Addressing the Chronic Disease Burden with Tobacco Control Programs

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Tobacco use is the single largest preventable cause of death worldwide. Tobacco use is increasing rapidly in many developing countries while declining in some developed countries. Its contribution to the burden of disease and death will change between 2003 and 2030. In 2030, despite the declines in some developed countries, tobacco use will still continue to be the single largest preventable cause of death in the world, causing more than 10 million deaths annually.¹ This increase will not be shared equally: deaths in developed regions are expected to rise from 1.6 million in 1990 to 2.4 million in 2030, whereas deaths in Asia—home to a third of the world's population—are expected to escalate from 1.1 million in 1990 to 4.9 million in 2030.¹ The importance of rapidly expanding prevention efforts to reverse an acute worsening of the global epidemic cannot be overemphasized. Effective arrays of interventions are available to prevent tobacco use in both developing and developed countries.² The challenge is to integrate these interventions so they work in concert with each other to optimize the reduction of tobacco use. This article examines the burden of tobacco use and its impact on major chronic diseases and provides a framework for integrating evidence-based interventions through a multifaceted strategy to reduce tobacco use that can be applied in any country.

BURDEN OF TOBACCO USE

Tobacco use is the single largest preventable cause of death worldwide. Every year, nearly 5 million people die from tobacco-related illnesses.³ The prevalence of tobacco use worldwide is estimated at 29%, and it is rising.²

The global rate of tobacco use is significantly higher for men (47%) than women (12%),² but the tobacco industry has targeted women in their promotional strategies. In many regions of the world this targeting has proved effective, resulting in alarming rates of increase in tobacco use among women in both developed and developing countries.^{2,4} In Denmark, Germany, and Sweden, more women aged 14 to 19 years than ever now smoke, even in the midst of national declining rates. Similarly, in some countries in Asia, smoking among

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women aged 18 to 24 years has increased. The number of women smokers will likely triple over the next generation.⁴

The prevalence of smoking among youth is also increasing. Data from the Global Youth Tobacco Survey (GYTS) show that one out of five children in the world smokes his or her first cigarette by age 10 years. The prevalence of tobacco use among schoolchildren aged 13 to 15 years ranges greatly throughout the world, from 10% to as high as 60%.⁵

A RISK FACTOR FOR CHRONIC DISEASE

Around the world, tobacco use is among the leading risk factors for chronic disease. Independently and often in combination, these risk factors are the major causes of cancer, cardiovascular disease, diabetes, respiratory disease, and other chronic diseases.⁶ Chronic

diseases are expected to account for an increasing share of the disease burden, rising from 43% in 1998 to 73% by 2020.³ The expected increase is likely to be most rapid in developing countries. In India, for example, the number of deaths from chronic diseases each year is projected to almost double, from 4.5 million in 1998 to about 8 million in 2020.³ The steep projected increase in chronic diseases worldwide is largely driven by the rapidly increasing numbers of people presently exposed to tobacco via smoking or secondhand smoke (SHS), as well as to other risk factors.

Tobacco use is a known or probable cause of more than 25 specific diseases and is an important cause of chronic disease.⁷ Prolonged smoking causes lung cancer, other cancers, chronic respiratory and cardiovascular diseases (in particular ischemic heart disease), and many other diseases. In populations in which cigarette smoking has been common for several decades, about 90% of lung cancer, 15% to 20% of other cancers, 75% of chronic bronchitis and emphysema, and 25% of deaths from cardiovascular disease at ages 35 to 69 years are attributable to tobacco use.⁶ Tobacco-related cancer constitutes 16% of the total annual incidence of cancer cases—and 30% of cancer deaths—in developed countries, and 10% of deaths in developing countries.⁶

The pattern of tobacco-related diseases is substantially different in various countries. For example, in the United States tobacco-related vascular disease and lung cancer predominate,² but in China, smoking causes far more deaths from chronic respiratory diseases than it does from cardiovascular disease.⁸ Smoking causes about 12% of all tuberculosis deaths.^{9,10} In India, where almost half the world's tuberculosis deaths take place, smoking increases the risk of death from tuberculosis,^{9,10} and men in urban China who smoke more than 20 cigarettes a day have double the death rate from tuberculosis as nonsmokers.

