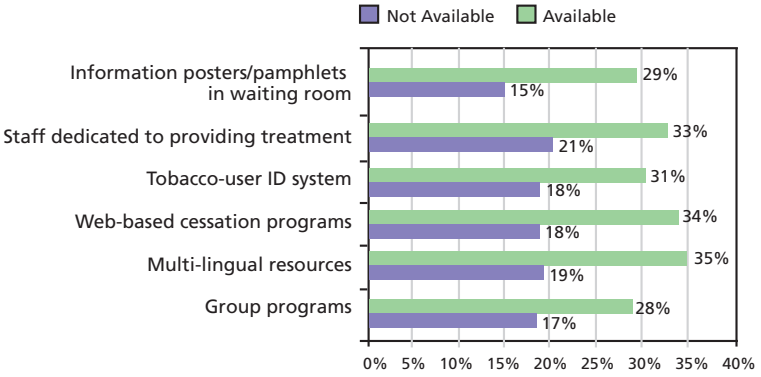
Young physicians were more likely to refer to quitlines.



Resources
Physicians reporting that resources were available were significantly more likely to refer patients to quitlines than physicians for whom resources were not available.

Figure 40: Percent of Physicians Referring to Quitlines by Availability of Resources.

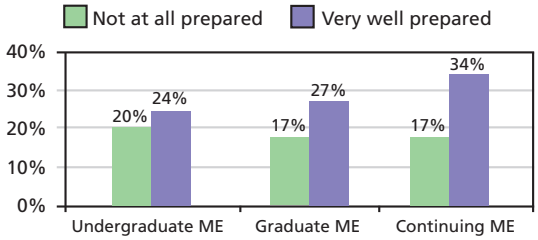
Quitlines referrals were associated with increased availability of other cessation resources.



Educational Preparation

Physicians who felt well prepared to address use of tobacco by medical education programs were more likely to refer patients to quitlines than those who felt less well prepared. Physicians who felt well prepared also were more likely to be familiar with quitlines.

Physicians who felt well prepared by continuing education programs addressing smoking were more likely to refer to quitlines.



Referral patterns did not differ between allopathic and osteopathic physicians, or between USMGs and IMGS.

Patient Characteristics

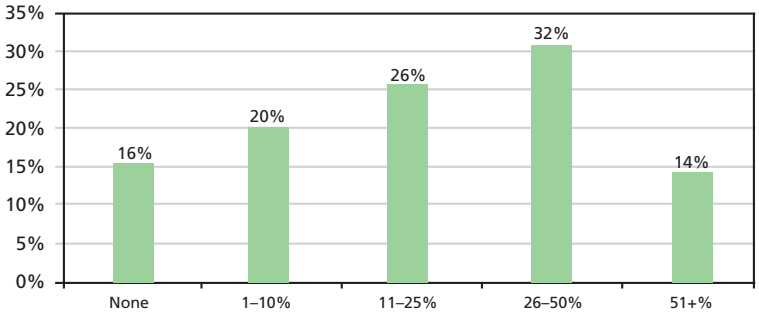
The race/ethnicity of patients, prevalence of smokers within a physician's practice, and prevalence of patients with smoking related illnesses or chemical dependency problems were not associated with referral patterns to quitlines. However, the prevalence of patients in a physician's practice who were pregnant or who had mental health diagnoses were associated with quitline referral patterns.

Physicians who either treated no pregnant women or who treated predominantly pregnant women were less likely to refer to quitlines than other physicians (No pregnant women = 14%; 1-10% =27%; 11-25% =27%; 26-50% =26%; and 51+% =13%).

Physicians whose practices included a majority of patients with mental health diagnoses were least likely to use quitlines. However, referrals to quitlines increased with the percentage of patients with mental health conditions up to 50%.

Figure 42. Percentage of Referrals to Quitlines by Range of Patients Who Had Mental Health Diagnoses.

Physicians were more likely to refer patients with mental health diagnoses to quitlines if their practices were not predominantly patients with these diagnoses.

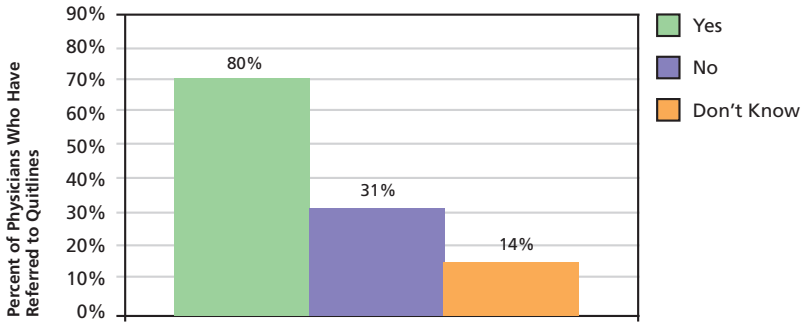


Health Insurance

Physicians whose patients have health insurance that covers quitline services were more than twice as likely to refer patients to these programs as respondents whose patients lacked such coverage. Health care coverage was more strongly associated with referral patterns to quitlines than it was with either coverage for counseling or medication/pharmacotherapy.

Figure 43. Patterns of Referral to Quitlines by Availability of Coverage for Quitlines.

When aware that health care insurance covers services, physicians were more likely to refer to quitlines.



Physicians who do not treat Medicaid patients are only half as likely to refer patients to quitlines compared with physicians who treat Medicaid patients (None= 13%; 1-10% =24%; 11-25%= 26%; 26-50%= 24% ; 51+% = 24%).

State Quitline Referral Patterns
Quitline referrals varied with the state physicians practiced in, but not by rural and urban location within states. The tables that follow detail services available in the states where the greatest number of physicians and least number of physicians reported use of quitlines.

Table 36. Quitline Services Available in States Where Higher Percentages of Physicians "Usually Refer" Patients to Services.

	SD	DE	ME	VT	UT	WA	CO
% Physicians Who Usually Refer to Quitlines	71%	40%	38%	24%	23%	21%	20%
Total Respondents in State[1]	534	393	392	56	949	2868	2797
# months since inception	41	52	40	52	58	55	44
SERVICES OFFERED							
# of hours per week for incoming calls	168	168	39	168	112	112	85
Recorded messages					•	•	•
Email messages					•		
Mail information or self-help resources	•	•	•	•	•	•	•
Web-based information						•	
Provide referral to others	•	•	•	•	•	•	•
Counseling:							
Hours per week	68	168	39	98	99	112	85
Counselor available at any time		•		•		•	
Counselor available at set times	•		•	•	•	•	•
Proactive quit smoking counseling	•	•	•	•	•	•	•
Reactive quit smoking counseling			•	•	•	•	•
Quit Smoking Medication:							
Provide at low cost	•						
Provide at no cost		•	•		•	•	

[1] Total weighted responses

Table 37. Quitline Services Available in Selected States Where Physicians Make Fewest.

	TN	VA	NV	LA	KY	NE	MD	IN	DC	AR	TX	NM	NC	FL
% Physicians Who are Not Familiar with Quitlines	95%	88%	88%	88%	88%	84%	84%	81%	79%	78%	77%	76%	76%	75%
Total Respondents in State[1]	2147	2688	141	1322	1271	693	2761	2340	453	534	5520	819	3261	5146
# months since inception	9	7	77	57	25	11	1	N/A	7	29	45	77	23	40
SERVICES OFFERED														
# of hours per week for incoming calls	49	49	67	60	49	49	67	49	49	66	120	49	49	168
Recorded messages	•	•			•	•	•	•	•	•		•	•	
Email messages	•	•			•	•		•	•	•		•	•	
Mail information or self-help resources	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Web-based information	•	•		•	•	•	•	•	•	•		•	•	
Provide referral to others	•	•	•	•	•	•	•	•	•	•	•	•	•	
COUNSELING														
Hours per week	49	49	67	60	49	49	N/A	49	49	66	98	49	49	168
Counselor available at any time														•
Counselor available at set times	•	•	•	•	•	•	•	•	•	•	•	•	•	
Proactive quit smoking			•				•			•	•			•
Reactive quit smoking counseling	•	•	•	•	•	•	•	•	•	•		•	•	
QUIT SMOKING MEDICATION														
Provide at low cost			•											•
Provide at no cost										•				

[1] Total weighted responses

Some interesting insights emerged when comparing the quitline services available to physicians and patients in these two groups:

- *Quitlines had been in existence longer in the states where 20% or more physicians reported "usually" making referrals as compared to states where a higher percentage of physicians were unfamiliar with these services.*

  All of the states with higher percentages of physicians who "usually" refer were established in or before 2002. In contrast, eight of the 12 states with a higher percentage of physicians unfamiliar with quitlines had been in existence less than three years. Five had been in existence less than one year.

  While awareness and use of quitlines may in part be "time" sensitive, date of inception was not determinative. Several other states early to initiate quitlines had fewer than 20% of physicians referring to programs.

- *Some services were provided by quitlines in all states with higher percentages of physicians referring to programs and nearly all states where high percentages of physicians were unfamiliar with programs. These services included:*

  • Mailing information and self help information

  • Referral to others

  • Counseling available at set times

- *Quitlines were more available for incoming calls in states where a higher percentage of physicians "usually" referred patients to these programs.*

  These states were available for incoming calls 122 hours per week on average, as compared to an average of 67 hours in states where a high percentage of physicians were unfamiliar with quitlines.

- *Counseling services were more available in states where a higher percentage of physicians "usually" referred to quitlines.*

  States with higher percentages of physicians referring to quitlines offered 96 hours of counseling per week on average, as compared with an average of 65 hours per week among programs in states where a higher percentage of physicians were unfamiliar with quitlines.

  Counseling was offered at any time in three of the seven states with a higher percentage of physicians who usually referred patients to quitlines. Only one of 14 states where a higher percentage of physicians were unfamiliar with quitlines offered this service.

  Proactive quit smoking counseling was offered in all states where a higher percentage of physicians usually referred patients to quitlines. Five of 14 states where a higher percentage of physicians were unfamiliar with quitlines offered this service.

- *Quit smoking medication was more available at no cost through quitlines in states where a higher percentage of physicians usually referred patients to these programs.*

  Four of seven of these states provided quit smoking medication at no cost. Only one state where a higher percentage of physicians were unfamiliar with quitlines did so.

- *Web-based information was more available through quitlines in states where a higher percentage of physicians were unfamiliar with quitlines.*

  Eleven of 14 states with a higher percentage of physicians unfamiliar with quitlines provided Web-based information, compared with one out of seven among states with a higher percentage of physicians who usually referred patients to quitlines.

It should be noted that since the AAMC survey drew a national rather than state-by-state sample, further investigation into factors that influence physician practices relative to quitlines at the state level would be beneficial.

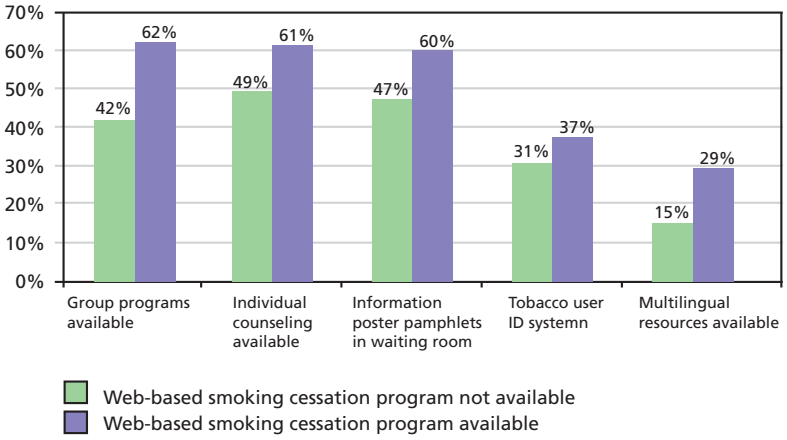
Web-based Smoking Cessation Programs

One-fourth (26%) of survey respondents reported that Web-based smoking cessation programs were available to help patients try to stop smoking. Seven of ten of those lacking this type of resource indicated that they would use Web-based programs were they to become available.

The states where the highest percentages of respondents report having Web-based programs available included South Carolina (44%), Colorado (42%), and Massachusetts (40%).

Only slight variation among physicians reporting the availability of these services was apparent by medical specialty, organizational setting, demographic background, location of practice, or location of medical school. Substantial differences also were not apparent based on the patient characteristics, prevalence of smokers treated, or percentages of Medicaid patients. Physicians who reported that Web-based programs were available were significantly more likely than other respondents to report the availability of other resources and organizational supports related to smoking cessation.

Reports of Web-based Programs were Significantly Related to the Availability of Other Cessation Resources.



Physicians who have referred to quitlines were more likely to identify the availability of Web-based programs than those who have not (36.3% versus 25.6%). Physicians reporting the availability of Web-based programs report high levels of confidence in their ability to assist patients to try to stop smoking, they also were more likely than other physicians to have perspectives more consistent with clinical research findings about tobacco use. They were less likely than other physicians to experience barriers associated with limited knowledge of CPT codes or limited experience related to cessation interventions, such as their own or their staffs' efforts. These physicians were more likely to report limitations in financial resources as barriers, e.g., availability of coverage for services or for a physician's time.

Variations in Medical Specialty Practices

Physicians in all medical specialties encounter smokers in their practices and have the potential to help them stop smoking. As has been discussed, the AAMC physician study focused on physicians in four specialties that are of particular importance in controlling use of tobacco[16]: 1) Family Medicine, 2) Internal Medicine, 3) Obstetrics/Gynecology, and 4) Psychiatry. Physicians in each of these specialties are likely to have frequent, ongoing relationships with patients. They also treat patient populations at high risk for tobacco use. Understanding the experiences of these physicians therefore has the potential of informing policies and practices that could make more effective use of key clinicians in addressing and preventing smoking.

The following descriptions provide brief histories of each targeted specialty's involvement in addressing smoking cessation and highlight some distinguishing specialty-specific findings. Comparisons of practices and perspectives of physicians by medical specialty are also presented in each section of the report.

Physician participation in smoking cessation activities varied across the targeted medical specialties. Some differences are desirable, since specific interventions may be contraindicated when treating specific patient groups, e.g., nicotine replacement therapies are not recommended for pregnant women. Controlling for other variables[17], only Psychiatrists had practice patterns that were significantly different statistically from other specialties. Psychiatrists were less likely than the other targeted specialties to participate in "many" smoking cessation activities. Internists and Family Medicine physicians were the most likely to participate in "most" cessation activities.

Family Medicine

Family Medicine physicians see patients from virtually every demographic, including many special populations: children, pregnant women, minorities, the socioeconomically disadvantaged, older adults, and those with chronic diseases. Physicians in Family Medicine have taken a very active role in tobacco cessation at the community level. As early as 1996, their specialty society, the American Academy of Family Physicians [AAFP], released a set of "action steps" for physicians to help combat tobacco use among both their own patients and the U.S. population as a whole. These included a recommendation that physicians document tobacco use in patient charts and work collaboratively with other health professionals to treat tobacco use. Other AAFP recommendations have focused on shaping public policy around tobacco use and initiating community-based programs.

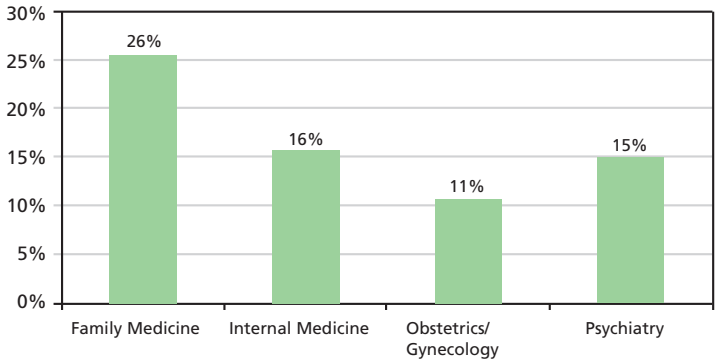
[16] The American Academy of Pediatrics had just concluded fielding a survey that addressed issues related to tobacco cessation counseling among patients and parents to its members when this project began. This specialty was therefore not targeted in the AAMC study.

[17] Variables controlled using OLS regression included barriers, resources, confidence, perspectives, specialty, setting, expectations, roles, preparation, practice requirements, patient characteristics, location of medical school, year of graduation, effectiveness, physician age, physician smoking status.

AAFP has also created a "Stop Smoking" guide that physicians can share with patients; regularly sponsors sessions related to smoking cessation at association meetings; and promotes the use of quitlines to physicians as a resource for helping patients stop smoking.

In the AAMC study, Family Medicine physicians were found to define the role of the physician in helping patients quit smoking more broadly than other specialties. They also were more confident in their abilities to performing cessation-related activities than other physicians. These physicians were also more likely to have Tobacco User ID systems in their practice, were more likely to be familiar with quitlines, and were less likely to say that CE was unavailable.

Figure 45. Percent of Physicians Who Reported Being "Very Well" Prepared by their Continuing Education on Smoking Cessation.



Internal Medicine
Internal medicine is the largest physician specialty in the U.S. As primary care providers, Internists generally see patient populations similar to Family Medicine physicians, although they typically do not see children. Because such a large proportion of the U.S. population use Internists as their primary care providers, this specialty can play a potentially pivotal role in preventing and reducing smoking.

The literature on the smoking cessation practices of Internists is quite limited. The American College of Physicians [ACP], the Internal Medicine specialty society, is still considering how to best support their physicians in helping reduce tobacco use. Many Internists belong to subspecialty associations, some of which have their own tobacco-related guidelines, programs, and initiatives that may influence physician practice.

Internists were more likely to perform several interventions than physicians in other specialties. For example, they were the most likely to ask patients about their smoking status, advise smokers to stop, and assess patient willingness to quit. They were also the most likely to prescribe NRT and other medications. Internists, however, faced more challenges in finding resources. They were generally more likely than any specialty other than Psychiatry to report that resources were unavailable.

Obstetrics/Gynecology
The American College of Obstetricians and Gynecologists (ACOG) has been very active in addressing use of tobacco with their members. In 2000, ACOG issued an educational bulletin on smoking cessation during pregnancy that introduced obstetricians to best-practice recommendations in a quick summary manner. In 2002, they issued a clinician's guide on smoking cessation, featuring a tool kit and case studies. This

self-instruction tool kit has been shared with over 20,000 members as well as other physicians interested in receiving the material.

ACOG provides information on smoking cessation to members through a variety of publications, e.g., educational bulletins, journal articles, and ACOG newsletters. Other initiatives include development of tools for consumers, such as *Need Help Putting Out That Cigarette*, a patient workbook for pregnant women, and education pamphlets on tobacco use for teen girls and women.

Practice patterns of Obstetricians/Gynecologists differed from other specialties. Some of the difference is undoubtedly related to the high percentages of pregnant women that they treat. Obstetricians/Gynecologists were less likely than others to discuss pharmacotherapies or to prescribe NRT or other medications than were other physicians. As previously indicated, these medications are contraindicated for pregnant women. Obstetricians/Gynecologists were also less likely to report monitoring patient progress. This may reflect that some patients do not have contact with their Ob/Gyns after delivery. However, since these physicians are increasingly being used by women as their primary care doctors, monitoring patients' progress in quitting smoking remains an important task.

Obstetricians/Gynecologists were more likely than physicians in Family Medicine or Internal Medicine to say that their limited experience intervening with smokers was a significant barrier. They were less confident than other physicians in performing smoking cessation activities (particularly assessing and discussing treatment options, selecting medications, and monitoring patient progress), but were more likely to want information on treating smokers. In particular, they were more likely to want information on advising patients to quit, treating pregnant smokers, and addressing secondhand smoke in the home.

Psychiatry
Psychiatrists are likely to treat a large number of patients who smoke. It is estimated that more than one-third of cigarettes are smoked by nicotine-dependent individuals with a comorbid psychiatric disorder (Grant et al., 2004). The American Psychiatric Association (APA) recognizes the importance of smoking cessation, and is working within the specialty to identify ways to encourage Psychiatrists to provide smoking cessation treatment.

The APA issued a formal treatment guideline in 1996, *Practice Guideline for the Treatment of Patients with Nicotine Dependence*, which recommended that smoking be routinely treated in patients with psychiatric diagnoses. The APA Council on Addictions subsequently issued a treatment improvement protocol on smoking. The Council advocates for smoking cessation services for patients both within and beyond the specialty. Currently, APA is focused on identifying the best strategies for increasing the involvement of Psychiatrists in treating smoking.

Psychiatrists were the most different from the other targeted specialties. They were much more likely to be in solo or hospital-based practice and less likely to be in group practice. Psychiatrists were more likely either to treat no Medicaid patients or to report that a majority of their patients were covered by Medicaid. Nearly one in five (19%) reported that half or more of their patients smoke.

Psychiatrists were less likely to ask about smoking status, to advise patients who smoke to quit, or to assess patient willingness to quit than other physicians. Some of the differences may be related to the fact that they are more likely to report that "Patients have more immediate problems to address." Psychiatrists were more likely than other physicians to want additional information on asking patients whether they smoke, providing social support to smokers trying to quit, and treating smokers with psychiatric or chemical dependency disorders.

Psychiatrists were also generally less likely to report that cessation resources were available, except for individual counseling. They were less likely to provide informational brochures and pamphlets or to have them available in their offices.

Psychiatrists were more likely to identify "Too few cessation programs" as a barrier to helping patients quit, and to say that their experience intervening with patients is limited. They were also less likely to see coverage and reimbursement as significant barriers. Although Psychiatrists were more likely than other physicians to be motivated by patients asking for help, they reported less confidence in motivating patients.

IV. Findings of the Study

The AAMC study "Assessing Physician Knowledge, Attitudes and Practice Patterns Related to Tobacco and Smoking Cessation," provided insights into physician practices and perspectives on addressing control of tobacco with patients. These included factors that impede or facilitate physician participation in cessation related activities. These findings create greater understanding of physician experiences, with implications for medical education and training, medical practice, and broader tobacco control policies and programs.

Findings included:

- Physicians believed it is their role to help patients quit smoking.
- While most consistently asked patients who smoke about their smoking status and advised them to stop, physicians did not provide extensive assistance in helping patients try to quit. They were least likely to refer smokers to others for appropriate treatment or to arrange for follow-up visits to address smoking.
- Physicians regarded current smoking cessation tools as inadequate, including
  - insufficient services, resources, and organizational supports;
  - interventions that have only limited effectiveness; and
  - limited education and training for physicians on addressing tobacco use and cessation interventions.
- Lack of patient motivation, limited coverage for interventions, and limited reimbursement for a physician's time were the barriers to assisting smokers quit most frequently identified by physicians as significant.
- Physicians believed that patients bear a significant responsibility for both quitting and smoking. However, physician attitudes were not found to be associated with levels of participation in cessation activities.
- Physicians said they would welcome additional resources, more effective interventions, and increased insurance coverage for both cessation interventions and physician services to support their helping patients try to quit smoking.
- Physicians who viewed incremental reductions in levels of tobacco use as successful outcomes were more likely to participate in cessation activities than those regarding success more narrowly.
- Physicians were not confident in their abilities to motivate smokers to quit, make referrals, or monitor patient progress.
- Physicians required by their practices to perform some cessation activities with patients were more likely to participate in a greater depth and breadth of cessation activities to address tobacco use.
- Physicians who reported more resources or who were more positive in assessments of intervention overall were more likely to participate in a greater breadth and depth of cessation activities.
- Practices and perspectives of physicians in Family Medicine, General Internal Medicine, and Obstetrics/Gynecology did not generally differ on addressing control of tobacco with patients. However, the cessation practices and attitudes of Psychiatrists were significantly distinct from the other physicians targeted.
- Greater per capita investment in state tobacco control programs was associated with increased rates of physician referrals to cessation services as well as increased awareness of some resources.
- Quitline referrals were greater in states with established quitline programs and with higher investment in tobacco control.

V. Discussions of Findings

The AAMC physician study provides insights into a range of physician experiences and perspectives that have implications for provision of support for individuals attempting to control their use of tobacco. The discussion that follows highlights the following issues: What Physicians Do, Shortage of Cessation Tools, Learning Opportunities Limited, Significant Barriers, Practice Requirements Matter, State Investment in Tobacco Control Matters, and Physician Use of Quitlines Limited.

What Physicians Do

Physicians believe they have roles to play in helping patients control tobacco use. In response to the study, more than 90% believed a physician's role included helping both motivated and unmotivated patients to quit smoking, discussing smoking behavior and relapse with patients, referring smokers to others for appropriate treatment, and/or monitoring patients' progress in their attempts to quit. More than half believed all the above to be part of their responsibilities. Perceptions varied little by medical specialty, organizational setting of practice, or demographic background.

In practice, physicians were much less likely to report that they regularly participated in the range of activities they recognized as part of their role. While a significant majority routinely asked patients about smoking status and advised smokers to stop, many fewer participated in activities such as counseling patients, enlisting support for quitting, monitoring progress, or prescribing medication. Physicians were least likely to arrange follow up visits to address smoking with patients or refer them to others for appropriate treatment. This broad variation in performance of tasks was generally consistent with findings of other physician studies.[18]

Table 38. Percent of Physicians who "Usually" Engage in Specific Cessation Activities with Patients who Smoke.

