Tobacco control in Mexico: a decade of progress and challenges

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Abstract
Mexico was the first country in the Americas to sign and ratify the World Health Organization's (WHO) Framework Convention on Tobacco Control (FCTC) in 2004. More than a decade later, it is appropriate to evaluate legislative and regulatory progress and the associated challenges; and also, to propose a roadmap to prioritize the problems to be addressed to achieve long-term sustainable solutions. Mexico has made substantial progress in tobacco control. However, regulations have been only weakly enforced. The tobacco industry continues to interfere with full implementation of the WHO-FCTC. As a result, tobacco consumption remains stable at about 17.6%, with a trend upwards among vulnerable groups: adolescents, women and low-income groups. The growing popularity of new tobacco products (electronic cigarettes or e-cigs) among young Mexicans is an increasing challenge. Our review reveals the need to implement all provisions of the WHO-FCTC in its full extent, and that laws and regulations will not be effective in decreasing the tobacco epidemic unless they are strictly enforced.

Keywords: public policy; epidemiological monitoring; health surveillance; tobacco industry; middle-income countries; Mexico

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Resumen
México fue el primer país de América en firmar y ratificar el Convenio Marco de la OMS para el Control del Tabaco (CMCT-OMS) en 2004. Un poco más de una década después, es relevante evaluar aspectos legislativos, regulatorios, avances y desafíos, además de proponer una ruta crítica con soluciones sustentables a largo plazo. México ha avanzado en el control del tabaco; sin embargo, las medidas se han implementado parcialmente y la industria del tabaco continúa interfiriendo con la implementación completa del CMCT-OMS. Como resultado, el consumo de tabaco se mantiene estable alrededor de 17.6%, con una tendencia ascendente entre los más vulnerables: adolescentes, mujeres y grupos de bajos ingresos. La creciente popularidad de uso de los e-cig entre los jóvenes mexicanos trae nuevos y complejos desafíos. Es perentorio implementar al más alto nivel todas las disposiciones del CMCT-OMS: las leyes y los reglamentos no serán eficaces para abatir la epidemia de tabaquismo si no se aplican adecuadamente.

Palabras clave: política pública; monitoreo epidemiológico; vigilancia de la salud; industria del tabaco; países de ingresos medianos; México

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When Mexico, a country of 123 million people, first ratified the World Health Organization's Framework Convention on Tobacco Control (WHO FCTC) in 2004, there was international and national concern that the tobacco companies operating within the country would subvert progress towards reducing tobacco use.[1-6] Only a month after ratification, Mexico signed an agreement with three major tobacco companies that brought earmarked funds to cover specialized medical care provided through a new insurance program, but the agreement limited Mexico's ability to fully implement all FCTC requirements. In December 2006, the agreement was canceled, and Mexico has since implemented a broad range of tobacco control measures along with supporting legal infrastructure to fulfill its FCTC commitments.

Here we address tobacco control in Mexico over the 14 years since FCTC ratification. We highlight progress that has been made, while noting the particular challenges faced by Mexico as it struggles to enforce new regulations, grapples with evolving tobacco industry strategies, and confronts its epidemic of non-communicable diseases (NCDs) in a population with rates of obesity and diabetes that are among the world's highest.[7]

Background

Mexico has a smoking pattern that is common among Hispanic populations in the United States, Central America, and some countries in northern South America. Data from the 2015 Global Adult Tobacco Survey (GATS)[8] indicate that the overall national prevalence, 16.3 % percent in adults, is comparatively low in relation to many other countries. However, this prevalence translates to 14.3 million smokers and the at-risk population for smoking comprised of adolescents and young adults is nearly 30 million.[9] Overall prevalence has remained fairly stable in spite of tobacco control initiatives, dropping from 23.5% in 2002 to 20.8% in 2016 as assessed by the National Survey of Tobacco, Alcohol and Drugs Consumption (Encodat 2016 – 2017) (responding to the question: "Did you ever smoke during the last year?").[10] The two GATS surveys for Mexico showed a small, non-significant increase in the prevalence of current smoking from 15.9% in 2009 to 16.3% in 2015 ("Do you currently smoke tobacco on a daily basis, less than daily, or not at all?").[8] In 2015, daily smokers reported smoking only 8.0 and 6.8 cigarettes per day among men and women, respectively. Smoking rates are greater among the higher compared with the lower socioeconomic status group.[8]

With regard to other major risk factors for NCDs, Mexico's profile is highly unfavorable (figure 1).[11,12] Over 70% of adults are overweight or obese;[13] the prevalence of diabetes diagnosed by a physician is currently at 9.7%.[14] Excessive alcohol consumption is also problematic, rising quickly to the most recent figure of 19.8% of adults reporting excessive alcohol consumption in the last month.[15]