SHS, a leading cause of preventable death, contains carcinogens for which there is no safe level of exposure. Exposure to SHS causes lung cancer, ischemic heart disease, and—among children—sudden infant death syndrome, low birth weight, and respiratory disease.¹¹ In the United States alone, SHS accounts for an estimated 3,000 deaths from lung cancer and more than 35,000 deaths from heart disease each year.^{11,12}

A lower prevalence of smoking in a population ameliorates chronic disease-related morbidity and mortality. Acute myocardial infarctions and stroke account for 40% of death in the United States and are the leading contributors to chronic disease; reduced smoking prevalence decreases, within the first year

PHOTO: EARL DOTTER

alone, the number of hospitalizations for acute myocardial infarctions by nearly 1,000 and incidence of stroke by more than 500.¹³ One to two years after quitting, the excess risk of death from heart disease caused by smoking is halved, and within 15 years the risk of cardiovascular death is nearly that of persons who have never smoked.⁷ Decreased smoking prevalence also produces lower rates of lung cancer and mortality from heart disease.^{14,15}

Tens of millions of disability-adjusted life years could be averted in 2010 and 2020 by preventing and reducing tobacco use now.³ Intervention programs are most effective when they are part of a comprehensive tobacco control strategy that aims to monitor tobacco activity and build capacity within a program to prevent initiation of tobacco use, reduce SHS, and increase cessation, all in collaboration with committed partners. By targeting multiple mechanisms to reduce tobacco use and exposure through a multi-faceted approach, a comprehensive strategy may produce synergistic effects in reducing tobacco use and exposure.

AN INTEGRATED APPROACH TO ACTION

Comprehensive tobacco use prevention and control interventions, adopted according to the political commitment and infrastructure of a particular country as well as the stage of its tobacco use epidemic, have a greater likelihood of success than individually implemented interventions. Initiation of tobacco use often leads to tobacco dependence, which results in excess morbidity and early mortality (Figure 1). Exposure to SHS also results in excess morbidity and early mortality, and can lead to tobacco use initiation. Tobacco control programs strive to break the links which inevitably lead to increased disease and premature death. Comprehensive tobacco control programs attempt to address key prevention and control outcomes via reducing tobacco use initiation, reducing exposure to SHS, and increasing tobacco use cessation, all in concert with one another.

Countries with successful tobacco control programs use a combination of interventions, including bans on

Figure 1. Framework of tobacco use and interventions

SOURCE: Adapted from Hopkins et al., *Am J Prev Med* 2001;20(2Suppl):16.

SHS = secondhand smoke

tobacco advertising, strong warnings on tobacco packages, controls on the use of tobacco in public indoor locations, high taxes on tobacco products, health education, and tobacco use cessation programs.¹ Governments interested in choosing the best combination of interventions for their circumstances will focus on the cultural relevance of interventions, their resulting effects on population health, and available resources. The ultimate goal of any intervention is to reduce tobacco use by challenging and changing the social norms regarding tobacco use and tobacco's role in society.

Many studies have reported on the effectiveness and feasibility of different tobacco use intervention programs. The World Bank publication *Tobacco Control in Developing Countries* concludes that tobacco control programs need to employ a broad mix of policy instruments.² In conjunction with the 11th World Conference on Tobacco or Health, the journal *Tobacco Control* published a special feature entitled, "World's Best Practice in Tobacco Control," which outlined some of the most effective programs undertaken throughout the world.¹⁸ The 2000 U.S. Surgeon General's Report, *Reducing Tobacco Use*, concludes that programs that bring together social, economic, clinical, educational, and regulatory strategies into a fully comprehensive effort are effective in reducing tobacco use and helping tobacco users end their addiction.¹⁷ In February 2001, the American Journal of Preventive Medicine published *The Guide to Community Preventive Services: Tobacco Use Prevention and Control*, which included a report on the results of systematic reviews of effectiveness and applicability of selected U.S. population-based interventions for reducing tobacco use and exposure to tobacco smoke. The Table includes those interventions reviewed in "World's Best Practice in Tobacco Control" and *The Community Guide* that are intended to impact more than one link in the conceptual structure described above.