Advise patients to stop smoking	86%
Ask about smoking status	84%
Discuss pharmacotherapies	68%
Assess patient willingness to quit	63%
Discuss counseling options	37%
Recommend nicotine replacement therapy	31%
Discuss enlisting support for quitting	29%
Monitor patient progress in attempting to quit	27%
Prescribe other medication	25%
Provide brochures/self help materials	24%
Arrange follow-up visits with patient to address smoking	17%
Refer patients who smoke to others for appropriate cessation treatment	13%
Refer patients to a quitline	7%

[18] Studies examined include: Goldstein et al., 1998; Ellerbeck, et al., 2003; Saywell et al., 1996; Ellerbeck, et al., 2001; Chapin & Root, 2004; Grimley et al., 2001; Quinn et al., 2005; Easton et al., 2001; and Partnership for Tobacco Prevention and Cessation for Women of Reproductive Age, 2005.

Practice patterns differed among the targeted medical specialties, with Psychiatrists being the least likely to participate in most cessation activities. Obstetricians/Gynecologists were less likely than other specialties to prescribe medication and nicotine replacement therapy (NRT), or to discuss pharmacotherapies. While this reflects that medications may be contraindicated when treating women who are pregnant, it also suggests particular challenges in addressing smoking with patients within this specialty since increasing numbers of women have come to use Obstetricians/Gynecologists as their source of primary care. Practice patterns among physicians did not vary by demographic background or by organizational setting.

USMGs and IMGs did not differ in most smoking cessation practices. However, IMGs were much more likely to participate in several activities as compared with USMGs, as presented in Table 39.

Table 39. Smoking Cessation Practices by Medical School Location.

Percent who "usually"…	USMG	IMG
Discuss counseling options	35%	47%
Discuss enlisting support for quitting	27%	37%
Prescribe other medication	23%	34%
Provide brochures/ self-help materials	22%	34%
Arrange follow-up visits with patient to address smoking	15%	25%
Refer patients who smoke to others for appropriate cessation treatment	11%	22%

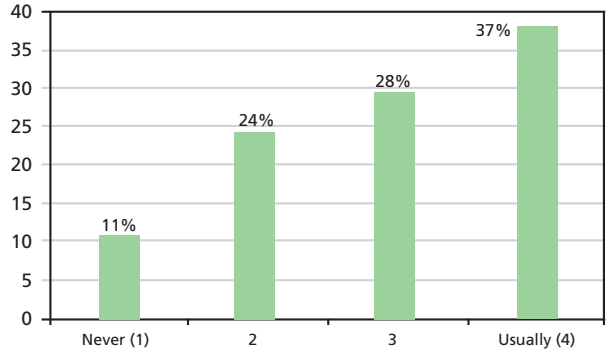
More than half of physicians reported spending on average between two and 10 minutes discussing quitting with patients. One in 10 reported spending more than 10 minutes, which was remarkable given the length of the average patient encounter.

Physicians who monitor patients' use of tobacco spend much more time discussing smoking with patients than those who never do. Sixty-one percent spoke with patients for two to 10 minutes compared to 38% of those who never monitor and 19% said they talked to patients for more than 10 minutes compared to 2% of those who never monitor.

Most respondents have discussed counseling options with some patients. Four out of 10 reported that they "usually" discuss counseling options with patients, while only one in 10 never does.

Figure 46. Frequency of Discussing Counseling Options with Patients Who Are Willing to Try to Quit Smoking.

Most respondents have discussed counseling options with some patients.



Shortage of Cessation Tools

A majority of physicians across specialties and settings reported significant limitations in the interventions they have available to help smokers stop smoking. These included having too few cessation resources and organizational supports, as well as lacking interventions that are effective in helping patients quit.

In fact, physicians across the targeted medical specialties identified "More effective interventions" and "Increased availability of interventions" as the factors that would most motivate them to more frequently assist patients quit smoking.

Insufficient Services, Resources and Organizational Supports
At best, only half of physicians report having any single resource available to help patients quit smoking. As seen in Table 40, physicians were most likely to report that brochures, pamphlets, and posters were available in their waiting rooms, and that group programs by referral and individual counseling by referral were available. A very high percentage of those who lacked access to resources indicated they would use such resources were they available: Nine in 10 physicians would use individual counseling and group programs, and seven in 10 would use Internet-based smoking programs and multilingual resources.

Table 40. Percent of Physicians Reporting the Following Resources/Organizational Supports Were Available to Help Patients Quit Smoking.

Informational poster / pamphlets in waiting room	50%
Group programs available by referral	46%
Individual counseling available by referral	41%
Tobacco user identification system	33%
Individual counseling available on-site	27%
Web-based smoking cessation programs available	26%
Multilingual resources available	18%
Staff dedicated to providing tobacco dependence treatment	13%
Group programs available on-site	10%
None of the above	13%

While there was some variation among the medical specialties in reporting the availability of resources and organizational supports, no single specialty had an inside track on access to cessation tools. Psychiatrists were generally least likely to report that resources were available, with the predictable exception of individual counseling. Internists, who were typically among the most active in participating in cessation activities, were more likely to report limited availability of resources and organizational supports than physicians in other specialties.

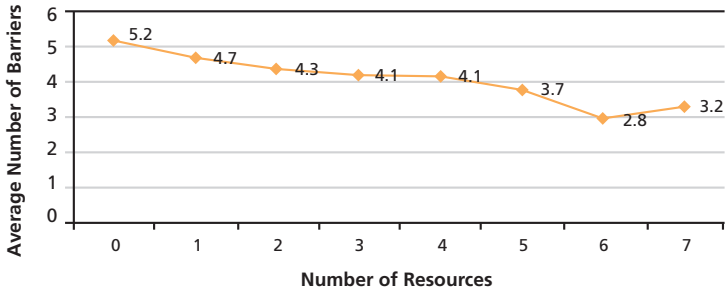
Physicians practicing in states with higher per capita investment in tobacco control programs were more likely than other physicians to report that resources were available. They were also more likely to refer patients to others for appropriate treatment. This pattern is consistent with physicians' reports that they would use cessation resources if they were available.

Physicians who participated in a greater breadth and depth of cessation activities reported greater availability of all smoking cessation resources. Differences were most pronounced in relation to the availability of pamphlets and brochures in waiting rooms, and the availability of both individual counseling and group programs by referral. Interestingly, physicians who know the status of patient coverage for medication/pharmacotherapy, counseling, and quitlines were more likely to engage in smoking cessation activities than those physicians who did not know if patients had coverage for these services.

As seen in Figure 47, physicians who reported that more resources were available experienced fewer significant barriers in assisting patients to stop smoking.

Figure 47. Average Number of Significant Barriers Reported by Number of Resources Available.

Physicians Who Reported More Resources Available Reported Fewer Significant Barriers.



Lack of Effective Smoking Cessation Interventions

While a majority of physicians reported that most cessation interventions have "some" effectiveness, less than one-third rated any single intervention as "highly" effective. The interventions physicians were most likely to perceive as having high effectiveness included Bupropion and NRT (29%), nicotine therapy and counseling (21%), and family support (19%). Evidence-based studies suggest that various interventions are associated with abstinence rates of up to 38%.

Assessments of interventions did not vary by specialty, organizational setting, or gender. Younger physicians and those who reported being well prepared by their formal medical education and training on tobacco use were more likely to accurately identify intervention effectiveness.

Table 41. Physician Assessments of the Effectiveness of Smoking Cessation Interventions.

	Never used	Low effectiveness	Some effectiveness	High effectiveness
High effectiveness interventions				
Bupropion + nicotine replacement therapy	16%	5%	50%	29%
Bupropion (e.g., Zyban)	4%	12%	68%	16%
Nortriptyline	63%	27%	10%	1%
Nicotine replacement therapy alone	3%	26%	68%	3%
Nicotine replacement therapy and counseling	8%	7%	64%	21%
Face-to-face intensive counseling	34%	13%	41%	12%
Moderate effectiveness interventions				
Family support	14%	17%	51%	19%
Support group/peer support	36%	12%	42%	10%
Face-to-face brief counseling	3%	35%	56%	6%
Quit line	55%	20%	23%	2%
Low effectiveness interventions				
Brochures / self-help materials	10%	46%	41%	3%
Hypnotherapy	41%	26%	30%	4%

Physicians who were more active in participating in cessation activities were more likely than other physicians to hold positive perceptions of interventions overall and less likely to hold negative perceptions. However, these physicians were not much more likely to accurately assess intervention effectiveness consistent with evidence-based findings. This reinforces the need to improve physicians' knowledge about tobacco and interventions generally. It also suggests the importance of encouraging physicians to see "the glass half full" in assessing the potential of existing tools.

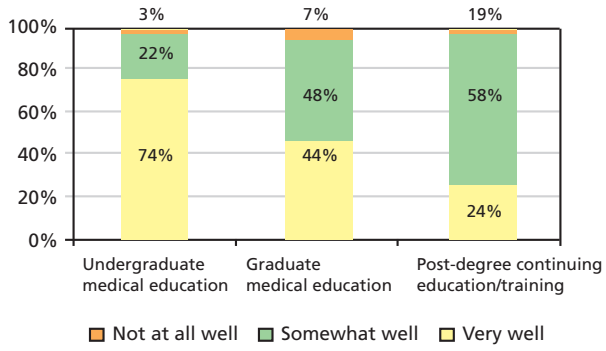
Learning Opportunities Limited

Few physicians reported being "very well prepared" by formal medical education programs to help patients stop smoking. Nearly three in 10 physicians indicated that continuing education on smoking cessation was unavailable.

Assessment of education and training was less negative the more recent the date of a physician's graduation from medical school. Graduate medical education programs appeared to have made the greatest advances in this area, with 42% of physicians graduating prior to 1975 reporting they were "somewhat" or "very well prepared" as compared to 80% of graduates since 1995. However, there was still significant room for improvement. For example, seven in 10 physicians graduating since 1995 did not feel well prepared in smoking cessation by their undergraduate medical education.

Figure 48. Evaluation of Formal Preparation in Smoking Cessation.

More physicians reported that CE programs on cessation prepared them very well as compared with other education programs.



Twenty-eight percent of physicians reported that no continuing education programs on smoking cessation were available, while only 2% reported "many options." Among the medical specialties, physicians in Family Medicine were least likely to report continuing education on cessation to be unavailable (19%), as compared to more than 30% of those in Internal Medicine, Obstetrics/Gynecology, and Psychiatry. IMGs were more likely to report limited continuing education programs compared with those graduating from U.S. medical schools (36% versus 26%). That one-fifth to one-third of physicians lack training opportunities suggests that a reexamination of the design and delivery of programs is needed to increase physician awareness of and access to continuing education.

Additional Information Desired

Physicians wanted additional information on a range of smoking cessation topics. About three-fifths of all physicians wanted to learn about selecting self-help materials for patients who smoke and about motivating patients who smoke to quit. (Since physicians did not rate use of self-help materials as a "highly effective" cessation intervention, it would be interesting to know more about the outcome they would anticipate from sharing brochures with patients; e.g., to begin a discussion about smoking, reinforce physician advice to quit, learn more themselves about how to "pitch" quitting to patients, or convince a patient to take responsibility to try to quit.)

Medical specialties varied in their interest in several topics. In some cases this reflected the patient populations served, e.g., Obstetricians/Gynecologists were more interested than others in information on treating pregnant women while Family Medicine physicians were more interested in information on treating patients younger than 18 years of age. Specialties also differed in their levels of interest about information on specific types of skill training. Psychiatrists and Obstetricians/Gynecologists were much more likely to want additional information on how best to "ask" and "advise" patients to stop smoking as compared to physicians in Family Medicine and Internal Medicine.

Clearly, future continuing education offerings should address the broad range of interests and skill needs that are evident. There appear to be opportunities for collaboration across specialties in addition to providing targeted training for specific groups of physicians. Designing programs that cover the reported gaps in access to continuing education will be critical.

Other Focuses for Education and Training
Two other topics related to addressing smoking with patients emerged that will be important to emphasize at all levels of education and training: helping patients to understand behavioral changes associated with health problems and measuring successful outcomes in controlling use of tobacco.

Most physicians did not feel "very effective" in addressing behavioral changes of any type with patients. However, physicians who were more confident in their abilities in this area were more likely to participate in a greater breadth and depth of activities to reduce use of tobacco with patients. Providing opportunities for skill development around behavioral change issues at all levels of education would help improve physicians' effectiveness in addressing chronic relapsing disorders, such as smoking, with patients.

Table 42. Self-reported Physician Effectiveness at Influencing Behavioral Changes.

	Not very effective	Somewhat effective	Very effective
Smoking	14%	76%	10%
Alcohol	21%	71%	8%
Obesity	32%	61%	7%
Cholesterol	10%	58%	32%

Most physicians regarded some patient outcomes short of total abstinence as successful results in controlling use of tobacco. For example, staged achievements could include smokers agreeing to try to quit, cutting down on cigarette use, or quitting but relapsing. Broader views of what constitutes successful outcomes were associated with greater physician participation in cessation activities. This suggests that curricula at all levels should be reinforcing the more inclusive definitions of what constitute successful smoking cessation outcomes.

Significant Barriers

A majority of physicians reported they regard patient motivation and current financing resources as significant barriers to helping patients stop smoking.

Patient Responsibility
Physicians believed that patients bear considerable responsibility for choosing to smoke and for quitting. "Patients are not motivated to quit" was the barrier most frequently identified as significant, with 63% of physicians so reporting. Two-thirds also believed that "Smokers choose to continue smoking," and almost two-fifths reported "Most smokers quit on their own." These attitudes and perspectives suggest the frustrations and challenges many physicians experience in trying to assist smokers to reduce tobacco use.

It is important to note that physicians' attitudes about patients were not associated with the breadth or depth of their participation in smoking cessation activities. Physicians who held these attitudes were no more or less likely to be active in assisting smokers. However, more than half of physicians reported they would be motivated to assist patients more frequently if more patients asked for help. Since most smokers report wanting to quit, identifying strategies to encourage both smokers and physicians to initiate discussions about stopping smoking would be very useful.

It should be emphasized that project investigators are not suggesting that a physician's role in raising the hazards of smoking with patients should be viewed any differently than their role in raising health consequences of other conditions. Such discussions should not be solely dependent on patient requests for help.

As their general knowledge about tobacco use increased, physicians were less likely to hold negative perceptions and attitudes about patients' use of tobacco.

Financing Issues
Slightly more than half of physicians identified financing issues as barriers to assisting patients to stop smoking, including limited coverage for cessation interventions (54%) and limited reimbursement for a physician's time (52%).

As seen in Table 43, medical specialties differed in their perceptions of these barriers. Physicians in Family Medicine, Internal Medicine, and Obstetrics /Gynecology were similar in reporting coverage for cessation interventions as limited. Those in Family Medicine were more likely than others to view reimbursement for a physician's time as limited. While Psychiatrists were less likely than others to report these barriers as significant, financial barriers were among their most frequently cited barriers.

Table 43. Physicians Reporting Significant Barriers to Helping Patients Stop Smoking by Specialty.

Percent reporting barrier as significant	Family Medicine	Internal Medicine	Obstetrics/ Gynecology	Psychiatry	All Respondents
Patients are not motivated to quit	59%	67%	67%	58%	63%
Coverage for cessation interviews is limited	56%	55%	54%	45%	54%
Reimbursement for physician time is limited	58%	51%	48%	46%	52%
Time with patients is limited	45%	43%	41%	30%	41%
Too few cessation programs are available	32%	44%	34%	47%	39%
My understanding of CPT codes for smoking treatment is limited	32%	36%	42%	40%	36%
Patients have more immediate problems to address	31%	34%	34%	47%	35%
Patients usually fail to quit	30%	38%	37%	35%	35%
Other practice priorities reduce my ability to address smoking w/ patients	27%	25%	37%	40%	30%
Staff are unfamiliar with interventions to help smokers quit	15%	19%	26%	28%	20%
Colleagues do not believe in the efficacy of cessation interventions	8%	9%	11%	12%	9%
Cessation heightens patients' other symptoms	6%	10%	6%	22%	9%
My experience in intervening with smokers is limited	3%	5%	14%	19%	8%

The AAMC survey asked physicians whether a majority of patients had coverage for specific services. Nearly two-thirds reported that patients had some coverage for medication as compared to only one-third who reported that patients had coverage for counseling, and the less than one-tenth whose patients had coverage for quitlines. Physicians were more likely to "know" whether a majority of patients had coverage for medication and pharmacotherapies as compared to counseling or quitline services. Those who knew the status of coverage were more likely to participate in cessation activities, whether or not coverage was available.

As seen in Table 43 above, the targeted medical specialties differed in their understanding of CPT codes for smoking treatment. Physicians with limited understanding of these codes were less active in cessation activities. Increasing physician awareness both of the status of patient insurance coverage and of CPT codes related to cessation interventions would seem to be advisable.

Practice Requirements Matter

Approximately half of physicians reported they are required by practice guidelines to ask patients about tobacco use and to document patient smoking status. Approximately one-third said they are required to document discussion of treatment strategies.

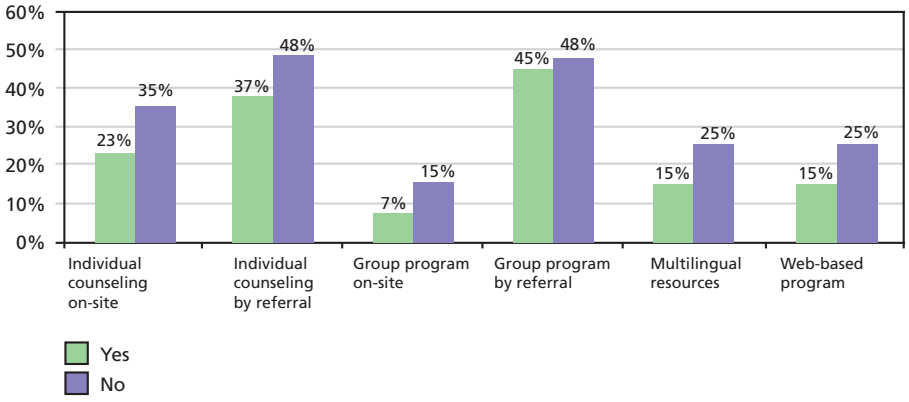
Psychiatrists were less likely than other physicians to have requirements to ask about tobacco use or to document smoking status or treatment strategies. Little variation in practice requirements emerged across organizational settings.

Physicians who reported participating in the greatest breadth and depth of cessation activities were more likely to report having one or more of such required practice protocols. The greatest correlation between physician activity in addressing tobacco control issues and practice protocols was with the requirement to document treatment strategies.

Physicians who reported having any practice requirements related to cessation interventions were more likely to report having resources available to help smokers stop smoking. Since the supply of resources and organizational supports does not currently meet existing needs, understanding the relationship between access to resources and clinical practice requirements will be a useful focus for future studies. Such research will help clarify how requirements influence physicians' skills in identifying potential resources and shape characteristics of practices that may facilitate access to services. This information will help optimize use of existing and new resources that may become available.

Figure 49. Physician Requirements for Cessation Intervention by Types of Resources Available.

Physicians required to document treatment strategies were more likely to report having cessation resources.



State Investment In Tobacco Control Matters

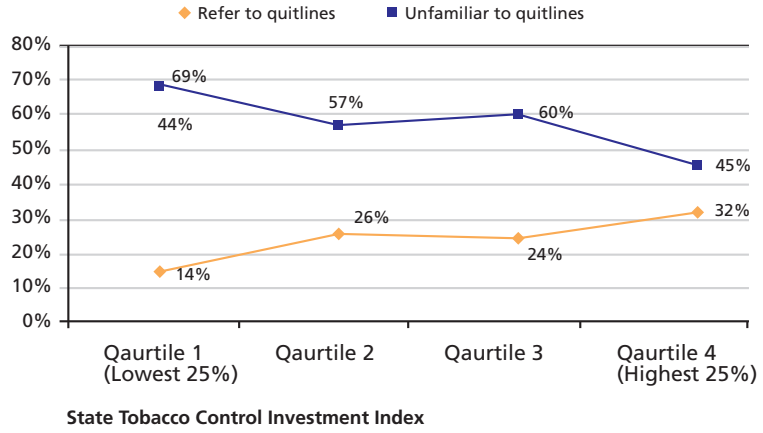
Investment in tobacco control has varied across the country. States have allocated funds from several potential sources to reduce tobacco use. These include Master Settlement Agreement funds negotiated by the tobacco industry and states, state taxes on tobacco, other federal or state allocations, and foundation support. Investments have been made in a range of initiatives: cessation programs, public information campaigns to increase awareness of the hazards of tobacco use, development of educational material, establishment of information and referral resources, school smoking prevention programs, and public policy initiatives to reduce smoking.

Investigators found that the level of state per capita investment in tobacco control was associated with physician practices in some key areas. Physicians were more likely to refer patients who smoke to others for appropriate treatment as state investment in tobacco control increased. Those practicing in states with higher per capita investment were also more likely to report greater availability of some types of cessation resources, including group programs and informational materials (pamphlets, brochures, and posters). Notably, reports of increased availability of group programs "by referral" were much greater than those citing increases in "on-site programs."

The relationship between state investment and use of quitlines was also compelling. Quitlines are a type of smoking cessation resource that has been expanding in use across the country. Quitlines typically provide a range of direct and referral services to smokers. Physicians in states with greatest per capita investment in tobacco control were more than twice as likely to make referrals to quitline programs as those in states with lowest investment. Physicians' awareness of quitline programs also was seen to increase with investment in tobacco control programs.

Figure 50. Referral to Quitlines by Level of State Investment in Tobacco Control.

Physicians were more likely to know about refer to quitlines as state investment in tobacco control increased.



Practices associated with levels of state investment in tobacco control differed among the targeted medical specialties. Those in Family Medicine were more likely to refer and to report awareness and availability of resources than physicians in other specialties as state expenditures increased. Solo practitioners were also more strongly affected as compared with physicians practicing in other settings, with one exception. Physicians in hospitals were much more likely to be familiar with and to have referred to quitlines as state investment in tobacco control programs increased. Women and non-Hispanic Whites were also more likely to participate in cessation activities in high investment states.

This finding validates physicians' views that more resources would be used if they were available.

Physician Use Of Quitlines Limited

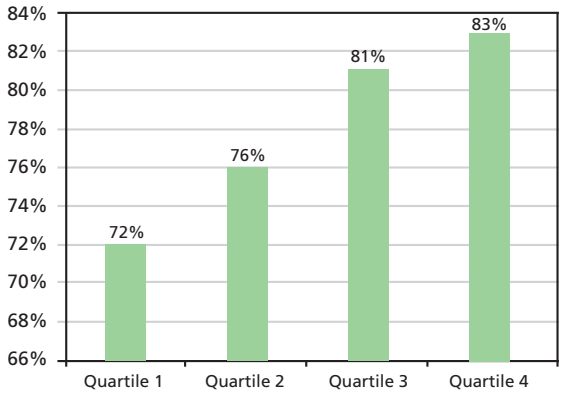
Increased interest in and use of quitlines across the country prompted examination of physician use and knowledge of this type of resource through the AAMC survey. Quitlines have been available in some states for several years but have only recently been established in many others. These programs promote system change by connecting partners working to reduce smoking, e.g., employers, insurers, and services, in addition to offering direct services to smokers.

Only about one-fifth of physicians had ever referred patients to quitlines. Referrals were higher in states where quitlines had operated 36 or more months. They were also highest in states that had established programs and that had greatest investment in tobacco control efforts.

Physicians younger than age 40 were the most likely to have ever referred to a quitline. Referrals to and familiarity with quitlines decreased as physicians aged, with those older than 60 being less likely to use or know about this type of resource.

Figure 51. Physicians Reporting Making Referrals to Others for Appropriate Treatment.

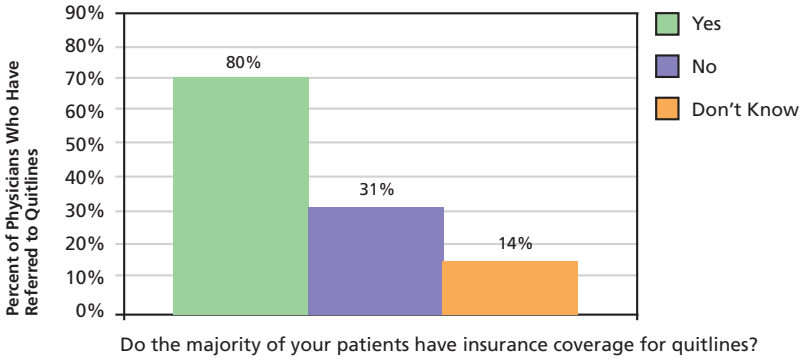
More physicians had "ever" made referrals to others in states with higher per capita investment in tobacco control initiatives.



Physicians whose patients had health insurance that covered quitline services were more than twice as likely to refer patients to these programs as respondents whose patients lacked such coverage. Health care coverage was more strongly associated with referral patterns to quitlines than it was with either coverage for counseling or medication/pharmacotherapy.

Figure 52. Patterns of Referral to Quitlines by Availability of Coverage for Quitlines.

When aware that health care insurance covers services, physicians were more likely to refer to quitlines.



