

## Short Communication

# Training Future Pharmacists at a Minority Educational Institution: Evaluation of the *Rx for Change* Tobacco Cessation Training Program

Karen Suchanek Hudmon,<sup>1</sup> Lisa A. Kroon,<sup>2</sup> Robin L. Corelli,<sup>2</sup> Katherine C. Saunders,<sup>3</sup> Margaret R. Spitz,<sup>3</sup> Theodore R. Bates,<sup>4</sup> and Dong Liang<sup>4</sup>

<sup>1</sup>Department of Epidemiology and Public Health, Yale University School of Medicine, New Haven, CT; <sup>2</sup>Department of Clinical Pharmacy, School of Pharmacy, University of California San Francisco, San Francisco, CA; <sup>3</sup>Department of Epidemiology, University of Texas M.D. Anderson Cancer Center, Houston, TX; and <sup>4</sup>Department of Pharmaceutical Sciences, College of Pharmacy and Health Sciences, Texas Southern University, Houston, TX

## Abstract

**Objective:** To estimate the impact of *Rx for Change*, an 8-h tobacco cessation training program on pharmacy students' perceived counseling skills, confidence for counseling, and future counseling of patients for tobacco cessation. **Methods:** Unlinked, pre- and post-training surveys were administered to 142 pharmacy students enrolled at Texas Southern University, a primarily minority and historically black educational institution. **Results:** Post-training counseling abilities were significantly improved over pretraining values for each of the five key components of tobacco cessation counseling (Ask, Advise, Assess, Assist, and Arrange), overall counseling abilities, and confidence for counseling ( $P < 0.001$ ). Racial/ethnic differences in self-reported overall counseling was observed ( $P = 0.01$ ). Ninety-one percent of participants believed that the training would increase the number of patients whom they counsel for cessation, and 95% believed that it would improve the quality of counseling that they

provide. At least 95% of participants believed that the pharmacy profession should be more active in preventing patients from starting smoking and helping patients to stop smoking. **Conclusion:** The *Rx for Change* program had a positive impact on perceived abilities and confidence for providing tobacco cessation counseling to patients. While it is important that all current and future health care providers receive specialized tobacco cessation training, it is particularly important for clinicians of racial/ethnic minority backgrounds, who are more likely to practice in geographic areas with a high density of population subgroups at an elevated risk for tobacco-related mortality. In particular, pharmacists, who are uniquely positioned within the community to provide care to all patients, including the medically underserved, must be equipped with the necessary skills to assist patients with quitting. (Cancer Epidemiol Biomarkers Prev 2004;13(3):477–481)

## Introduction

Tobacco use is the primary known preventable cause of disease and death in the United States, leading to more than 440,000 premature deaths and a cost of \$157 billion to society annually (1). The prevalence of current smoking varies considerably by ethnicity, with the highest prevalence among American Indians/Alaskan Natives (32.7%) and lowest among Asians

(12.4%; 2). The proportion of smokers who are able to quit and the smoking-attributable mortality also vary by ethnicity, with White smokers being the most likely (51.0%) and African American smokers being the least likely (37.3%) to have quit in the past year, despite similar proportions of these populations wanting to quit (71.1% and 68.4%, respectively; Ref. 3). Of all ethnic groups, African Americans suffer the highest smoking-attributable mortality (4–6). Tobacco prevention and cessation efforts that target at-risk, minority populations could help to address these disparities (7, 8).

Despite an extensive body of literature detailing the positive impact of clinician interventions on reducing tobacco use among patients (9), tobacco status is assessed in only one-half to two-thirds of patient clinic visits, and cessation assistance is provided at only one-fifth of smokers' visits (10–13). Because numerous studies suggest that clinicians from underrepresented minority populations are significantly more likely than are nonminority clinicians to provide care to the medically

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**Requests for reprints:** Karen Suchanek Hudmon, Department of Epidemiology and Public Health, Yale University School of Medicine, 60 College Street, PO Box 208034, New Haven, CT 06520-8034. Phone: (203) 785-7367. E-mail: karen.hudmon@yale.edu

underserved and to minority populations (14–21), it is essential that these clinicians be provided with comprehensive training for tobacco cessation counseling. Yet, numerous studies document a general lack of training among medical (22–26) and other health professional students for treating tobacco use and dependence (27–32). For example, most U.S. medical schools (69.2%) do not require clinical training in smoking cessation techniques, with one-third of schools spending 3 h or less on smoking cessation over the 4-year curricula (22). Similarly, tobacco cessation training of future dentists and dental hygienists (27–29), nurses (30, 31), and pharmacists (32) is lacking.

