Rates of U.S. Physicians Counseling Adolescents About Smoking

Anne N. Thorndike, Timothy G. Ferris, Randall S. Stafford, Nancy A. Rigotti

Background: The health care system provides an important opportunity for addressing tobacco use among youths, but there is little information about how frequently physicians discuss smoking with their adolescent patients. We analyzed data from the National Ambulatory Medical Care Surveys to assess the prevalence and the predictors of physicians’ identification of smoking status and counseling about smoking at office visits by adolescents.

Methods: From 1991 through 1996, 5087 physicians recorded data on 16,648 visits by adolescents aged 11–21 years. We determined the proportion of office visits at which physicians identified an adolescent’s smoking status and counseled about smoking and then identified predictors of these outcomes with logistic regression. Statistical tests were two-sided. Results: In 1991, physicians identified an adolescent’s smoking status at 72.4% of visits but provided smoking counseling at only 1.6% of all adolescent visits and 16.9% of visits by adolescents identified as smokers. These proportions did not increase from 1991 through 1996. Compared with specialists, primary care physicians were more likely to identify smoking status (odds ratio [OR] = 1.70; 95% confidence interval [CI] = 1.53–1.89) and to counsel about smoking (OR = 3.43; 95% CI = 2.18–5.38). Patients with diagnoses of conditions potentially complicated by smoking were more likely to have their smoking status identified and to be counseled about smoking. Younger and nonwhite adolescents were less likely to be counseled about smoking than older and white teens. Conclusions: We found that physicians frequently identified adolescents’ smoking status but rarely counseled them about smoking. Physicians’ practices did not improve in the first half of the 1990s, despite a clear consensus about the importance of this activity and the publication of physician guidelines targeting this population. Physicians treating adolescents are missing opportunities to discourage tobacco use among teens. [J Natl Cancer Inst 1999;91:1857–62]

Nearly 90% of cigarette smokers smoke their first cigarette before the age of 18 years (1), and it is estimated that 5 million premature smoking-related deaths will occur among the youths who were aged 0–17 years in 1995 (2). These facts, coupled with the rising prevalence of smoking among U.S. adolescents (3), have led to a national focus on preventing and treating smoking in this age group. Because more than 70% of adolescents are seen by a physician yearly (4,5), the health care system provides an important opportunity for addressing smoking among youths. Children and adolescents perceive physicians to be credible health experts and may heed their advice more than that of their parents or other adults (1,6). The American Medical Association’s Guidelines for Adolescent Preventive Services (AMA GAPS) recommends that adolescents from ages 11 to 21 years visit the physician annually (7). These visits provide an opportunity for physicians to prevent and deter tobacco use (1).

Brief physician counseling has been shown to increase the smoking cessation rates of adult patients (8–10), but the efficacy of physician counseling to prevent tobacco use among adolescents has not yet been demonstrated. Nonetheless, since the late 1980s, numerous organizations have made recommendations about smoking prevention and cessation for physicians who treat children and adolescents (7,9–15). Age-specific guidelines for adolescents and young adults developed by the National Cancer Institute and the American Academy of Pediatrics encourage physicians to make repeated brief interventions that include the following: 1) asking adolescents at every visit whether they or their friends use tobacco, 2) advising tobacco users to stop, 3) congratulating patients who do not use tobacco, and 4) advising abstinence (13). In addition, the American Academy of Family Physicians, the AMA GAPS, the U.S. Preventive Services Task Force, the Maternal and Child Health Bureau, and the Agency for Health Care Policy and Research recommend that physicians actively screen and counsel adolescents about tobacco use (7,9–12,15). National health promotion goals for the year 2000 include decreasing the rate of adolescent smoking and increasing the rate of physician counseling (14).

Despite consensus that physicians should address smoking with adolescent patients, there is little information about how well physicians comply with these recommendations. A majority of Massachusetts pediatricians surveyed in 1995 and 1996 reported that they assessed smoking status and provided advice to stop smoking to “most” or “all” of their patients and that they encouraged “most” or “all” of the children and adolescents not to start using tobacco (16). However, in a retrospective review of 250 preventive visits by adolescents, physicians in a health maintenance organization provided “anticipatory guidance” about use of cigarettes at only 6% of all visits (17), and in Northern California surveys conducted between 1979 through 1990, only 14% of the adolescent smokers who had seen a physician in the past year reported ever being advised by a physician to quit (5).