VI. Steps to Encourage and Assist Physicians to Help Patients Who Smoke

Tobacco use is costly to our country. Expensive medical treatment, lost productivity, and premature loss of life are just a few of the unwanted consequences. Quitting smoking is difficult, and most people will make repeated attempts to stop. Strategies to mobilize and coordinate efforts that support smoking cessation and ensure that smokers gain access to effective treatment are needed.

Physicians have the potential to influence the behavior of patients and their families, including their use of tobacco. Since it has been well documented that smokers' chances of long-term abstinence increase when they have support from their physicians, tobacco control systems would benefit from making the most effective use of these clinicians possible. The following are potential steps to encourage physician involvement in addressing control of tobacco with patients and contribute to building sustainable tobacco control systems in our communities.

Increase the Use and Availability of Tobacco Control Tools

- **Increase the number and range of smoking cessation services and resources that are available in our communities.**
- **Increase the availability of organizational supports, e.g., Tobacco User ID systems within practices to facilitate physician participation in cessation activities.**
- **Promote physician familiarity with tobacco control resources through timely sharing of information about new and existing programs as well as on how to help patients access these services.**
- **Provide supports to build physician confidence in making referrals, e.g., experiential training.**
- **Conduct research to determine the impact of different levels of community resources on physician participation in smoking cessation activities, as well as on reductions in smokers' use of tobacco.**

Physicians view lack of resources as one of the most significant barriers to assisting patients to stop smoking. They further report that having more resources and organizational supports would motivate their increased participation in efforts to address use of tobacco. Study analyses confirmed that physicians who had more resources participated in a greater breadth and depth of smoking cessation activities.

Expanding and sustaining treatment and support services in communities to reduce use of tobacco will require increased funding, including additional insurance coverage for cessation programs and for physician services. Increasing levels of investment in other tobacco control initiatives would also reinforce physician use of resources in assisting patients who smoke.

Additionally, physicians need information on the benefits of using specific cessation tools, either alone or in combination with others, e.g., medication, counseling, and support services. They also need help in learning how to access services for patients. Few physicians regularly refer patients to others for appropriate treatment and many lack confidence in their abilities to perform this task. While this practice pattern may reflect that only limited resources are available, it may also result from some physicians having limited knowledge of what programs already exist and/or limited skill in managing treatment for smoking.

Employers and professional medical associations can play important roles by alerting physicians to new services; instructing them on how to help patients access resources; and providing assistance on adapting their medical practices to better address tobacco use with patients, e.g., through use of Tobacco User ID systems or delegation of tasks to others. Providing physicians with information on how their colleagues are addressing tobacco control within their practices to serve distinct patient population needs would also be useful. Clinical training and continuing education programs that address topics including "Use of varied interventions" and "Making referrals" to the array of resources that could help patients address smoking would increase physician skills and confidence. Feedback to physicians from providers of cessation services will further reinforce use of services.

Increase Coverage for Tobacco Control Treatment, Services, and Physician Time

- **Expand insurance coverage to include additional cessation treatment and support services.**
- **Broaden the services reimbursable for physicians when assisting patients to quit smoking.**
- **Improve insurance information provided to physicians in order to clarify the status of patient coverage and facilitate billing for treatment.**

Health coverage influences health care. Patients who lack insurance coverage for any type of health services are less likely to access or comply with treatment. Physicians may feel limited in the range of interventions they can prescribe or advise patients to consider if they believe that patients will not be able to afford to act on their advice. Physicians themselves may limit their interventions with patients if the services they provide cannot be reimbursed.

Physicians report that most patients lack coverage for key smoking cessation interventions, such as counseling and quitlines. Only two-thirds report that patients have coverage for medication and pharmacotherapy. A majority of physicians view limited coverage for cessation programs and for reimbursement of a physician's services as significant barriers to helping patients stop smoking. Physicians who do not know the status of patient coverage for cessation interventions are even less likely to participate in cessation activities than others.

Given this, it is important to assure that insurance coverage is available to support a combination of cessation treatments and support services consistent with best practices in reducing use of tobacco. Studies that document the cost/benefits of providing this care, e.g., examining the use and effects of Medicare coverage for smoking, may prove useful in advocating with insurers and employers for expanded coverage for services as well as for clinicians' time and participation in a range of treatment activities.

Additionally, some physicians lack knowledge of current coverage that is available. It is important they receive information and support, if needed, in accessing insurance resources. Employers, medical associations, insurers, and advocates can play important roles in alerting and training physicians to take advantage of coverage for programs and /or reimbursement for physician services to help patients stop smoking.

Increase Frequency of Physician Assistance to Patients Who Smoke to Reduce Their Use of Tobacco

- **Encourage medical practices to require documentation of activities undertaken to help patients quit smoking, e.g., documentation of treatment strategies discussed with patients.**
- **Include questions in electronic medical records that monitor smokers' use of tobacco.**
- **Use feedback systems to update physicians on patient activities related to trying to quit.**
- **Provide supports, including training, to build physician confidence in referring patients to others for appropriate treatment and in following up with patients on their efforts to quit.**
- **Develop incentives, such as "pay for performance" initiatives, to encourage regular physician participation in cessation activities.**

Since physicians do not regularly perform some cessation activities consistent with currently recommended national guidelines to address smoking with patients, strategies are needed to further influence their practices. This involves targeting the tasks most important for physicians to perform, as well as clarifying how critical cessation activities might be effectively delegated to others within different practice settings. Such delegation should still assure physician involvement in managing and monitoring cessation treatment for patients. Strategies will be needed that address both individual behaviors as well as systemic changes aimed at practice management.

Both "carrot" and "stick" approaches will likely prove useful. Sharing information on best practices in the use of interventions and resources for specific patient populations is essential in medical education and training programs. So are alerts to physicians in active practice on new treatments that become available. Case studies that address treatment strategies and practice management issues can be described in professional journals, professional association publications or websites, in conference presentations, and in physician mentoring programs. Further, financial incentives to physicians, e.g., pay for performance, can also be used to encourage greater participation in specific tasks.

Requiring greater accountability for addressing smoking with patients is another approach to influence behavior change. This would include holding physicians accountable for performing certain tasks, e.g., documenting discussions with smokers about potential treatment strategies, or having to fill out fields in electronic medical records. Notably, feedback on patient progress through documentation—by physicians and others—was significantly more motivating to physicians who had requirements to document than those who did not. This suggests that providing individual and aggregate data on patients derived from monitoring progress could stimulate physicians to act more frequently to assist smokers to quit.

Increase Physician Knowledge on Tobacco Use and Control Interventions

- **Improve medical school curricula on tobacco control and on assisting patients to address behavioral changes to improve their health.**
- **Increase the availability of CME on smoking cessation and behavioral change, and expand offerings to reflect the different patient populations served and skill levels that exist among physicians in treating smokers.**

- **Establish mentoring programs to support development of competencies in tobacco control.**
- **Provide physicians with increased opportunities for clinical experiences in motivating and helping patients to control tobacco use.**
- **Include questions on tobacco use on licensing examinations.**
- **Increase information sharing among medical schools and professional medical associations on approaches to improving physician competencies in addressing use of tobacco with patients who smoke.**

Only a small percentage of physicians reported they feel "very well prepared" by their formal medical education to help patients stop smoking. While advances in educational programs are evident based on reports associated with more recent medical school graduation dates, improved curricula and clinical experiences are needed at all levels of training. In particular, improvements in graduate medical education programs will be essential to assist physicians to address and manage treatment of smoking with the patient populations they will serve. Further, these programs have the potential to provide clinical role models that will influence young physicians to address smoking as an integral part of what they do. Including questions on licensing exams about tobacco use will further motivate physicians to be well informed about best practices for treating smokers.

Most physicians reported they did not feel "very effective" in addressing behavioral changes related to several health issues, including smoking. Curricula that address motivating and assisting patients to modify lifestyles generally will help build physician skill and confidence in treating nicotine dependency. Also, since smoking is a chronic relapsing disorder, educational programs will play a pivotal role in reframing for physicians what can be considered "successful outcomes." That is, success in quitting can be measured in achievements over time, and not solely by total abstinence without relapse. Helping to reframe physician expectations will help minimize the frustration and discouragement that is voiced by some physicians treating smokers. It will also provide physicians with more positive reinforcement of their efforts when incremental accomplishments occur, leading to their greater ongoing participation in cessation activities.

An alarming percentage of physicians reported that smoking cessation programs are "unavailable" (28%). Providers of training, e.g., professional medical associations, medical schools and/or tobacco advocacy programs, would be advised to review their programs. There may be issues to address in one or more areas including how physicians are alerted to training and where and how training is provided (e.g., didactic or experiential formats, delivery on site, through use of audiotapes, or distance learning).

Content offerings are another issue. Training is needed to address both basic and advanced skill development. This includes providing information on treatment practices relevant to different patient populations. Further, training that facilitates physicians' skills in making referrals to others and addresses effective use of medication are needed to promote increased participation in key cessation activities.

While medical specialties will no doubt offer specific trainings within their own areas, collaboration across specialties is encouraged. Some specialties have already developed material that could be replicated rather than reinvented. Also, collaboration would promote more efficient use of limited training resources. Physicians are at different levels of skill and knowledge, and tiered offerings will support development of both expertise and leaders.

Clinical experiences with access to role models are useful in helping physicians develop skills, experience, and confidence in addressing tobacco use. Such experiences can be integrated into medical education and continuing education offerings. Mentoring programs are being used by some medical specialties to support physicians' participation in tobacco control efforts. Many of these programs enlist highly regarded physicians as mentors making participation in programs very desirable to others. Establishing national mentoring programs would be valuable to broaden physician access to information on best practices and increase their levels of skill and confidence in promoting the health of their patients.

Promote Development of More Effective Interventions

- **Invest in improvement and development of interventions to help smokers quit.**
- **Update physicians on available interventions as well as on optimal standards of care to help patients reduce their dependence on tobacco.**
- **Share examples in articles, trainings, and other communications with physicians of how different interventions have contributed to smokers reducing their use of tobacco.**

There is no magic bullet in helping patients to stop smoking. No single intervention was identified as being "highly effective" in treating smokers by a majority of physicians in the AAMC study. However, physicians were not asked about what they considered to be the "optimal standard of care" in treating patients who smoke. Future studies may want to examine how physicians' views of optimal care compare to best practices identified in the research literature.

Clearly, more research is needed to identify and improve treatment interventions to help smokers quit. This includes research to address the special treatment needs of populations such as people whose lives are affected my mental illness, youth, and pregnant women.

Medical specialty associations and employers play key roles in providing physicians with timely information about new interventions, as well as on best practices in treating smokers, through publications, websites, and training. Given that physicians are bombarded with information on many subjects, these organizations may want to review how they communicate with physicians about tobacco related issues. Strategies may need to be modified to assure that new information actually reaches physicians and that it is provided in ways that will be most useful to them. Reviewing communication strategies with focus groups at local and state levels may be helpful. Establishing mechanisms for physicians to exchange information on their experiences with different treatment approaches also will reinforce their increased participation and confidence in addressing use of tobacco.

Increase Marketing and Public Information to Motivate Smokers to Stop Smoking

- **Encourage smokers to let their physicians know they would like to quit smoking.**
- **Encourage physicians to participate in public education initiatives to help prevent and reduce use of tobacco.**

Efforts that increase the likelihood that smokers attempt to quit using tobacco are needed. These include initiatives that motivate smokers to think about quitting and encourage them to talk with physicians about their use of tobacco. Similarly, physicians need to be encouraged to initiate discussions with patients who smoke and to respond to overtures from patients about smoking.

Public information campaigns to reduce use of tobacco will benefit both smokers and physicians. These campaigns promote greater awareness of the consequences of smoking, and greater demand for help from smokers as well as openness to offers of assistance. As a result of media attention to this public health issue, many physicians will increasingly recognize the importance and timeliness of adapting their practices to better integrate control of tobacco into treatment of patients who smoke.

Physicians can play leadership roles—including as spokespersons—in improving public health in their communities through tobacco prevention and reduction activities. They can affirm that smokers should feel they can reach out to their physicians (among others) for assistance in trying to stop smoking. They can be resources for colleagues, both in their practices and through presentations at professional and community forums. Physicians can also help make specific resources, such as quitlines, more visible in their communities and states.

Some medical specialty associations, such as AAFM and ACOG, have created programs to promote physician leadership related to smoking cessation, both with their peers and in the community. Other professional associations may want to consider launching similar initiatives. Having some physicians in highly visible roles will encourage participation by others.

Support Investment in Tobacco Control

- **Alert physicians to state and local initiatives seeking to reduce use of tobacco.**
- **Establish linkages between physician associations and other tobacco control stakeholders to promote collaboration in efforts to promote the health of citizens in our communities.**

Analyses of physician responses with data on levels of state investment in tobacco control programs identified that some pivotal relationships exist. Physicians in states with higher levels of per capita investment are more likely to report the availability of some types of cessation resources, e.g., group programs, and to perform some key cessation tasks, such as referring smokers to others for treatment.

The goal of state tobacco control initiatives is to reduce smoking, and those states with higher levels of investment are seeing greater participation of physicians in addressing tobacco use with smokers. Since physician involvement increases the likelihood that smokers will be successful in their attempts to quit, investment in comprehensive tobacco control programs is facilitating this result from the perspective of level of physician participation.

Sharing information with several stakeholder groups on the relationships between state investment in tobacco control and physician practices will be important. Stakeholders include representatives of public health agencies and other policy makers around the country. The data will help affirm the value of and encourage increases in state investment.

As noted previously, physicians individually and collectively can play greater roles in advocating for patient and community health needs. State tobacco control programs will want to enlist physician leaders and medical associations in planning and implementation of state initiatives.

Appendix A: Advisory Committee Members

National Advisory Committee

Michael Eriksen , Sc.D
Professor and Director
Institute of Public Health
Georgia State University
PO Box 3995
Atlanta, GA 30303
404-651-4135 Fax: 404-651-3231
meriksen@gsu.edu

Michael Fiore , MD, MPH
Professor of Medicine and Director
Center for Tobacco Research and Intervention
University of Wisconsin Medical School
1930 Monroe Street, Suite 200
Madison, WI 53711
608-262-8673 Fax: 608-265-3102
mcf@medicine.wisc.edu

Howard Koh , MD
Associate Dean for Public Health Practice
and Professor of Health Policy and Management.
Harvard University
677 Huntington Avenue
Boston, MA 02115
617-495-4000 Fax: 617-495-8543
hkoh@hsph.harvard.edu

Medical Specialty Advisory Committee

Jacqelyn Admire-Borgelt, MSPH
Assistant Director, Scientific Activities Division
American Academy of Family Physicians
Mailing address PO Box 11210
Shawnee Kission, KS 66207-1210
913-906-6000 ext. 3110
jadmire@aafp.org

Steven Bernstein, MD
Associate Professor, Clinical Emergency Medicine
Albert Einstein College of Medicine
Montefiore Medical Center
111 East 210th Street
Bronx, NY 10467
718-920-2068 Fax: 718-798-0730
sbernste@montefiore.org

Steven Schroeder , MD
Distinguished Professor
Health and Health Care, Dept of Medicine
Director, Smoking Cessation Leadership Ctr
University of Caifornia at San Francisco
Box 1211
San Francisco, CA 94143-1211
415-502-1881 Fax: 415-502-5739
schroeder@medicine.ucsf.edu

Susan Swartz , MD, MPH
Medical Director
Center for Tobacco Independence
Maine Medical Center
22 Bramhall Street
Portland, ME 04102
207-662-7152 Fax: 207-767-6631
swarts@mmc.org

Christine Williams , M.Ed
Director, Office of Health Care Information
Agency for Healthcare Research & Quality
540 Gaither Road, 2nd Floor
Rockville, MD 20850
301-427-1364
christine.williams@ahrq.hhs.gov

Jeanne Mahoney
Director of the Provider's Partnership Project
American College of OB/GYN
190 North Independence Mall West
Philadelphia, PA 19106-1572
202-314-2352
Jmahoney@acog.org

Kristen McCausland, MSW
Research Fellow
American Legacy Foundation
2030 M Street, NW
Washington, DC 20036
202-454-5762 Fax: 202-454-5599
kmcCausland@americanlegacy.org

Wayne Bylsma, Ph.D
Director of Research, Planning and Evaluation
American College of Physicians
190 North Independence Mall West
Philadelphia, PA 19106-1572
215-351-2830 Fax: 215-351-2869
wbylsma@mail.acponline.org

Janet Chapin, RN, MPH
Director, Division of Women's Health Issues
The American College of Obstetricians and Gynecologists
409 12th Street, S.W., PO Box 96920
Washington, DC 20090-6920
202-638-5577
jchapin@acog.org

Jennifer Duke
Director of Research
American Legacy Foundation
2030 M Street, NW, 6th Fl
Washington, DC 20036
202-454-5571 Fax: 202-454-5599
jduke@americanlegacy.org

Donna Grande, MGA
Director, Office of Program Development
American Medical Association
515 North State Street
Chicago, IL 60610
312-464-5540 Fax: 312-464-4111
Donna_grande@ama-assn.org

Research Project Team

Edward Salsberg, MPA
Director, Center for Workforce Studies
Association of American Medical Colleges
2450 N Street, NW
Washington, DC 20037-1127
202-828-0415 Fax: 202-828-1125
esalsberg@aamc.org

Gaetano Forte
Project Director
Center for Health Workforce Studies
University at Albany
7 University Place, Rm. B-334
Rensselaer, NY 12144-3458
518-402-250 Fax: 518-402-0252
GJF01@health.state.ny.us

Michael Weitzman, M.D.
Chairman
Pat and E. John Rosenwald, Jr., Professor
Department of Pediatrics
New York University School of Medicine
550 First Avenue—NBV 8 South 4-11
New York, New York 10016
212 263-6425 Fax: 212 263-8172
michael.weitzman@nyumc.org

Joyce West, Ph.D, MPP
Director, Psychiatric Research Network (PRN)
American Psychiatric Association
American Psychiatric Instit. for Research & Educ
1000 Wilson Blvd, Suite 1825
Arlington, VA 22209-3901
703-907-8619 Fax: 703-907-1087
jwest@psych.org

Josh Wilk, Ph.D
Research Scientist
American Psychiatric Association
Practice Research Network
1000 Wilson Blvd, Suite 1825
Arlington, VA 22209-3901
703-907-8618 Fax: 703-907-1087
jwilk@psych.org

Richard Yoast, Ph.D
Director, Office of Alcohol and Other Drug Abuse
American Medical Association
515 North State Street
Chicago, IL 60610
312-464-4202 Fax: 312-464-4024
Richard_Yoast@ama-assn.org

Bonnie Cohen, MS
Associate Director
Center for Health Workforce Studies
University at Albany
7 University Place, Rm. B-334
Rensselaer, NY 12144-3458
518-402-0250 Fax: 518-402-0252
BPC01@health.state.ny.us

Sandra McGinnis, Ph.D
Senior Research Assistant
Center for Health Workforce Studies
University at Albany
7 University Place, Rm. B-334
Rensselaer, NY 12144-3458
518-402-0250 Fax: 518-402-0252
SLM12@health.state.ny.us

Appendix B: Survey Instruments

PHYSICIAN PERSPECTIVES ON SMOKING INTERVENTIONS

Association of American Medical Colleges, Washington, DC
Center for Health Workforce Studies, School of Public Health, University at Albany, SUNY

This questionnaire is designed to obtain information on physicians' experiences and perspectives on assisting patients to reduce their use of tobacco. Your response will increase understanding of challenges physicians face, and will inform development of policies and programs that support physicians in helping patients to stop smoking. All responses will be confidential. Study results will be reported only in national and regional tabulations and summaries.

MARKING INSTRUCTIONS

- Use a No. 2 pencil or blue or black ink pen only.
- Do not use pens with ink that soaks through the paper.
- Make solid marks that fill the oval completely.
- Make no stray marks on this form.
- Do not fold, tear, or mutilate this form.

CORRECT — INCORRECT

RESOURCES AND BARRIERS

This section examines resources and barriers to helping patients try to stop smoking.

1. How would you rate the following as barriers to your assisting patients to stop smoking?

	Not a barrier		A significant barrier
Time with patients is limited.	○	○	○
Coverage for cessation interventions is limited.	○	○	○
Too few cessation programs are available.	○	○	○
Patients have more immediate problems to address.	○	○	○
Staff are unfamiliar with interventions to help smokers quit.	○	○	○
Colleagues do not believe in the efficacy of cessation interventions.	○	○	○
Reimbursement for physician time is limited.	○	○	○
Patients are not motivated to quit.	○	○	○
My experience in intervening with smokers is limited.	○	○	○
My understanding of CPT codes for smoking treatment is limited.	○	○	○
Other practice priorities reduce my ability to address smoking with patients.	○	○	○
Cessation heightens patients' other symptoms.	○	○	○
Patients usually fail to quit.	○	○	○

2. Are the following resources available to help patients try to stop smoking? If not, would you use these resources if they became available?

		Availability		Would use if available?	
		Yes	No →	Yes	No
Individual counseling:	On-site	○	○ →	○	○
	By referral	○	○ →	○	○
Group programs:	On-site	○	○ →	○	○
	By referral	○	○ →	○	○
Multilingual resources		○	○ →	○	○
Web-based smoking cessation programs		○	○ →	○	○

3. Have you found the following interventions effective in helping your patients to stop smoking?

	Effectiveness			Never used
	Low	Some	High	
Nicotine replacement therapy alone	○	○	○	○
Nicotine replacement therapy and counseling	○	○	○	○
Bupropion (e.g., Zyban)	○	○	○	○
Bupropion + nicotine replacement therapy	○	○	○	○
Nortriptyline	○	○	○	○
Face-to-face brief counseling	○	○	○	○
Face-to-face intensive counseling	○	○	○	○
Quit line	○	○	○	○
Support group/peer support	○	○	○	○
Family support	○	○	○	○
Brochures/self-help materials	○	○	○	○
Hypnotherapy	○	○	○	○
Other, specify: ________ ________	○	○	○	○

continue . . . Page 1

PLEASE DO NOT WRITE IN THIS AREA

SERIAL #

Appendix B: Survey Instruments *(Continued)*

4. Please mark all organizational supports currently used in your practice.

- ○ Tobacco user identification system (e.g., chart ID)
- ○ Staff dedicated to providing tobacco dependence treatment
- ○ Informational poster/pamphlets in waiting room
- ○ None of the above

5. Please rate your confidence in doing the following to help your patients try to stop smoking. (*Please mark one in each row.*)

	Confidence		
	Low	Some	High
Assess patient willingness to quit	○	○	○
Discuss treatment options with patients	○	○	○
Select appropriate prescription medications	○	○	○
Refer to others for appropriate treatment	○	○	○
Motivate patients to consider quitting	○	○	○
Monitor patient progress in attempting to quit	○	○	○

6. To what extent would the following motivate you to assist patients try to stop smoking more often?

	Not at all	Some	Very much
Increased reimbursement for your time helping patients stop smoking	○	○	○
Smoking assessment routinely documented in the patient chart	○	○	○
Better feedback on patient progress in attempts to quit	○	○	○
Increased coverage of cessation interventions for patients	○	○	○
More effective interventions	○	○	○
Greater availability of staff familiar with smoking cessation	○	○	○
Improvement in your own skills in helping smokers try to quit	○	○	○
Increased availability of interventions	○	○	○
If more patients asked for help	○	○	○

Page 2

PHYSICIAN PERSPECTIVES

This section identifies physician viewpoints on addressing smoking with patients.

7. To what extent do you regard the following as successful outcomes in helping patients quit smoking?

	Not at all	Some	Very much
Patient quits smoking completely and has not relapsed.	○	○	○
Patient quits smoking completely, then relapses.	○	○	○
Patient cuts down on cigarette use substantially.	○	○	○
Patient cuts down on cigarette use moderately.	○	○	○
Patient agrees to try to quit smoking.	○	○	○

8. Please rate your level of agreement with the following statements. (*Please mark one in each row.*)

	Agree	Disagree	Don't know
Smokers choose to continue smoking.	○	○	○
Most smokers quit on their own.	○	○	○
Smoking is a chronic relapsing disorder.	○	○	○
Smoking cessation interferes with recovery from chemical dependency.	○	○	○
Physician advice motivates patients to quit smoking.	○	○	○
Nicotine is the most addictive substance used by my patients.	○	○	○
Intensive interventions are more effective than brief treatment.	○	○	○
Brief treatment is ineffective.	○	○	○
Medication is a cost-effective intervention.	○	○	○
Use of a nicotine patch increases successful quitting.	○	○	○
Medication is effective only when accompanied by counseling.	○	○	○

Appendix B: Survey Instruments *(Continued)*

9. Please indicate whether you feel the following are part of a physician's *role*.

	Yes	No
Help patients who are motivated to stop smoking	○	○
Motivate patients to stop smoking	○	○
Discuss smoking behavior with patients	○	○
Speak with family about supporting the patient in trying to quit smoking	○	○
Refer smokers to others for treatment	○	○
Monitor patient progress in attempting to quit	○	○
Discuss relapse with patients	○	○
Establish smoking cessation practices for staff	○	○

PHYSICIAN PRACTICES

This section addresses the range of activities performed by physicians to assist patients to stop smoking.