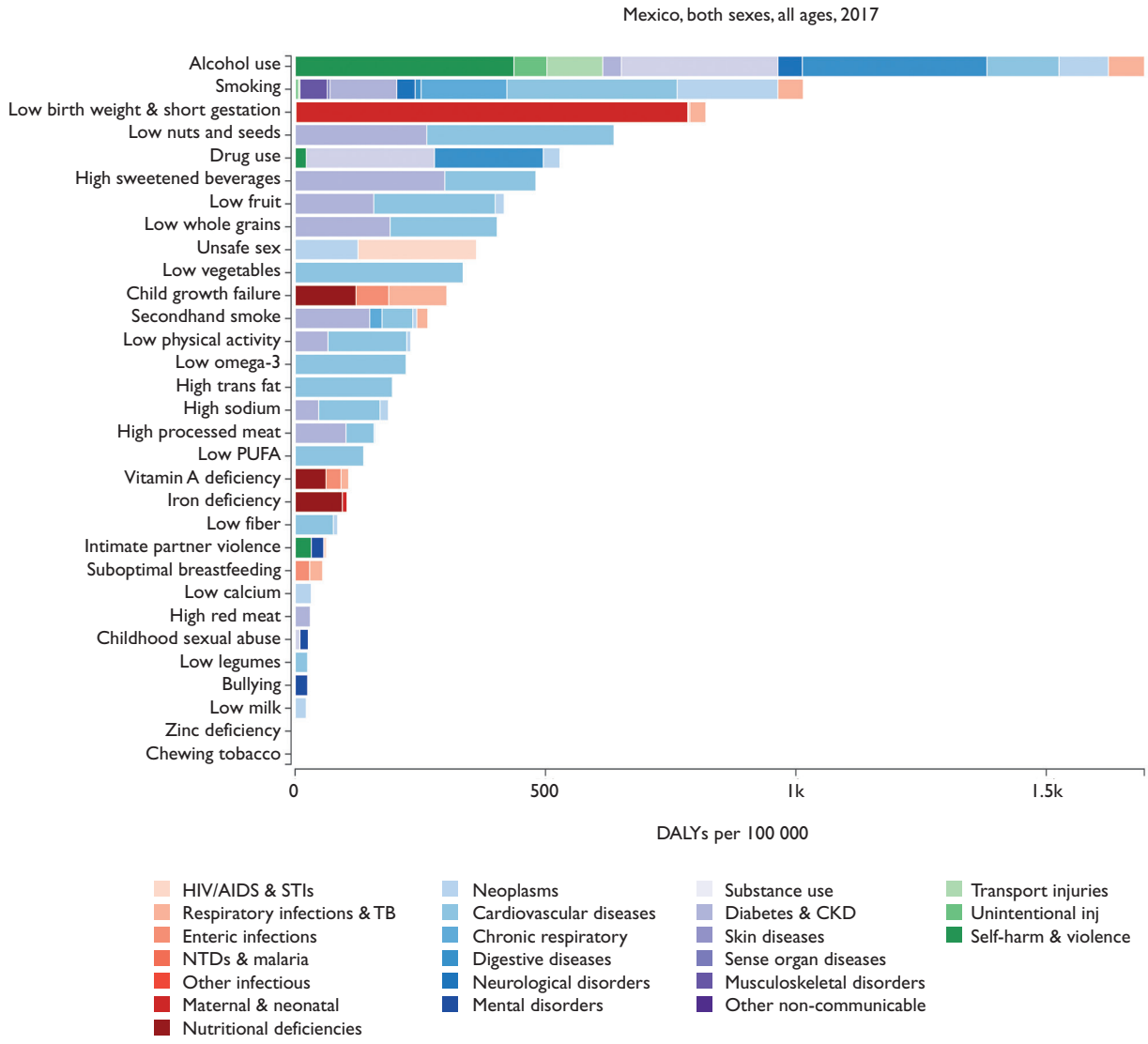
Reflecting the smoking profile observed in Mexico and that of other risk factors for NCDs, the burden of disease pattern in Mexico differs greatly from the United States and other high-income countries with high tobacco use prevalence and more intense smoking patterns.[16] At present, obesity, unhealthy diets, low levels of physical activity and binge alcohol drinking, all make greater contributions to disease burden in Mexico than does smoking at 3%, a pattern contrasting with most high-income countries (for example, 11.8% for UK).[17] As in the United States, ischemic heart disease is the leading cause of premature mortality; however, lung cancer, which is second in the United States,[18] is 19th in Mexico.

Progress on tobacco control

Substantial progress with tobacco control legislation has been made in Mexico since 2004 at the national and state levels (table I). Figure 2 shows the evolution of tobacco control policies since 2000. Significant events include the 2008 passage of the General Law for Tobacco Control (GLTC) and its complementary rules in 2009, including the placement of graphic health warnings on tobacco packaging; the progressive rise in taxes over this period and the creation of the Office for Tobacco Control (OTC) in the Ministry of Health (MoH). Beyond these Federal actions, key events have taken place at the subnational level, including the passage of a complete ban on smoking in public places in Mexico City in 2008 with a number of other states passing similar bans thereafter.

General Law for Tobacco Control

The GLTC[20] established a mandate to the MoH to coordinate government actions and to implement tobacco control policy. Among other provisions, the GLTC established the MoH's responsibilities for the organization of mass-public education campaigns; the provision of cessation and medical services for smokers; and the descriptions of the national anti-tobacco program's goals, objectives, and evaluation criteria. This law also gives the MoH broad authority to regulate the manufacture, distribution, advertisement, promotion and marketing of tobacco products and to combat illicit trade, counterfeit and smuggled tobacco products. The GLTC also enabled public participation by requiring that a toll-free phone number be established for reporting violations of the law. Responsibility for enforcing the GLTC resides



Source: Institute for Health Metrics and Evaluation[12]

FIGURE 1. BURDEN OF DISEASE ATTRIBUTABLE TO LEADING RISK FACTORS. MEXICO, 2017

in the federal, state and local authorities. The GLTC includes sanctions, fines, partial or total closures, or jail for non-compliers.

In relation to advertising restrictions, the GLTC remained well below the global gold standard of a comprehensive ban.[21,25] The legislation permits publicity and promotion that is aimed at adults through adult magazines, personal communication by mail, or within establishments exclusively for adults.[26] Regrettably, advertising and promotion at the point of sale were included but these restrictions are not enforced.[27]

Another major loophole in the GLTC was the failure to establish 100%-smoke-free areas, allowing designated smoking areas at work and in public places and not explicitly addressing smoking on public land and in transportation vehicles. In regulations derived from the law, the MoH amended this loophole by specifying strict protection criteria for the designated smoking areas.[28] However, enforcement of these provisions by federal and state regulatory agencies proved difficult. For example, the GLTC conflicted with the existing law in Mexico City, which banned smoking in all public places.[29] While Mexico's Supreme Court ruled in favor of Mexico City's Law, commercial venues frequently claim regulatory ambiguity as a basis for not complying with the city's smoke-free legislation.

