A Comparison of Health Professions Student Attitudes Regarding Tobacco Curricula and Interventionist Roles


Abstract: Health care providers who feel prepared are more apt to assume tobacco interventionist roles; therefore, educational preparation is critical. A nonprobability sample of health professions students at an urban academic health center were asked to respond to a twenty-two-item survey eliciting demographic, behavioral, and tobacco-related attitudinal information. Frequency distributions were assessed with Pearson chi-square statistics. The overall response rate was 76.7 percent, and final sample size was 319. Current use of spit tobacco (ST) was 2.5 percent and current smoking 5.6 percent. In comparing current smokers to nonsmokers and current ST users to nonusers, we found that no differences in proportion agreeing with any of the five questions about attitudes and opinions were statistically significant at p-value 0.05. At least 70 percent of students from each of six health professions programs agreed it was their professional responsibility to help smokers quit, and at least 65 percent agreed to the same responsibility for helping ST users quit. The proportion agreeing that their programs had course content describing their role in helping patients quit tobacco use varied widely by program from 100 percent agreement among dental hygiene and pharmacy students to 14.6 percent of physical therapy students (p-value <0.001). When asked whether their program adequately prepared them to help smokers quit, agreement ranged from 100 percent among dental hygiene students to only 5.5 percent among physical therapy students (p-value <0.001). Almost 90 percent of dental hygiene students agreed that they were adequately trained to help ST users quit, but no other program had a percentage of agreement above 34 percent (p-value <0.001). Consistent and comprehensive multidisciplinary tobacco-related curricula could offer desirable standardization.

Tobacco-use is widely recognized as the single most preventable cause of premature death in the United States. The economic, physical, and psychosocial costs of tobacco use to society are enormous. Throughout the scientific literature, research highlights the importance of the medical, dental, dental hygiene, and nursing professions’ promotion of tobacco use prevention and cessation.

For over a decade, the oral health professions have demonstrated strong interest in and commitment to their involvement in tobacco use interventions. Professional associations for dentists and dental hygienists have developed tobacco-related policy statements and have structured bodies (such as special interest groups) that address tobacco-related topics. The American Dental Education Association (ADEA), in particular, has embraced the oral health professional’s role in tobacco intervention.

A recent ADEA study presented an overview of tobacco curricula in U.S. dental schools. Independent researchers conducted other large-scale national surveys of tobacco curriculum content in U.S. dental and dental hygiene schools in 1989, 1990, 1994, and 1999. Tobacco curriculum content has increased, and dental and dental hygiene students have demonstrated generally positive perceptions toward tobacco intervention roles, but practitioners and students continue to feel unprepared to assume these roles. There have been numerous recommendations to increase curriculum time devoted to tobacco topics to help graduates feel prepared to assume interventionist roles in practice. Despite exposure to tobacco-related curriculum content, seeing changes in clinician practice attitudes and behaviors may take some time.

In a national survey of medical schools, Ferry et al. concluded that a majority of U.S. medical school graduates are not trained adequately to treat nicotine dependence and that they lack smoking cessation instruction and evaluation in the clinical years. Other reports in the medical and nursing literature
have addressed the topic of clinician preparation, behaviors related to tobacco interventions, and curricular assessments. In general, curriculum survey findings from the national and international medical and nursing literature parallel those of the dental literature. Curriculum content appears to be lacking, and students feel unprepared to implement tobacco-use interventions. Little related information is available about other health professions.

The dental and dental hygiene literature also includes many reports of office and academically based interventions and attitudinal surveys. In studies of dental students, dental hygiene students, and practitioners, positive attitudes were reported toward roles as tobacco use interventionists. Yet, despite positive attitudes and continued efforts by individuals within the dental community, widespread professional involvement is lacking. In a national survey of office-based practices, Dolan et al. found that tobacco cessation activities are not a routine part of dental practice. Only 33 percent of dentists and 25 percent of dental hygienists asked a majority of patients seen in the previous three months if they smoked. Studies conducted in Minnesota and the upper Midwest also revealed that tobacco interventions are not a routine part of clinical dental and dental hygiene practice.

