Increased Levels of Cigarette Use Among College Students
A Cause for National Concern

Henry Wechsler, PhD; Nancy A. Rigotti, MD; Jeana Gledhill-Hoyt, MPH; Hang Lee, PhD

Context.—Adolescent smoking prevalence is tracked annually and has increased since 1991. In contrast, little is known about trends in smoking among college students, a group that has previously been more resistant to tobacco use than other young adults.

Objective.—To examine changes in cigarette smoking among college students between 1993 and 1997 and among different types of students and colleges.

Design.—Self-administered survey (Harvard School of Public Health College Alcohol Study).

Setting.—One hundred sixteen nationally representative 4-year colleges.

Subjects.—A total of 15 103 randomly selected students in 1993 (70% response rate) and 14 251 students in 1997 (60% response rate).

Main Outcome Measures.—Self-reports of cigarette smoking in the past 30 days and in the past year, age at smoking first cigarette, and number of attempts to quit.

Results.—Over 4 years, the prevalence of current (30-day) cigarette smoking rose by 27.8%, from 22.3% to 28.5% (P < .001). The increase was observed in 99 of 116 colleges and was statistically significant (P < .05) in 27 (23%) of them. Current smoking increased across all student subgroups (defined by sex, race/ethnicity, and year in school) and in all types of colleges. Smoking is rising faster in public schools (from 22.0% to 29.3%) than in private schools (from 22.9% to 26.8%). Eleven percent of college smokers had their first cigarette and 28% began to smoke regularly at or after age 19 years, by which time most were already in college. Half of current smokers tried to quit in the previous year; 18% had made 5 or more attempts to quit.

Conclusions.—Cigarette use is increasing on campuses nationwide in all subgroups and types of colleges. Substantial numbers of college students are both starting to smoke regularly and trying to stop. National efforts to reduce smoking should be extended to college students.

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Cigarette smoking prevalence among college students was assessed by 2 separate cross-sectional surveys in the 1990s, but only the Monitoring the Future Study provides information about changes over time.11 Cigarette smoking prevalence among college students was assessed by 2 separate cross-sectional surveys in the 1990s, but only the Monitoring the Future Study provides information about changes over time.11 Cigarette smoking prevalence among college students was assessed by 2 separate cross-sectional surveys in the 1990s, but only the Monitoring the Future Study provides information about changes over time.11 Cigarette smoking prevalence among college students was assessed by 2 separate cross-sectional surveys in the 1990s, but only the Monitoring the Future Study provides information about changes over time.11 Cigarette smoking prevalence among college students was assessed by 2 separate cross-sectional surveys in the 1990s, but only the Monitoring the Future Study provides information about changes over time.11 Cigarette smoking prevalence among college students was assessed by 2 separate cross-sectional surveys in the 1990s, but only the Monitoring the Future Study provides information about changes over time.11 Cigarette smoking prevalence among college students was assessed by 2 separate cross-sectional surveys in the 1990s, but only the Monitoring the Future Study provides information about changes over time.11 Cigarette smoking prevalence among college students was assessed by 2 separate cross-sectional surveys in the 1990s, but only the Monitoring the Future Study provides information about changes over time.11 Cigarette smoking prevalence among college students was assessed by 2 separate cross-sectional surveys in the 1990s, but only the Monitoring the Future Study provides information about changes over time.11 Cigarette smoking prevalence among college students was assessed by 2 separate cross-sectional surveys in the 1990s, but only the Monitoring the Future Study provides information about changes over time.11
Sample of Colleges

The 1993 College Alcohol Study surveyed a random sample of students in 140 four-year US colleges. Initially, a random sample of 179 schools was selected from the American Council on Education’s list of accredited universities using probability proportionate to size sampling. Because the sample contained few women-only colleges and few colleges with enrollments of fewer than 1000 students, 10 additional women’s colleges and 15 additional small colleges were added to the sample. Nine colleges were subsequently dropped because they were considered inappropriate (seminary schools, military schools, and allied health schools), creating a final sample of 196 colleges. Of this sample, 140 colleges (72%) participated in the 1995 survey.