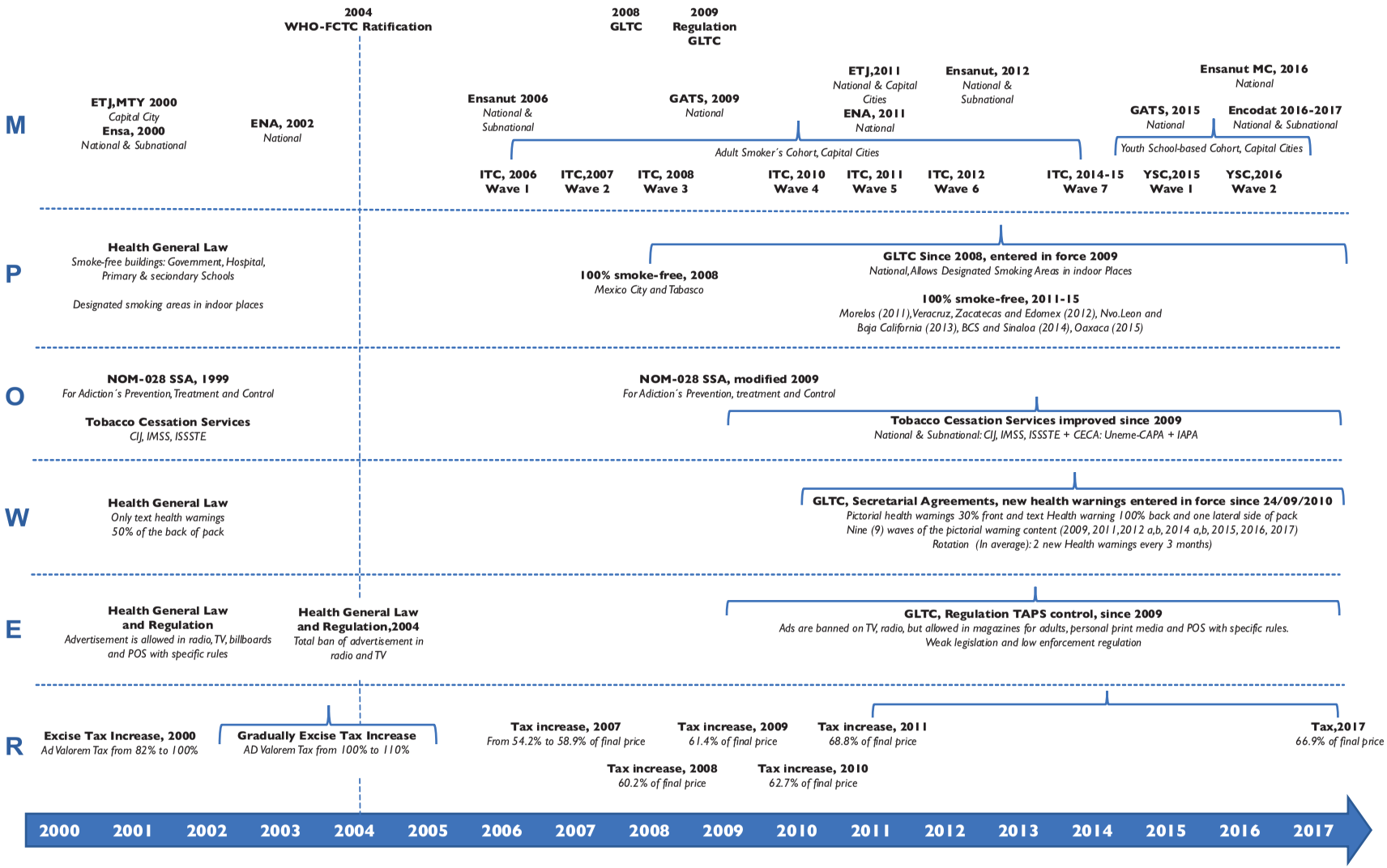
Table I
LEGISLATION ON TOBACCO CONTROL IN MEXICO BEFORE AND AFTER FCTC RATIFICATION

MPOWER	FCTC	*Before FCTC ratification (2004) The Health General Law establishes the tobacco control legislations (HGL)*[19]	*After FCTC ratification (2004) The General Law for Tobacco Control (GLTC) entered in force in August 2009*[20]
M	Art. 20	• The HGL encourages implementing a national surveillance system. The tobacco epidemic is monitored by national and school-based sub national surveys. • The HGL prohibits sales to under age consumers and of single cigarettes.	• The GLTC establishes in articles 7-13 the National program for tobacco and creates the National and subnational tobacco surveillance system using global indicators to track the epidemic and the tobacco control policies.[8,10] • The GLTC in articles 14 – 17 prohibits the sale to under age people and by singles.
P	Art. 8	• The HGL establishes smoke-free buildings: Government buildings, hospitals and school campuses (primary, secondary and high schools, universities were not mentioned). • Allows designated smoking areas at indoor places.	• The GLTC in articles 26 – 29 allows designated smoking areas in indoor places according to specific regulation requirements. • Between 2008 – 2014, 100% smoke-free subnational legislations have been approved: Mexico City and Tabasco (2008), Morelos (2011), Veracruz, Zacatecas and Estado de Mexico (2012), Nuevo Leon and Baja California (2013), Baja California Sur and Sinaloa (2014), Oaxaca (2015). • At municipality level: Tecate, and Cozumel (the first tobacco free Mexican beach, 2013).[21]
O	Art. 14	• Mexican Official Standard (NOM-028-SSA2) 1999. This Mexican Official Standard defines the implementation and evaluation of prevention compaigns against addictions. No specific focus on tobacco control.	• The Mexican Official Standard NOM-028-SSA2-2009.1 for the prevention, treatment and control of addictions[22] was updated and modified in 2009 and provides new guidelines for the diagnosis and treatment of nicotine addiction. • Mexico has made progress establishing a network of over 350 specialized – care units for addictions treatment (tobacco, alcohol and illegal drugs)[23] • Establish a call center: Ceciadic to orient the smoker on how to quit smoking and provide brief advice.[24]
W	Art. 11	• The GHL establishes only text health warnings covering the 30% of the back and one lateral side.	• The GLTC establishes in articles 18 – 22: - The pictogram must be placed covering 30% of the top of front side. - The text health warnings must cover 100% of the back side and 100% of one lateral side. • Every year eight different pictograms by wave are released and are rotated every three months approximately. • This legislation prohibits the use of terms as light, mild, smooth or others that suggest reduced damage caused by tobacco products • The inside inserts or in the exterior packing are prohibited by law.
E	Art. 13	• Since 2004, tobacco advertising is forbidden on radio and TV, but: • It is allowed in billboards, points of sale, and have clearly regulatory restrictions for tobacco advertising (prohibits the appearance of young or underage smoking people, prohibits lit tobacco products, people can not appear smoking, so the smoking scene shouldn't appear).	• The GLTC in the articles 23-25 - Prohibts all forms of sponsorship (i.e sponsoring music concerts) and promotional distribution (i.e free samples) - Promotion is allowed in magazines for adults - Promotion is allowed through personal communication via postal service
R	Art. 6	• A major tax increase for tobacco products, unfiltered cigarettes increased from 20.9 to 110%.	• The GLTC in articles 30- 34 establishes the previous sanitary permits and the basis for the importation of tobacco products as well as the authority of MoH to combat the illegal production and trade of illicit tobacco products. • The IEPS Law. The tobacco taxes have been increased to 68.8% of the final price of package, which corresponds to an increase in the final price of a pack of cigarettes of 7 MXN without automatic inflation adjustment.

