Reaching and Educating the Global Tobacco Control Community: Innovative Approaches to Tobacco Control Training

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SYNOPSIS

To slow and end the growing global burden of tobacco-related death and disease, schools of public health need to provide tobacco control education and training for public health professionals generally, and for the next generation of tobacco control professionals in low- and middle-income countries specifically. As the tobacco epidemic continues to grow, there is an increasing need for training to develop the research and intervention skills required to stem the epidemic and reduce the inevitable burden of disease and death. A wide range of educational approaches has been developed to increase tobacco control educational capacity in high-, middle-, and low-income countries, including traditional on-site classes, on-line courses, open source courseware, summer school programs, and training workshops.

This article provides a perspective on the education and training needs of tobacco control researchers around the world and reviews the strengths and weaknesses of education and training approaches currently being used in tobacco control by schools of public health. In each case, we draw on the experience of the Johns Hopkins Bloomberg School of Public Health in educating national and international audiences in tobacco control.

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Tobacco use, projected to kill over a billion people this century, is the largest preventable cause of death in the world.¹ Fortunately, the public health community in the U.S. and around the world has made progress in understanding and combating tobacco use. Recently, the entry into force of the Framework Convention on Tobacco Control (FCTC) provides a key opportunity to stem the growing global epidemic of tobacco-related death and disease. Yet significant barriers to the long-term success of tobacco control programs, including the FCTC, remain. For example, the vast majority of the over 120 countries that have ratified the FCTC to date are in the low and middle income range. A substantial number of these countries lack the funding, infrastructure, and expertise needed to implement many of the treaty's most important provisions.²

For the FCTC to be effective in slowing and ending the growing global burden of tobacco-related death and disease, public health professionals generally, and specifically the next generation of professionals in tobacco control in low- and middle-income countries, will need tobacco control educational and training opportunities. Over the years, efforts to increase access to tobacco control training have led to the development of a wide variety of educational approaches. These approaches have included traditional on-site classes, summer school programs, and training workshops. However, recent initiatives have increasingly turned to various technology-based learning tools such as distance education courses, open source courseware, and virtual mentoring programs. These technology-based resources provide the greatest potential for integrating tobacco control education into the general public health curriculum in schools of public health, as well as for educating those audiences beyond the reach of the traditional classroom. Moreover, the ability to expand, re-use, reformat, and/or repackage on-line materials makes them a critically important resource in an age of decreasing resources for tobacco control education and training. This article describes the Johns Hopkins Bloomberg School of Public Health's (JHSPH's) efforts to develop new and innovative approaches to technology-based tobacco control curricula.

STATE OF TOBACCO CONTROL EDUCATION

At present, tobacco control is still a little-taught and studied topic in schools of public health, particularly in view of its relative impact on the public's health. The results of a survey conducted by the Association of Schools of Public Health (ASPH) imply that a significant proportion of public health students in the U.S. receive only a modest introduction to tobacco at

best and only a very small fraction receive substantial, in-depth training in tobacco control strategies.^{3,4} While formal academic tobacco control education in the U.S. is insufficient, it is even less available in many other countries around the world.

In February 2005, the Global Tobacco Research Network conducted a web-based needs assessment and an on-line focus group concerning tobacco control education and practice. A total of 195 respondents participated in the needs assessment from the 257 researchers who had pre-registered to attend the Society for Research on Nicotine and Tobacco pre-conference meeting on global tobacco control in Prague, Czech Republic, held on March 20, 2005. The final respondent sample included 77% from high-income, 13% from middle-income, and 10% from low-income countries. A total of 15 researchers from low- and middle-income countries participated in the on-line focus group.