A comprehensive tobacco control program has the greatest potential to produce a synergistic effect to reduce tobacco use when these interventions are implemented concurrently. The World Health Organization's (WHO's) *World Health Report 2002*, using standardized methodology, analyzed the combination of interventions in 14 different WHO sub-regions of the world.¹⁹ It concluded that cost-effective interventions would avert each disability-adjusted lives per year (DALY) at a cost less than three times the country's gross domestic product per capita.¹⁹ Those interventions requiring government action were very cost-effective (less than the gross domestic product per capita) in all sub-

regions. And yet there is concern that although countries such as the United States and Norway have implemented strict legislation, other countries, particularly in the developing world, will continue to be targeted by tobacco industries as their main market. In response, the international community has agreed to the first international treaty negotiated under the auspices of the WHO—the Framework Convention on Tobacco Control (FCTC). Using scientific evidence about the tobacco epidemic and comprehensive tobacco control programs, the FCTC concluded that only with strong government action can risk reduction strategies be implemented.²⁰ As the FCTC continues toward ratification, it will become a milestone in the cooperation of international efforts for health.

A COMPREHENSIVE STRATEGY FOR TOBACCO CONTROL

The most effective tobacco use interventions have a solid evidence base. Duplicating these results requires a multifaceted approach that links surveillance to intervention programs and supports the system with strong partnerships (Figure 2). The Centers for Disease Control and Prevention (CDC) and other government and nongovernmental agencies are coordinating a response that implements a sound surveillance system to monitor the global tobacco epidemic, strengthens national infrastructure to promote tobacco control through government programs and policies, and builds partnerships to meet the needs of a strong and comprehensive tobacco prevention and control program.

Improving surveillance systems

The effectiveness of interventions to reduce the burden of the tobacco epidemic depends in large part on the quality and timeliness of data. Yet many developing countries lack data on tobacco activity needed to assess their situation and to monitor the trends and progress of existing or developing interventions. CDC, WHO, and other international agencies are collaborating to develop a Global Tobacco Surveillance System (GTSS). The goal of GTSS is to improve the ability to monitor the tobacco epidemic and to develop, implement, and evaluate country-level tobacco control programs. The GTSS has four components:

1. The Global Youth Tobacco Survey (GYTS), which collects tobacco-related information on prevalence, access, exposure to SHS, media and advertising exposure, cessation, and school curriculum for youth (see text box);

Table. Summary of selected interventions to reduce tobacco use including effectiveness and feasibility

<i>Intervention</i>	<i>Effectiveness in reducing tobacco use</i>		<i>Feasibility</i>
	<i>Prevalence of use</i>	<i>Consumption of product</i>	
Taxation: increase unit price for tobacco products	Of seven studies reporting higher tobacco prices associated with lower tobacco use, the price elasticity estimate median was -0.41 , suggesting that a 10% increase in price would result in 4.1% decrease in tobacco use prevalence. One study, after controlling for smoking restrictions, reported no statistically significant effect of price on adolescent tobacco use.	Of six studies reporting on the consumption of tobacco by adolescent users, the price elasticity median was -0.23 , suggesting that a 10% increase in price would result in 2.3% decrease in quantity of product consumed by adolescent users.	Three published reports emphasize strong legislative support as necessary to increase tax on tobacco products.
Advertising bans	Studies have long shown decreased tobacco use with government-implemented advertising restrictions. ^a Effective legislation is not dependent on subordinate regulations and has included comprehensive prohibitions at point of sale to prevent "various display techniques that would overcome these restrictions."		Legislation must be easily enforced or it will not be observed.
Smoking bans and restrictions in workplace	<i>ETS exposure</i>	<i>Reduced consumption</i>	Of the bans or restrictions studied, the most feasible were in response to a government law or the result of private-sector policies as applied to most indoor workers in the U.S.
	Four studies reported a median relative percentage decrease of 72% of ETS components in assessments conducted between 6 and 12 months after implementation of ban or restriction. In 6 studies of self-assessments, the median relative percentage difference of ETS exposure was a 60% decrease.	Eight studies reported reduction or decreased levels of reported cigarette consumption in response to bans or restrictions, the median absolute change being -1.2 cigarettes per day with follow-up to 2 years. Three studies reported a larger proportion of smokers quitting when compared to counterparts in lesser or no workplace smoking restrictions. One study reported no change in smoking after 4 week follow-up.	

