Alcohol Use and Abuse in Random Samples of Physicians and Medical Students

ABSTRACT

Background. This study sought to resolve conflicting views about whether physicians are especially prone to alcohol abuse.

Methods. Using an anonymous, mailed questionnaire on substance use, we surveyed 500 physicians, 510 pharmacists, and 974 of their students. The physicians and pharmacists were selected randomly from the state society's membership lists, and students selected were from local school lists. Follow-up surveys were sent to nonresponders at two-week intervals.

Results. The physicians and medical students did not drink especially heavily and were no more vulnerable to alcoholism than were their counterparts in pharmacy and other professions. Physicians differed from pharmacists in their style of drinking (greater frequency, smaller quantity), but not in total amount of alcohol consumed. Drinking habits among physicians were not associated with medical specialty or type of practice, but were positively related to gender (males drank more than females) and to age (older doctors were more apt to qualify as heavy drinkers than were younger doctors).

Conclusions. Physicians were no more likely to abuse substances nonmedically than were other professionals. Any group in which alcohol use is nearly universal incurs a risk of abuse and impairment that cannot be ignored. (*Am J Public Health* 1991; 81:177–182)

William E. McAuliffe, PhD, Mary Rohman, PhD, Paul Breer, PhD, Grace Wyshak, PhD, Susan Santangelo, BA, and Elizabeth Magnuson, MS

Introduction

The authors previously presented evidence that many physicians, pharmacists, and their students have used controlled drugs for self-treatment and nonmedical purposes.[1] In his commentary, Lewis[2] cited the authors' failure to include alcohol use in their report. Some authors[3–5] have concluded that physicians are especially prone to alcoholism, while others[6–9] have concluded the opposite. Brewster[6] identified methodological flaws and contradictory findings in studies comparing physicians to other groups regarding cirrhosis mortality[10–13] and hospital admissions for alcoholism.[14–19] She concluded that surveys of physicians regarding alcohol use produce the most valid comparisons.[6,*] Our search of the literature revealed that few surveys have been reported to date,[7,8,20–25] and these have been limited by either small,[7,20,21] selective,[20,23] or nonrandom samples;[8,21,24] lack of anonymity for respondents;[21] incomplete measures;[27] minimal reporting of alcohol results;[22] or absence of comparable data on nonphysicians.[7,24,25] Studies of medical students suffered from similar limitations,[26] but recent studies have improved our knowledge substantially.[7,27–34]

This article presents a comprehensive picture of current and lifetime physician alcohol use and abuse from surveys of doctors and medical students, with comparative data on pharmacists, pharmacy students, and lawyers. The article also describes how physicians' drinking varies by medical specialty, type of practice, gender, and age.

Methods

The bulk of the data come from a previously described,[1] mailed, questionnaire survey (November 1984) of 500 physicians randomly sampled from the membership (8,400) of a state medical society, and 504 medical students randomly drawn from medical schools (combined enrollment of 1,438) in the same state. Approximately 73 percent of the state's physicians were society members in 1984. Comparative data come from a sample of 510 pharmacists randomly selected from the membership (1,270) of the state's pharmaceutical society and 470 pharmacy students randomly drawn from area schools (combined enrollment of 1,160). Each mailing packet contained a questionnaire, a letter assuring anonymity, and a post card with instructions to return it separately so that names could be removed from the follow-up mailing list. Second and third mailings and a reminder phone call to nonrespondents followed at two-

*McAuliffe WE, Breer PE: Are physicians more susceptible to alcoholism and substance abuse than are other professionals? The con view. Paper presented at the Joint Meeting of the American Medical Society on Alcoholism and Other Drug Dependencies and the Research Society on Alcoholism, San Francisco, CA, April 22, 1986.