Lack of participation in tobacco cessation interventions among other health professions in the United States has been reported widely in the literature. Commonly reported perceived barriers to adopting tobacco intervention practices among physicians and other professionals include patient reaction and lack of time and reimbursement. In addition, tobacco-using clinicians, regardless of discipline, have been shown to be less proactive than their non-using counterparts. International studies of physicians report similar barriers. Several reports also found more proactive behaviors among physicians than among dentists. Consistently, one finding emerges from the myriad of published surveys among the health professions: clinicians lack confidence and/or feel unprepared to conduct tobacco use interventions.

Educational preparation has been closely linked to proactive clinician behaviors. Studies of multidisciplinary health care providers reveal that clinicians who feel prepared and feel confident in their preparedness are more likely to intervene with tobacco-using patients than those who feel less prepared and confident. To this end, both the National Cancer Institute and the Agency for Health Care Research and Quality have developed guidelines for the training of health care professionals in tobacco intervention. Proponents of tobacco curriculum content in educational institutions strongly advise the inclusion of the guidelines in professional education and propose models for their incorporation.

Educators have suggested that clinicians in practice are more likely to engage in behaviors that they learned during their formal education than behaviors learned in less formal settings. Several authors have proposed that incorporating tobacco intervention curriculum content into formal professional education is the most successful way to ensure clinician performance of tobacco intervention behaviors.

The majority of curriculum studies reported in the literature, including research conducted in dental school and dental hygiene programs, elicited responses from faculty and administration. Similarly, Ferry et al. surveyed medical school deans. A minimal number of health professions curricular studies have looked at student attitudes. Since it appears that the formal professional education environment most strongly shapes future clinician behaviors, obtaining student perceptions during their formal education will provide valuable input for faculty and administrators who plan curriculum content.

The purpose of our study was to assess student perceptions regarding the presence of tobacco content in their respective curricula, the adequacy of their preparation to implement tobacco use interventions, and their attitudes concerning their professional responsibility to help users quit among six health-related disciplines at an urban academic health center.

**Methods**

The data were collected by survey from nonprobability samples of senior students in the programs of dental hygiene, dentistry, nursing, pharmacy, and physical therapy and junior students in medicine, all located on the University of Maryland, Baltimore campus. Focus was placed on the students closest to graduation as they were most likely to have been exposed to tobacco curriculum content. Since these students would soon enter into their chosen professions, they were also more likely to have developed a belief system about their professional responsibilities. In the medical school, third-year students were included in the sample because
fourth-year students participate in off-campus externships and were therefore inaccessible.

The study used a closed-ended, self-administered, twenty-two-item questionnaire that was pilot-tested on a small convenience sample of students from each of the targeted programs. The researchers interviewed the pilot test responders to elicit their understanding of the questions. Appropriate revisions were incorporated to ensure content and face validity. The survey collected data for professional program type, gender, age, and tobacco product usage. Additionally, five questions based on previous research were asked about attitudes and opinions concerning tobacco intervention with patients, course content, and the adequacy of preparation in tobacco cessation roles. Among types of tobacco used, we included spit tobacco (snuff and chewing tobacco) and smoking (cigarettes, pipes, and cigars). The surveys were administered anonymously during scheduled class times using standardized introductions and directions with no attempt to survey students not in class that day. This study was approved by the Institutional Review Board of the University of Maryland, Baltimore.

The overall response rate was 76.7 percent (n=343). Response rates by program were: dental hygiene (n=19, 95 percent); dentistry (n=60, 61.8 percent); medicine (n=84, 60 percent); nursing (n=62, 87.3 percent); pharmacy (n=61, 98.4 percent); and physical therapy (n=57, 100 percent). Twenty-four surveys were dropped from analysis due to extensive missing data, resulting in a final sample population of 319 students. Persons with missing data did not differ by sex, age, or smoking status from the final sample.

All items were analyzed in the aggregate and by discipline, using frequency distributions. Pearson chi-square statistics were used to derive p-values for group differences in proportions. All analyses used STATA version 8.0 software.