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Table (continued). Summary of selected interventions to reduce tobacco use including effectiveness and feasibility

<i>Intervention</i>	<i>Effectiveness in reducing tobacco use</i>		<i>Feasibility</i>
	<i>Prevalence of use</i>	<i>Consumption of product</i>	
Cessation assistance	Fourteen studies reported on the change in tobacco use cessation attributable to a multi-component intervention of a provider being reminded to advise the patient to quit and the provider educating the patient on cessation. In follow-up periods of a median of 10 months, the median percentage difference in patients quitting was +4.7 percentage points.		While there may be no direct costs in providers giving advice to patients on cessation, the provider reminder mechanism may introduce an administrative burden as a potential barrier to implementation.
	According to 32 studies reporting the effectiveness of quit lines, the median difference was +2.6 percentage points in quit rates when compared to smokers who did not receive telephone counseling.		Primarily, patients must have access to a telephone system and the community must have an infrastructure to maintain operative quit lines. Economic analysis within the U.S. reports a range of adjusted program cost per quitter from \$73 to \$2,532.
	Nicotine replacement therapy (NRT) has been shown to be an effective aid for quitting smoking, yet it remains an expensive intervention. Therefore, reducing out-of-pocket costs for effective therapies was reviewed as an intervention to increase cessation. The median absolute percentage increase in tobacco use cessation was 7.8 after an average of 9 months after programs reducing out-of-pocket costs for NRT.		Analyses of these studies are limited to U.S. health care settings. While increased insurance coverage may be the limiting factor, reviews of four types of varying coverage and co-payment are demonstrated as effective strategies on their own.
Public education: Mass media campaigns	Seven studies evaluated campaigns designed to reduce initiation of tobacco use and observed a median decrease in initiation of 8 percentage points compared with groups not exposed. Studies evaluating statewide reduction of tobacco consumption due to mass media campaigns found a median decrease of 15 packs per capita per year.		Aside from obtaining and maintaining the necessary funding for a sustainable high-visibility campaign, the most effective mass media programs work in combination with other interventions to improve cessation and reduce consumption of tobacco.

SOURCES: Reviews of evidence regarding interventions to reduce tobacco use and exposure to environmental tobacco smoke. *Am J Prev Med* 2001;20(2Suppl):16-66; and World's best practice in tobacco control, *Tob Control* 2000;9:228-36.

*Results also include many countries engaged in counter-marketing campaigns concurrently (WHO, 1995).

ETS = environmental tobacco smoke

2. The Global School Personnel Survey (GSPS), which collects information on tobacco use by school personnel, tobacco control policies in schools, and the extent to which tobacco control information is included in school curricula;
3. The Global Health Professionals Survey (GHPS), which collects information on tobacco use, knowledge, and attitudes from students attending medical, dental, nursing, and pharmacy schools;

Figure 2. Framework of CDC's Global Tobacco Control Strategy

SOURCE: Adapted from Remington RC, Goodman RA. Chronic disease surveillance. In: Bronson RC, Remington PL, Davis JR, editors. Chronic disease epidemiology and control. 2nd ed. Washington: American Public Health Association; 1998.

4. The Global Information System for Tobacco Control (GISTC), which compiles tobacco information regarding prevalence, economics, and laws and regulations for youth and adults. The GISTC is under development, but when completed, will feature websites for each of the WHO's six regions.

These four initiatives have been developed using consistent survey designs and data processing methodologies. The consistency will allow changes over time to be monitored and program effects to be measured in a standardized way across countries, regions, and the world. Monitoring vital statistics, behavioral risk factors, and program measures contributes to the surveillance of the health effects of tobacco use.²¹ The data generated from these surveys will help set the direction and strategy for an integrated action to influence public health policies.

Strengthening infrastructure

A strong infrastructure is necessary to coordinate effective tobacco control programs. The tools of infrastructure development include technical expertise, information systems, skilled management, public support, strong

political leadership, enactment of meaningful legislation, and increasing resources at the country level. Often, resources are spent mostly on implementing programs without ensuring sufficient support for program management and evaluation. Successful public health programs invest in a motivated workforce and information systems to enable a coordinated response. Such investment supports administrative and management activities (including the recruitment and development of qualified technical, program, and administrative staff), coordinated implementation across program components, and program assessment. Integrating an efficient communication system and a sound fiscal management foundation into a strong infrastructure helps ensure the sustainability of program initiatives.