Tobacco cessation medications are available primarily through pharmacies, and pharmacists are uniquely positioned within the community to provide care to all patients, including the medically underserved. Although there currently is little published evidence evaluating the effects of tobacco cessation training programs on the clinical practice activities of licensed pharmacists, it nonetheless seems important that all pharmacy students receive comprehensive training for assisting patients with quitting. In response to survey results ( $n = 1168$ ) indicating that fewer than 9% of licensed pharmacists in four northern California counties had received formal training for assisting patients with quitting (33), faculty from the California pharmacy schools created a tobacco cessation training program for pharmacy students. The program, *Rx for Change*, is entering its fifth year as required training (8 h) at all schools of pharmacy in California and recently received funding from the National Cancer Institute to support its dissemination to all U.S. schools of pharmacy, reaching an estimated 9000 students annually. *Rx for Change* promotes a patient-centered approach to facilitating cessation and was designed to equip future pharmacists with the ability to intervene with all tobacco users, including patients who are not yet considering quitting. The program, which advocates principles set forth in the Clinical Practice Guideline for Treating Tobacco Use and Dependence (9), consists of two key components: didactic lecture and an interactive workshop. At its barest minimum, core elements of the program can be taught in 6 h. A complete description of *Rx for Change* is provided elsewhere (34), and the program materials are available from the corresponding author (K. H.).

As part of a minority outreach effort sponsored by The University of Texas M.D. Anderson Cancer Center, *Rx for Change* was implemented as an 8-h, full-day training at Texas Southern University (TSU) College of Pharmacy and Health Sciences, a primarily minority and historically black institution in Houston, TX. Here, we describe an evaluation of the program impact on students' perceived counseling skills, confidence for counseling, and future counseling of patients for tobacco cessation.

## Materials and Methods

**Study Procedures.** The *Rx for Change* program was provided to 142 professional pharmacy students at TSU. The 8-h training included ~4 h of lecture material (epidemiology of tobacco use, 30 min; forms of tobacco, 20 min; pharmacology of nicotine and principles of

dependence, 45 min; drug interactions with smoking, 15 min; and assisting patients with quitting, 120 min) and a 4-h intensive hands-on workshop component with the various nicotine replacement therapies (90 min) and role-playing with case studies (150 min).

Voluntary, anonymous, nonlinked surveys were administered immediately pre- and post-training. As an incentive for attending the all-day Saturday training, students received extra credit points in one of their pharmacy courses. The two-page pretraining and three-page post-training surveys, which included parallel measures that had been extensively pilot tested prior to use (34), assessed student perceptions of their abilities and confidence for providing comprehensive tobacco cessation counseling to patients. Specifically, using a five-point scale (1, poor; 2, fair; 3, good; 4, very good; 5, excellent), we assessed perceived ability to (a) ask patients about tobacco use, (b) advise tobacco users to quit, (c) assess readiness to quit, (d) assist patients with quitting, and (e) arrange follow-up counseling (the 5 A's; Ref. 35). We computed an average of these five responses, creating a post-training "overall 5 A's counseling ability" score [one factor, accounting for 75% of the variance; Cronbach's estimate of internal consistency (36) = 0.91] for each participant.

Confidence for counseling was assessed using a 12-item scale (one factor, accounting for 60% of the variance; Cronbach's  $\alpha = 0.94$ ). Items included: How confident are you that you (a) know the appropriate questions to ask patients when providing counseling, (b) have the skills needed to counsel for an addiction, (c) can provide motivation to patients who are trying to quit, (d) have the skills to monitor and assist patients throughout their quit attempt, (e) have the skills to assist patients who seem to be in a hurry, (f) have sufficient therapeutic knowledge of the pharmaceutical products for tobacco cessation, (g) can create consumer awareness of why pharmacists should ask questions about tobacco use, (h) know when a referral to a physician is appropriate, (i) can sensitively suggest tobacco cessation to patients who use tobacco, (j) are able to provide adequate counseling when time is limited, (k) can help recent quitters learn how to cope with situations or triggers that might lead them to relapse back to smoking, and (l) can counsel patients who are not interested in quitting? Response options for these 12 items were 1 (not at all confident), 2 (not very confident), 3 (moderately confident), 4 (very confident), or 5 (extremely confident). A "confidence for counseling" scale score was computed for each participant as the average of the 12 constituent items. We also assessed respondents' sociodemographic characteristics (post-training), including age, sex, race/ethnicity, smoking status, and year in pharmacy school (first, second, third, or fourth); impressions of the *Rx for Change* curriculum content and applicability to clinical practice; and general attitudes concerning the role of the pharmacy profession in advocating tobacco prevention and cessation.

