EXPANDING THE ROLE OF FUTURE RESPIRATORY THERAPISTS IN TOBACCO CESSATION

Grant ID #: 16977001

Collaborators and Institutions

Principal Investigator (PI)
Frank M. Vitale, M.A., National Director, Pharmacy Partnership for Tobacco Cessation

Purdue University College of Pharmacy
Marlene Heeg, M.Ed., Managing Director,
Office of Continuing Education and Professional Development
Karen S. Hudmon, Dr.P.H., M.S., R.Ph., Professor of Public Health Pharmacy

University of California San Francisco School of Pharmacy
Robin L. Corelli, Pharm.D., Professor of Clinical Pharmacy

Abstract

This project aims to fill a recently-identified gap in the tobacco cessation training of respiratory care students by equipping faculty from 442 respiratory care degree programs with the necessary knowledge and skills for teaching respiratory care students to assist patients with quitting smoking. Building upon a strong history of success in disseminating the *Rx for Change: Clinician-Assisted Tobacco Cessation* training program, we propose to (a) work with members of the American Association for Respiratory Care (AARC) and others within the respiratory care community to adapt the Rx for Change curriculum to meet the educational needs of future respiratory therapists, (b) host a series of five live web-based train-the-trainer programs for faculty, and (c) develop a parallel, enduring web-based training program to meet the training needs of future faculty. The program will emphasize the Ask-Advise-Refer approach to cessation and will equip faculty and students with working knowledge of the seven FDA-approved medications for cessation.

A robust assessment plan will characterize: (a) the total number of faculty trained, (b) the number of respiratory care programs represented in the trainings, (c) changes in trainees' confidence for teaching tobacco cessation content, (d) extent of Rx for Change implementation at 1-year follow-up, and (e) changes in the total number of minutes of tobacco content, through comparison with two baseline measures. The expected outcome is that faculty participants will have significantly increased confidence for providing tobacco cessation training and will integrate the Rx for Change tobacco content into their respiratory care curriculum.

TABLE OF CONTENTS

OVERALL GOAL AND OBJECTIVES

GOAL – The *overall goal* of this project is to equip faculty from respiratory care degree programs with the necessary knowledge and skills to teach respiratory care students to assist patients with quitting smoking. The project aims to (a) fill an identified gap in the tobacco cessation training of respiratory care students,[1,2] and (b) expand the cessation role of respiratory therapists, who provide both acute and long-term care to patients with tobacco-related pulmonary disease.

This application *aligns with the goals of the RFP* by focusing on increasing progress toward a wide range of tobacco- and pulmonary-related Healthy People 2020 objectives, and therefore the long-term goal is to reduce the public health burden of tobacco. The approach will encourage changes within educational systems to alter the landscape of tobacco education for future respiratory therapists. Although no patient outcomes will be associated with this stage, what is proposed represents a necessary first step for the respiratory care profession in general and builds capacity for the profession moving forward.

The proposed project fully *aligns with the goals of the applicant institution*, Purdue University, and the individual investigators. In 2013, the faculty of the Purdue College of Pharmacy was the first in the nation to adopt a policy on "Reducing the Health Burden Associated with Tobacco" (https://www.pharmacy.purdue.edu/policies/Tobacco%20Policy.pdf). Also in 2013, the same policy was adopted by the UCSF School of Pharmacy. Directly relevant to this application is article #2 of the policy, which states: "Endorse widespread dissemination of evidence-based strategies to prevent the onset of tobacco use, increase tobacco cessation rates, and reduce exposure to second-hand smoke." Furthermore, the three lead faculty investigators for this project (Vitale, Hudmon, Corelli) in combination represent 65 total years of tobacco cessation expertise, providing evidence of strong, sustained commitment to tobacco control.

OBJECTIVES – Building upon a 15-year history of success in developing and disseminating a shared, evidence-based tobacco cessation curriculum (the *Rx for Change: Clinician-Assisted Tobacco Cessation* training program, http://rxforchange.ucsf.edu), the *measureable outcome objectives* of this project are to:

1 Work with members of the American Association for Respiratory Care (AARC) and others within the respiratory care community to adapt the Rx for Change curriculum to meet the educational needs of future respiratory therapists.

2 Recruit at least one faculty member from each of the nation's 442 respiratory care programs to participate in either: (a) one of five live, web-based train-the-trainer programs for respiratory care faculty or (b) a parallel, enduring web-based train-the-trainer program. All faculty training programs, which will be accredited for continuing education units, will emphasize the Ask-Advise-Refer approach to cessation as well as equip faculty with working knowledge of the seven FDA-approved medications for cessation. Timely post-training support will be provided to faculty as they integrate the Rx for Change program into their existing respiratory care curricula.

3 Implement a robust assessment plan that includes both process and outcome measures. Key constructs will include: (a) the total number of faculty trained, (b) the number of respiratory care programs represented in the trainings, (c) changes in trainees' confidence for teaching tobacco cessation content, (d) extent of Rx for Change implementation at 1-year follow-up, and (e) changes in the total number of minutes of tobacco content that is taught in respiratory care programs over time, through comparison with two baseline measures.