Address reprint requests to William E. McAuliffe, Department of Psychiatry, Harvard Medical School, Cambridge Hospital, 1493 Cambridge Street, Cambridge, MA 02139. He is also with the Department of Behavioral Sciences at Harvard School of Public Health; Dr. Breer also holds an appointment at the Harvard Medical School. Dr. Rohman is with Blue Cross Blue Shield of Massachusetts; Dr. Wyshak is with the Center for Population Studies, Harvard University; Ms. Santangelo is with the Department of Epidemiology, and Ms. Magnuson is with the Department of Biostatistics, both at Harvard School of Public Health.

This paper, submitted to the Journal June 22, 1990, was revised and accepted for publication September 20, 1990.

TABLE 1—Drinking in the Last Year

	Physicians (n = 337)	Pharmacists (n = 312)	Medical Students (n = 381)	Pharmacy Students (n = 278)
Quantity/Frequency				
Mean drinks/month[a]	20.3	21.2	13.3#	15.1*
Mean drinking days/month	9.9	8.1*	5.3#	3.9#
Mean drinks/drinking day	1.7	1.9*	2.1#	2.9*#
Admitted Having Current Drinking Problem (%)	2	1	3	1

[a]Exceeds product of drinking days per month and drinks per day. The mean of ratios (products) equals the ratio of means only under special conditions.[38]
*Difference ($p < .05$) either between physicians and pharmacists or between medical students and pharmacy students, controlling for age, gender, and citizenship.
#Difference ($p < .05$) either between physicians and medical students or between pharmacists and pharmacy students, controlling for gender and citizenship.

week intervals. The Committee on the Use of Human Subjects in Research at the Harvard School of Public Health approved the procedures.

Measures of Drinking Behavior and Problems

Responding to fixed alternative items, subjects qualitatively characterized their drinking since entering college, recorded whether they currently or ever had a drinking problem, and how frequently they experienced specific dysfunctions due to drinking (Table 2). For analysis we divided dysfunctions into "minor" and "major." Subjects also reported how often they drank in the past year (frequency) and how many drinks they typically consumed on each occasion (quantity). One drink was defined as 12 oz of beer, 3.5 oz of wine, or 1 oz of liquor. From those quantity/frequency reports, the investigators constructed a typology of current drinking patterns using the cutoff for heavy drinking (61+ drinks per month) employed by other researchers.[35,36]

Alcohol Abuser and Potential Abuser Operationally Defined

"Alcohol abuse" included both pathological use and significant dysfunction due to drinking, in accordance with DSM-III criteria.[37] "Pathological use" meant an average of more than three drinks per day in the past year, characterizing self as a lifetime "problem" drinker, or admitting a past or current drinking problem. "Significant dysfunction" was operationalized as a score of at least three on a scale of *minor* dysfunctions *or* a score of at least one on a scale of *major* dysfunctions. Scores were computed by assigning zero for a response of "never," one for "once or twice," two for "sometimes," and three for "often," and then summing across the four items in each scale.

A "potential abuser" had to report a combination of "heavy" alcohol use and "some dysfunction" due to drinking. "Heavy use" meant either an average of more than two drinks per day in the past year, or self-characterization as a lifetime heavy drinker. "Some dysfunction" was defined as at least one minor or major dysfunction due to drinking.

Statistical Methods

The methods used for comparing sample statistics included 95 percent confidence intervals and significance tests based on the *t* and chi-square distributions, multiple regression, and multiple logistic regression, depending on the number and measurement level of variables. The standard error calculations assumed infinite populations; all tests were two-tailed.

The Wyshak Sample

Unpublished quantity/frequency data will also be presented from a second survey of physicians and lawyers described elsewhere by Wyshak, *et al.*[22] This second physician sample was drawn randomly from the Department of Public Health's list of registered physicians in the same state five years before.

