

gREVIEW

STATE-OF-THE-ART REVIEW

Global Tobacco Surveys: Information for Action by Cardiologists

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Critical to health promotion is surveillance of tobacco use that is a leading risk factor for cardiovascular diseases (CVDs). The objective of this paper is to analyze information from global tobacco surveys as relevant for CVD prevention and, hence, for cardiologists implying their role in clinical and policy settings for advancing tobacco control. This article uses MPOWER strategy as a framework to discuss information available from The Global Tobacco Surveillance System (GTSS) established in 1998. Data underline the need for cardiologists to 1) step up their efforts in promoting and providing cessation services in clinical settings; 2) become tobacco control advocates and support policy implementation in their countries; 3) raise patient and community awareness of harm caused by tobacco use and SHS exposure to health; 4) undertake policy relevant research where required; and 5) support national governments in effective implementation of provisions of the Framework Convention on Tobacco Control (FCTC).

Surveillance is the ongoing, systematic collection, analysis, and interpretation of health-related data essential to the planning, implementation, and evaluation of public health practice. Critical to health promotion is the surveillance of tobacco use that killed almost 6 million people in 2010 and is globally the second leading risk factor (9%) for mortality [1].

Worldwide, cardiovascular diseases (CVDs) are leading killers (31% of all-cause mortality) across all nations and at all income levels. Cardiologists well recognize tobacco use and exposure to secondhand smoke (SHS) as major risk factors for CVDs. Smoking increases the risk of coronary heart disease and stroke by 2–4 times each and is estimated to cause 10% of CVDs [2]. Secondhand smoke is nearly as dangerous even on brief exposure [3] and causes 18 times more deaths by CVDs than by lung cancer [4]. Smokeless tobacco is not safe either. As compared to nonusers, smokeless tobacco

use increases the risk of fatal myocardial infarction and fatal stroke by 1.13 and 1.4 times, respectively [5].

Projections up to 2030 indicate that CVDs will continue to be leading killers, and tobacco-attributable deaths will further rise to 8.3 million with the greatest burden seen in developing countries [6]. This underscores the need to set up a tobacco surveillance system at the global level and use this strategic information to guide tobacco control efforts and to assess their impact on related CVD morbidity and mortality.

Prior to 1998, representative data on tobacco use were available mainly from developed countries. These not only provided insight into the tobacco epidemic, but they also contributed to understanding the significant impact of specific price, nonprice, and tax policies on reducing tobacco use and associated morbidity and mortality [7]. For example, evaluation of tobacco control

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interventions in Massachusetts between 1977 and 2003 showed an estimated 23,520 fewer lung cancer deaths [8]. Analysis of similar data in Italy confirmed that the ban on smoking in public places reduced hospital admissions for acute myocardial infarction by 11% [9].

Surveillance of tobacco use as an important CVD risk factor is crucial for predicting the future burden and distribution of CVDs and for guiding potential interventions to reduce the projected burden. The objective of this paper is to understand the relevance of information available from global tobacco surveys for CVD prevention and how cardiologists can use this information in clinical and policy settings for advancing tobacco control.

GLOBAL TOBACCO SURVEYS

The Global Tobacco Surveillance System (GTSS) started in 1998 with the development of a survey that focused on tobacco use among youth ages 13–15 years called the Global Youth Tobacco Survey (GYTS) [10]. The GTSS evolved to develop 3 other specialized global surveys including the Global School Personnel Survey in 2000, the Global Health Professions Student Survey (GHPSS) in 2005, and the Global Adult Tobacco Survey (GATS) in 2007.

Another globally standardized survey was initiated in 2001 by the World Health Organization (WHO), the WHO STEPwise approach to Surveillance (STEPS) of risk factors related to noncommunicable diseases. However, the STEPS survey collects information on multiple risk factors for noncommunicable diseases and only limited information on tobacco use is collected. The International Tobacco Control Policy Evaluation Project is another global effort for tobacco surveillance. It is the first-ever international cohort study of tobacco use to survey tobacco use at the individual level.