In 1997, 130 (93%) of the original 140 colleges that participated in the 1993 College Alcohol Study were resurveyed. In both years, the main reason for nonparticipation was administrators’ inability to provide a random sample of students’ addresses within time requirements. Fourteen of the 130 schools that participated in both years had low response rates (defined as less than 45% of eligible students responding) in either year and were not included in the final analysis, leaving a final sample of 116 colleges in both years.

The 116 schools represent a cross-section of US higher education. They are located in 39 states, with 22% in the Northeast, 29% in the South, 29% in the North Central Region, and 19% in the West. More than two thirds of the colleges sampled are public institutions; the remainder are private. School enrollment was divided into 3 categories: large schools with more than 10,000 students enrolled (47%), medium-sized schools with 5001 to 10,000 students enrolled (21%), and small schools with 5000 or fewer students enrolled (32%). About two thirds are located in an urban or suburban setting and one third in a small town or rural setting. Sixteen percent have a religious affiliation. Five percent enroll only women.

Sampling Procedures

In both years, administrators at each college were asked to provide a random sample of undergraduates drawn from the total enrollment of full-time students. Colleges were sent specific guidelines for drawing a random sample of full-time students. Depending on enrollment size, every xth student was selected from the student registry using a random starting point. In 1997, a sample of 230 students was provided from each of the 130 participating colleges. In 1995, a sample of 215 students was provided from each of the participating colleges, except that at 13 of the smallest schools, only 108 were drawn.

Questionnaire

The questionnaire, largely about alcohol use, also assessed demographic and background characteristics, smoking, and other high-risk behaviors. The main questions regarding substance use and lifestyle were identical in the 1993 and 1997 surveys.15 Whenever possible, questions were based on questions previously used in other large-scale studies.14,16 To assess cigarette smoking, respondents were asked when, if ever, they had used cigarettes. Response options were “never used,” “used, but not in the past 12 months,” “used, but not in the past 30 days,” or “used in the past 30 days.” A parallel question asked about marijuana use. Students were asked how many tobacco cigarettes per day they smoked on average. The 1997 survey also asked students how old they were when they first smoked a cigarette and when they started smoking regularly.

Mailing and Response Rate

Questionnaires were mailed to students at the end of February 1997. Three separate mailings were sent within at least a 3-week period: a questionnaire, a reminder postcard, and a second questionnaire. Responses were voluntary and anonymous. Students were encouraged to respond with cash awards. By the end of April 1997, 84% of the final group of questionnaires had been returned; 15% arrived in May and 1% each in June and July. The 1993 survey was conducted in a similar manner.15

In 1997, questionnaires were mailed to 24,140 students at the 116 schools after eliminating students with incorrect addresses, withdrawal from school, or leaves of absence. A total of 14,521 students (60%) returned questionnaires. In 1993, 15,103 (70%) of the 21,512 students returned questionnaires. Response rate varied among the 130 colleges that participated in both years. In 1993, response rates varied between 18% and 100%, with 2 colleges having response rates of less than 45%. In 1997, response rates varied from 26% to 88%, with 12 colleges having response rates of less than 45%. In both years, the rate of current cigarette use for the 116 schools was nearly identical to the rate for 130 schools (28.5% and 28.4%, respectively, in 1997; 22.3% and 22.5%, respectively, in 1993). Other smoking behaviors were similarly unaffected by dropping the 14 low-response schools.

Several procedures were used to examine potential bias introduced by student nonresponse. Response rates at individual colleges were not associated with the 30-day smoking rate. The Pearson correlation coefficient between a college’s 30-day smoking rate and its response rate was −0.08 (P = .39) in 1993 and −0.08 (P = .38) in 1997. There was no statistically significant difference in 30-day smoking rates between students who responded early vs late in either 1993 (χ², 1.03; P = .31) or 1997 (χ², 0.69; P = .41). In 1997, a short form of the questionnaire including a smoking question was mailed to a segment of students who had failed to return the questionnaire. The rate of 30-day smoking of those responding to the short survey did not differ significantly from that of those responding to the entire student survey.

Data Analysis

Statistical analyses were carried out using SAS statistical software.12,13 There was little difference between unweighted and weighted sample results in both years when compared, so unweighted results are reported. Differences among the demographic characteristics between survey years were compared by χ² analysis. Percentage change in smoking prevalence between 1993 and 1997 was measured; confidence intervals (CIs) and significance tests were carried out by the large sample approximation of testing for the equality of 2 independent binomial proportions.

