

A. Cover Page

Title: Building Capacity of Portuguese Nurses to be Tobacco Control Champions.

Organization: International Society of Nurses in Cancer Care (ISNCC), Oncology Nurses Association of Portugal (AEOP), European Oncology Nursing Society.

Scientific and methods consultants: Linda Sarna, Marjorie Wells and Jenny Brook, University of California, Los Angeles; Stella Bialous, University of California, San Francisco.

Request ID: 25947027

Category 1: Capacity Building

Abstract:

Nurses, when properly educated, make a significant difference in the tobacco epidemic through evidence based tobacco dependence treatment and tobacco control advocacy. Experience from several countries demonstrates that a combination of Training-of-Trainers (ToT) and web-based educational programs is effective in increasing nurses' intervention with patients who smoke. Portuguese nurses have limited access to these educational resources due to language barriers, thus, the primary goal of this project is fill this educational gap and build capacity among Portuguese nurses for evidence-based cessation interventions in clinical practice. A secondary goal is to strengthen partnerships between Portuguese nursing associations with regional and international nursing organizations to grow and sustain nurses' engagement in tobacco control. The objectives of this project are to support 50-100 nurses who attend a ToT workshop on tobacco dependence treatment in implementing educational programs in their own institution to reach another 500 nurses; to recruit 300 nurses for an online education program and assess its impact in increasing the proportion of Portuguese nurses self-reporting "always/usually" assessing patients' tobacco use and assisting with quitting; and to support Portuguese nursing organizations to engage in tobacco control and strengthen their national and regional tobacco control networking. Changes in nursing practice will be measured through pre- and post education surveys, and follow up and technical assistance to nurses attending the ToT workshops. Results will be disseminated through peer reviewed publications and presentations at professional meetings. All educational materials will be available, free of charge, to all nurses in Portugal, and all Portuguese-speaking nurses.

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C. Reviewer Comments

Not applicable.

D. Main Proposal

1. Overall Goal and Objectives

The primary goal of this project is to build capacity among nurses in Portugal to deliver evidence-based tobacco dependence treatment in clinical practice. A secondary goal is to strengthen partnerships between national nursing associations within the country and with regional and international nursing organizations to continue to grow, and sustain, nurses' engagement in tobacco control.

This project focuses on capacity building, building synergy between the mission of Global Bridges to enhance health professionals' involvement in tobacco control, and the mission, and network, of the International Society of Nurses in Cancer Care (ISNCC) to enhance access to cancer prevention and care through nursing best practices. Building capacity among nurses, in partnership with nursing leadership, will support future nurses' commitment to broader tobacco control advocacy and policy efforts in Portugal.

Nurses are the largest group of healthcare professionals and essential for the implementation of Article 14 of the WHO Framework Convention on Tobacco Control.

Objectives

To meet the tobacco control educational needs of 66,000 Portuguese nurses, including 1600+ oncology nurses represented by Portuguese Oncology Nursing Association (AEOP for the name in Portuguese), through a nurse targeted, evidence based tobacco dependence treatment educational program, this project will pursue the following objectives:

1. To support 50-100 nurses who attend a Training-of-trainers workshop on tobacco dependence treatment in implementing additional trainings at their home institution (reaching additional 500 nurses).
2. To recruit 300 nurses to participate in an online educational program including an online baseline survey and an online 3-months survey post implementation of the program.
3. To increase by 40%, at 3 months post educational intervention, the number of nurses self-reporting "always/usually" assessing patients' tobacco use in Portugal.
4. To increase by 30%, at 3 months post educational intervention, the number of nurses self-reporting "always/usually" assisting smokers with quitting.
5. To support Portuguese nursing organizations to endorse existing, or develop their own, position statement on nurses and tobacco control and strengthen their national and regional networking for tobacco control.

2. Current Assessment of need in target area

The prevalence of smoking among Portuguese aged 15 and older is approximately 22.6% [1], representing approximately 2.5 million smokers, with the highest proportion (44.5%) among males 35 to 44 years of age [2]. It is estimated that the prevalence of tobacco use among youth is 17% [2]. Portugal's smoking prevalence remains mostly unchanged for the past 10 years [2]. Over half (54%) of Portuguese smokers have not made a quit attempt, and of those who tried to quit, 84% did without any assistance from a healthcare professional [2].

The burden of tobacco use in Portugal is significant. It is estimated that tobacco causes 11% of all deaths, 25% of deaths among people 45 to 59 years of age, and 20% of all cancers in Portugal are tobacco-related [2]. Research demonstrated the importance of adding tobacco dependence treatment to cancer care to improve treatment outcomes and overall survival [3,4], but initiatives targeting cessation and cancer in Portugal are limited.