Coverage provided by global surveys. By 2008, GYTS had been conducted in 154 WHO member states and 13 other areas. Among these, 107 countries were surveyed twice and 10 countries were surveyed thrice [10]. Though initiated in 2000 on the heels of GYTS, the Global School Personnel Survey achieved much more limited coverage [11]. GHPSS also covered only 49 WHO member states and 1 geographic region until 2008 [12]. GATS was added to GTSS in 2007 and was conducted from 2008 to 2010 in 14 developing countries, where more than one-half of the world's

population and smokers live (Bangladesh, Brazil, China, Egypt, India, Mexico, Philippines, Poland, Russian Federation, Thailand, Turkey, Ukraine, Uruguay, and Vietnam) [13].

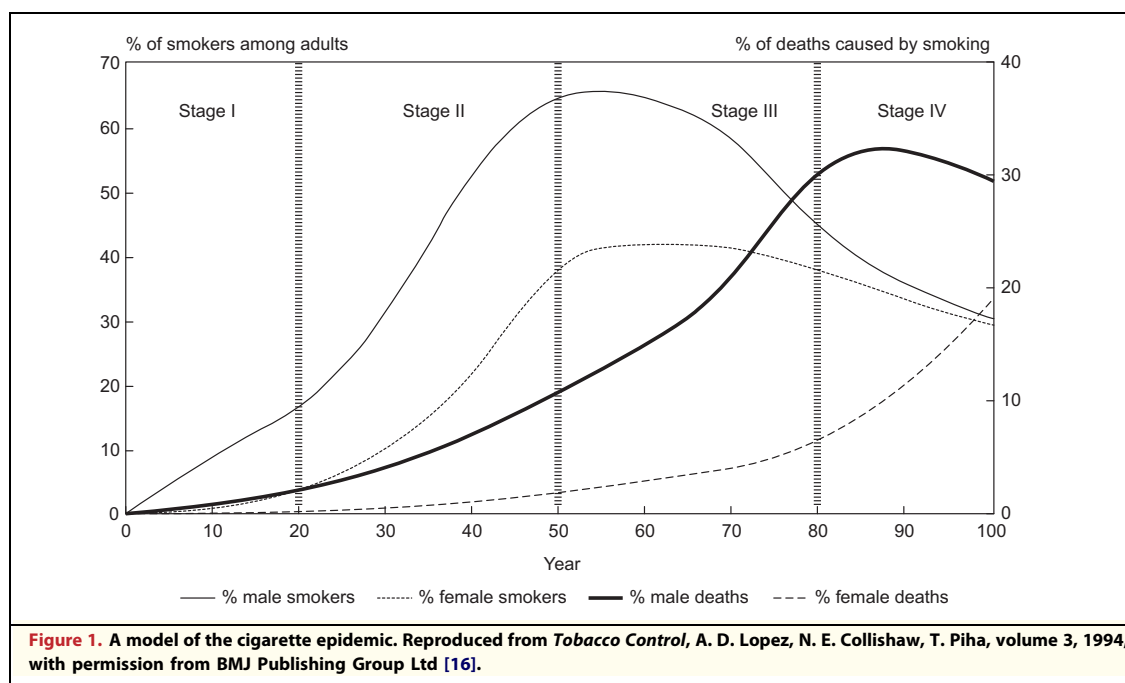
The International Tobacco Control Policy Evaluation Project surveys are limited to 20 countries that are inhabited by 50% of the world's population and 70% of the world's tobacco users [14]. There is some overlap in variables being captured by different sets of global surveys. This paper considers data from the GTSS surveys for discussing the relevance and implications for cardiologists because of much wider coverage attained by them.

Information from data has been analyzed in the MPOWER framework of 6 evidence-based tobacco control measures: Monitor tobacco use and prevention policies; Protect people from tobacco smoke; Offer help to quit tobacco use; Warn about the dangers of tobacco; Enforce bans on tobacco advertising, promotion, and sponsorship; and Raise taxes on tobacco.

MPOWER SPECIFIC DATA FROM GTSS

Information on tobacco use and prevention policies (monitoring). In 11 of 14 countries surveyed by GATS, more than 1 in 4 adults use tobacco. Smoking prevalence among adults ranges from 14% in India to 39% in the Russian Federation. Whereas smoking in India may appear low at 14%, tobacco use is still high at 35% due to widespread use of smokeless tobacco [11]. High levels of tobacco use imply substantially more CVD cases. Data also indicate shifting of the tobacco epidemic to developing countries over time [15]. CVD mortality peak lags behind the peak in tobacco use by almost 3 decades (Fig. 1) [16]. Early stages of the tobacco epidemic in developing countries imply continued rise in CVD mortality in those countries for the next few decades [16].