All students except those who reported that they never smoked were considered to be ever smokers. Former smokers were defined as students who had ever smoked, but not in the past 30 days. Current smokers were defined as students who smoked in the past 30 days. Current marijuana users were defined as those who had used marijuana in the past 30 days. Binge drinking was defined as the consumption of 5 or more drinks in a row for men and 4 or more drinks in a row for women during the 2 weeks prior to the survey, as previously described.13

Multiple logistic regression analyses were used to examine the change in prevalence between 1993 and 1997 in subgroups of demographic and college characteristics. Stratified percentage changes and adjusted odds ratios (ORs) were reported. Inclusion of all the 2-way interaction terms involving demographics, college characteristics, and year of survey participation was administrato...
RESULTS

Description of the Student Sample

Table 1 displays characteristics of the respondents in 1993 (N = 15,103) and 1997 (N = 14,521), all of whom were enrolled at 1 of the 116 participating US 4-year colleges. The sample includes more women than men, partly because of the inclusion of 6 women’s institutions. It is similar to national estimates that 54% of undergraduates at 4-year institutions in 1995 were women.21 The sample was predominantly white, resembling national 1995 data reporting that 78% of students at 4-year institutions were white.22 Because of the large sample size, the 1993 and 1997 samples differed statistically significantly on most demographic characteristics, but the absolute percentage differences were minor. Demographic differences for year in school, race/ethnicity, and sex were controlled for in the multiple logistic regression models.

Change in Smoking Prevalence

Table 2 displays the change in college students’ tobacco use between 1993 and 1997. The proportion of college students who reported current cigarette smoking rose 25% between 1993 and 1997 (P < .0001). An increase was observed at 99% (95%) of all 116 colleges in the sample and was statistically significant (P < .05) for 27 schools (23%). Smoking prevalence decreased significantly in only 1 school. The proportion of students who had ever smoked and the proportion who had smoked in the past year also rose significantly during the 4-year interval. In contrast, the proportion of students who quit in the past year and the quit ratio (the proportion of former smokers divided by the proportion of ever smokers) decreased. Current smokers’ daily tobacco consumption changed significantly (P < .001) during the 4-year period. The largest absolute increase was in regular light smokers (1-9 cigarettes per day). In both years, more than 40% of smokers averaged less than 1 cigarette per day, indicating that they did not smoke on a daily basis. Less than 15% of current smokers smoked as much as 1 pack of cigarettes daily.

Change in Smoking Prevalence Among Demographic Subgroups

The prevalence of current smoking increased over time across all subgroups defined by sex, race/ethnicity, age, and year in school (Table 3). The increase was statistically significant for all demographic subgroups except Hispanic students. There were no statistically significant interactions between these factors and year of survey, indicating that no group was increasing its smoking rate faster than any other. Instead, there appeared to be a general rise in smoking among all college students.

Change in Smoking Prevalence Among College Subgroups

The rise in smoking prevalence was also seen across all the college subgroups (Table 4). There were statistically significant interaction terms between survey year and 2 factors, public/private status and geographic region. Smoking prevalence increased faster in public col-
Table 3.—Change in Smoking Prevalence Among Subgroups of College Student Characteristics, 1993 vs 1997*