**Data Analysis.** To describe the study population, standard summary statistics were computed. To estimate impact of the program on students' perceived (a) overall counseling ability, (b) ability to implement each of the 5 A's counseling components, and (c) confidence for

counseling, independent-samples *t* tests were used to compare mean values for the pre- and post-training scores, and *F* tests were used to identify differences in counseling abilities by racial/ethnic group. Analyses were conducted using SPSS for Windows, version 10.1.3 (37).

## Results

**Participant Characteristics.** Of 405 total students enrolled at TSU during Spring 2001, more than 200 indicated interest [via an e-mail to the TSU coordinators (T. B. or D. L.)] in study participation. Because of space limitations, only the first 142 students (35% of the total student body) were permitted to attend; of these, pre- and post-training surveys were completed by 139 (98%) and 130 (92%), respectively. Fifty-nine percent of the group was female. The racial/ethnic composition was characteristic of the student population at TSU: 54% African American, 17% Asian/Pacific Islander, 14% Hispanic/Latino, 6% White, and 9% other. The average age was 27 years (SD 4.9, range 20–48). Most students (52%) were in their first year of pharmacy school; 25%, 20%, and 3% of students were in their second, third, and fourth year, respectively. At the time of survey completion, 5% used tobacco at least once a day, 2% used tobacco less than once a day, 2% previously used tobacco but quit, 19% had experimented with tobacco a few times in the past, and the remainder (72%) had never tried tobacco.

**Program Impact.** Students' self-ratings for each of the five components of comprehensive tobacco cessation counseling (5 A's) increased significantly from pre- to post-training (all  $P < 0.001$ ; Fig. 1), as did the overall 5 A's counseling ability score ( $2.85 \pm 1.02$  pretraining versus  $4.02 \pm 0.72$  post-training,  $t_{267} = -10.86$ ,  $P < 0.001$ ). For each of the five counseling components, more than 91% of students rated their post-training skills as either good, very good, or excellent for each of the 5 A's components. Confidence scale scores also indicated a significant improvement ( $P < 0.001$ ; Fig. 1) from pretraining (average score  $2.98 \pm 0.87$ ) to post-training (average score  $4.03 \pm 0.58$ ). A statistically significant increase (all  $P < 0.001$ ) was seen for each of the 12 confidence scale items. The largest impact was seen for the "have the skills needed to counsel for an addiction" and "have sufficient therapeutic knowledge of the pharmaceutical products for tobacco cessation" items ( $\Delta$ 's = 1.26 and 1.24 scale

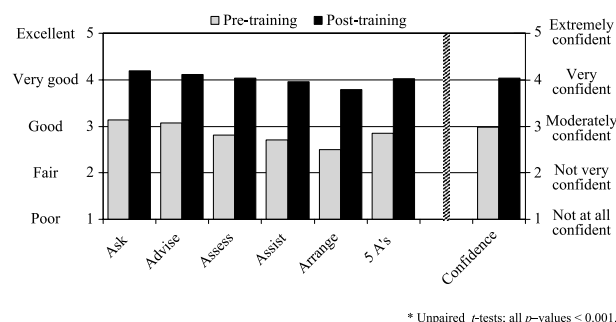


Fig. 1. Students' average pre- and post-training self-ratings for five components of comprehensive tobacco cessation counseling (5 A's) and confidence for counseling.

points, respectively). In examining post-training scores for the 5 A's counseling ability measure, we observed a significant difference by racial/ethnic group ( $P = 0.01$ ), with Whites reporting the highest ability level (4.43) followed by 4.10 for African Americans, 3.92 for Hispanic/Latinos, and 3.60 for Asian/Pacific Islanders.

Ninety-one percent of participants believed that the training will increase the number of patients whom they counsel for cessation, and 95% believe that it will improve the quality of counseling that they provide. Ninety-five percent and 97% of students believe that the pharmacy profession should be more active in (1) preventing patients from starting smoking and (2) helping patients to stop smoking, respectively.