GYTS found that among adolescents (13–15 years), 12% of boys and nearly 7% of girls smoke cigarettes and another 12% and 8% use other tobacco products, respectively [12]. Susceptibility to initiate smoking is higher than current smoking in all regions among both boys and girls (except boys in the West Pacific) at 19% each [11]. Early initiation leads to lifelong addiction and much higher CVD mortality at younger ages [17]. Teenage girls are as likely to smoke cigarettes as boys are in 58% of GYTS-surveyed countries [12]. This could potentially lead to a much narrower sex gap



in tobacco use among adults from this cohort in the future. Consequently, we may witness much higher CVD mortality in women in coming decades. These surveillance data underscore the need to prevent tobacco initiation among adolescents, especially girls, to avoid future substantial CVD morbidity and mortality.

Of note, health professionals (doctors, dentists, nurses, and pharmacists), who are an influential group to advise patients and the general public to quit, themselves smoke cigarettes (~20%) or use other tobacco products (~10%) as revealed by GHPSS [12]. To be effective cessation counselors and tobacco control advocates, it is essential for health professionals to quit themselves and make their institutions tobacco-free.

Information on protection of people from tobacco smoke (protect). Over 85% of the deaths from SHS exposure result from CVDs [4]. SHS exposure equivalent to as little as one-half to 1 cigarette per day increases the risk of coronary heart disease by 25–30% [18]. However, only 11% of people live in countries with national comprehensive smoke-free laws. GYTS data has revealed alarmingly high SHS exposure rates. Globally, SHS exposure at public places and homes was reported by 50% and 40% of students, respectively, in the week preceding survey, with the highest being in Europe (86% and 78%, respectively) [12]. This highlights the clear role of cardiologists in informing their

smoking patients to quit smoking or avoid its use in the presence of their children.

Among GATS-surveyed countries, SHS exposure rates at home and at the workplace varied from 16.5% to 73%. Adults in China, Bangladesh, Vietnam, and Egypt reported very high (>50%) SHS exposure rates. Even 44–72% of health professionals surveyed under GHPSS report SHS exposure at home or in public places. Physicians at the primary level and cardiologists have an important role in sensitizing smokers to protect their children, spouses, and coworkers from exposure to SHS. This will reduce the enormous CVD burden due to SHS exposure and will further promote smoke-free community norms [11]. Cardiologists also need to come forward as advocates of smoke-free policies, promoting them at their own healthcare establishments, as well as national and international levels, and also ensuring that cardiology conferences are completely smoke-free.

Information on help offered to quit tobacco use (offer). Smoking cessation can eliminate the excess risk of CVDs to one-third within 2 years of cessation and to nil within 10–14 years of cessation [17]. Despite substantial benefits in reducing CVD morbidity and mortality, demand for cessation services and availability of such services are very low. More than 50% of daily users use tobacco within an hour after waking up, as per data from GATS-surveyed countries (except Mexico) [11]. Such a high level

of addiction warrants the provision of help in quitting.

Among student smokers, 69% want to quit. In GATS-surveyed countries, 52% of adult smokers in India to 16% in China desire to quit within the next year. However, access to cessation services is suboptimal in most developing countries, and only 9 high- and middle-income countries, covering just 5% of the world's population, offer complete cessation services, indicating the need to increase access to and availability of these services.

The GHPSS surveys indicate a wide gap in training of health professionals to help patients in quitting. Merely 19–33% of students in different health professions report that they have received formal training in patient counseling for quitting, though most (>85%) believe that they have a role and should receive such training [12].

In actual practice, only 41–77% of adults reported that their healthcare provider elicited their smoking history and only 17–67% were advised to quit. In 8 of 14 GATS-surveyed countries, less than 50% of adults were advised to quit [11]. This is a missed opportunity and must be addressed through effective integration of tobacco cessation into the existing health system of the country. Cardiology patients can benefit from tobacco cessation more than preventive strategies such as blood pressure or cholesterol control [19]. However, knowledge, interest, and attitudes of cardiologists regarding smoking cessation assistance highlight poor commitment to this important preventive practice [20]. This indicates a vast untapped potential within the health system for generating demand for tobacco cessation and for significant reduction in CVD mortality.