An analysis of the 1990 National Ambulatory Medical Care Survey (NAMCS) reported that physicians counseled adolescents about smoking at only 1% of the visits (18). We analyzed the subsequent 6 years of data from the NAMCS, an ongoing annual survey of U.S. physicians, to assess more recent data and to determine clinical predictors of physi-

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Materials and Methods

NAMCS is an ongoing annual survey of U.S. office-based physicians conducted by the National Center for Health Statistics (NCHS) (24). Doctors of medicine and osteopathy are selected by stratified random sampling from American Medical Association and American Osteopathic Association listings of all practicing office-based physicians in the United States. The unit of analysis is the patient visit. Each participating physician, aided by his or her office staff, completes a one-page encounter form after ambulatory care visits. Outpatient care provided in hospital settings and by telephone is excluded. Physicians record information about patient demographics, smoking status, expected source of payment, reasons for the visit, diagnoses, counseling and education provided, and current medications. The cross-sectional nature of NAMCS permits patterns in physician practices to be followed over time but does not allow individual physicians or patients to be followed longitudinally.

The NCHS uses a complex three-stage sampling design, which has previously been described in detail (25). The first stage involves probability samples of counties or groups of counties, and the second stage consists of a probability sample of practicing physicians stratified by specialty. The final stage involves sampling of patient visits from a random week of a physician’s practice and a systematic random sample of those visits (i.e., every third visit), depending on the size of the practice (24). To produce unbiased national estimates, each patient visit is assigned an inflation factor called the “patient visit weight” on the basis of the probability of selection, the differences in physicians’ response rates, and the specialty distributions. We modified these weights by use of proportional scaling via the method of Potthoff et al. (26) to derive effective sample sizes for use in statistical testing. All estimates presented in the results of this study are percentages weighted to reflect national estimates. The weighted percentages presented in this report may not always match percentage directly calculated from the different outcome data described here without taking into consideration the weighting. The NCHS provides relative standard errors for estimates to gauge the reliability of an estimate for an individual year (24). The relative standard error of an estimate is obtained by dividing the standard error of the estimate by the estimate itself and is expressed as a percentage of the estimate (24). An estimate with a relative standard error greater than 30% could be unreliable (24).

We analyzed data collected from 1991, when smoking status was first included on the survey, through 1996, the most recent year available. The methods were similar to our previous analysis of the treatment of smoking in adult patients (19). Physician response rates varied between 70% and 73% for the 6 years (24). All visits by adolescent patients aged 11–21 years were included (7,15,27). We examined changes in physician practices from 1991 through 1996 and then combined data from all six annual surveys to describe factors associated with these practices. We examined three outcomes: 1) identification of patients’ smoking status, 2) provision of smoking counseling at all visits, and 3) provision of smoking counseling at visits by smokers. Physicians identified a patient’s smoking status by answering the question, “Does patient smoke cigarettes?” Smoking status was categorized as known if the box was checked “yes” or “no.” Smoking status was unknown if the box was checked “unknown” or if no answer was provided. Physicians recorded smoking counseling by checking the appropriate box under the section “counseling/education.” For the years 1991 through 1994, this box was labeled “smoking cessation”; for the years 1995 and 1996, the box was labeled “tobacco use/exposure.” Data were available from 5087 physicians on 16 648 office visits by adolescent patients from 1991 through 1996.

Statistical Analysis

Independent predictors of smoking status identification and smoking counseling were determined with multiple logistic regression (28). Adjusted odds ratios (ORs) and 95% confidence intervals (CIs) were calculated from these multiple logistic regression models. Tests of statistical significance were two-sided. Covariates included in the models for the three outcomes and used for adjustment of the ORs were survey year, patient demographics (age, sex, and race), metropolitan statistical area, expected payment source for the visit, diagnoses, and physician specialty. Race was categorized as white (non-Hispanic) and nonwhite. The nonwhite category could not be subdivided further because of small numbers. Three categories of diagnoses were assessed as predictor variables because of their association with adverse outcomes from continued smoking: asthma, lower respiratory infection, and pregnancy. A fourth category, general medical examination, was included because data from adults have shown that physicians are more likely to identify patients’ smoking status and to counsel smokers at this type of visit (19). Each category was defined by the use of the International Classification of Diseases, 9th revision, diagnosis codes (29). All diagnosis categories were created as binary variables, e.g., asthma versus no asthma; therefore, each visit could be included in more than one diagnosis category. Physicians were categorized as primary care (pediatricians, family practitioners, general internists, and obstetrician/gynecologists) or specialists (all other specialties). Expected payment source for the visit was divided into five categories: health maintenance organization, private insurance, Medicaid, Medicare, and “other” insurance providers.

