

## RESEARCH PAPER

# Introducing tobacco cessation in developing countries: an overview of Project Quit Tobacco International

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Project Quit Tobacco International is a pioneering attempt to develop culturally appropriate approaches to tobacco cessation within the health sectors of India and Indonesia. An overview of the formative research that contributed to intervention development is presented followed by a discussion of the research design adopted to evaluate the introduction of tobacco cessation in medical schools and clinics chosen for pilot testing. Four stages of research and implementation are described as a means of providing colleagues in developing countries with a prototype for future tobacco cessation research and training efforts.

The need for tobacco cessation in developing countries is clear, particularly in countries where tobacco consumption is commonplace and increasing. In 2002, Project Quit Tobacco International was initiated by United States, Indian, and Indonesian researchers as a pioneering attempt to develop culturally appropriate approaches to tobacco cessation within the health sectors of India and Indonesia. It was envisioned that this project would build tobacco research and training capacity within these two countries as well as provide a prototype for research in other developing countries.<sup>1</sup> Kerala State, India and Jogjakarta, Indonesia were chosen as sites for capacity building in tobacco cessation research for four reasons. First, both countries have high prevalence rates of tobacco use across all social classes with 47% of men over 15 years of age in India either smokers or users of smokeless tobacco,<sup>2,3</sup> while in Indonesia, 58% of men are smokers.<sup>4</sup> India and Indonesia are two countries in which tobacco consumption is increasing.

Second, both countries have a wide array of indigenous and imported tobacco products. In Indonesia, locally manufactured clove cigarettes (kretek) are the most popular type, and cigarette marketing is among the most aggressive and innovative in the world. In India, both machine rolled and hand rolled cigarettes (beedi) are popular, as are smokeless tobacco products.<sup>5</sup> Third, smoking cessation is not presently being addressed as a public health priority in either country, and pharmaceutical aids for cessation are not readily available in the market. Fourth, centres of medical and public health education committed to multidisciplinary research and interested in developing a tobacco research programme were identified in each country.

In India, Sree Chitra Tirunal Institute for Medical Sciences and Technology (SCTIMST) was selected to be a collaborating centre. Located in Kerala State, SCTIMST is a national level medical research and training institute and home to India's first Masters in Public Health (MPH) programme recognised by the World Health Organization (WHO) and the Medical Council of India. SCTIMST is located adjacent to a regional cancer centre and state medical college. The India research team includes a senior faculty member who is a public health physician specialising in chronic disease and health services research, two MPH-trained physicians, and an anthropologist with experience in community-based research.

In Indonesia, the Gadjah Mada University School of Medicine located in Jogjakarta was chosen as a collaborating

institution because of its well established multidisciplinary research track record and participation in the International Network of Clinical Epidemiology. The Indonesian research team is composed of a health psychologist who has conducted research on tobacco prevention among youth, a medical anthropologist with considerable experience in international health, and a physician completing his PhD in the surveillance of chronic disease risk factors in developing countries.

Members of the Indian and Indonesian research teams are working closely with a multidisciplinary team of US tobacco researchers including three psychologists, two medical anthropologists having long term research experience in Asia, and a physician specialising in nicotine addiction. They bring expertise to the project in clinical and community-based tobacco cessation programmes, pharmacologic treatment of tobacco dependence, international health, and research methodology.

## Five premises and assumptions guiding Project Quit Tobacco International

Five premises and assumptions based on the global literature and the researchers' experience informed the project from its inception. First, the potential to save lives globally through aggressive cessation initiatives is well documented. It has been estimated that if adult consumption were to decrease by 50% by the year 2020, approximately 180 million tobacco-related deaths could be avoided.<sup>6</sup> Not only is tobacco cessation important in its own right, but it also contributes to tobacco prevention in countries where tobacco use is normative.<sup>7</sup> Cessation initiatives draw attention to the ill effects and addictive nature of tobacco use, and user's desirability to quit. A second premise is that in order for a downward shift in tobacco use to occur, health care providers must be at the forefront of tobacco cessation efforts.<sup>8</sup> To do so, they need to both quit using tobacco themselves and ask patients about tobacco use as a routine part of medical assessment.<sup>9</sup> A third premise is that the best way to interest clinicians in tobacco cessation is to draw their attention to the impact of tobacco use on the incidence and management

**Abbreviations:** MPH, Masters in Public Health; PHC, primary health centre; SCTIMST, Sree Chitra Tirunal Institute for Medical Sciences and Technology; TB, tuberculosis

of specific diseases,<sup>10</sup> and teach them practical ways of discouraging tobacco use among their patients.

