Building Tobacco Dependence Treatment Capacity in Medical Universities and Affiliated Hospitals in China

Table of Contents

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Overall Goal & Objectives

The overall goal of this project is to reduce smoking among people who access healthcare services in China. The goal of the project aligns with the focus of the 'Request for Proposal' to be implemented in a low- or middle-income country and to advance evidence-based tobacco dependence treatment. The goals of the Center for Tobacco Control Research are to build tobacco treatment capacity in China through advocacy, leadership, research and technical resources. We will join and contribute to the Global Bridges online network.

Objectives

1. To revise current existing tobacco treatment course based on evidence-based best practices.
2. To build tobacco dependence treatment capacity among medical professionals.
3. To promote the practice of routinely treating tobacco dependent patients being seen for medical care.
4. To raise awareness of the public, policymakers, and the medical professions concerning the importance of tobacco treatment.

This project will provide a core of 50 medical universities and 10 university affiliated hospitals (AHs) training medical students and professionals to be able to treat tobacco dependence. Ten AHs will develop policy support and infrastructure to ensure medical professionals offer all patients who smoke and access their services help to stop smoking.

Technical Approach*: Describe how this initiative will meet the goal of the specific area of interest for the RFP, in the category for which you are applying.*

Current Assessment of need in target area

Smokers suffering illness often become motivated to quit smoking, making medical encounters a crucial "teachable moment" in smokers' lives. Further, physicians are highly respected in China and have authority over patients, making them ideal messengers for a smoking-cessation message. Many smokers who quit are able to do so without assistance, but cessation interventions greatly increase quit rates. As a result, clinical cessation interventions can be effective and also extremely cost-effective compared to other health-care interventions (World Health Organization, 2013). Many smoking cessation clinics have been developed in China in recent years as part of the government's tobacco control programs, but only a small number of smokers have visited them(Yang T & Yang G, Journal of Tuberculosis and Lung Health,2013). This may reflect that Chinese culture, to a large extent, still adheres to agrarian social mores that make Chinese people unaccustomed to dealing with problems such as smoking by means of rational and instrumental methods. This makes it difficult to attract smokers to clinics specializing in smoking cessation. A more

promising alternative is to introduce to smoking cessation treatment during routine care, when patients come to a hospital or visit physicians. We have previously designed and implemented programs to teach and promote implementation of smoking cessation treatment in smoking cessation specialty clinics. However, because of their complexity, these programs are not suitable for implementation in routine clinical settings. In a survey we conducted among 87 medical professionals we had trained in smoking cessation (China-RI1-15B), only 15 were actually delivering tobacco treatment. Most (80/87) reported that the program was too complex. It is urgent to develop an appropriate model and training program that can serve in routine clinic treatment. Our project aims to address this issue. We are aware of no other large-scale tobacco treatment capacity building projects in China. This new project will review the existing tobacco treatment literature to identify approaches suitable for implementation in routine clinical care. This project will add value to the previous project by increasing the tobacco treatment capacity among the medical workforce and thereby contribute to tobacco cessation and the tobacco control movement in China.

Since 2007, we have conducted other projects to build tobacco control capacity in China. Our previous "build tobacco control capacity" projects (BI), China-1-15 and China-RI1-15 were completed in 2008 and 2011(Yang T et al, Tobacco Control, 2009). With these grants, we developed materials for a tobacco control course to be implemented in public health-related faculties in 31 universities in China (see BI reference letters,H1-H2). A current project on "Facilitating MOH Endorsement of Tobacco Control Curriculum Implementation through Promoting Tobacco Control Curricula in Medical Schools China" (China-RI1-15B) has extended this work to promote its implementation in all medical schools. This project is now coming to an end (see BI reference letters, H3). In these projects, we developed culturally relevant materials for a tobacco control and tobacco treatment course to be implemented in medical faculties in 91 universities in China, which covered all provinces, municipalities and autonomous regions in the whole nation, including 70 cities. So far 83,130 medical students, and 648 medical professionals have been trained through these projects, and their tobacco control and tobacco treatment knowledge, skills and behavioral capacity were developed. These projects have developed a network of trained and dedicated medical professionals that can serve as the basis for the new initiative. The experience also developed our technical expertise in treatment development and dissemination, as well as an extensive network of contacts throughout the country. We have built a website containing resources on tobacco control and treatment. The website also provides for project management for treatment centers. Through our previous work we have developed positive and extensive contacts with the media (http://www.gov.cn/jrzg/2010-05/08/content_1601913.htm; http://news.xinhuanet.com/mrdx/2013-12/05/c_132940043; http://finance.chinanews.com/jk/2013/12-02/5571336.shtml). These resources and

networks provide a solid foundation and infrastructure for our proposed project.