Data were reviewed according to the HGL and GLTC laws
Source: Ley General de Salud and Congreso General de los Estados Unidos Mexicanos[19,20]

The Office for Tobacco Control

The Office for Tobacco Control (OTC) was created in 2008 to strengthen and coordinate government efforts in tobacco control. This Office was designated as the focal point to oversee the implementation of the WHO FCTC in Mexico, and as the secretariat for the national coordinating mechanism for tobacco control. The OTC also has the mandate to support the implementation of the GLTC and to develop the normative rules for labeling and packaging of tobacco products. The OTC has supported the implementation of mass media information campaigns for smoking prevention, helped strengthen cessation services, and monitors tobacco industry activi-



Ensa: Encuesta Nacional de Salud. **Ensanut:** Encuesta Nacional de Salud y Nutrición. **ENA:** Encuesta Nacional de Adicciones. **Encodat:** Encuesta Nacional de Consumo de Drogas, Alcohol y Tabaco. **ETJ:** Encuesta de Tabaquismo en Jóvenes. **ITC:** International Tobacco Control Policy Evaluation Survey. **GATS:** Global Adult Tobacco Survey. **GLTC:** General Law for Tobacco Control. **TAPS:** Tobacco Advertisement, Promotion and Sponsorship. **POS:** Point of Sale. **CIJ:** Centros de Integración Juvenil. **IMSS:** Instituto Mexicano del Seguro Social. **ISSSTE:** Instituto de Seguridad Social y Servicios Sociales de los Trabajadores del Estado. **CECA:** Consejos Estatales contra las Adicciones. **CAPA:** Centros de Atención Primaria en Adicciones. **IAPA:** Instituto de Atención y Prevención de las Adicciones de la CDMX.

FIGURE 2. TIMELINE OF TOBACCO CONTROL POLICIES IN MEXICO, BEFORE AND AFTER FRAMEWORK CONVENTION ON TOBACCO CONTROL (FCTC RATIFICATION). 2000-2017

ties. This office is also responsible for evaluating national and local efforts for tobacco control.

The creation of the OTC signaled the MoH's intention to prioritize tobacco control in the national government and establish clear lines of authority and accountability for tobacco control in the country. While the OCT represents progress, it has a relatively low budget and operates with a small staff, limiting its influence within the MoH and nationally.

Fiscal policy

In 2009, tobacco products were subject to an *ad valorem* rate of 160%. There was no specific tax. Total taxes, including 15% value added tax (VAT), amounted to 61.4% of retail price. After an intense lobbying effort by the MoH, some legislators, and NGO's, in 2009 the Congress passed a specific tax that mandated a continuous tax increase for cigarettes so as to increase the price by two pesos per pack by 2013.[30]

Tax law was reformed in 2010 and a one-time measure to increase the specific tax by seven pesos per pack on top of the average increase of 80 cents was imposed in 2010. This new tax-legislation raised total excise taxes to 69%. The Marlboro pack price increased 36% with this change, from 28 MXN (2.30 USD) to 38 MXN (3.12 USD).[31]

Associated with this tax increase, reported sales of tobacco dropped by 30% and government revenue from tobacco taxes increased by 38%.[30] Since 2011 taxes have not changed and, as they were not indexed to rise with inflation, the affordability of tobacco products has increased over time. We estimate that from 2011 through 2014, federal revenues from tobacco taxes were 113 796 MP (9 350 MUSD) and of these, 45 071 MP (3 549 MUSD) were generated with tax increases introduced since 2011. Unfortunately, none of these additional fiscal revenues were earmarked for tobacco control, or for prevention or treatment of tobacco-related diseases.

Challenges

Mexico has improved its regulatory framework for tobacco control and successfully increased tobacco taxes. Nonetheless, smoking prevalence has remained unchanged over the last decade and the overall goal of decreasing smoking remains elusive.

Tobacco industry

The tobacco industry remains a major barrier to achieving better tobacco control in the country. Table II provides a summary of how the tobacco industry has attempted to thwart legislative changes and tobacco-tax increases in Mexico. Tobacco companies have lobbied extensively against new tax increases and succeeded in blocking one in 2013 and in lowering taxes for hand-rolled tobacco products. Immediately following the 2011 tax increases, the industry initiated a campaign claiming that a related rise in illicit trade had lowered government tax-revenue.[37] The media campaign continues to the present, with periodic and well-planned press releases from the industry that exaggerate illegal sales figures. The tobacco industry has repeatedly reported in the mass media, for example, that the magnitude of the illegal cigarette market in Mexico is around 340 million packs per year,[38] representing 17% of cigarettes consumed in the country.[39] Conflicting with these industry estimates, Saenz de Miera and colleagues[40] analyzed national survey data (GATS, Mexico 2009 and the *Encuesta Nacional de Adicciones*-ENA 2011), and estimated illegal tobacco consumption in Mexico as around 0.5 and 1.4%, respectively, from the two surveys. Considering smoking patterns in Mexico, consumption of smuggled cigarettes would therefore be (in accordance with the GATS Mexico 2009) around 195 million cigarettes (9.8 million packs of cigarettes) and according to the ENA 2011 around 586 million cigarettes (29.3 million packs). Consequently, between 2009 and 2011, the increase in the illegal consumption of cigarettes represents an annual loss of revenue of about 500 million pesos (39.4 MUSD), considerably lower than the six billion pesos (472 MUSD) estimated by industry.

In addition, companies have taken advantage of the light daily consumption pattern in Mexico to successfully market 14-cigarette packs, reducing the immediate price, and undercutting the impact of the taxes on consumers. Furthermore, the concurrent commercialization of 20- and 14-cigarette packs increased the difficulty of tracking production sales and tax revenues.

GLTC implementation

Significant challenges remain in implementing the GLTC and its derived rules and regulations in order to protect employees and customers from secondhand smoke (SHS).[41] Inadequate enforcement and compliance with regulations result from a lack of resources and insufficient response capacity of state agencies responsible for enforcement. The GLTC failed to require designation of financial resources for its implementation. The manager/owner of an area has the responsibility to ensure that the area remains smoke-free and the expectation was that the majority would adhere to the GLTC dispositions without needing intensive enforcement. However, currently most of the designated smoking areas do not

Table II
REACTION OF TOBACCO INDUSTRY AFTER THE IMPLEMENTATION OF TOBACCO LEGISLATION IN MEXICO

	Reaction of tobacco industry
Smoke-free legislation	• E-cigarettes have been popularized among youth and smokers to be used in closed places 100% free of tobacco smoke or as strategy to quit smoking. Sales are prohibited by law, however they are available at malls. Internet and retailers promote use even by pregnant women. • There is a new strategy to administrate nicotine and promote the initiation among youth and dual use among the adults.[10,32]
Health warnings	• The tobacco market was overstocked the months before legislation entered in force.[30] • The package presentation was modified (forms, dimension), some packages have double cover or hard cover.[33] • Use new cigarette pack colors that create a visual effect and there is no contrast with the pictogram.
Advertising, promotion and sponsorship	A recent tracking using TPackSS[33] confirms: • There are 14's presentations in all legal brands available in the Mexican market. • Price promotions are increasingly common in tobacco presentation of 14 units. • Increasing advertising, promotion at point of sale.
Contents and flavors of tobacco products	TPackSS[33] reveals: • An increased menthol product in the Mexican tobacco market. • Most of the brands have a flavor capsules with "click on" presentation, including Marlboro. • The brands' characteristics were modified, all tobacco products were renamed (i.e. light = gold).[34]
Taxes	• Previous to entering in force the 2011 tobacco tax increase, the tobacco market was overstocked.[30] • Immediately following the 2011 tax increases the tobacco industry claimed that government revenue was lower than expected due to the increase of illicit trade and created a mass media campaign promoting this argument.[35] • Price promotion - Most of the brands have presentation of 14 cigarettes. Decreasing prices from 35 MXN to 30 MXN (package of 14's). • Strong legislative lobbying to avoid a new increase of tobacco products taxes after 2013.[36]