To further explore the association between physician intervention and the specific problem addressed during the visit, we calculated the rate of smoking counseling for the 10 most common primary diagnoses of adolescent smokers visiting primary care physicians. A primary diagnosis is the diagnosis associated with the patient’s primary reason for making the visit. We grouped clinically related primary diagnoses by use of Schneeveis diagnosis clusters (30).

Results

Data were available on 16 648 adolescent patient visits to 5087 physicians from 1991 through 1996. All percentages shown in this study are weighted to reflect national estimates (see “Materials and Methods” section). Smoking status was identified at 11 792 visits and smoking counseling was provided at 286 visits, which represented 70.7% and 1.7% of all visits, respectively. Patients were identified as smokers at 1005 visits, which represented 6.0% of all visits, and 8.5% of visits where smoking status was identified. Smokers were identified at 0.8% of all visits by 11–13 years of age (n = 4029), at 4.8% of visits by 14–17 years of age (n = 6384), and at 10.6% of visits by 18–21 years of age (n = 6235). Smoking counseling was provided at 168 of the visits by smokers, representing 16.9% of the visits by patients identified as smokers. We caution that some of the estimates for counseling at smokers’ visits may be unreliable, as shown in Table 1, because the relative standard errors are greater than 30% (see “Materials and Methods” section). From 1991 through 1996, the proportion of visits at which physicians identified smoking status decreased from 72.4% to 66.5% (adjusted P for trend <0.001), but the proportion of visits where physicians provided smoking counseling or identified the patient as a smoker did not change significantly (Fig. 1).

Table 1 shows factors independently associated with identification of smoking status, provision of smoking counseling at all adolescent visits, and provision of smoking counseling at visits by adolescents identified as smokers. An adolescent’s age and race, but not sex, influenced the frequency at which physicians asked or counseled about smoking. As an adolescent’s age increased, physicians were less likely to know the patient’s smoking status but more likely to counsel about smoking. Physicians were more likely to identify smoking status and to discuss smoking with white than with nonwhite adolescents. Physician specialty and patient diagnosis also affected the likelihood of smoking being addressed during an office visit. Primary care physicians were more likely than specialists to identify an adolescent’s smoking status and to discuss smoking. All physicians were more likely to address smoking at visits by patients with asthma, pregnancy, or lower respiratory tract infections, and an adolescent was almost five times more
likely to be counseled about smoking at a general medical examination than at a problem visit. Similar patterns occurred for smoking counseling at visits by adolescents known to be smokers, and the associations with physician specialty, general medical examination, pregnancy, and lower respiratory tract infection were statistically significant.

Fig. 2 shows in greater detail the variability in smoking treatment by physician specialty—13.3% (n = 2183) of all adolescent visits were to pediatricians, 22.1% (n = 3626) were to family practitioners, 9.7% (n = 1566) were to obstetrician/gynecologists, 3.8% (n = 622) were to internists, and 51.1% (n = 8651) were to specialists. Pediatricians identified the smoking status of adolescents at 81.7% of all office visits, and the corresponding rates for family practitioners, obstetrician/gynecologists, and internists (75.3%–76.4%) were not statistically significantly different. Counseling adolescents about smoking occurred at 3.5% of all office visits to pediatricians, at 2.5% of all visits to family practitioners, at 3.7% of all visits to obstetrician/gynecologists, and at 1.7% of all visits to internists. Compared with pediatricians, counseling occurred significantly less often at adolescent visits to family practitioners (P = .01 after adjustment with multiple logistic regression) and internists (P = .02 after adjustment). Specialists identified smoking status and counseled about smoking statistically significantly less than pediatricians (adjusted P < .0001).