Portugal's national tobacco control strategies include capacity building of healthcare professionals [5]. Health groups are engaged in tobacco control through the Portuguese Federation for Prevention of Tobacco Use (COPPT, for the name in Portuguese). The national nurses group, Ordem dos Enfermeiros, is founding member of COPPT [5], but the need for nurse-targeted educational interventions to reach the 66,000 Portuguese nurses remains. Further, the Portuguese Oncology Nursing Association (AEOP for the name in Portuguese), representing over 1600 oncology nurses, is a partner in this proposal, also expressed the need for nurse-focused educational programs.

Portugal is a Party to the WHO Framework Convention on Tobacco Control (FCTC), but several of the FCTC policy measures, such as 100% smokefree environments, are yet to be fully implemented [1, 6]. However, it does have a national smoking cessation quitline [1] and its strategic tobacco control plan [5] sets several targets for implementation of Article 14 of the FCTC, including increasing to 30% the proportion of smokers that report making a quit attempt every year, integrate cessation interventions into clinical practice of all health professionals and in all settings, and increase the proportion of health professionals that quit themselves, although no proportion was provided for the latter [5]. The 2014/2015 tobacco control report from the Ministry of Health demonstrated that while there was a 10% increase in the number of places that smokers could seek assistance from 2013 to 2014, only 3.6% of smokers in 2014 sought professional advice and or medication to support their quit attempt [7].

Smoking among health professionals has been documented as a barrier to these professionals' engagement in providing tobacco dependence treatment [8,9]. A recent research project concluded that Portuguese physicians and other health professionals have the same smoking and quitting patterns as that of the general population, and were not role models for quitting or for tobacco control advocacy. The researcher called for programs to support quitting among health professionals and to enhance their education on tobacco control [10]. One study found that smoking prevalence among nurses was approximately 23%, and taking a smoking break during the workday was a behavior reported by 46.7% of smokers [11]. Another study found 19% smoking prevalence among health professionals, and support for health professionals as a role model for non-smoking was higher among smokers than non-smokers [12]. As described

below, we have had previous experience in successfully implementing tobacco dependence treatment capacity building initiatives targeting nurses in countries with high prevalence of smoking among nurses, such as Czech Republic and Poland. The curriculum emphasizes that even nurses who smoke can effectively support their patients' quit attempts. We are aware that there are many differences among nursing in different countries, but our experience working on 7 countries and 5 states within the United States demonstrate that there are more commonalities than differences. However, in order to ensure that all issues that are specific to Portuguese nurses' practice are accounted for in the educational materials, we will have an in-person team meeting at the start of the project and monthly calls to ensure that issues are addressed as they arise.

Previous experience: **Nurses, the largest group of healthcare professionals, are effective providers of smoking cessation interventions** [13]. Nurses who are exposed to a web-based educational program on tobacco dependence treatment increase their interventions with smokers [14, 15, 16, 17]. **The ISNCC team partnering with the Portuguese colleagues at AEOP has, to date, educated over 6000 nurses in different countries to provide evidence-based tobacco dependence treatment and about tobacco control.** The Tobacco Free Nurses website (www.tobaccofreenurses.org) includes descriptions of these and other projects conducted by the investigators, a bibliography, and multiple international resources on tobacco control and tobacco dependence treatment and for nurses.

The International Society of Nurses in Cancer Care (ISNCC), under the leadership of Drs. Linda Sarna and Stella Bialous, has successfully engaged in capacity building of nurses for tobacco dependence treatment. Based on the experience of Drs. Sarna and Bialous and their team, in the United States, where smoking cessation education was provided to 2073 nurses [14, 17], ISNCC has implemented several capacity building initiatives targeting nurses. For example, in China, 2,466 nurses (Hefei = 1046, Beijing = 1420) participated in a feasibility study of using long distance learning on evidence-based smoking cessation interventions for hospitalized smokers [15]. At 6-months post educational program nurses were significantly more likely to intervene with patients when compared to baseline. For example, nurses increasingly arranged for follow-up post-discharge (OR = 1.56, 95% CI, 1.24, 1.96, P = 0.0002) and almost twice as many nurses consistently recommended the creation of a smoke-free home environment to support quitting (OR = 1.90, 95% CI, 1.57, 2.31, P < 0.0001) [15].