Results

Survey Response

After unlocatable and deceased respondents were removed from the four samples, the response rates were 70 percent for physicians, 78 percent for medical students, 76 percent for pharmacists, and 67 percent for pharmacy students. The figures for the two professional samples compared favorably with Wyshak's survey.[22] A few questionnaires returned by nonpracticing professionals and students who had left school were excluded to produce final samples of 337 physicians, 312 pharmacists, 381 medical students, and 278 pharmacy students. Responding physicians did not differ significantly from nonrespondents with respect to specialty, type of practice, sex, or geographical distribution. Only data on sex were available for the other three samples; medical school females responded more often than males (83 percent vs 75 percent, respectively), but no difference was found among pharmacists or pharmacy students. For the survey as a whole, how soon a respondent returned his/her questionnaire did not correlate with number of drinks in the past year, lifetime pattern of drinking, or reporting having ever had a drinking problem. However, doctors who reported having ever had a drinking problem tended to return their questionnaires later rather than sooner ($r = .09$; CI = +.04, +.14).

Despite the educational differences between the physicians and pharmacists, the samples were nearly identical in age (mean of 46 for both), gender (85 and 84 percent male respectively), and US citizenship (97 and 99 percent respectively). More pharmacists (79 percent) than physicians (66 percent) attended religious services. Medical students were older (25 vs 22 years), more often males (59 vs 44 percent), less religious, and more often American (99 vs 91 percent) than were pharmacy students. When appropriate, these variables are controlled in subsequent analyses, but since the samples were so similar, the adjustments made a difference only between practitioners and students (age was not controlled).

Drinking in the Last Year

There is no consistent evidence that physicians or medical students currently drink more than their counterparts in pharmacy (Table 1). While physicians and medical students reported drinking more *frequently* than the pharmacy samples, the pharmacy samples reported consuming greater *quantities* per drinking episode. In both medicine and pharmacy, practitioners drank more often than students but consumed less per episode. These zero-order differences remained when demographics were controlled.

There were only minor differences in current patterns of drinking among the four samples. Most respondents (e.g., 86 percent of doctors) in all four groups were

TABLE 2—Dysfunction Due to Drinking (% Ever)[a]

Has your drinking ever caused you to:	Physicians (n = 337)	Pharmacists (n = 312)	Medical Students (n = 381)	Pharmacy Students (n = 278)
Minor Dysfunction				
Get behind in your work/studies	1	4	9#	12#
Call in sick or be late for work/school	4	5	15#	14#
Have trouble getting along with people	4	3	6	4
Worry that you might be using too much or too often	15	8*	13	9
One or more minor dysfunctions	17	11	22	21#
Major Dysfunction				
Seriously consider suicide	1	0	1	1
Have an auto accident or other type of accident	2	3	4	2
Provide less than your best patient care/get poor grades	3	2	2	6
See a psychiatrist, psychologist, social worker, or counselor	3	2	1	1
One or more major dysfunctions	5	5	5	8

[a]Item response options were "never," "once or twice," "sometimes," and "often." All percentages here are for "once or twice" or greater.
*Difference ($p < .05$) between either physicians and pharmacists or medical students and pharmacy students.
#Difference ($p < .05$) between either physicians and medical students or pharmacists and pharmacy students.

either light or moderate drinkers. The primary difference between the medical and pharmacy samples was in the percentage of abstainers (4 percent of doctors, 5 percent of medical students, 10 percent of pharmacists, and 11 percent of pharmacy students). Currently abstaining practitioners had a past or have a current (nonactive) drinking problem in some cases (one-third of physician abstainers, one-seventh of pharmacist abstainers). The major difference between practitioners and students was in the percentage of heavy drinkers (10 percent doctors, 12 percent pharmacists, 6 percent both medical and pharmacy students). When the amount of drinking was dichotomized at 61 drinks per month (cutoff for heavy drinking), the percentage difference between practitioners and students was estimated by logistic regression to be 5.7 (95 CI = 2.4, 8.9); that difference declined to 3.4 (0.1, 6.8) when gender and citizenship were included.[39]

Few respondents admitted to having a current drinking problem (from 1 to 3 percent; Table 1). There was, however, evidence of possible denial among heavy drinkers. While most of the respondents who admitted to a drinking problem also reported drinking very heavily (91+ drinks per month), the reverse was not true. Of the 13 physicians who reported drinking very heavily, only four saw themselves as having a current drinking problem, even though some of them admitted averaging over six drinks a day. Among pharmacists, only two of 17 very heavy drinkers reported a current problem. Among students, the figures were five of nine in medicine and zero of seven in pharmacy.