Enhancing partnerships

The scope and intensity of global health challenges ensure that no single country or agency can work alone to meet them. Partnership implies a commitment to a common goal through joint provisions of complementary resources and expertise. Partnerships will lead to a gain in global efficiency from having comparable surveillance systems, fewer replications of

**The Global Youth Tobacco Survey:
The Largest Surveillance System of Tobacco Use Among Youth Ever Developed**

The Global Youth Tobacco Survey (GYTS) is an international surveillance project designed to enhance the capacity of countries to monitor tobacco use among youth and to guide the implementation and evaluation of tobacco prevention and control programs. The GYTS uses a standardized methodology for constructing the sampling frame, selecting schools and classes, preparing uniform questionnaires, following consistent field procedures, and using consistent data management procedures for data processing. By capturing data on factors important in assessing a country's comprehensive tobacco program, the information generated from the GYTS will stimulate the development of tobacco control programs and be a means of assessing progress in meeting program goals.

The GYTS has three components: training, analysis, and program development. Training workshops are held for select country research coordinators to ensure standardization in methodology for GYTS implementation. After data collection, an analysis workshop instructs participants in the in-depth analysis of their GYTS data, including training in the use of EpiInfo software and writing of country reports. Once country reports have been finalized, a policy/program workshop is held with the goal of developing strong, evidence-based tobacco prevention and control programs within the country.

Since 1999, GYTS has been conducted in 125 countries. An additional 25 countries are either in the field or preparing to start their survey and 25 new countries will be trained to conduct their GYTS during 2004. Furthermore, 16 countries have conducted GYTS for a second round, and 19 countries will repeat the survey during 2004.

Initial results have provided evidence for the need for comprehensive tobacco control programs. Worldwide, 13.9% of students smoke cigarettes and 8.8% use other tobacco products (Table). Cigarette smoking is highest in the European Region, and in no region is the prevalence zero, the goal of all youth tobacco prevention and control programs. The prevalence of tobacco use other than cigarette smoking is higher than or almost as high as the prevalence of cigarette smoking in several regions, which suggests that prevention and control programs should encompass a broad base of tobacco products and not be limited to cigarettes. As the challenge to prevent tobacco use by youth continues, so do efforts to reduce the global tobacco epidemic.

Table. GYTS data by World Health Organization region: percentage of students aged 13–15 who reported using tobacco

<i>Current tobacco use</i>	<i>Region</i>						
	<i>Total</i>	<i>AFRO</i>	<i>EMRO</i>	<i>EURO</i>	<i>PAHO</i>	<i>SEARO</i>	<i>WPRO</i>
Cigarette smoking	13.9	13.5	21.9	31.8	16.7	10.6	12.5
Other*	8.8	12.8	17.8	9.6	8.0	23.8	17.2

*chewing tobacco, snuff, dip, cigars, cigarillos, little cigars, pipe

AFRO = African Regional Office

EMRO = Eastern Mediterranean Regional Office

EURO = European Regional Office

PAHO = Pan American Health Organization

SEARO = Southeast Asian Regional Office

WPRO = Western Pacific Regional Office

efforts, direct contact to country-level programming, and shared knowledge of a country's capacity to develop, implement, and evaluate tobacco control programs. One example of a successful partnership is the GTSS, which represents a collaborative effort among

international agencies to strengthen global surveillance of the tobacco epidemic. The GTSS partnership includes CDC, WHO and its regional offices, and the Canadian Public Health Association.

SUMMARY

The benefits of tobacco use prevention and control interventions for population health, in terms of disability-adjusted life years, can be estimated through the effect of reduced tobacco use on the incidence of chronic disease, particularly cardiovascular disease, respiratory disease, and cancer.³ The interventions discussed here have a larger effect on population health in regions with a high prevalence of tobacco use (e.g., Central and Eastern Europe, South Asia, Western Pacific, and parts of the Americas). To achieve accelerated and sustained improvements in population health, a mix of interventions (such as taxation, comprehensive bans on advertising, and information dissemination activities) are cost-effective in most countries.

The greatest tobacco-related improvements in population health have been the result of efforts to increase tobacco taxation, develop clean indoor air policies, introduce comprehensive bans on advertising, and educate the public through campaigns. Each component is greatly enhanced when implemented in conjunction with others. Integrated tobacco control programs require a sound surveillance system for monitoring and evaluation while developing infrastructure to sustain them. As the tobacco epidemic freely crosses international borders, strong partnerships within the country and across international organizations are necessary to support global tobacco control. Such comprehensive programs effectively reduce the prevalence of tobacco use. With reduced tobacco use—the leading risk factor associated with the greatest burden of chronic disease—follows reduced incidence of cardiovascular disease, stroke, and other chronic diseases. The CDC is dedicated to promoting tobacco control strategies with the expectation of averting many deaths attributable to tobacco use worldwide.