<table>
<thead>
<tr>
<th>Student Characteristics</th>
<th>Smoked in Past 30 d, %</th>
<th>Increase, %</th>
<th>Adjusted OR (95% CI) for 1997†</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1993 (N = 15 103)</td>
<td>1997 (N = 14 521)</td>
<td></td>
</tr>
<tr>
<td>All students</td>
<td>22.3</td>
<td>28.5</td>
<td>27.8</td>
</tr>
<tr>
<td>Male</td>
<td>22.3</td>
<td>27.5</td>
<td>23.4</td>
</tr>
<tr>
<td>Female</td>
<td>22.3</td>
<td>29.2</td>
<td>31.0</td>
</tr>
<tr>
<td>Hispanic</td>
<td>22.7</td>
<td>25.4</td>
<td>12.0</td>
</tr>
<tr>
<td>Non-Hispanic</td>
<td>22.2</td>
<td>28.8</td>
<td>29.9</td>
</tr>
<tr>
<td>White</td>
<td>23.2</td>
<td>30.4</td>
<td>32.1</td>
</tr>
<tr>
<td>African American</td>
<td>9.6</td>
<td>13.7</td>
<td>42.7</td>
</tr>
<tr>
<td>Asian/Pacific Islander</td>
<td>18.3</td>
<td>22.4</td>
<td>22.5</td>
</tr>
<tr>
<td>Other</td>
<td>24.7</td>
<td>26.3</td>
<td>6.4</td>
</tr>
<tr>
<td>Aged &lt;24 y</td>
<td>22.4</td>
<td>29.0</td>
<td>29.8</td>
</tr>
<tr>
<td>Aged ≥24 y</td>
<td>21.8</td>
<td>25.8</td>
<td>18.5</td>
</tr>
<tr>
<td>Freshmen</td>
<td>24.3</td>
<td>31.2</td>
<td>28.4</td>
</tr>
<tr>
<td>Sophomores</td>
<td>24.2</td>
<td>29.2</td>
<td>20.7</td>
</tr>
<tr>
<td>Juniors</td>
<td>22.2</td>
<td>29.4</td>
<td>32.4</td>
</tr>
<tr>
<td>Seniors</td>
<td>20.8</td>
<td>25.3</td>
<td>21.6</td>
</tr>
</tbody>
</table>

*1993 30-day smoking rate is used as baseline for comparison with 1997 rate. All 1993 odds ratios (ORs) = 1.00.

Data are based on past 30-day cigarette use.

†Odds ratio adjusted for age, sex, race/ethnicity, and college characteristics. CI indicates confidence interval. Odds ratios of cigarette use in 1993 vs 1997 are significant at P < .001 unless otherwise specified.

‡Odds ratios of cigarette use in 1993 vs 1997 are significant at P < .05.

§Odds ratios of cigarette use in 1993 vs 1997 are significant at P < .01.

Table 4.—Change in Smoking Prevalence Among Subgroups of College Characteristics, 1993 vs 1997*

<table>
<thead>
<tr>
<th>College Characteristics (No.)</th>
<th>Smoked in Past 30 d, %</th>
<th>Increase, %</th>
<th>Adjusted OR (95% CI) for 1997†</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1993 (N = 116)</td>
<td>1997</td>
<td></td>
</tr>
<tr>
<td>Commuter school (18)</td>
<td>19.3</td>
<td>24.6</td>
<td>27.4</td>
</tr>
<tr>
<td>Noncommuter school (98)</td>
<td>22.8</td>
<td>29.1</td>
<td>27.9</td>
</tr>
<tr>
<td>Competitive (N = 29)</td>
<td>21.9</td>
<td>27.6</td>
<td>26.0</td>
</tr>
<tr>
<td>Competitive (N = 45)</td>
<td>23.0</td>
<td>29.9</td>
<td>30.4</td>
</tr>
<tr>
<td>Very competitive (N = 27)</td>
<td>22.6</td>
<td>29.2</td>
<td>29.2</td>
</tr>
<tr>
<td>Highly competitive (N = 14)</td>
<td>19.8</td>
<td>24.7</td>
<td>25.2</td>
</tr>
<tr>
<td>Size of school</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Small, &lt;5000 students (33)</td>
<td>24.0</td>
<td>28.3</td>
<td>17.9</td>
</tr>
<tr>
<td>Medium, 5001-10 000 students (23)</td>
<td>22.9</td>
<td>29.2</td>
<td>27.8</td>
</tr>
<tr>
<td>Large, &gt;10 000 students (60)</td>
<td>21.2</td>
<td>28.3</td>
<td>33.4</td>
</tr>
<tr>
<td>All-women’s school (5)</td>
<td>20.7</td>
<td>27.4</td>
<td>32.4</td>
</tr>
<tr>
<td>Coeducational school (110)</td>
<td>22.3</td>
<td>26.6</td>
<td>27.9</td>
</tr>
<tr>
<td>Public school (80)</td>
<td>22.0</td>
<td>29.3</td>
<td>33.1</td>
</tr>
<tr>
<td>Private school (36)</td>
<td>22.9</td>
<td>26.8</td>
<td>16.8</td>
</tr>
<tr>
<td>Region</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Northeast (26)</td>
<td>26.1</td>
<td>29.8</td>
<td>14.3</td>
</tr>
<tr>
<td>South (34)</td>
<td>22.4</td>
<td>29.0</td>
<td>29.2</td>
</tr>
<tr>
<td>North Central (34)</td>
<td>22.7</td>
<td>30.7</td>
<td>35.2</td>
</tr>
<tr>
<td>West (22)</td>
<td>17.1</td>
<td>22.6</td>
<td>32.3</td>
</tr>
<tr>
<td>Religious affiliation (17)</td>
<td>21.2</td>
<td>26.3</td>
<td>24.3</td>
</tr>
<tr>
<td>Nonreligious (99)</td>
<td>22.4</td>
<td>28.9</td>
<td>28.8</td>
</tr>
<tr>
<td>Setting</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rural/small town (37)</td>
<td>22.5</td>
<td>29.5</td>
<td>31.1</td>
</tr>
<tr>
<td>Suburban/urban (79)</td>
<td>22.1</td>
<td>26.0</td>
<td>26.3</td>
</tr>
</tbody>
</table>

