D. Main Section of the proposal (not to exceed 10 pages)

1. Overall Aim & Objectives

The goal of this project is to offer targeted training to health care providers about the management of tobacco dependence in medical and surgical specialty settings. This project seeks to train at least 300 providers, and to provide at least 200 participants continuing education credit. A review of 40 similar courses on University of Kentucky (UK) HealthCare's CECentral (CECentral), the venue for this offering, averaged approximately 353 credits per course. Provider training at UK HealthCare has the potential to impact the care of approximately 500 patients a month who report current tobacco use. Misperceptions about the role and use of tobacco treatment modalities persist among smokers (Beard, et al, 2012) and providers (Pipe, et al, 2009). Providing access to both evidence-based tobacco dependence treatment guidelines and current research and best practice evidence regarding the use of various treatment modalities can clarify these misperceptions.

Recent studies suggest that the use of cessation medication (nicotine replacement specifically) in acutely ill smokers is safe (Cartin-Ceba, et al, 2011). Smokers who use nicotine replacement during a hospitalization are more likely to continue use to assist with smoking abstinence after discharge (Regan, et al, 2012). Yet various specialty practices have concerns regarding the use of cessation medications for their patients, such as those about the effects of nicotine on bone healing and balancing the risk/benefit in patients experiencing an acute cardiovascular event. The intent of these modules is to address these specific concerns and provide the latest evidence to assist providers in making informed decisions in the care of their patients related to tobacco dependence.

The primary objective of this project is to increase the appropriate use of medications to promote comfort and cessation in tobacco users with medical illness. While cessation can have great benefits to health, the adequate management of nicotine withdrawal can enhance patient comfort in a treatment setting while having the added benefit of promoting quit attempts. To this end, having systems approaches to increase the use of medications to treat tobacco dependence both during hospitalization and post discharge is a focus of new Joint Commission measures (Fiore, et al, 2012). Promoting evidence based use of these medications among providers which specifically address the needs and concerns of specialty services can reduce barriers and provide benefit both to patients and to healthcare institutions implementing systems change to meet the new measures.

Developing, promoting and disseminating tailored prescriber education are the interventions for this proposal. This project aims to develop and implement training for providers in a web-based format using current technologies to provide tailored evidence-based information about cessation and the use of medications through targeted training to various provider groups (e.g. cardio-pulmonary, orthopedics and trauma, oncology, neurology, and surgery) in a user-friendly format. Outcomes will be measured using pre- and post-testing as a component of the training module. A commitment to change vehicle will also be deployed to track one and three month follow up performance-based outcomes. Additionally, for participants at UK HealthCare, prescribing data reports will be tracked from the existing electronic medical record as an indicator of the influence of the training on prescribing behavior.

Specific Aims:

1. Develop specialty-specific web-based training modules presented by providers within each targeted specialty to provide current evidence-based and best practice information for the management of nicotine withdrawal and the promotion of tobacco use cessation.
2. Promote participation in the modules through CECentral, using targeted email contact and marketing strategies.
3. Provide a forum for providers to discuss concerns specific to managing nicotine withdrawal and treating tobacco dependence subsequent to the module, moderated by clinical experts in the treatment of tobacco dependence.
4. Monitor withdrawal management prescribing and tobacco dependence treatment practices of providers by specialty at UK HealthCare pre- and post-intervention.

The initial module will be based on current clinical practice guidelines (Fiore, et al, 2008) and research findings relevant to the treatment of tobacco dependence. A second companion module will then focus on each of the targeted specialties (cardio-pulmonary, orthopedics and trauma, oncology, neurology, and surgery). The information will be reviewed by experts in tobacco treatment and practitioners within the targeted specialty group to determine relevant content for each module. Based on this determination, scripting will be developed and presented within the module by practicing clinicians in each respective specialty area and by specialists in tobacco dependence treatment.

A novel feature of the CECentral is the capability to provide a forum for ongoing dialogue in a web-based format. This allows participants to raise additional questions or discuss concerns electronically with content experts after the completion of the module.

