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A Cancer Journal for Clinicians

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CA Cancer J Clin 1986;36;2-8

This information is current as of November 13, 2006

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Cigarette Smoking among Physicians, Dentists, and Nurses

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The smoking habits of physicians, dentists, nurses, and other medical professionals continue to attract keen interest among clinical investigators. The attendant data mark trends of the smoking habit at large and presage the eventual smoking habits of the general public. Physicians in particular are seen as exemplars, and publicity about the low percentage who smoke may influence some people to quit.

In the United States between 1954 and the late 1970s, at least 19 studies of physicians' smoking habits were made. These studies were summarized in the Surgeon General's report published in 1979.¹ The studies were conducted at different times, on different age groups, and using different definitions of smoking; some were local, some statewide, some national. Though the studies are not all directly comparable, there is no doubt that the percentage of physicians who smoke has decreased over the past 30 years, and that physicians smoke at levels lower than those of the general population: In the early 1950s, more than 50 percent of physicians smoked. By 1975, the rate had dropped to about 20 percent.

The American Cancer Society's prospective Cancer Prevention Study I (CPS

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I), a 12-year study of the health circumstances of 1,000,000 people, showed that just under 20 percent of the male physicians in the survey smoked. At the end of the study in 1972, 2,889 physicians had answered an initial questionnaire and four supplemental questionnaires.² Of these, 38.6 percent reported they smoked cigarettes in 1959; 37.7 percent in 1961; 31.8 percent in 1963; 28.3 percent in 1965; and 19.5 percent in 1972. The youngest participant was 30 years old at the start of the study, with the great majority 45 years of age and older.

The incidence of smoking among physicians appears to have varied markedly by specialty. However, the last national survey of physicians' smoking habits showed an overall rate, like that of CPS I, of about one in five. That survey, conducted in 1975 by the Public Health Service, found that 21 percent of physicians smoked cigarettes.³ Several estimates from the 1980s indicated that 10 to 14 percent of physicians smoke.^{4,5} A random sample of 50 percent of family and general practitioners, surgeons, and obstetricians/gynecologists, all members of a county medical society in California, showed that 15 percent were smokers.⁶ However, Stamler's survey of 500 cardiologists found that only 7.1 percent of the respondents said they smoke.⁵ In a 1973 sample of pulmonary physicians, only 4.6 percent were cigarette smokers.⁷ Several studies in the late 1970s indicated that the percentage of cigarette smokers

**TABLE 1
SMOKING HABITS AMONG HEALTH
PROFESSIONALS***

	Percent		
	Physicians	Nurses	Dentists
Never Smoked	41.4	51.1	40.9
Current Cigarette Smoker	16.7	23.4	14.1
Ex-Smoker	33.9	25.5	36.7
Cigar/Pipe Smoker	8.0	<0.1	8.3
Total	100.0	100.0	100.0
Number of Subjects	11,324	44,568	2,892

*Percentages are adjusted to the estimated population of the United States, age 30+, in 1985. (Projections of the Population of the United States by Age, Sex, and Race: 1983 to 2080, Current Population Reports, series P-25, No. 952, Washington, DC, US Bureau of the Census, 1984).

among medical students ranged from six percent to 14 percent.⁸⁻¹⁰

Studies of trends of smoking habits among dentists show a range of results. In two major national studies, the percent of dentists who were cigarette smokers fell from 34 percent in 1967 to 23 percent in 1975.^{3,11} In CPS I, the percent of smokers decreased from 40.4 percent in 1959 to 21.7 percent in 1972. A study in western New York state in 1981 reported that less than 18 percent of dentists smoked.¹² Christen in 1983 surveyed 630 dentists (eight percent of attendees) at a dental convention, and found that 8.3 percent were smokers; 5.4 percent smoked cigarettes, and an additional 2.9 percent smoked cigars and pipes.¹³

Smoking rates for nurses in various reports are consistently higher than those for either physicians or dentists. CPS I found that, in 1959, 36.3 percent of female nurses were smokers; by 1972, 25.9 percent were still smoking.² The Public Health Service's 1975 national survey showed a

much higher rate of smoking for nurses—39 percent.³

In a 1976 study of the effects of cigarette smoking and relative weight on menopause, Willett et al received questionnaires from 66,663 female married nurses aged 30 to 55.¹⁴ In this group, half of whom were under 40 years of age, 31.3 percent reported that they currently smoked cigarettes. Several more recent studies of smoking among nurses have reported similar percentages. A 1981 study of Connecticut nurses showed that 25.5 percent smoked;¹⁵ in a study in western New York state, 28.3 percent;¹⁶ and in a sample of 1,400 North Carolina nurses, 26.3 percent smoked.¹⁷ In a 1982 survey in England and Wales, more than 40 percent of nurses said they smoked.¹⁸ Finally, Stellman and Stellman,¹⁹ in an analysis of the 1975 Public Health Service survey, reported that 32.1 percent of female health professionals were current smokers. This group included dietitians, therapists, and technologists, as well as nurses.