Information on warnings about the dangers of tobacco (warn). There are significant gaps in awareness of CVD risks of tobacco use. In all GATS-surveyed countries, awareness of CVD risks of SHS is much less (1.5 times to almost 10 times) than lung cancer risk, even though SHS-attributable CVDs kill 18 times more people than SHS-attributable lung cancer does [11]. In China and India, where more than 40% of the world's smokers live, 62.4% and 38.1% of smokers, respectively, are unaware of the CVD risk associated with SHS exposure [11]. Awareness of the CVD risk from SHS exposure among nonsmokers is further dismally low in many countries, as little as 11.8% in Vietnam [11].

Pictorial health warnings depicting CVD risk can raise awareness, which is currently lacking.

However, only 42 countries have mandated pictorial health warnings on cigarette packages, and only 19 countries (5 high-income and 14 middle-income) implement “best-practice warning labels.” Smokeless tobacco products are further less likely to have warnings [21]. Also, it must be noted that even in these limited number of countries, only a fraction of warnings are for CVDs. Further, pictorial health warnings nowhere have been used to warn of CVD risk of SHS exposure [22].

Advocacy for placing CVD warnings on tobacco-product packages with policymakers and inclusion of CVD warnings from SHS exposure is an important area for contribution from cardiologists. Given that messages from physicians and cardiologists have greater impact than from general public and paramedic staff [23], cardiologists can potentially contribute enormously in raising awareness on CVD risks of tobacco use and SHS exposure through appearance in mass-media campaigns. Cardiology events and World Heart Day can also be used to raise public awareness on CVD risks of tobacco use and SHS exposure.

Information on bans on tobacco advertising, promotion, and sponsorship (enforce). A total ban on advertising, promotion, and sponsorships is needed to prevent tobacco companies from motivating people to initiate and continue tobacco use [24]. However, only 19 countries with 6% of the world's population enforce such bans. More than 100 countries enforce partial bans, whereas 71 countries either have no ban at all or do not ban tobacco advertising on national TV, radio, and print media [21].

In the GATS surveys, up to 54% of adults reported having seen cigarette advertisements on any channel, up to 21% reported coming across a cigarette promotion activity and up to 7% reported seeing a tobacco company associated with a sports event [11]. Analysis of the 2000–2007 GYTS data revealed that overall, 14.9% of students owned an object with a cigarette brand logo on it and 10% had been offered free cigarettes by a tobacco company representative [25]. These indicators highlight the vulnerability of adolescents to tobacco advertisements and promotions. In addition, these data underscore the need for cardiologists to engage with policymakers and to advocate for complete prohibition of advertising, promotion, and sponsorship by the tobacco industry.

Information on taxes on tobacco (raise). Increasing tobacco prices through raising taxes is the most effective intervention to reduce tobacco use and

encourage smokers to quit [24]. Whereas taxes constitute more than one-half of the retail price of a cigarette in 76% of high-income countries, it is so only in 45% of middle-income, and 27.5% of low-income countries [21]. It is ironic that countries on the lower side of income level, which can benefit most from raising taxes on tobacco (in terms of both higher revenues and reduction in disproportional burden of CVDs) have lower taxes. Cardiologists usually serve on various government policy committees and in that capacity can advise their local governments to raise taxes across all tobacco products at state and federal levels. This will make tobacco products more expensive and unaffordable for the poor and youth in those countries, thereby facilitating significant reductions in usage.

ROLE PLAYED BY CARDIOLOGISTS IN TOBACCO CONTROL

In most countries where declines in population tobacco use have been achieved, healthcare professionals, particularly physicians, have played a key role and have been at the forefront of tobacco control efforts [26]. Recognizing the critical role and potential of healthcare professionals in driving reductions in population tobacco use, WHO adopted a code of practice on tobacco control that exhorts healthcare professionals to lead by example by reducing smoking among themselves, acting as role models for their patients, and introducing tobacco control in the public health agenda of their country [27]. The World Heart Federation, a premier professional organization in cardiology, has endorsed this code for implementation [28].

