

GATS

# 2015 Global Adult Tobacco Survey, Costa Rica

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Ministry of Health of Costa Rica

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2015 Global Adult Tobacco Survey (GATS) Costa Rica

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**Conflict of interest**

The findings and conclusions of this report are those of the authors, and they do not necessarily represent official positions of the United States Centers for Disease Control and Prevention (CDC).

The authors of this research declare that they have no conflicts of interest with the tobacco industry.

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# Global Adult Tobacco Survey (GATS)

## Costa Rica 2015

### Summary sheet

#### **GATS Objectives**

The Global Adult Tobacco Survey (GATS) is the global standard for systematically monitoring adult tobacco use (smoking and smokeless tobacco), as well as for the main tobacco control indicators.

The GATS is a representative survey at the national level, which uses a standard protocol for different countries including Costa Rica. The GATS strengthens the capacity of countries to design, implement and evaluate tobacco control programs. It also helps to meet their obligations related to the Framework Convention on Tobacco Control of the World Health Organization (FCTC-WHO) to produce data that is comparable between countries.

The WHO has developed MPOWER, a technical assistance package consisting of 6 evidence-based measures that include:

**M**onitoring tobacco use prevention policies

**P**rotecting people from tobacco smoke

**O**ffering help to stop using tobacco

**W**arning about dangers of tobacco

**E**nforcing the prohibition of advertising, promotion, and sponsorship

**R**aising tobacco taxes

#### **GATS Methodology**

The GATS uses a standardized methodology worldwide. It includes information about the characteristics of the respondents, tobacco consumption (smoking and smokeless tobacco), cessation of tobacco consumption, exposure to second-hand tobacco smoke, economy, media, awareness, and attitudes and perceptions about tobacco consumption. In Costa Rica, the Ministry of Health carried out the GATS survey in 2015, which is a household survey of individuals 15 years of age or older. A multistage sample design, stratified by clusters, was used to obtain representative data at a national level. A total of 9,680 households were selected, and an individual was randomly identified in each household selected to participate in the survey. The information was collected using electronic devices. A total of 8,607 individual interviews were completed, and the overall response rate was 89.2%.

#### **Main results**

##### **TOBACCO CONSUMPTION**

- 9.1% of the total population (300 thousand adults), 13.6% of men, and 4.5% of women consume tobacco.

- 8.9% of the total population (300 thousand adults), 13.4% of men, and 4.4% of women currently smoke tobacco.
- 9.6% of residents in urban areas and 7.1% of residents in rural areas currently smoke tobacco.
- 8.7% of the total population, 13.0% of men, and 4.3% of women currently smoke cigarettes.
- 0.1% of the total population, 0.1% of men, and 0.0% of women consume smokeless tobacco.

#### **CESSATION**

- 73.0% of current smokers have planned to or thought about quitting smoking.
- 58.6% of smokers in the previous year tried to quit smoking in the last 12 months.
- 56.7% of daily smokers have quit smoking (Quit Ratio).

#### **EXPOSURE TO SECOND-HAND SMOKE**

- 6.3% of adults who work in closed spaces (100 thousand) were exposed to tobacco smoke in their place of work.
- 4.9% of adults (200,000 adults) were exposed to tobacco smoke in their home.
- 7.9% of adults (100 thousand adults) who visited a restaurant in the last 30 days were exposed to tobacco smoke.

#### **KNOWLEDGE, ATTITUDES AND PERCEPTIONS**

- 97.8% of adults believed that smoking causes serious diseases.
- 95.8% believed that exposure to second-hand smoke causes serious diseases in non-smokers.

#### **ECONOMY**

- The average monthly expenditure on cigarettes was 19,370 colones.
- 5.4% of smokers bought cigarettes from street vendors.

#### **MEDIA**

- Nearly 7 out of 10 adults noticed anti-smoking information on radio or television.
- 1 in 10 adults noticed cigarette advertising in official sale sites.
- 2 out of 10 adults noticed advertising or sponsorship of cigarettes at sporting events.

# Presentation

## Introduction by the Minister of Health

Through the years, Costa Rica has made significant advances related to the health of its population, among which I would emphasize the policies and programs on tobacco consumption control implemented by different administrations, which have been followed up on with great responsibility. The fight against smoking started in 1995, when we established Law 7501 for The Regulation of Smoking, which prohibited smoking in places such as public transport, schools, government offices, enclosed public places, and in recreational areas for minors. Specific areas were designated for smoking in restaurants, and the sale of cigarettes to minors was prohibited. "Stop Smoking Clinics" were launched through the smokers anonymous program. This law represents one of the first steps to combat smoking, although we were aware that many battles against the tobacco epidemic were still to come.

Fortunately, the Framework Convention on Tobacco Control (FCTC) of the World Health Organization shows that it is possible to reach a political agreement among countries to fight tobacco consumption through global and local policies. Our country signed this Convention in 2003, and the General Law on Tobacco Control and its Harmful Effects on Health, Law 9028 and its Regulations (Decree No. 37185) were published in 2012. With the implementation of this law and its enforcement, the government committed itself to reduce the tobacco epidemic, recognizing the high costs of dealing with the effects of diseases caused by smoking.

The Global Adult Tobacco Survey (GATS) is the global standard for systematically monitoring adult tobacco consumption (including smokers and non-smokers), and for monitoring key indicators for tobacco control. It was conducted in Costa Rica for the first time during 2015, and its results are presented in this country report.

We are very proud of the results of this research: *"we are the country with the second lowest prevalence of tobacco consumption in Latin America, a member of the group of countries with single-digit prevalences."* The prevalence of tobacco consumption in Costa Rica in 2015 was 8.9%.

The main findings of this research have to do with the consumption of tobacco in the population of individuals who are 15 years of age or older; compliance with Law 9028; insights into issues such as stopping smoking, exposure to second-hand smoke, spending on cigarettes, advertising of tobacco products in the media, as well as awareness, attitudes and perceptions about tobacco use. Over the years, we have managed to implement a Tobacco Control Policy, and these results prove it.

The Ministry of Health will take this research into account for decision-making, and will continue to monitor and fight the tobacco industry.

We make these results available for internal and external users of the Ministry of Health, so that they can draw on the excellent contents and quality of this research.

Sincerely,

Dra. Karen Mayorga Quirós  
Minister of Health

## **Executive Summary**

The Global Adult Tobacco Survey (GATS) is the global standard for systematically monitoring adult tobacco consumption (smokers and non-smokers), and for monitoring key indicators for tobacco control.

The GATS Costa Rica is a nationwide representative household survey of non-institutionalized men and women who are 15 years of age or older. The survey was designed to generate internationally comparable data for the country in general, by sex (male / female) and place of residence (urban / rural).

The GATS Costa Rica was financed and conducted by the Ministry of Health. The World Health Organization (WHO) and the United States Centers for Disease Control and Prevention (CDC) provided technical assistance.

The GATS improves a country's ability to design, implement and monitor programs and effective tobacco control policies. In addition, it allows Costa Rica to comply with its obligations under the WHO Framework Convention on Tobacco Control (WHO FCTC), ratified in August 2008, which seeks to generate comparable data on tobacco consumption, both within and among countries. The WHO identified a set of six evidence-based tobacco control strategies, summarized in the English acronym MPOWER, which are most effective in reducing tobacco use. These include:

- **M**onitoring tobacco use prevention policies
- **P**rotecting people from tobacco smoke
- **O**ffering help to stop using tobacco
- **W**arning about dangers of tobacco
- **E**nforcing the prohibition of advertising, promotion and sponsorship
- **R**aising tobacco taxes

## **Methodology**

The GATS uses a standard survey protocol in all countries. In Costa Rica, the GATS was the first independent survey on tobacco use, conducted in 2015 as a household survey of individuals 15 years of age or older. A multi-stage cluster design was used to obtain representative data countrywide. The survey information was collected using mobile electronic devices. Samples were taken from a total of 9,680 households, with one individual from each participating household randomly selected to complete the survey. In total, 8,607 individual interviews were completed. The overall response rate was 89.2%. The response rate in urban areas was 88.1%, while in rural areas it was 90.4%. The survey collected information on background characteristics, tobacco consumption (smokers and non-smokers), electronic cigarettes, cessation, exposure to second-hand smoke, economic indicators, exposure to tobacco advertising and promotion, as well as awareness, attitudes and perceptions towards tobacco consumption.

## **Main results**

The main results are grouped into seven subgroups: tobacco consumption, cessation, exposure to second-hand smoke, economy, media, awareness, attitudes and perceptions, finally, electronic cigarettes.