American Cancer Society Cancer Prevention Study II (CPS II)

We extracted data on smoking habits for physicians, dentists, and nurses from the American Cancer Society Cancer Prevention Study II (CPS II). The Society began this new prospective study in September 1982. The study was conducted in all 50 states, the District of Columbia, and Puerto Rico, with 77,000 volunteer "researchers" enrolling 509,000 men and 677,000 women. The subjects completed a detailed four-page questionnaire on history of disease; occupations and occupational exposures; and personal habits such as drinking, smoking, and diet. Among those enrolled were 11,324 physicians, 2,892 dentists, and 44,568 nurses. Enrollment of subjects was by household. Only households with at least one member age 45 or over were eligible for the study, but all persons 30 years and older in those households were asked to complete a questionnaire. The population enrolled, therefore, had relatively few persons under 40. The average age was 57.

Subjects were classified as: never smoked, current cigarette smokers, ex-cigarette smokers, and pipe/cigar smokers. The percentages for doctors, dentists, and nurses are shown in Table 1. These percentages have been adjusted to the percentage distribution of persons 30 years and older in the estimated US population.

CPS II data show that 16.7 percent of doctors currently smoke cigarettes, as do 14.1 percent of dentists, and 23.4 percent of nurses. Twice as many doctors and dentists have quit smoking as are currently smoking. Among nurses, 25.5 percent have quit smoking; more than 50 percent of the nurses never smoked.

Age has an important effect on smoking rates (Table 2). Physicians age 50 to 59 smoke more than younger doctors, and the smoking rate diminishes in older doctors. Smoking patterns among dentists are similar, although their peak smoking age is 40 to 49. There were too few female dentists in the study (37) to show percentages by age group. More women doctors smoke at each age than male doctors

do. Female nurses smoke slightly more than female doctors. Male nurses have unusually high smoking rates. There is no evidence that nurses under 40 are smoking less than those over age 40. For all age groups combined, 41.3 percent of male nurses smoke cigarettes.

Table 3 shows smoking patterns classified by the number of cigarettes smoked per day. There is not much difference between physicians, nurses, and dentists in the distribution of number of cigarettes smoked. However, male doctors tend to smoke many more cigarettes per day than female doctors do. Nearly 41 percent of male doctors smoke 21 or more cigarettes a day; only 30.8 percent of female doctors smoke that many. Among male nurses, 36.7 percent smoke 21 or more cigarettes a day, compared with 23.8 percent of female nurses.

Older persons tend to remain with higher tar cigarettes. Table 4 shows the proportion of smokers in the three professional groups classified by the tar levels of the cigarettes they smoked in 1982. Among male doctors, 12 percent smoked cigarettes with less than five mg, and 27.9 percent smoked cigarettes with 20 or more mg of tar (mostly nonfilter cigarettes). Twenty percent of female physicians smoked cigarettes with the lowest yields. Fewer female nurses than female doctors smoked cigarettes with less than five mg tar—14.3 percent versus 20.3 percent. Only 6.7 percent of male nurses smoked cigarettes with less than five mg tar.

Factors Related to Quitting

Female physicians and nurses smoke, on the average, fewer cigarettes a day than their male counterparts. In theory, at least, it should therefore be easier for females than for male health professionals to quit, since the number of cigarettes smoked per day is related to quit rates.²⁰

Another factor related to quitting is the tar content of the cigarettes smoked. Although some studies suggest that quitters compensate for switching to lower tar/nicotine cigarettes by smoking more cigarettes and inhaling more deeply, evidence from CPS I indicates that those who smoke

TABLE 2
CURRENT CIGARETTE SMOKERS:
PERCENTAGE BY AGE AND SEX AMONG
HEALTH PROFESSIONALS

Age Group	Physicians		Nurses		Dentists*
	Male	Female	Male	Female	Male
30-39	16.6	21.1	46.8	27.6	9.2
40-49	17.4	23.0	41.5	26.8	19.2
50-59	17.6	25.1	48.0	24.4	16.2
60-69	15.5	17.3	27.9	20.1	15.6
70-79	10.0	10.9	30.8	15.0	12.1
80+	12.0	—	—	6.0	8.7
Total	16.2	21.3	41.3	23.6	16.0
Number of Smokers	1,556	369	136	10,425	457
Total Subjects	9,588	1,736	329	44,239	2,855

*37 female dentists were not included in this table.

lower yield cigarettes have higher quit rates than do smokers of higher yield cigarettes.²¹ Many people who cannot stop smoking have switched to lower tar cigarettes. Those in professional groups have switched to a greater degree than others.