ISNCC is also working in Eastern Europe, in partnership with the Czech Center for Treatment of Tobacco Dependence, in Prague. One project educated 22 Czech nurses through capacity-building Tobacco Cessation Leadership Workshops, following a Training-of-trainers (ToT) model [18, 19]. A sub-sample of 157 nurses (from the 300+ nurses educated by champions who participated in the workshops) provided baseline data. An assessment of 98 of these additionally trained nurses', for whom baseline and 3-months post education data were available, showed that at 3 months, compared to baseline, significantly more nurses assessed patients' interest in quitting, assisted with quit attempts, and recommended the quitline [18].

To expand the reach of the educational program, ISNCC and partners developed an online learning educational program for nurses in Czech Republic and Poland focused on nurses' role in smoking cessation, and smoking cessation within oncology settings, reaching over 600 nurses [16]. The project's evaluation confirmed that it is feasible to use online learning to educate nurses in these two countries. Results from the 3-months post-education survey showed that, compared to baseline, nurses were 80% more likely to ask about smoking status, 60% more likely to provide brief advice to quit, more than twice more likely to assist with a quitting plan, arrange for follow-up, and almost 3 times more likely to refer to a quitline [16]. At 3 months, nurses were 2.5 times more likely to recommend the creation of smokefree homes.

ISNCC is currently expanding the Czech experience (workshops and online learning) to Hungary, Romania, Slovakia, and Slovenia. To date, over 300 nurses have participated in ToT workshops in the 5 countries, 765 nurses responded to the baseline survey and gained access to the webcasts. The 3-month follow-up data collection started in March 2016 and access to the webcasts will be available to all nurses after the 3-months survey.

ISNCC partners with nursing groups in Europe, such as the European Oncology Nursing Society, as well as national nursing groups, and facilitates dissemination of the Eastern European projects, creating a demand from additional countries for nursing capacity building. Language barriers have limited Portuguese nurses' access to tobacco dependence treatment resources, but current ISNCC President, Dr. Bialous, is a native Portuguese speaker, which will facilitate communications and implementation of the educational program. Mr. Freitas, AEOP's Secretary General, is fluent in English, which will facilitate the networking of nurses in this project with nurses across the region. This project will address this educational gap by creating country specific, nurse-targeted educational resources and ensure that the nursing network is strengthened to provide ongoing support, and sustainability, for nurses' involvement in tobacco control. This is the first time a tobacco control educational program will target nurses in Portugal.

3. Target Audience

The national nurses group, Ordem dos Enfermeiros, is founding member of COPPT, but the need for nurse-targeted educational interventions to reach the Portuguese nurses remains. Further, the Portuguese Oncology Nursing Association (AEOP), representing over 1600 members is a co-leader in this proposal, also expressed the need for nurse-focused educational programs.

Nurse Champions: A key component of this project is to identify, and support, at least two Portuguese nurses who will be the champions for this project, and become leaders in Portugal in promoting evidence based smoking cessation and tobacco control. AEOP already identified two leaders: Dr. Esmeralda Barreira and Mr. Jorge, who will then help identify nurse champions. Other AEOP leaders are committed and supportive of this project and have links with several healthcare institutions, the Ministry of Health and the Ordem dos Enfermeiros.

According to a AEOP survey, the majority of oncology nurses in Portugal work at one of the several campuses of the Instituto Português de Oncologia (IPO) locations, and AEOP leaders work at IPO-Porto and IPO-Lisbon, which facilitates access to other nurses in the system.

Target audience: There are over 66,000 nurses in Portugal, but for the purposes of evaluation, we will target 50-100 nurses for the ToT component (who will train a minimum of additional 500 nurses), and 300 nurses for the online learning. See evaluation design for response rate estimates.

If each of the 66,000 nurses in Portugal were to help only 4 smokers a year quit, nurses could decrease in 10% the number of smokers in Portugal.

The ultimate beneficiaries are smokers supported in their quit attempt, but nurses, empowered to engage in tobacco control, are the short and medium term beneficiaries.

4. Project Design and Methods

Design: Using a descriptive, pre-post design, this project will reach 900 Portuguese nurses via two educational strategies. Strategy one will reach a minimum of 500 Portuguese nurses who will be trained by 50-100 nurse champions after they have received training at a one-day, in-person, training-of-trainer workshop, and strategy two will reach 300 Portuguese nurses who will participate in an e-learning program consisting of two webcasts and online resources. Prior to project activities initiation, IRB/Ethics Committee approval, or waiver, will be obtained from each of the Portuguese institutions involved, UCLA, and UCSF.