Rogers' Diffusion of Innovations Theory[3] will be applied to guide the program development, dissemination, and assessment efforts. The *expected outcomes* of the educational programming are that (a) faculty completing the training will have a significant increase in confidence for providing tobacco cessation training (pre-versus post-training) and post-training intention to implement, and (b) at 1-year follow-up, meaningful increases (compared to baseline measures) will be observed for the total number of minutes of tobacco content taught in respiratory care programs. By working in tandem with AARC on all aspects of the curriculum development and implementation, this project takes an inter-professional approach to education by teaming the pharmacy and respiratory care professions.

THE SHORT- AND LONG-TERM INTENDED IMPACT OF THE PROPOSED INITIATIVE IS TO:

- Significantly increase the amount of time devoted to cessation training within respiratory care programs,
- Increase the competency and confidence of faculty for teaching tobacco cessation, thereby increasing likelihood that tobacco cessation will become an ongoing, integral, part of training for all respiratory care programs nationwide,
- Build long-term capacity, by significantly increasing the number of future respiratory therapists who are able to apply evidence-based approaches for tobacco cessation counseling once they enter practice, and
- Make cessation counseling an integral part of all interactions between respiratory therapists and patients who use tobacco.

INNOVATION – This initiative builds upon but does not duplicate other projects or materials already in existence. In the past, our team and others have been active in training health professionals from a wide range of disciplines, but the respiratory therapy profession has received little attention from the tobacco control community. Because tobacco smoke exposure impacts the onset or exacerbation of most respiratory disorders, respiratory therapists are well positioned to identify tobacco use and provide cessation assistance.

In 2014, there were an estimated 172,921 respiratory therapists in practice, an increase of nearly 19% since 2009. If all respiratory care students receive formal tobacco cessation training, and each of these future providers assists just one patient a week with quitting, this will result in almost 9 million tobacco cessation interventions annually. By teaming with AARC, and thereby targeting both faculty/students and practicing respiratory therapists concurrently, this combined initiative is (a) highly innovative, (b) will yield a broadly enhanced tobacco cessation role for the respiratory care profession, and (c) has the potential to significantly impact tobacco cessation rates among patients with respiratory disorders.

TECHNICAL APPROACH

■■ Current Assessment of Need in Target Area

In June 2008, the United States Public Health Service published its third version of the *Clinical Practice Guideline for Treating Tobacco Use and Dependence*.[4] This Guideline, which is a distillation of more than 8,000 published studies, sets forth a series of recommendations and further establishes the fact that health professionals have a proven, positive effect on their patients' tobacco use—counseling from a clinician can approximately double patients' odds of quitting.[4] Although an estimated 70% of smokers express a desire to quit,[5] most do not receive professional assistance, and fewer than 5% who try to quit on their own are able to do so.[4]

Despite the direct link between tobacco use and morbidity and mortality, for decades health professional schools have failed to provide adequate tobacco cessation training to their students. In 1999, this gap in education was brought to the forefront when results of a national survey was published—the survey data indicated that fewer than 5% of the U.S. medical schools provide comprehensive tobacco cessation counseling training.[6] Since then, numerous national surveys have been conducted to assess the tobacco content of medical,[7,8] nursing,[9,10] pharmacy,[11] dental hygiene,[12] and physician assistant[13] and respiratory therapy programs[1,2]—each reporting inadequate levels of training.

Because of the significant impact of tobacco use on health, cessation education should be a required curricular component in all health professional schools.[4] To bridge this gap in education, it is essential that: *(a)* all health professional schools integrate adequate levels of tobacco education into required coursework and *(b)* graduates achieve clinical competence for treating tobacco use and dependence. A variety of accredited Tobacco Treatment Specialist programs and web-based educational resources are available, ranging from comprehensive, multi-day, accredited curricula to brief intervention continuing education webinars designed for busy clinicians; however, only one program (Rx for Change, http://rxforchange.ucsf.edu) is specifically designed for use in health professional schools.

Baseline data: Respiratory care. Currently, there are two reports[1,2] in the peer-reviewed literature describing a gap in tobacco education among U.S. respiratory care students. The report that is most relevant to the proposed study and will serve as a baseline assessment against which future assessments will be compared,[2] describes results of a nationwide survey (63% response rate) characterizing the tobacco education content in respiratory care curricula. Responses revealed a median of 2 hours and 45 minutes (IQR, 88–283 min) of tobacco education in degree programs. Key barriers to enhancing tobacco training were identified as lack of available curriculum time, lack of faculty expertise, and lack of access to comprehensive evidence-based resources, the latter two of which will be addressed in the proposed project. Importantly, nearly 75% expressed interest in participating in a nationwide effort to enhance tobacco cessation training in respiratory care degree programs.