*1993 30-day smoking rate is used as baseline for comparison with 1997 rate. All 1993 odds ratios (ORs) = 1.00.

Data are based on past 30-day cigarette use.

†Odds ratio adjusted for age, sex, race/ethnicity, and college characteristics. CI indicates confidence interval. Adjusted ORs of cigarette use in 1993 vs 1997 are significant at P < .001 except for highly competitive and all-women’s schools (P < .001) and colleges in the Northeast region (P < .01).

§Odds ratios of cigarette use in 1993 vs 1997 are significant at P < .05.

All odds ratios (ORs) are significant at P < .001 except sex (P < .11). CI indicates confidence interval.

Correlates of Cigarette Use

The increase in current smoking prevalence between 1993 and 1997 remained statistically significant after adjustment for demographic and college characteristics in a multiple logistic regression model (OR, 1.41; 95% CI, 1.33-1.48; Table 5). Smoking prevalence was higher in whites than blacks or Asians and higher in freshmen, sophomores, and juniors than seniors and fifth-year students. Sex was not associated with smoking behavior.

Smoking prevalence was independent of several college characteristics. Prevalence was lower at private than public schools, lower at commuter schools (defined as schools where 90% or more of the students lived off campus) than at residential schools, and lower at highly competitive schools (based on ACT and SAT scores and percentages of applicants accepted) compared with less-competitive schools. Schools in the Northeast, North Cen...
tral, and South regions had higher smoking rates than schools in the West. Smoking prevalence did not differ between rural and urban schools, between women’s and coeducational institutions, or between schools with and without a religious affiliation.

**Age of Smoking Initiation and Efforts to Quit**

Data on the age of first tobacco use and attempts to quit were collected only on the 1997 survey. Although only 11% of smokers had their first cigarette at or after age 19 years, more than one quarter (28%) of current smokers began to smoke regularly at age 19 or older, at which time they were in college. Half (n = 114,000) of current smokers in 1997 had quit smoking for at least 24 hours in the past year, including 18% who had made 5 or more attempts to quit.

**Alcohol and Marijuana Use**

The increase in smoking prevalence was not associated with binge drinking or current marijuana use. Interaction terms between survey year and both binge drinking (P = .28) and marijuana use (P = .25) were not significant, indicating that the increase in smoking during the 4-year period was independent of alcohol or marijuana use. Binge drinking decreased by 3%, from 44.1% to 42.7%, between 1993 and 1997, while current marijuana use increased by 21%, from 12.7% to 15.4%.