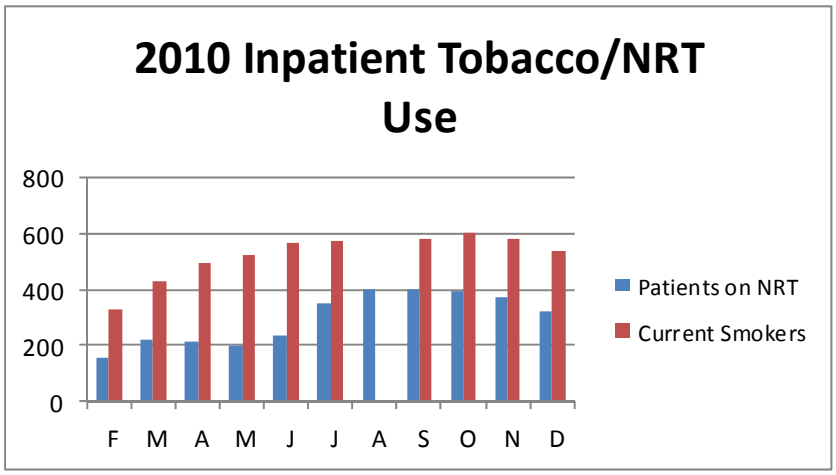
Each module will offer 1 continuing education unit (CEU) for the overview and 1 CEU or specialty content (2 CEUs total). Although this program will target University of Kentucky providers, it will also reach providers both nationally and internationally, based on prior data from similar CECentral offerings. The anticipated outcomes of this project will be to increase provider knowledge of evidence-based tobacco treatment methods and to increase tobacco treatment of patients requiring this intervention. Provider knowledge will be assessed using a post-education evaluation and tobacco treatment will be assessed using analysis of electronic medical record data at UK HealthCare and self-reported post-participation electronic-based survey (described below).

2. Current Assessment of Need in Target Area

Globally, tobacco use is the leading cause of preventable death. Despite this, a recent evaluation of the National Health Interview Survey data (Kruger, et al, 2012) found that health care providers are becoming less likely to advise their patients to quit smoking, although nearly 68% of smokers want to quit. In Kentucky, tobacco use prevalence rates among adults are the highest in the nation. Kentucky also has some of the highest rates of tobacco related disease, such as heart disease, chronic obstructive pulmonary disease, and lung cancer, in the nation. UK HealthCare, the flagship academic health care institution in Kentucky, treats a large number of

tobacco users (approximately 33% of all inpatients) which is slightly higher than the smoking prevalence in the state (29.0% in 2011).

UK HealthCare has tracked nicotine replacement therapy (NRT) prescribing by provider and service for inpatients starting in 2009 through electronic data collection capabilities within the pharmacy. Current tobacco user data is available through the Patient Admission Profile in the Electronic Medical Record (EMR). An analysis performed during UK HealthCare's participation in the Joint Commission Tobacco and Alcohol Use Measures Pilot demonstrated that for the first 5 months of data (see graph), an average of 44.5% of inpatient smokers were prescribed NRT. A substantial increase in prescribing occurred subsequent to a brief (30 minute) training provided to housestaff on the use of NRT for inpatients highlighting the NRT order set within the EMR.



For the next 5 months (current smoker data was not available for August) NRT prescribing rates increased to 63.7% of inpatients. Both of these percentages are suboptimal, but this brief training led to a dramatic increase in utilization. The proposed module is intended to enhance this effect by increasing both reach and intensity of information for clinicians, delivering content specific to providers' area of interest. Comparative data for July, August and September of 2012 shows current tobacco users are still about 33% of the inpatient population, with only 54% of these prescribed nicotine replacement during their hospitalization. Data for post-discharge prescribing will be available subsequent to additional modifications in the EMR within the coming year.

3. Technical Approach, Intervention Design and Methods

Overview of Initiative Development

The proposed initiative will require the development of 6 modules comprising a core module plus 5 specialty specific modules.

The core module provides an overview of the 2008 Clinical Practice Guidelines for the Treatment of Tobacco Use and Dependence (Fiore, et al, 2008). This module will be one hour long and will also include an overview of the new Joint Commission tobacco use measures. Current issues will also be discussed, such as the development and use of novel tobacco products and combination therapy with an emphasis placed on implications for treatment. The target audiences are prescribing health care providers and pharmacists, so we will emphasize the treatment of tobacco dependence in health care settings and will include dialogue with treatment providers.

The second one hour companion modules will target specific health care specialties. Based on registration information provided by the participant, a seamless transition to this module will

be provided for the user. The specific target modules will be developed to address the specific concerns related to treating tobacco dependence for persons with associated cardio-pulmonary, orthopedic and trauma, oncologic, neurologic, or surgical problems. We will focus on providing a review of current research, thoughtful discussion of issues relevant to the specified patient population and presentation of a case study. Expert providers within each of these specialties will be engaged to develop and discuss content within the module and will be paid an honorarium with grant funds. These providers are critical to identifying and addressing the issues and concerns of colleagues within their respective profession.