A fourth assumption driving the project was that substantial formative research would be needed to: (1) develop culturally appropriate tobacco cessation approaches and educational materials, (2) design pilot cessation interventions for clinical settings, and (3) integrate tobacco education modules within medical school curricula. In addition to investigating local perceptions of tobacco products and patterns of tobacco use and exchange, we would need to consider carefully the feasibility of conducting cessation interventions in busy clinics, and the willingness of medical faculty and practising physicians to engage in tobacco cessation efforts.

A fifth assumption was that given the time frame of the project, and the population's low level of interest in tobacco cessation, we would need to consider precursors of tobacco cessation (for example, interest in and motivation to quit, willingness to engage in cessation counselling) in addition to tobacco abstinence as potential outcome measures for pilot interventions. We will return to this issue shortly when discussing our evaluation procedures for pilot interventions.

#### FOUR PHASES OF THE PROJECT

Research activities which were proposed for the five year research project are presented in table 1. Activities are grouped under four broad phases of formative research<sup>11 12</sup> undertaken to enable intervention development. Table 2

**Table 1** Project Quit Tobacco International phases of research

Phase I: Year 1
Goal: Baseline data collection
1. Researchers become familiar with tobacco education and cessation approaches used in other countries
2. Tobacco research methods training begins. Researchers build a repository of tobacco-related materials in each country
3. Researchers conduct formative research toward the development of baseline instruments and data collection procedures
4. Researchers collect baseline data in medical schools and the health sector of each country
Phase II: Years 2 and 3
Goals: Create culturally appropriate educational materials and situational assessments of medical schools and clinical settings
1. Formative research is undertaken toward the development of culturally sensitive tobacco education materials; pre-testing of materials is undertaken
2. Formative research is conducted on cultural perceptions of tobacco and the link between tobacco and particular diseases
3. A situational assessment of medical school curriculum is conducted in preparation for introducing tobacco education and cessation training
4. A situational assessment of clinical settings is conducted in preparation for pilot cessation intervention planning (e.g. when, where, and how long for interventions)
Phase III: Years 3 and 4
Goal: Intervention development and trial
1. Formative research is conducted to develop culturally appropriate cessation approaches. Cessation approaches tried elsewhere are reviewed and what does and does not work is determined
2. Pilot interventions are designed, implemented and evaluated in clinical settings
3. Tobacco education lectures and materials for use in medical school settings are designed, introduced, and evaluated.
Phase IV: Years 3–5
Goals: Outreach and dissemination
1. A launch event is held in each country highlighting tobacco cessation as a core issue for health care providers
2. Outreach training in tobacco and tobacco cessation is delivered to health care providers and tobacco cessation materials are disseminated
3. A regional conference is held in both countries to showcase tobacco cessation efforts

summarises the types of pilot interventions presently taking place in each country. What follows is an overview of some of the research that contributed to intervention development, and a brief discussion of what we have chosen to evaluate as a measure of success. Approval for all research was obtained from the institutional review board at each of the sites.

#### Phase I

We were unable to find a standardised survey instrument on tobacco-related issues which was suitable for use with clinicians. Therefore, we developed and pre-tested an instrument to assess (1) the prevalence of physician and medical student tobacco use, (2) their perceptions of tobacco harm, (3) self-reported practices related to asking patients about tobacco use and advising them to quit, and (4) perceptions of the physician's role in tobacco cessation. Formative research with clinicians (that is, one-on-one interviews) was conducted and findings were analysed. Research findings guided instrument development. For example, in interviews we found that in both countries many doctors did not view smoking 5–10 cigarettes per day as harmful to health. We therefore included a survey item exploring the minimum number of cigarettes perceived as harmful to health. Before use, the survey was pre-tested and modifications were made to ensure the cultural appropriateness of the questions and response items.

Results from the survey revealed that approximately 55% of male medical students in Indonesia and 29% in India ever smoked and 18% in Indonesia and 14% in India currently smoked.<sup>13</sup> Smoking among practitioners varied by practice setting with 67% of male doctors in Indonesia and 48% in India ever smoking, and 22% in Indonesia and 14% in India currently smoking. In India, the mean number of cigarettes (and beedi) doctors thought relatively safe to smoke a day was 5–6, while in Indonesia the mean number was 10. In both countries, the majority of physicians reported routinely asking patients about tobacco use and advising them to quit. This did not match observations made during formative research. Patient exit interviews were conducted to compare patients' perceptions with providers' self reports of cessation advice. Exit interview data suggested that far fewer patients were being asked about their tobacco use than physicians reported. In the government clinics, only 32% of Indian patients and 10% of Indonesian patients reported being asked about tobacco use.