The Wyshak, *et al,* sample reported similar levels of drinking in the last year. With females eliminated to facilitate comparison, the mean of drinks per episode was almost identical (1.8 vs 1.7), and slightly more of Wyshak's sample reported heavy drinking (15.6 vs 12.4). Wyshak's physicians, however, averaged more drinking days per year (152 vs 126) than did ours ($p < .05$).

Lifetime Drinking Behavior and Problems

When asked to characterize their drinking pattern since entering college, most respondents (e.g., 91 percent of physicians) also described themselves as either light or moderate drinkers. Physicians differed significantly from pharmacists primarily in the percentage of abstainers (6 percent doctors, 12 percent pharmacists) as did medical students (7 percent) from pharmacy students (14 percent). There were no differences across the samples in the percentage of lifetime heavy or problem drinking. In all four samples, 4 percent of respondents admitted having ever had a drinking problem since entering college.

Dysfunction Due to Drinking

Although one in six physicians had worried at least once that he or she might be drinking too much, few reported a major dysfunction due to drinking (Table 2). Three percent of the physicians indicated that at least "once or twice" drinking had caused them to give less than their best patient care, and 3 percent had sought professional treatment for their drinking at some time in their careers. All told, 17 percent of physicians had ever experienced at least one dysfunction, while 10 percent had experienced two or more.

Physicians were more apt to worry about their drinking then were pharmacists (ratio of 1.9:1), and students were more likely than practitioners to report at least one minor dysfunction (ratio of 1.8:1). Most of the difference between practitioners and students, however, was in the two items that were worded differently for the two groups (work vs school).

Lifetime Abusers and Potential Abusers

Although physicians and medical students had slightly smaller percentages of combined abusers and potential abusers than the pharmacy samples (Figure 1), none of the samples differed significantly from the others on abuse, potential abuse, or the sum of the two. Controlling for gender and citizenship did not alter that finding. Of the 4 percent of physicians who abused alcohol at some time in their lives, half reported either no drinking or moderate drinking in the past year; the other half were still drinking heavily.

Subject Characteristics and Alcohol Use

Alcohol use was not related to medical specialty, type of practice (solo, group, and so on), citizenship, or religiosity, but was associated with both gender and age. Male physicians averaged 10.5 drinking days per month in the last year to only 6.5 for female physicians (CI for difference = 1.2, 7.0); male physicians also consumed more drinks per occasion (1.7 vs 1.2; CI for difference = 0.2, 0.8). However, like the male physicians, 4 percent of the female physicians qualified as ever being alcohol abusers, primarily on the basis of having a past drinking problem.

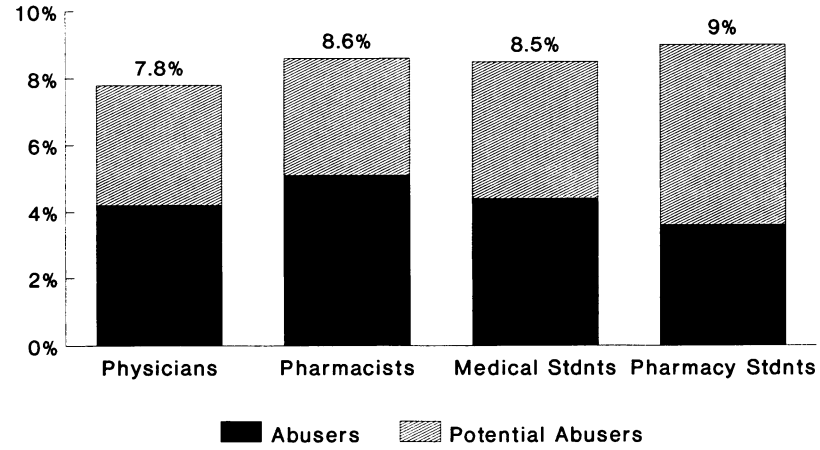

FIGURE 1—Lifetime abusers and potential abusers.