### **Tobacco consumption**

Tobacco consumption is one of the most common risk factors for acquiring noncommunicable diseases (NCDs). According to the Ministry of Health of Costa Rica, 62.0% of disability-adjusted life years (DALYs) are lost due to NCDs, and 15.6% of total deaths in Costa Rica can be attributed to tobacco smoking.

This survey determined that:

- 13.6% of men, 4.5% of women and 9.1% of all individuals (325.8 thousand adults) consumed tobacco at the time of the survey.
- 13.4% of men, 4.4% of women and 8.9% of all individuals smoked tobacco at the time of the survey; 9.6% and 7.1% in urban and rural areas, respectively.
- In general, 8.7% of adults smoked manufactured cigarettes, which were the most preferred type of tobacco products for smoking.
- 45.1% of daily smokers smoke their first cigarette within 30 minutes of waking up.
- In general, 5.8% of adults were daily tobacco smokers, while 3.1% were occasional tobacco smokers. It is estimated that 4.5% and 6.3% of residents of rural and urban areas, respectively, were daily tobacco smokers.
- Among daily smokers of from 20 to 34 years of age, the average age of onset of daily smoking was 16.1 years; 31.7% started smoking daily before the age of 15, 24.3% began between the ages of 15 and 16, and 28.9% began when they were between 17 and 19 years old.
- In general, the consumption of smokeless tobacco at the time of the survey was 0.1%; 0.1% among men and 0.0003% among women.

### **Cessation**

Cessation of tobacco use refers to the process of quitting the use of tobacco products, with or without assistance. In general, tobacco products contain nicotine, which is highly addictive; it is therefore essential to strengthen health care systems to promote cessation. The Costa Rican Social Security Administration System (CCSS) plays a key role in identifying tobacco use and providing access to cessation services.

This survey determined that:

- Almost 6 out of 10 smokers in the previous year (58.6%) tried to quit smoking in the last 12 months.
- Among those who tried to quit smoking, 3.6% tried to do so using pharmacotherapeutic methods, 6.7% used counseling/advice, and 64.7% of smokers tried to quit without any help.
- Of the smokers in the previous year who visited a health service provider in the last 12 months, only 64.0% were advised to quit smoking.
- 73% of current smokers planned to or were thinking about quitting.

## Second-hand smoke

Exposure to second-hand smoke (ESHS) can also cause tobacco-related diseases. ESHS consists of two forms of smoke from tobacco combustion: the smoke emitted from the burning end of a cigarette or other tobacco products such as a pipe or cigar; and the smoke exhaled directly by the smoker. According to the General Law on Tobacco Control and its Harmful Effects on Health, Law 9028, smoking is prohibited in Costa Rica in public and certain private spaces throughout the country. This survey analyzed information about exposure to ESHS at work, at home, or when visiting different public places in the last 30 days. In addition, with help from the interviewees, information was obtained about the national law that prohibits smoking in different public places. This survey determined that:

- 6.3% of adults working in closed environments (65.3 thousand adults) had been exposed to second-hand smoke in the workplace during the past 30 days.
- 4.9% of adults (178.9 thousand adults) had been exposed to second-hand smoke at home at least once a month.
- 7.9% of adults (111.2 thousand adults) had been exposed to second-hand smoke in restaurants in the last 30 days.
- 23.0% of adults (153.1 thousand adults) had been exposed to second-hand smoke in bars or nightclubs in the past 30 days.
- 17.7% of adults (71.6 thousand adults) had been exposed to second-hand smoke at universities in the last 30 days.
- Support for existing anti-smoking laws was especially high in the following public places: hospitals (99.2%), workplaces (98.5%), restaurants (98.6%), bars (94.6%) , public transport (99.1%), educational centers (94.4%) and universities (98.9%), and places of worship (99.1%). In general, 93.1% of respondents supported the laws in all these public spaces.

## Economy

The survey examined economic aspects of tobacco consumption by current smokers of manufactured cigarettes, based on information from their most recent purchase. This information included the source and type of the last purchase of cigarettes, as well as spending on cigarettes. This survey determined that:

- The most common source where manufactured cigarettes were bought were commercial establishments (80.7%), followed by duty-free stores (6.2%), and street vendors (5.4%).
- In addition, a significantly higher proportion of smokers of manufactured cigarettes between 15 and 24 years old bought cigarettes from street vendors (14.8%), compared to smokers 25 years of age or older (3.1%).
- Cigarette smokers spent an average of 19,370 colones<sup>1</sup> per month on manufactured cigarettes.
- The average amount spent on 20 manufactured cigarettes was 1,328 colones, and the cost of 100 packages (or 2000 cigarettes) of manufactured cigarettes as a percentage of the Gross Domestic Product (GDP) per capita [2014] was 2.4%.

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<sup>1</sup> The national currency of Costa Rica

## **Media**

The media play an important role in campaigns for and against tobacco products. They are an effective way to disseminate information about the dangers of tobacco consumption and the importance of discouraging it. They are also used for advertising, promotion and sponsorship of tobacco products.

Tobacco advertising, promotion and sponsorship (TAPS) are prohibited in Costa Rica, pursuant to Article 12 of Law 9028, General Law on Tobacco Control and its Harmful Effects on Health of 2012. Article 9 of this Law makes it mandatory to include graphic health warnings on the two main sides of cigarette packages.

The GATS Costa Rica collected information to determine whether people noticed anti-smoking and TAPS information during the last 30 days.

This survey determined that:

- 72.3% of adults noticed anti-smoking information in some place during the past 30 days, and 66.1% of adults noticed these messages on television or radio.
- 27.4% of adults noticed some type of advertising, promotion and sponsorship of cigarettes in the last 30 days.
- During the past 30 days, 97.7% of smokers noticed health warnings on cigarette packages, and 55.4% of smokers considered quitting due to warning labels.

## **Awareness, attitudes and perception**

The survey provides information on the awareness, attitudes and perceptions of the interviewees regarding the risks of smoking and exposure to second-hand smoke. Interviewees were asked specifically if they believe that tobacco smoking causes diseases such as strokes, myocardial infarctions, lung cancer, high blood pressure, bladder, throat or stomach cancer, abortions, infertility, impotence, osteoporosis, premature births and low birth weight.

Finally, the survey collected information about their knowledge of Law 9028, the General Law on Tobacco Control and its Harmful Effects on Health, and their support for increasing taxes on tobacco products. The survey determined that:

- 97.8% of adults believed that smoking causes serious diseases.
- With respect to specific pathologies, 98.2% of adults believed that smoking causes lung cancer, 94.8% chronic bronchitis, 93.9% dental caries, 90.3% emphysema, 90.0% myocardial infarction, 86.4% abortions, 71.2% stroke, 67.2% sexual impotence, 66.2% stomach cancer, 54.0% breast cancer, 47.5% hair loss, and 43.4% bladder cancer.
- 95.8% of adults (96.5% of women and 95.0% of men) believed that exposure to second-hand smoke causes serious diseases in people who do not smoke.
- 85.1% of adults were in favor of raising taxes on tobacco products.

## **Electronic cigarette**

This survey determined that 47.5% of adults had never heard of electronic cigarettes, while only 2.3% of adults were current consumers.

## **Recommendations**

The GATS is the first comprehensive survey conducted in Costa Rica on tobacco consumption and tobacco-related behaviors. It provides fundamental information on key indicators for smoking control by sex and area of residence. The results of the GATS describe the environment for smoking prevention and control in Costa Rica. It is important to make constant efforts to prevent prevention and control to minimize tobacco consumption and prevent potential increases. The conclusions can guide public health policies, planning, and practices since they offer relevant data for existing and future interventions in smoking prevention and control. According to the MPOWER strategy package, the following policy recommendations are supported by the conclusions of the survey:

1. Awareness must be raised about the harmful effects on health due to tobacco consumption and exposure to second-hand smoke.
2. Implementation of the General Law on Tobacco Control and its Harmful Effects on Health must continue to be improved, including the observance of anti-smoking policies and restrictions on advertising that promotes tobacco use, to reduce its consumption and reach the goal of being a Tobacco Smoke-Free Country.
3. The law to guarantee tobacco smoke-free places at work, and in restaurants and public transport must be complied with through inter-institutional cooperation of the National Police, municipalities, and the Ministry of Health.
4. The number of health inspectors must be increased, and their work schedule should be adapted to provide appropriate surveillance and enforcement of the law, with special emphasis on restaurants, bars, and nightclubs.
5. Strategies must be developed to strengthen the cessation programs implemented by the Costa Rican Social Security Administration System (CCSS) and the Institute on Alcoholism and Drug Dependence (IAFA), to guarantee universal access for all citizens.
6. Access to medication for smoking cessation provided through the national cessation program must be increased.
7. Monitoring and implementation of Article 12 of the Law, which emphasizes the reduction of advertising, promotion and sponsorship of tobacco consumption, must be strengthened.
8. A monitoring and traceability system must be developed to increase payment of taxes in all places of sale.