10. How often do you do the following with patients who smoke? (*Please mark one in each row.*)

	Never			Usually
Ask about smoking status	○	○	○	○
Assess patient willingness to quit	○	○	○	○
Advise patients to stop smoking	○	○	○	○
Refer patients who smoke to others for appropriate cessation treatment	○	○	○	○
Recommend nicotine replacement therapy	○	○	○	○
Prescribe other medication	○	○	○	○
Provide brochures/self-help materials	○	○	○	○
Arrange follow-up visits with patient to address smoking	○	○	○	○
Monitor patient progress in attempting to quit	○	○	○	○

11. How often do you *discuss* the following treatment strategies with patients who are willing to try to quit smoking? (*Please mark one in each row.*)

	Never			Usually
Pharmacotherapies	○	○	○	○
Counseling options	○	○	○	○
Enlisting support for quitting (e.g., family, support group)	○	○	○	○

12a. Which statement best reflects your experience with quitlines? (*Please mark only one response.*)

- ○ I usually refer patients to a quitline.
- ○ I have referred to a quitline.
- ○ I am aware of quitlines but have not referred patients.
- ○ I am not familiar with quitlines.

12b. Would you find more information on quitlines helpful?

- ○ Yes
- ○ No

13. If you discuss quitting smoking with patients, how much time on average do you spend doing so at each visit?

- ○ Do not talk with patients about smoking
- ○ Less than 2 minutes
- ○ More than 2 minutes
- ○ More than 10 minutes

14. Are you required by your practice's clinical guidelines to:

	Yes	No
Ask patients about tobacco use	○	○
Document patient smoking status	○	○
Document discussion of treatment strategies	○	○

15. How effective do you think you are at influencing patient behavior changes related to:

	Not very	Some	Very
Smoking	○	○	○
Alcohol	○	○	○
Obesity	○	○	○
Cholesterol	○	○	○

TRAINING AND EDUCATION

This section examines your past training in smoking cessation and identifies areas of interest for future training.

16. How well did the following prepare you to help patients quit smoking?

	Not at all	Somewhat	Very well
Undergraduate medical education	○	○	○
Graduate medical education	○	○	○
Post-degree continuing education/training	○	○	○

17. How many continuing education programs on smoking cessation are available to you?

None		Some		Many
○	○	○	○	○

continue . . .

Appendix B: Survey Instruments *(Continued)*

18. Please mark all the topics you'd like additional information on. (*Please mark all that apply.*)

- ○ Asking patients about smoking status
- ○ Advising patients to stop smoking
- ○ Providing social support to patients as part of cessation treatment
- ○ Selecting self-help materials to give to patients who smoke
- ○ Improving office procedures so that patient smoking status is addressed at follow-up
- ○ Motivating patients who continue to smoke to quit
- ○ Counseling former smokers to avoid relapse
- ○ Treating pregnant smokers
- ○ Treating smokers with psychiatric or chemical dependency conditions
- ○ Treating smokers under the age of 18
- ○ Addressing second-hand smoke in the home
- ○ None

MEDICAL PRACTICE

This section profiles your current medical practice.

19. In a typical week, how many hours do you provide direct patient care?

○ None ○ 1-10 ○ 11-20 ○ 21-35 ○ 36+

20. Approximately what percentage of your adult patients at your primary practice setting currently smoke? (*Please mark only one.*)

○ None ○ 1-10 ○ 11-25 ○ 26-50 ○ 51+ ○ Don't know

21. Please estimate % of your patients who fall into the following racial/ethnic mix: (*Please mark one in each row.*)

	None	1-5%	6-15%	16-75%	75+%
Non-Hispanic White	○	○	○	○	○
Black/African-American	○	○	○	○	○
Hispanic/Latina(o)	○	○	○	○	○
Other	○	○	○	○	○

22. Please estimate % of your patients with the following conditions: (*Please mark one in each row.*)

	None	1-10%	11-25%	26-50%	50+%
Pregnant	○	○	○	○	○
Smoking-related illness	○	○	○	○	○
Mental health diagnosis	○	○	○	○	○
Chemical dependency	○	○	○	○	○

23. Please estimate % of your patients covered by Medicaid.

○ None ○ 1-10% ○ 11-25% ○ 26-50% ○ 51-75% ○ 76+%

24. Do the majority of your patients have insurance coverage for the following services?

	Yes	No	Don't know
Medication/pharmacotherapy	○	○	○
Counseling	○	○	○
Quitlines	○	○	○

25. Please indicate which best describes your primary practice setting: (*Mark only one.*)

- ○ Solo Practice
- ○ 2-10 physician group
- ○ 11-19 physician group
- ○ 20+ physician group
- ○ HMO
- ○ Community Health Center/Rural Health Center
- ○ Behavioral Health Clinic
- ○ Other
- ○ Acute care hospital
- ○ Psychiatric hospital
- ○ VA hospital
- ○ Other hospital

OTHER

26. Your smoking status:

- ○ Current smoker
- ○ Former smoker
- ○ Never smoked

27. Does your state have a ban on smoking in the workplace?

○ Yes ○ No ○ Don't know

28. Do you work in a smoke-free facility?

○ Yes ○ No ○ Don't know

Thank you for participating in this important survey!

Please put completed questionnaire in the enclosed envelope and drop it in the mail.

Center for Health Workforce Studies
School of Public Health, University at Albany
One University Place, Room B-334
Rensselaer, NY 12144-3456

SERIAL #

PLEASE DO NOT WRITE IN THIS AREA

Appendix C: Letter of Validation

Report to Center for Health Workforce Studies
Validation of Original Physician and Smoking Cessation Survey
By a Sample of Nonrespondents
Steven Samuels, University at Albany
May 8, 2006

You have asked me to evaluate the effort to validate the original AAMC smoking cessation survey funded by the ALF. The original survey had a response rate of 17%, or about 1 in 6. The validation survey consisted of a simple random sample of 641 nonrespondents from the original survey. The validation survey had 355 respondents, for a response rate of 56%.

1. Is the strategy CHWS employed legitimate and justified?
The strategy of employing a sample of nonrespondents is generally accepted as a method of evaluating the bias from nonresponse in a sample survey (WE Deming (1960) Sampling Design in Business Research, Wiley, New York). With a very low response rate to the original survey, this strategy is not only justified, but required in order to determine whether the responses were biased.

2. What conclusions can be drawn from a comparison of the responses to the original and validation surveys?
Comparing the responses to the question shared by both surveys, very few differences were evident. The following differences were observed:

1. Respondents to the second survey were systematically less likely to believe that physicians have a role in helping patients to stop smoking. However, the percentages are similar in magnitude;

2. Somewhat paradoxically, respondents to the second survey were more likely to report that they had "high confidence" in their ability to refer patients for help, motivate patients, and monitor attempts to stop smoking; and

3. There was a large difference in perceptions of whether brief treatment is ineffective.

Aside from those 3 points, the responses to the original and validation surveys were very similar. In the vast majority of the comparisons between responses to the original and validation surveys, small or no differences were observed. The preponderance of evidence suggests little bias in the original survey responses.

3. What use can be made of the original survey results?
Certainly, the original survey results can be reported to and shared with the project's principals and funders, with suitable disclaimers. These disclaimers should include: a full-disclosure of the survey methods; survey response rates; post-stratification weighting procedures; validation survey strategy; and results of the comparisons between the original and validation surveys in an appropriate appendix on survey methodology.

4. Are the results of the original survey publishable in a peer-reviewed journal?
I do not believe that results from the original survey alone are publishable. The response rate is simply too low. As a journal reviewer, I would reject a publication based only on the original survey. However, I do believe that a manuscript based on both surveys is *potentially* publishable in a peer-reviewed journal.

The publication would be based on an analysis which combines the original survey and the validation survey. In brief, the roles of the surveys are reversed, and more weight is given to the validation survey. The "effective" response rate for the combined survey can be computed as 63%, and this may make it palatable to journals.

The 63% figure is derived as follows: The original respondents represent about 17% of the population; the validation sample, with a 56% response rate, represents about 46% of the original population (= (100% - 17%) x 56%). The total portion of the population represented is therefore 17% + 46% = 63%. In the analysis, responders to the validation survey are given weight about 83% (100%-17%). The suggested solution is, in fact, a version of the standard analysis for combining an original survey with a follow-up survey of nonrespondents (Deming, 1960). However, there are several differences, which may make the combined survey unattractive to a journal.

1) Ordinarily the original survey has a much higher response rate, so that the validation survey, a much smaller survey, is to provide information about a relative small percentage of the population. Here, the roles are reversed. In effect, the validation survey effectively represents a larger part of the population than the original survey.

2) In this analysis, the respondents to the original survey will receive relatively little weight, although they outnumber the respondents to the validation survey by 8.5 to 1. The effective sample size of the combined survey may be reduced to less than 1,000, possibly much less, and standard errors for estimates will increase.

For the combined survey, it will be possible to make estimates in subgroups formed by one factor at time (e.g., age group, gender, and specialty) and, possibly, two factors (e.g., age and gender, specialty and gender). There will be little ability to draw valid inferences about subgroups specified by more than two factors at a time (e.g., age, gender, and specialty).

We can surmise that, for the items in which the validation respondents differed from the original respondents, the hard-core nonrespondents would differ even more. It should be possible to do a sensitivity analysis, by ascribing plausible values of some of these items to the hard-core nonrespondents and giving these values a weight of 37%.

3) The response rate for the validation survey, 56%, although high for mail-in surveys, is still low in absolute terms. Although the original and validation survey agree for most common items, the possibility of substantial bias in both surveys cannot be ruled out.

Appendix D: Literature Review

Literature Review

Tobacco usage is costly to this country, with expensive medical treatment, lost productivity due to illness, and the preventable loss of parents and loved ones as just some of the consequences of smoking. Consider the following:

- Approximately 21-23% of all American adults smoke, affecting their health as well as the health of nonsmokers living and working near them (CDC, 2003a).
- One of every two current smokers will die prematurely of a disease directly caused by dependence on tobacco (Fiore, 2003).
- Nearly 70% of smokers want to quit, but many lack access to the numerous effective tobacco dependence treatments that promote long-term abstinence (CDC, 1994). Recent data indicate that four in ten current smokers attempt to quit each year (CDC, 2004).
- Availability of smoking cessation services varies dramatically across the nation, with the poor and racial and ethnic minorities particularly adversely affected by this limited access to resources (Fiore, 2003).

In order to address these challenges, national organizations concerned with tobacco usage and government collaborated on the development of a *National Blueprint for Disseminating and Implementing Evidence-Based Clinical and Community Strategies to Promote Tobacco-Use Cessation*. Issued in 2003, the *Blueprint* recommends strategies to mobilize and coordinate efforts that support smoking cessation and ensure that smokers gain access to effective treatment. Targeting *clinicians who treat individuals who smoke and their families* for interventions is one of the key strategies identified.

The American Legacy Foundation funded the Association of American Medical Colleges (AAMC) to conduct a national study that will provide critical insights into the practices of American physicians, a key clinical profession. This study will help to inform efforts to engage doctors in the full range of tobacco control activities. As part of this initiative, AAMC, working with the Center for Health Workforce Studies, State University of New York at Albany, has conducted a review of the literature related to physicians and tobacco cessation. Gaining understanding of physician knowledge, attitudes and practice patterns will support the development of policies and practices that promote delivery of more effective medical treatment and prevention activities related to tobacco dependence.

The literature review that follows is intended to be a resource for smoking cessation experts by identifying the existing research about physician practices related to smoking cessation. Topics addressed include: 1) Why focus on physicians? An overview, 2) Recommended smoking cessation practices for physicians, 3) Smoking cessation practices among primary care physicians, 4) Physician smoking cessation practices in four medical specialties, 5) Factors influencing physician smoking cessation practices, 7) How can physician involvement in smoking cessation be influenced?, and 8) Measures of state smoking cessation activity.

1. Why Focus on Physicians? An Overview

Physicians have the potential to influence the behaviors of patients and their families, including their use of tobacco. There are more than 750,000 physicians in America and Americans, on average, make three visits to physicians each year. Two-thirds of Americans see a physician at least once a year and physicians are one of the most important sources of information for Americans on issues related to health and health risks. Physicians also have the ability to influence the types and design of services used within healthcare systems. Physicians' regular contact, authority, and central role in referring patients to services suggest that they can and should play a pivotal role in promoting smoking cessation in the U.S.

The efficacy of involving physicians in addressing patients' tobacco usage is well documented. Studies have shown that physicians' personal advice and encouragement will increase the number of patients who will attempt and succeed in quitting smoking, and/or who can be saved from dying from specific diseases (Law and Tang, 1995; Schnoll & Engstrom, 2004; Katz et al., 2004; Rose et al., 1983; Landers, 2003). Physician interventions yield an abstinence rate of approximately 19.9%, which is much more effective than interventions that are self-help or not delivered by a clinician (10.9% and 10.2% abstinence rates, respectively), and also more effective than interventions delivered by non-physician clinicians (with a 15.8% abstinence rate) (U.S. Public Health Service [USPHS], 2000). Other studies have demonstrated that physician participation in tobacco cessation training improves success rates in aiding patients to stop smoking (Roytman et al.).

Given that 70% of smokers visit a physician each year and that physician interventions as brief as three minutes in duration have been found to significantly increase cessation rates, it is estimated that about 1.7 million more smokers per year would successfully stop using tobacco if physicians advised each of their smocking patients to quit (AHCPR, 1997). Physician intervention has the potential to increase long term cessation rates to 30% from only about 7% among adult smokers attempting to quit on their own (Orleans and Alper, 2003).

Unfortunately, the potential public health impact that physicians could have in reducing Americans' dependence on tobacco has yet to be realized (Thorndike et al., 1998). The number of patients reporting that they received advice to quit smoking from their physicians is short of current national goals established to address smoking cessation (National Women's Law Center, 2003; Fiore, Bailey & Cohen, 2000; Schnoll & Engstrom, 2004; Katz et al., 2004; Soloe et al., 2003). Healthy People 2000 proposed the goal of having 75% of physicians regularly advise patients against smoking and providing cessation assistance and follow up. The most recent evidence indicates, however, that as recently as 2003, only about 66% of primary care physicians (and fewer specialists) had tobacco-related discussions with patients who smoke. Physicians are not providing the counseling or connections to medication, programs and other supports consistent with current practice guidelines (Thorndike et al., 1998; Borum, 1999).

Bibliography

American Cancer Society. (2004). *Getting doctors to quit and lead: Practical strategies for engaging doctors in the full range of tobacco control activities.* Retrieved on May 7, 2004, from www.globalink.org/tobacco/docs/advocacy/doctors.shtml

Borum, M. L. (1999). Impact of two ambulatory care training programs on smoking-cessation activities. *Southern Medical Journal*, 92, 977-980.

Centers for Disease Control and Prevention (CDC). (1994). Health objectives for the nation: Cigarette smoking among adults—United States, 1993. *Morbidity and Mortality Weekly Report, 49*(RR-12), 1-11.

Centers for Disease Control and Prevention (CDC). (2003a). *Current smoking among adults: 1997-2003.* Retrieved on November 21, 2005, from http://www.cdc.gov/nchs/fastats/smoking.htm

Centers for Disease Control and Prevention (CDC). (2003b). Cigarette smoking among adults—United States, 2001. *Morbidity and Mortality Weekly Report, 52*(40), 953-956.

Centers for Disease Control and Prevention (CDC). (2004). *Health behaviors of adults, United States, 1999-2001.* Series 10, No. 219. DHHS Publication No. (PHS) 2004-1547. Washington, DC: U.S. Department of Health and Human Services.

Fiore, M.C. (2003). *Preventing 3 million premature deaths, helping 5 million smokers quit: A national action plan for tobacco cessation.* Center for Tobacco Cessation. Retrieved on October 10, 2005, from http://ctcinfo.org/upload/National_Action_Plan_Tobacco_Cessation.pdf

Fiore, M. C., Bailey, W. C. & Cohen, S. J. (2000). *Treating tobacco use and dependence. Quick reference guide for clinicians.* Washington, DC: U.S. Department of Health and Human Services, Public Health Services.

Katz, D. A., Muehlenbruch, D. R., Brown, R. L., Fiore, M. C. & Baker, T. B. (2004). Effectiveness of implementing the Agency for Healthcare Research and Quality Smoking Cessation Clinical Practice Guideline: A randomized, controlled trial. *Journal of the National Cancer Institute, 96*, 594-603.

Landers, S. J. (2003, December 15). Kicking butt: Primary care physicians can help smokers quit. *AMNews.* Retrieved on December 6, 2005, from http://www.ama-assn.org/amednews/2003/12/15/hlsa1215.htm

Law M. & Tang, J. L. (1995). An Analysis of the effectiveness of interventions intended to help people stop smoking. *Archives of Internal Medicine*, 155, 1933-41.

National Women's Law Center. (2003). *Women and smoking: A national and state-by-state report card.* Retrieved on February 15, 2005, from http://www.nwlc.org/pdf/Women&SmokingReportCard2003.pdf

Rose, G., Hamilton, P. J., Colwell, L. & Shipley, M. J. (1983). A randomised controlled trial of anti-smoking advice: 10-year results. *Journal of Epidemiology and Community Health, 36*, 102-108.

Roytman, T., Steinemann, J., Holzman, J., Hishinuma, E., Chang, J., Nagoshi, M., Tam, E. & Wong, J. (2005). Impact of education on smoking cessation counseling by surgical residents. *The American Journal of Surgery, 189*(1):44-46.

Schnoll, R. A. & Engstrom, P. F. (2004). Tobacco control in the physician's office: A matter of adequate training and resources. *Journal of the National Cancer Institute, 96*: 573-575.

Soloe, C., Crankshaw, E., Donoghue, S. & Ben-Davies, M. (2003). *Adult cessation literature review.* Research Triangle Park, NC: RTI International.

Thorndike, A. N., Rigotti, N. A., Stafford, R. S. & Singer, D. E. (1998). National patterns in the treatment of smokers by physicians. *Journal of the American Medical Association, 279*: 604-608.

U.S. Public Health Service. (2000). *Treating tobacco use and dependence—Clinical practice guideline.* Washington, DC: U.S. Department of Health and Human Services.

2. Recommended Smoking Cessation Practices for Physicians

Smoking cessation is generally regarded as total abstinence from tobacco, but even if a patient is not able to achieve total abstinence, a reduction in cigarette smoking may benefit the patient's health. Furthermore, due to the chronic, relapsing nature of nicotine addiction, several quit attempts are often necessary to achieve total abstinence.

Over the past 20 years efforts to encourage physician intervention in assisting patients to reduce their use of tobacco has increased in light of the important role they can play in the quitting process. The material that follows includes a brief history of the development of physician guidelines, a description of the issues addressed in the current national guidelines, and a summary of interventions recommended in the national guidelines.

Guidelines—History and Content

Perhaps the first attention to physician involvement in smoking cessation in a national guideline was *Healthy People 2000: National Health Promotion and Disease Prevention Objectives* was released in 1990 by the Department of Health and Human Services as a strategy for improving the health of Americans by the end of the century. It was the first national guideline to address physician involvement in smoking cessation. One of the objectives proposed was that 75% of physicians would regularly advise patients against smoking and providing cessation assistance and follow up.

In 1996, the Agency for Health Care Policy and Research (AHCPR)[1] issued the first national guidelines for physicians. This guideline, Smoking Cessation, Clinical Practice Guideline, No. 18, was followed by additional recommendations, including a guide for primary care physicians, a guide for specialists, consumer versions in English and Spanish, and a document on systems approaches to smoking cessation targeted toward health care administrators, insurers, managed care organizations, and purchasers.

[1] AHCPR has since become the Agency for Healthcare Research and Quality (AHRQ).

This popular series of documents was superseded in 2000 by a new, updated Tobacco Cessation Guideline released by the U.S. Public Health Service (USPHS), and available at http://www.surgeongeneral.gov/tobacco/default.htm. This document and associated materials are the current definitive standard on physician-based tobacco intervention.

The updated guideline is divided into eight chapters:
1) Overview and Methods;

2) Assessment of Tobacco Use (Describes how to determine tobacco use status and willingness to make a quit attempt for each patient presenting in a health care setting);

3) Brief Clinical Interventions (Summarizes effective brief interventions that can easily be delivered in a primary care setting, including interventions for patients *willing* to try to quit at this time, patients *not yet willing* to try to quit, and patients who have recently quit);

4) Intensive Clinical Interventions (Outlines a prototype of an intensive tobacco cessation treatment that includes strategies shown to be effective in this guideline);

5) Systems Interventions Relevance to Health Care Administrators, Insurers, and Purchasers (Details systems changes that can improve the delivery of smoking cessation services to patients);

6) Evidence (Results of guideline statistical analyses and the recommendations that emanate from them, including the efficacy of different pharmacotherapies and counseling strategies and the relation between treatment intensities and treatment success);

7) Special Populations (Highlights the special needs of various groups related to smoking cessation); and

8) Special Topics (Instructs the clinician how to deal with special issues and situations faced by patients).

In 2003, a *National Blueprint for Disseminating and Implementing Evidence-Based Clinical and Community Strategies to Promote Tobacco-Use Cessation* was developed to recommend strategies to mobilize and coordinate efforts that support smoking cessation. This blueprint identified initiatives targeted to clinicians who treat individuals who smoke and their families as a key strategy. This includes physician-based interventions.

Since 2000, other organizations have issued their own practice guidelines, including the Veterans Administration; various hospitals, practice groups, and HMOs; and some physician specialty associations. Most of these guidelines are based upon the USPHS guidelines, although they may also reflect considerations such as cost of providing care.

Recommended Interventions
The 2000 USPHS guidelines advise that cessation-related activities should ideally follow the "5 As": Ask, Advise, Assess, Assist, and Arrange. Physicians need not be the ones to deliver cessation assistance directly to their patients, but should have procedures in place in their practice for the provision of such assistance by nurses or other staff. Any intervention is better than no intervention, and interventions should be used with all groups of smokers, including those that may be considered special populations, such as pregnant women, adolescents, and those with mental illnesses or mood disorders. Furthermore, interventions should be offered at every office visit, even if the intervention consists only of a brief offer of assistance.

Several evidence-based practices are noted in detail in the USPHS guidelines. These include are counseling, pharmacotherapy, and relapse prevention which relate to physician practice.

Counseling. If the patient is not yet willing to try quitting, physicians should attempt a motivational intervention, in particular discussing the "5 Rs": relevance (importance of quitting), risks (negative consequences of tobacco use), rewards (benefits of quitting), roadblocks (barriers or impediments a patient may face in quitting), and repetition (the repeated attempts often necessary to successfully quit).

If the patient is, however, willing to try quitting, the physician should help the patient develop a quit plan, and provide some practice counseling. Effective practical counseling will help the patient identify events, internal states or activities that increase the risk of smoking or relapse, help the patient identify coping or problem-solving skills, and provide basic information about smoking and successful quitting.

Pharmacotherapy. One of the most effective methods of smoking cessation is the use of pharmacotherapy, often in the form of nicotine replacement. Physicians should recommend pharmacotherapy to most smokers, except for adolescents, pregnant or breastfeeding women, and those smoking fewer than 10 cigarettes a day. A wide variety of pharmacotherapies are available. They include bupropion, clonidine, nortiptyline, and nicotine replacement.

Relapse prevention. If patients have recently stopped using tobacco, intervention should instead take the form of relapse prevention. This intervention can be relatively brief but is very important. Because there is a very high risk of relapse, especially in the first three months after quitting tobacco, such patients should be monitored for any resumption of tobacco use.

Bibliography

Agency for Health Care Policy and Research. (1996). *Smoking Cessation, Clinical Practice Guideline, No. 18*. Retrieved March 18, 2004, from http://www.ncbi.nlm.nih.gov/books/bv.fcgi?rid=hstat2.chapter.7644

Fiore, M. C., Bailey, W. C., Cohen, S. J., et al. (2000). *Treating Tobacco Use and Dependence. Clinical Practice Guideline*. Rockville, MD: U.S. Department of Health and Human Services. Public Health Service.

Husten, C. G., Fiore, M., Leischow, S. J., & Kerner, J. F. (2002, November). *A national blueprint for disseminating and implementing evidence-based clinical and community strategies to promote tobacco-use cessation*. Presented at the 2002 National Conference on Tobacco or Health, San Francisco, CA. An abstract and PowerPoint presentation are available at http://ncth.confex.com/ncth/2002/techprogram/meeting_2002.htm

U.S. Public Health Service. (2000). T*reating Tobacco Use and Dependence: A Systems Approach*. A guide for health care administrators, insurers, managed care organizations, and purchasers. U.S. Public Health Service. http://www.surgeongeneral.gov/tobacco/systems.htm

3. Smoking Cessation Practices Among Primary Care Physicians

Patient Population

Primary care physicians are ideally positioned to give preventive health advice related to smoking cessation. Primary care physicians see a diverse patient population, including children and adolescents, pregnant women, and those with mental health or substance abuse problems. Indeed, primary care physicians have been found to provide cessation advice at higher rates than specialists (Goldberg et al., 1993; Thorndike et al., 1998).