This project is based upon previous successful programs utilizing (1) in-person, training-of-trainer workshops to educate nurse champions who then return to their home institutions to train additional nurses, and (2) using Web-based resources including two webcasts and online, downloadable toolkit of country-specific tobacco cessation resources to increase the number of nurses who consistently (usually/always) provide evidence-based smoking cessation intervention (5As and referral to Quitline) to hospitalized smokers. These two strategies are described in detail below.

Strategy I. In-person, Training-of-Trainer (ToT), 1-day, workshops:

- a. Selection and enrollment: The AEOP leaders and nurse champions are responsible for selecting participants (goal 3-5 nurses) for feedback on the educational materials' content validation, adaptation and translation into Portuguese. The Nurse Champions, supported by AEOP, are responsible for recruiting participants (goal 25 nurses per workshop X 2 workshops / 50 nurses per this activity per year X 2 years for a total 100 nurses) for the main, 1-day ToT in-person workshops. These participants will be informed of the expectation that they become future trainers in evidence-based, brief, smoking cessation interventions, disseminating the information to colleagues in their home institutions.

Participants will receive all materials needed to conduct these short educational programs. The Nurse Champions, with support from leaders and consultants, are responsible for organizing the in person workshops: meeting room, refreshments, copies of materials, USB flash drives with workshop materials, including a 45 minute presentation and script that can be used for additional trainings.

- b. Intervention: Upon arrival, participants will complete an informed consent and short questionnaire assessing demographic and professional characteristics, smoking status, and practices related to smoking cessation interventions. This instrument is the same that nurses will be asked to distribute to participants of the 1-hour training they will be expected to provide to nurses in their home institution. The ToT workshop will last approximately 8 hours. Workshop(s) will be taught using PowerPoint slide format (PPT) presentations (in Portuguese), with handouts to each participant. In addition to the presentations (see table 1 below), there will be discussions and role-playing, so nurses can have a demonstration on different approaches to engage with smokers to provide brief cessation intervention and refer to a quitline. Before the end, nurses will complete an evaluation of the workshop.

Table 1: Sample of Training-of-Trainer workshop agenda & topics	
9:00 - 9:30	Registration
9:30 – 10:00	Introduction (project, speakers)
10:00 – 10:25	Epidemiology of tobacco dependence, exposure to tobacco smoke and tobacco control
10:25 – 10:45	The principles of tobacco dependence: psycho-behavioral and physical dependence
10:45 – 11:05	Smoking and oncology
11:05 – 11:20	Coffee break
11:20 – 11:40	Tobacco dependence diagnosis
11:40 – 11:50	Tobacco dependence in selected groups – pregnant, adolescents, multiple dependencies, mentally ill
11:50 – 12:20	Treatment of tobacco dependence (including 5 As, 5 Rs)
12:20 – 13:00	Role of nurses – discussion about possibilities in tobacco control in Centres for treatment of tobacco dependence, Quitline, treatment possibilities
13:00 – 14:00	Lunch break
14:00 – 14:45	Model situations – playing roles (motivated/unmotivated etc.)
14:45 – 15:00	Most frequently asked patients' questions
15:00 – 16:00	Implementing the training at your hospital: practical steps and discussion. Question and answers about using the materials, collecting baseline and 3-months follow-up data, and next steps
16:00 - 16:30	Evaluation and closing remarks.

- c. Nurses will receive a USB flash drive with a brief, 1-hour presentation (PowerPoint) with the scripts, resources and instruments, so they can educate other nurses in their home institutions.

- d. Brief tobacco cessation workshop data collection: Trainees will collect data from nurses participating in the brief tobacco cessation workshops they will conduct in their home institutions. There will be an informed consent and pre-test given prior to the brief workshop (intervention) and contact information will be collected so that a post-test can be sent at 3-months post intervention. The two nurse champions will have a follow up contact with the nurse who attended the 1-day workshop (via email or telephone) to assess the number of brief workshops conducted, numbers of nurses who participated, and to find out what they did with the information and materials. Nurse champions will also collect the pre- and 3-months post-intervention questionnaires from the trainees, corresponding to the nurses educated by them, for analyzes of the data in the aggregate by the project team.
- e. Results & Discussion: Data from the ToT baseline and 3-months survey will be analyzed by the project team (leaders, champions and consultants). Summary will be included in the study results and will be share with all ToT participants. The baseline and follow-up survey used in this strategy is similar to the one used in the online education strategy and is described in the evaluation design section, with additional details.