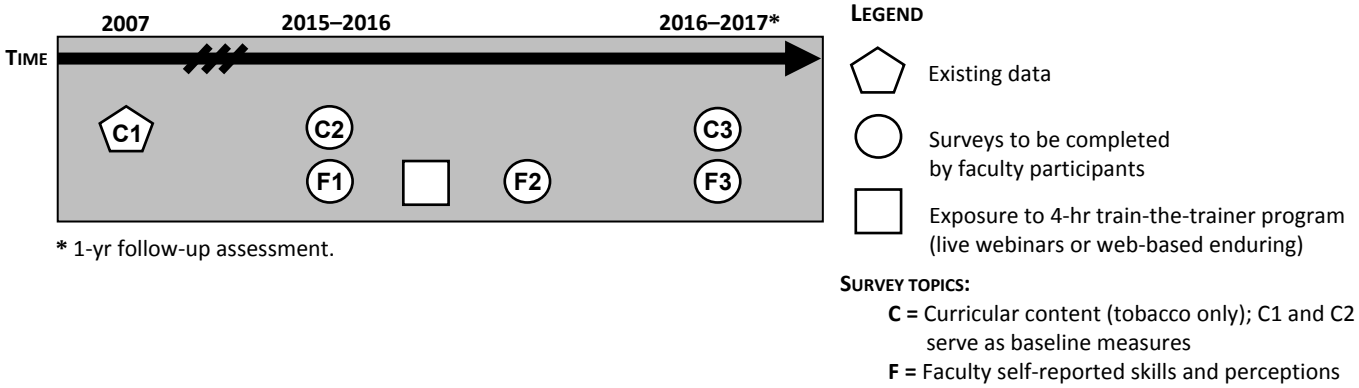
Primary target audiences. Although the long-term beneficiaries of this project will be patients receiving care from respiratory therapists, the short-term beneficiaries are (a) faculty members in respiratory care programs and (b) respiratory care students. Faculty will benefit by receiving comprehensive training and access to a turnkey, evidence-based shared curriculum that has

been tailored for the respiratory care profession. Students will benefit through their exposure to tobacco cessation lectures and relevant counseling exercises that will enhance their tobacco cessation counseling confidence and competencies.

■■ Project Design and Methods

This study will apply a one-group, prospective cohort design (Figure 1) whereby each respiratory care program will serve as its own control. Two baseline measures will provide a means for comparison of changes in curricular content over time: (a) results from our 2007 survey of tobacco-related curricular content[2] and (b) a parallel, baseline survey assessment to be conducted among participants in a train-the-trainer program. These will then be compared to 1-yr follow-up survey assessments to estimate changes in the extent to which tobacco cessation is addressed in respiratory care curricula.

Figure 1. Study Design



***** 1-yr follow-up assessment.

Theoretical approach. Similar to prio methods for disseminating Rx for Change to pharmacy schools, the national dissemination plan for respiratory care programs will be developed and grounded in Everett Rogers' Diffusion of Innovations Theory,[3] which provides a suitable framework for both the *design* and the *dissemination* of curricular innovations. Specifically, this theoretical framework characterizes the process by which an innovation is communicated through various channels, over time, among the members of a social system. In brief, stages through which an innovation is put into practice include knowledge (the extent to which a target population is aware of the innovation and has at least basic understanding of its functions), persuasion (forming a favorable attitude toward the innovation), decision (a member of the target population engages in activities that lead to the choice to adopt or reject an innovation), implementation (the innovation is put to use), and confirmation (reinforcement based positive outcomes associated with use of the innovation). With a curricular innovation, factors influencing the rate of program adoption include the (a) perceived attributes of the curriculum (relative advantage, complexity, compatibility, trialability, and observability), (b) characteristics of the decision-makers, (c) communication channels used to publicize and disseminate the materials, and (d) nature of the "social system," which in this case is the educational system.[3] Below, each of these important theoretical concepts and how they will be addressed in the proposed project is discussed.

(a) ***Perceived attributes of the innovation.*** In applying the Diffusion of Innovations concept to dissemination of a respiratory-specific version of Rx for Change, the *relative advantage* is that the tools will be turn-key, providing evidence-based teaching tools at no cost to faculty members, thereby reducing the amount of time and effort that individual instructors will need to put forth to develop similar content. Training and support materials will be developed, under the auspices of this grant, to ease adoption by faculty members, and the Rx for Change investigators (Corelli, Hudmon, Vitale) will offer faculty assistance as needed (thereby reducing perceived *complexity*). The program's format is conducive to any tobacco education program and therefore promoting adoption (addressing *compatibility* with existing coursework). Because the Rx for Change program has been in existence since 1999, and it has been extensively evaluated (including evaluation of its impact on practice behavior[14]), the *trialability* of the curriculum has already been established. Newsletters, articles, and postings to list-serves will increase *observability* of the program, and awareness will be promoted through a variety of channels, including newsletters, journal articles, presentations, brochures, on-line links to the curriculum Web-site, and direct branching between the AARC, Rx for Change, and Purdue Office of Continuing Education web-sites.

(b) ***Characteristics of the decision-makers.*** To enhance the rate of adoption, respiratory care Program Directors and/or instructors who have the decision-making power to determine whether the tobacco cessation content will be adopted will be identified and directly contacted. Because this approach yielded positive results with pharmacy faculty,[15-17] it is anticipated that similar results will be observed among respiratory care faculty.

(3) ***Communication channels.*** To promote awareness and obtain faculty "buy-in" for participation in the training program, the investigators will apply several methods of communication: (a) will work with AARC and project consultants to promote the curriculum at professional conferences, heightening awareness and obtaining names of persons who are interested in participating, and (b) promote awareness through newsletter articles, postings on list-serves, and personal calls to Program Directors and faculty across the country.

(4) ***Nature of the social system.*** Our observation, to date, is that faculty members in general exhibit a high level of interconnectedness and acceptance of new ideas for teaching. Given the attention that tobacco-related public health issues have received in the past decade, and AARC's efforts in this area, the timing is perfect for dissemination of these tools.