### Table 1. Overall characteristics and responses of students in six health profession programs

<table>
<thead>
<tr>
<th></th>
<th>Percent (n=319)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age in years</strong></td>
<td></td>
</tr>
<tr>
<td>21-25</td>
<td>44.2</td>
</tr>
<tr>
<td>26-30</td>
<td>37.9</td>
</tr>
<tr>
<td>31-35</td>
<td>09.7</td>
</tr>
<tr>
<td>36+</td>
<td>08.2</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>68.3</td>
</tr>
<tr>
<td><strong>Program</strong></td>
<td></td>
</tr>
<tr>
<td>Dental hygiene</td>
<td>06.0</td>
</tr>
<tr>
<td>Dentistry</td>
<td>16.6</td>
</tr>
<tr>
<td>Medicine</td>
<td>25.0</td>
</tr>
<tr>
<td>Nursing</td>
<td>17.6</td>
</tr>
<tr>
<td>Pharmacy</td>
<td>17.6</td>
</tr>
<tr>
<td>Physical therapy</td>
<td>17.2</td>
</tr>
<tr>
<td><strong>Use of tobacco products</strong></td>
<td></td>
</tr>
<tr>
<td>Spit tobacco user</td>
<td>02.5</td>
</tr>
<tr>
<td>Former smoker</td>
<td>07.2</td>
</tr>
<tr>
<td>Current smoker</td>
<td>05.6</td>
</tr>
<tr>
<td><strong>Agree it is their professional responsibility to help smokers quit.</strong></td>
<td>89.7</td>
</tr>
<tr>
<td><strong>Agree it is their professional responsibility to help spit tobacco users quit.</strong></td>
<td>88.4</td>
</tr>
<tr>
<td><strong>Agree their professional program had course content about their role in helping tobacco-using patients quit.</strong></td>
<td>72.1</td>
</tr>
<tr>
<td><strong>Agree their program adequately prepared them to help smokers quit.</strong></td>
<td>47.0</td>
</tr>
<tr>
<td><strong>Agree their program adequately prepared them to help spit tobacco users quit.</strong></td>
<td>30.7</td>
</tr>
</tbody>
</table>

### Results

The sample population of 319 students was 68.3 percent female, 17.9 percent were thirty-one years of age or older, and the remainder were twenty-one to thirty years of age. The dental hygiene program comprised the smallest proportion of the sample (6.0 percent) and medicine the largest (25 percent), with the remaining students about equally distributed among the programs of dentistry, nursing, pharmacy, and physical therapy. Only 5.6 percent of the students reported current smoking and 2.5 percent current use of spit tobacco (Table 1).

The vast majority of students agreed that it is their professional responsibility to help smokers and spit tobacco users quit: 89.7 percent and 88.4 percent, respectively. Nearly three-quarters (72 percent) stated that their professional program contained course content concerning their role in helping tobacco-using patients to quit. Less than half reported that their program adequately prepared them to help smokers and tobacco users to quit: 47.0 percent and 30.7 percent, respectively (Table 1).

Among health professions students who use spit tobacco, one out of eight (12.5 percent) wanted to quit, while two out of eight (25 percent) were in the process of quitting. Among health professions
students who smoke, thirteen out of eighteen (72.2 percent) wanted to quit, and three out of eighteen (16.7 percent) were in the process of quitting.

In comparing current smokers to nonsmokers, no differences in proportion agreeing with any of the five questions about attitudes and opinions were statistically significant at p-value 0.05. Although regarding the statement “My program adequately prepared me to help spit tobacco users quit,” nonsmokers were almost three times more likely than current smokers to agree (31.9 percent and 11.1 percent, respectively), the same was true of current spit tobacco users and non-users (31.2 percent and 12.5 percent, respectively) (Table 2).

Among the six health professions, at least 90 percent of the students from the dental hygiene, pharmacy, medicine, and dentistry programs agreed with the statement “It is my professional responsibility to help smokers quit,” followed by nursing and physical therapy students at 85.7 percent and 70.9 percent, respectively. At least 90 percent of the students from the dental hygiene, pharmacy, medicine, and dentistry programs also agreed with the statement “It is my professional responsibility to help spit tobacco users quit,” followed by nursing and physical therapy students at 85.7 percent and 65.5 percent, respectively.

For the statement “My professional program had course content about my role in helping tobacco-using patients quit,” all the dental hygiene and pharmacy students, the vast majority of medicine and dentistry students, most nursing, and a few physical therapy students agreed: 100 percent, 100 percent, 86.3 percent, 84.9 percent, 58.9 percent, and 14.6 percent, respectively (Table 3).

For the statement “My program adequately prepared me to help smokers quit,” 94.7 percent of dental hygiene, 83.9 percent of pharmacy, and 53.8 percent of medicine students agreed, but less than 40 percent of dentistry, nursing, and physical therapy students agreed. Agreement percentages for the statement “My program adequately prepared me to help spit tobacco users quit” was 89.5 percent among dental hygiene students, with only about a third or fewer students from the pharmacy, medicine, dentistry, nursing, and physical therapy agreeing (Table 3).