## Discussion

Results of this investigation suggest a significant, positive impact of the *Rx for Change* program on pharmacy students' self-rated ability, confidence, and likelihood for providing tobacco cessation counseling to patients. An overwhelming majority believed that the training program would increase both the quantity and the quality of their future tobacco cessation counseling activities. While we currently have no evidence to indicate that exposure to the *Rx for Change* program will result in increased postgraduation counseling activities or enhanced patient outcomes, research suggests (38–43) that providing specialized training for tobacco cessation to clinicians, including pharmacists (43), results in increased levels of tobacco cessation counseling. Pharmacists have demonstrated effectiveness in assisting patients with quitting (44–47), and they have been deemed cost-effective components of tobacco cessation programs (48, 49). Comprehensive counseling from a pharmacist who is a tobacco cessation specialist not only provides patients with informational and social support for their quit attempts but also could increase the previously reported low compliance with nonprescription nicotine replacement therapy regimens (50), potentially resulting in more effective management of withdrawal symptoms and decreased likelihood of relapse. Furthermore, counseling might decrease the portion of patients who use tobacco while on nonprescription nicotine replacement therapy, which was estimated to be as high as 28% in a study of more than 800 subjects (51).

While it is important that all current and future clinicians receive comprehensive training for assisting patients with quitting, there is a specific need for accessible, effective tobacco cessation interventions to reach our underrepresented minority and medically underserved populations (6). Because (a) several racial/ethnic minority groups exhibit a disproportionately elevated smoking prevalence (2), (b) racial/ethnic minority groups exhibit higher tobacco-attributable mortality (6), and (c) clinicians who themselves are members of racial/ethnic minority groups are more likely to practice in communities that traditionally have been underserved (14–21), it is imperative that our nation's health professional schools at minority institutions adopt comprehensive tobacco cessation training as part of their required curriculum. The Clinical Practice Guideline for Treating Tobacco Use and Dependence (9) recommends

that “whenever possible, tobacco dependence treatments should be modified or tailored to be appropriate for the ethnic or racial populations with which they are used.” More research is needed to evaluate the effectiveness of tobacco cessation interventions for all minority populations, yet by training minority health-professional students to apply patient-centered approaches when assisting their clients with quitting, we anticipate that these students will be more likely to provide culturally appropriate tobacco cessation interventions on graduation. While we anticipate that this ultimately will translate into tobacco use reductions in our underserved communities, we currently have no data to support this assumption. Notably, in collaboration with Baylor College of Dentistry (K. Rankin, principal investigator), we will be conducting a cohort study to estimate the impact of the *Rx for Change* program (as part of the dental school curriculum) on the tobacco cessation counseling activities of postgraduate, practicing dentists.

Results of this evaluation are subject to limitations because our pre- and post-training surveys were not linked; hence, average within-participant changes were not estimated, and all outcome measures were based on self-report. Additionally, we did not assess knowledge. In our currently ongoing study to evaluate the impact of our national program dissemination effort, we are including linked pre- and post-training surveys and a 10-item post-training knowledge assessment. A much larger sample size in our nationwide study will afford the opportunity to examine more closely the potential for racial/ethnic differences in perceived counseling abilities—while our current data suggest that differences do indeed exist, these differences are not adjusted for baseline counseling abilities or other potential confounders, and our cell sizes for several of the racial/ethnic groups were small (e.g.,  $n = 8$  White students). Finally, our results should be interpreted with caution because they derive from students who volunteered to participate in our study; as such, compared with other students, our participants might have had an elevated interest in learning about tobacco cessation. However, we have found that pharmacy students in general react positively to the *Rx for Change* program—in a survey of 595 California pharmacy students who received the *Rx for Change* program as part of their required coursework, 99.2% indicated that students at other schools of pharmacy in the United States would benefit from receiving the same, or a similar, tobacco cessation training program (52).

Because smoking is a key risk factor for disease in the United States, improving the tobacco cessation training of current and future health professionals, including pharmacists, should be a national health care priority. With appropriate training and through public education that emphasizes the pharmacist as an accessible and valued resource for quitting (53), pharmacists could impact tobacco use prevalence in all populations, including underserved populations that might otherwise have limited access to clinician-facilitated tobacco cessation interventions.

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