comply with regulations and public exposure to SHS persists in Mexico. Comparing Mexico's 2009 and 2015 GATS data, self-reported exposure to SHS showed small decrements for government buildings (17.0 to 14.1%), restaurants (29.6 to 24.6%) and bars and nightclubs (81.2 to 72.7%), while the self-reported exposure in workplace, public transportation or health care facilities remained unchanged. Other studies conducted two years after the implementation of the GLTC, that used direct observation as well as measurement of environmental nicotine levels documented low degrees of compliance with smoke-free rules and regulations.[42-44]

As in some other low- and middle-income countries, Mexico's extensive and unregulated informal market presents a challenge to enforcement. Despite a ban on the sale of single cigarettes in the national legislation, for example, single cigarettes remain widely available throughout commercial districts, undercutting the impact of tax increases and increasing accessibility of cigarettes for adolescents. GATS 2015 showed that single cigarette sales were prevalent; 50% of participants who smoked reported purchasing single cigarettes. Reports of single cigarette purchases were more frequent from younger people and smokers in rural areas.[8]

Over the last 14 years, anti-smoking mass media campaigns have been conducted sporadically and their content has not been state-of-art, nor has their impact been evaluated.[45] Campaigns have been challenged by tobacco control nongovernmental organizations because of their confusing messages and by feminist groups because they were perceived as sexist.[46] These failed campaigns point to the need for well-designed, culturally appropriate, frequent, and intensive campaigns based on appropriate formative research. Such campaigns, considered as foundational for comprehensive tobacco control, have largely been absent in Mexico.

In addition, counseling and cessation services continue to be out of reach for most smokers who need them. The barriers are clear. Cessation services are infrequently offered by the Social Security system and cessation is not covered by the government insurance for low-income Mexicans. GATS 2015 reported a significant increase in quit attempts among adult past-year smokers compared with GATS 2009. However, use of pharmacotherapy for cessation remained low among adults who smoked in the past-year, at only 3.5%.[8] A nationwide study measuring sales of nicotine patches and varenicline tablets for smoking cessation in private pharmacies[47] found total sales were 8.9 million units in 2012, 6.9 million in 2013, and 7.3 million in 2014, or 24 577, 18 814 and 19 883 units sold per day, respectively. These figures contrast sharply with the national estimate of two million addicted smokers.

Cigarette sales to youth also continue. The 2011 GYTS data for Mexico show that among 13-15-year-old students, 39.3% reported buying cigarettes in stores

and 65.1% of underage children who bought cigarettes in the past month before the survey were not turned away when purchasing cigarettes, even though 73.4% of students reported having observed a sign prohibiting sales to minors. Half (50.1%) of the students reported having observed the sale of single cigarettes and 19.1% reported buying single cigarettes.[48-50]

Emerging products

As elsewhere, electronic cigarettes (e-cigarettes) are an emerging problem in Mexico. GATS 2015 shows that even though they are prohibited in Mexico, use is increasing. Cross-sectional data collected in 2015 from a representative sample of junior high school students (n=10 067) found that 51% of students had heard about e-cigarettes, 20% believed e-cigarettes were less harmful than conventional cigarettes, and 10% had tried them.[32] This study suggests that awareness of e-cigarettes is high in a key target market and their use could increase in Mexico, in spite of the ban. The current legal situation for the commercialization of e-cigarettes in Mexico is highly ambiguous, because a recent ruling by the Mexican Supreme Court of Justice granted a suspension of the prohibition to commercialize electronic cigarettes that derived from the GLTC to one importer that complained that this law was violating its rights.[51]

Towards solutions

Mexico faces diverse domestic challenges that continually stress its progress in tobacco control. Although it has ratified the FCTC, which provides an invaluable framework for comprehensive action, Mexico is not moving forward to sustain national tobacco control, even as the population becomes at ever greater risk for NCDs from epidemic obesity and diabetes.

While tobacco control needs to be maintained as a goal, priorities historically have shifted with changes in government administrations. To ensure continuity, tobacco control needs to be better institutionalized within the relevant government entities at both federal and state levels. Currently, tobacco control is regarded as a MoH responsibility and there is little intersectoral commitment. For example, the MoH was successful in lobbying for tax increases; however, it failed to convince the Ministry of Treasury to earmark funds to support smoking prevention and cessation programs. Similarly, the Mexican Ministry of Economy (MMoE) has not engaged in tobacco control activities included in the FCTC. Furthermore, the MMoE lobbied in the Australian House of Representatives Parliament against Australia's Tobacco Plain Packaging Bill. The Ministry of Agriculture in Mexico (Sagarpa) has provided weak support for programs designed to create incentives for farmers willing to switch from tobacco to alternative crops. These examples are among the many that illustrate the siloed actions of key government agencies and the barrier that the lack of intersectoral coordination poses to effective tobacco control in Mexico. A strengthened OTC, a dedicated Legislative Commission or a well-established intersectoral committee under the leadership of the MoH with cabinet level support will be more likely to succeed in deploying effective tobacco control policies. Progress in other comparable middle-income countries such as Costa Rica, Turkey and Uruguay illustrates how rapidly consumption could be reduced in Mexico with sustained intersectoral policies.[52] Turkey, for example, has experienced a 13% relative reduction in smoking prevalence between 2008 and 2012.[53] This success is largely credited to intersectoral cooperation, led by the Prime Minister.