# I. Introduction

Tobacco consumption is one of the main preventable causes of death and premature disease. The press center of the World Health Organization, in a descriptive note published in May 2017, indicated that tobacco causes the death of more than 7 million people every year, of whom 6 million are consumers of the product, and about 890,000 are non-smokers exposed to second-hand smoke. Tobacco kills up to half of its consumers. Around 80% of the more than one billion smokers in the world live in low or middle income countries. Unless current trends change, the vast majority of these deaths will occur in the developing world. An efficient and systematic surveillance mechanism to monitor the epidemic is one of the essential components of a comprehensive tobacco control program (1).

The World Health Organization (WHO) seeks to reduce the global burden of diseases and deaths caused by tobacco, thus protecting present and future generations from the devastating health, social, environmental and economic consequences of tobacco use and exposure to tobacco smoke. This is achieved through global policy leadership, promoting the WHO Framework Convention on Tobacco Control (FCTC) (2) and the MPOWER<sup>2</sup> package for tobacco policies as a key entry point to the WHO FCTC. The FCTC encourages countries to adhere to its principles, and the WHO supports countries in their efforts to implement the FCTC and MPOWER provisions (3).

In August 2006, the WHO and the United States Centers for Disease Control and Prevention (CDC) convened a consultation by experts to analyze surveillance of adult smoking, and made recommendations to develop a standard survey protocol. The expert consultation also recognized the challenges of limited funding and methodological complexities in conducting systematic surveys on adult tobacco use and noted the lack of comparability in ongoing national surveys.

The Bloomberg Initiative to Reduce Tobacco Use provides resources to bridge the data gap in measuring tobacco use in the world, and to optimize the scope and results of the current Global Tobacco Surveillance System (GTSS). These resources are three school surveys for young people and another for adults, with selected populations: the Global Youth Tobacco Survey (GYTS), the Global School Personnel Survey (GSPS), the Global Health Professions Student Survey (GHPSS), and a household survey, the Global Adult Tobacco Survey (GATS).

The Global Adult Tobacco Survey (GATS) is a household survey that was introduced in February 2007 as a new component of the existing Global Tobacco Surveillance System (GTSS). The GATS allows the countries that implement it to collect information about indicators of the control measures implemented in the adult population. The survey's results could support countries in the formulation, monitoring and implementation of effective tobacco control measures, in addition to obtaining data that can be compared with those of other countries that have implemented the GATS.

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<sup>2</sup> The MPOWER package is a series of six proven policies aimed at reversing the global tobacco epidemic, including: **M**onitor tobacco use and prevention policies; **P**rotect people from tobacco smoke; **O**ffer help to quit tobacco use; **W**arn about the dangers of tobacco; **E**nforce bans on tobacco advertising, promotion, and sponsorship; and **R**aise taxes on tobacco.

The CDC, the CDC Foundation, the Johns Hopkins Bloomberg School of Public Health (JHSPH), RTI International, the WHO, and countries around the world are working together to implement the GATS (4).

The GATS has been initially implemented in 14 priority countries, which are home to more than half of the world's smokers, and where the burden of tobacco consumption is especially high: Bangladesh, Brazil, China, Egypt, the Philippines, India, Mexico, Poland, Russia, Thailand, Turkey, Ukraine, Uruguay, and Vietnam (5).

### **Health implications of tobacco consumption**

Tobacco consumers who die prematurely deprive their families of income, increase health care cost and hinder economic development. It is estimated that around 700 million children, almost half of the world's total, breathe air contaminated by tobacco smoke, and that exposure at home is the most important contributing factor. Exposure to tobacco smoke contributes greatly to the global burden of the disease attributable to smoking (1, 6).

In the Americas, smoking accounted for 26.9% of chronic obstructive pulmonary disease (COPD), 23.7%, of cancers and 30.3% of cardiovascular diseases (7). In addition, the proportion of deaths in this region attributable to tobacco was 17% for those over 30 years of age (8).

Tobacco also imposes a high economic burden on the health sector and on society as a whole, due to the high costs of medical care and loss of labor productivity (9). In most Latin American economies, medical care costs exceed the total of taxes collected from the sale of tobacco products (7).

### **Burden of disease generated by smoking in Costa Rica**

According to the study "Burden of disease attributable to tobacco use in Costa Rica and potential impact of price increases through taxes", smoking is responsible for 13,718 occurrences of diseases in Costa Rica each year. Of these, 6,495 are due to heart attacks and other cardiovascular diseases, 5,212 are new cases of COPD, 500 are CVAs, and 756 are new cancer diagnoses. It is responsible for 70% of lung and larynx cancers, 54% of mouth and pharynx cancers, and 52% of esophageal cancers, and also contributes to stomach, pancreas and kidney cancer. The impact differed between sexes; among men, 46% of deaths and 28% of occurrences due to pathologies associated with tobacco use are attributable to smoking, while the corresponding values for women are 42% and 15%, respectively. The study indicates that during 2015, cigarettes were responsible for 1,747 deaths. This value represents 9.3% of the total deaths that occur in Costa Rica each year. Eleven per cent (11%) of cardiovascular deaths and 9% of those caused by strokes can be attributed to smoking. These percentages are much higher for respiratory diseases such as COPD (64%) and lung cancer (71%). In addition, 13% of pneumonias and 21% of deaths caused by other cancers are attributed to this addiction (10).

In Costa Rica, smoking generates a direct annual cost of CRC 129,133,267,938 (Costa Rican colones), which is equivalent to 0.47% of the country's total gross domestic product (GDP) and 4.8% of all annual public health spending. Tax collection for the sale of cigarettes is around CRC 33.7 billion annually, a value that covers less than 30% of the direct costs to the health system caused by smoking (10).

## Policies adopted for the control of tobacco consumption in Costa Rica

In Costa Rica, important progress has been made in the formulation of tobacco control policies. The implementation of the joint needs assessment exercise for the application of the WHO FCTC in Costa Rica showed that the country has been implementing policies for controlling tobacco consumption for more than 20 years. Figure 1 presents a summary of these measures (11).

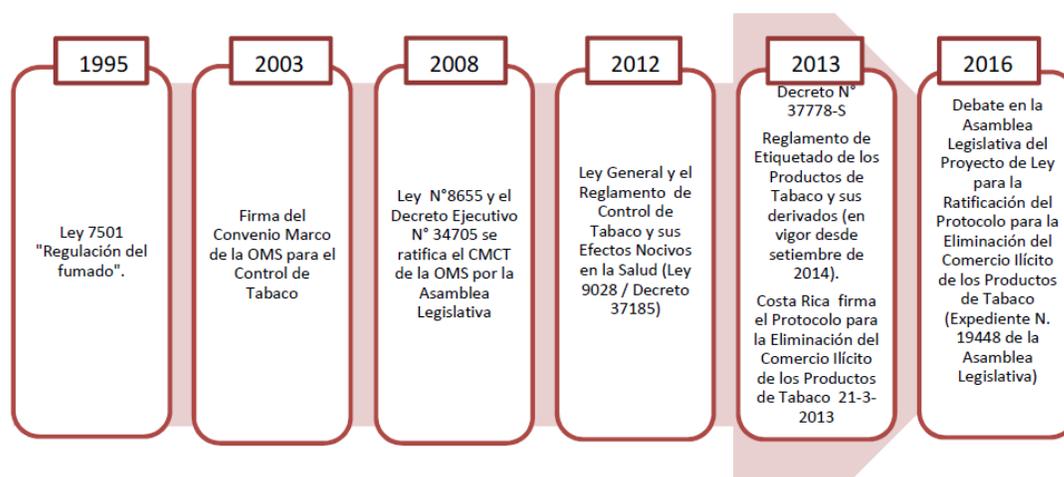
In 1995, Law 7501 for the "Regulation of Smoking" was promulgated, which prohibited smoking in places such as public transport, educational centers, state offices, enclosed public places, and in recreational areas for minors. Specific places were designated for smoking in restaurants, and the sale of cigarettes to minors was prohibited. "Smoking Cessation Clinics" were launched through the smokers anonymous program (12).

In 2003, Costa Rica signed the WHO Framework Convention on Tobacco Control which was ratified in 2008. In 2012, the Regulations and General Law on Tobacco Control and its Harmful Effects on Health were published: Decree No. 37185 and Law 9028 (13).

One year later, Decree No. 37778-S, the Regulations for the Labeling of Tobacco Products and their Derivatives, were published (which have been in force since September of 2014). Costa Rica signed the Protocol for the Elimination of Illicit Trade in Tobacco Products on March 21, 2013 (14).