Not surprisingly, the assessment found that tobacco control is a new and developing academic discipline in most low- and middle-income countries. The majority of researchers (70%) in these countries had less than six years of experience doing tobacco control research. Many of the focus group participants lamented the lack of support from senior research colleagues, domestic trainers, and the educational infrastructure in tobacco control.⁵ The researchers also reported weak tobacco control capacity in their countries, especially in the areas of training, economics research, and evaluation (Figure 1). In most cases, the researchers from low- and middle-income countries stressed the dominance that control of infectious diseases has over the public health agenda and funding. Importantly, these respondents also indicated that they had little or no access to the expertise and experience of the international tobacco control community. The assessment results highlight the needs that many countries have to train tobacco control researchers and leaders. The extent of the needs highlighted by the researchers underscores the need to use technology to expand the educational resources available and accessible to this diverse community.

TOBACCO CONTROL EDUCATION AT JOHNS HOPKINS

JHSPH was one of the first schools of public health in the U.S. to offer a class dedicated entirely to tobacco control that went beyond a study of the health effects of smoking. In 1992, the National Cancer Institute provided funding to three universities (Johns Hopkins, University of California Berkeley, and University

of Massachusetts) to participate in the genesis of new curricula to teach tobacco control. The Johns Hopkins course was entitled, "Tobacco: A Public Health Perspective." The initial course focused on a population-directed public health approach including the contextual and environmental factors that influence tobacco use and specifically addressed the need for policy and advocacy to move the agenda forward in the U.S. The course was designed to provide students with the information and skills requisite to becoming strong tobacco control advocates.

The Hopkins course has now been offered almost continuously for over a decade during the traditional academic year and continues to draw interested students into the field. Over the years, the knowledge and evidence base for tobacco control have expanded greatly and strategies for control have continued to evolve. As a result, the course syllabus has been constantly revised to reflect current knowledge and emerging issues. (The syllabus is available on-line at <http://distance.jhsph.edu/tobacco/about/about-syllabus.cfm>) Currently, the JHSPH course presents the health and economic burden of tobacco in the U.S. and worldwide and highlights practical approaches to prevention, control, surveillance, and evaluation. Through lectures and problem-solving exercises, students examine the evidence as it relates to the determinants of addiction, economics of global tobacco control, interpreting the data, translating evidence into policy, industry strategies, legal foundations for regulation, surveillance, and evaluation strategies. One of the major changes to the course has been the ever-increasing focus on global issues. Today, a tobacco control course should address

various disciplinary approaches (e.g. economic, legal, and behavioral) and be referable to tobacco control in multiple countries with varying social, economic, and political environments. Tobacco control is thus an excellent model for addressing the integrated roles of public health education, research, and practice.

In addition to the course taught during the regular academic year, a tobacco control course is offered for one week during the JHSPH Summer Institute in Epidemiology and Biostatistics. The Hopkins Summer Institute course is one approach to offering tobacco control education in a format that facilitates participation by working professionals and/or international students. However, like all on-site tobacco control courses at JHSPH, the summer course faces important challenges in eliciting participation from diverse students. The timing, location, and cost of the class can be barriers to many students, especially those from low- and middle-income countries.

Over the past six years, JHSPH has also used multiple research and capacity-building grants to provide regional training workshops. For example, through funding from the Rockefeller Foundation's Trading Tobacco for Health initiative, JHSPH and the University of Illinois held multiple tobacco control training workshops in Southeast Asia between 2000 and 2003. These workshops created networking opportunities and helped in the creation of the Southeast Asian Tobacco Control Alliance, which continues to provide regional leadership and training. Through funding from the Fogarty International Center, JHSPH has also held regional training workshops and established centers of excellence in Brazil, China, and Mexico. However,

Figure 1. Capacity for tobacco control education by country income level

while these workshops provide excellent educational venues and networking opportunities, they also require a substantial time investment by faculty and regional partners and will require a commitment from their host organizations to be sustainable over the long-term.

As a result of these challenges, JHSPH faculty recognized they needed to use technology-based educational resources that expand the reach of the traditional classroom. The ASPH Scholarship, Training, and Education Program for Tobacco Use Prevention (STEP-UP) initiative funded by the American Legacy Foundation provided the impetus and support to develop innovative curricula not as limited as traditional approaches by distance, time, or funding constraints.