Abusers = pathological use plus impairment. Potential Abusers = pathological use plus minor impairment.

The gender difference in current drinking behavior was equally striking among pharmacists, but not among the student groups. Among medical students, males drank more than females in the last year, averaging 15.2 drinks per month to 10.4 for the females (CI for the difference = 0.8, 9.0). The sex difference, however, was only about a third as large as that for physicians.

Whereas gender bears the same relationship to drinking among our four samples as it does in the US population as a whole, the relationship between age and drinking is reversed (Figure 2, where females have been removed from all samples). Heavy drinking *decreases* with age for US males in general[35] (a finding confirmed in cross-sectional and cohort studies[40]), but it *increases* with age for both physician samples. Like physicians, pharmacists begin drinking much less than do US males, but jump quickly to a level close to that of the US population and remain at that level thereafter. Lawyers start somewhat lower than US males, peak sharply in their forties, and decline to a level slightly higher than physicians in their fifties and sixties.

Discussion

None of the present findings from our sample or the Wyshak, *et al,* sample indicates that physicians or medical students are especially prone to heavy drinking, alcohol problems, or alcohol abuse. The unique relationship between age and heavy drinking in these medical samples is confirmed by small surveys of residents and young physicians by the present authors[7] and another team in the same state,** and by physicians in another country.[25] It was also supported by data from a 20-year longitudinal study comparing a small sample of physicians with controls.[20] Analysis of data on job and life stress from this present study and our previous investigation[7] indicated that the association between physician age and drinking persists even after stress was controlled.

Several lines of argument support the validity of our survey methodology.[6] Recent reviews of the validity of self-report alcohol consumption data have found that they are generally valid.[41–44] Eight studies of clinical populations (i.e., individuals with a drinking problem) revealed "a high degree of agreement between patients and collaterals (family members) with no consistent direction of error."[41] Five nonclinical population surveys "yielded somewhat similar findings."[41]

There is conflicting evidence regarding the possible biasing effect of survey nonresponse. One study of physicians[45] found that attaining a survey completion rate higher than that found here had little effect on the results. Another investigation[46] reported no systematic relationship between probability of response and amount of alcohol consumption. Two other studies (one on cigarette use[47] and another on alcohol use in Sweden[42]) found that heavy users were more likely than light users to be nonrespondents. The close match between our sample and the medical society's members, and the generally weak correlations between drinking measures and promptness of response to our survey by doctors, suggests that any bias in the present study is probably small.

While severe alcoholics who are no longer practicing medicine may have been omitted from the sampling list, research tells us that impaired physicians rarely drop out of medicine or do so only briefly.[48] During 1984, the state from which the