**COMMENT**

This study clearly indicates that cigarette smoking prevalence is rising among college students. The increase is occurring broadly across all types of students and colleges, although the rise is more rapid in public colleges than private. This might reflect a difference by students’ socioeconomic status but because this factor was not directly measured, we cannot be certain. The rise in college student smoking found in this study confirms a previous report from the Monitoring the Future Study and is consistent with other national data. According to the National Health Interview Survey (NHIS), smoking among all US young adults aged 18 to 24 years began to rise after 1991. College student smoking prevalence in our 1993 survey (22%) was slightly higher than that reported by the 1993 NHIS for young adults with 13 or more years of education (19.6% of men and 16.0% of women). By 1995, the most recent year for which NHIS data are available, young adult smoking prevalence had risen to 24.0% of men and 18.5% of women (unpublished data, Office on Smoking and Health, Centers for Disease Control and Prevention, Atlanta, Ga, 1998). The National College Health Risk Behavior Study reported a 29% smoking rate among full- and part-time students in 2- and 4-year colleges in 1995. We observed a similar smoking prevalence 2 years later in our survey that includes only 4-year colleges. The discrepancy may be attributable to the lack in our sample of 2-year colleges that may have higher smoking rates.

The rise in college student smoking appears to be a consequence of the rise in adolescent smoking that occurred earlier in the 1990s. The college students surveyed in 1997 were high school seniors between 1993 and 1996, during which time high school seniors’ smoking prevalence rates rose progressively following a decade of stability. The cohort of college students surveyed in 1997 had a higher smoking prevalence at college entry than did the 1993 survey cohort. These data suggest that the rise in adolescent smoking that occurred in the 1990s is not a transient phenomenon. They will likely have higher smoking rates as adults and thereby contribute to higher overall adult smoking rates in future years.

In addition, an increase in smoking initiation during the college years or a decrease in the proportion of students who stop smoking could also contribute to rising college smoking rates. There was a small decrease in the proportion of students who quit smoking in the past year. Our data cannot determine whether smoking initiation rates among college students are changing because this question was asked only in 1997. Only 11% of that sample reported starting to smoke after age 18 years, consistent with reports of other national surveys of adults, indicating that most first cigarette use precedes the college years. However, more than one quarter of college students who smoked in 1997 reported starting to smoke regularly in college and half of current smokers in college tried to quit at least once in the preceding year. These data suggest that college is a time of considerable change in smoking behavior.

The college years provide a window of opportunity for interventions focused on blocking the transition from occasional smoking to regular nicotine-dependent smoking and for efforts to increase the success of the substantial number of smokers who are already trying to quit. These efforts are more likely to be successful if they are paired with environmental and policy changes that discourage tobacco use and reinforce to young adults the message that not smoking is the norm. This might be done effectively by expanding the smoke-free areas on college campuses and especially by ensuring that dormitories and other shared living quarters are smoke-free. In addition to eliminating secondhand smoke, smoke-free areas limit the visibility and accessibility of cigarettes and may discourage smoking initiation, help keep occasional smokers from becoming regular users, and boost the success of those who are trying to quit.

The results of this study must be viewed within the context of its limitations. The lower response rate to the 1997 survey might have biased our findings. However, several tests performed to detect potential bias found none. Smoking rates in 1997 did not differ between early and late responders or between responders and a sample of nonresponders and there was no correlation between smoking rates and response rates at individual schools. Furthermore, the smoking prevalence in this study in both 1993 and 1997 is consistent with rates found in other national surveys. Using students’ self-report for assessment of smoking status is widely accepted because biochemical measures have established the validity of self-reported smoking status in national surveys. Underreporting of smoking status is probably even less likely in this survey, which focused on alcohol rather than tobacco use. The present study examines only 1 aspect of tobacco use, cigarette smoking. Smokeless tobacco use, also assessed in our survey, will be the subject of a separate article. Our study did not assess cigar use, which is rising in adolescents. Hence, our results may underestimate both the prevalence and the increase in college students’ overall tobacco use.

These findings should be a source of concern to those interested in reducing tobacco use among young people. The increase in smoking first seen in middle school and high school students has reached the college population, a group with lower smoking rates, considered to be the most resistant to smoking, and with probably the greatest access to information about the effect of smoking on health. Education level is one of the strongest correlates of nonsmoking, and college students are less likely to smoke than similar-aged young adults who are not attending college. These results are a cause for alarm and call for an examination and strengthening of prevention efforts from middle school through college. College might be an opportunity time to intervene to prevent transition from occasional smoking to regular nicotine-dependent smoking and a time to teach occasional and regular smokers why and how to quit. Smoking prevention has focused on middle schools and high schools;
colleges should not be overlooked as places where there is an opportunity for smoking intervention. The national debate on smoking policies, which has focused mainly on youth younger than 18 years, should be expanded to include the college-aged population, whose future health should be a national priority.

