

Impact of a Shared Tobacco Cessation Curriculum in California Schools of Pharmacy

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Abstract

Purpose: To characterize the long-term impact of a shared, evidence-based tobacco cessation curriculum (*Rx for Change*) on tobacco-related education in California schools of pharmacy (n=8).

Methods: Faculty members responsible for teaching tobacco-related content completed a survey assessing implementation of tobacco education, curricular time devoted to tobacco, and teaching and assessment methods utilized. Using historical data, the total number of students trained since 2000 was estimated.

Results: All schools utilized the shared curriculum, and in 2012-2013, a median of 435 minutes (range: 240-600 minutes) was devoted to tobacco-related content within required curricula. Between 2000 and 2013, an estimated 10,616 pharmacy students in California received *Rx for Change* training.

Conclusion: After more than a decade, a shared tobacco cessation curriculum continues to be widely utilized and provides a strong foundation for legislative efforts to enhance pharmacists' scope of practice related to prescriptive authority for tobacco cessation.

Introduction

Smoking is the primary preventable cause of morbidity and mortality in the United States, accounting for more than 480,000 deaths annually.⁽¹⁾ The impact of tobacco dependence on public health and its burden on the economy warrant widespread adoption of enhanced tobacco control strategies, including expanding the role of health care providers in cessation.⁽²⁾

It is well established that health care providers have a proven, positive impact on patients' ability to quit,⁽³⁾ but until recently, most schools of pharmacy incorporated insufficient levels of tobacco-related content in their curricula⁽⁴⁾ (i.e., less than three hours of total instruction).⁽⁵⁾ In 1999, a California-based survey was conducted and determined that fewer than 8% of pharmacists had received formal tobacco cessation training, yet 93% of respondents believed that formal training would increase the quality of their tobacco-cessation counseling, and 70% believed it would increase the number of patients whom they counsel.⁽⁶⁾ To address this gap in training, faculty members from all four California schools of pharmacy collaborated to develop the *Rx for Change: Clinician-Assisted Tobacco Cessation* program (www.rxforchange.ucsf.edu),⁽⁷⁾ a shared, evidence-based curriculum for practicing clinicians and students in the health professions that has been described previously.⁽⁸⁾⁽⁹⁾ According to a 2016 AACP report commissioned by the Centers for Disease Control and Prevention, the *Rx for Change* materials were being utilized at 73.5% of the US schools and colleges of pharmacy.⁽¹⁰⁾

Because several states recently have expanded or are currently

in the process of expanding the pharmacist's scope of practice for tobacco cessation through legislative efforts⁽¹¹⁾, the importance of an adequately trained workforce has become paramount. This study characterizes the status and longitudinal trends for tobacco education in schools of pharmacy within California, using a shared tobacco cessation curriculum that has been in existence since 1999. Additionally, the data presented here aim to estimate the number of trained graduates with the ability to assume expanded roles in the area of tobacco cessation.

Methods

Target Population and Study Design

In 2013, eight accredited schools of pharmacy existed in the state of California. Of these, four were the original implementers of the *Rx for Change* curriculum in 2000 (University of California-San Francisco, University of the Pacific, University of Southern California, and Western University of Health Sciences). Between 2002 and 2008, four new schools were founded and had accepted their inaugural class cohort (California North State University, Loma Linda University, Touro University, and University of California-San Diego). In combination, these eight schools constituted the target population for this study.

In September 2013, the lead faculty member responsible for the delivery of tobacco-related content at each school of pharmacy received a self-administered survey by courier delivery. The survey, which was modified from a previous version,⁽⁴⁾ was administered as follows: (a) notification e-mail at -1 week, (b) survey mailed with cover letter describing the study, (c) e-mail reminder note at +1 week, and (d) e-mail reminder note or follow-up telephone call at +3 weeks. Respondents received a \$20 gift card as compensation for their time. The Committee on Human Research at the University of California, San Francisco approved all study materials and procedures.

Measures

Schools were characterized based on the number of students in the entering pharmacy class for academic year 2012-2013, and methods by which tobacco cessation content was incorporated into the required curriculum were assessed. Respondents estimated the number of minutes allocated to the following tobacco-specific topics: (a) epidemiology of tobacco use, (b) forms of tobacco, (c) pharmacology of nicotine and principles of addiction, (d) drug interactions with smoking, (e) pathophysiology of tobacco-related disease, (f) weight maintenance in tobacco cessation, (g) assisting patients with quitting (comprehensive interventions), (h) assisting patients with quitting (brief interventions), (i) aids for quitting, and (j) addressing tobacco use in special populations. These 10 topics correspond to content areas addressed within the *Rx for Change curriculum*.⁽⁷⁾ In addition, respondents

indicated the professional year in which the content was taught and the total number of hours of formal instruction (including any assigned podcast lectures or webinars for home study).