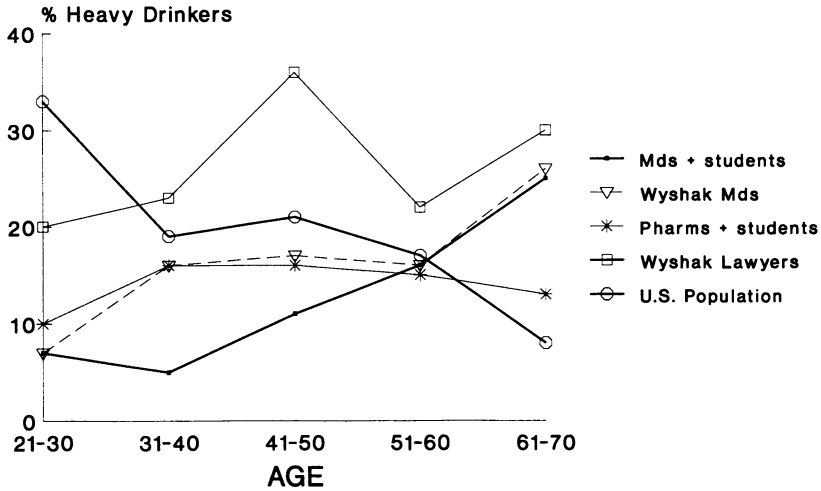

FIGURE 2—Heavy drinking by male doctors, pharmacists, and lawyers, according to age.

Note: US data from Clark and Midanik.[35]

**Gortmaker SL, Cheung L, Cleary P, Lampert S, Peterson N, Wechsler H: Results of the 1986 Harvard Health Survey at the Harvard School of Public Health, unpublished.

samples were drawn revoked the licenses of fewer than five physicians per 10,000 for all reasons.[49]

If the prevalence of alcohol use and abuse among physicians has been underestimated because of nonrespondents, that bias is probably no less true of pharmacists or medical students and pharmacy students. Since there is no reason to suspect *differential* bias, the results showing physicians and medical students to be no more vulnerable to alcoholism than pharmacists and pharmacy students are most likely valid. However, because of the nonresponse bias that has sometimes been found in surveys,[43,45,47] figures on the absolute prevalence of alcoholism for physicians and nonphysicians alike should be considered conservative.

Although the weight of evidence here and in previous studies[7,8,22,23,31,50,52] indicates that physicians and medical students are no more apt to abuse alcohol than are members of other professions, it is of some importance to the medical profession that, given the critical nature of their work, physicians are as vulnerable as their peers. The importance of the impaired physicians movement remains as an effective and humane model for handling problems of addiction. The findings reported here can best be used to remind us all that in any group where alcohol use is nearly universal and use rates are more than nominal, the risk of abuse and impairment cannot be ignored. □

Acknowledgments

The authors gratefully acknowledge the computing help of Dr. Cathie Spino and Barry Feldman and the cooperation and support of the state medical and pharmaceutical societies, as well as the professional schools. Grants (DAO3372; DAO4418; DAO5271) from the National Institute on Drug Abuse supported this research.