Other actions were undertaken during the same period, among them the restriction of advertising, and the promotion of tobacco smoke-free places. These regulations demonstrate the concern of the health authorities of the time about the damage to health caused by smoking.

Figure 1  
Costa Rica: Legislation adopted for the control of tobacco (1995-2016)



Source: Document: Implementation of the WHO Framework Convention on Tobacco Control in Costa Rica: Report on the Joint Needs Assessment

TEXTO DE FIGURA 1  
1995 - Law 7501 "Regulation of Smoking"

2003 - Signing of the WHO Framework Convention on Tobacco Control

2008 – Law 8655 and Executive Decree No. 34705: the WHO FCTC is ratified by the Legislative Assembly

2012 – Regulations and General Law on Tobacco Control and its Harmful Effects on Health, Decree No. 37185 / Law 9028)

2013 – Decree No. 37778-S Regulations for the Labeling of Tobacco Products and their Derivatives (in force since September 2014). Costa Rica signs the Protocol for the Elimination of Illicit Trade in Tobacco Products (03/21/2013)

2016 – Debate in the Legislative Assembly on the Bill for Ratification of the Protocol for the Elimination of Illicit Trade in Tobacco Products (File No. 19448 of the Legislative Assembly)

### **Implementation of the WHO-PAHO FCTC in Costa Rica**

The WHO FCTC shows that it is possible to achieve political agreement between countries to fight the tobacco epidemic through global and local policies that reduce tobacco consumption in current and future generations, producing a positive impact on the morbidity and mortality associated with tobacco. This legally binding global treaty establishes the bases for countries to implement and manage control programs and deal with the growing tobacco use epidemic (2). In 2016, the WHO FCTC brought together 181 countries and the European Union, making it one of the treaties that most rapidly gained support in the history of the United Nations (15).

According to the 2016 global report on implementation of the WHO FCTC, the articles with which have been more than 65% implemented are: Art. 8 (Protection against exposure to tobacco smoke), Art. 11 (packaging and labeling of tobacco products), Art. 16 (prohibition of sales to and by minors), Art. 12 (communication, education and awareness), Art. 5 (general), and Art. 6 (tax measures on tobacco products). Those with an intermediate level of implementation (between 41% and 64%), are Art. 15 (illicit trade), Art. 13 (advertising, promotion and sponsorship), Arts. 9 and 10 (Regulation of tobacco products), Article 20 (investigation, surveillance, and exchange of information), and Art. 22 (scientific cooperation). The articles with the lowest levels of implementation (less than 40%) are Art. 18 (protection of the environment and people's health), Art. 19 (responsibility), and Art. 17 (availability of economically viable alternatives) (16).

After the FCTC was ratified through Law 8655 and Executive Decree No. 34705, the country applied its provisions through legislation, regulations or other enforcement measures. In 2012, the General Law on Tobacco Control and its Harmful Effects on Health, Law 9028, as well as its regulations, entered into force through Executive Decree No. 37185-S-MEIC-MTSS-MP-HSP of June 26, 2012. Although the FCTC was signed in 2003, it was ratified in 2012. Despite the fact that this process has continued through different administrations, the country's national and international agreements have been respected, following up on the challenges that have remained pending in the application of the Convention.

### **Prevalence of tobacco consumption in Costa Rica**

Data from the 2010 National Household Survey: "Drug Consumption in Costa Rica" conducted by the Institute of Alcoholism and Drug Addiction Institute (whose acronym in Spanish is IAFA) reported that the lifetime prevalence of tobacco consumption of Costa Ricans between 12 and 70 years old was 24.8%. A comparison with the results obtained in the 1990 survey, in which lifetime prevalence

was reported to be 33.4%, shows that there was a decrease in tobacco consumption. An analysis of the evolution of the lifetime prevalence of tobacco consumption by sex shows that in 1990 the value for men was 48.8% and for women was 18.0%. In 2010, the lifetime prevalence of tobacco consumption among men decreased to 30.7% and among women it remained at 18.7%.

With respect to consumption during the last year, in 1990 prevalence was 19.3% and in 2010 it was 15.1%; in men, prevalence was 29.4% in 1990 and decreased to 20.5% in 2010. Among women there was an increase from 9.2% to 10.1% between 1990 and 2010. During 2010, the prevalence of consumption during the last month was 13.0% of the population, representing almost half a million people. Consumption among men declined from 28.6% in 1990 to 18.0% in 2010, while among women there was no significant difference, with consumption declining from 8.6% to 8.8%. The 2010 study found that the highest proportion of smokers were men and that their age of onset of smoking was 16.5 years, while among women the average onset age was 17.4 years (17).

### **Compliance with the General Law on Tobacco Control and its Harmful Effects on Health**

Costa Rica has implemented positive and satisfactory actions to comply with Law 9028, in keeping with what is indicated in the FCTC-WHO and policy instruments. In keeping with Section III of the FCTC-WHO on measures related to the reduction of tobacco demand, Law 9028 includes the following chapters:

- **Chapter IX.** Taxes on tobacco products. Articles: 6, 8 to 14.
- **Chapter II.** Protection against tobacco smoke. Articles 5 and 6 on sites where smoking is prohibited and the placement of reminders defining tobacco smoke-free spaces, mandatory signage in smoke-free spaces, outreach and raising awareness about smoke-free spaces.
- **Chapter III.** Health Authority. Article 8 indicates the responsibilities of the health authority.
- **Chapter IV.** Labeling of tobacco products. Articles 9 to 11, on labeling of tobacco products.
- **Chapter VIII.** Education, prevention and cooperation. Article 20: Integration in study plans. Programs and projects focused on health promotion and disease prevention have been developed.
- **Chapter V.** Advertising, promotion and sponsorship of tobacco products. Article 12: Advertising, promotion and sponsorship. Articles 3 and 7: Comprehensive care projects and programs and cessation programs.
- **Chapter II.** Protection against tobacco smoke. Article 3: Comprehensive care projects and programs; Article 7: cessation programs.

Section IV of the FCTC on measures related to the reduction of tobacco supply has been implemented; Law 9028 includes the following chapters:

- **Chapter VI.** Illegal Production and Illegal Trade (Articles 14-15), and Chapter X. Monitoring, inspection and sanctions (Articles 32 to 36).
- **Chapter VII.** Distribution, sale and supply of tobacco products. Articles 16 to 19. Regulation of sale and supply.
- **Chapter X.** Monitoring, inspection and sanctions. Article 33: Confiscation of prohibited items and tobacco products.
- **Chapter VIII.** Education, prevention and cooperation. Article 21: Investigation, surveillance and information exchange.

## **Objectives of the GATS Costa Rica survey, 2015**

The GATS is intended to collect information on the prevalence of tobacco use, interest in cessation, exposure to second-hand smoke, economic aspects, awareness of advertising, promotion and sponsorship of tobacco products, awareness of health warnings on cigarette packages, and attitudes and perceptions about the use of tobacco among individuals 15 years of age or older.

The project to conduct the GATS survey in Costa Rica started in San José during the 4th Tobacco or Health Congress which was held in March 2014, when representatives of the PAHO/WHO regional offices and Costa Rica presented the proposal to the Ministry of Health to evaluate the feasibility of implementing the survey. On April 29, 2014, in a first meeting, the Health Surveillance Department was designated as the institution that would conduct the survey. Subsequently, the questionnaire and sample design (previously prepared by the Costa Rican technical team) were approved, and the GATS Costa Rica, 2015 was officially approved as of July 18, 2014.

### **The objectives of the GATS Costa Rica 2015 were:**

- Monitor tobacco use tobacco control indicators in Costa Rica.
- Provide information for monitoring the implementation of the WHO Framework Convention on Tobacco Control, as well as the demand reduction strategies recommended in the MPOWER Plan measures.
- Provide information on the prevalence of tobacco use to support and evaluate tobacco control programs in Costa Rica.
- Provide regular surveillance and monitoring of tobacco use, exposure to second-hand smoke (SHS), awareness, attitudes and perceptions about tobacco use, and related diseases.
- Strengthen the technical capacity available in Costa Rica to implement standardized protocols based on scientific evidence for conducting tobacco surveys.
- Strengthen the technical capacity available in Costa Rica to implement population health surveys, as well as to disseminate the results and make use of them in the implementation of public policies related to tobacco.
- Develop and update reports to monitor the tobacco epidemic and control policies.