Tobacco Cessation Interventions

Estimates on the frequency with which primary care physicians identify smokers, advise against smoking, and offer cessation interventions vary depending upon the study: A 2001 study of primary care physicians in rural Kansas found that tobacco-related discussions occurred during 66% of doctor-patient encounters in which the patient was a smoker (Ellerbeck, et al., 2003). A study of primary care physicians in Rhode Island found that 67% of physicians reported that they Ask, 74% reported that they Advise, 35% Assist, and 8% Arrange follow-up with patients who smoke. In this study, only 27% of physicians report providing "thorough" counseling (as defined by the researchers), and most did not intend to increase counseling activities (Goldstein et al., 1998).

Specific intervention behavior varies among primary care physicians. A 2003 study found that these physicians discussed buproprion with approximately 23% of smokers, but NRT with only 12%, despite the fact that NRT is more widely available. Furthermore, NRT was not effectively targeted to those with markers of nicotine addiction (Ellerbeck, et al., 2003).

In a survey of patients, the majority of individuals seeing primary care physicians report being asked if they smoke (81% of all patients and 93% of smokers). Most patients who smoked were told to quit (78%), and many discussed a quit date (60%); but many fewer received a nicotine prescription (20%) or a referral (25%) (McBride et al., 1997).

Patient Characteristics Related to Interventions.

Physicians were more likely to offer specific cessation interventions to patients contemplating or preparing to quit (31% and 33%), as opposed to precontemplators (15%) (Ellerbeck et al., 2003). Furthermore, they were most likely to intervene with patients, who are younger, have reversible disease, who are receptive to intervention, and who have made previous quit attempts (Goldberg et al., 1993). Patients with smoking-related diagnoses, particularly coronary disease or risk factors for coronary disease, were more likely to receive help (Thorndike et al., 1998; McBride et al., 1997). Patients were most likely to receive help if they smoked more, visited the physician more, or wanted help more (McBride et al., 1997).

Physician Confidence

The literature suggests wide variation in how confident primary care physicians feel about their smoking cessation skills. One recent study reported that most felt confident in their skills (McIlvain et al., 2000), but another found that few physicians felt very effective in their counseling of smoking behavior change (Tsui, Dodson, & Jacobson, 2004). In a third study, only 11% of physician respondents rated their cessation skills as excellent, 27% reported needing improvement, although 52% believed their counseling was effective (Saywell et al., 1996).

Primary care physicians may overestimate their tobacco cessation skills. One study comparing physician rankings of the importance of various cessation strategies to expert rankings of the same indicated that there was disparity between what the physicians believed to be best practices compared to the recommendations of experts (Mullen et al., 1991).

Bibliography

Ellerbeck, E. F., Choi, W. S., McCarter, K., Jolicoeur, D. G., Greiner, A., & Ahluwalia, J. S. (2003). Impact of patient characteristics on physician's smoking cessation strategies. *Preventative Medicine, 36*(4), 464-70.

Goldberg, R., Ockene, I., & Ockene, J. (1993). Physicians' attitudes and reported practices toward smoking intervention. *Journal of Cancer Education, 8*, 133-139.

Goldstein, M. G., DePue, J. D., Monroe, A. D., Lessne, C. W., Rakowski, W., Prokhorov, A., Niaura, R., & Dube, C. E. (1998). A population-based survey of physician smoking cessation counseling practices. *Preventative Medicine, 27*(5 Pt 1), 720-9.

McBride, P., Plane, M., Underbakke, G., Brown, R., & Solberg, L. (1997). Smoking screening and management in primary care practices. *Archives of Family Medicine, 6*, 165–72.

Mcilvain, H. E, Crabtree, B. F., Backer, E. L., & Turner, P. D. (2000). Use of office-based smoking cessation activities in family practices. *Journal of Family Practice, 49*(11), 1025-9.

Mullen, P. D., Ito, J. R., Carbonari, J. P., & DiClemente, C. C. (1991). Assessing the congruence between physician behavior and expert opinion in smoking cessation counseling. *Addictive Behavior, 16*(5), 203-10.

Saywell, R. M., Jay, S. J., Lukas, P. J., Casebeer, L. L., Mybeck, K. C., Parchman, M. L., & Haley, A. J. (1996). Indiana family physicians attitudes and practices concerning smoking cessation. *Indiana Medicine, 89*(2), 149-56.

Thorndike, A. N., Rigotti, N. A., Stafford, R. S., & Singer, D. E. (1998). National patterns in the treatment of smokers by physicians. *JAMA, 279*(8), 604-8.

Tsui, J. I., Dodson, K., & Jacobson, T. A. (2004). Cardiovascular disease prevention counseling in residency: resident and attending physician attitudes and practice. *Journal of the National Medical Association, 96*(8), 1080-3, 1088-91.

4. Physician Smoking Cessation Practices in Four Medical Specialties

Introduction to Section

Physicians in all specialties will encounter smokers in their practice and have the potential to successfully intervene with these patients. Our project, however, focused on physicians in four specialties that are of particular importance in smoking cessation: 1) family medicine, 2) internal medicine, 3) obstetrics/gynecology, and 4) psychiatry. The first three are primary care specialties, and are thus well positioned to intervene with patients in regard to preventive health. Furthermore, obstetricians see large numbers of pregnant patients who are at particularly high risk of adverse outcomes as a result of smoking. Although Psychiatrists are not primary care providers, they work with a patient population with a very high smoking prevalence, and are therefore of great importance in any broad-based smoking cessation effort.

The following section will discuss the populations served by each specialty, the initiatives undertaken by the specialty related to smoking cessation, and the literature on smoking cessation intervention practices within the specialty and the factors that influence these practices. This includes patient characteristics and physician confidence.

Family Medicine

Family Physicians have the potential to reach large numbers of primary care patients who smoke. As a specialty, family medicine has been very active in promoting tobacco use prevention and intervention. Most Family Physicians "ask" and "advise" patients about smoking, and documentation of smoking status in the medical chart is common. At the same time, however, fewer than half of Family Physicians appear to routinely assist patients who smoke in receiving tobacco cessation services. The progress made by this specialty illustrates the tremendous potential for specialty involvement in tobacco cessation, but also the great challenges involved in changing long-standing physician practice behaviors.

Patient population. Family Physicians see patients from virtually every demographic, including many special populations: children, pregnant women, minorities, the socioeconomically disadvantaged, older adults, and those with chronic diseases. They are the largest medical specialty in the U.S. They are also ideally positioned to provide preventive health care such as smoking cessation services to their patients.

Specialty Initiatives. Family medicine has taken a very active role in tobacco cessation at the community level. As early as 1996, the American Academy of Family Physicians [AAFP] released a set of "action steps" for physicians to help combat tobacco use among both their own patients and the U.S. population as a whole. These included a recommendation that physicians document tobacco use in patient charts and work collaboratively with other health professionals to treat tobacco use. AAFP also created a "stop smoking" guide that physicians can share with patients. AAFP sponsors sessions related to smoking cessation at their meetings, and promotes the use of quitlines to physicians as a resource for helping patients stop smoking.

Other AAFP recommendations are focused on shaping public policy around tobacco use, such as advocating for more adequate reimbursement for smoking cessation services. AAFP initiated community-based programs, such as the "Tar Wars" program. This tobacco education program is designed to teach kids about the consequences of tobacco use as well as the advertising techniques used by the tobacco industry to market their products to youth.

Tobacco Cessation Interventions. Most Family Physicians asked patients if they smoke (86%) and many asked patients if they are exposed to passive smoke (23%) (Saywell et al., 1996). Smoking status was documented in 51% of medical records in a study of Nebraska Family Physicians (McIlvain et al., 2000). The intervention rates among Family Physicians were, however, lower than the rate of asking about tobacco use. Various studies suggest that rates of intervention vary between 33% and 47%, depending upon the sample and the measurement (percent of patients who smoke who receive treatment versus percent of office visits by smoking patients in which treatment is provided) (Jaen et al., 2001; Ellerbeck, et al., 2001; Sesney et al., 1997). Treatment options discussed by Family Physicians were more likely to include buproprion (31%) than NRT (17%).

Most offices (68%) have smoking cessation materials available for their patients (Ellerbeck et al., 2001), although only 28% of Family Physicians reported that they used a formal smoking cessation program (Saywell et al., 1996). Educational materials used by Family Physicians are often provided by pharmaceutical companies, usually for nicotine replacement (McIlvain, et al., 2000).

Patient and Physician Characteristics. Factors that increase the likelihood that a Family Physician will offer an intervention to assist patients stop smoking have been identified. Patients were more likely to receive an intervention if they indicated readiness to quit, if they were visiting due to a tobacco-related illness (Sesney et al., 1997), if they were new patients, or if they were young (Ellerbeck et al., 2001). They were more likely to receive cessation advice during wellness visits (55%) than illness visits (22%), and visits for tobacco-related problems (32%) than non-tobacco-related problems (17%) (Jaen et al., 1998).

Characteristics of the individual physician also had an impact, with younger physicians, female physicians, and urban physicians being most likely to ask about smoking status (Saywell et al., 1996). Family Physicians were also more likely to discuss tobacco if they had been in practice more than 10 years (Ellerbeck et al., 2001). Intensity of such activities varied by attitudes, expectations, and backgrounds (McIlvain et al., 1997).

Bibliography

AAFP (unknown authors). (1996). AAFP recommends seven action steps for family physicians in the battle against tobacco. *American Family Physician, 53*(2), 776.

Ellerbeck, E. F., Ahluwalia, J. S., Jolicoeur, D. G., Gladden, J., & Mosier, M. C. (2001). Direct observation of smoking cessation activities in primary care practice. *Journal of Family Practice, 50*(8), 688-93.

Jaen, C. R., Crabtree, B. F., Zyzanski, S. J., Goodwin, M. A., & Stange, K. C. (1998). Making time for tobacco cessation counseling. *Journal of Family Practice, 46*(5), 425-8.

Jaen, C. R., McIlvain, H., Pol, L., et al. (2001). Tailoring tobacco counseling to the competing demands in the clinical encounter. *Journal of Family Practice, 50*(10), 859-63.

Marlow, S. & Stoller, J. (2003, December). Smoking Cessation. *Respiratory Car, 48*(12), 1238-56.

McIlvain, H. E, Crabtree, B. F., Backer, E. L., & Turner, P. D. (2000). Use of office-based smoking cessation activities in family practices. *Journal of Family Practice, 49*(11), 1025-9.

McIlvain, H. E., Crabtree, B. F., Gilbert, C., Havranek, R., & Backer, E. L. (1997). Current trends in tobacco prevention and cessation in Nebraska physicians' offices. *Journal of Family Practice, 44*, 193-202.

Mullen, P. D., Ito, J. R., Carbonari, J. P., & DiClemente, C. C. (1991). Assessing the congruence between physician behavior and expert opinion in smoking cessation counseling. *Addictive Behavior, 16*(5), 203-10.

Perez-Stable, E. J., Juarez-Reyes, M., Kaplan, C., Fuentes-Afflick, E., Gildengorin, V., & Millstein, S. (2001). Counseling smoking parents of young children: comparison of pediatricians and family physicians. *Archives of Pediatrics and Adolescent Medicine, 155*(1), 25-31.

Saywell, R. M., Jay, S. J., Lukas, P. J., Casebeer, L. L., Mybeck, K. C., Parchman, M. L., & Haley, A. J. (1996). Indiana family physicians attitudes and practices concerning smoking cessation. *Indiana Medicine, 89*(2), 149-56.

Sesney, J. W., Kreher, N. E., Hickner, J. M., & Webb, S. (1997). Smoking cessation interventions in rural family practices: An UPRNet study. *Journal of Family Practice, 44*(6), 578-85.

Internal Medicine

Internal medicine physicians (Internists) are the largest physician specialty in the U.S. As primary care providers they tend to see a patient population similar to that seen by Family Physicians, although they typically do not see children. Because such a large proportion of the U.S. population see Internists for their primary care, this specialty is critical to physician-based smoking cessation initiatives.

Although interest in smoking cessation is growing within the specialty, the literature on the smoking cessation practices of Internists remains limited. Internal medicine is still considering how the specialty association can best support their physicians in helping reduce tobacco use. Many Internists belong to subspecialty organizations, which may have their own tobacco-related guidelines, programs, and initiatives.

Bibliography

Goldstein, M. G., DePue, J. D., Monroe, A. D., Lessne, C. W., Rakowski, W., Prokhorov, A., Niaura, R., & Dube, C. E. (1998). A population-based survey of physician smoking cessation counseling practices. *Preventative Medicine, 27*(5 Pt 1), 720-9.

Sims, T. H., Meurer, J. R., Sims, M., & Layde, P. M. (2004). Factors associated with physician interventions to address adolescent smoking. *Health Services Research, 39*(3), 571-585.

Obstetrics/Gynecology

The number of pregnant women who smoke has decreased significantly over the past decade. This change is due in large part to interventions undertaken by the Obstetricians/Gynecologists. It also may reflect the impact that the American Association of Obstetricians and Gynecologists (ACOG) has had in supporting physicians in addressing tobacco use with patients.

The literature on the smoking cessation practices of Obstetrician/Gynecologists indicates an increasing trend toward incorporation of the 5 "As" in practice. About 12% of Obstetricians reported that they consistently perform all 5 "A's" (Grimley et al., 2001). Knowledge and attitudes appear closely linked among Obstetricians, and both of these affect physician behavior. Despite the intensive efforts of the specialty, many Obstetricians reported a need for more training and educational materials about smoking cessation for pregnant women.

Patient Population. Obstetrician/Gynecologists specialize in the treatment of women, and specifically, the female reproductive system. They also provide prenatal care to pregnant women. Smoking is an important issue in reproductive health, with potential effects upon fertility and maternal/child health. More than one out of 10 pregnant women (11.4%) smoked during pregnancy in 2002 (CDC, 2004), with serious implications for the health and safety of both the woman and her child. Smoking is also an additional risk factor for stroke in the millions of women who use hormone-based contraception, making smoking cessation an issue even for Gynecologists who do not provide prenatal care.

Specialty Initiatives. In 2000, ACOG issued an educational bulletin on smoking cessation during pregnancy that introduced obstetricians to best-practice recommendations in a quick summary manner. In 2002, ACOG issued a clinician's guide on smoking cessation, featuring a tool kit and case studies. This guideline, *Smoking Cessation During Pregnancy: A Clinician's Guide to Helping Pregnant Women Quit Smoking*, gives more detail on the material presented in the earlier educational bulletin, while the case studies section briefly presents counseling tips and key points. This self instruction tool kit was shared with ACOG members as well as other physicians interested in receiving the material. More than 20,000 copies were distributed. ACOG has also developed a standard prenatal form distributed to physicians of all specialties providing care to pregnant women that includes an area for documentation of smoking status. One study of adolescent smokers found that pregnant teen smokers were more likely to receive interventions that other teen smokers, and attribute this to the use of the ACOG and other prenatal forms (Sims et al., 2004).

ACOG provides information on smoking cessation to members through a variety of publications, e.g., technical publications, educational bulletins, journal articles, and ACOG newsletters. Other initiatives include development of tools for consumers, such as *Need Help Putting Out that Cigarette*, a patient workbook for pregnant women, and education pamphlets on tobacco use for teen girls and women.

ACOG is a member of organizations that seek to reduce the use of tobacco in the U.S. including: the *Provider's Partnership*, a series of state-level projects that address key women's health issues such as tobacco use; the Partnership to *Help Pregnant Smokers Quit*, a coalition of national organizations that concentrates on the issue of the pregnant smoker; and a partnership with the March of Dimes to assist in developing and supporting state and local level provider training sessions.

Tobacco Cessation Interventions. Several studies have examined the practices of Obstetricians/Gynecologists in addressing smoking with patients. Studies generally find improved practices among these physicians following the issuance of the ACOG guidelines, as compared to earlier studies (Chapin & Root, 2004).

Asking and Advising. Obstetricians/Gynecologists consistently do very well at asking and advising their patients. In 1998, 98% of Obstetricians reported asking pregnant patients about smoking; compared to 100% in a 2001 study (Chapin and Root, 2004). Obstetricians also have a strong track record for asking about smoking status among socioeconomically disadvantaged patients: 93% of pregnant smokers on Medicaid reported discussions about smoking during prenatal care (Petersen et al., 2005).

In 1998, 95% of Obstetricians said that they discussed smoking hazards with their pregnant patients and advised them to stop smoking, compared to 98% in a 2001 study (Chapin & Root, 2004).

Assisting and Arranging. Fewer Obstetricians assist and arrange than ask and advise, however the number engaged in assisting and arranging appears to be increasing. For example, the percent providing self-help materials increased from 35% to 43% between 1998 and 2001 studies, while 23% reported helping the patient to arrange social support at home (Chapin & Root, 2004).

Specific Techniques. Among pregnancy care providers, Obstetricians were most likely to treat smoking by referring to smoking cessation classes (18%), nurse counseling (19%), health educator counseling (7%), relaxation and stress management techniques (10%), brochures and educational materials (14%), and NRT (11%) (Helwig, Swain & Gottlieb, 1998). Seventy-one percent did not prescribe NRT to pregnant women, but others reported selective use (Mullen et al.,1998). Obstetricians tended to offer a larger number of interventions than Family Physicians who were providing pregnancy care (Helwig, Swain & Gottlieb, 1998).

Patient and Physician Characteristics. Reproductive health physicians were more likely to advise their patients to quit when the patients were white, employed, engaged in safer sex practices, and were more ready to quit. Family Physicians were more likely to give such advice compared to Gynecologists (Pollak et al., 2002). The majority (86%) of Obstetricians/Gynecologists in an Alabama survey reported that they had no training in smoking cessation counseling, and only 6% said that they had a staff person responsible for assisting their patients with cessation (Grimley et al., 2001).

Physician Knowledge. A survey of pregnancy-care providers overall (including obstetricians) indicated that both general cessation and NRT knowledge were low, although 80% of providers in obstetrics clinics knew that counseling could be effective. Clinicians had greater general knowledge if they had received past training, if they had greater confidence, motivation, effectiveness, and leadership, and if they perceived that women wanted counseling. Less support for smoking services by CHC leadership was related to lower knowledge (Bonollo et al., 2002).

Knowledge is important to effective practice, and overall the methods used by pregnancy-care providers (including Obstetricians) to encourage smoking cessation did not correlate with those known to be effective (Helwig, Swain, & Gottlieb, 1998).

Physician Attitudes. Obstetricians were less likely than Family Physicians to perceive addiction and habit as a barrier to pregnant patients quitting (62% versus 84%), and were more likely to cite lack of motivation (15%) and apathy (12%). Most maternity care providers (89%) correctly reported that NRT was contraindicated during pregnancy (Helwig, Swain, & Gottlieb, 1998), although 44% prescribed or recommended NRT to pregnant patients (Ockene et al., 2000). Thirty-one percent agreed that smoking is much more dangerous during pregnancy than NRT, while 78% reported that smoking during pregnancy was either much more or somewhat more dangerous (Grimley et al., 2001).

Obstetricians whose counseling is less consistent and effective have been found to be more likely to be dissatisfied with their current counseling, to not perceive counseling to be effective, to not be aware of the risks of smoking, and to not be familiar with expert recommendations for prenatal care (Mullen et al., 1998).

Bibliography

American College of Obstetricians and Gynecologists. (2002). Smoking cessation during pregnancy: *A clinician's guide to helping pregnant women quit smoking.* Washington, DC: ACOG.

American College of Obstetricians and Gynecologists. (2001). ACOG educational bulletin. Smoking cessation during pregnancy. Number 260, September 2000. *International Journal of Gynecology and Obstetrics, 75*(3), 345-8.

American College of Obstetricians and Gynecologists. (1997). Smoking and women's health. *Educational Bulletin. Number 240.* Washington, DC: ACOG.

Bonollo, D. P., Zapka, J. G., Stoddard, A. M., Ma, Y., Pbert, L. & Ockene, J. K. (2002). Treating nicotine dependence during pregnancy and postpartum: Understanding clinician knowledge and performance. *Patient Education and Counseling, 48*, 265-274.

Centers for Disease Control and Prevention (CDC). (2004). Smoking During Pregnancy—United States, 1990-2002. *Morbidity Mortality Weekly Report (MMWR), 53*(39), 911-915.

Chapin, J., & Root, W. (2004). Improving obstetrician-gynecologist implementation of smoking cessation guidelines for pregnant women: An interim report of the ACOG. *Nicotine and Tobacco Research, 6*(2), S253-7.

Goldstein, M. G., DePue, J. D., Monroe, A. D., Lessne, C. W., Rakowski, W., Prokhorov, A., Niaura, R., & Dube, C. E. (1998). A population-based survey of physician smoking cessation counseling practices. *Preventative Medicine, 27*(5 Pt 1), 720-9.

Grimley, D. M., Bellis, J. M., Raczynski, J. M., & Henning, K. (2001). Smoking cessation counseling practices: A survey of Alabama obstetrician-gynecologists. *Southern Medical Journal, 94*(3), 297-303.

Helwig, A. L., Swain, G. R., & Gottlieb, M. (1998). Smoking cessation intervention: The practices of maternity care providers. *Journal of the American Board of Family Practice, 11*(5), 336-40.

Melvin, C., & Gaffney, C. (2004). Treating nicotine use and dependence of pregnant and parenting smokers: an update. *Nicotine and Tobacco Research, 6*(Suppl 2), S107-24.

Mullen, P. D., Pollak, K. I., Titus, J. P., Sockrider, M. M. & Moy, J. G. (1998). Prenatal smoking cessation counseling by Texas obstetricians. *Birth, 25*(1), 25-31.

Oncken, C. A., Pbert, L., Ockene, J. K., Zapka, J., & Stoddard, A. (2000). Nicotine replacement prescription practices of obstetric and pediatric clinicians. *Obstetrics and Gynecology 96*(2), 261-5.

Petersen, R., Clark, K. A., Hartmann, K. E., & Melvin, C. L. (2005). Getting focused: Missed opportunities for smoking interventions for pregnant women receiving Medicaid. *Preventative Medicine, 40*(2), 209-15.

Pollak, K. I., McBride, C. M., Scholes, D., Grothaus, L. C., Civic, D., & Curry, S. J. (2002). Women's reports of smoking cessation advice during reproductive health visits and subsequent smoking cessation. *American Journal of Managed Care 8*(10), 837-44.

U.S. Dept. of Health and Human Services. (2001). *Women and smoking: A report of the Surgeon General.* Washington, DC: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health.

Psychiatry

Psychiatrists are an important group of providers in smoking cessation because they have a large number of patients who smoke. More than one-third of cigarettes are estimated to be smoked by nicotine-dependent individuals with a comorbid psychiatric disorder (Grant et al., 2004). The American Psychiatric Association recognizes the importance of smoking cessation, and is working within the specialty to identify ways to encourage Psychiatrists to provide smoking cessation treatment.

Patient Population. Patients with psychiatric diagnoses are most likely to be seen by Psychiatrists (49% of visits), followed by primary care physicians (26% of visits), and other specialists (25% of visits) (Thorndike et al., 2001). There is a clear, strong relationship between psychiatric disorders and smoking. Patients with psychiatric diagnoses are both more likely to smoke and are less likely to be motivated to quit (APA, 1996, cited in Thorndike et al., 2001). Nicotine-dependent individuals with a comorbid psychiatric disorder made up 7.1% of the population, yet consumed 34.2% of all cigarettes smoked in the U.S. (Grant et al., 2004). Individuals with mental illness or addiction are 2-3 times more likely to be tobacco-dependent than the general population (cited in Williams & Ziedonis, 2004).

Psychiatric patients are a complex group to treat due to the frequent presence of emotional symptoms, such as depression, that may be aggravated during nicotine withdrawal (Glassman, 1998; Docherty, Marzuk, & Barchas, 1996). Smokers with psychiatric disorders are less likely to be successful at quitting on any single attempt than are smokers without a psychiatric diagnosis (Glassman, 1993 and Hughes, 1993, cited in Thorndike et al., 2001), but smokers with psychiatric diagnoses can nonetheless quit, usually with physician help.

Guidelines. The American Psychiatric Association (APA) issued a formal treatment guideline in 1996, Practice Guideline for the Treatment of Patients with Nicotine Dependence, which recommended that smoking be routinely treated in patients with psychiatric diagnoses. The APA Council on Addictions subsequently issued a treatment improvement protocol on smoking. The Council advocates smoking cessation services for patients both within and beyond the specialty. Currently, APA is focused on identifying the best strategies for increasing the involvement of Psychiatrists in treating smoking.

Interventions. Although patient smoking status is known in 75.7% of Psychiatrist visits, counseling to help stop smoking occurs at only 12.4% of visits by smoking patients (Himelhoch & Daumit, 2003). Approximately 29% of Psychiatrists reported that they frequently counsel smoking patients (29%) (Easton et al., 2001).

Although one study indicated that Psychiatrists are less likely than primary care physicians to counsel smokers with psychiatric diagnoses, the relationship did not persist after adjusting for other factors, except in the case of those with anxiety disorders (Thorndike, Stafford and Rigotti, 2001).

Patient characteristics. Despite the complications inherent to treating smoking patients with psychiatric disorders, a study of physicians overall indicated that doctors were more likely to identify smoking and to counsel smokers when the patient had a psychiatric diagnoses compared to a non-psychiatric diagnosis (76% vs. 64% for identification and 23% vs. 18% for counseling) (Thorndike, Stafford and Rigotti, 2001).