References

1. McAuliffe WE, Rohman M, Santangelo S, Feldman B, Magnuson E, Sobol A, Weissman J: Psychoactive drug use among practicing physicians and medical students. N Engl J Med 1986; 315:805–810.
2. Lewis DC: Doctors and drugs. N Engl J Med 1986; 315:826–828.
3. Glatt MM: Alcoholism an occupational hazard for doctors. J Alcohol 1976; 11:85–91.
4. Murray RM: Alcoholism and employment. J Alcohol 1975; 10:23–26.
5. Stimmel B: Alcoholism and drug abuse in the affluent: Is there a difference? Adv Alcohol Subst Abuse 1984; 4:1–11.
6. Brewster JM: Prevalence of alcohol and other drug problems among physicians. JAMA 1986; 255:1913–1920.
7. McAuliffe WE, Rohman M, Wechsler H: Alcohol, substance use, and other risk-factors of impairment in a sample of physicians-in-training. Adv Alcohol Subst Abuse 1984; 4:67–88.
8. Niven RG, Hurt RD, Morse RM, Swenson WM: Alcoholism in physicians. Mayo Clin Proc 1984; 59:12–16.
9. Webster TG: Problems of drug addiction and alcoholism among physicians. *In:* Scheiber SC, Doyle BD (eds): The Impaired Physician. New York: Plenum Medical Book Company, 1983.
10. Dickinson FG, Martin LW: Physician mortality, 1949–1951. JAMA 1956; 162:1462–1471.
11. Dublin LI, Spiegelman M: The longevity and mortality of American physicians, 1938–1942. JAMA 1947; 134:1211–1215.
12. Everson RB, Fraumeni JF: Mortality among medical students and young physicians. J Med Educ 1975; 50:809–811.
13. Rawnsley K: Alcoholic doctors. J Alcohol Alcoholism 1984; 19:257–259.
14. a'Brook MF, Hailstone JD, McLauchlan IEJ: Psychiatric illness in the medical profession. Br J Psychiatry 1967; 113:1013–1023.
15. Franklin RA: One hundred doctors at the retreat: A contribution to the subject of mental disorder in the medical profession. Br J Psychiatry 1977; 131:11–14.
16. Jones RE: A study of 100 physician psychiatric patients. Am J Psychiatry 1977; 134:1119–1123.
17. Murray RM: Psychiatric illness in male doctors and controls: An analysis of Scottish hospital inpatient data. Br J Psychiatry 1977; 131:1–10.
18. Small IF, Small JG, Assue CM, Moore DF: The fate of the mentally ill physician. Am J Psychiat 1969; 125:1333–1342.
19. Vincent MO, Robinson EA, Latt L: Physicians as patients; private psychiatric hospital experience. Can Med Assoc J 1969; 100:403–412.
20. Vaillant GE, Brighton JR, McArthur C: Physicians' use of mood-altering drugs. N Engl J Med 1970; 282:365–370.
21. Krakowski AJ: Stress and the practice of medicine: II. Stressors, stresses, and strains. Psychother Psychosom 1982; 38:11–23.
22. Wyshak G, Lamb GA, Lawrence RS, Curran WJ: A profile of health-promoting behaviors of physicians and lawyers. N Engl J Med 1980; 303:104–107.
23. McCracken BE: Partnerships for the future in preventive health care. J Fl Med Assoc 1980; 67:817–825.
24. Moore RD, Mead L, Pearson TA: Youthful precursors of alcohol abuse in physicians. Am J Med 1990; 88:332–336.
25. Juntunen J, Asp S, Olkinuora M, Aarimaa M, Strid L, Kauttu K: Doctors' drinking habits and consumption of alcohol. Br Med J 1988; 297:951–954.
26. Borkman T, Rosenberg N: What do we know about medical students' use and abuse of alcohol and other drugs? Alcohol Health Res World 1986; 10:54–59.
27. Myers T, Weiss E: Substance use by interns and residents: An analysis of personal, social, and professional differences. Br J Addict 1987; 82:1091–1099.
28. Herzog DB, Borus JF, Hamburg P, Ott IL, Concus A: Substance use, eating behaviors, and social impairment. J Med Educ 1987; 62:651–657.
29. Westermeyer J: Substance abuse among medical trainees: Current problems and evolving resources. Am J Drug Alc Abuse 1988; 14:393–404.
30. Golding JF, Cornish AM: Personality and life-style in medical students: Psychopharmacological aspects. Psychology Health 1987; 1:287–301.
31. Conard S, Hughes P, Baldwin DC, Achenbach KE, Sheehan DV: Substance use by fourth-year students at 13 US medical schools. J Med Educ 1988; 63:747–758.
32. Forney MA, Ripley WK, Forney PD: A profile and prediction study of problem drinking among first-year medical students. Int J Addict 1988; 23:767–779.
33. Clark DC, Daugherty SR: A norm-referenced longitudinal study of medical student drinking patterns. J Sub Abuse 1990; 2:15–37.
34. Schwartz RH, Lewis DC, Hoffman NG, Kyriazi N: Cocaine and marijuana use by medical students before and during medical school. Arch Intern Med 1990; 150:883–886.
35. Clark W, Midanik L: Alcohol use and alcohol problems among US adults: Results of the 1979 national survey. *In:* Alcohol Consumption and Related Problems, Alcohol and Health Monograph One. Rockville, MD: National Institute of Alcohol Abuse and Alcoholism, 1982.
36. Sanchez-Craig M, Israel Y: Pattern of alcohol use associated with self-identified problem drinking. Am J Public Health 1985; 75:178–180.
37. American Psychiatric Association: Diagnostic and Statistical Manual of Mental Disorders, Third Edition. Washington, DC: APA, 1980.
38. Glass GV, Stanley JC: Statistical Methods in Education and Psychology. Englewood Cliffs: Prentice-Hall, 1970; 72.
39. Cleary PD, Angel R: The analysis of relationships involving dichotomous dependent variables. J Health Soc Beh 1984; 25:334–348.
40. Fillmore KM: Prevalence, incidence, and chronicity of drinking patterns and problems among men as a function of age: A longitudinal and cohort analysis. Br J Addict 1987; 82:77–83.
41. Midanik L: The validity of self-reported alcohol consumption and alcohol problems: A literature review. Br J Addict 1982; 77:357–382.
42. Pernanen K: Validity of survey data on alcohol use. *In:* Gibbins RJ, Israel Y, Kalant H, Popham RE, Schmidt W, Smart RG (eds): Research Advances in Alcohol and Drug Problems, Vol. 1. New York: Wiley, 1974.
43. Hilton ME: A comparison of a prospective diary and two summary recall techniques for recording alcohol consumption. Br J Addict 1989; 84:1085–1092.
44. Midanik L: Perspectives on the validity of self-reported alcohol use. Br J Addict 1989; 84:1419–1423.
45. Berk ML: Interviewing physicians: The effect of improved response rate. Am J Public Health 1985; 75:1338–1340.
46. Glynn RJ, Laird NM, Rubin DB: Selection