The value of a shared curriculum approach. Prior to initial dissemination of the Rx for Change program back in 2004,[15] nationwide implementation of a standardized training program across the U.S. was unprecedented. Since then, shared curricula have been developed for cultural competency[18] and pharmacogenomics,[19] with dissemination of the latter being funded by a grant from the CDC. This project, PharmGenEd,[19] is based at the University of California San Diego and has borrowed extensively from the Rx for Change program—including the dissemination plan, the backbone of the PharmGenEd website, and all surveys designed to estimate the impact of train-the-trainer programs and the extent of national adoption. Shared curricula and associated tools are logical, cost-effective, and should be the norm—not the aberration—for health professional schools in the future, because they conserve valuable faculty time and resources. There is no need to "re-create the wheel" at each school.

Disseminating a turn-key program will standardize the tobacco cessation curriculum throughout the U.S., and the conduct of train-the-trainer programs will ensure that the evidence-based content will be delivered by educators who are appropriately prepared to do so. It is envisioned that the development of a respiratory-specific version of Rx for Change will (a) facilitate adoption in respiratory care programs and (b) lead to enhanced competency for tobacco cessation counseling among the nation's future respiratory therapists.

The Rx for Change curriculum: History and rationale for use in this project. Since 1999, project collaborators Drs. Hudmon and Corelli have been responsible for overseeing the creation, evaluation, and dissemination of *Rx for Change: Clinician-Assisted Tobacco Cessation* (http://rxforchange.ucsf.edu), a comprehensive, evidence-based tobacco cessation training program for health professional students.[20] This curriculum, which was developed as a statewide collaboration of California pharmacy schools in response to our previously-identified need for tobacco cessation training to become a standard component of pharmacy school curricula,[21] was designed to equip health professional students with the ability to intervene with all tobacco users, including patients who are not yet considering quitting. Rx for Change draws heavily from the 2008 *Clinical Practice Guideline for Treating Tobacco Use and Dependence*[4] and teaches students to apply evidence-based, tailored interventions. The core modules are listed in Table 1. Consistent with AARC's tobacco education modules, the proposed trainings for faculty and students focus on Ask-Advise-Refer interventions in the "Assisting Patients with Quitting" module.

Table 1. Rx for Change modules.

Module topic
Epidemiology of Tobacco Use
Pharmacology of Nicotine & Principles of Addiction
Drug Interactions with Smoking and Nicotine
Assisting Patients with Quitting
Videotaped Counseling Sessions
Trigger Tapes

A state-wide evaluation of Rx for Change implementation in all California pharmacy schools (n=493 students) demonstrated significant improvements is self-efficacy for counseling (1.89 vs 3.53 on a 5-point scale; $p < 0.001$).[16] Eighty-seven percent of students indicated the training will increase the number of patients that they counsel; 97% believed it will increase the quality of their cessation counseling. In 2003, with funding from the National Cancer Institute, the Rx for Change program was disseminated nationally to U.S. schools of pharmacy (n=91). In this initiative, which in many ways parallels the project described in this application, 191 faculty members, representing 98% of the 91 schools, were successfully recruited to participate in an Rx for Change train-the-trainer workshop, and 85% of these schools adopted the program (90% as part of required coursework), with a median of 360 total minutes of tobacco education (median in 2003-04 was 170 min[11]).
In 2007, the collection of implementation data ceased; however, nearly 30,000 health professional students across the U.S. had participated in an Rx for Change training (more than 20,000 pharmacy students during the study period). The program is currently being disseminated to a wide range of health professions, both independently and through a decade-long collaboration with the UCSF Smoking Cessation Leadership Center. It has been translated into Spanish and Chinese. Also, the program has been the focus of numerous research studies in non-pharmacy disciplines. For example, Dr. Linda Sarna (UCLA) received a grant from the CDC to evaluate a web-based version of Rx for Change for nurses practicing in rural settings. Working with Dr. Janie Heath, a series of train-the-trainer programs were conducted for nursing

faculty via Georgetown University School of Nursing.[22] Through a teamed approach with the American Society of Anesthesiologists and physicians at the Mayo Clinic (D Warner, L Dale), a tailored version was created for surgical care providers, with Dr. Jodi Prochaska (UCSF) the psychiatry [14,23] and cardiology versions were created,[24] and with the UCSF Smoking Cessation Leadership Center, a version for mental health peer counselors was developed. In a publication that Dr. Hudmon co-authored with Dr. Prochaska, a 4-hr Rx for Change training for psychiatric residents (n=55) resulted in significantly improved knowledge, attitudes, confidence, and counseling behaviors for treating tobacco use among their patients, with initial changes from pre- to post-training sustained at 3-months follow-up.[14] Residents' self-reported changes in treating patients' tobacco use were substantiated through systematic chart review. This version of Rx for Change was later disseminated to psychiatric residency and psychiatry nursing programs via funding from the UC Tobacco-Related Disease Research Program.[23]