Strategy II. E-learning modules:

The second stage of the program will be to develop and adapt previously used e-learning materials for Portuguese nurses. The Working Group (AEOP leaders, Nurse Champions and ISNCC Leaders), will conduct this. Forward and backward translation will be provided as necessary. The e-learning program will include the following educational materials:

- Two 40-minute e-learning courses offered via webcast, including the enduring availability of the PowerPoint slides and notes for download. One course will be on the role of nurses in smoking cessation interventions, and the other one will be on smoking cessation in oncology settings.
 - An online informed consent and short pre-test of knowledge, skills and attitudes related to tobacco control and smoking cessation interventions will be completed immediately before access to the e-learning courses.
 - An online 3-month post-test, including three questions assessing usability, acceptability and accessibility of the e-learning program.
 - Nurse-tailored, country-specific toolkit of downloadable and printable materials including but not limited to the following: a fact sheet on tobacco control; a fact sheet on the nurses and tobacco control; a list of referrals and resources, a reminder card for referral with the quitline number for; and a pocket card including tips for brief patient interventions
 - Country-specific resources (e.g. links to existing tobacco control resources in Portugal and international links as appropriate)
- a. Preparation of materials: Adapt and then translate the e-learning templates to ensure that they are relevant and appropriate for Portugal (and according to the national and regional tobacco cessation guidelines available). Part of the materials include a list of available resources related to smoking cessation interventions that nurses can access for themselves

and for their patients (such as referral to the quitline). See f. ii below for content description.

- b. Webcasts: Once the slides and scripts are ready, recording of the two webcasts by native speakers will occur – 1-3 nurses could do the recording, most likely the nurse champions and possibly a 3rd colleague. It will be scheduled and recorded with the assistance of ISNCC. Uploading of the country-specific, recorded webcasts and other resources on the project webpages (ISNCC website page created for this project and maintained by ISNCC).
- c. Preparation of the Nurses Intervention in Tobacco Cessation questionnaire for baseline and 3-month surveys, including informed consent, recruitment and reminder emails. As stated previously, Dr. Bialous will facilitate translations of the instruments, as she is familiar with these materials, and this will facilitate review by the Portuguese colleagues. As in previous projects, we will use the data collection program, REDCap™, to develop, administer and manage the online survey. REDCap™ is provided as an in-kind contribution by UCLA. Part of the survey preparation includes REDCap™ keys and ineligibility message text translation. We will also prepare a recruitment flyer, recruitment/email invitation text, 3-months survey reminder/invitation, weekly reminders, and Webcast reminders. These documents will be uploaded to the REDCap™ UCLA Clinical & Translational Science Institute (CTSI) website with the assistance of the statistician consultant, Ms. Jenny Brook. After development and uploading, testing of the online instrument will begin. Initial testing of an English version of the surveys will be by UCSF and UCLA by project personnel to ensure correct progression & skip logic within the surveys then testing with Portuguese-speaking nurse experts will take place for validity. We will conduct test-retest reliability of the surveys in Portuguese with 15 nurses/nursing students with modifications, as needed.
- d. Continuing Education: While ISNCC does not provide CE credits, in previous experience, the national nursing organization took the initiative to provide CEs to nurses who watched the webcast. It will be the decision of the Portuguese colleagues if they want to provide CE credits after the completion of the 3-months survey.
- e. Selection and enrollment: The Nurse Champions, assisted by project leaders, will “market” the e-learning education materials appropriately to assure the target of 300 nurses is reached. This can be done in several ways, e.g. via national nursing and/or oncology nursing societies website and regular communications with members, sending e-mails with web link to the baseline questionnaire and e-learning modules to nurse leaders across the country, and/or to nursing directors at health care institutions.
- f. Intervention: Each e-learning webcast/ educational module takes approximately 40 minutes to complete. The online e-learning activity will last until the goal of 300 nurses is reached.
 - i. Baseline survey: Nurses, who have been recruited via methods described and agree to participate, will complete the online informed consent and baseline pre-test. Upon completion of the baseline survey, a URL link to the two educational webcasts will be provided at the end of the survey and in an automated, REDCap™ email reminder to each participant.
 - ii. Online e-learning educational modules: The web-based education consisted of two sets of slides and scripts used to record two 40-minute webcasts: *“The role of nurses in smoking cessation”* and *“Smoking cessation within oncology settings.”* The content will be adapted from previous educational programs [20, 21], and based on