REFERENCES

1. Peto R, Lopez AD. The future worldwide health effects of current smoking patterns. In: Koop EC, Schwarz RM, editors. *Global health in the 21st century*. New York: Jossey-Bass; 2000.
2. Jha P, Chaloupka FJ. *Tobacco control in developing countries*. Oxford (UK): Oxford University Press, 2000.
3. Murray CJ, Lopez AD. Alternative projections of mortality and disability by cause, 1990–2020: Global Burden of Disease Study. *Lancet* 1997;349:1498-504.
4. Samet J, Yoon SY. *Women and the tobacco epidemic*. Geneva: World Health Organization; 2001.
5. GYTS Collaborative Group. Tobacco use among youth: a cross country comparison. *Tob Control* 2002;11:252-70.
6. Peto R, Lopez AD, Boreham J, Thun M, Heath C Jr. Mortality from smoking in developed countries 1950–2000. Indirect estimation from National Vital Statistics. Oxford (UK): Oxford University Press; 1994.
7. Department of Health and Human Services (US). *The health benefits of smoking cessation: a report of the surgeon general*. Rockville (MD): Department of Health and Human Services, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health; 1990. Also available from: URL: <http://profiles.nlm.nih.gov/NN/B/B/C/T/>
8. Liu B-Q, Peto R, Chen Z-M. Emerging tobacco hazards in China: 1. Retrospective proportional mortality study of one million deaths. *BMJ* 1998;317:1411-22.
9. Gajalakshmi CK, Peto R. Tobacco epidemiology in the state of Tamil Nadu, India. Presented at the XV Asia Pacific Cancer Conference; 1999 Dec 12–15; Chennai (Madras), India.
10. Evidence for a causal link between smoking and tuberculosis. Proceedings of the International Scientific Expert Meeting on the Possible Causality between Smoking and Tuberculosis; TATA Institute of Fundamental Research, Mumbai, India, 2000.
11. National Cancer Institute. Health effects of exposure to environmental tobacco smoke. The report of the California Environmental Agency. NCI Monograph 10. Bethesda (MD): National Institutes of Health, National Cancer Institute; 1999. Also available from: URL: <http://cancercontrol.cancer.gov/tcrb/monographs/10/>
12. Annual smoking-attributable mortality, years of potential life lost, and economic costs—United States 1995–1999. *MMWR Morb Mortal Wkly Rep* 2002;51(14):300-3. Also available from: URL: <http://www.cdc.gov/mmwr/PDF/wk/mm5114.pdf>
13. Lightwood JM, Glantz SA. Short-term economic and health benefits of smoking cessation: myocardial infarction and stroke. *Circulation* 1997;96:1089-96.
14. Declines in lung cancer rates—California, 1988–1997. *MMWR Morb Mortal Wkly Rep* 2000;49(47):1066-9. Also available from: URL: <http://www.cdc.gov/mmwr/PDF/wk/mm4947.pdf>
15. Fichtenberg CM, Glantz SA. Association of the California Tobacco Control Program with declines in cigarette consumption and mortality from heart disease. *N Engl J Med* 2000;343:1772-7.
16. Hopkins DP, Briss PA, Ricard CJ, Husten CG, Carande-Kulis VG, Fielding JE, et al. Reviews of evidence regarding interventions to reduce tobacco use and exposure to environmental tobacco smoke. *Am J Prev Med* 2001; 20(2 Suppl):16-66.
17. Department of Health and Human Services (US). *Reducing tobacco use: a report of the surgeon general*. Atlanta: Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health; 2000. Also available from: URL: <http://profiles.nlm.nih.gov/NN/B/B/L/Q/>
18. World's best practice in tobacco control. *Tob Control* 2000;9:228-36.

19. World Health Organization. World Health Report 2002. Geneva: World Health Organization; 2002. Also available from: URL: <http://www.who.int/whr/2002/en>
20. Shibuya K, Ciecierski C, Guindon E, Bettcher D, Evans D, Murray C. WHO Framework Convention on Tobacco Control: development of an evidence based global public health treaty. *BMJ* 2003;327:154-7.
21. Remington RC, Goodman RA. Chapter 3. Chronic disease surveillance. In: Brownson RC, Remington PL, Davis JR, editors. *Chronic disease epidemiology and control*. 2nd ed. Washington: American Public Health Association; 1998.