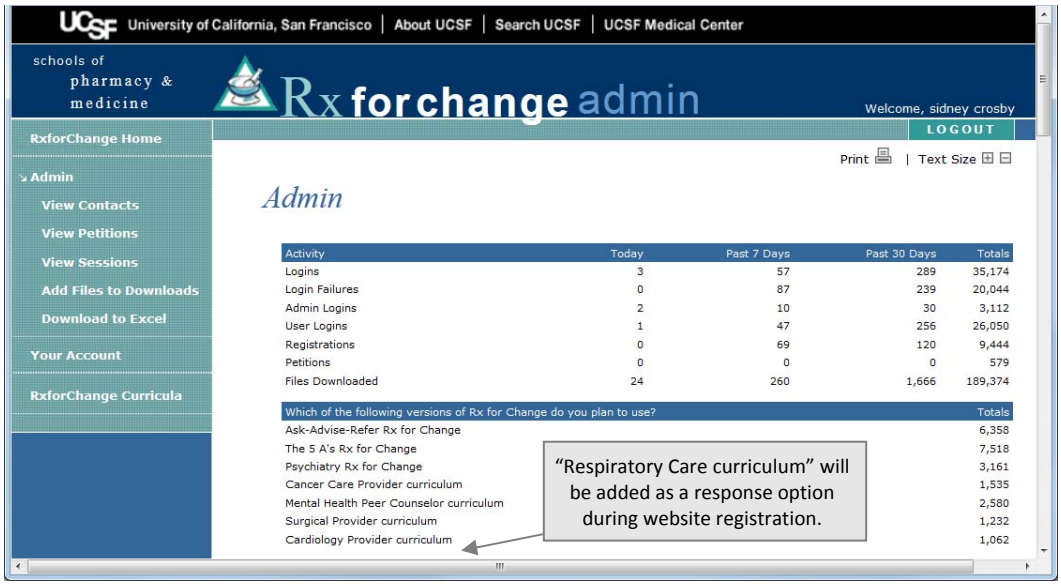
Rx for Change licenses and website utilization

Because Rx for Change is updated continuously, a web-based platform is absolutely essential for dissemination of the curriculum materials. In 2004, the Rx for Change web-site (http://rxforchange.ucsf.edu) was launched, hosting more than 200 downloadable files (including more than 40 video segments). As of January 2014, there are 9,444 registered users on the website, accessing the web-site 35,174 times, and a total of 189,374 files have been downloaded (Figure 2). Over the years, utilization has steadily increased and during the past year, an average of 97 new users registered on the site each month. Overall, these users represent 46 countries and all 50 U.S. states plus Puerto Rico and the U.S. Virgin Islands. Rx for Change was developed without funding in 1999, and the materials have remained current, despite years (>8) without financial support. *In a time when most programs go dormant after the funding ends, the integrity of Rx for Change has been maintained for 15 years, and this same level of commitment will be extended to the new resources to be developed under the auspices of the proposed project.*

Summary of prior efforts. The team's past experience will be relied upon heavily, along with the expertise of the project consultants and other collaborators at AARC. Previously-utilized dissemination approaches [e.g., direct contact (mail, e-mail, telephone); promotion at annual meetings of accrediting bodies for schools/colleges; and advertising/promotion of content in relevant literature] have been successful, and as such the existing Rx for Change platform will serve as the building block for disseminating the respiratory-specific version to be created under this proposed project. With the substantial experience gained over the past 15 years, the project team's collective knowledge will guide the research described in this application.

The anticipated implementation steps that will be necessary to achieve the stated objectives are delineated below. Objectives 1 and 2 focus on the formative work (adapting the Rx for Change curriculum, recruitment of faculty participants), and Objective 3 focuses on program evaluation.

Figure 2. *Rx for Change:* Administrator's access page.



OBJECTIVE 1

Work with members of the American Association for Respiratory Care and others within the respiratory care community to adapt the Rx for Change curriculum to meet the educational needs of future respiratory therapists.

Frank Vitale, MA, Principal Investigator, will oversee adaptation of the existing Rx for Change curriculum to ensure that it is appropriate for the respiratory care audience. The teaching materials will be reviewed by our collaborators at AARC, three project consultants, and three respiratory therapists in practice, and the final version will be reviewed by Amy Marks, the Rx for Change medical editor. Anticipated revisions include:

- Expanded section on smoking-induced pulmonary diseases
- Development of a new module focusing on exposure to second- and third-hand smoke; this includes issues related to counseling parents who smoke and the impact of the smoking on pediatric patients with asthma or other respiratory disorders. Specific tools will be developed for this audience.
- Revise the "Assisting Patients with Quitting" section to focus on the Ask-Advise-Refer approach and more specifically address the opportunities that exist during typical interactions between respiratory therapists and patients. The Tobacco Cessation Counseling Guidesheet (an ancillary handout, see below) will be revised accordingly.
- Several video counseling sessions with respiratory therapists have already been filmed and will be featured in this version of the curriculum; in addition, AARC has proposed development of new respiratory care-specific trigger tapes and videos (in their separate grant submission), which they have kindly agreed to share with the project team.

- Existing "ancillary handouts" will be reviewed and modified as needed. If it is deemed appropriate, new handouts will be developed specifically for this audience. Ancillary handouts are tools, generally 1-2 pages, which can be used by healthcare providers while providing cessation counseling. Examples include a Withdrawal Symptoms Information Sheet, a Tobacco Use Log, a list of selected Coping Strategies, and a Pharmacologic Product Guide.
- Existing trigger tapes will be reviewed to determine which ones are appropriate. A trigger tape is a brief video segment—usually one or two phrases from an actor who plays the role of a patient—that is used as a stimulus to elicit, or "trigger," responses from the audience. In class, professors can play the brief video segment, then query the student audience for appropriate methods of responding to the patient. An example is, "Why should I use a medication for quitting? I don't like putting drugs in my body," or "We all have to die of something. So what if I lose a few years off the end of my life due to smoking?"