Taking this into consideration, cardiologists and their associations are taking the lead in tobacco control and adding a voice to the movement. Tobacco control has remained a key topic at the World Congress of Cardiology successively in 2010 and 2012. Both congresses featured a rich content in tobacco control with top global and regional tobacco control leaders [29].

Uruguay in South America effectively used the Framework Convention on Tobacco Control roadmap to register one of the steepest declines in smoking. Philip Morris was threatening its efforts with a lawsuit in 2010 for alleged violations of a bilateral trade treaty. However, the CardioSur2010 congress organized by the South American Cardiology Society mobilized regional cardiology societies to stand behind strong tobacco control.

Cardiology societies from 10 countries also signed the declaration for a “South America Free of Tobacco Smoke” [30]. Another good example is from Colombia where the Colombian Society of Cardiology worked closely with policymakers and testified before legislative commissions to enact a strong, comprehensive law on tobacco control in July 2009. Local efforts in Colombia were also strengthened with regional support from the Inter-American Heart Foundation, a long-time leader in tobacco control [31]. The Global Smokefree Partnership recognized its contribution through the 2009 Award for Leadership and Excellence in Smoke-Free Policy.

Evidence from tobacco surveillance data indicates the need for action at the level of patients, community, and policymakers. The unique status of cardiologists as clinicians, health role models, and opinion leaders can be leveraged at all these levels to advance tobacco control and prevent CVDs.

Given that tobacco cessation has nearly as great a benefit as that accrued from other treatments such as cholesterol-lowering or blood pressure-lowering medicines to improve heart health, it is imperative that tobacco use is assessed and documented routinely, and cessation services prioritized and considered as an effective therapeutic strategy.

GTSS data have shown a shift of the tobacco epidemic to developing countries, which also happen to disproportionately bear the burden of CVDs. Mainly stage 2 of the tobacco epidemic in developing countries further implies that CVD mortality in these countries will continue to rise for at least 3 decades [16]. Active engagement of cardiologists in using GTSS surveillance data to promote MPOWER strategies at each country level will help in effective tobacco control, thus aiding in plateauing the rising peak. The earlier we achieve plateau in the rising curve of tobacco use in developing countries through effective tobacco control measures, the greater the reduction in CVD mortality will be, saving numerous lives. The role of cardiologists thus goes beyond tobacco cessation interventions delivered to individual patients to influential advocates with the policymakers and communities for comprehensive tobacco control.

Eliciting tobacco use information in patients' history and offering cessation services to those who use tobacco can create greater demand for cessation services and can save lives [23]. This also offers an added benefit in promoting antitobacco messages in the community and aids in positively

altering community norms. However, for credibility, it is important that cardiologists themselves abstain from tobacco use and make their premises and establishments tobacco-free. GHPSS has provided important pointers on health professionals' attitudes, practice behaviors, and patient-centered outcomes and has highlighted the need to provide specific training in tobacco cessation and tobacco control as primary care physicians can play a pivotal role in the early detection and management of tobacco as a CVD risk factor.

Given the advantageous status enjoyed by cardiologists in society and their access to and membership of governmental health policymaking bodies, they can use these strategic opportunities to initiate evidence-informed advocacy for comprehensive tobacco control with both the policymakers and the community. Global surveys indicate major gaps in smoke-free policies; complete bans on all direct and indirect advertising, promotion, and sponsorship; awareness of CVD risk of tobacco use and SHS exposure; health warnings on tobacco pack-

ages; and taxes on tobacco products in different countries. The cardiologist community can strongly highlight the tobacco-attributable CVD mortality to policymakers and can advocate to fill the gaps in instituting and implementing best-practice tobacco control measures. Further, they can also strengthen other tobacco control groups by extending the support of their organizations to them.

Cardiologists and all other healthcare professionals as well as their professional associations have critical roles to play in advancing tobacco control. There are multiple areas of engagement where their contributions can help achieve effective tobacco control, facilitate in driving reductions in population tobacco use, and subsequently improve CVD prevention and control. It is encouraging that cardiologists have indeed assumed significant roles in tobacco control in different countries as discussed in this paper. However, the information from global tobacco surveys calls for a broader and more intense action from them to win the battle against tobacco.

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