Psychiatrists were more likely to offer counseling to older patients, those with obesity, hypertension or diabetes, those in rural areas, and those having an initial visit. Psychiatrists in this study did not prescribe NRT, and did not use the diagnosis of nicotine dependence. Those with bipolar disorder were more likely to receive counseling than those with depression (Himelhoch & Daumit, 2003), while those with anxiety disorders were more likely to receive counseling than those with affective disorders (Thorndike, Stafford and Rigotti, 2001).

Bibliography

American Psychiatric Association. (1996). *Practice Guideline for the Treatment of Patients with Nicotine Dependency*. Retrieved on April 18, 2004, from http://www.psych.org/archives/clin_res/pract_guide/nicotine/pg_nicotine.cfm?

Docherty, J. P., Marzul, P. M., & Barchas, J. D. (1996). Nicotine dependence: Perspectives on a new guideline from APA. *American Journal of Psychiatry, 153*(10), 1247-8.

Easton, A., Husten, C., Malarcher, A., Elon, L., Caraballo, R., Ahluwalia, I., & Frank, E. (2001). Smoking cessation counseling by primary care women physicians: Women Physicians' Health Study. *Women Health, 32*(4), 77-91.

Glassman, A. H. (1993). Cigarette smoking: Implications for psychiatric illness. *American Journal of Psychiatry, 150*, 546-553.

Glassman, A. H. (1998). Psychiatry and cigarettes. *Archives of General Psychiatry, 55*(8), 692-693.

Grant, B. F., Hasin, D. S., Chou, S. P., Stinson, F. S., & Dawson, D. A. (2004). Nicotine dependence and psychiatric disorders in the United States: Results from the National Epidemiologic Survey on Alcohol and Related Conditions. *Archives of General Psychiatry, 61*, 1107-1115.

Himelhoch, S., & Daumit, G. (2003). To whom do psychiatrists offer smoking-cessation counseling? *American Journal of Psychiatry, 160*(12), 2228-30.

Hughes, J. R. (1993). Possible effects of smoke-free inpatient units on psychiatric diagnosis and treatment. *Journal of Clinical Psychiatry, 54*, 109-114.

Thorndike, A. N., Stafford, R. S., Rigotti, N. A. (2001). U.S. physicians' treatment of smoking in outpatients with psychiatric diagnoses. Nicotine and Tobacco Research, 3(1), 85-91.

Williams, J. M., & Ziedonis, D. (2004). Addressing tobacco among individuals with a mental illness or an addiction. *Addictive Behaviors, 29*, 1067-1083.

5. Factors Influencing Physician Smoking Cessation Practices

It is well documented that physician intervention improves the likelihood that patients who smoke will stop smoking. It is therefore important to understand the factors that make physicians more or less likely to intervene with patients who smoke. These factors may be related to the institutional setting in which the physician works, or may be related to the individual clinician's attitudes and beliefs about smoking and smoking cessation.

Institutional Factors

Practice. Physician practice patterns around smoking cessation appear to be influenced by setting. Physicians in private offices have been found to be more likely to provide counseling than those in HMOs or other settings (Goldstein et al., 1998). Physicians in smaller, private offices may have smaller patient loads and more time to spend with patients, compared to physicians in larger practices where they have less control over their time and patient load.

In contrast, physicians in group practice are more likely to adopt guidelines, and are also more likely to institute office-based activities that discourage smoking (McIlvain et al., 2000). Physicians in large practices, including managed care organizations, may be given clinical guidelines to follow and may have more opportunity to learn from colleagues about new guidelines and treatment protocols. One recent study found that smokers with Medicaid HMOs are more likely to receive smoking cessation counseling than those using Medicaid fee-for-service practices or who had private HMO or non-HMO coverage (Fiscella et al., 2003).

Availability of Resources. Larger medical practices or health facilities can provide resources of many kinds to their physicians, including but not limited to: clinical guidelines on smoking cessation; clinician training in smoking cessation; support staff with special training in smoking cessation; office reminder systems that incorporate smoking status; and patient education materials. These organizations also determine time and patient load. An institutional culture that supports smoking cessation activities is also important for influencing physician behavior in smoking cessation.

Physicians clearly perceive a relationship between resources and their ability to provide smoking cessation. For example, the most frequently reported major barriers among family medicine residents were lack of time (62%), lack of patient interest (58%), lack of availability of health educators (34%), lack of systems for tracking and promoting preventive care (34%), lack of financial reimbursement (20%), lack of effective patient education materials (18%), and uncertainty about what services to provide (6%) (Gottlieb et al., 2001). Nearly all of these (except for patient interest) related to resources of institutional factors in terms of what supports physicians are provided with.

Studies suggest that organizations vary considerably in their support of physician smoking cessation. Most physicians reported that their clinic environment was supportive of treating tobacco use, but only about one-third of physicians strongly agreed that their clinic's systems, routines, and leadership were supportive (An et al., 2004). Seventy percent of physician organizations offered some support for smoking cessation interventions, with 17% requiring that physicians provide interventions, 15% evaluating interventions, 39% offering smoking health promotion programs, 25% providing NRT starter kits, 39% providing materials on pharmacotherapy, 37% providing materials on counseling, and 58% providing materials on self-help. Thirty percent of physician organizations offered no support for smoking interventions (McMenamin et al., 2003).

A number of studies have directly related institutional resources and supports to physician practice. There is a strong overall association between higher perceived clinic support and more complete practice patterns (An et al., 2004). A survey of Minnesota medical personnel found that no provider reported consistent delivery of smoking cessation services if their clinic lacked guidelines and system prompts (Braun et al., 2004). External support for smoking cessation is related to adherence to clinical guidelines: fewer than 20% of physicians received system support consistent with guidelines, and nearly 60% of those who adhered to the guidelines received some form of external support. Successful guideline implementation is deemed to be "highly dependent" on administrative supports from health care organizations and insurers (Stone et al., 2002), and the most successful office-based initiatives are those which integrate smoking cessation into the everyday work of the practice (Swartz & Hays, 2004).

In a 2001 study of family practice residents, it was found that the largest difference in smoking counseling behavior (13%) was due to differences in clinic site (Gottlieb et al., 2001). A number of studies in settings as diverse as VHA hospitals (Vaughn et al., 2002), public health clinics (Edwards, 1996), and HMOs (Duncan, Stein & Cummings, 1991) supported the relationship between institutional factors and either patient receipt of smoking cessation services or physician adherence to clinical guidelines on smoking cessation treatment.

Reimbursement. There are several issues related to reimbursement that may affect physician involvement in smoking cessation. Some smoking cessation services are not covered, while other services may be covered but carry an inadequate level of reimbursement. Furthermore, physicians may not have accurate knowledge of what smoking cessation services are covered and how to correctly bill for them, which may discourage them from providing these services even if the services are reimbursable.

Almost half (45%) of Family Physicians believed that current reimbursement policies limited their involvement with cessation activities, implying that physician knowledge alone will not suffice unless it is supported by resources (Saywell et al., 1996). Another study cited improved reimbursement as one potential way in which managed care organizations can improve the delivery of smoking cessation services to low-income populations (Frazier et al., 2001). A study in Delaware found that one of the primary reasons given by physicians for not implementing national guidelines for smoking cessation was inadequate reimbursement for activities and medications related to smoking cessation. The study authors deemed this "essential to increasing physician involvement" (Gill et al., 2004).

At the same time, physicians do not necessarily know which services are covered and which are not. One study found that 88% of HMO physicians were aware of their health plan's tobacco cessation guidelines, but many fewer were correctly aware of whether the plan covered medications, cessation classes, and counseling (Solberg et al., 2004). This limited knowledge may discourage physicians from addressing smoking cessation independent from actual coverage policies.

Institutional Leaders. Commitment of the leadership of health care organizations and practices in designing and implementing effective smoking cessation programs has been demonstrated to influence physician involvement in smoking cessation. For example, interventions targeted at clinic leadership in a HMO proved more effective than interventions targeted at all clinic physicians (Klevan, Rolnick, & Talarico, 1999). The effects of physician training were enhanced by involvement of staff and administrators in planning and support of smoking cessation counseling (Duncan, Stein, & Cummings, 1991). Research indicated that physician organizations are influenced to support smoking cessation by public recognition, financial incentives, requirements to report Health Plan Employer Data and Information Set (HEDIS) scores, awareness of clinical guidelines, and hospital/HMO ownership of the health care organization (McMenamin et al., 2003).

Physician-specific Factors

Attitudes and Beliefs About Smoking. Clinician attitudes and beliefs influence the way they respond to patients who smoke (Thompson, Schwankovsky & Pitts, 1993; Braun et al., 2004). Beliefs need not necessarily be untrue, but may be interpreted in ways that discourage the provision of smoking cessation treatment. For example, the statement that "most smokers are interested in quitting" gives physicians a false sense that they do not need to provide motivational interventions, while the statement that "most smokers who quit, quit on their own" suggests that physician intervention is not important or necessary. The statement that "quit rates with most therapies are low" discourages physicians from intervening, and the statement that "medication is effective only when accompanied by a psychosocial therapy" masks the fact that medications double quit rates independent of other therapies and that many smokers will not avail themselves of talking therapies (Hughes, 1999).

Attitudes and Beliefs About Efficacy. Holding a more positive attitude toward tobacco use treatment is associated with reporting a more complete practice pattern (An et al., 2004). A study of family medicine residents found that perceived effectiveness accounted for 13% of the variation on smoking counseling (Gottlieb et al., 2001). This is a potentially limiting factor, because one study found that 32% of physicians had a positive attitude about their influence on patient behavior, while 22% said they had low or little influence. Only 21% had positive expectations about the eventual outcome of their counseling, while 26% had low expectations and 7% had very low expectations (McIlvain, et al., 2002).

Physicians were more likely to counsel patients to quit smoking if they had a stronger sense of counseling self-efficacy and had received education in health behavior change techniques (Thompson, Schwankovsky & Pitts, 1993). Providers who do not consider themselves qualified to provide smoking cessation services were not likely to provide these services or provide them consistently (Braun et al., 2004).

Bibliography

An, L. C., Bernhardt, T. S., Bluhm, J., Bland, P., Center, B., Ahluwalia, J. S., Foldes, S. S., Magnan, S., & Manley, M. (2004). Treatment of tobacco use as a chronic medical condition: Primary care physicians' self-reported practice patterns. *Preventive Medicine, 38*, 574-585.

Braun, B. L., Fowles, J. B., Solberg, L. I., Kind, E. A., Lando, H., & Pine, D. (2004). Smoking-related attitudes and clinical practices of medical personnel in Minnesota. A*merican Journal of Preventive Medicine, 27*(4), 316-322.

Curry, S. J., Fiore, M. C., Orleans, C. T., & Keller, P. (2002). Addressing tobacco in managed care: Documenting the challenges and potential for systems-level change. *Nicotine and Tobacco Research, 4*(Suppl 1), S5-7.

Duncan, C., Stein, M. J., & Cummings, S. R. (1991). Staff involvement and special follow-up time increase physicians' counseling about smoking cessation: A controlled trial. *American Journal of Public Health, 81*, 899-901.

Edwards, C. L. (1996). *Providers' attitudes and practices in smoking cessation counseling of women in public health clinics*. Dissertation. Chicago, IL: University of Illinois.

Fiscella, K., Franks, P., Doescher, M., & Saver, B. (2003). Do HMOs affect educational disparities in health care? *Annals of Family Medicine, 1*(2), 90-96.

Frazier, L., Dismuke, S. E., Early, J., Fredrickson, D., Molgaard, C. A., & Schukman, J. S. (2001). Barriers to smoking cessation initiatives for Medicaid clients in managed care. *Substance Use and Misuse, 36*(13), 1875-99.

Gill, J. M., Diamond, J. J., Leone, F. T., Pellini, B., & Wender, R. C. (2004). Do physicians in Delaware follow national guidelines for tobacco counseling? *Delaware Medicine Journal, 76*(8), 297-308.

Gottlieb, N. H., Guo, J. L., Blozis, S. A., & Huang, P. P. (2001). Individual and contextual factors related to family practice residents' assessment and counseling for tobacco cessation. *Journal of the American Board of Family Practice, 14*, 343-51.

Klevan, D. H., Rolnick, S. J., & Talarico, B. (1999). Interventions to implement a clinic-based smoking cessation guideline within a staff model HMO. *Journal of Addictive Diseases, 18*(3), 21-26.

McIlvain, H. E., Crabtree, B. F., Backer, E. L., & Turner, P.D. (2000). Use of office-based smoking cessation activities in family practices. *Journal of Family Practice, 49*(11), 1025-9.

McMenamin, S. B., Schauffler, H. H., Shortell, S. M., Rundall, T. G., & Gillies, R. R. (2003). Support for smoking cessation interventions in physician organizations: Results from a national study. *Medical Care, 41*(12), 1396-1406.

McPhillips-Tangum, C., Rehm, B., Carreon, R., Erceg, C. M., & Bocchino, C. (2004). *Addressing tobacco in managed care: results of the 2003 survey*. Preventing Chronic Disease. CDC. Available from: http://www.cdc.gov/pcd/issues/2006/jul/05_0173.htm

Saywell, R. M., Jay, S. J., Lukas, P. J., Casebeer, L. L., Mybeck, K. C., Parchman, M. L., & Haley, A. J. (1996). Indiana family physicians attitudes and practices concerning smoking cessation. *Indiana Medicine, 89*(2), 149-56

Solberg, L. I., Quinn, V. P., Stevens, V. J., Vogt, T. M., Rigotti, N. A., Zapka, J. G., Ritzwoller, D. P., & Smith, K. S. (2004). Tobacco control efforts in managed care: What do the doctors think? *American Journal of Managed Care, 10*(3), 193-8.

Stone, T. T., Longo, D. R., Phillips Jr., R. L., Hewett, J. E., & Riley, S. L. (2002). Health care system and insurer support for smoking cessation guideline implementation. *Journal of Health Care Finance, 29*(2), 78-86.

Swartz, S. H., & Hays, J. T. (2004). Office-based intervention for tobacco dependence. *The Medical Clinics of North America, 88*(6), 1623-41, xii-xiii.

Thompson, S. C., Schwankovsky, L., & Pitts, J. (1993). Counseling patients to make lifestyle changes: The role of physician self-efficacy, training and beliefs about causes. *Family Medicine, 10*(1), 70-75.

Vaughn, T. E., Ward, M. M., Doebbeling, B. N., Uden-Holman, T., Clarke, W. T., & Woolson, R. F. (2002). Organization and provider characteristics fostering smoking cessation practice adherence: an empirical look. *Journal of Ambulatory Care Management, 25*(2), 17-31.

Wadland, W. C., Stoffelmayr, B., Berger, E., Crombach, A., Ives, K. (1999). Enhancing smoking cessation rates in primary care. *Journal of Family Practice, 48*(9), 711-718.

6. How Can Physician Involvement in Smoking Cessation be Increased?

Understanding how to increase physician involvement in helping patients stop smoking is an important part of tobacco treatment policy. The following section discusses strategies aimed at influencing physician behaviors. This includes identifying social-psychological models of change that can help us to understand and plan for behavior change among physicians. These models can be used to inform interventions to increase the rate of provider-delivered smoking cessation. Specific types of interventions that impact behavior are also reviewed, including provider education/training, health plan policies, and provider reminder systems.

Social-Psychological Models of Change

Several models of change can be used to explain how to influence physician behaviors. By suggesting the processes through which change may occur, these models give important insights into possible interventions through which change can be encouraged. Four models that address physician behavior specifically are the *Transtheoretical Model of Change, the Decisional Balance Model, Self-Determination Theory, The Awareness-Agreement-Adoption-Adherence Model, and the Model for Improving Integration of Evidence-Based Guidelines into Routine Medical Care*. Two of the most prominent general theories of behavior change include the *Theory of Planned Behavior* (Ajzen, 1978), and the *Attitude-to-Behavior Process Model* (Fazio, 1989).

A. Models of Change in Physician Behavior

1. The *Transtheoretical Model of Change* is frequently used in the literature to characterize stages of change among smokers. This model has also been applied to assessments of physician stages of readiness to adopt new behaviors. According to this model, physicians begin in the "precontemplation" stage, where they are not yet thinking about adopting a new behavior. If motivated, they may enter the stage of "contemplation," where they are considering a change within the next six months. To successfully implement change, they must pass through the "preparation" stage, when they are actively planning to make a change within the next six months, and take "action." The "action" stage is the first six months during which the change is being made. If the change is sustained for at least six months, the physician has entered the final, "maintenance" stage (Goldstein et al., 1998).

2. The *Decisional Balance Model* is based upon the Transtheoretical Model of Change. According to the *Decisional Balance Model*, physicians move through the stages of change in regard to counseling smokers based upon a comparison of the perceived positive and perceived negative aspects of change. Physicians will remain in the precontemplation and contemplation stages if they perceive more negative than positive aspects of change, and movement to the later stages will occur when they perceive that the positive aspects of change outnumber the negative aspects (Park et al., 2001). This suggests that a critical aspect of motivating physicians to provide smoking cessation counseling is to make these services more rewarding and less difficult for the physician to provide.

3. *Self-Determination Theory* uses physician attitudes and perceptions to explain the adoption and maintenance of behaviors such as smoking cessation counseling. According to this theory, behavior change depends on feelings of autonomy and competence at counseling, rather than on perceived costs and benefits. Physicians who feel that they are able to effectively treat tobacco use will be more likely to do so (Williams et al., 2003).

3. The *Awareness-Agreement-Adoption-Adherence Model* was developed specifically to explain physician behavior related to the adoption of clinical guidelines. According to this model, physicians move from an awareness of clinical guidelines to agreement with clinical guidelines before they will adopt them or adhere to them. This highlights the importance of publicizing both the existence of guidelines and their value to physicians. Movement through the four sequential stages in the model can be either encouraged or retarded by characteristics of the guideline itself (e.g., complexity, accessibility) and environmental characteristics (e.g., physician or organizational factors) (Freed et al., 1998).

4. *The Model for Improving Integration of Evidence-Based Guidelines into Routine Medical Care* was developed by the Office of Behavioral and Social Sciences Research in 1999. According to this model, an effective strategy to improve integration of evidence-based interventions must address "push" factors, such as better interventions and the evidence to support them; "pull" factors, such as increased market demand for interventions; and enabling factors, such as increased capacity of the delivery system to provide such interventions (Orleans, Barker, Kaufman, & Marx, 2000). This model integrates many of the factors discussed in Section 6 with the interventions discussed later in this section.

B. Other Social Psychological Models of Change

1. According to the *Theory of Planned Behavior* (Ajzen & Fishbein, 1980), the best predictor of how we will act in a given situation is the strength of our intentions to act. In other words, physicians who have a strong intention to promote smoking cessation among their patients should be more likely than other physicians to actually do so. Influencing physician intentions should therefore be the key to changing physician behavior.

Intentions, in turn, are predicted by a) the person's attitude toward the behavior, b) the person's beliefs about how others will evaluate the behavior, and c) the extent to which a person believes a particular behavior is easy to accomplish. Accordingly, physicians will be more likely to intend to promote smoking cessation (and therefore more likely to actually do so) if they have positive attitudes towards smoking cessation, if they believe that other physicians (and patients) will evaluate them more highly if they promote smoking cessation, and if they believe that it is easy to promote smoking cessation. Previous evidence shows that these three predictors of behavior, particularly the last, are not always in place in regard to physician-initiated smoking cessation.

2. The Attitude-to-Behavior Process Model (Fazio, 1989) is a theory of behavior more applicable to situations where an actor does not have time to engage in careful, reasoned thought. This model may be more apt in explaining how physicians respond to patients who smoke in a busy, hurried practice environment. In this model, an event activates an attitude, and this attitude influences how the attitude object is perceived (e.g. a patient reports that they smoke, activating the physician's attitude about tobacco use and influencing how the physician perceives the patient).

The perceptions of the attitude object together with stored knowledge about what is appropriate or expected both influence the definition of the event, and this definition of the event influences the behavior that results. Depending upon his or her attitudes, the physician either perceives the smoker

as unmotivated and unlikely to change or as someone suffering from an addiction disorder who could potentially benefit from appropriate treatment. These perceptions, together with what the physician has been taught about appropriate or expected responses to patients who smoke, will determine whether or not the physician will define the event as an opportunity to intervene. If the physician defines the event as an opportunity to intervene, he or she is likely to intervene.

Interventions

Useful interventions either motivate physicians to deliver smoking cessation services to their patients or enable them to effectively deliver services by addressing existing barriers. Some interventions supported in the research as influencing physician behavior around smoking cessation are provider education/training, and systemic changes such as health plan policies and provider reminder systems.

A. Provider Education/Training

Training in smoking cessation has been documented to increase physician success in helping patients reduce and quit smoking. A 2004 study indicated that physicians who received training were more likely to intervene with their patients who used tobacco, and that 71% of respondents spent some time in the past year acquiring skills or training in tobacco use treatment. Training showed a strong relationship with practice pattern (An et al., 2004). Another study found that physicians who were taught to use best practices for smoking cessation during their residency were twice as likely to currently use best practices, whether or not they had received formal training in smoking cessation (Hartmann et al., 2004).

Continuing education programs such as "Quit for Life" (which provided Internists with three hours of smoking cessation training, self-help booklets for patients, and encouragement to use chart stickers) substantially increased physician counseling behavior, including discussions about smoking, setting quit dates, making follow-up appointments, and giving out self-help booklets (Cummings et al., 1989).

B. Systemic change

Health Plan Policies. Health plans are uniquely positioned to influence physician involvement in smoking cessation. The USPHS Guideline made two recommendations regarding the role of health plans in smoking cessation treatment: include tobacco dependence treatments identified as effective as paid or covered services, and reimburse clinicians for delivery of effective tobacco dependence treatments and include these among the defined duties of clinicians. Tobacco dependency treatments include pharmacotherapy and counseling.

Many health plans are active in promoting smoking cessation efforts. Most managed care plans (71%) have written clinical guidelines for smoking cessation, although most plans write their own guidelines rather than using the 2000 USPHS or the 1996 AHCPR guidelines. Most provide full coverage for at least one type of pharmacotherapy and at least one type of behavioral intervention. The most commonly covered pharmacotherapy is bupropion, and the most commonly covered behavioral intervention is telephone counseling. Most plans also have specific strategies to address smoking cessation during pregnancy and treatment for chronic illness (McPhillips-Tangum, 2004).

Many plans (44%) offer both provider education and reminder systems, but few plans offer incentives to providers and their staff. Most plans require that providers ask new patients about smoking and include smoking status as a vital sign in subsequent visits, but fewer have requirements regarding advis-

ing, assisting, and arranging follow-up (McPhillips-Tangum, 2004). The percentage of plans providing full coverage for any type of pharmacotherapy tripled 1997-2002, and the percentage of plans identifying smokers increased also. More plans reported full coverage for telephone and face-to-face counseling than in previous years. Finally, there were large increases in the percentage of plans with strategies to address relapse prevention (McPhillips-Tangum, 2004).

Health plans are confronting obstacles in delivering smoking cessation services. For example, some plans offer incentive payments to clinicians for smoking cessation, but do not see a significant increase in claims for these services. Health plans report they experience disincentives to invest in tobacco-control due to high annual member turnover, which they believe results in other insurers ultimately reaping the benefits of their cessation programs (Manley et al., 2003).

Provider Reminder Systems. Systems that remind providers to identify and address smoking behavior can take several forms, including a chart stamp, chart stickers, medical history forms that ask about smoking, and electronic medical records in which smoking status is a required field. Each of these methods ideally result in the documentation of smoking status in patient charts at every visit in a manner similar to that used for vital signs.

Although the results of individual studies are mixed, the 2000 U.S. PHS clinical practice guideline recommended the use of provider reminder systems. The evidence review included in this document concluded that the strength of the evidence for provider reminder systems was a "B," meaning that "some evidence from randomized clinical trials supported the recommendation, but the scientific support was not optimal." This recommendation was echoed by the *Guide to Community Preventative Services*, which deemed the evidence supporting reminder systems to be "sufficient."

Bibliography

Ahluwalia, J. S., Gibson, C. A., Kenney, R. E., Wallace, D. D., & Resnicow, K. (1999). Smoking Status as a Vital Sign. *Journal of General Internal Medicine, 14*, 402-408.

Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behavior*. Englewood Cliffs, NJ: Prentice-Hall.

An, L. C., Bernhardt, T. S., Bluhm, J., Bland, P., Center, B., Ahluwalia, J. S., Foldes, S. S., Magnan, S., & Manley, M. (2004). Treatment of tobacco use as a chronic medical condition: Primary care physicians' self-reported practice patterns. *Preventive Medicine, 38*, 574-585.

Boyle, R., & Solberg, L. I. (2004). Is making smoking a vital sign sufficient to increase cessation support actions in clinical practice? *Annals of Family Medicine, 2*(1), 22-25.

Braun, B. L., Fowles, J. B., Solberg, L. I., Kind, E. A., Lando, H., & Pine, D. (2004). Smoking-related attitudes and clinical practices of medical personnel in Minnesota. *American Journal of Preventive Medicine, 27*(4), 316-322.

Cummings, S. R., Coates, T. J., Richard, R. J., Hansen, B., Zahnd, E. G., VanderMartin, R., Duncan, C., Gerbert, B., Martin, A., & Stein, M. J. (1989). Training physicians in counseling about smoking cessation. A randomized trial of the "Quit for Life" program. *Annals of Internal Medicine, 110*(8), 640-7.