Intervention Design and Methods: Describe the way the proposed intervention addresses the established need and produces the desired results.

This capacity building project will involve 50 medical Universities and 10 AHs hospitals in China. These universities are drawn from our exiting collaborating network in "tobacco control capacity building" projects (China-1-15, China-RI1-15 and China-RI1-15B), which covered 91 medical universities. These universities will be selected on the basis of their geographical location to ensure regional diversity, as well as based on their enthusiasm, capacity, and resources. 10 AHs will be selected from sample universities for undertaking clinic treatment practice. It is expected at least 10,000 medical students, 250 medical teachers, and 200 physicians will be involved in training, and that 5,000 medical profession and students will log on to the online training in period of the project implement. Through multiple channels, they will master the knowledge, methods, and skills of behavioral and drug treatment for nicotine dependence(Yang T et al, Tobacco Control ,2011). We expect each AHs to implement the recommended tobacco treatment practices. This is expected to reach 15% of smokers in the targeted geographic areas, enabling them to quit and these avoid morbidity and mortality.

This project will proceed in three phases, with multiple sub-steps:

In the first phase, we will revise the previously-developed tobacco dependence treatment curricula.

This process will include: (1) Conducting a literature review of evidence-based tobacco dependence treatment and related curricula/training content and methods (2) Conducting 25 face-to-face and 30 telephone interviews with personnel who have experience in tobacco dependence treatment, but whose primary duties are in non-specialist clinics where routine medical care is provided. The focus would be on understanding the work-flow in these settings and how smoking cessation treatment could best fit. The face-to face interviews will include observational visits to the clinics to see first-hand how they function. (3) On the basis of these learnings we will design a nicotine dependence treatment program suited to use in routine clinical care, with iterative feedback from our contacts in routine care settings. (4) We will then test the program in in-clinic randomized trials. Subjects will be inpatients come from respiratory department in Sir Run Run Shaw Hospital in Zhejiang University, who are smokers and agree participate this trial. Those will be randomized into two groups, intervention and control group, the former will receive revised tobacco treatment program and control group will be not given any intervening measures. Trained evaluators, independent of the intervention and research staff, will conduct face to face interviews with each of the subjects after 1 month. Expected quit rates in intervening and control groups are estimated as 18% and 3% (Yang T, Tobacco Control Theory and Implement, 2010). Detecting such a difference with a power of .80 requires 68 subjects in each group (Fleiss,

1980). If the desired outcome is not achieved, we will iterate through the development steps to improve the program to reach criterion. (5) We will incorporate the newly-proven nicotine dependence treatment program in the existing tobacco treatment course materials for clinic medical professions and students. (6) We will disseminate the program to our network of clinical medical and nursing teachers and treatment experts and other key stakeholders for feedback, and make any required changes. (7)Finally, we will update all tobacco treatment curriculum, teaching outline, textbook, and teaching strategies to incorporate the new material, and disseminate it to teaching faculty in our university network and beyond.

The second phase is to implement the treatment courses in medical universities and clinical practices in affiliated hospitals.