Educational methods used to teach tobacco-specific content in required coursework were delineated as follows: (a) classroom lectures, (b) home study (podcast lectures or webinars), (c) provision of required reading materials, (d) case study discussion, (e) case-based counseling activities without formal evaluation, and/or (f) case-based counseling activities with formal evaluation. Respondents were also asked to indicate the assessment method(s) used to evaluate students' tobacco cessation counseling during the 2012-2013 academic year. Response options included: (a) multiple choice exam, (b) short answer exam, (c) case-based multiple choice exam, (d) case-based short answer exam, (e) oral exam, (f) objective structured clinical examination (OSCE), and (g) none.

Utilizing data from previous studies⁽⁹⁾⁽¹²⁾ and annual enrollment data for each of the California schools of pharmacy (extracted from the American Association of Colleges of Pharmacy Profile of Pharmacy Students),⁽¹³⁾ the total number of California pharmacy students trained annually was estimated between academic years spanning 2000 to 2013.

Data Handling and Analyses

Survey data were entered with 100% verification, and summary statistics were computed. The cumulative number of California students trained was estimated by summing the annual numbers of students enrolled in the class cohort that received tobacco cessation training since academic year 2000-2001. Analyses were conducted using IBM SPSS Statistics (Version 23).⁽¹⁴⁾

Results

Survey Response Rate and Pharmacy School Characteristics

Completed surveys were received from eight schools of pharmacy (100%). The average number of students in the 2012-2013 entering class was 124 (range: 57-218).

Tobacco Cessation Education

Tobacco content was incorporated into the required curricula in 100% of the schools and all schools utilized the *Rx for Change* program as their primary source of tobacco-related instructional content. Across all eight schools in 2012-2013, a median of 435 total minutes (range: 240-600) was devoted to tobacco content in the required curriculum, and this material was taught during the first professional year (n=4 schools), second professional year (n=3 schools), or first and second professional year (n=1 school). Specifically, the total numbers of minutes provided at the eight schools were 240 min (n=2), 300 min (n=1), 360 min (n=1), 510 min (n=1), 540 min (n=1), and 600 min (n=2). Most schools (n=6) allocated these hours to both lecture and workshop sessions; two schools delivered content exclusively through lectures.

All programs addressed the topics of epidemiology, forms of tobacco, pharmacology, drug interactions with smoking, assisting patients with quitting, and aids for cessation. The median number of minutes allocated to behavioral and medication aspects of tobacco cessation were: (a) assisting with quitting-comprehensive interventions, 60 min (range: 20-170 min), (b) assisting with quitting-brief interventions, 10 min (range: 0-60 min), and (c) aids for cessation, including medications, 90 min (range: 40-120 min).

Educational methods varied: class lectures and case study discussions were used by all schools, followed by required reading and case-based counseling with formal evaluation (n=6; 75%). Home study podcasts/webinars and case-based counseling without formal evaluation were used by two (25%) schools.

Assessment Methods for Evaluating Students' Competency

Multiple choice examinations were the most commonly used evaluation method (n=7), followed by case-based multiple choice examinations (n=5). Short-answer examinations with or without case-based scenarios (n=3) and OSCEs, which incorporated student role-playing or interactions with standardized patients (n=3) and oral examinations (n=1), were less commonly used.

Trends in Tobacco Education

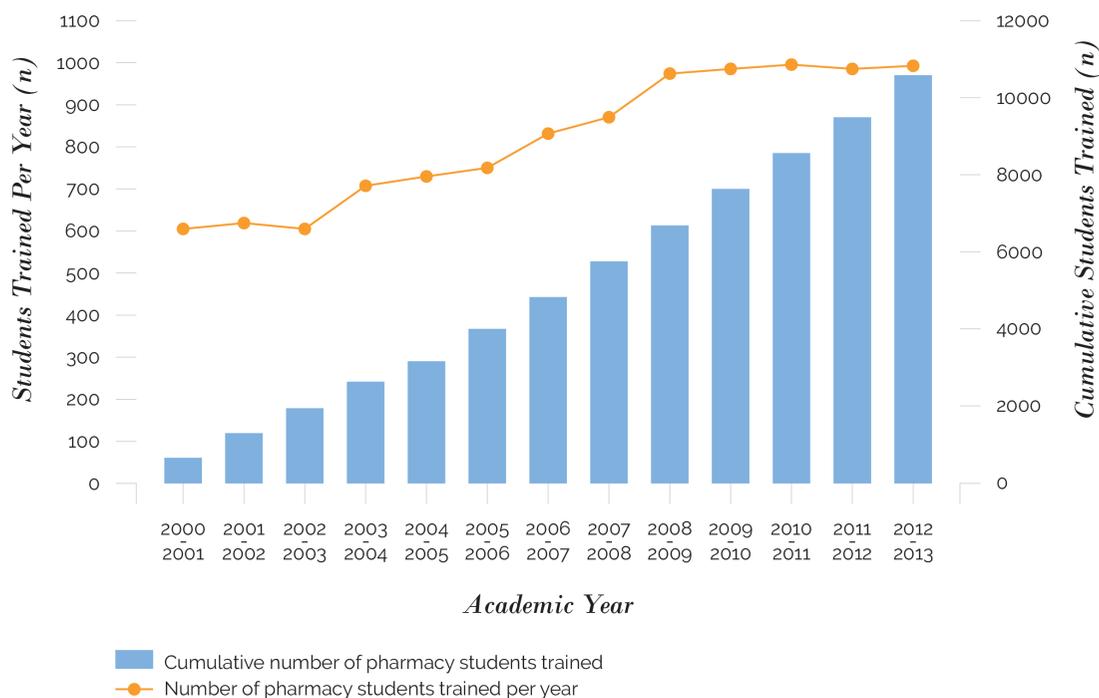
Since academic year 2000-2001, when the *Rx for Change* program was launched in California, an average of 817 pharmacy students have received tobacco cessation training as part of their core curriculum each year (n=988 in 2012-2013). Cumulatively, over the 13-year observation period, an estimated total of 10,616 California pharmacy students received training (Figure 1).