Future tobacco control approaches in Mexico also need to be framed in relation to the country's spiraling NCD burden. Protecting people from tobacco smoke and banning smoking in public places, warning about the dangers of tobacco use, enforcing bans on tobacco advertising, promotion and sponsorship, and raising taxes on tobacco are identified among the best buys for NCD prevention.[7] Tobacco control needs to be integrated with policies aimed to control alcohol consumption, improving diet and enhancing physical activity, in order to promote wellness and healthy lifestyles.[54]

Mexico can build on recent global actions to prioritize NCDs, including World Health Assembly resolutions to reduce premature deaths from cardiovascular diseases, diabetes, cancer and chronic respiratory diseases by 25% by 2025 and the Global Action Plan for the Prevention and Control of Noncommunicable Diseases 2013-2020.[55] Lessons learned from other countries highlight the need for sustained, institutionalized funding to retain gains.[56] Earmarked taxes represent a key potential source of funding—an option that has not yet been explored in Mexico despite its success in raising taxes and expanding taxation to sugar-sweetened beverages. Clearly there are demonstrated societal benefits when tobacco-tax revenues are directed to tobacco control, as any reduction of smoking will improve health of smokers and non-smokers and should reduce health sector costs overall. Furthermore, non-earmarked taxes may be in contradiction to the values of a government that provides publicly funded health services and is in search of universal coverage, because it fails to articulate policies to adequately protect health and contain the cost burden of public services to tax payers. It is also potentially unethical,[57] as the harm

that tobacco consumption inflicts to smokers that provide the tax revenue is not appropriately addressed through prevention and cessation programs. However, non-smokers may benefit from the general government spending that comes from this specific tax. There are examples from the Latin American region (Argentina, Colombia, Costa Rica, El Salvador, Guatemala and Panama) of success in earmarking portions of excise taxes.[7]

Conclusion

Sustaining FCTC actions in Mexico

The tobacco industry has been too successful in undermining public health efforts, probably because only short periods of experimentation are needed for tobacco dependence to develop, and in part because countries have not consistently invested the resources needed to overcome the effects of tobacco industry marketing of a highly addicting product.[58]

In order to better protect the Mexican population from the known and avoidable harms of tobacco use, Mexico needs to take further legislative steps to amend the GLTC to meet FCTC recommendations and successfully implement evidence-based tobacco control measures. Together, increasing cigarette taxes, enacting and enforcing regulations prohibiting smoking in public places, intense and well-designed mass media campaigns, and providing support for smoking cessation act synergistically to decrease social acceptance of smoking, while reducing smoking initiation and increasing successful quitting.[59-61]

Important actions have been taking place regarding tobacco control in Mexico; however there is clear evidence from GATS 2015 that there is a need to strengthen tobacco control activities in the country.[49] Looking back to 2004, the present situation with regard to tobacco control is better than anticipated at the time. The agreement with the industry was in place only briefly and consequently did little to block progress. Mexico has moved forward with new laws and other measures, but progress has stalled. We have the tools to slow the tobacco epidemic, but need to use them forcefully, while watching carefully for the potential emergence of epidemic e-cigarette use.[49]

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References

1. Secretaría de Salud. [Agreement to extend regulation and normativity relating to tobacco, and the "agreement to establish additional restrictions on regulation and legislation for advertising, marketing and health warning labels of tobacco products" and establishes the mechanism, characteristics, temporality and destination of the temporal contribution that will cover the producers and marketers to the Fund of protection of catastrophic expenditures. Agreement between Ministry of Health through the National Council Against Addictions (Conadic) and the Federal Commission for Protection against Health Risks (Cofepris) and British American Tobacco Mexico (BAT), Philipp Morris Mexico (PM) and Cigarros la tabacalera mexicana (Cigatam).] Mexico: Secretaría de Salud, 2004.
2. Samet J, Wipfli H, Perez-Padilla R, Yach D. Mexico and the Tobacco Industry: doing the wrong thing for the right reason. BMJ. 2006;332:353-4. https://doi.org/10.1136/bmj.332.7537.353
3. Sebrié E, Glantz S. The tobacco industry in developing countries. BMJ. 2006;332:313. https://doi.org/10.1136/bmj.332.7537.313
4. Hernández-Ávila M. Lost sight of the real enemy. BMJ. 2006;332:548. https://doi.org/10.1136/bmj.332.7540.548
5. Tapia-Conyer R, Ruiz-Gaytan C, Caso-Gonzalez L. Response from the Ministry of Health. BMJ. 2006;332:548. https://doi.org/10.1136/bmj.332.7540.548-a
6. Lope-Antuñano F. Response of the Mexican MoH's Officers to two BMJ editorials. BMJ. 2006;332.
7. World Health Organization. Global status report on noncommunicable diseases 2014. Geneva: WHO, 2014. [cited December 21, 2017] Available from: http://www.who.int/nmh/publications/ncd-status-report-2014/en/
8. Organización Panamericana de la Salud, Instituto Nacional de Salud Pública. Encuesta Global de Tabaquismo en Adultos. México 2015. Cuernavaca, Mexico: INSP/OPS, 2017.
9. Instituto Nacional de Estadística y Geografía. Perfil sociodemográfico de jóvenes. Aguascalientes: INEGI, 2014. [cited December 21, 2017] Available from: http://internet.contenidos.inegi.org.mx/contenidos/Productos/prod_serv/contenidos/espanol/bvinegi/productos/censos/poblacion/2010/perfil_socio/jovenes/702825056636.pdf
10. Instituto Nacional de Psiquiatría Ramón de la Fuente Muñiz, Instituto Nacional de Salud Pública, Comisión Nacional Contra las Adicciones, Secretaría de Salud. Encuesta Nacional de Consumo de Drogas, Alcohol y Tabaco 2016-2017: Reporte de Tabaco. Ciudad de México: INPRFM, 2017. [cited December 21, 2017] Available from: https://drive.google.com/file/d/1IktptvdU2nsrSpMBMT4FdqBIk8gikz7q/view
11. Lozano R, Gómez-Dantés H, Garrido-Latorre F, Jiménez-Corona A, Campuzano-Rincón JC, Franco-Marina F, *et al*. La carga de enfermedad, lesiones, factores de riesgo y los desafíos para el sistema de salud en México. Salud Publica Mex. 2013;55(6):580-94. https://doi.org/10.21149/spm.v55i6.7304
12. Institute for Health Metrics and Evaluation (IHME). GBD Compare Data Visualization. Seattle, WA: IHME, University of Washington, 2017 [cited 2019 May 31]. Available from: http://vizhub.healthdata.org/gbd-compare
13. Secretaría de Salud, Instituto Nacional de Salud Pública. Encuesta Nacional de Salud y Nutrición de Medio Camino 2016. Informe final de resultados. SS/INSP, 2016. [cited December 21, 2017] Available from: https://www.gob.mx/cms/uploads/attachment/file/209093/ENSANUT.pdf
14. Hernández-Ávila M, Gutiérrez JP, Reynoso-Noverón N. Diabetes mellitus en México. El estado de la epidemia. Salud Publica Mex. 2013;55(supl 2):S129-36. https://doi.org/10.21149/spm.v55s2.5108