## **II. Methodology**

### **Sample design**

#### **Target population**

The target population for the Global Adult Tobacco Survey (GATS) conducted in Costa Rica in 2015, consisted of adult individuals 15 years of age or older, living in households in urban and rural areas. Persons in prisons, hospitals, and asylums, as well as those with mental disabilities and temporary residents such as students, workers, or tourists who spend a few months in these households were not taken into consideration. Only one adult was randomly selected in each household. Information was collected by the teams of interviewers from the nine administrative regions of the Ministry of Health, between March 9 and June 06, 2015.

#### **Sampling criteria**

This was a probabilistic survey designed in three stages: selection proportional to the size of primary sampling units (PSUs), systematic selection of households, and random selection of individuals 15 years of age or older. To achieve representativeness of results at a national level, two types of clusters were considered: by sex and by area of residence (urban and rural). For the selection of the PSUs, the 10<sup>th</sup> National Population Census and the 6<sup>th</sup> National Housing Census<sup>3</sup> were taken as a frame of reference, which include a total of 10,381 census segments, distributed in seven provinces.

### Sampling methodology

The selection of the primary sampling units was made in proportion to size of sample units, based on the country's territorial division into 7 provinces, 81 cantons, 421 districts and 10,381 PSUs. The smallest sample unit is called a Primary Sampling Unit (PSU), which consists of approximately 100 to 125 households. Two strata were defined (area: urban-rural, and sex: men-women) with a minimum necessary sample size estimated at 8,000 interviews; taking into account that the non-response rate is calculated to be approximately 15%<sup>4</sup>, it is therefore necessary to visit 9,600 homes. Four hundred PSUs were selected, 200 in urban areas and 200 in rural areas. The distribution of these primary sampling units was carried out according to the proportion of inhabitants in each province (PPT). Table 2.1 shows the distribution of the population 15 years of age or older by sex and area of residence.

Table 2.1 Population 15 years of age or older according to place of residence and sex. GATS Costa Rica 2015

Population 15 years of age or older		Place of residence		Total
		Urban	Rural	
Sex	Male	1,134,264	429,181	1,563,445
	Female	1,257,429	413,008	1,670,437
Total		2,391,693	842,189	3,233,882

<sup>3</sup> National Statistics and Censuses Institute (Costa Rica) 10<sup>th</sup> National Population Census and 6<sup>th</sup> National Housing Census: General Results / National Statistics and Censuses Institute. --1 ed.-- San José, C.R.: INEC; 2011.

<sup>4</sup> This figure was defined based on the experience of the Ministry of Health in previous investigations such as the 2009 National Nutrition Survey, the 2010 National Sexual and Reproductive Health Survey, and the 2011 Costa Rica Multiple Indicator Cluster Survey (MICS).

Source: Costa Rica National Statistics and Censuses Institute

In the second sampling stage, 1 of every 4 households was systematically selected, to visit approximately 24 households per PSU. In each sampling unit, a known starting point was defined, from which the interviewers moved through the block from left to right, clockwise, until the entire segment was covered. The maps of the National Statistics and Censuses Institute (INEC) were available for each primary sampling unit. These maps were updated by the offices of the Health Administration Areas of the Ministry of Health. To update the information, the households in each map, both occupied and unoccupied, as well as commercial establishments, condominiums and new buildings were checked.

Finally, the random selection of individuals 15 years of age or older was carried out using a list of all such individuals who met the selection requirements in the household. Electronic tablets were used to apply the questionnaires. Software installed on each tablet allowed the random selection of the person to be interviewed. A similar proportion of men and women was maintained. Appendix B: Sample Design, presents a summary of the sampling.

### Sample size

To estimate the sample size necessary for the 2005 GATS Costa Rica Survey, the current prevalence of tobacco consumption was taken as a basis, according to the 2010 National Survey<sup>5</sup>, which was 13.4 per 100 inhabitants. In addition, an error estimate of 3.0% was used, as well as a confidence level of 95%, and a design effect of 2; the formula used was:

$$n = \frac{Z_{1-\alpha/2}^2 \cdot P(1-P) \cdot DEFF}{\delta^2}$$

Where:

n = sample size

P = estimated prevalence of current tobacco consumption in 2010

$Z_{1-\alpha/2}^2$  = 95% of the 2-tailed standard normal distribution

$\delta$  = limit of the estimation error

DEFF = design effect

The initial sample size was 2,000 individuals for each cluster without adjustment for non-responses, for a total of 8,000 individuals. The final sample adjusted for cases of no response was 9,600 individuals.

### Adjustments for non-response and selection

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<sup>5</sup> Instituto sobre Alcoholismo y Farmacodependencia. Área Desarrollo Institucional. Proceso de Investigación. Consumo de drogas en Costa Rica. Encuesta Nacional 2010: Tabaco. San José, CR.: IAFA, 2012.

The calculation of the non-response, screening and response rates was made based on the Manual for Sample Design, Chapter 10<sup>6</sup>. The final planned sample was 9,600 households to visit, to produce a final effective sample of 8,607 individual interviews.

## **Selection procedures**

### **Urban areas**

The Primary Sampling Units (PSUs) provided by the INEC in urban areas were used. A selection procedure with Probability Proportionate to Size (PPS) without replacement was used for the selection of the PSUs, taking the total number of inhabitants 15 years of age or older in each PSU as a measure of size.

The algorithm used was "gsample" in STATA, which carries out the PPS selection without replacement according to Hartley & Rao 1962 (18).

Using a systematic sampling (SS) procedure, 24 occupied households were selected in each selected PSU. This procedure was carried out by field personnel supervisors of the survey company contracted. To begin with, all inhabited households were counted. In all cases a known starting point was defined by the supervisors of each segment, after which the first household was chosen at random and the interviewers moved through the block from left to right, clockwise. In each selected household, the household questionnaire was applied to construct a list of the members of the household that were 15 years of age or older. In each household visited, an eligible person of 15 years of age or older was selected through a simple random sampling from the list of members that was obtained through the household questionnaire. This sampling was carried out automatically by the electronic tablets used for the application of the interviews.

### **Rural areas**

As was the case for urban areas, the Primary Sampling Units (PSUs) were selected with Probability Proportionate to Size (PPS) without replacement. The amount of PSUs selected for each province, canton and district of the country was determined by the number of inhabitants per place of residence, and the distinction between urban areas and rural areas was determined based on the distance the teams in the field had to travel. In urban areas, the determination of location and routes to be travelled was easier. In rural areas, it was difficult to delimit each segment due to the large size of the area, and it was also more difficult to travel routes through areas with mountains, rivers and farms. The procedures for selecting inhabited houses and the person 15 and older to be interviewed was the same in urban and rural areas.

### **Final sample**

The original distribution of the sample was 8,000 households for both urban and rural areas. This original design was increased to include 9,600 households, considering the percentage of non-responses (15%) based on the experience of the Ministry of Health in other similar studies. Field

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<sup>6</sup> Global Adult Tobacco Survey Collaborative Group. Global Adult Tobacco Survey (GATS): Sample Design Manual, version 2.0. Atlanta, GA: Centers for Disease Control and Prevention, 2010.

work started after the pilot test was carried out and the necessary adjustments were made. However, two of the census segments were completely inaccessible: one rural and one urban. Therefore, the final sample included 4,850 households in urban areas, and 4,830 households in rural areas, for a total of 9,680 households visited.

## Questionnaire

The GATS questionnaire consists of a basic set of questions that is applied in all the countries participating in the survey. It consists of 9 sections: sociodemographic characteristics, tobacco consumption, smokeless tobacco, electronic cigarettes, cessation of consumption, second-hand smoke, economic aspects, the media, and awareness, attitudes, and perceptions. Additionally, Costa Rica added an optional list of questions aimed at surveillance of the tobacco epidemic and monitoring control policies. Questions about electronic cigarette use were also included. The questionnaire contains dichotomous, assessment and multiple choice questions, and consists of two basic components:

- **Household Questionnaire:** aimed at obtaining information about the general characteristics of the household that is the basis for the random selection of the interviewee.
- **Individual Questionnaire:** a set of specific questions related to the object of the study.

A general description of each section is presented below, and Appendix A presents the final version of the questionnaire for Costa Rica.