The project team will work closely with AARC throughout the materials development phase, to ensure that our materials are (a) relevant to the respiratory care profession, (b) consistent with the materials that they plan to disseminate under their proposed project, and (c) shared between the two teams. In doing so, quarterly meetings will be held, and more as needed, with both the AARC and Purdue/UCSF team present. Although these two initiatives are being submitted to Pfizer as two separate projects, both teams view them as one and are optimistic for the potential to work together to achieve mutual goals (see joint letter, appended to the application). The project consultants that have been chosen were recommended by AARC to be thought leaders at the interface of respiratory care and tobacco control. These three expert consultants are described under "Organizational Detail," below.

As described above, this project will apply a "train-the-trainer" approach to faculty development and will also create an enduring, web-based training program that will meet future training needs for new faculty and will be made available to respiratory therapists in practice. Trainings will combine didactic lecture, Q&A, trigger tapes, and video modeling of counseling sessions. An enduring web-based resource will be developed, featuring an interactive, online version of the training session as well as a collection of related tools and resources that faculty and respiratory therapy students can access on-demand at a specially designed website. Purdue will pursue accreditation of this initiative for respiratory therapy faculty through AARC's Continuing Respiratory Care Education (CRCE) program.

OBJECTIVE 2

Recruit at least one faculty member from each of the nation's 442 accredited respiratory care programs to participate in either: (1) one of five live, web-based train-the-trainer programs for respiratory care faculty or (2) a parallel, enduring web-based train-the-trainer program. All faculty training programs, which will be accredited for continuing education units, will emphasize the Ask-Advise-Refer approach to cessation as well as equip faculty with working knowledge of the seven FDA-approved medications for cessation. Timely post-

training support will be provided to faculty as they integrate the Rx for Change program into their existing respiratory care curricula.

Methods. Each of the 442 accredited respiratory care programs in the U.S. will be contacted via email to inform them of the project and to identify at least one faculty member to participate in the training. The Commission on Accreditation for Respiratory Care, which is the sole nationally recognized authority for the accreditation of first professional degree programs in respiratory care, has indicated willingness to provide the contact list for a small fee. Follow-up telephone calls will be made, as needed, to maximize participation. Continuing education units will be provided for participants at no cost. In a prior study with pharmacy schools, this research team was successful in recruiting 191 faculty members representing 89 of the 91 schools of pharmacy (98% recruitment success rate).[15]

Each faculty member will be asked to attend two live webinars (2 hours each; 4 hours total) to cover all the available curriculum and materials. These train-the-trainer sessions will focus on the "how to" aspects of Rx for Change implementation, as well as providing the necessary knowledge and skills for teaching tobacco cessation. In the past, web-based Rx for Change train-the-trainer sessions have been conducted with success – specifically, for sessions offered to new faculty at schools of pharmacy in Fall 2014 (n=23 attendees), well over 90% of participants agreed that the "educational activity enhanced my professional effectiveness in treating patients," and more than 90% of attendees stated that the trainings impacted their knowledge of the subject presented. Eighty percent agreed or strongly agreed that the training would result in a change in their practice behavior (unpublished data).

The 2-part webinars will be presented five times from August 2015 through February 2016, to allow for maximum flexibility and faculty participation. The webinars also will be recorded for those faculty who cannot attend the live webinars; these recordings will be housed on the Purdue University Office of Continuing Education website and converted to enduring continuing education programs. Awareness will be raised through the channels described above; in addition the program will be promoted through links to/from the AARC and Rx for Change websites.

Ongoing support for faculty participants. The project investigators (Vitale, Hudmon, Corelli) will be available to advise faculty on how to incorporate the materials into existing curricula and to answer any questions that might arise throughout the course of the project and beyond. Furthermore, the Rx for Change content will continue to be updated annually, and more often if needed for significant changes that could potentially impact the treatment of patients (e.g., the release of a new Surgeon General's report, release of a new FDA-approved medication for cessation, or changes in the medical contraindications for cessation medications).

■ Evaluation Design

OBJECTIVE 3

Implement a robust, prospective assessment plan that includes both process and outcome measures. Key constructs will include: (a) the total number of faculty trained, (b) the number of respiratory care programs represented in the trainings, (c) changes in trainees'

confidence for teaching tobacco cessation content, (d) extent of Rx for Change implementation at 1-year follow-up, and (e) changes in the total number of minutes of tobacco content that is taught in respiratory care programs over time, through comparison with two baseline measures.

Measures and timing of measures. A series of measures is being proposed to fully capture the reach and impact of these training programs. All measures will derive from the team's prior, extensive work in evaluating tobacco cessation training in health professional curricula.[2,11,13,15,22]

(a) *Baseline assessment of tobacco education content in curricula* – The prior cross-sectional survey of respiratory care schools will be repeated,[2] thereby obtaining a second baseline measure, before launching the training events. This survey will be completed by the faculty training participants (one survey per respiratory care program). Each respiratory care program will serve as its own control, utilizing the two prior assessments as baselines for comparison and analysis of trends over time (amount and breadth of tobacco cessation content), *enabling to the ability to estimate the extent to which this initiative has reduced the gap in training for respiratory care therapists*.