#### Phase II

Development of culturally appropriate tobacco education materials was essential for all patient-centred interventions we wished to pilot. Project teams first set out to determine through structured interviews and focus groups what type of global and national level tobacco facts were of interest to local populations. This required us to not only look at the content of facts but the way they were presented and interpreted. For example, how was risk understood and best conveyed?<sup>14 15</sup> Did the lower to middle class populations in urban and peri-urban India and Indonesia respond well to statistics, and if so what were the most relevant points of reference and frames of comparison? We found that lay people responded poorly to global statistics, were lukewarm to national statistics, but responded far better to state level statistics and extrapolations. Lack of response to statistics such as "lifetime economic expenditure on tobacco use" led us to omit this topic from educational materials where space was at a premium.

We followed a similar research process to identify the most evocative visual images of tobacco-related pathology affecting various part of the human body. For instance, we queried whether local populations would respond positively or

**Table 2** Project pilot interventions

Intervention	India	Indonesia
Medical education	Trivandrum Medical College	Gadjah Mada School of Medicine
Educational outreach	Physicians and health educators from primary health centres	Physicians and health educators from primary health centre and lung clinic
Clinical settings	TB clinic Diabetes clinic (public hospital) Cardiology clinic (SCTIMST, private hospital)	Lung clinic Primary health centres
Community-based Interventions	Community-based lay DOTS provider training	Community-based lay DOTS provider training

DOTS, Directly Observed Tuberculosis Treatment; SCTIMST, Sree Chitra Tirunal Institute for Medical Sciences and Technology; TB, tuberculosis.

negatively to gruesome images of diabetes-related gangrene exacerbated by tobacco use. Structured interviews and focus groups explored responses to tobacco facts and images among literate lower and middle class samples, aged 20–50 years. The same procedure was employed when pre-testing material for question and answer booklets addressing local misconceptions and questions about tobacco. For example, formative research in India documented the misperception that harm related to tobacco could be minimised by eating particular foods or drinking large quantities of water. In Indonesia, our research documented beliefs that if a person smokes a brand of cigarettes that is “suitable” (cocok) for his body, smoking will not harm the body and that certain brands of clove (kretek) cigarettes are believed to be beneficial for those with respiratory illness. Alternative ways of addressing such misconceptions and answering common questions were pre-tested. Responses selected for use in educational booklets were those found to be popular among most respondents, as well as least misunderstood by even a minority of respondents (that is, those having the best balance of specificity and sensitivity).

One lesson learned early in both field sites was that local populations wanted more *specific* information on *how* tobacco caused specific health problems, beyond general information about harm. They did not simply want to know that tobacco was particularly harmful for people with diabetes, but they wanted to gain an understanding of how tobacco consumption affected blood flow and how poor blood circulation was related to foot ulcers. A demand for specifics explained in simple terms and easy to grasp analogies and images<sup>16</sup> influenced the development of our tobacco education materials.

A situational analysis of medical education and clinical settings was also undertaken to provide the team with a sense of when interventions could take place, where, and for how long. Interviews with faculty and a baseline survey of medical students were carried out to document what kind of tobacco education was currently in the curriculum, lecturer’s willingness to integrate short tobacco messages in courses, and when cessation training might best be introduced. Preparation for our clinic-based pilot interventions required a detailed understanding of practice logistics obtained through observation of patient flows through clinical settings and identifying opportunities for brief counselling.

### Phase III

The US research team provided the Indian and Indonesian research teams with training in various aspects of tobacco cessation, including training in the brief patient-centred approach to tobacco cessation being developed by Project Reach in Arizona.<sup>17</sup> Taking the US National Cancer Institute’s 5 A’s for brief tobacco interventions (Ask, Assess, Advise, Assist, Arrange) as a starting place for exploratory research into the relative utility of cessation intervention strategies

developed in the USA, team members began investigating issues which had been identified in many global contexts as germane to the quitting process (table 3).

Formative research was next conducted on the ways in which concerns about and barriers to quitting could be addressed in a culturally appropriate manner. Research was conducted on how best to refuse a cigarette in a social setting, how to deal with particular withdrawal symptoms, or how best to convey to smokers that such symptoms would abate over time.

Over the course of the next year, team members experimented with different ways of conducting cessation counselling sessions in government health clinics. In India, a primary health centre (PHC), a tuberculosis (TB) clinic, a diabetes clinic and a cardiology clinic were initially selected for exploratory research, while in Indonesia a PHC and lung clinic were initial research sites. These health centres charge very nominal fees and are widely accessible to the public. Illness-specific materials were developed, pre-tested, and then revised based on clinic experience. Once the team developed confidence in their ability to engage smokers in the early stages of tobacco cessation, pilot interventions were designed.