- **Sociodemographic characteristics:** including sex, age, employment status, education, and services (water, electricity, etc.) in the household.
- **Tobacco consumption:** patterns of consumption (daily, less than daily, or never), average age of beginning to consume tobacco, different consumer tobacco products (cigarettes, pipes, cigars and other tobacco derivatives), nicotine dependence (time when the first cigarette is smoked, time since quitting).
- **Smokeless tobacco:** patterns of consumption (daily, less than daily, or never), average age of beginning to consume tobacco, different consumer tobacco products (cigarettes, pipes, cigars and other tobacco derivatives), nicotine dependence, different types of smokeless tobacco (inhaling tobacco orally or nasally, chewing tobacco, etc.), attempts to stop smoking.
- **Electronic Cigarettes:** this section included three questions related to the electronic cigarette/cigar, also called an "electronic vaporizer", e-Cig or e-Cigar.
- **Cessation:** advice on stopping smoking by health personnel, methods used by smokers to try to stop smoking.
- **Second-hand smoke:** adult exposure to second-hand tobacco smoke in their place of work, at home, in restaurants, bars, universities, health centers, and bus stops.
- **Economic:** types of tobacco products, average spending per month on tobacco consumption, cigarette brands, and place of purchase.
- **Media:** advertising by the tobacco industry on the radio, television, billboards, newspapers, film and the Internet was included. In addition, advertising against smoking, such as warnings on cigarette packages, was included.
- **Awareness, attitudes and perceptions:** questions were asked to obtain information about awareness of the effects on health caused by smoking, and about tax increases on tobacco products.

The questionnaire design took into account the Spanish versions of the Panama and Mexico questionnaires. For final approval by the CDC, it was translated into English, and their observations were incorporated into the final version of the questionnaire in Spanish in Costa Rica in 2015.

### **Data collection**

A country-level "Fieldwork Committee" was created, whose purpose was to provide training, support and supervision during information collection, and in the completion of the necessary surveys. The Ministry of Health published the terms of reference to carry out the GATS survey in an external call for bids. The contract was awarded to the private company Iniciativas de Desarrollo Empresarial, S.A. which had extensive experience in conducting studies on drug use.

### **Fieldwork training**

Two activities were carried out in this training: face-to-face training and a pilot test. The training activity included the following topics: technical aspects of the survey, specifically on conceptual elements and the questionnaire itself, and use of the digital device used when applying the questionnaire. This activity was developed jointly with the Ministry of Health, PAHO / WHO, the CDC, and the company contracted. Five supervisors and 23 interviewers received training. Each team consisted of a supervisor, 3 interviewers and a driver. Each team collected at least 20 surveys a day.

### **Pilot test**

The pilot test was conducted between February 23 and 27, 2015, and was supervised by personnel from the Ministry of Health, PAHO and the CDC. The pilot test was developed to validate and verify understanding of the questions in the questionnaire, as well as procedures, instruments and fieldwork organization. Once the validation was completed, adjustments were made based on recommendations. The recommendations of international advisors were also incorporated and presented to the GATS Survey Planning and Organization Committee. One hundred surveys were carried out, 50 in urban areas, 25 with men and 25 with women, and 50 in rural areas with the same proportion of men and women. Four teams participated in the pilot test, and each interviewer was assigned households to carry out 4 to 5 surveys. The surveys were conducted in an urban area on one day, and in a rural area on the following day. Each interviewer and supervisor had a tablet with Internet access so that they could send the survey results to a database located on a central server.

The pilot test was useful to evaluate aspects such as: duration of the application of the questionnaires, route strategies in the segments, security, access to households, times at which interviewees could be located, and support from Ministry of Health staff to improve the response percentage.

### **Fieldwork**

The company hired to carry out fieldwork, Iniciativas de Desarrollo Empresarial, S.A., was in charge of training interviewers and supervisors to collect the GATS information; it was also responsible for hiring all necessary staff (supervisors, interviewers and drivers), and for handling the economic resources required to carry out the fieldwork. The Ministry of Health was in charge of supervising

the company hired for information collection; additionally, preliminary information and coordination work was undertaken with the staff of the Ministry's Health Administration Areas to inform and train them about the GATS survey, and their extensive experience in the field enabled health officials to update the information contained in the maps of the INEC census segments (the survey was conducted in 2015 and the maps were from 2011). Information about the geographical location of the PSUs, access roads, indications of possible dangers, and any other information that would allow improving fieldwork were provided. During the different stages of training, both interviewers and supervisors received and strengthened their knowledge on the following topics:

- Tobacco consumption in Costa Rica and the strategies of Law 9028.
- Ethical aspects of the GATS survey and informed consent for the application of the survey.
- The paper version of the questionnaire and its electronic format, and practice exercises carried out with examples of non-smokers and smokers.
- Use of portable electronic tablets with the Android® operating system to capture information, and to manage, back up, and transfer questionnaire information.

### **Fieldwork data**

The fieldwork for the 2015 GATS Survey Costa Rica was conducted between March 9 and June 6, 2015. Prior to the beginning of the study, a press conference was held to inform the Costa Rican public about the study to be conducted with individuals 15 years of age or older, as well as the effects associated with tobacco use. The principal authorities of the Ministry of Health attended the conference, and general information was provided about the type of study and its characteristics.

For logistics in the field, 6 work teams were organized, each consisting of three interviewers, a supervisor and a driver. The organization for the supervision of the GATS Survey involved 5 coordinators, 2 officials from the Ministry of Health, 2 from the contracted company and a national coordinator. These coordinators periodically monitored each work team to evaluate data collection and ensure quality control. A technical team of experts in program management, databases and electronic devices from the CDC was available at all times. The CDC experts also measured the time of application of the questionnaires, and determined whether the time needed for the interview was acceptable; if not, appropriate supervisory measures were taken.

In his or her backpack each interviewer carried: a tablet (or electronic device) with information on the interviews to be conducted, the interviewer's manual, his or her identification badge, and a summary brochure explaining the GATS Survey and the benefits of the survey for the country. Additionally, each supervisor was provided with maps for the location of the PSUs with selected blocks, the formats for the submission of the progress report, and a manual about the functions of the field supervisor.

### **Confidentiality and informed consent**

To guarantee the ethical requirements of any investigation related to health, a digital informed consent form was included in the individual questionnaire, which met all fundamental ethical requirements. Consent was requested from all interviewees. For interviewees under 18 years of age, consent forms were designed for parents or guardians to provide approval for interviewing minors. Both the consents and the approvals were always available in printed form and in electronic formats on the interviewers' tablets.

Once the request for an interview was accepted, a suitable place was found that permitted each interviewer to conduct the survey comfortably, and above all confidentially. Each respondent only had to provide his or her name when creating the family list, which facilitated personal interaction at the time of the interview. Information about the person's full name or official identification number was never requested.

When a person was selected and was not in the household, information was requested from a family member for an appropriate time and day to conduct the interview; in addition. The interviewer coordinated a return visit with the supervisor; it was necessary to make 2 return visits on only a few occasions.

### **Statistical analysis**

After collecting sample data, a complex survey data analysis was performed to obtain population-level estimates and their confidence intervals. Sampling expansion factors were calculated for each of the respondents, using a weighting process. The following steps were followed: [1] creation of the base or design weight, calculated from the probabilistic selection stages in the sample design; [2] a non-response adjustment was made for the household sample and for the eligible individuals in the survey, and [3] finally, an adjustment of the stratification of the sample totals for the projection of the population 15 years of age or older, by sex and age group. The final weights were calculated as the product of the design weights, the non-response adjustment, and the stratification adjustment.

Confidence intervals at the 95 percent (95% CI) level were calculated to measure the accuracy of the estimator. The confidence intervals are closely related to the statistical significance tests (Appendix B).

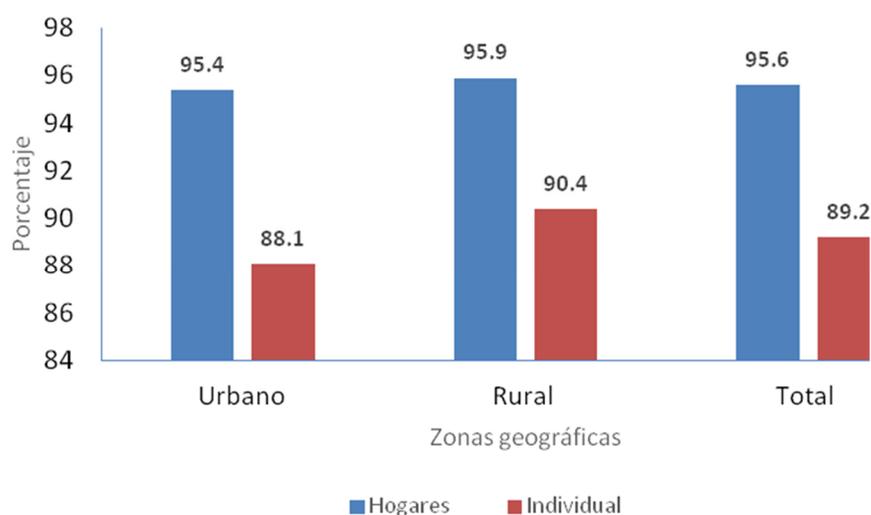
All the weighting calculations, the estimates and their confidence intervals were calculated using the complex samples module of the SPSS 23 statistical package. Tables and graphs were constructed using Excel 2013.