(b) *Pre- and post-training surveys for faculty participants* – Web-based, pre- and post-training surveys will be administered to faculty who participate in any form of the train-the-trainer program. These surveys will parallel prior surveys[15] and will assess:

- Prior tobacco-related training and teaching experiences (pre-training only)
- Confidence in skills for teaching tobacco cessation content (pre/post)

Measures that will be assessed post-training only include:

- Perceptions of the Rx for Change teaching materials (perceived overall quality, overall usefulness, and overall likelihood of use),
- Perceived attributes and adoptability of the Rx for Change program: *(a)* compatibility for integration into the existing curriculum structure, *(b)* relative advantage over other tobacco cessation training programs that are available, *(c)* relative advantage over other tobacco cessation content that currently is taught in the curriculum, *(d)* acceptability of the complexity of implementing *Rx for Change*, *(e)* comprehensiveness of content, and *(f)* appropriateness of teaching methodologies used,
- Perceived importance and likelihood of adoption of curriculum modules,
- Barriers to program adoption and perceived likelihood of adopting *Rx for Change,* and
- The anticipated total number of curricular hours that would be dedicated to tobacco cessation (in require coursework) in the upcoming academic year

Individuals who complete the two surveys will be entered into a drawing to be one of 100 winners of a $50 Amazon gift card.

(c) *Follow-up implementation surveys* – Follow-up surveys will be conducted with faculty participants in 2016 (one survey per respiratory care program), to characterize the extent to which tobacco content has been integrated into the curriculum. Surveys will parallel those from

the prior study with pharmacy schools.[17] To estimate changes in the amount and breadth of the tobacco cessation content, responses will be compared to the existing dual baseline measures (2007[2] and pre-training in 2015). Individuals who complete this survey will be entered into a separate drawing to be one of 100 winners of a $50 Amazon gift card.

Informed consent. All participants will complete a written, informed consent, and all study measures and procedures will be approved by the Purdue University Human Research Protection Program.

Data collection methods and statistical analyses. All surveys will be programmed and web-administered using Qualtrics, under the direction of Dr. Karen Hudmon at Purdue University. Analyses will include standard summary statistics as well as a comparison of changes in extent of tobacco education in respiratory care curricula over time, i.e., comparing data from 2007 (published report[2]), 2015 (pre-training), and 2016 (one-year follow-up). Standard summary statistics will be utilized to characterize the population and training levels (e.g., means/standard deviations, medians/inter-quartile ranges), and t-tests, Chi-squared tests, and analysis of variance will be used, as appropriate, for comparisons.

It is hypothesized that significant increases will occur in the total number of tobacco cessation minutes taught. Specifically, it is anticipated that a level of change will transpire that is comparable to that obtained in a parallel study conducted with pharmacy schools – e.g., a doubling of the median number of minutes taught. The Respiratory Care version of Rx for Change will be hosted on the Rx for Change website (for download and utilization by respiratory care program faculty), and the enduring web-based continuing education version of the train-the-trainer program will be hosted on the Purdue University College of Pharmacy Office of Continuing Education web-site. All will be accessible 24/7/365 at no cost to end users.

■ Dissemination Plan

Dissemination of the Respiratory Care Rx for Change program. Although the initial goal of this project is to train at least one faculty member from each respiratory care program, prior experience suggests that it is necessary to have a longer-term goal to address faculty turn and changes in teaching roles within academic programs. As such, the 4-hour live train-the-trainer program will be converted into an enduring, web-based training program (with CE accreditation). This will ensure that future faculty (and therefore future students) will have access to training beyond the life of this Pfizer-funded project. As noted above, the Rx for Change team is committed to maintaining the content of the training programs that are housed on their web-site.

Dissemination of study results. Because there is a paucity of respiratory care-related tobacco publications, the results of this initiative would be a meaningful contribution to the peer-reviewed literature. Upon completion, the investigators will collaborate on a manuscript that characterizes: (a) participation and impact of the train-the-trainer programs on faculty learners and (b) the extent of implementation in respiratory care programs.