15. Instituto Nacional de Psiquiatría Ramón de la Fuente Muñiz, Instituto Nacional de Salud Pública, Comisión Nacional Contra las Adicciones, Secretaría de Salud. Encuesta Nacional de Consumo de Drogas, Alcohol y Tabaco 2016-2017: Reporte Alcohol. Mexico City: INPRFM, 2017. [cited December 21, 2017] Available from: https://drive.google.com/file/d/1rMlKaWy34GR51sEnBK2-u2q_BDK9LA0e/view
16. Gajalakshmi CK, Jha P, Ranson K, Nguyen S. Global patterns of smoking and smoking attributable mortality. In: Jha P, Chaloupka F. Tobacco Control in Developing Countries. Oxford: Oxford University Press, 2000.
17. Institute for Health Metrics and Evaluation. Global Burden of Disease Profile: United Kingdom. Seattle: IHME, 2010 [cited 2018 May 25]. Available from: https://www.healthdata.org/sites/default/files/files/country_profiles/GBD/ihme_gbd_country_report_united_kingdom.pdf
18. Institute for Health Metrics and Evaluation. Global Burden of Disease Profile: United States. Seattle: IHME, 2010 [cited 2018 May 25]. Available from: http://www.healthdata.org/sites/default/files/files/country_profiles/GBD/ihme_gbd_country_report_united_states.pdf
19. Secretaría de Salud. Ley General de Salud [cited 2018 May 25]. Available from: http://www.salud.gob.mx/cnts/pdfs/LEY_GENERAL_DE_SALUD.pdf
20. Congreso General de los Estados Unidos Mexicanos. Ley General para el Control del Tabaco. Mexico: Diario Oficial de la Federación, 2008. [cited December 21, 2017] Available from: http://dof.gob.mx/nota_detalle.php?codigo=5037388&fecha=30/05/2008
21. Organización Panamericana de la Salud. Informe sobre control del tabaco en la región de las Américas: a 10 años del Convenio Marco de la Organización Mundial de la Salud para el Control del Tabaco. Washington, DC: OPS, 2016. [cited December 21, 2017] Available from: http://iris.paho.org/xmlui/handle/123456789/28380
22. Comisión Nacional Contra las Adicciones. Norma oficial mexicana NOM-028-SSA2-2009 para la prevención, tratamiento y control de las adicciones. Mexico, 2009 [cited2018 May 19]. Available from: http://www.conadic.salud.gob.mx/pdfs/norma_oficial_nom.pdf
23. Secretaría de Salud. The UNEME – CAPAS Specialized primary care units for tobacco, alcohol and illegal drugs prevention and treatment. México: Ssa, 2016 [cited 2018 May 19]. Available from: http://www.conadic.salud.gob.mx/pdfs/Directorio-UNEME-CAPA.pdf
24. Secretaría de Salud. Centro de atención ciudadana contra las adicciones. México: Ssa, 2017 [cited 2018 May 19]. Available from: https://www.gob.mx/salud/acciones-y-programas/centro-de-atencion-ciudadana-contra-las-adicciones
25. World Health Organization. WHO report on the global tobacco epidemic 2017. Monitoring tobacco use and prevention policies [Internet]. Geneva: WHO, 2017. [cited December 21, 2017] Available from: http://apps.who.int/iris/bitstream/10665/255874/1/9789241512824-eng.pdf?ua=1&ua=1
26. Bogen K, Biener L, Nyman A. Consequences of marketing exceptions in the master settlement agreement: Exposure of youth to adult-only tobacco promotions. Nicotine Tob Res. 2006;8(3):467-71. https://doi.org/10.1080/14622200600670199
27. Rodríguez-Bolaños R, Reynales-Shigematsu LM, Barrientos-Gutiérrez T, Santos-Luna R, Ávila-Tang E, Sáenz de Miera-Juárez B. Vigilancia y monitoreo de las estrategias para el control del tabaco: un análisis a través del Sistema de Información Geográfica. In: Reynales-Shigematsu LM, Thrasher JF, Lazcano-Ponce E, Hernández-Ávila M. Salud pública y tabaquismo. Volumen I. Políticas para el control del tabaco en México. Cuernavaca, México: Instituto Nacional de Salud Pública, 2013. Available from: http://www.controltabaco.mx/publicaciones/salud-publica-y-tabaquismo-volumen-i
28. Congreso General de los Estados Unidos Mexicanos. Reglamente de la Ley General para el Control del Tabaco. Mexico City: Diario Oficial de la Federación, 2009 [cited 2018 May 25]. Available from: http://www.dof.gob.mx/nota_detalle.php?codigo=5092133&fecha=31/05/2009
29. Asamblea Legislativa del Distrito Federal. Ley de Protección a los no fumadores del Distrito Federal. Gaceta Oficial del Distrito Federal. Mexico City, 2004 [cited 2018 May 25]. Available from: http://www.conadic.salud.gob.mx/pdfs/onct/LeyProteccionSalud_NoFumadoresDF.pdf
30. Sáenz de Miera-Juárez B. Impuestos al tabaco en México: análisis del periodo 2006-2012. En: Salud pública y tabaquismo. Volumen I. Políticas para el control del tabaco en México. Cuernavaca: Instituto Nacional de Salud Pública, 2013.
31. Congreso de los Estados Unidos Mexicanos. Ley del Impuesto Especial Sobre Producción y Servicios. Nueva Ley publicada en el Diario Oficial de la Federación el 30 de diciembre de 1980 Última reforma publicada en el Diario Oficial de la Federación. Mexico: Diario Oficial de la Federación, 2013 [cited 2018 May 25]. Available from: http://www.diputados.gob.mx/LeyesBiblio/ref/lieps/LIEPS_ref41_11dic13.pdf
32. Thrasher JF, Abad-Vivero EN, Barrientos-Gutiérrez I, Pérez-Hernández R, Reynales-Shigematsu LM, Mejía R, *et al*. Prevalence and correlates of E-Cigarette perceptions and trial among early adolescents in Mexico. J Adolesc Health. 2016;58(3):358-65. https://doi.org/10.1016/j.jadohealth.2015.11.008
33. Institute for Global Tobacco Control [Internet] Tobacco Packs Surveillance System: TackSS. Mexico Report; [about 3 screens]. Baltimore: Johns Hopkins University, c2019 [cited 2018 May 19] Available from: https://www.globaltobaccocontrol.org/tpackss/country/mexico
34. Thrasher JF, Hammond D, Arillo-Santillán E. The alchemy of Marlboro: transforming 'light' into 'gold' in Mexico. Tob Control. 2010;19(4):342-3. https://doi.org/10.1136/tc.2010.037044
35. Chávez H. El impacto de los impuestos al tabaco en México. El Financiero. 2014 Marzo 11 [cited 2018 May 19]. Available from: http://www.elfinanciero.com.mx/economia/el-impacto-de-los-impuestos-al-tabaco-en-mexico
36. El aumento de impuestos al tabaco y bebidas azucaradas ayudaría a la reconstrucción en México: activistas. Proceso 2017 Oct 4 [cited 2018 May 19]. Available from: https://www.proceso.com.mx/506226/aumento-impuestos-al-tabaco-bebidas-azucaradas-ayudaria-a-la-reconstruccion-en-mexico-activistas
37. González L. Repunta mercado negro de cigarros. El Economista. 2013 Apr 22 [cited 2018 May 25]. Available from: https://www.eleconomista.com.mx/empresas/Repunta-mercado-negro-de-cigarros--20130422-0047.html
38. Méndez E. Al año ingresan al país 340 millones de cajetillas sin pagar impuestos y carentes de control sanitario. Excelsior. 2013 Nov 20 [cited 2018 May 25]. Available from: http://www.excelsior.com.mx/nacional/2013/11/20/929617
39. Méndez E. Narco domina el tabaco ilegal; de contrabando, 17 de cada 100 cigarros en México. Excelsior 2013 Nov 20 [cited 2018 May 25]. available from: http://www.excelsior.com.mx/nacional/2013/11/20/929617
40. Sáenz de Miera - Juárez B, Zúñiga-Ramiro J. Comercio ilícito de productos de tabaco en México: Evidencia disponible y legislación vigente. In: Salud pública y tabaquismo. Volumen I. Políticas para el control del tabaco en México. Cuernavaca: Instituto Nacional de Salud Pública, 2013.
41. Barrientos-Gutiérrez T. Evaluación científico-técnica de la Ley General para el Control del Tabaco de México. Salud Publica Mex. 2010;52(supl 2):S277-82.
42. Guerrero-Alcántara A, Madrazo-Lajous A, Alonso F, Ramírez T, Galván J. Primer monitoreo de la implementación de las normas que establecen espacios 100% libres de humo de tabaco en las ciudades de México y Aguascalientes. Ciudad de México: CIDE, 2014 [cited 2018 May 25]. Available from: http://issuu.com/ppdcide/docs/acs_-_tabaco_2014
43. Barrientos-Gutiérrez T, Reynales-Shigematsu LM, Gimeno D, Lazcano-Ponce E. Cumplimiento con la legislación de ambientes libres de humo de tabaco en México. Salud Publica Mex. 2008;50(supl 3):S315-22. https://doi.org/10.1590/S0036-36342008000900008
44. Reynales-Shigematsu LM, Ortega-Ceballos PA, Gimeno D, Barrientos-Gutiérrez T. Exposición a humo de tabaco ajeno en lugares públicos de la Ciudad de México, Guadalajara y Monterrey. Salud Publica Mex. 2010;52(supl 2):S168-71. https://doi.org/10.1590/S0036-36342010000800012