Implementation: Web-based Educational Materials
The web-based materials will be produced by CECentral, which is an accredited full service continuing education program for physicians and pharmacists with the ability to accredit content for other provider categories. Each presentation will be captured and produced in a studio setting by professional videographers. These presentations will be available on line around-the-clock and will allow learner management of content delivery. That is, learners can stop, start and review content delivery at will. The didactic material for each module will be captured as video synchronized to Powerpoint slides. Where additional viewpoints are needed to meet the educational objectives specified in this proposal, a point/counterpoint methodology will be used to allow course faculty to react dynamically to, and interactively with the content. Case studies will also be used to supplement the didactic material and offer an alternative methodology for learning. Where appropriate, polling questions will be built into the web presentations to allow the learners an opportunity for input. Once the polling question has been submitted, the online learner will then see a summary of all responses to the question. After reviewing their answer, the learner would then click a button to resume the presentation.

All providers within the UK HealthCare system have an email address with the University through which they receive ongoing communication. Regular communications are received regarding educational opportunities in the form of grand rounds and various distinguished lecture series. This will be the method used to inform UK HealthCare providers of the availability of the CE offering when available. In addition, this will allow us to tracker the number of UK HealthCare providers that have obtained training. In addition to this, brief "in-person" presentations will be offered to the targeted provider groups to encourage participation. By engaging the participation of local expert providers in the development of the modules, it is anticipated that peer-based awareness of the CE offerings will also occur.

For providers outside the UK HealthCare system, CECentral maintains a database of providers who have participated in prior offerings. They will send emails targeted to providers based on their specialty identified through the account setup process. To date, CECentral has 100,000+ account holders including over 38,000+ Physicians and 12,000+ Advanced Practice Providers (e.g. Advanced Practice Nurse, Physician Assistant).

Addressing Provider Needs and Concerns: eLearning Communities
In addition to delivering web-based educational materials, CECentral will also serve as the platform for facilitating an online eLearning Community for professionals who wish to engage with course faculty or with other participants in the course. The eLearning Community is an

online forum that grows out of the web-based education. That is, after the posttest for the web-based material has been successfully completed, attendees will be invited to join an eLearning Community moderated by the course faculty members, which involves an ongoing discussion of questions raised by the participants, cases presented by participants or the faculty member and feedback from the faculty member. The eLearning Community will last for the duration of the enduring materials and will be monitored weekly by course faculty. Each specialty module will incorporate a case study to provide an experiential learning opportunity and it is the intent of the eLearning Community to offer a forum where not only questions can be raised but case studies also discussed to support future learning.

Specific Roles

CECentral, under the direction of Dr. Jim Norton and with the assistance of Seth Anderson, will provide the expertise needed to produce, host, track, and market the continuing education modules. They will also be the agents obtaining and providing continuing education credit for physicians, advanced practice providers, and pharmacists. Dr. David Mannino will be the content expert who will participate in the development and review of the modules, and will assist in the recruitment of other specialty providers. Dr. Audrey Darville will provide content expertise related to the treatment of tobacco dependence and assist in the production and marketing within UK HealthCare of the CE offerings. Drs. Mannino and Darville will actively participate in the eLearning Community. Drs. Norton, Mannino, and Darville will perform ongoing statistical analysis of the offerings and be responsible for dissemination of the findings.

Sustainability and Feasibility

In a web-based format, costs incurred are primarily related to production. The intent is to offer the CE at low or no cost to participants during the grant period. Subsequent to this, a fee schedule consistent with other offerings can be followed. The need for content updates will be evaluated annually by Drs. Mannino and Darville, who are both on faculty at the University of Kentucky. The eLearning Community will be offered through the course of the grant period. Continuing this opportunity will be assessed and evaluated based on participation.

CECentral has been providing high quality, easy to access online learning opportunities for 9+ years. CECentral is a leader in the innovative use of web-based CE, and at any given time offers over one hundred accredited online activities in the form of asynchronous webinars, downloadable PDF documents and online journals. CECentral is the official partner of national organizations such as the Public Health Accreditation Board (PHAB) and the Eastern Association for the Surgery of Trauma (EAST). A letter of support from CECentral is attached.

4. Evaluation Design

The intent of the modules is to provide targeted, tailored, and up to date content regarding the management of nicotine withdrawal to healthcare providers using a format with a broad reach. As such, information regarding the number of participants, the number applying for CE credit, their specialty and location will be collected per established protocol with CECentral.