This process includes: (1) Developing nicotine dependence treatment program guideline and tobacco treatment course guideline. Notably, we will develop a 'train the trainers' programme for practice medical teachers to teach medical students and doctors how to effectively intervene with patients who are tobacco dependent using best practice (2) Holding a 2-day workshop to train key persons in the city of Hangzhou. All the project investigators and one representative from each participating university and AHs will attend. Representatives of World Health Organization, the National Health and Family Planning Committee, the National CDC, capable faculties of previous and current existing projects will be invited as speakers and/or facilitators. Several journalists from media agencies at national and local level will be invited to attend the workshop. The major objectives of the workshop include: (a) To provide participants with intensive training about treatment of tobacco epidemic and tobacco control methods. (b) To discuss strategies for implementation. (c) To provide practical practice teaching, e.g., via mock teaching role-plays. (d) To disseminate workshop materials to all attendees and their organizations. The teaching faculty and physician for this special conference will include international and national level experts on tobacco control and nicotine dependence treatment. (3) To revise and publish (www.tfcampuschina.com) training materials based on the 2 day training for a 24 hour on-line training course for clinic medicine professionals and students. (4) To have all participating universities to implement the newly revised curricula in medical courses within their own school or department. A critical issue in this process is gaining agreement by each university to incorporate tobacco control into their curriculum plan. Such agreements are being cemented under our current project; we will only need to introduce the new and improved material under existing agreements. The course will follow multiple formats of teaching: lecture, problem-based learning, group discussions, debate and case studies. The primary aims are to equip students with basic theories, methods and skills of tobacco treatment. We intend to deliver the course in three contact hours and three non-contact hours. Contact hours will focus in teaching pharmacological and behavioral treatment

methods; non-contact hours will have students go to hospitals to observe the practice or go to community to conduct smoking quitting counseling. In each participating university, there are 2-3 teachers responsible for implementing the curriculum. One, usually the local principal investigator (PI), participated in the 2-day training workshop organized by the project team. Then, the PIs delivered the same training to other potential teachers in their own institution. Usually the local PI at each intervention university delivers the main lecture while other teachers provided teaching assistance. In parallel, we will also conduct dependence training online via our website www.tfcampuschina.com, webinars and a distance learning program. (5) To have all participating AHs to implement tobacco treatment within their Respiratory department. We will build systems and infrastructure to ensure tobacco dependence treatment is given to all patients who smoke and access services in respiratory department of the 10 AHs. We will urge and assist our primary contact at each hospital to lobby and convince key stakeholders to implement tobacco treatment in their hospital, which take smoking cessation as an integral part of the treatment of disease.An important issue will be to convince the stakeholders who control formularies to place relevant treatment drugs on the hospital drug list. We believe that this process will train enough eligible medical students and prepare and mobilize enough medical professionals to not only provide better access to care by smoking patients, but to change the system of smoking cessation case.

The third step is to conduct advocacy to raise awareness of public, policymakers, and medical professions' concerning the importance of tobacco treatment.

Steps include activities to: (1) Generate intense media interest on tobacco control and treatment. In support of this, we will develop a database of media contacts built in our previous and current existing projects, including both national and local media agencies. Active outreach will gain media attention in the participating universities' cities/municipalities though project events and "World No Tobacco Day", etc.(2) Contact key stakeholders of the National Health and Family Planning Committee and encourage them to endorse tobacco treatment in related health or tobacco control policies and to support the introduction of tobacco treatment drugs in Medicare Drugs. (3) Promote tobacco dependence treatment to medical professionals via medical association organizations and healthcare professionals via health networks. We will promote collaborations across regions to build and expand the number of healthcare professionals committed to treating tobacco dependence.(4) Write editorials, opinion pieces, and short articles on the rationale for tobacco treatment and related issues for university newsletters, city/municipal newspapers, internet sites, and other informational sources. (5) Develop and distribute relevant information via our official project micro blogs on Sina. (6) Publish our new revised tobacco treatment materials in textbooks, create and disseminate toolkits for training, and develop treatment practice guidelines to be distributed to medical universities

and hospitals at the national and provincial level. We believe this process will broadly disseminate our work to the public, policymakers, and medical professions, with positive impact on national tobacco treatment policies.

We will join and contribute to the Global Bridges online network. We will promote collaborations across regions to build and expand the number of healthcare professionals committed to treating tobacco dependence.

Evaluation Design: *Describe how you will determine if the practice gap identified in the needs assessment was addressed for the target group in terms of the metrics used for the needs assessment.*

The evaluation plan includes: 1) Formative evaluation of the planning and refinement of each step to ensure that all project tasks are appropriate and feasible. 2) Process evaluation to monitor implementation of the initiatives and innovations as planned. 3) Impact and outcome evaluation to assess whether the goals and objectives have been met.