Fig. 3 shows the rates of smoking counseling at the 10 most common primary diagnoses of adolescent smokers. Smoking counseling occurred most frequently (>20% of smokers’ visits) at general medical examinations and at visits for acute respiratory tract infections and pregnancy care and abortion, diagnoses potentially complicated by smoking. Physicians were less likely to counsel smokers at visits for diagnoses unrelated to smoking, including acute minor injuries, acne, or psychiatric diagnoses.

![Table 1. Factors associated with the identification of smoking status and smoking counseling at ambulatory visits by adolescents](https://academic.oup.com/jnci/article-abstract/91/21/1857/2609233)

- **All visits (n = 16648)**
  - % of all visits with smoking status identified: 70.7
  - Adjusted OR (95% CI): —
  - % of all visits with smoking counseling: 1.7
  - Adjusted OR (95% CI): —

- **Smokers’ visits (n = 1005)**
  - % of smokers’ visits with smoking counseling: 16.9
  - Adjusted OR (95% CI): —

### Table 1. Factors associated with the identification of smoking status and smoking counseling at ambulatory visits by adolescents

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>% of all visits with smoking status identified*</th>
<th>% of all visits with smoking counseling*</th>
<th>Adjusted OR (95% CI)*</th>
<th>% of smokers’ visits with smoking counseling*</th>
<th>Adjusted OR (95% CI)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>All visits (n = 16648)</td>
<td>70.7</td>
<td>1.7</td>
<td>—</td>
<td>16.9</td>
<td>—</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Female (n = 9327)</td>
<td>71.3</td>
<td>1.00 (referent)</td>
<td>1.9</td>
<td>1.00 (referent)</td>
<td>17.1</td>
</tr>
<tr>
<td>Male (n = 7321)</td>
<td>70.0</td>
<td>0.98 (0.89–1.07)</td>
<td>1.6</td>
<td>1.19 (0.85–1.68)</td>
<td>16.3</td>
</tr>
<tr>
<td>Age group, y</td>
<td></td>
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<td></td>
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<tr>
<td>18–21 (n = 6235)</td>
<td>65.0</td>
<td>1.00 (referent)</td>
<td>2.1</td>
<td>1.00 (referent)</td>
<td>15.6</td>
</tr>
<tr>
<td>14–17 (n = 6384)</td>
<td>69.3</td>
<td>1.28 (1.15–1.41)</td>
<td>1.9</td>
<td>0.87 (0.61–1.24)</td>
<td>19.4</td>
</tr>
<tr>
<td>11–13 (n = 4029)</td>
<td>82.0</td>
<td>2.50 (2.20–2.85)</td>
<td>0.9</td>
<td>0.34 (0.21–0.57)</td>
<td>17.4</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White, non-Hispanic</td>
<td>71.6</td>
<td>1.00 (referent)</td>
<td>1.8</td>
<td>1.00 (referent)</td>
<td>17.0</td>
</tr>
<tr>
<td>Non-white (n = 3606)</td>
<td>67.7</td>
<td>0.78 (0.70–0.87)</td>
<td>1.6</td>
<td>0.64 (0.43–0.95)</td>
<td>15.8</td>
</tr>
<tr>
<td>Physician type</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Specialist (n = 8651)</td>
<td>64.4</td>
<td>1.00 (referent)</td>
<td>0.6</td>
<td>1.00 (referent)</td>
<td>9.2</td>
</tr>
<tr>
<td>Primary care (n = 7997)</td>
<td>77.4</td>
<td>1.70 (1.53–1.89)</td>
<td>2.9</td>
<td>3.43 (2.18–5.38)</td>
<td>22.9</td>
</tr>
<tr>
<td>Diagnoses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Problem visit (n = 15358)</td>
<td>70.2</td>
<td>1.00 (referent)</td>
<td>1.3</td>
<td>1.00 (referent)</td>
<td>16.0</td>
</tr>
<tr>
<td>General examination (n = 1290)</td>
<td>76.6</td>
<td>1.03 (0.86–1.22)</td>
<td>6.3</td>
<td>4.90 (3.34–7.19)</td>
<td>34.6</td>
</tr>
<tr>
<td>No asthma (n = 16 168)</td>
<td>70.4</td>
<td>1.00 (referent)</td>
<td>1.7</td>
<td>1.00 (referent)</td>
<td>16.5</td>
</tr>
<tr>
<td>Asthma (n = 480)</td>
<td>83.7</td>
<td>1.93 (1.38–2.69)</td>
<td>4.2</td>
<td>3.84 (2.00–7.39)</td>
<td>37.0‡</td>
</tr>
<tr>
<td>No pregnancy (n = 15 553)</td>
<td>70.1</td>
<td>1.00 (referent)</td>
<td>1.6</td>
<td>1.00 (referent)</td>
<td>15.4</td>
</tr>
<tr>
<td>Pregnancy (n = 1095)</td>
<td>79.8</td>
<td>1.68 (1.35–2.10)</td>
<td>3.8</td>
<td>1.83 (1.06–3.14)</td>
<td>25.4</td>
</tr>
<tr>
<td>No lower respiratory tract infection (n = 16 281)</td>
<td>70.1</td>
<td>1.00 (referent)</td>
<td>1.6</td>
<td>1.00 (referent)</td>
<td>15.6</td>
</tr>
<tr>
<td>Lower respiratory tract infection (n = 367)</td>
<td>80.1</td>
<td>1.33 (0.94–1.88)</td>
<td>6.0</td>
<td>4.08 (2.19–7.62)</td>
<td>54.1‡</td>
</tr>
</tbody>
</table>