### Table 2. Percentage agreement with tobacco-intervention knowledge and responsibility questions by tobacco use status among health professions students

<table>
<thead>
<tr>
<th>It is my professional responsibility to help smokers quit.</th>
<th>Currently use spit tobacco</th>
<th>Currently smoke</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes n=8</td>
<td>87.5</td>
<td>100.0</td>
</tr>
<tr>
<td>No n=311</td>
<td>89.7</td>
<td>100.0</td>
</tr>
<tr>
<td>It is my professional responsibility to help spit tobacco users quit.</td>
<td>87.5</td>
<td>88.4</td>
</tr>
<tr>
<td>My professional program had course content about my role in helping tobacco-using patients quit.</td>
<td>62.5</td>
<td>72.4</td>
</tr>
<tr>
<td>My program adequately prepared me to help smokers quit.</td>
<td>37.5</td>
<td>47.3</td>
</tr>
<tr>
<td>My program adequately prepared me to help spit tobacco users quit.</td>
<td>12.5</td>
<td>31.2</td>
</tr>
</tbody>
</table>

All Pearson chi-square(2df) p-values >0.05 for differences in proportion agreeing by tobacco use status. Numbers in bold indicate less than 50 percent of students agreeing with the statement.

### Discussion

This study examined the perceptions of six groups of health professions students from one urban academic health center about tobacco curricula and interventionist roles. Geographic location and the use of nonprobability samples limit the ability to generalize the results. While the response rates were adequate overall, variations occur by program, due to availability of students during class times. Curriculum content may vary by program and may have affected the results. Because student responses were anonymous, no follow-up was feasible.

Very few of the respondents were current or former tobacco users, which is consistent with current literature of usage rates among health professionals. Due to the minimal numbers of tobacco users in this study, any significant relationships based on tobacco use status should be viewed with caution. Approximately one-third of the respondents were male, possibly reflecting the inclusion of traditionally female-dominated professions (dental hy-
giene, nursing, physical therapy) as well as the trend
toward increasing numbers and percentages of fe-
males in certain pharmacy programs and medical
and dental schools.

The fact that, overall, almost 90 percent of stu-
dents viewed it their professional responsibility to
help smokers and ST users quit is encouraging and
consistent with results of previous studies address-
ing students’ and practitioners’ attitudes.

It may seem unusual that a lower percentage
of study respondents (72.8 percent) reported inclu-
sion of tobacco content in their curricula as com-
pared to the percentage of respondents who viewed
helping users quit as their professional responsibil-
ity. Perhaps health professions students recognize the
appropriateness of their tobacco use intervention
roles, regardless of whether or not they perceive that
they have been exposed to a curriculum that encour-
gages these roles. Health reports in journals that stu-
dents may read, as well as community and media
campaigns, espouse these roles and may influence
student thinking. With state tobacco settlements and
growing community consciousness, the media’s at-
tention to tobacco-related issues has increased over
the last several years. Additionally, the health care
system’s movement toward prevention and holism may make health professions students realize the
appropriateness of their roles as tobacco use inter-
ventionists. Although several investigators have ad-
dressed the link between curriculum content and
practitioner confidence and assumption of interven-
tionist roles, these studies did not explore the rela-
tionship between role perception and curriculum
content inclusion.

Nursing students’ attitudes were less positive
about their professional responsibilities concerning
tobacco use interventions than were dental hygiene,
dentistry, medicine, and pharmacy. One report indi-
cates that, among the health professions mentioned
above, nursing has the highest tobacco use rate. Since providers who smoke are less proactive, nurses
may feel less likely to assist users. Reports in the
literature also reveal little tobacco curriculum in nurs-
ing school curricula. Nurses comprise a large pro-
duction of the health care workforce and work closely
with their patients, so it is desirable for them to be
more proactive regarding tobacco intervention.

The targeted populations of respondents, with
the exception of physical therapy (PT), all have been
cited in the literature as potential tobacco use inter-
ventionists. Although PT traditionally has not been
included in health professions/tobacco literature, the
researchers thought that they should be, since they
counsel and work with patients who are attempting
to heal from injury. It would seem that nicotine’s in-
terference with wound healing would impact nega-
atively on the PT’s goals. In addition, PT is a
growing profession, PT programs often are included
in health professions campuses, and physical thera-
pists themselves are positioned to interact closely and
frequently with their patients.