modeling versus mixture modeling with nonignorable nonresponse. *In:* Wainer H (ed): Inferences from Self-Selected Samples. New York: Springer Verlag, 1986.
47. Burgess AM, Tierney JT: Bias due to nonresponse in a mail survey of Rhode Island physicians' smoking habits. N Engl J Med 1970; 282:908.
48. Bissell L, Haberman PW: Alcoholism in the Professions. New York: Oxford University Press, 1984.
49. Lehman BA: Policing doctors—where does the buck stop? Boston Globe Sept 9, 1985; 41–42.
50. Krakowski AJ: Stress and the practice of medicine: III. Physicians compared with lawyers. Psychother Psychosom 1984; 42:143–151.
51. Engs RC: Drinking patterns and attitudes toward alcoholism of Australian human-service students. J Stud Alc 1982; 43:517–531.
52. Coe R, Miller D, Wolff M, Prendergast J, Pepper M: Attitudes and health promoting behavior of medical and law students. Am J Public Health 1982; 72:725–727.

Comments Sought on Product Safety Aspects Examination

The Board of Certified Safety Professionals (BCSP) has offered the Product Safety Aspects Examination since October 1981. In that nine-year period, very few candidates for certification have selected this specialty examination. Currently, there are only 25 Certified Safety Professionals certified in Product Safety Aspects.

Maintaining a good quality examination is costly. The number of candidates taking the Product Safety Aspect Examination has been so small that the fee income from the candidates who take it does not cover the costs associatied with its development and maintenance.

Because of the limited interest and the cost of maintaining the examination, BCSP is considering whether or not to offer Product Safety Aspects as a specialty. In making this decision, the Board is attempting to determine if the demand for the examination will change in the future or if there are special circumstances that would justify its continutation even with a small number of candidates. Examples of factors which could result in increased demand for the examination are changing regulatory requirements or increasing employer/client emphasis on certification in Product Safety Aspects.

To assist in making this decision, the BCSP is soliciting comments and opinions from all interested parties. Comments on this issue may be submitted to: Micharel K. Orn, CSP, Executive Director, Board of Certified Safety Professionals, 208 Burwash Avenue, Savoy, IL 61874-9510; Tel: (217) 359-9263; Fax: (217) 359-0055.