References


This study was supported by the Robert Wood Johnson Foundation, Princeton, NJ. The assistance of Jeff Hansen, Suzanne Markloff, and Yuan-Chun Wang is gratefully acknowledged.
eral sectors is downright illegal, and university employees fall under Department of Labor workplace standards and laws for their respective states.

Universities have serious ethical and credibility problems if they have such poor control over their employees that they cannot promise to protect individuals from actions contrary to their own grievance policies and that are probably illegal. Favoritism toward senior faculty (e.g., in the form of a university “blind eye” to abuses) is probably a major factor in many of the problems surrounding authorship. In a sense, it sends the message that “crime pays.”

I am also concerned that legal issues of intellectual property were not discussed. The meaning of authorship in the academic sense seems quite different from authorship in the legal sense. Universities are not above the law. They are subject to US and international laws on intellectual property, such as copyright and patent law. These laws make it clear that only tangible, written work is copyrightable and that the person who creates the tangible expression “owns” the work (holds the copyright) unless work-for-hire or other legal co-owner agreements apply.

I suggest that one way to clear up the controversies over intellectual property and accreditation is for universities to bring their policies in line with the law of the land and to enforce such policies firmly, fairly, and uniformly.

Scot Silverstein, MD
Christiana Care Health System
Wilmington, Del


In Reply: One can agree with Dr Silverstein’s sentiments without necessarily coming to the same conclusions regarding the most practical ways to address authorship problems. My own institution makes significant efforts to provide effective redress for those who feel they have been treated unfairly in an authorship dispute. Both formal grievance procedures and informal actions (through the ombudsman’s office) are available as alternatives to normal departmental channels. Nevertheless, the reality is that the master-journeyman-apprentice system of medical research makes it possible for retaliation against whistle-blowing to take place, often years later. It would be irresponsible and unfair to state that formal procedures can guarantee complainants that there will be no ill effects of their bringing such disputes to light.

Formal policies for redress and protection are essential tools for promoting fair treatment. Sensitivity to legal rights and requirements is very important, as Silverstein suggests, but insufficient. That is why I suggest a 3-pronged approach of formal policies, informal confidential dispute resolution tools such as an ombudman’s office, and better training of laboratory and department heads to protect against a culture in which unfair assignment of credit is tolerated.

Linda Wilcox, EdM, CAS
Harvard Medical School, School of Dental Medicine and School of Public Health
Boston, Mass

CORRECTIONS

Incorrect Wording: In the Original Contribution entitled “Management of Pain in Elderly Patients With Cancer” published in the June 17, 1998, issue of THE JOURNAL (1998;280:1877-1882), there was incorrect wording in the abstract and in the text. On page 1877, under “Results” in the abstract, the fourth sentence should have read “Patients aged 85 years and older were less likely to receive morphine or other strong opiates than those aged 65 to 74 years (13% vs 38%, respectively).” On page 1880, in the first column, the last sentence should have read “Patients aged 85 years and older received morphine or other strong opiates one third less frequently than patients aged 65 to 74 years (13% vs 38%, respectively; P<.001).”

Author’s Name Misspelled: In the A Piece of My Mind entitled “Don’t Call Me ‘Larry’,” published in the October 28, 1998, issue of THE JOURNAL (1998;280:1385), the author’s name was misspelled. The author’s name is Adrienne Reiner Hochstadt (not Hockstadt).

Incorrect Row Headings in Table: In the Original Contribution entitled “Increased Levels of Cigarette Use Among College Students: A Cause for National Concern,” published in the November 18, 1998, issue of THE JOURNAL (1998;280:1673-1678), the row headings “Public” and “Private” were inadvertently switched in Table 5. The conditional odds ratio for public colleges should have been 1.20 (95% confidence interval, 1.12-1.29), and the conditional odds ratio for private colleges should have been 1.00.