Objective 1. To revise current existing tobacco treatment course based on evidence-based best practices.

We will assess effectiveness of the clinic trials, we expect our program have significant higher smoking quit rate than control group ($P<0.01$). An initial formative evolution will be based on target audience satisfaction. We expect 90% satisfaction with our new curriculum among clinic medical faculty teaching staff. We will also collect qualitative feedback that will be used to improve the program. This will include feedback about practical implementation in routine care. Best practice tobacco treatment training package is another evaluation indicator.

Objective 2. To build tobacco dependence treatment capacity among medical professions.

We will track the reach and utilization of our programs. It will be expected: (1)9,800 medical students will complete the face to face training and 2,500 more will complete the online training. (2) 230 medical teachers can undertake teaching and 150 physicians can undertake practice teaching and treatment practices.

We will conduct multiple evaluation activities. (1) We record the number of students trained, number of teaching/training sessions offered, duration of each session and number of hours students spent on the course in each university. (2) Students' knowledge and skill about tobacco treatment will be assessed by the teacher according to students' examination, practice will be assessed by the teacher based on their engagement in smoking quitting advocacy in community and their treatment on patients in hospital (3) Information of the teaching level among teachers will be collected from the normal teaching evaluation system in each University. Different knowledge and skill behavioral capacity is "internal driving force" which promotes the behavior implement. In this study we will assess behavioral capacity of tobacco treatment based on prior questionnaire. It included attitudes, interest,

motivation and practice (Yang T et al, Tobacco Control, 2011). They will be measured in baseline, middle (at 6 months) and end (at 12 months) of the project. During the final evaluation, 12 months after program implementation, some students may be inaccessible because of off campus field practicum. However, we ensure contacting at least half of the students enrolled in a chosen class for the final evaluation. When multiple classes in an institution received the intervention, we randomly select students from only one class for the evaluation.

The questionnaires had acceptable reliability (Yang T et al, Tobacco Control, 2011). Student questionnaire include: (1) Attitudes: respondents were asked to rate their degree of approval of tobacco treatment. Following a five-point Likert-type scale, responses ranged from 1 (strongly disapprove) to 5 (strongly approve). (2) Interest: Respondents were asked, 'are you interested in tobacco treatment?' (options were: not interested, somehow interested and very much interested), (3) Motivation: Two questions are included. (a) 'do you think important is tobacco treatment in tobacco control? (options were: not important, somewhat important and very important), (4)'would you like to involve tobacco treatment in your future work?' (options were: little, medium and strong intention). The questionnaire used for teachers and physicians include attitudes, interest and motivation, and practice (advise others smoking quit, help smoking quitting).

In order to ensure greater data reliability, the survey was anonymous and all participants were encouraged to answer as honestly as possible. We used Microsoft Excel to enter all survey data into a database. Each individual in our longitudinal dataset was matched by corresponding demographic characteristics to form repeat measurement data. Most participants could be singularly identified according to birthdates; where a shared birthdate among classmates occurred, matching was accomplished using other demographics, for example, gender and region of origin (Yang T et al, Tobacco Control, 2011).

We imported the dataset into SAS (V9.30) for the statistical analysis. We performed our analysis in two steps. First, we conducted repeated measures analysis of variance, paired t tests and paired x^2 tests to determine if there were differences in dependent variables across time. We used the GIM program for repeated measures analysis of variance to analysis the continuous dependent variables and CATMODE to analyze the categorical dependent variables. Multiple comparisons were performed to evaluate significant differences across time. All statistical significance testing was two sided, using a conventional 5% cut-off.

Objective 3. To promote the practice of routinely treating tobacco dependent patients being seen for medical care.

It will be expected that tobacco dependence treatment is given all patients who smoke and access services and at least 80% of the inpatients can finish the treatment programs in

respiratory department of the 10 AHS.