45. Rodríguez R. Con "Paraíso de Fumadores" hacen campaña anti-tabaco. El Universal. 2006 May 9 [cited 2018 May 25]. Available from: http://www.conadic.salud.gob.mx/prensa/boletines2006/fumarmata_301.html
46. Álvarez-Cordero R. "Cigarro mata carita." Excelsior. 2013 Jun 20 [cited 2018 May 25]. Available from: http://www.excelsior.com.mx/opinion/rafael-alvarez-cordero/2013/06/20/904987
47. Pharmaceutical Market Mexico (PMM) and Government Supply and Drug Tracker (GSDT). Consumo de medicamentos en farmacias privadas a nivel nacional y en las instituciones de la Seguridad Social en México. México: PMM, GSPT, 2014.
48. Reynales-Shigematsu LM, Rodríguez-Bolaños R, Ortega-Ceballos P, Flores Escartin MG, Lazcano- Ponce E, Hernández-Ávila M. Encuesta de Tabaquismo en Jóvenes. México 2011. Cuernavaca: Instituto Nacional de Salud Pública, 2011.
49. Reynales-Shigematsu LM, Barrientos-Gutiérrez I, Zavala-Arciniega L, Arillo-Santillán E. Nuevos productos de tabaco, una amenaza para el control de tabaco y la salud pública de México. Salud Publica Mex. 2018;60:598-604. https://doi.org/10.21149/9682
50. Morello P, Pérez A, Braun SN, Thrasher JF, Barrientos I, Arillo-Santillán E, Mejía R. Smoking susceptibility as a predictive measure of cigarette and e-cigarette use among early adolescents. Salud Publica Mex. 2018;60:423-31. https://doi.org/10.21149/9193
51. Mexico Supreme Court Resolution. [cited 2018 May 25]. Available from: https://www.scjn.gob.mx/SegundaSala/2da_listas_asuntosresueltos/LR%2023-09-15%20SUPRE.pdf
52. Blanco A, Sandoval R, Martínez-López L, Caixeta R. Diez años del Convenio Marco de la Organización Mundial de la Salud para el Control del Tabaco: avances en las Américas. Salud Publica Mex. 2017;56(supl 1):1:S117-25.
53. Wipfli H. The global war on tobacco: Mapping the world's first public health treaty. Baltimore: Johns Hopkins University Press, 2015.
54. Wipfli H, Samet J. Framing progress in global tobacco control to inform action on noncommunicable diseases. Health Aff. 2015;34(9):1480-8. https://doi.org/10.1377/hlthaff.2015.0361
55. World Health Organization. Global action plan for the prevention and control of noncommunicable diseases 2013-2020. Geneva: WHO, 2013. [cited December 21, 2017] Available from: http://apps.who.int/iris/bitstream/handle/10665/94384/9789241506236_eng.pdf;jsessionid=D846B24E95905D729E2D84B328C42624?sequence=1
56. Chaloupka FJ, Grossman M. Price, tobacco control policies and youth smoking. NBER Working Paper Series. Working Paper #5740. Cambridge, MA: National Bureau of Economic Research, 1996.
57. Wilson N, Thomson G. Tobacco taxation and public health: ethical problems, policy responses. Soc Sci Med. 2005;61(3):649-59. https://doi.org/10.1016/j.socscimed.2004.11.070
58. Borland R. A strategy for controlling the marketing of tobacco products: a regulated market model. Tob Control. 2003;12:374-82. https://doi.org/10.1136/tc.12.4.374
59. Durkin S, Brennan E, Wakefield M. Mass media campaigns to promote smoking cessation among adults: an integrative review. Tob Control. 2012;21(2):127-38. https://doi.org/10.1136/tobaccocontrol-2011-050345
60. Bala MM, Strzeszynski L, Topor-Madry R, Cahill K. Mass media interventions for smoking cessation in adults. Cochrane Database Syst Rev. 2013;6:CD004704. https://doi.org/10.1002/14651858.CD004704.pub3
61. Cummings MK, Proctor NR. The changing public image of smoking in the United States: 1964–2014. Cancer Epidemiol Biomarkers Prev. 2014;23(1):32-6. https://doi.org/10.1158/1055-9965.EPI-13-0798