Several ways of introducing smoking cessation to patients in clinical settings were considered, including: (1) testing a physician-based intervention in the clinic setting; (2) testing culturally-tailored interventions delivered by tobacco cessation counsellors; and (3) testing the effectiveness of culturally-tailored patient educational materials to motivate patients to think about quitting. Testing a physician-based intervention was judged to be premature as physicians receive little training in tobacco counselling. Conducting a pilot cessation clinical trial with abstinence as a primary outcome was deemed premature and logistically difficult given that the research team had encountered few smokers already motivated to quit. Poor patient knowledge about the disease specific harmful effects of tobacco predicated the need to increase patients’ awareness of harm as a means to increase their desire to quit tobacco. Since formative research suggested that physician’s advice to quit was a strong motivator for patients to quit, we decided to compare the additive effect of patient education materials (general and illness-specific tobacco facts, question and answer and how to quit guides) on patients willingness to receive further cessation counselling, zeroing in on personal motivations and barriers for quitting.

When designing the pilot study, our primary goals were to test the feasibility of cessation interventions in clinical settings, provide team members with experience conducting tobacco cessation studies, and generate pilot feasibility data for future clinical trials. In India, clinics serving cardiology and diabetes patients were selected for pilot studies, as cardiology is a specialty of Sree Chitra and Kerala has the highest number of diabetic patients in India.<sup>18–21</sup> In Indonesia,

**Table 3** Issues for formative research related to cessation

Issues	Kerala	Jogjakarata
Common motivators to quit smoking	Having an illness Family pressure	Having an illness Getting old/after age 60, interest in smoking declines
Family health as motivator to quit	Children yes, wife less so	Same
Common social barriers to quitting, when one has the intention to do so	Visual and auditory cues in the environment Pressure of friends especially among low SES groups and the young	Same Impolite to refuse items offered in social settings Cigarettes helpful for thinking and working, and managing negative emotions
Is setting a quit date culturally appropriate? If yes, are particular occasions good candidates for use?	Setting a date may not be popular as birthdays and anniversaries are not culturally relevant	Same Ramadan is a possibility worth exploring
Announcing one's intent to quit attempt to family/friend	It is not appropriate to tell friends; family members should be told to support the quit attempt	Same
Withdrawal symptoms evoking concern	Digestive problems Constipation, gaseousness Dullness (lethargy) Throbbing head	Bitterness of mouth Feeling too lazy to work Fatigue Headache and dizziness Short tempered

SES, Socioeconomic status.

clinics treating high numbers of lung and TB patients were selected as both TB and lung diseases are seen as top priorities in public health centres in the country. Recent research has linked smoking as both a risk factor for TB and for TB relapse after treatment.<sup>22-24</sup>

The basic design for the pilot studies was a two-arm randomised pilot study designed to test whether use of patient educational materials tailored to specific diseases increased the proportion of patients who agreed to receive smoking cessation counselling. The methodology adopted has been commonly used in clinical pilot studies.<sup>25</sup> The primary end point of the study was the proportion of patients agreeing to enter counselling in each study arm. Our target sample size in each country was 100 patients, 50 patients in each treatment condition. Although it is typically recommended to have at least 30 participants to estimate statistical parameters, we decided upon a larger sample size because of the ease of obtaining participants.<sup>25</sup>

All patients entered into the study completed a baseline and post-intervention assessment. Questionnaires were developed specifically for this study drawing upon standard questions and measures used for cessation studies in the West. Instructions and assessment items were written in the native language of the patients and pre-tested for comprehension. A baseline questionnaire assessed patient demographics, smoking history, attitudes toward tobacco use, and smoking cessation. A post-intervention questionnaire reassessed attitudes toward tobacco and smoking cessation in addition to interest/disinterest in counselling. Pilot studies are currently in progress.

### Medical education

Our approach to introducing tobacco cessation into medical education is multifaceted, and seeks to integrate tobacco education within all years of preclinical and clinical training. Tobacco's effects on health are far-reaching, and relevant to virtually all subjects in the medical curriculum (for example, physiology, pharmacology, internal medicine, paediatrics, behavioural science, etc). Integration of tobacco education in particular courses is being accomplished by providing medical faculty with mini-modules of instructional materials (learning objectives, slides with speaker's notes and citations, review articles and examination questions) focused on a

particular aspect of tobacco use (for example, impact of smoking on TB).