Physical therapy students in our study, how-
ever, were least likely to view helping tobacco users
quit as their professional responsibility. Given the

<table>
<thead>
<tr>
<th>Professional Program</th>
<th>Percentage Agreeing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dental hygiene</td>
<td>94.6</td>
</tr>
<tr>
<td>Pharmacy</td>
<td>92.9</td>
</tr>
<tr>
<td>Medicine</td>
<td>86.3</td>
</tr>
<tr>
<td>Dentistry</td>
<td>84.6</td>
</tr>
<tr>
<td>Nursing</td>
<td>70.9</td>
</tr>
<tr>
<td>Physical therapy</td>
<td>65.5</td>
</tr>
</tbody>
</table>

All five statements had Pearson chi-square(5df) p-values <0.001 for a difference in proportion agreeing between the six professional programs.

Numbers in bold indicate less than 40 percent of students agreeing with the statement.
fact that physical therapists were not mentioned anywhere in the tobacco literature, this result is not surprising. This finding suggests a need to expose physical therapists to tobacco curriculum content. Relevant content would address how patient tobacco use undermines PT’s clinical goals, PT’s emphasis on holism, and the characteristics of physical therapists that position them as key tobacco use interventionists.

The fact that dental hygiene and pharmacy students were more likely to feel that tobacco content was included in their curricula seems logical. Since dental hygiene is a cohesive small department, faculty are easily calibrated to reinforce tobacco content both clinically and didactically. Students also have a competency requirement to provide tobacco intervention services to at least one patient prior to graduation. Pharmacy’s positive perception may be related to that school’s strong addictions program and the linkage between tobacco cessation and pharmaceutical interventions.54

Despite many of the respondents’ beliefs that it is their responsibility to help tobacco users quit, a majority felt that their programs inadequately prepared them to assume this responsibility. In this study, medical and dental students—two groups targeted by the National Cancer Institute and Agency for Healthcare Research and Quality as pivotal interventionists39,55—feel unprepared, despite their willingness to help users quit. Students’ and practitioners’ feelings of being unprepared are reported frequently in the literature and reinforce the need for health professions’ educators to assess and modify their curricula to include tobacco curriculum content. Pharmacy and dental hygiene students reported feeling more prepared to help smokers quit than all other student groups. These results may be tied to their acknowledgment of included curriculum content.

Only 34 percent of dental students felt prepared to help ST users quit, and 39.6 percent felt prepared to help smokers quit. Given the obvious effects of ST use in the oral cavity and the dentist’s key role in identifying precancerous and cancerous lesions in the mouth, these results are disturbing. Students need to understand that the principles of tobacco cessation apply to both smoking and spit tobacco use. Further, dental faculty need to reinforce the tobacco interventionist message more consistently and clearly. Linking tobacco use with pathologies is necessary didactic information; however, incorporating counseling techniques into the curriculum provides a key challenge.

As with preparedness to help smokers quit, dental hygiene students report feeling confident to help spit tobacco users. Again, the small size of the dental hygiene classes and faculty and the departmental clinical and didactic reinforcement of tobacco curriculum content may have influenced this result. The literature and professional associations also reinforce the dental hygienist’s proactive role in tobacco prevention and cessation.11,12,15

The fact that a preponderance of health professions students in this study view helping tobacco users as their professional responsibility supports the argument for interdisciplinary tobacco-related curriculum content. A multidisciplinary approach could be cost-saving, would foster intercampus liaisons and research efforts, and could standardize tobacco curriculum content. All graduates could then feel that tobacco curriculum content was included in their education, and hopefully, they would feel prepared to assume tobacco interventionist roles.

Conclusions

The results of this survey-based study implemented at an urban academic health center indicate the following:

1) health professions students view helping tobacco users quit as their responsibility;
2) yet many health professions’ students feel unprepared to help either smokers or spit tobacco users quit;
3) therefore, additional studies that include comparisons among a variety of academic health science centers and among randomized multiple health professions student groups are needed.

A unified effort among health professionals is needed to reduce the morbidity and mortality associated with tobacco use. Health sciences campuses, by creating the practitioners of tomorrow, have a golden opportunity to reach a critical mass. With a clear vision and administrative support, faculty could strive to develop practitioners who feel prepared and comfortable helping tobacco-using patients abstain.

REFERENCES