### **Response rate**

A total of 9,680 households were visited to complete the household survey, with a response rate of 95.6%. In urban areas, a total of 4,850 household surveys were conducted (with a 95.4% household response rate), while in rural areas 4,830 visits were made (with a 95.9% household response rate). Of the 9,233 individuals selected from the households that completed the screening, 8,607 completed the individual interviews – a general response rate of 93.3%.

In urban areas, 4,257 persons in the sample completed the individual survey (a 92.3% person-level individual response rate), while in rural areas 4,350 respondents completed the survey (a 94.3% individual response rate). The overall response rate was 89.2%, calculated as a product of the household and individual response rates. In terms of place of residence, the overall response rates in urban and rural areas were 88.1% and 90.4%, respectively.

Figure 2  
Costa Rica: Individual and household response rates. GATS, 2015



Source: Data from the study.

#### TEXTO DE FIGURA 2

Percentage

Urban

Rural

Total

Geographic areas

Households / Individuals

#### Sample size

The original distribution of the sample was 8,000 households, 4,000 in urban areas and 4,000 in rural areas, and was increased to 9,600 households, taking into account the estimated percentage of non-responses (15%) based on the experience of the Ministry of Health in similar studies. After the pilot test was conducted, the necessary adjustments were made and field work began. It should be noted that two of the census segments were completely inaccessible: one rural and one urban. As a result, 4,850 households were visited in urban areas and 4,830 households in rural areas, for a total of 9,680 households.

Table 3.2 of Appendix E shows the sociodemographic characteristics of the sample: number of households visited, adults interviewed and the status of surveys (complete, incomplete, rejected, and unoccupied households) by place of residence (urban and rural).

### III. GATS Costa Rica results

#### Tobacco consumption

In Costa Rica, smoking tobacco includes manufactured and handmade cigarettes. The prevalence of tobacco consumption is presented in this report for the following categories: tobacco smokers, smokeless tobacco consumption, and other tobacco consumption. The tobacco smokers category includes tobacco smokers, smokeless tobacco consumers, and tobacco consumption. The category of "tobacco smoker" includes current smokers, current cigarette smokers, and former smokers. In addition, the average age of first tobacco use of daily smokers and the average number of cigarettes smoked daily were identified. The category of smokeless tobacco consumption includes current smokeless tobacco consumers. The last category of this group which is tobacco consumption (smoked and / or smokeless) includes daily smokers.

#### **a) Tobacco smokers**

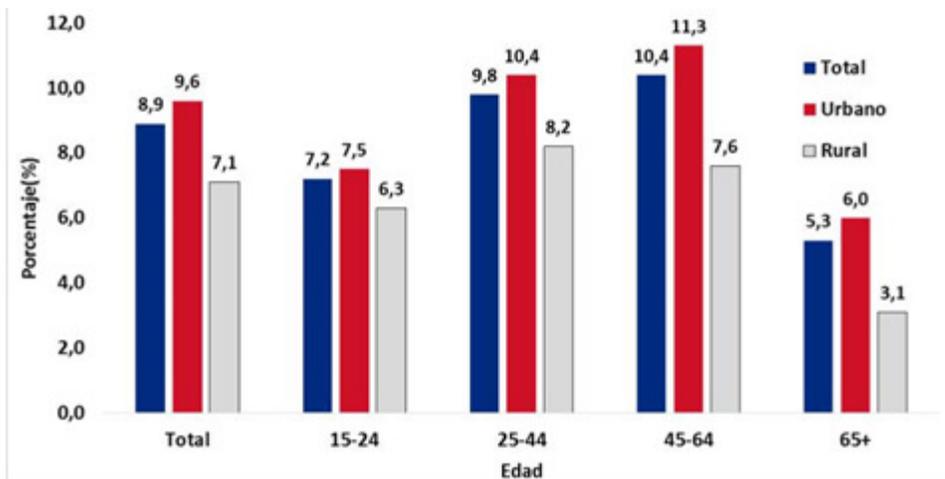
Among tobacco smokers, the prevalence of current smokers among adults 15 years of age or older was 8.9%, or 326,800 individuals; prevalence among men was 13.4%, and 4.4% among women. The prevalence of daily smokers in the population as a whole was 5.8% (i.e., 213,000 individuals), of them, 8.7% were men, and 2.9% were women. The prevalence of cigarette smokers (manufactured and handmade) in the total population was 5.7%. Among all adults, 9.5% were former daily smokers. Among all smokers, 56.7% were former daily smokers, which represents the cessation rate of daily smokers; among men, the cessation rate was 55.6% and among women it was 59.6%. The average onset age of daily smoking in the total population was 16.1 years. Men started when they were 16.0 years old, and women started when they were 16.5 years old. The average number of cigarettes smoked daily was 13.4 in the total population of daily smokers; among men the average was 14.1, and among women it was 11.4. Table 4.8 of Appendix E shows cessation rates by age, sex, and educational level.

Another measurement for analyzing the level of nicotine dependence is the length of time elapsed between the moment the smoker awakens and the moment at which he or she consumes the first tobacco product. The shortest time reported was less than 5 minutes, which was reported by 20.3% of daily smokers (95% CI 15.8-25.8). The most frequent response (41.4%) was after 60 minutes (95% CI 35.1-47.9). For men, the most frequent response was after 60 minutes (43.9%), and among women the most frequent response was less than 5 minutes (35.1%). This situation indicates that women are more dependent on nicotine. By age groups, individuals between 15 and 64 years of age smoke their first cigarette 60 minutes after they get up. Among individuals over 65 years of age, 63.9% smoke their first cigarette less than 30 minutes after they get up. See Appendix E, Table 4.11

The percentage of adults who are current smokers of tobacco products is 8.9% (95% CI 8.1-9.8) these include manufactured and hand made products, and kreteks). Only 0.8% smoke cigarettes and kreteks. See Appendix E, table 4.3.

Tobacco consumption among current smokers was significantly different in different geographical zones; for example, in urban areas consumption was 9.6%, while in rural areas it was 7.1%. Figure 3.1 shows the differences in consumption by age groups and geographic zone.

Figure 3.1. Current smokers. Prevalence by age and geographic zones, GATS Costa Rica, 2015.



Source: Data from this study.

### b) Consumption of smokeless tobacco:

The prevalence of smokeless tobacco consumption was 0.1% in the total population.

### c) Tobacco use

The general prevalence of tobacco consumption (smoked and/or smokeless) among adults 15 years of age or older was 9.1%, representing 334,144 adults. Among men, 13.6% were current smokers, and among women 4.5% were current smokers. These figures correspond to 250,381 men and 82,023 women who consumed smoking and/or smokeless tobacco. Tobacco consumption by geographical zone was 9.7% in urban areas, and 7.2% in rural areas (Appendix E, Table 4. 10).

### Cessation

Information about quitting smoking was gathered from all current smokers and those who had stopped smoking within the last year. This included information about attempts to quit smoking, methods used to stop smoking within the last 12 months, and visits to health care professionals (HCPs) and whether the HCPs asked them about tobacco use and offered advice about stopping smoking. The results showed that 58.6% of the members of this group had attempted to quit smoking within the last year; 56.2% of men had attempted to stop smoking, and 65.4% of women, indicating a greater willingness to quit smoking among women. In urban areas 58% of current smokers and those who had stopped smoking within the last year had attempted to quit smoking, while in rural areas the corresponding value was 60.4%. With respect to age, attempts to quit smoking were most frequently made by those between 15 and 24 years of age (70.4%), while efforts were less frequently made by those over 65 years old (43.9%). Appendix E, Table 5.1, shows that 64.0% individuals in this group were advised by a doctor or health care provider to quit smoking; 70.5% of women and 60.6% of men were advised to quit smoking.

Adults 15 years of age or older with a lower level of education (less than primary) were advised to quit smoking by health care professionals (71.6%), while only 57.2% of adults who completed secondary education received this advice.

## **Exposure to second-hand smoke**

During the month before they were interviewed, 6.3% of adults were exposed to tobacco smoke in their workplace, 4.9% were exposed to tobacco smoke in their homes, and 23% were exposed to tobacco smoke in bars and nightclubs. These figures show that only 5.0% of households comply with the law. In rural areas, 8.7% (95% CI 6.5-11.5) of adults were exposed to smoke in their workplace within the last month, while in urban areas this figure was 5.8%, as shown in Appendix E, Table 6.3.