USING TECHNOLOGY TO EXPAND THE REACH OF TOBACCO CONTROL

The overarching goal of the JHSPH STEP UP project was to develop a model for producing and disseminating tobacco control educational materials. While the web provides access to vast amounts of information, often this information requires extensive review and evaluation, revision, and restructuring before it can be used by tobacco control professionals.⁶ Very little of this information is in a format that is easy to use, accessible to download, or in an open source venue (i.e., openly available and free of charge). In addition, the majority of information on-line is not designed using a distance-learning format. For example, much of the available material is in the form of static PowerPoint presentations and lacks supplemental materials, such as key readings and data resources, as well as learning aides such as quizzes and interaction with instructors. Worldwide, only a few on-line accredited tobacco control courses are administered by schools of public health.^{7,8}

On-line course

In Fall 2005, as a result of an ASPH/STEP UP grant, JHSPH launched its first on-line tobacco control course through the JHSPH Distance Education Division. It was the knowledge and experience of the Distance Education Division that led the Institute for Global Tobacco Control to decide that the development of an accredited on-line course was achievable with the resources provided by the STEP-UP grant. The division currently runs a complete Internet-based Masters of Public Health (iMPH) program (<http://distance/jhsph.edu>). This unique path to an MPH degree uses a variety of media to deliver lectures, interactive lab exercises, and other course content to students around the globe. Students have three years to complete the degree, and

begin the program in either January or June with a two-week, on-site orientation and coursework.

As a result of the iMPH program, the JHSPH Distance Education Division has developed a large number of courses used by hundreds of students throughout the world. The division has experience and expertise in organizing and presenting materials so that they provide all the information necessary, explain the topic effectively, and capture students' interest through pictures, graphics, audio, and video. Lectures are delivered using either RealPlayer or Flash plug-ins, both of which provide high-quality, cross-platform, bandwidth-sensitive playback of lecture materials that can be tailored to the download speed of the individual student. The more bandwidth available to the student, the bigger and better-sounding the presentation becomes. However, the division uses a global network of over 8,000 servers to deliver on-line course materials to students. This ensures rapid and reliable delivery of streaming media materials—whether the student is on a high-speed network in his corporate office or is using a dial-up connection from a small village in the middle of Africa. A demo of the typical on-line course experience is available at <http://distance.jhsph.edu/about/courseDemo/>.

The newly developed three-credit course is held over an eight-week period and covers a broad range of tobacco control issues. Eleven core lectures cover topics including the history of tobacco, addiction, second-hand smoke, tobacco control strategies, harm reduction, and the Framework Convention on Tobacco Control. The course involves a mix of media, each serving a specific purpose. There is a strong print component, which provides much of the basic instructional content in the form of a course text, as well as required and recommended readings, additional web resources, the syllabus, and day-to-day schedule (Figure 2). Pre-recorded audio and video tapes are used to present class lectures and other visually oriented course content (Figure 3). Interactive audio conferencing provides real time or voice-to-voice interaction (this is also an excellent and cost-effective way to incorporate guest speakers and content experts), while computer conferencing and e-mail are used to send messages, distribute assignments, give assignment feedback, increase interaction among students, and provide targeted communication to one or more class members (Figure 4). The on-line technology also informs the faculty when and how the students are using the course resources and tracks how often individual students are accessing and downloading the course lectures and materials.

An important lesson learned from developing the on-line course was the limit to technology's role in

Figure 2. Typical lecture homepage

Global Tobacco Control

January 31, 2006
Hester High
Go to Study Tools

About the Course | Course Modules | Communication Center | Course Home
Online Library | Web Links | My Notebook | Help

Lecture 1

The Tobacco Epidemic: An Historical Overview

Jonathan Samet, MD, MS

Objectives

After listening to, viewing, and studying the lecture materials below, you will be able to do the following:

- Summarize the discovery of tobacco and the spread of the tobacco epidemic
- Identify the foundations of the tobacco industry
- Synthesize the epidemiology of tobacco use/disease
- Outline the current global situation, including trends and projections for future use

Reading Material

Please refer to the Welch Library's E-Reserve area for reading assignments. (If you are prompted for a password to access the files, please enter "340619sph").