Knowledge acquisition will be assessed using a pretest and posttest and comparing results over time and by specialty sub-group. The specific objectives of the different specialty modules might vary slightly (i.e. wound healing is more important in surgical specialties whereas

preventing exacerbations are more important in medical specialties). Accordingly, for each online curricular element, faculty will design a pre and posttest that is specific to that specialty module. Program acceptability will be assessed using a conventional survey that asks for positive or negative ratings of speaker skill, knowledge, bias and content relevance. Commitment to change will also be assessed to determine the chances that practice will change. At the conclusion of the claim credit part of an online activity, the learner is asked to identify ways in which, based on what has been learned, he or she intends to modify his or her practice. The response is free text and is permanently archived. One month later, the learner receives an email, reminding them of their commitment and asking if the change has occurred. If it has not, the learner is invited to identify barriers to change. Two months later, another follow up query is sent. Commitment to change is a powerful tool, both in terms of moving practitioners in the direction of practice improvement, but also in identifying barriers that impede practice change.

To receive CE credit, specific objectives for each module will be developed. Post tests will be developed individually for each module to reflect the participants' achievement of the stated objectives. In general, these objectives will be consistent with the 2008 Clinical Practice Guidelines for the Treatment of Tobacco Use and Dependence and with core competencies developed by the Association for the Treatment of Tobacco Use and Dependence. Based on previous offerings, the participation rate is anticipated to be at least 300 healthcare providers. All participants will complete the initial module and, for evaluation purposes, we will look for at least a 20% improvement in knowledge from the pre-test to the post-test. For the specialty modules, it is anticipated that at least 50 participants will be needed to provide adequate power to detect similar knowledge improvement.

UK HealthCare has tracked NRT prescribing by provider service for inpatients starting in 2009. After providing housestaff with information about the nicotine replacement order set during orientation in 2010, there was a dramatic increase in NRT prescriptions for inpatient smokers, from 38% to 64% (see above).These time trend data will be used to compare outcomes of the project over time testing for overall group differences in prescribing using t-tests and analysis of variance. Based on prior participation rates with similar CE offerings of approximately 300 healthcare providers, it is anticipated that there will be sufficient power to perform a pre and post launch analysis. If the number of specific specialty participants is sufficient to produce adequate power for statistical analysis, sub-group comparisons will also be evaluated.

EMR changes are currently being developed to collect data reflective of the new Joint Commission tobacco use measures. Module participants from UK HealthCare can be identified through CECentral. The availability of this data is a valuable resource which can enable measurement of changes in prescribing behavior by various clinical services in our healthcare system subsequent to participation in the CE. We intend to obtain Institutional Review Board (IRB) approval to enable both tracking and publication of this outcome and those described above. Once approval is obtained, a brief consent will be embedded into the module registration process.

References

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E. Detailed Work Plan and Deliverables Schedule (not to exceed 2 pages)

An ambitious timeline for the implementation of this training is noted below. Our goal is to have the training modules launched by early-June 2013 (prior to arrival of new housestaff). We will begin tracking outcomes as described above subsequent to module launch.

Actions	Target Dates	Responsible Party	Outcomes
Content Development	12/12/2012 – 2/1/2013	Audrey Darville, David Mannino	• Objectives • Needs statement • Practice gap • Evaluation and posttest instruments • Accreditation application forms • Educational program script and story board • Recruitment of providers to review and present specialty content • Submit IRB application
Module Production	3/1/2013 – 4/15/2013	CECentral (James Norton and Seth Anderson)	• Web-based portal on CECentral • Five web-based modules including front-matter, rich media, posttest, evaluation • eLearning Community programming complete
Content Review	4/15/2013 – 5/1/2013	Audrey Darville, David Mannino	• Modules reviewed for quality assurance of content and sequencing
Rework (if necessary)	5/1/2013 – 5/15/2013	CECentral, Audrey Darville, David Mannino	• Make necessary changes to the online modules • Content review and final sign-off
Launch	6/1/2013	CECentral	• Publish modules on CECentral
Marketing	6/1/2013 – 7/1/2013	Audrey Darville, David Mannino, CECentral	• Send out eBlasts • Nofity relevant societies, organizations • Post to UK HealthCare Internal network
eLearning Community Moderation and Evaluation	6/1/2013 – 7/1/2014	Audrey Darville, David Mannino, CECentral	• Weekly moderation of the eLearning Community, addressing issues as needed • Routine monitoring of activity feedback • Analysis of data and publication of findings