REFERENCES

1. Jordan TR, Khubchandani J, Wiblishauser M, Glassman T, Thompson A. Do respiratory therapists receive training and education in smoking cessation? A national study of post-secondary training programs. *Patient Educ Counsel* 2011;85(1):99-105.
2. Hudmon KS, Mark M, Livin AL, Corelli RL, Schroeder SA. Tobacco education in U.S. respiratory care programs. *Nicotine Tob Res* 2014;16(10):1394-1398.
3. Rogers EM. *Diffusion of Innovations.* 5th ed. New York, NY: Free Press; 2003.
4. Fiore MC, Jaén CR, Baker TB, et al. (2008). Treating Tobacco Use and Dependence: 2008 Update. Clinical Practice Guideline. Rockville, MD: U.S. Department of Health and Human Services. Public Health Service.
5. CDC. Cigarette smoking among adults --- United States, 2000. *MMWR.* July 26, 2002 2002;51(29):642-645.
6. Ferry LH, Grissino LM, Runfola PS. Tobacco dependence curricula in US undergraduate medical education. *JAMA* 1999;282(9):825-829.
7. Spangler J, George G, Foley K, Crandall S. Tobacco intervention training: Current efforts and gaps in US medical schools. *JAMA* 2002;288(9):1102-1109.
8. Montalto NJ, Ferry LH, Stanhiser T. Tobacco dependence curricula in undergraduate osteopathic medical education. *J Am Osteopath Assoc* 2004;104(8):317-323.
9. Heath J, Andrews J, Thomas S, Kelley F, Friedman E. Tobacco dependence curricula in acute care nurse practitioner education. *Am J Critical Care.* 2002;11(1):27-33.
10. Wewers ME, Kidd K, Armbruster D, Sarna L. Tobacco dependence curricula in U.S. baccalaureate and graduate nursing education. *Nurs Outlook.* 2004;52(2):95-101.
11. Hudmon KS, Bardel K, Kroon LA, Fenlon CM, Corelli RL. Tobacco education in U.S. schools of pharmacy. *Nicotine Tob Res* 2005;7(2):225-232.
12. Davis JM, Koerber A. Assessment of tobacco dependence curricula in U.S. dental hygiene programs. *J Dental Educ* 2010;74(10):1066-1073.
13. Houston L, Warner M, Fenlon C, Corelli RL, Hudmon KS. Tobacco education in U.S. physician assistant programs. *J Cancer Education* 2008;24(1)107-113.
14. Prochaska JJ, Fromont SC, Leek D, et al. Evaluation of an evidence-based tobacco treatment curriculum for psychiatry residency training programs. *Acad Psychiatry* 2008;32(6):484-492.
15. Corelli RL, Fenlon CM, Kroon LA, Prokhorov AV, Hudmon KS. Evaluation of a train-the-trainer program for tobacco cessation. *Am J Pharm Education* 2007;71(6):Article 109.
16. Corelli RL, Kroon LA, Chung EP, et al. Statewide evaluation of a tobacco cessation curriculum for pharmacy students. *Prev Med* 2005;40(6):888-895.
17. Hudmon KS, Corelli RL, Kroon LA, Fenlon CM, Hoch MA, Prokhorov AV. Nationwide dissemination and implementation of a shared tobacco cessation curriculum for pharmacy schools, 2014, in preparation.
18. Assemi M, Mutha S, Hudmon KS. Evaluation of a train-the-trainer program for cultural competence. *Am J Pharm Educ* 2007;71(6):110.
19. Lee KC, Ma JD, Hudmon KS, Kuo GM. A train-the-trainer approach to a shared pharmacogenomics curriculum for US colleges and schools of pharmacy. *Am J Pharm Educ.* 76(10):193.

20. Hudmon KS, Corelli RL, Chung E, et al. Development and implementation of a tobacco cessation training program for students in the health professions. *J Cancer Educ.* 2003;18(3):142-149.
21. Hudmon KS, Prokhorov AV, Corelli RL. Tobacco cessation counseling: pharmacists' opinions and practices. *Patient Educ & Counsel* 2006;61(1):152-160.
22. Heath J, Kelley FJ, Andrews J, Crowell N, Corelli RL, Hudmon KS. Evaluation of a tobacco cessation curricular intervention among acute care nurse practitioner faculty members. *Am J Crit Care* 2007;16(3):284-289.
23. Prochaska JJ, Fromont SC, Hudmon KS, Cataldo JK. Designing for dissemination: development of an evidence-based tobacco treatment curriculum for psychiatry training programs. *J American Psychiatric Nurses Assoc* 2009;15(1):24-31.
24. Prochaska JJ, Benowitz NL, Glantz SA, Hudmon KS, Grossman W. Cardiology Rx for Change: improving clinical attention to tobacco use and secondhand smoke exposure in cardiology. *Clin Cardiol* 2011;34(12):738-743.

DETAILED WORK PLAN AND DELIVERABLES SCHEDULE

As a first step after funding is received, the Respiratory Care Rx for Change curricular materials will be developed and undergo external review. This phase will be led by the Principal Investigator, F Vitale, with assistance from co-Investigators K Hudmon and R Corelli and our collaborators at AARC. Also during this time, the team will obtain a comprehensive list of respiratory care programs from the Committee on Accreditation for Respiratory Care and will initiate faculty recruitment efforts. K Hudmon will lead the development of study procedures, surveys, and IRB approvals (to be obtained through Purdue University).

The first two (of five, total) train-the-trainer programs will be offered by the end of 2015; the remainder will be offered in the first half of 2016. Development of web-based enduring training, to be led by F Vitale, will occur during the second quarter of 2016. Faculty pre- and post-training surveys will occur throughout the training periods, and the follow-up surveys will be administered approximately one year later. Outcome analyses, to be led by K Hudmon, will occur primarily in the final quarter of the project, and final reports will be compiled in collaboration with AARC.

Throughout the project, administrative oversight and support will be provided by M Heeg and her support staff (described below). This will include day-to-day tasks related to trainings, obtaining informed consent, web-based data collection, administration of incentives for survey completion, and obtaining accreditation for continuing education. The timeline for deliverables is delineated in Table 2, below.

Table 2. Deliverables Schedule, 2-yr project.*

	2015			2016				2017
	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
Kick-off meeting with AARC/consultants	■							
Quarterly meetings with AARC	■	■	■	■	■	■	■	■
Revision of Rx for Change materials		■						
Initial contacts with schools/faculty		■						
Enrollment of faculty trainees			■	■	■			
Evaluation tools and IRB approval completed		■						
Presentation of Train-the-Trainer programs 1-2			■					
Presentation of Train-the-Trainer programs 3-5				■	■			
Pre/post-training data collection completed					■			
Enduring materials completed and launched					■			
Follow-up surveys completed								■
Outcomes analysis								■
Outcomes reporting								■

*Assumes funding will initiate in Q2 of 2015.