Number of smokers and numbers provided with treatment will be recorded. We will assess effectiveness of nicotine dependence treatment program. Smoking quitting is defined as those who quitted for a month. We will track reach (5250 smokers and 80% of patients treated), treatment provided (at least 1600 used medication), and outcome (abstinence at end of treatment and at one month).

Objective4. To raise awareness of public, policymakers, and medical professions' concerning the importance of tobacco treatment.

It will be expected that the project outcomes to be broadly disseminated, generate strong media interest with 30 and more original media hits reported, 1-2 textbooks including the new revised treatment, 5 research papers and other materials will be published. This project will make the public, policymakers, and medical professionals awareness and concern about smoking and smoking cessation. We expect indices of these attitudes to improve from 30% to 80% during this project.

We will record original media hits, editorials, opinion pieces, short articles; and number of micro blogs.

In this project we will assess awareness of medical professions' critical role and duty in tobacco treatment by several questions. They include whether support the treatment, concern the treatment information, and think help smoking quit is physicians' duty (Yang et al, Tobacco Control, 2011). The measurements will be anonymous and implemented in baseline and end (at 12 months) of the project. Each individual in our longitudinal dataset was matched by corresponding demographic characteristics to form repeat measurement data. Data analysis sees behavior capacity evaluation section.

In addition, we will encourage project participating persons Global Bridges (GB) online network, we expect 60% of them and more join GB, their tobacco treatment knowledge and awareness significantly improve though this process.

In summary, this project will develop an evidence based smoking cessation/tobacco dependence treatment suitable for implementation in routine clinical care. We will disseminate the program broadly, through our network of contacts in hospitals, medical schools and professional societies. We will also advocate with the public, health professionals, and policy-makers to raise the perceived importance of smoking cessation and to improve support and resources for evidence-based behavioral and pharmacological treatment of tobacco dependence.

Workplan and Deliverables Schedule

Activities/Times(Month)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24

Objective 1: To revise current existing tobacco treatment course based on evidence-based best practices.																							
1. Conduct a literature review of tobacco treatment and related curricula/training content and methods.	x	x																					
2. Consult with experts and gain feedback on the project.			x																				
3. Design a nicotine treatment program for use in routine clinical care and test it in in-clinic randomized trials.				x	x	x																	
4. Revise existing curricula and training materials.							x																
5. Evaluate and form new tobacco treatment curricula and training materials								x															
5. Update all the tobacco treatment curriculum, teaching outline, textbook.								x															
Objective 2: To build tobacco dependence treatment capacity among medical professionals.																							
1. To develop nicotine dependence treatment program guideline and tobacco treatment course guideline.								x															
2. Gain a commitment from key decision makers in 50 medical universities to incorporate tobacco treatment curricula in their curriculum plan.								x															
3.To hold a 2-day workshop									x														
4. Implement the newly revised curricula in participating universities, and a distance learning program on line.										x	x	x	x	x	x	x	x	x	x	x			
5. Implement the evaluations.								x	x	x	x	x	x	x	x	x	x	x	x	x	x		
Objective 3: To promote the practice of routinely treating tobacco dependent patients being seen for medical care.																							
1. Develop a nicotine treatment program for use in routine clinical care.							x	x															
2. Gain a commitment from key stakeholder of the hospital agree implement tobacco treatment in their hospital and place relevant treatment drugs on the hospital drug list.								x	x														
3. To implement tobacco treatment in participating hospitals.										x	x	x	x	x	x	x	x	x	x	x			
4. Implement the evaluations.										x	x	x	x	x	x	x	x	x	x	x			
Objective 4: To raise public, policymakers, and medical professions' awareness.								x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
1. Generate intense media interest.									x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
2. Advocacy Contact key stakeholders of the National Health and Family Planning Committee.	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
3. Write editorials, opinion pieces, and short articles on the rationale for tobacco treatment.										x	x	x	x	x	x	x	x	x	x	x	x	x	x

4. Promote tobacco treatment to medical professionals via medical association organizations and healthcare professionals via health networks.			x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
5. Develop and distribute relevant information via our official project micro blogs on Sina.	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
6. Publish new revised tobacco treatment and teaching materials.																				x	x	x	x	x	x
&.Join the Global Bridges online network and contribute to it on a regular basis.	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	