- the validated RX for Change® curriculum (<http://rxforchange.ucsf.edu>). The webcasts included information on the country's tobacco use and tobacco control profile, health impact of tobacco use, benefits of cessation in general and in patients with cancer, the role of nurses in tobacco control, and brief intervention for smoking cessation. The team will also develop country-specific web pages with additional resources including a list of cessation services. The multiple educational resources developed will also be available. The tobacco Free Nurses website, as well as the ISNCC website, contain examples of these resources developed for other countries and for 5 different states in the United States.
- iii. 3-month survey: Participants will be asked to complete a 3-month follow-up questionnaire via e-mail reminder (automated by the REDCap™ system). Immediately following 3-month survey completion, nurses can print a certificate of completion.
 - iv. Dissemination of the modules to additional nurses and direct links with nursing organizations, nursing schools, etc.
- g. **Data Collection:** Baseline and 3-month-post e-learning activity questionnaire is required by the study.
- h. **Results and Discussion:** The data from these questionnaires will be analyzed and evaluated and included in the study results.

5. Evaluation Design

The instrument for baseline data collection is similar for both educational strategies. In summary, the 32-item survey, previously used, will be adapted. It assesses changes in nurses' delivery of smoking cessation interventions and attitudes towards tobacco control. It includes questions on nurses' demographic (age, gender) and professional (highest degree in nursing, years in nursing, and type of clinical setting, e.g. gynecology) characteristics, and smoking status. The survey includes questions on the frequency (always, usually, sometimes, rarely, never) of nurses' intervention with patients who smoked using each of the 5 As (i.e. Ask, Advise, Assess, Assist and Arrange) as a separate item. It has a separate question on nurses' frequency of referral to a quitline and on recommending the creation of a smokefree home post-discharge. Nurses are asked to agree or disagree, using a 1-5 Likert-type scale, with 1 being "strongly disagree" and 5 being "strongly agree," with a series of statements assessing their attitudes about being non-smoking role models, their involvement in tobacco control and smoking cessation interventions. When assessing nurses' perception of tobacco control among other health priorities, the scale ranged from 1 "least important" to 5 "most important." Additionally, to estimate whether nurses' reported changes in frequency of intervention with patients are reflected in number of patients helped, there is a question asking nurses to estimate how many patients, in the previous week, they offered a smoking cessation intervention. The post-test survey re-assesses nurses' baseline responses, with three additional questions assessing usability, acceptability and accessibility of the e-learning program, and a question on viewing the webcasts. For the ToT, the instrument will be in paper and pencil format, for the online learning, the survey will be online. The online survey will use REDCap™, a secure, web-based data capture tool for data collection and management.

Strategy I: In person, Training-of-trainers workshops

As per the experience in Czech Republic [18] and other Eastern European countries, nurses who attend the ToT workshops will be provided with survey instruments, including informed consents, that they can administer at baseline (prior to implementing an educational program in their home institution) and 3-months post education. A prospective design will assess changes in self-reported frequency of cessation interventions with patients who smoke before and 3-months after the educational program. The nurses providing the training in each institution will collect the baseline survey form from the nurses who agreed to participate. At 3-months post education, nurses will contact participants and provide them with a secure location to drop the instruments anonymous (for example, a box in the break room). All paper and pencil surveys will be sent to AEOP for secure data entry. If AEOP is unable to provide secure data entry, the surveys will be sent to UCLA for entry by the data management/statistics consultant. Analyses will use SAS 9.4 software. Descriptive statistics will characterize participants' demographics, professional characteristics and smoking status. The main outcome is to assess nurses' change in self-reported frequency of providing smoking cessation interventions, including referral to the quitline. "Usually/always" intervening will be considered the key outcome of interest for consistency of intervening. Non-parametric tests will assess differences in the frequency of intervention from baseline to 3-months. Depending on the proportion of smokers who participate, we may analyze baseline and 3-month data for smokers and non-smokers separately, using Chi-square (to determine if smoking status of the nurses have an impact on the delivery of cessation intervention to patients). The threshold statistically significant changes at 3-months will be $p \leq 0.05$.

We will target 50 nurses per year to attend the ToT workshops (total 100 nurses in the course of the project) and we will expect that at a minimum, 50% of these nurses will implement educational interventions in their home institution to at least an additional 10 nurses each, reaching 500 nurses. Response rate of these nurses to participate in the evaluation component (pre- and 3-months post survey) varies, but it was approximately 50% in the Czech project [19].