Lecture Materials

Lecture Presentation	Running Time	Print Slides
Section A: "Discovery" and Early Use of Tobacco and the Foundations of the Modern Epidemic	21:13	(2/6/2006) (5/6/2006)
Section B: Scientific Discovery and Efforts at Control	20:22	(2/6/2006) (5/6/2006)
Section C: The Spread of the Tobacco Epidemic in the U.S.	5:04	(2/6/2006) (5/6/2006)
Section D: The Global Epidemic	8:35	(2/6/2006) (5/6/2006)

Lecture Evaluation

Please take a few minutes to evaluate this lecture. Comments and feedback are very important to your instructors, and your confidentiality is assured.

teaching. Although technology plays a key role in the delivery of distance education, on-line courses require more than technology. Educators must remain focused on instructional outcomes, not the delivery technology. The key to effective distance education is focusing on the needs of the learners, the requirements of the content, and the constraints faced by the teacher. Therefore, the development of the on-line course

required a very close and continuous partnership between members of the Distance Education Division and the course faculty, with both sides often informing and altering the approaches of the other.

One drawback of the accredited full-length tobacco control course offered through the IMPH program is the institutional fees for taking the course. Students not receiving credit for the course can audit; however,

Figure 3. Example slides and audio tracking

Section A: Jonathan Samet, MD, MS

Outline	Notes	Search
Slide Title	Duration	
6. Tobacco	00:20	
7. Global Spread of T...	00:28	
8. Global Spread of T...	00:22	
9. Early Concern	00:56	
10. Early Concern	00:11	
11. Early Health Warn...	00:51	
12. Early Efforts at C...	00:23	
13. Early Efforts at C...	00:16	
14. Motivation for Earl...	00:24	
15. Evolution of the M...	01:24	
16. Birth of the "Mod...	00:24	
17. The Manufactured...	01:21	
18. Public Control	01:13	

18 Minutes 45 Seconds Remaining

Early Concern

King James on Smoking—
"Smoking is a custom loathsome to the eye, hateful to the nose, harmful to the brain, dangerous to the lungs, and in the black, stinking fume thereof nearest resembling the horrible Stygian smoke of the pit that is bottomless."

King James on Passive Smoking—
"The wife must either take up smoking or resolve to live in a perpetual stinking torment."

A COUNTER-BLASTE TO Tobacco.
Imprinted at London by R. B. Anno 1604.

Continued 9

00:09 / 00:56 | Playing

Figure 4. Example of live discussion with student interaction

the university still requires payment. The Institute for Global Tobacco Control is currently in discussion with the university to determine how the interactive components of the course could be made available at reduced costs for students with limited financial resources. For more information on the course, visit <http://distance.jhsph.edu/tobacco>.

Content modules

In addition to the core on-line course curriculum, five short individual case studies were also developed through the grant. These case studies use tobacco control to illustrate key public health issues—including the role of community involvement, policy advocacy, and economics—and can be applied throughout the public health curriculum. The rationale behind the development of these short issue-specific content modules was to expand the dissemination and integration potential of tobacco control content into a broad range of courses, as well as in alternative educational environments. Educators and others may want to incorporate these and other tobacco control examples into their courses to highlight or strengthen their existing curriculum. The content modules have also been

designed in a way that facilitates their repackaging for easy dissemination to a wider audience, including policymakers and practitioners.