*Percent estimates are weighted to reflect national estimates.
†OR = odds ratio adjusted for all variables in the table, as well as year, metropolitan statistical area, type of visit, and insurance status; CI = confidence interval.
‡Estimates may be unreliable, since the relative standard errors are greater than 30%.
DISCUSSION

This study analyzed 6 years of data from a nationally representative sample of physicians to provide a longitudinal assessment of how frequently physicians addressed tobacco use with adolescents at ambulatory visits and whether this changed in the 1990s. We report that between 1991 and 1996 physicians frequently identified an adolescent’s smoking status but rarely discussed smoking in any further detail. Even when the patient was known to be a smoker and the purpose of the visit was a general medical examination, smoking counseling occurred only 34.6% of the time. The rate of discussing smoking at a general medical examination with any teen, regardless of smoking status, was even lower (6.3%), despite numerous recommendations to discuss smoking at visits by all teens, even those who do not smoke (7,9–13,15). These rates did not improve between 1991 and 1996, despite clear consensus among professional organizations about the importance of addressing smoking with teens and the development of guidelines and health promotion goals on the subject.

The factors that were related to whether smoking was addressed at an adolescent’s visit included a physician’s specialty and a patient’s age, race, diagnosis, type of visit, metropolitan statistical area, and insurance status. All strata were compared with pediatric specialty (multiple logistic regression analysis two-sided P values; * P<0001; † P = .01; ‡ P = .02).

Fig. 2. A) Smoking status identification (% of all visits ± 95% confidence intervals) and B) smoking counseling provided (% of all visits ± 95% confidence intervals) by primary care physicians (pediatricians, family practitioners, obstetricians and gynecologists, and internists) and by all other specialist physicians. After adjustment for year, sex, age, race, diagnosis, type of visit, metropolitan statistical area, and insurance status, all strata were compared with pediatric specialty (multiple logistic regression analysis two-sided P values; * P<0001; † P = .01; ‡ P = .02).

Fig. 3. Smoking counseling at visits (% of visits by smokers ± 95% confidence intervals) for the 10 most common primary diagnoses of adolescent smokers.
tern has been reported for adults, although some of the smoking-related diagnoses were different (19). For adolescents, visits for diagnoses not related to smoking are important missed opportunities for counseling to prevent tobacco use.

Nonwhite adolescents were less likely than white teens to have their smoking status identified and to be counseled about smoking. This result is similar to studies of adult smokers that have shown that members of nonwhite racial/ethnic groups are less likely than whites to receive advice on quitting from their physicians (32). It is particularly concerning because the prevalence of adolescent smoking is rising faster among African-American and Hispanic teens than among white teens (3,32). Physicians counseled patients aged 18–21 years about smoking significantly more frequently than patients aged 11–13 years. This increase in counseling with age is most likely attributable to the increasing prevalence of smoking with age, since counseling at visits by known smokers did not vary with the age of the patient. It is especially important to address smoking with younger adolescents because smoking initiation rates increase rapidly after age 10 years and peak at ages 13–14 years (33).