There have been vast changes in cigarette preference toward lower tar/nicotine cigarettes in the last 20 years. In the current study, 21 percent of all male smokers and 32 percent of all female smokers smoked cigarettes with less than 10 mg tar. In comparison, 27 percent of male physicians and 25 percent of male dentists smoked cigarettes with less than 10 mg tar. Among female nurses, however, the percentage who had switched to cigarettes with less than 10 mg tar was about the same as for women smokers in the study population as a whole.

Age is an important determinant of smoking rates. Smoking among male and female physicians reached a peak rate in the cohort born between 1920 and 1930. This group was mostly in the 50-to-59 year age range in 1982. The peak rate in dentists was in the age group 40 to 49. This suggests that even without a concerted effort to persuade physicians and dentists to stop smoking, the percent who smoke will diminish with time.

No such phenomenon has been seen in female nurses. The cohort with the highest smoking rate is the 30-to-39 year age group; this suggests that smoking rates in female nurses will continue to remain relatively high, especially in younger cohorts and student nurses, unless there are effective antismoking programs to curb this trend.

TABLE 3
CURRENT CIGARETTE SMOKERS:
PERCENTAGE BY NUMBER SMOKED PER DAY
AMONG HEALTH PROFESSIONALS

Number of Cigarettes Per Day	Physicians		Nurses		Dentists*
	Male	Female	Male	Female	Male
1-9	15.6	15.0	18.3	16.1	15.3
10-19	18.0	22.3	19.1	25.0	16.3
20	25.8	31.9	25.9	35.1	30.8
21-39	20.1	18.4	15.3	15.2	23.8
40+	20.5	12.4	21.4	8.6	13.8
Total	100.0	100.0	100.0	100.0	100.0
Number of Subjects	1,420	354	131	9,984	399

*37 female dentists were not included in this table.

Comparison with Other Studies

This study is generally in agreement with the various surveys of health professionals that have been done in the 1980s. The extent to which results differ among such surveys may be explained by a number of factors, including ages, locations, sample sizes, and subspecialties involved. Studies may also differ according to the wording of questionnaires, and even in the exact way in which smoking is defined.

One possible biasing factor in cross-sectional studies of health professionals may occur as a result of the social stigmatization of smoking that has taken place in the recent past; this may lead to incomplete or occasionally untruthful replies. Most mail interview studies, for example, will elicit replies from more nonsmokers than smokers. The same could be said of distribution of questionnaires at medical, dental, or nursing conventions. The extent to which

such bias operates in the present study is not known.

Discussion

Smoking among health professionals continues to decline; both male and female physicians and dentists currently smoke at rates lower than those of their counterparts in the population at large. For example, CPS II shows that, in 1982, 25 percent of all men smoked, and 21.5 percent of all women, compared with 16.2 percent of male physicians, 21.3 percent of female physicians, and 16.0 percent of male dentists.

Among nurses, however, even though there has been a decline in the smoking rate of 2.3 percent between 1972 and 1982, the incidence of smoking continues to exceed that of the female population in general: 23.6 percent of female nurses smoke.

Among male nurses, smoking remains very high: 41.3 percent smoke cigarettes.

TABLE 4
CURRENT CIGARETTE SMOKERS:
PERCENTAGE BY TAR YIELD OF CIGARETTES SMOKED
AMONG HEALTH PROFESSIONALS

Tar Yields	Physicians		Nurses		Dentists*
	Male	Female	Male	Female	Male
< 5 mg	12.1	20.3	6.7	14.3	10.5
5-9 mg	14.5	17.6	13.3	18.1	14.6
10-14 mg	33.2	42.1	35.0	45.9	33.3
15-19 mg	12.3	13.2	22.5	13.5	13.0
20 mg +	27.9	6.8	22.5	8.2	28.6
Total	100.0	100.0	100.0	100.0	100.0
Number of Subjects	1,371	340	120	9,807	370

* 37 female dentists were not included in this table.

TABLE 5
TRENDS IN PERCENTAGE
OF SMOKERS AMONG HEALTH PROFESSIONALS,
1972 AND 1982

	CPS I 1972	CPS II 1982
Male Physicians	19.5	16.2
Female Physicians	—	21.3
Male Nurses	—	41.3
Female Nurses	25.9	23.6
Male Dentists	21.7	16.0
Total Male Population	24.9	25.0
Total Female Population	19.8	21.5

Because the number of male nurses is relatively small, however, this figure is obscured in the statistic for total smoking among nurses. Table 5 compares smoking incidence among health professionals in 1972 and 1982.

Conclusion

Many studies have focused on the role of

physicians and other health professionals in persuading smokers to quit. Patients comply with advice more readily when there is a serious illness than when there is not,²² but health professionals can have an impact nonetheless. They can serve as exemplars, as sources of information about quitting, and as providers of support and encouragement for those who are trying to live healthier lives by giving up cigarettes. @

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