Ellerbeck, E. F., Ahluwalia, J. S., Jolicoeur, D. G., Gladden, J., & Mosier, M. C. (2001). Direct observation of smoking cessation activities in primary care practice. *Journal of Family Practice, 50*(8), 688-93.

Fazio, R. H. (1989). On the power and functionality of attitudes: The role of attitude accessibility. In A. R. Pratkanis, S. J. Breckler, & A. G. Greenwald (Eds.), *Attitude structure and function* (pp. 153-179). Hillsdale, NJ: Erlbaum.

Freed, G. L., Pathman, D. E., Konrad, T. R., Freeman, V. A., & Clark, S. J. (1998). Adopting immunization recommendations: a new dissemination model. *Maternal and Child Health Journal, 2*(4), 231-239.

Hartman, K. E., Espy, A., McPheeters, M., & Kinsinger, L. S. Physicians taught as residents to conduct smoking cessation intervention: A follow-up study. *Preventative Medicine, 30*(2), 344-50.

Hughes, J. R. (1999). Four beliefs that may impede progress in the treatment of smoking. *Tobacco Control, 8*, 323-326.

Lindsay, E. A. & Wilson, D. M. (1994). Effects of training family physicians in a comprehensive smoking cessation intervention. In: U.S. Department of Health and Human Services, Public Health Service, National Institutes of Health, *Smoking and Tobacco Control, Monograph 5: Tobacco and the Clinician*, pp. 48-68. Bethesda, MD: U.S. Dept. of Health and Human Services.

Marcy, T. W., Thabault, P., Olson, J., Tooze, J. A., Liberty, B. & Nolan, S. (2003). Smoking status identification: Two managed care organizations' experiences with a pilot project to implement identification systems in independent practice associations. *American Journal of Managed Care, 9*(10), 672-6

McIlvain, H. E., Backer, E. L., Crabtree, B. F., & Lacy, N. (2002). Physician attitudes and the use of office-based activities for tobacco control. *Family Medicine, 34*(2), 114-9.

Ockene, J. K. (1999). Primary care-based smoking interventions. *Nicotine and Tobacco Research, 1* (Suppl 2), S189-93, discussion S207-10.

Gruman, J. C. (1998). *Putting evidence into practice: The OBSSR report of the working group on the integration of effective behavioral treatments into clinical care.* Bethesda, MD: National Institutes of Health, Office of Behavioral and Social Sciences Research.

Orleans, C. T, Barker, D. C., Kaufman, N. J., & Marx, J. F. (2000). Helping pregnant smokers quit: Meeting the challenge in the next decade. *Tobacco Control, 9*, 6-11.

Park, E., Eaton, C. A., Goldstein, M. G., DePue, J., Niaura, R., Guadagnoli, E., Gross, N. M., & Dube, C. (2001). The development of a decision balance measure of physician smoking cessation intervention. *Preventive Medicine, 33*, 261-267.

Piper, M. E., Fiore, M. C., Smith, S. S., Jorenby, D. E., Wilson, J. R., Zehner, M. E., & Baker, T. B. (2003). Use of the vital sign stamp as a system to promote smoking cessation. *Mayo Clinic Proc., 78*, 716-722.

Robinson, M. D., Laurent, S. L., & Little, J. M., Jr. (1995). Including smoking status as a new vital sign: It works! *Journal of Family Practice, 40*(6), 556-61.

Spencer, E., Swanson, T., Hueston, W. J., & Edberg, D. L. (1999). Tools to improve documentation of smoking status: Continuous quality improvement and electronic medical records. *Archives of Family Medicine, 8*(1), 18-22.

Taylor, C. B. & Curry, S. J. (2004). Implementation of evidence-based tobacco use cessation guidelines in managed care organizations. *Annals of Behavioral Medicine, 27*(1), 13-21.

Ward, M. M., Vaughn, T. E., Uden-Holman, T., Doebbeling, B. N., Clarke, W. R., & Woolson, R. F. (2002). Physician knowledge, attitudes and practices regarding a widely implemented guideline. *Journal of Evaluation in Clinical Practice, 8*(2), 155-162.

Williams, G. C., Levesque, C., Zeldman, A., Wright, S., & Deci, E. L. (2003). Health care practitioners' motivation for tobacco-dependence counseling. *Health Education Research, 18*, 538-553.

7. Measures of State Smoking Cessation Activity

Investment in broad tobacco cessation control programs has been demonstrated to significantly reduce smoking rates. In the Association of American Medical College's study, the impact of current levels of investment in tobacco control programs on physician practice will be examined. The following include indices of smoking prevalence and state smoking control measures that will be references in this analysis.

Indices of Prevalence. The major index of smoking prevalence is published annually by the Centers for Disease Control in the Morbidity Mortality Weekly Report (MMWR). The data are from the Behavioral Risk Factor Surveillance System, and includes the 50 states, District of Columbia, Guam, Puerto Rico, and U.S. Virgin Islands. Other sources of prevalence data include the WWAMI Rural Health Research Center report on rural/urban trends in smoking, and the National Women's Law Center report card on women and smoking. The latter includes data on current smoking among adults, high school students, and pregnant women; as well as the percent of smokers trying to quit, and the percent receiving smoking cessation advice from their physician.

Indices of State Smoking Control Measures. The most comprehensive measures of state smoking control measures are evaluation measures developed for the American Stop Smoking Intervention Study (ASSIST), established by the National Cancer Institute in partnership with the American Cancer Society. Two indices developed are the Initial Outcomes Index (IOI) and the Strength of Tobacco Control (SOTC) index. The IOI measures the intensity of states' tobacco control policies, while the SOTC assesses the effects of tobacco control resources (e.g., funding), capacity and infrastructure, and program efforts focused on policy and environmental change.

Other measures of state smoking control include the American Lung Association State of Tobacco Control report, the Center for Tobacco Control state snapshots, the CDC State Medicaid coverage data, best practices recommendations from CDC about state tobacco control budgets, and rankings of state funding for tobacco prevention by the Campaign for Tobacco-Free Kids. Information available through these indices includes ratings of state tobacco control laws and information about state tobacco costs, tobacco control investment, and Medicaid coverage for tobacco dependence treatment.

Bibliography

American Lung Association, 2004. *The American Lung Association State of Tobacco Control 2004.* New York: American Lung Association.

Campaign for Tobacco-Free Kids. *FY2005 Rankings of State Funding for Tobacco Prevention.*

Centers for Disease Control and Prevention, 1999. *Best practices for comprehensive tobacco control programs.* U.S. Department of Health and Human Services.

Centers for Disease Control and Prevention, 2001. "State Medicaid Coverage for Tobacco-Dependence Treatments—United States, 1998 and 2000." *Morbidity and Mortality Weekly Report, 50*(44): 979-982.

Centers for Disease Control. 2003. "Cigarette Smoking Among Adults—United States, 2001." *Morbidity and Mortality Weekly Report, 52*(40): 953-956.

Center for Tobacco Cessation, 2003. *State snapshots: Tobacco Cessation Status and Activity.*

National Women's Law Center. 2003. *Making the grade on women's health. Women and smoking: A national and state-by-state report card.* Washington, DC: National Women's Law Center.

Stillman, FA, Hartman, AM, Graubard, BI, Gilpin, EA, Murray, DM, & Gibson, JT. 2003. "Evaluation of the American Stop Smoking Intervention Study (ASSIST): A Report of Outcomes." *Journal of the National Cancer Institute 95* (22): 1681-1691.

WWAMI Rural Health Research Center, 2003. *Prevalence and Trends in Smoking: A National Rural Study.* Working Paper #85. Seattle, WA: University of Washington.

8. Additional References

Flocke & Stange, 2004. Direct observation and patient recall of health behavior advice. *Preventative Medicine*, 2004 Mar; 38(3):343-9.

Jaen et al., 1997. Missed opportunities for prevention: smoking cessation counseling and the competing demands of practice. *Journal of Family Practice*, 1997 Oct; 45(4):348-54.

Landlow, Szetala and Know, 1995. Reducing smoking among psychiatric inpatients: a survey of psychiatrists. *American Journal of Public Health*, 1995 Aug; 85(8 Pt 1): 1169.

Ritvo et al., 1997. A critical review of research related to family physician-assisted smoking cessation interventions. *Cancer Prevention and Control.* 1997 Oct; 1(4):289-303.

Rustin, 2001. Techniques for smoking cessation: what really works? *Texas Medicine* 2001 Feb 97(2):63-7.

Sims, T.H., J.R. Meurer, M. Sims and P.M. Layde. 2004. "Factors associated with physician interventions to address adolescent smoking." Health Services Research, 39(3): 571-585.

Stamp & David, 2003. Are family physicians willing to use pharmacogenetics for smoking cessation? *Family Medicine* 2003 Feb; 35(2):83.

Zapka et al., 1997. Physicians and smoking cessation. Development of survey measures. *Evaluation of Health Professions.* 1997 Dec; 20(4):407-27.

Appendix E: Survey Methods

Legacy Survey Methods Appendix

I. Introduction

In this technical appendix, the details of the survey methodologies employed over the course of the project are presented. The appendix begins with the initial survey of physicians related to their smoking cessation-related activities and perceptions, providing detail on the construction of the survey instrument, the sampling strategy and method, the distribution of the survey, the challenge of the poor response to the survey, and the steps taken to adjust for known sources of bias. It then moves on to the validation survey and strategy employed to assess the representativeness of the responses to the initial survey. Finally, a brief presentation of the independent evaluation of the validation strategy and conduct is provided.

II. Initial Questionnaire: Physician Perspectives on Smoking Interventions

A. Questionnaire Construction

A structured, self-administrated questionnaire was developed by CHWS and AAMC staff. The comprehensive instrument was developed in the autumn and winter of 2004/2005. Previous surveys of physicians related to smoking were consulted (e.g., North Carolina Collaborative Survey on Smoking Cessation During Pregnancy; American College of Obstetricians and Gynecologists' National Survey on Smoking Cessation During Pregnancy; and the American Academy of Pediatrics' Periodic Survey of Fellows on Tobacco Cessation Counseling among Patients and Parents), during the development period. Also, the instrument was reviewed by both the Smoking Cessation Advisory Committee and the Medical Specialties Advisory Committee. Both advisory committees provided insightful feedback and suggestions that were incorporated into the final instrument. During the spring of 2005, the final instrument was field-tested by 20 physicians representing the specialties to be surveyed. Telephone and face-to-face focus groups were conducted with the pilot physicians to discuss the questionnaire's contents and its distribution.

The comprehensive instrument was four pages in length, consisting of 28 questions. The instrument consisted of a number of substantive sections, including Resources and Barriers, Physician Perspectives, Physician Practices, Training and Education, and Medical Practice. The typical field-test respondent spent approximately 15 minutes completing the questionnaire.

The final instrument was printed by Pearson Assessments in a format conducive to automated data entry using an optical mark recognition scanner. Each survey included a unique serial number in order to facilitate follow-up with non-respondents. A copy of the final instrument has been included in Appendix B.

B. IRB Compliance

Both CHWS and AAMC sought and obtained protocol review exemptions from their respective Institutional Review Boards. Exemptions were sought and granted as participation in the research posed no bodily, psychological, professional, or financial risk to potential participants. No reports of harm due to participation in the project have been received to date.

C. Target Population

The target population included four medical specialties: Family Medicine, General Internal Medicine, Obstetrics/Gynecology, and Psychiatry. The specialties selected have extensive and ongoing contact with patients and are likely to treat patients who are smokers. The primary care specialties and Obstetrics/Gynecology were selected because physicians in these specialties are likely to be the first point of contact for patients experiencing medical problems, and typically have long-term relationships with the patients and their families. Psychiatrists were selected because individuals with mental health diagnoses are more likely to be smokers than other patients, and these physicians are also likely to have regular and long-term relationships with patients.

D. Sampling Strategy

In 2005, 110,951 physicians[2] practiced in one of the four targeted specialties. Thirty-five percent of these physicians were General Internists (39,075). Thirty-four percent were Family Medicine physicians (18,546). Seventeen percent were Obstetrician/Gynecologists; and 14% were Psychiatrists (15,750). Together they represented approximately 19% of all physicians practicing in the United States in 2005.

Extant data and physician contact information[3] for the project were obtained by AAMC from the American Medical Association's (AMA) Masterfile of Physicians. Strata were created using specialty, organizational setting[4], and race/ethnicity data. Three-level cross-classification tables were constructed using the stratification variables to determine the population sizes of each of the 36 strata groups (Figure A-1). Due to differences in population group size and the highly skewed race/ethnicity distribution of the physician workforce, the samples drawn from each strata group were not selected proportionally to population size. Instead, in order to ensure an adequate sub-sample size of relevant subgroups (e.g., underrepresented minority physicians—defined as non-Hispanic Black/African-American, Hispanic/Latino, and American Indian physicians), a number of the strata groups were disproportionately sampled. Moreover, an attempt was made to equalize the size of the sample groups across organizational settings and the race/ethnicity distribution across organizational settings as well. Further, heeding the warnings of the Medical Specialty Advisory Committee regarding the lower probability of response from physicians in certain specialties, physicians specializing in General Internal Medicine and Psychiatry were disproportionately sampled as well (Figure A-2).

[2] In 2005, 110,951 non-federal, post-residency, office- or hospital-based, active, direct patient care physicians were self-reported as primarily practicing in one of the four targeted specialties.

[3] Upon sample selection, the American College of Physicians generously provided updated contact information for the physicians practicing general Internal Medicine in the sample.

[4] Three organizational setting categories were created based on the AMA Masterfile's Present Employment field: Solo Practice, Group Practice/HMO, Hospital-based. Solo practice consisted of the following AMA categories: Self-employed solo practice. Group Practice/HMO consisted of the following AMA categories: Two Physician Practice – Full or Part Owner, Group Practice, HMO, and Other Patient Care. Hospital-based / Medical School consisted of the following AMA categories: Non-Government Hospital, City/County/State Government – Hospital; and Medical School.

Figure A-1: Population Cross-Classification of Target Physician Population.

Family Medicine				
	OrganizationalSetting			
Race/Ethnicity	Solo Practice	Group Practice/ HMO	Hospital-Based/ Medical School	Total
White, Non-Hispanic	7,400	21,183	2,098	30,681
Asian	1,093	1,789	286	3,168
Underrepresented Minority	1,129	2,264	338	3,731
	9,622	25,236	2,722	37,580
General Internal Medicine				
	Solo Practice	Group Practice/ HMO	Hospital-Based/ Medical School	Total
White, Non-Hispanic	7,007	17,129	2,354	26,490
Asian	2,691	3,913	829	7,433
Underrepresented Minority	1,701	2,819	632	5,152
	11,399	23,861	3,815	39,075
Obstetrics & Gynecology				
	Solo Practice	Group Practice/ HMO	Hospital-Based/ Medical School	Total
White, Non-Hispanic	3,427	9,805	868	14,100
Asian	921	925	193	2,039
Underrepresented Minority	882	1,290	235	2,407
	5,230	12,020	1,296	18,546
Psychiatry				
	Solo Practice	Group Practice/ HMO	Hospital-Based/ Medical School	Total
White, Non-Hispanic	6,704	3,028	2,406	12,138
Asian	643	502	943	2,088
Underrepresented Minority	625	444	455	1,524
	7,972	3,974	3,804	15,750
Totals				
	Solo Practice	Group Practice/ HMO	Hospital-Based/ Medical School	Total
White, Non-Hispanic	24,538	51,145	7,726	83,409
Asian	5,348	7,129	2,251	14,728
Underrepresented Minority	4,337	6,817	1,660	12,814
	34,223	65,091	11,637	110,951

Source: American Medical Association, Masterfile of Physicians, April 2005.

Figure A-2: Sampling Fractions by Strata Group.

Family Medicine				
	Organizational Setting			
Race/Ethnicity	Solo Practice	Group Practice/ HMO	Hospital-Based/ Medical School	Total
White, Non-Hispanic	10.4%	3.6%	36.6%	7.5%
Asian	27.9%	17.1%	100.0%	28.3%
Underrepresented Minority	26.6%	13.3%	89.6%	24.2%
	14.3%	5.4%	49.8%	10.9%
General Internal Medicine				
	Solo Practice	Group Practice/ HMO	Hospital-Based/ Medical School	Total
White, Non-Hispanic	11.7%	4.8%	35.0%	9.3%
Asian	14.9%	10.2%	48.3%	16.1%
Underrepresented Minority	23.5%	14.2%	63.3%	23.3%
	14.2%	6.8%	42.5%	12.5%
Obstetrics & Gynecology				
	Solo Practice	Group Practice/ HMO	Hospital-Based/ Medical School	Total
White, Non-Hispanic	22.4%	7.8%	88.4%	16.3%
Asian	38.3%	38.3%	100.0%	44.1%
Underrepresented Minority	37.8%	25.8%	100.0%	37.4%
	27.8%	12.1%	92.2%	22.1%
Psychiatry				
	Solo Practice	Group Practice/ HMO	Hospital-Based/ Medical School	Total
White, Non-Hispanic	12.3%	27.2%	34.2%	20.3%
Asian	62.2%	79.7%	42.4%	57.5%
Underrepresented Minority	64.0%	90.1%	87.9%	78.7%
	20.4%	40.8%	42.7%	30.9%
Totals				
	Solo Practice	Group Practice/ HMO	Hospital-Based/ Medical School	Total
White, Non-Hispanic	13.0%	6.2%	41.2%	11.4%
Asian	27.3%	20.5%	56.8%	28.5%
Underrepresented Minority	33.0%	21.0%	80.6%	32.8%
	17.7%	9.3%	49.8%	16.2%

Within strata, elements were selected randomly. The final sample is detailed in Figure A-3. As is evident, the drawn sample was very large, totaling nearly 18,000 elements, or 16%, of the population. The large size of the sample was intended to generate a rich database, allowing for detailed subgroup analysis and inference. In several strata groups, the sample included all of the population elements (e.g., Asian physicians working in hospital-based / medical school organizations in Family Medicine).

Figure A-3: Final Sample for Initial Physician Survey.

Family Medicine				
	Organizational Setting			
Race/Ethnicity	Solo Practice	Group Practice/ HMO	Hospital-Based/ Medical School	Total
White, Non-Hispanic	767	767	767	2,301
Asian	305	306	286	897
Underrepresented Minority	300	300	303	903
	1,372	1,373	1,356	4,101
General Internal Medicine				
	Solo Practice	Group Practice/ HMO	Hospital-Based/ Medical School	Total
White, Non-Hispanic	823	823	823	2,469
Asian	400	400	400	1,200
Underrepresented Minority	400	400	400	1,200
	1,623	1,623	1,623	4,869
Obstetrics & Gynecology				
	Solo Practice	Group Practice/ HMO	Hospital-Based/ Medical School	Total
White, Non-Hispanic	767	767	767	2,301
Asian	353	354	193	900
Underrepresented Minority	333	333	235	901
	1,453	1,454	1,195	4,102
Psychiatry				
	Solo Practice	Group Practice/ HMO	Hospital-Based/ Medical School	Total
White, Non-Hispanic	823	823	823	2,469
Asian	400	400	400	1,200
Underrepresented Minority	400	400	400	1,200
	1,623	1,623	1,623	4,869
Totals				
	Solo Practice	Group Practice/ HMO	Hospital-Based/ Medical School	Total
White, Non-Hispanic	3,180	3,180	3,180	9,540
Asian	1,458	1,460	1,279	4,197
Underrepresented Minority	1,433	1,433	1,338	4,204
	6,071	6,073	5,797	17,941

E. Survey Administration

Beginning on June 10, 2005, survey instruments were distributed to the 17,941 physicians in the sample. Each physician was sent a packet with the following contents: the four-page survey booklet; a cover letter on AAMC stationary under President Jordan Cohen's signature; a letter of support from the corresponding specialty society on the specialty society's stationary; a business reply envelope; and a postcard that could be returned indicating interest in receiving samples of patient education materials related to smoking cessation.[5] Completed surveys were returned to CHWS in business reply envelopes provided in each survey package.

A follow-up mailing to non-respondents began on July 22, 2005. The follow-up mailing consisted of the distribution of 15,945 survey packages identical to the first, save for a slightly altered cover letter (printed on AAMC stationary under Jordan Cohen's signature). Data collection remained open through September 2005.

F. Data Processing, Entry, and Editing

Completed surveys returned to CHWS were processed by CHWS staff. The processing included removing the completed surveys and incentive postcards from the return envelopes and preparing the surveys for data entry. The surveys were entered into an SPSS database using a Pearson Assessments OpScan 8 Optical Mark Read scanner. Standard data editing procedures were performed to compensate for incorrectly completed, mutilated, and incompletely scanned survey forms. When data collection procedures were concluded in September, links between the data collected on the survey and the mailing list (i.e., the serial numbers) were stripped from the data. Contact information from the incentive postcards was manually entered into a separate database by CHWS staff.

G. Response Rate Analysis

After the initial distribution of surveys, it was evident that the expectations for response rates to the survey were not being met.[6] In total, 3,012 completed surveys were returned to CHWS. In addition, CHWS also received notice of incorrect addresses with no forwarding alternatives for 325 physicians. Moreover, 37 physicians were reported as retired, 14 refused to participate, 8 reported no longer practicing medicine, five were deceased, and two had left the country. Excluding these groups of physicians who had not had the opportunity to respond to the survey or were otherwise ineligible to participate from the sample left a total of 17,611 physicians in the sample. Thus, the effective response rate to the survey was 17.1% (3,012/17,611).

Having the extant AMA Masterfile data allowed for an analysis of how response to the survey varied by a number of demographic and practice characteristics. The characteristics across which response rates varied were: 1) gender, with females more likely to respond than males (Figure A-4); 2) location

[5] The patient education materials were included as an incentive to complete the survey. The postcard asked for contact information for distribution of the patient education materials.

[6] Historically, CHWS-conducted primary data collection through the use of surveys similar to the current survey would achieve response rates of approximately 60%, with 35% to 40% achieved on the first mailing of the survey instrument.

of medical school,[7] with graduates of U.S. or Canadian medical schools (USMGs) more likely to respond than graduates of medical schools in other countries (IMGs) (Figure A-7); and 3) geographic location, with physicians in the Northeast and Midwest regions of the country responding at greater rates than physicians in other parts of the country and territories (Figure A-8). There was no significant variation in response rates by age (Figure A-5) or medical degree type (Figure A-6). In addition, response rates also varied across the strata variables. Response rate variation was significant across organizational setting (Figure A-10) and race/ethnicity (Figure A-11). The variation across specialties was nearly significant (Figure A-9).

Figure A-4: Response Rate by Gender.

	Sample Size	Responses	Response Rate	F	p
Female	5,108	1,031	20.2%	48.27	< 0.001
Male	12,502	1,981	15.8%		

Figure A-5: Response Rate by Age.

	Sample Size	Responses	Response Rate	F	p
Younger than age 50	6,873	1,167	17.0%	0.13	< 0.724
50 years of age and older	10,736	1,845	17.2%		

Figure A-6: Response Rate by Degree Type.

	Sample Size	Responses	Response Rate	F	p
Osteopathic medical degree	591	89	15.1%	1.80	< 0.180
Allopathic medical degree	17,020	2,923	17.2%		

Figure A-7: Response Rate by Location of Medical School.

	Sample Size	Responses	Response Rate	F	p
USMG	11,404	2,207	19.4%	116.15	< 0.001
IMG	6,199	804	13.0%		

Figure A-8: Response Rate by Geographic Location.[8]

	Sample Size	Responses	Response Rate	F	p
Northeast	4,343	790	18.2%	3.60	< 0.006
Midwest	3,735	685	18.3%		
South	5,661	904	16.0%		
West	3,627	594	16.4%		
US Territories	245	39	15.9%		

[7] Although technically extant data, location of medical school of the sample/population was not available until well after the survey database had been analyzed.

[8] Geographic location was assigned based on mailing address.

Figure A-9: Response Rate by Specialty.

	Sample Size	Responses	Response Rate	F	p
Family Medicine	4,040	736	18.2%	2.56	< 0.053
General Internal Medicine	4,809	773	16.1%		
Obstetrics and Gynecology	4,017	702	17.5%		
Psychiatry	4,745	801	16.9%		

Figure A-10: Response Rate by Organizational Setting.

	Sample Size	Responses	Response Rate	F	p
Solo Practice	5,972	955	16.0%	9.02	< 0.001
Group Practice / HMO	5,979	992	16.6%		
Hospital-based / Medical School	5,660	1,065	18.8%		

Figure A-11: Response Rate by Race/Ethnicity.

	Sample Size	Responses	Response Rate	F	p
White, Non-Hispanic	9,385	1,860	19.8%	52.61	< 0.001
Asian	4,122	582	14.1%		
Underrepresented Minority	4,104	570	13.9%		

H. Adjustment for Sample Design

In order to create estimates of the entire population of physicians under study, adjustments to the survey responses were required to correct for the biases caused by the sample design described above. Through the use of inverse sampling fractions, a sample design weight was created for each group defined by the strata variables: specialty, organizational setting, and race/ethnicity (Figure A-12). The inverse sampling fraction appropriately adjusted the distribution of strata characteristics in the sample to match those same characteristics in the population.