At Trivandrum Medical School, a block of time is being reserved in preventive and social medicine (year 4) to review data on tobacco epidemiology and for basic training in tobacco cessation. Gadjah Mada University School of Medicine employs a problem-based learning curriculum and the team is identifying blocks in which tobacco education can be integrated. An elective on lifestyle-related diseases is also being developed in which training in tobacco cessation counselling will be offered. To make cessation training more attractive, the team is exploring the possibility of certification, an incentive used in community-based training in the USA.<sup>26</sup> Our most basic goal is to train every medical student to ask patients routinely about their tobacco use and to convey to patients the message that quitting is one of the most important things that they can do for their own health and that of their family.

To evaluate the impact of our curriculum intervention, we conducted a baseline survey of medical students' perceptions of the tobacco-related education they had received and undertook a document review of medical curriculum related to tobacco. Semi-structured interviews were conducted with medical school faculty to explore their baseline interest and willingness to incorporate more tobacco education into the curriculum. The medical school intervention will be evaluated by follow-up surveys that examine the amount and quality of tobacco education received, changes in tobacco-related perceptions (for example, level of smoking that is harmful), and attitudes toward teaching about tobacco and the doctors' role in cessation.

### Phase IV

One way to introduce tobacco cessation into the health services of both countries is through a series of outreach activities. To this end, a highly publicised and well attended launch event was held in each country. At these events, public support for tobacco cessation was garnered from state health officials, prominent professors of medicine, and local health activists. US members of the project team provided overview lectures on tobacco epidemiology, drawing attention to global and regional trends of tobacco-related mortality and morbidity. They emphasised the importance of introducing tobacco cessation in medical education and clinical



settings. Local team members brought the problem of tobacco use home by presenting results from project baseline surveys. They highlighted medical student/health care provider tobacco habits, and current practices of assessing the tobacco use of patients. In Indonesia, the launch event served as the occasion for the Dean of the Gadjah Mada University School of Medicine to announce that the medical campus was to become smoke-free, a pioneering effort in a country where tobacco control efforts are in their infancy.

In year 4, outreach training for groups of clinicians is being planned beginning with staff from pilot intervention sites and moving on to other groups of interested health practitioners. Drawing on US based experience with community-based training of non-medical tobacco interventionists,<sup>27</sup> we are also planning to pilot test the training of lay providers of directly observed TB treatment (DOTS) to deliver basic smoking cessation. DOTS providers will be trained to offer sustained tobacco cessation messages to TB patients not only during six months of drug therapy, but also afterwards as a means of preventing smoking relapse. TB patients often quit smoking during the intensive phase of medication treatment, but resume smoking later when their symptoms abate. TB was selected because of its high prevalence in India and Indonesia.

Another important contribution of this project has been institutional capacity building in tobacco research. Staff in both institutes are routinely called upon to provide tobacco-related lectures to health professionals in their state and to assist graduate students with tobacco-related research. In both India and Indonesia, tobacco is now a topic routinely covered in MPH course modules and MPH students attending both institutions have completed theses related to tobacco.

Two final activities are being planned in year 5 of the project. National conferences in each country will be held to showcase the results of tobacco cessation research and to encourage colleagues in the public, private, and NGO sectors to get involved in cessation activities. It is hoped that dissemination of information and materials will make such involvement more feasible and will stimulate health professionals and their professional associations to become advocates for tobacco control policy at the national level (for example, adoption of the Framework Convention on Tobacco Control). The centres of tobacco research established in Kerala and Jogjakarta will support these efforts in all ways possible. Finally, we have plans to build capacity in cessation research by making our methods and instruments available for use and modification in other countries. Toward this end, we will place our materials and process notes on a Quit Tobacco International website that we hope to establish and grow in the future.

## CONCLUSION

In this paper, we have described a process for developing culturally appropriate cessation programmes. The need for cessation in India and Indonesia was evident given the high prevalence of smoking among men. At present, cessation projects are underway in one region in each country. It is important to note, however, that India and Indonesia are culturally diverse countries and cultural approaches designed for regions of Kerala, India and Java, Indonesia may not be appropriate for other parts of the country. For this reason, in Project Quit Tobacco International, we have placed emphasis on outlining the steps that groups in other regions could follow to develop, test, and evaluate their own cessation materials and approaches. Outreach and trainings planned for the future should facilitate the process of widespread dissemination.

## What this paper adds

This article describes steps taken to develop and implement culturally appropriate tobacco cessation in India and Indonesia in clinic and community settings. The methods described are useful for those planning tobacco cessation in other cultural contexts. This article also speaks to the importance of introducing education about tobacco and smoking cessation in medical schools.

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