Open source materials

One of the main objectives of the JHSPH STEP UP project was to reach colleagues with limited resources and increase the amount of open-source educational materials available on the Internet. The rationale behind the open-source movement is to provide educational materials previously available only to tuition-paying students over the Internet at no cost. The material can be used for study or for education, can be copied and distributed, or can be modified and improved as deemed necessary by the user. Momentum has been growing in many U.S. academic institutions to provide some curriculum in an open-source format since the Massachusetts Institute of Technology (MIT) launched its innovative open-source program. Due to the timing and objectives of the STEP UP grant, JHSPH has selected the new on-line tobacco control course as one of seven pilot courses to be made "open source" on the web. Following this arrangement, JHSPH has made all lecture slides available to all interested par-

ties free of charge at <http://ocw.jhsph.edu/>. This is considered one of the greatest achievements of the STEP UP project at Hopkins.

The Global Tobacco Research Network and Research Assistance Mentoring

JHSPH's growing focus on technology-based educational tools for tobacco control initially supported by the STEP UP initiative has resulted in other innovative on-line projects. In 2002, the Institute for Global Tobacco Control received a small grant from the National Cancer Institute to develop and launch the Global Tobacco Research Network (GTRN). The mission of the GTRN is to enhance research by promoting collaboration and partnerships, providing information, facilitating education and training, and sharing research tools with the goal of reducing the burden of disease and death caused by tobacco.² The GTRN web site (<http://www.tobacco-research.net>) provides a central location for tobacco control data and research resources.

One of the most innovative elements of the GTRN involves an emerging new approach to international collaborative learning in the form of on-line information sharing and research collaboration. In 2005, the GTRN, in collaboration with the Syrian Center for Tobacco Studies, launched the Research Assistance Matching (RAM) program, which aims to match researchers in need of assistance with experienced researchers willing to offer assistance.⁹ The rationale for the project stemmed from the fact that many researchers in low- and middle-income countries are not integrated within the international tobacco control community and lack the required expertise to support their tobacco control objectives. RAM provides a medium to channel credible research assistance seekers in low- and middle-income countries to experts willing to help.

The RAM application (<http://www.tobaccoresearch.net/RAM>) is designed to facilitate initial contact and matching between assistance-seeking and assistance-offering counterparts, as well as to provide a platform for continuous collaboration. The application contains personalized project pages, a categorized project directory, an expert directory, participant profiles, the ability to upload files, and direct messaging among up to 10 project collaborators. There is no question that many researchers in low- and middle-income countries could benefit from participation in RAM. However, RAM can also benefit experts in developed countries by providing a chance to forge international partnerships, seek international funding, and have the ability to collect data and learn from remote areas and populations at little expense.¹⁰ The GTRN-SRNT assessment found

that roughly 30% of researchers from high-income countries were interested in participating in the research assistance program.⁵

CONCLUSION

To ensure that the next generation of public health professionals is well versed in tobacco control, schools of public health must become more active in providing tobacco control training and educational opportunities. Whether the goal is to integrate tobacco control into existing schools of public health curriculum or to reach out to students on the other side of the world, many different approaches are required. One of these is the use of the Internet, which has become an essential vehicle to disseminate information and knowledge, especially through distance education and open source courseware. These innovative technologies and approaches are opening new avenues to inform and educate an increasingly diverse audience about the extensiveness of the tobacco epidemic and the evidence-based solutions to reduce its impact on the public's health and well-being. Moreover, virtual educational technologies and networks are ideal for keeping students and tobacco control professionals informed in "real time" of evolving approaches and new industry tactics and also help to build collaborative efforts by which we can share experiences and expand our perspectives.

However, providing educational opportunities for the diverse global community is a challenge. We need to make sure that information is packaged in a format that is easy and quick to download, is self-explanatory, and can be readily adapted by the user to meet particular needs. Another challenge is providing materials free of charge. This challenge must be addressed to meet the educational and training needs required for tobacco control capacity development and FCTC implementation in low- and middle-income countries. Schools of public health can help in this endeavor by promoting collaboration around the world and by helping to educate individuals who will work to reduce the burden of death and disease caused by tobacco use.

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