Figure A-12: Sampling Fraction and Sample Design Weight.

Family Medicine

Race/Ethnicity	*Organizational Setting*					
	Solo Practice		Group Practice/ HMO		Hospital-Based/ Medical School	
	Fraction	Weight	Fraction	Weight	Fraction	Weight
White, Non-Hispanic	0.1036	9.6480	0.0362	27.6180	0.3656	2.7353
Asian	0.2790	3.5836	0.1710	5.8464	1.0000	1.0000
Underrepresented Minority	0.2657	3.7633	0.1325	7.5467	0.8964	1.1155

General Internal Medicine

	Solo Practice		Group Practice/ HMO		Hospital-Based/ Medical School	
	Fraction	Weight	Fraction	Weight	Fraction	Weight
White, Non-Hispanic	0.1175	8.5140	0.0480	20.8129	0.3496	2.8603
Asian	0.1486	6.7275	0.1022	9.7825	0.4825	2.0725
Underrepresented Minority	0.2352	4.2525	0.1419	7.0475	0.6329	1.5800

Obstetrics & Gynecology

	Solo Practice		Group Practice/ HMO		Hospital-Based/ Medical School	
	Fraction	Weight	Fraction	Weight	Fraction	Weight
White, Non-Hispanic	0.2238	4.4681	0.0782	12.7836	0.8836	1.1317
Asian	0.3833	2.6091	0.3827	2.6130	1.0000	1.0000
Underrepresented Minority	0.3776	2.6486	0.2581	3.8739	1.0000	1.0000

Psychiatry

	Solo Practice		Group Practice/ HMO		Hospital-Based/ Medical School	
	Fraction	Weight	Fraction	Weight	Fraction	Weight
White, Non-Hispanic	0.1228	8.1458	0.2718	3.6792	0.3421	2.9235
Asian	0.6221	1.6075	0.7968	1.2550	0.4242	2.3575
Underrepresented Minority	0.6400	1.5625	0.9009	1.1100	0.8791	1.1375

I. Adjustment for Observed Response Biases

As detailed in the previous sections, there were a number of response biases that required action in order to produce unbiased population estimates. The goal of the actions was to produce a dataset with characteristics that matched as closely as possible the characteristics of the original target population. In order to do so several sets of weights were created. The sample design weights were detailed in the previous section. In this section, the response bias weights will be described.

J. Strata Level Weighting

The first step in the process was to generate the weights to adjust for response bias across the strata variables. These weights (Figure A-13) were generated using the inverse of the response rate for each of the subgroups defined by a simultaneous three-way cross-classification of the strata variables.

Figure A-13: Strata Level Weighting Scheme to Adjust for Response Bias.

Family Medicine

	Organizational Setting					
Race/Ethnicity	Solo Practice		Group Practice/ HMO		Hospital-Based/ Medical School	
White, Non-Hispanic	0.1760	5.6815	0.2060	4.8544	0.2256	4.4335
Asian	0.1541	6.4894	0.1373	7.2857	0.1748	5.7200
Underrepresented Minority	0.1567	6.3830	0.1333	7.5000	0.1452	6.8864

General Internal Medicine

	Solo Practice		Group Practice/ HMO		Hospital-Based/ Medical School	
	Response Rate	Weight	Response Rate	Weight	Response Rate	Weight
White, Non-Hispanic	0.1738	5.7552	0.1859	5.3791	0.2114	4.7299
Asian	0.0975	10.2564	0.1475	6.7797	0.1250	8.0000
Underrepresented Minority	0.1525	6.5574	0.1000	10.0000	0.1350	7.4074

Obstetrics & Gynecology

	Solo Practice		Group Practice/ HMO		Hospital-Based/ Medical School	
	Response Rate	Weight	Response Rate	Weight	Response Rate	Weight
White, Non-Hispanic	0.1838	5.4397	0.1825	5.4786	0.2490	4.0157
Asian	0.1105	9.0513	0.1328	7.5319	0.1347	7.4231
Underrepresented Minority	0.1261	7.9286	0.1201	8.3250	0.1538	6.5000

Psychiatry

	Solo Practice		Group Practice/ HMO		Hospital-Based/ Medical School	
	Response Rate	Weight	Response Rate	Weight	Response Rate	Weight
White, Non-Hispanic	0.1810	5.5235	0.1762	5.6759	0.1920	5.2089
Asian	0.1325	7.5472	5.4795	1.2550	0.1425	7.0175
Underrepresented Minority	0.1475	6.7797	0.1375	7.2727	0.1300	7.6923

K. Post–Stratification Weighting

Having adjusted the survey responses for biases across the strata variables, the next step was to adjust for response bias across several other extant variables. This process, also called post-stratification weighting, was accomplished in a slightly different fashion than the previous weighting schemas. The challenge was to adjust for the response bias without upsetting the results of the previous weighting efforts. Instead of using the inverse of the response rates or the inverse of the sampling fraction, for this set of weights, the distribution of responses over the two post-stratification variables (gender and age[9]) in the sample was used to adjust the same distribution in the responses to the survey. This procedure was done separately within each subgroup defined by the simultaneous cross-classification of the stratification variables so that the results of the previous weighting schemes were not tainted. The post-stratification weights generated are presented in Figure A-14.

[9] As noted above, location of medical school was not available during the pre-analysis phase of the project. Mailing address was removed from consideration during the post-stratification process as of lesser relevance than the chosen variables. Gender and age were selected as demographically relevant, even though a statistically significant association between the probability of responding to the survey and age had not been found in the bivariate response rate analysis presented above.

Figure A-14: Post-Stratification Weighting Scheme to Adjust for Response Bias.

Family Medicine

Race/Ethnicity		*Organizational Setting*					
		Solo Practice		Group Practice/ HMO		Hospital-Based/ Medical School	
	Age	Female	Male	Female	Male	Female	Male
White, Non-Hispanic	50+	0.6600	1.0321	0.6638	1.0334	0.7598	1.1096
	Under 50	0.9974	1.1201	0.9676	1.1089	0.7816	1.1462
Asian	50+	0.9466	1.0041	0.8693	0.8039	2.4038	1.5062
	Under 50	1.2842	0.8989	1.1118	1.2010	0.4983	0.8338
Underrepresented Minority	50+	1.1750	0.9792	0.7048	2.4333	0.8713	1.3674
	Under 50	1.1280	0.9243	0.9667	0.8078	0.6262	1.3251

General Internal Medicine

		Solo Practice		Group Practice/ HMO		Hospital-Based/ Medical School	
		Female	Male	Female	Male	Female	Male
White, Non-Hispanic	50+	0.7626	0.9506	0.9162	1.0182	0.6919	1.0181
	Under 50	0.8514	1.9903	0.7285	1.2712	0.9347	1.3019
Asian	50+	1.0335	1.0636	1.8192	0.8503	0.9444	1.7778
	Under 50	0.5850	1.1538	0.6945	1.4947	0.8125	0.7875
Underrepresented Minority	50+	0.8061	1.1096	0.5800	0.9667	0.9788	0.8229
	Under 50	0.5210	1.3021	0.9600	1.1750	1.1536	1.1175

Obstetrics & Gynecology

		Solo Practice		Group Practice/ HMO		Hospital-Based/ Medical School	
		Female	Male	Female	Male	Female	Male
White, Non-Hispanic	50+	0.9069	1.0859	0.7863	1.0056	0.7720	1.0084
	Under 50	0.7251	0.9526	0.9285	1.2060	0.8792	1.3897
Asian	50+	0.8839	1.2042	1.3719	0.8298	0.7746	1.0912
	Under 50	0.4419	0.6997	0.7756	1.7924	0.7121	3.9067
Underrepresented Minority	50+	0.7988	1.0478	0.9309	0.8778	0.3590	1.7231
	Under 50	0.9586	1.0342	0.8472	2.1922	0.7033	1.8974

Psychiatry

		Solo Practice		Group Practice/ HMO		Hospital-Based/ Medical School	
		Female	Male	Female	Male	Female	Male
White, Non-Hispanic	50+	0.7544	1.1040	0.9229	0.8829	1.0149	0.9942
	Under 50	0.8147	1.1027	0.9103	1.7062	0.8942	1.1115
Asian	50+	1.4741	0.9587	0.9018	0.9125	0.8400	1.1451
	Under 50	0.5742	1.0335	1.3818	1.1178	0.9500	0.8754
Underrepresented Minority	50+	1.0141	0.9626	0.6417	1.1434	1.4820	1.3390
	Under 50	0.7586	1.4996	0.7721	1.2473	0.5200	0.8100

III. Validation Strategy

Because the response rate to the first survey was very low, it became evident that regardless of how much effort was expended to ensure that response bias was removed from the survey data, the largest potential source of bias could not be addressed through weighting alone. While it was clear from the results where the response rates varied across known physician characteristics, it was the unknown characteristics that held the most potential for biasing the results.

The strategy chosen to attempt to address these unknown characteristics was a follow-up survey to a sample of non-respondents. The goal was to determine how the non-respondents would have answered a selected subset of questions contained in the survey. A comparison of the initial survey results and the follow-up validation survey results would determine whether the initial survey results were biased, and if so, how they were biased. Further, if the comparison led to a conclusion of little or no bias in the initial survey responses, an important piece of evidence supporting investigators' ability to make inferences about the targeted population of physicians based on the initial survey responses would exist.

The other important concern about the validation survey is related to its response rate. In order for the validation survey to accomplish the goal of identifying biases in the initial survey responses, the response rate was required to be very high. Given the poor response to the initial survey, a number of changes were made in the survey process to encourage physicians to respond. These included changes to the instrument, the sampling strategy, the distribution process, and the incentives used to entice physicians to complete the survey.

IV. Validation Questionnaire: Physician Perspectives on Smoking Interventions

A. Validation Questionnaire Construction

In order to develop an appropriate comparison to the initial survey responses for validation, the items on the validation questionnaire had to be as similar as possible to those on the initial survey instrument. It was also important that the items were substantively important as well, so that any biases identified through the validation process could be taken into account in the interpretation of the findings from the initial survey. To achieve these goals, a subset of seven questions was selected from the initial survey to form the validation survey.

The validation instrument was a one-page survey, consisting of seven questions: perceptions about a physician's role in smoking cessation, perceptions of barriers to help patients quit smoking, assessments of confidence in helping patients quit smoking, experience with smoking quitlines, motivators for physicians to help patients quit smoking, knowledge about smoking cessation issues, and perspectives on successful outcomes smoking cessation efforts. The typical respondent spent approximately five minutes completing the validation questionnaire.

The validation instrument was printed by Pearson Assessments in a format similar to the initial survey except that the forms did not have the ability to be automatically entered into a database using an optical mark recognition scanner. Each survey included a unique serial number in order to facilitate follow-up with non-respondents. A copy of the validation instrument has been included in Appendix B.

B. IRB Compliance

A protocol modification was submitted to the Institutional Review Boards overseeing the project. Acknowledgement and approval of the modifications were immediate.

C. Targeted Population

The targeted population for the validation survey was non-respondents to the initial survey.

D. Sampling Strategy

Because of the concern with achieving an adequate response rate for the validation survey, a simpler sampling strategy was undertaken. For the validation sample, a simple random sample of 54 non-respondents from each of the 12 subgroups defined by the same specialty and organizational setting variables used in the initial sampling were selected (Figure A-15).

Figure A-15: Sample for Validation Survey.

	Organizational Setting			
Specialty	Solo Practice	Group Practice/ HMO	Hospital-Based/ Medical School	Total
Family Medicine	54	54	54	162
General Internal Medicine	54	54	54	162
Obstetrics and Gynecology	54	54	54	162
Psychiatry	54	54	54	162
	216	216	216	648

E. Survey Administration

Survey administration for the validation survey was a two stage process. First, an initial randomly selected group of 96 packets was identified. In late September 2005, this group was mailed a postcard informing them that they would be receiving a short survey within the subsequent two weeks. Several days later, the members of this group were sent survey packets consisting of: the one-page survey instrument, a personalized cover letter on AAMC stationary under signature of Edward Salsberg, Director of the AAMC Center for Workforce Studies, Principal Investigator of the project, a business reply envelope, and a check made out to the potential respondent in the amount of $20. The survey packages were distributed via United States Postal Service Priority Mail as well to maximize its visibility among the other pieces of mail and correspondence competing for a physician's attention on a daily basis. This initial distribution of the validation survey occurred on October 10, 2005. Within two weeks, CHWS had received 38 responses from this group which passed an internal threshold for continuing the validation survey using these procedures.

The rest of the validation survey packets were distributed on November 18, 2005. A postcard follow-up reminder was sent to all non-respondents two weeks after the initial mailing. A follow-up survey package mailing was distributed on January 5, 2006 to all remaining non-respondents, followed by a final postcard entreaty to non-respondents to complete the survey. Data collection was closed on February 28, 2006.

F. Data Processing, Entry, and Cleaning

Completed surveys returned to CHWS were processed by CHWS staff. The processing included removing the completed surveys from the return envelopes and preparing the surveys for data entry. Completed surveys were entered into an SPSS database manually. Standard data editing procedures were performed to compensate for incorrectly completed, mutilated, and incorrectly entered survey forms. Links between the survey database and the mailing list were removed upon the completion of data collection in February 2006.

G. Response Rate Analysis: Validation Questionnaire

Unlike the initial survey, the validation questionnaire garnered a response more in line with the historical experiences of CHWS-conducted mail surveys. In total, 355 completed validation surveys were returned to CHWS. In addition, CHWS received notice of incorrect addresses with no forwarding alternative for six physicians. Moreover, two physicians were reported as retired, three refused to participate, one was deceased, and one reported having left the country. Excluding these groups of physicians (who had not had the opportunity to respond to the survey) left a total of 635 physicians in the validation survey sample. Thus, the effective response rate to the validation survey was 55.9% (355/635). This level of response was determined to be great enough to use the survey results to validate those of the initial survey.

An examination of the response rates across a number of demographic and practice characteristics revealed no identifiable source of bias among the responses to the survey. Response rates did not vary significantly by gender, age, degree type, location of medical school, geographic location, specialty, organizational setting, or race/ethnicity (Figures A-16 through A-23).

Figure A-16: Response Rate by Gender

	Sample Size	Responses	Response Rate	F	p
Female	188	100	53.2%	0.80	< 0.372
Male	447	255	57.1%		

Figure A-17: Response Rate by Age

	Sample Size	Responses	Response Rate	F	P
Younger than age 50	248	147	59.3%	1.87	< 0.172
50 years of age and older	387	208	53.8%		

Figure A-18: Response Rate by Degree Type

	Sample Size	Responses	Response Rate	F	p
Osteopathic medical degree	21	14	66.7%	1.02	< 0.313
Allopathic medical degree	614	341	56.0%		

Figure A-19: Response Rate by Location of Medical School

	Sample Size	Responses	Response Rate	F	P
UUSMG	424	241	56.8%	0.45	< 0.502
IMG	211	114	54.0%		

Figure A-20: Response Rate by Geographic Location[10]

	Sample Size	Responses	Response Rate	F	p
Northeast	148	82	55.4%	0.91	< 0.457
Midwest	133	78	58.7%		
South	203	120	59.1%		
West	145	72	49.7%		
US Territories	6	3	50.0%		

Figure A-21: Response Rate by Specialty

	Sample Size	Responses	Response Rate	F	p
Family Medicine	155	94	60.7%	1.67	< 0.173
General Internal Medicine	160	94	58.8%		
Obstetrics and Gynecology	161	89	55.3%		
Psychiatry	159	78	49.1%		

Figure A-22: Response Rate by Organizational Setting

	Sample Size	Responses	Response Rate	F	p
Solo Practice	211	117	55.5%	0.54	< 0.584
Group Practice / HMO	216	116	53.7%		
Hospital-based / Medical School	208	122	58.7%		

Figure A-23: Response Rate by Race/Ethnicity

	Sample Size	Responses	Response Rate	F	p
White, Non-Hispanic	333	197	59.2%	1.97	< 0.141
Asian	145	80	55.2%		
Underrepresented Minority	157	78	49.7%		

H. Validation Comparisons

The ultimate goal of the validation survey was to compare its results to those of the initial survey to determine if the non-respondents from the initial survey were systematically different from the respondents to the initial survey. In general, the responses to the validation survey were consistent with and remarkably close to those of the initial survey. There were, of course, several exceptions to these similarities. First, respondents to the validation survey were systematically less likely to believe that physicians have a role in helping patients to stop smoking (Figure A-24). However, the responses were similar in magnitude. Second, respondents to the second survey were more likely to report that they had high confidence in their ability to refer patients for help, motivate patients, and monitor attempts to stop smoking (Figure A-26). Finally, there was a large difference in perceptions of whether brief treatment is ineffective (Figure A-28). While there were variations in the responses to the shared questions between the initial and validation surveys, other than the three points noted above the responses were quite similar. Below, side-by-side comparisons of each survey are provided (Figures A-24 through A-30).

[10] Geographic location was assigned based on mailing address.

In the final analysis, the validation survey results provided CHWS with evidence to support the claim that the initial survey responses were, indeed, representative of the entire population of physicians of interest in this study.

Figure A-24: Perceptions of Physician's Role in Helping Patients to Stop Smoking.

Help patients who are motivated to stop smoking		Initial Survey	Validation Survey
	Yes	99.6%	99.7%
	No	0.4%	0.3%
Motivate patients to stop smoking			
	Yes	98.0%	96.6%
	No	2.0%	3.4%
Discuss smoking behavior with patients			
	Yes	98.7%	97.7%
	No	1.3%	2.3%
Speak with family about supporting the patient in trying to quit smoking			
	Yes	73.2%	65.6%
	No	26.8%	34.4%
Refer smokers to others for treatment			
	Yes	90.6%	77.9%
	No	9.4%	22.1%
Monitor patient progress in attempting to quit			
	Yes	91.3%	88.1%
	No	8.7%	11.9%
Discuss relapse with patients			
	Yes	97.8%	95.2%
	No	2.2%	4.8%
Establish smoking cessation practices for staff			
	Yes	73.9%	64.4%
	No	26.1%	35.6%

Figure A-25: Physicians' Perceptions of Barriers to Helping Patients to Stop Smoking.

		Initial Survey	Validation Survey
Time with patients is limited.			
	(1) Not a barrier	24.9%	21.2%
	(2)	33.7%	28.9%
	(3) A significant barrier	41.4%	49.9%
Coverage for cessation interventions is limited.			
	(1) Not a barrier	18.9%	17.8%
	(2)	29.2%	25.5%
	(3) A significant barrier	51.9%	56.7%
Too few cessation programs are available.			
	(1) Not a barrier	21.2%	20.7%
	(2)	36.7%	34.4%
	(3) A significant barrier	42.1%	44.9%
Patients have more immediate problems to address.			
	(1) Not a barrier	21.0%	23.8%
	(2)	39.8%	41.1%
	(3) A significant barrier	39.2%	35.1%
Staff are unfamiliar with interventions to help smokers quit.			
	(1) Not a barrier	36.0%	29.8%
	(2)	39.3%	44.1%
	(3) A significant barrier	24.7%	26.1%
Reimbursement for physician time is limited.			
	(1) Not a barrier	19.5%	19.7%
	(2)	28.9%	30.0%
	(3) A significant barrier	51.6%	50.3%
Patients are not motivated to quit.			
	(1) Not a barrier	7.2%	11.4%
	(2)	30.8%	32.7%
	(3) A significant barrier	62.0%	56.0%
My experience in intervening with smokers is limited.			
	(1) Not a barrier	58.6%	54.3%
	(2)	31.1%	34.1%
	(3) A significant barrier	10.3%	11.6%
Cessation heightens patients' other symptoms.			
	(1) Not a barrier	56.9%	46.0%
	(2)	31.0%	41.8%
	(3) A significant barrier	12.2%	12.1%

Figure A-26: Physicians' Confidence in Helping Patients to Stop Smoking.

		Initial Survey	Validation Survey
Confidence in assessing patient willingness to quit			
	Low confidence	4.1%	2.0%
	Some confidence	35.7%	31.6%
	High confidence	60.3%	66.4%
Confidence in discussing treatment options with patients			
	Low confidence	4.8%	3.4%
	Some confidence	35.8%	38.1%
	High confidence	59.4%	58.5%
Confidence in selecting appropriate prescription medications			
	Low confidence	8.7%	9.6%
	Some confidence	37.0%	33.4%
	High confidence	54.3%	56.9%
Confidence in referring to others for appropriate treatment			
	Low confidence	21.7%	20.9%
	Some confidence	41.8%	38.0%
	High confidence	36.5%	41.1%
Confidence in motivating patients to consider quitting			
	Low confidence	8.4%	5.9%
	Some confidence	48.4%	36.2%
	High confidence	43.2%	57.9%
Confidence in monitoring patient progress in attempting to quit			
	Low confidence	18.2%	16.1%
	Some confidence	48.1%	39.3%
	High confidence	33.7%	44.6%

Figure A-27: Physicians' Experiences with Quitlines.

	Initial Survey	Validation Survey
I usually refer patients to a quitline.	6.0%	5.4%
I have referred to a quitline.	14.1%	10.3%
I am aware of quitlines but have not referred my patients.	16.3%	19.1%
I am not aware of quitlines.	63.5%	65.1%

Figure A-28: Physicians' Perceptions on their Motivations to Help Patients to Stop Smoking.

		Initial Survey	Validation Survey
Increased reimbursement for time helping patients stop smoking			
	Does not motivate	17.6%	15.6%
	Motivates some	40.1%	43.9%
	Motivates very much	42.3%	40.5%
Smoking assessment routinely documented in patient chart			
	Does not motivate	20.2%	15.4%
	Motivates some	49.8%	50.1%
	Motivates very much	30.0%	34.5%
Better feedback on patient progress in attempts to quit			
	Does not motivate	10.9%	7.6%
	Motivates some	52.6%	58.1%
	Motivates very much	36.5%	34.3%
Increased coverage of cessation interventions for patients			
	Does not motivate	8.7%	6.3%
	Motivates some	29.5%	32.6%
	Motivates very much	61.8%	61.1%
More effective interventions			
	Does not motivate	2.7%	1.7%
	Motivates some	19.1%	27.0%
	Motivates very much	78.2%	71.3%
Improvement in your own skills in helping smokers try to quit			
	Does not motivate	11.3%	8.8%
	Motivates some	46.2%	48.7%
	Motivates very much	42.5%	42.5%
Increased availability of interventions			
	Does not motivate	4.2%	2.6%
	Motivates some	31.7%	32.5%
	Motivates very much	64.1%	65.0%
More patients asked for help			
	Does not motivate	8.5%	8.5%
	Motivates some	35.5%	34.0%
	Motivates very much	56.0%	57.5%

Figure A-29: Physicians' Knowledge about Smoking-related Issues.

		Initial Survey	Validation Survey
Smokers choose to continue smoking.			
	Correct	32.0%	25.1%
	Incorrect	60.2%	65.8%
	Don't Know	7.8%	9.1%
Most smokers quit on their own.			
	Correct	51.2%	54.2%
	Incorrect	39.2%	33.1%
	Don't Know	9.6%	12.7%
Smoking is a chronic, relapsing disorder.			
	Correct	83.1%	85.6%
	Incorrect	12.3%	8.8%
	Don't Know	4.6%	5.6%
Brief treatment is ineffective.			
	Correct	49.9%	29.1%
	Incorrect	28.4%	59.0%
	Don't Know	21.6%	11.9%
Medication is a cost-effective intervention.			
	Correct	65.0%	63.0%
	Incorrect	13.3%	13.8%
	Don't Know	21.7%	23.2%

Figure A-30: Physicians' Perceptions about Successful Outcomes.

		Initial Survey	Validation Survey
Patient quits smoking completely and has not relapsed.			
	Very much a successful outcome	92.9%	85.9%
	Somewhat a successful outcome	6.4%	13.0%
	Not at all a successful outcome	0.7%	1.1%
Patient quits smoking completely, then relapses.			
	Very much a successful outcome	15.5%	14.1%
	Somewhat a successful outcome	69.2%	75.1%
	Not at all a successful outcome	15.3%	10.7%
Patient cuts down in cigarette use substantially.			
	Very much a successful outcome	20.9%	18.9%
	Somewhat a successful outcome	66.5%	68.4%
	Not at all a successful outcome	12.6%	12.7%
Patient cuts down on cigarette use moderately.			
	Very much a successful outcome	9.4%	7.3%
	Somewhat a successful outcome	62.3%	64.7%
	Not at all a successful outcome	28.3%	28.0%
Patient agrees to try to quite smoking.			
	Very much a successful outcome	17.5%	22.6%
	Somewhat a successful outcome	62.1%	62.4%
	Not at all a successful outcome	20.4%	15.0%

I. Evaluation of Validation Strategy

The validation strategy and results were evaluated by Steven Samuels, PhD, a noted survey research specialist at the University at Albany, State University of New York's School of Public Health. The overall assessment concluded that the appropriate steps were taken to determine if there were any observable indications of bias due to the low and variable response rates to the initial survey. Further, the appropriate adjustments were made to correct for the observable biases in the data. Finally, the evaluation agreed with CHWS' conclusion that it was reasonable to treat the initial survey results as representative of the population of physicians targeted for study at the outset of the project. The evaluation has been attached as Appendix C.