Discussion

In 1999, the California schools of pharmacy collaborated to develop and implement a shared, evidence-based tobacco cessation training curriculum⁽⁷⁻⁹⁾ that continues to be used extensively throughout the state. To our knowledge, this collaboration resulted in the first freely shared teaching resource that was purposefully designed for broad-scale dissemination. This study demonstrates the power and sustainability of the shared curriculum approach,⁽¹⁵⁾ which is particularly relevant to health professional schools attempting to achieve efficiency, due to constrained resources, while also being nimble in response to a rapidly evolving health care environment.

Within California, approximately 1,000 pharmacy students receive *Rx for Change* training each year, and since statewide adoption of the shared curriculum approach in 2000, more than 10,000 pharmacy students have been equipped with the necessary knowledge and skills to treat tobacco use and dependence. According to an AACP white paper, a minimum of six hours (and a recommended eight hours) of curricular time should be dedicated to tobacco cessation.⁽⁶⁾ In a survey conducted in 2006, California pharmacy schools in existence at the time (n=7) all exceeded the recommended minimum hours of tobacco education by providing a median of seven hours of instruction (range: 360-480 min).⁽¹²⁾ However, results presented here indicate that three of the eight schools surveyed were not meeting the minimum recommendation of six hours in 2012-2013 (although each was substantially higher than the national median of 170 minutes in 2001-2002).⁽⁴⁾ All three of these schools cited "lack of available curricular time" as the primary barrier to further enhancing their tobacco-related content (data not shown). Although competing priorities for instructional content is an ongoing challenge within pharmacy curricula, recent changes in statewide legislation have raised the salience and therefore the imperative for schools of pharmacy to provide comprehensive tobacco cessation training to pharmacy students.

Figure 1.



Specifically, in 2013, the state of California passed legislation⁽¹⁶⁾ giving pharmacists the ability to furnish prescription formulations of nicotine replacement therapy in accordance with a statewide protocol⁽¹⁷⁾, and the strong anti-tobacco voice and commitment of faculty at California pharmacy schools served as a springboard for this legislation. Similarly, other states (Arizona, Colorado, Idaho, Indiana, Kentucky, Oregon, and Maine) have recently passed legislation to enable pharmacists to provide FDA-approved smoking cessation medications without written orders, following the example set by New Mexico, where pharmacists have been prescribing all cessation medications under a statewide protocol since 2004.⁽¹¹⁾ As additional states move toward expanded authority for pharmacists in the area of tobacco cessation, it will be incumbent on the profession to ensure that its graduates can competently and confidently provide treatment for tobacco use and dependence. In 2016, the *Rx for Change* curriculum was being utilized to teach tobacco cessation at nearly three-quarters of pharmacy schools nationally,⁽¹⁰⁾ and this long-term, broad-scale adoption of a shared, comprehensive curriculum will undoubtedly increase the profession’s capacity to assume this expanded role under new authorities granted through legislation.

This study is limited in that the sample size is small and included only schools of pharmacy in California, a state that is progressive with respect to tobacco control and therefore likely is more conducive than most states to advancement of the pharmacist’s role in tobacco cessation. Although the surveys were completed by instructors responsible for teaching tobacco-related content, which increases the likelihood of accuracy, a limitation of this study is that the responses were self-reported, without verification.

Conclusion

After more than a decade, *Rx for Change*, a shared, evidence-based tobacco cessation curriculum, continues to be widely utilized and provides a strong foundation for legislative efforts to enhance pharmacists’ scope of practice related to prescriptive authority for tobacco cessation.

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