Our results should be considered in the context of factors that have been shown to be associated with physician counseling of both adult and adolescent smokers. These include previous physician training in smoking counseling (16), physician involvement in community tobacco control efforts (16), and office reminder systems to address tobacco use during a visit (10,34,35). We were unable to include these factors in our analysis, because the NAMCS does not assess physician or office characteristics other than specialty and region of practice. These factors may partially explain the relationship between physician specialty and smoking counseling that we observed. Alternatively, these factors are potential confounders of this observed relationship. Future studies should collect data on all of these factors to better determine predictors of physician counseling. Other factors, such as physician beliefs about the lack of efficacy of counseling adolescents about smoking, may also explain the low rates of counseling. Evidence of the efficacy of physician counseling of adolescent patients is lacking, and future research to establish this efficacy is needed.

The prevalence of adolescent smoking detected by physicians in our study was lower than the teen smoking prevalence from the Youth Risk Behavior Survey (YRBS), a survey in which adolescents reported their smoking habits. According to the YRBS, the prevalence of current smoking (smoking one cigarette in the past 30 days) among U.S. high school students increased from 27.5% in 1991 to 36.4% in 1997 (1,3), and the prevalence of frequent smoking (smoking on 20 or more of the past 30 days) increased from 12.7% to 16.7% (1,3). In contrast, physicians in our study identified smokers at only 5% of the visits by 14- to 17-year-old adolescents and at 11% of the visits by 18- to 21-year-old adolescents. There are several possible reasons why our data may underestimate the prevalence of smoking among adolescents visiting the physician. First, it is possible that adolescent smokers visit physicians less frequently than nonsmokers. Second, adolescents seeing a doctor may not have been truthful about smoking because they did not want to be reprimanded for their behavior or they were concerned about confidentiality. Finally, many of the physicians and patients may have defined a "smoker" to be an adolescent who smokes on a daily basis (3). For these reasons, it is essential that physicians counsel all adolescents about smoking, even if the adolescent identifies himself or herself as a nonsmoker.

There are some limitations to our analysis. First, the NAMCS is a visit-based survey and, therefore, our estimates reflect only the probability of being counseled at a visit and not the probability of an individual patient being counseled over a given period, such as 1 year. Patients who visit physicians frequently might be less likely to be counseled about smoking at an individual visit but more likely to be counseled over 1 year. However, the visit-based nature of the survey is not a limitation for assessing the identification of smoking status because current guidelines advise physicians to ask about smoking at every visit. Second, physicians may have interpreted the definition of smoking counseling differently. For the years 1991 through 1994, the counseling check box on the survey was labeled as "smoking cessation," while for the years 1995 through 1996, the box was labeled "tobacco use/exposure." It might be expected that "tobacco use/exposure" would be interpreted more broadly and bias the rate of counseling upward for those years. However, the rates of smoking counseling did not rise with the change in labels, and it is unlikely that this change substantially affected our estimates of counseling. Finally, the NAMCS might underestimate the amount of counseling provided by physicians because the survey is completed after the patient visit. However, a recent direct observation study of family physicians demonstrated that the rate of providing counseling to adult smokers was 25% (36), which was similar to the rate of counseling by physicians in an analysis of NAMCS for patients 18 years of age or older (19).

In conclusion, it is clear that physicians are not adequately addressing smoking among their adolescent patients. Despite the national public health and public policy emphasis on preventing smoking among teens, physicians are doing even less smoking counseling among adolescents than among adults (19). Furthermore, we find no evidence that the initial efforts to encourage physician involvement by disseminating guidelines about addressing teen smoking have influenced physician practices. If the medical community is to play its part in the national effort to reduce smoking among teens, more intensive interventions to change physician behavior are necessary. These interventions should include 1) training programs for residents and practicing physicians treating adolescents, 2) changes in office practice and information systems to encourage physicians to address smoking, 3) adequate reimbursement to physicians for counseling adolescents about tobacco use, and 4) the inclusion of smoking status identification and counseling about tobacco use as quality indicators for the treatment of adolescent patients (10,37). Future research about counseling adolescents should address which of these interventions are most effective. Physicians and other health care professionals who care for adolescents should take better advantage of their opportunity to discourage smoking among their adolescent patients.

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NOTES

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