Strategy II: Online learning

Nurses' self-reported consistency of intervention will be determined using the instrument 32-item survey Nurses Intervention in Tobacco Cessation described above in its online format [18]. The instrument will be tested and re-tested by a sample of 15 Portuguese nurses or nurse students to determine validity and reliability for the Portuguese version. The web-based survey takes 10-15 minutes to complete. Nurses will be asked to provide an e-mail address to receive reminders to watch the webcasts as well as a link to the 3-month survey and the certificate of completion. REDCap™ allows to link baseline with the 3-month survey responses so that we can monitor changes over time.

The primary unit of analysis is nurses. REDCap™ allows for survey data to be immediately available for analysis. All analyses will be done using SAS 9.4. Descriptive statistics will be used

to characterize study variables and nurses' personal and professional demographics. Chi-square will be used to determine differences in demographic and professional characteristics of nurses at baseline and 3-months follow up.

The survey will assess, at baseline and at 3-months post-educational intervention, changes in the frequency and consistency of referral to the quitline and delivery of the 5As ("always", "usually", "sometimes", "rarely", "never"). Consistency of intervening is defined as nurses stating that they "usually" or "always" refer smokers to a quitline and or deliver each of the 5As, thus, for data analysis we will collapse "usually/always" as appropriate. The primary outcome of interest will be changes, from baseline to 3-months, in nurses' consistency of performing each of the 5As, referring to the quitline and recommending a smokefree home, comparing the pre- and 3-months post online education surveys. Changes in the frequency of intervention will be analyzed using Chi-Square test. A Mixed Model adjusting for key variables (for example, age, education, smoking status) will be used to determine self-reported changes in practice from baseline to 3 months. The threshold for statistically significant changes at 3-months will be $p \leq 0.05$.

The project target is to recruit 300 nurses at baseline. Our previous experience in Czech Republic and Poland yield a 70% to 77% response rate at the 3-months follow up survey. The goal is to detect a 40% increase, at 3 months post educational intervention, in the number of nurses self-reporting "always/usually" assessing patients' tobacco use in Portugal and to increase by 30%, at 3 months post educational intervention, the number of nurses self-reporting "always/usually" assisting smokers with quitting.

We will monitor, weekly, unique page views of the webcasts using Google Analytics. After the 3-month survey, monitoring will be monthly to ascertain that the educational materials are being disseminated and used.

Dissemination: the team is experienced in preparing manuscripts for peer reviewed publications to disseminate the results. Given the paucity of studies about nurses and tobacco dependence treatment in Portugal, we plan to publish both the baseline data (for both strategies) and the outcomes data. Results will also be disseminated through professional meetings, such as AEOP's conference. Most importantly, we will publish results in Portuguese as well as English. It is pivotal that Portuguese nurses, health professionals, opinion leaders and decision makers have access to the results of this project, including sharing results with the Portuguese Federation for Prevention of Tobacco Use, through the nursing membership, and to the National Tobacco Control Program.

6. Detailed work plan and Deliverables Schedule September 2016 – August 2018

Activities (September 2016 to August 2018)	Year 1, 2016- 2017				Year 2, 2017-2018			
	1	2	3	4	1	2	3	4
Portugal								

Activities (September 2016 to August 2018)	Year 1, 2016- 2017				Year 2, 2017-2018			
	1	2	3	4	1	2	3	4
Portugal								
Establish the working group and schedule monthly calls	X							
UCSF IRB approval	X							
UCLA IRB approval	X							
IRB: Assist with Portuguese sites' IRB procedures	X	X	X					
In person meeting of ISNCC, AEOP and EONS team	X							X
Review, adapt & translate study educational materials from previous projects	X	X	X					
Training-of-trainer 1-day workshop materials adaptation:								
<ul style="list-style-type: none"> • Slides • Script of slides • Slide template • Demographic questionnaire survey • Workshop agenda • Recruitment flyer • Handouts • 60 minute slideshow for brief training at Trainee's home institution on a USB flash drive including pre- and post- tests with informed consents for participants • Certificate of completion (CE credit?) • Workshop evaluation form • 3-month phone evaluation 		X	X					
E-learning materials adaptation								
<ul style="list-style-type: none"> • Baseline survey and informed consent <ul style="list-style-type: none"> ○ Recruitment and reminders • 3-month follow-up survey and consent <ul style="list-style-type: none"> ○ Reminder emails • Two educational webcasts with scripts: <ul style="list-style-type: none"> ○ Helping Smokers Quit ○ Smoking cessation in oncology settings • Final completion certificates for nurse participants 		X	X					
Website ISNCC			X	X				
A website tab, specific for this project, will be established on the ISNCC website and linked to other tobacco and nursing organizations websites, based on input from the Advisory Board as for previous projects (e.g., Pfizer China CRN-HSQ project, EE-HSQ, EE-COE)		X	X	X				
ISNCC website - develop new web pages with project-specific materials		X	X	X				
Start production of webcast program & web materials: develop state-			X	X				

Activities (September 2016 to August 2018)	Year 1, 2016- 2017				Year 2, 2017-2018			
	1	2	3	4	1	2	3	4
Portugal								
specific scripts, complete & upload webcast recordings								
Finalize resources, recruitment and implementation strategies.				X				
Global Bridges Grantee meeting, March 2017			X					
Finalize Study Materials			X					
Upload surveys to REDCap™ program								
<ul style="list-style-type: none"> Testing surveys in English & Portuguese Conduct test-retest reliability with 15 Portuguese nursing students 				X				
Upload web-based materials on the project specific microsite				X				
Confirm procedures for continuing education credits [if any]				X	X			
Recruit:								
Prepare invitational materials about study for consideration by Nursing leaders, Chief Nursing Officers (CNOs) at each hospital, for 1-day ToT workshops and e-learning activities			X	X				
Partners from the Portuguese Oncology Nursing Association, such as other national nurses group (e.g. Ordem dos Enfermeiros), will be asked to use recruitment materials on their websites to recruit nurse participation and to contact hospital nursing directors to recruit nurses from their nursing staffs				X				
Training-of-Trainer workshops								
Recruit nurses for ToT (n=50s per year)			X		X			
Launch the ToT workshops				X	X			
Trainees conduct brief workshops in home institutions (≥ 10 nurses/workshop)				X	X	X	X	
<ul style="list-style-type: none"> Data collection of brief workshop pre-test surveys Brief workshop post-test surveys at 3-months ToT evaluation 				X	X	X		
							X	X
								X
E-learning					X			
Send invitations to participate in the study to CNOs, nurse champions, with link to baseline survey for nurses in all institutions (target 300 nurses)					X			
Send weekly reminder announcements to participate in the study over a three week period					X			
Send weekly reminders to nurse champion with statistics about level of enrollment					X			
Close baseline survey 1 month after initiation					X			
Webcast/Web-based resources made available immediately after completion of baseline survey					X			

Activities (September 2016 to August 2018)	Year 1, 2016- 2017				Year 2, 2017-2018			
	1	2	3	4	1	2	3	4
Portugal								
Send weekly reminders to nurses who have not viewed the webcasts using REDCap™ feature					X			
Launch 3-month Survey								
Automated REDCap™ email reminders will be sent to nurses participating in the study						X		
Send weekly reminders to nurse champion with statistics about level of enrollment						X		
Close 3-month survey in 1 month after initiation						X		
Access to Webcast & Web microsite resources after 3-month survey completion for all nurses on national nursing organization websites & hospitals						X	X	X
Promote availability of free resources through partners						X	X	X
Ongoing activities								
Monthly Support calls with Nurse Champions and project leaders	X	X	X	X	X	X	X	X
Ongoing communication with consultants regarding sites hospitals and state tobacco control activities	X	X	X	X	X	X	X	X
Begin web tracking after webcast/web materials link distributed Google Analytics					X	X	X	X
Data analysis & manuscript preparation						X	X	X
Data analysis 3-month survey, calculate response rate							X	X
Manuscript preparation							X	X

Note: 1= September-November, 2= December-February, 3= March-May, 4= June-August

Concluding remarks

This is the first time a capacity building effort targeting nurses' intervention in tobacco control is proposed for Portuguese nurses. This project expands successful nurse-targeted education program on tobacco dependence treatment to a country where tobacco control resources for nurses have been minimal. It brings together element from previous projects into one initiative with 3 complementary components: ToT, online learning, and leadership and network building.

Nurses are the largest group of health professionals, thus targeting these healthcare providers has the potential to accelerate changes in practice such that all hospitalized smokers will receive evidence-based treatment. Similar to our previous projects, the web-based materials will be available for viewing for all Portuguese-speaking nurses after the conclusion of the 3-month follow-up data collection. Establishing the efficacy of a country-specific Webcast in

changing practice also will contribute to the expanding knowledge about the impact of long distance education. We have a strong track record of disseminating our findings through professional publications, presentations, on the Tobacco Free Nurses, AEOP and ISNCC Websites, and as well as links to other communication listservs such as Global Bridges. We will use similar methods to disseminate findings from this project.

If each of the 66,000 nurses in Portugal were to help only 4 smokers a year quit, nurses could reach 250,000 smokers and decrease in 10% the number of smokers in Portugal.

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