## **Economy**

The average amount in colones paid for a package of 20 manufactured cigarettes was 1,328 colones, and the average expenditure per month on cigarettes was 19,370 colones. Individuals from 45 to 64 years of age spend the most on cigarettes – an average of 27,099 colones a month. The cost of one hundred packages of this type of cigarettes, as a percentage of gross domestic product (GDP) per capita in 2014, was 2.4%. The percentage of smokers who purchase manufactured cigarettes from street vendors was 5.4%, while 80.7% buy cigarettes in stores. Appendix E, Table 7.2 presents more details.

## **Media**

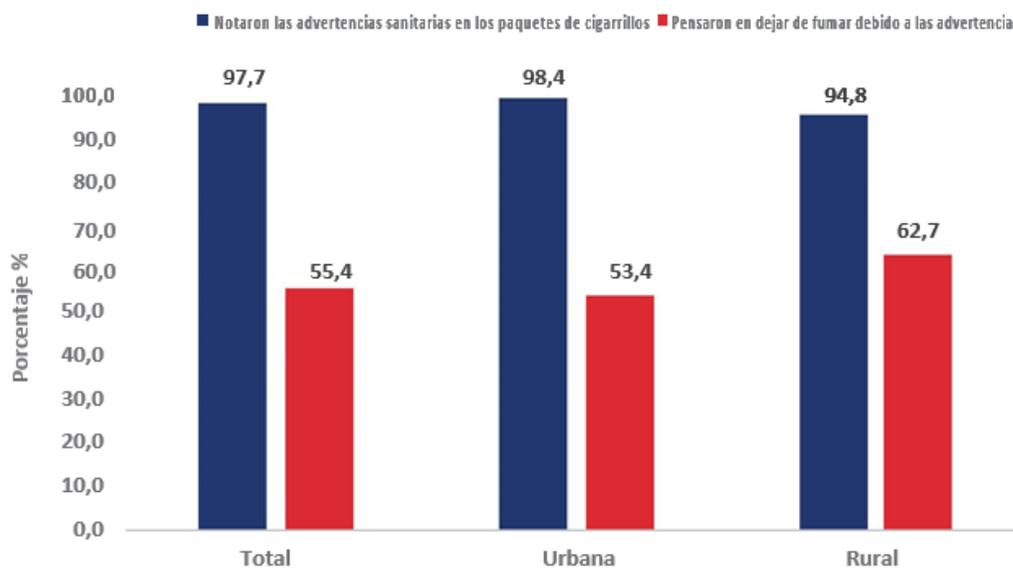
Pursuant to Article 12 of Law 9028 (General Law on Tobacco Control and its Harmful Effects on Health 2012), advertising, promotion and sponsorship of tobacco are prohibited in Costa Rica. Article 9 of this law mandates use of graphic health warnings on the two main sides of cigarette packages. This prohibition also includes advertising about the tobacco industry, and advertising for and against tobacco consumption.

With respect to advertising opposed to tobacco use, 55.4% of adult smokers considered quitting smoking because of the warnings on the packages of cigarettes, and 59.9% of women considered quitting smoking as a result of these warnings (Appendix E, table 8.2).

Some type of advertising, promotion or sponsorship of cigarettes was noticed by 27.4% of adults during the last 30 days (Appendix E, table 8.3). Among the group of current smokers, 32.4% noticed advertising, promotion and sponsorship (Appendix E, Table 8.4), and 26.9% of non-smokers reported having seen such advertising, promotion and sponsorship. Appendix E, Table 8.5, presents further information.

The following figure shows a difference between urban and rural areas in this regard. In urban areas 98.4% (95% CI 97.2-99.1) of smokers noticed health warnings, while in rural areas 94.8% (95% CI 90.7-97.1) noticed them. However, in spite of the fact that in rural areas a lower percentage of individuals noticed these warnings, 62.7% thought of quitting because of the warnings, while in urban areas only 53.4% of individuals thought about quitting because of the warnings.

Figure 3.2. Percentage of smokers who noticed the health warnings on cigarette packages and considered quitting due to warning labels during the last month, by place of residence, GATS Costa Rica, 2015.



Source: Data from this study.

### TEXTO DE FIGURA 3.2

Percentage %

Noticed health warnings on cigarette packages

Thought of quitting smoking as a result of warnings

Total

Urban

Rural

### Awareness, attitudes and perceptions

This section provides information about awareness, attitudes and perceptions of interviewees regarding the risks of smoking and exposure to second-hand smoke.

Of the individuals interviewed, 97.8% believed that smoking causes serious diseases such as cancer, abortions, infertility, impotence, osteoporosis, premature births, and low birth weight. Lung cancer was the mostly frequently recognized disease caused by smoking, mentioned by 98.2% of respondents. Among non-smokers, 95.8% believed that breathing smoke from smokers causes serious diseases. With respect to educational level, 94.2% of adults with less than primary education and 96.9% of adults with a university or higher education considered that smoking causes serious diseases. See Appendix E, Table 9.2.

Table 9.3 of Appendix E, shows that 70.5% of adults believe that consuming smokeless tobacco (chewing or inhaling tobacco) causes serious diseases.

Only 57.2% (95% CI 51.8-62.3) of smokers support increased taxes on tobacco products, while 87.9% (95% CI 86.8-88.9) of non-smokers support them. The group of individuals between 45 and 64 years

of age most frequently supported tax increases, with 87.8% (95% CI 86.1-89.4) of respondents indicating their support, which is statistically significantly different from the 80.0% (95% CI 77.1-82.5) of individuals between 15 and 24 years of age supporting these taxes. Significant differences are also observed depending on educational level: the higher the educational level, the higher the percentage of respondents that support tax increases. The percentage that support tax increases ranges from 82.6% among interviewees with primary a education or less, to 91.0% among those interviewed with a university or higher education (Appendix E, Table 9.4).

### **Electronic cigarettes**

An electronic cigarette or cigar (also called an "electronic vaporizer", e-Cig or e-Cigar) is an electronic inhalation system which was initially designed to simulate and replace tobacco consumption. These devices use a small resistor and battery to heat and vaporize a liquid solution. This vapor can release nicotine or only produce aromas.

Of the adults interviewed, 47.5% had never heard of this type of cigarette; 52% (95% CI 49.4-54.5) of men have never heard of them, compared to 42.9% (95% CI 40.8-45.1) of women. The most frequent users of e-cigarettes are:

- Men: 1.6%.
- Individuals between 15 and 24 years of age: 2.5%.
- Urban areas: 1.5%.
- University or higher level of education: 1.6%.
- There are statistically significant differences between groups in terms of sex, age, areas of residence, and educational level (Appendix E, Table 4.12).

### **IV. Recommendations**

The GATS survey is the first comprehensive survey conducted in Costa Rica on tobacco use and tobacco-related behaviors. It provides fundamental information on key indicators for smoking control by sex and place of residence. The GATS results describe the environment for smoking prevention and control in Costa Rica. It is important to make constant efforts to promote smoking prevention and control, to minimize tobacco consumption and prevent potential increases in such consumption (19). Its conclusions can guide public health policies, planning and practices, since they provide relevant data for existing and future interventions to prevent and control tobacco consumption. According to the MPOWER strategy package (20,21), the following policy recommendations may be drawn from the conclusions of the survey:

**M-Monitoring** of tobacco consumption and prevention policies. The objective of this policy is to reduce tobacco consumption through:

- Continued improvement of the implementation of the General Law on Tobacco Control and its Harmful Effects on Health, Law 9028 (22) and the Regulations of the General Law on Tobacco Control and its harmful effects on health, Decree No. 37185- S-MEIC-MTSS-MP-H-SP (23), as well as Decree No. 37778-S, Regulations of the Labeling of Tobacco Products and their Derivatives (24). The purpose of this improvement is to reduce tobacco consumption and achieve the goal of being a smoke-free country.

**P - Protect** the population from tobacco smoke (25, 26, 27). The objective of this policy is to reduce and prevent exposure to second-hand smoke through:

- Complying with Law 9028 and its Regulations to guarantee tobacco smoke-free places, according to the list established in Article 5 of the Law and its Regulations, which establishes among other things smoke-free workplaces, restaurants and public transportation, through inter-institutional cooperation with the Ministry of Security, the Municipal Police, where appropriate, and with municipalities and the Ministry of Health.
- Raising awareness in the population about the harmful effects to health, due to tobacco consumption and exposure to second-hand smoke.
- Increasing the number of Environmental Managers and adapting their work schedule to provide appropriate surveillance and application of the Law, with special emphasis on restaurants.

**O - Offer help** to quit smoking. The objective of this policy is to help increase the number of tobacco users to successfully quit smoking (28) through:

- Developing strategies to strengthen smoking cessation programs that are implemented by the Costa Rican Social Security Administration System (CCSS) and the Alcoholism and Drug Addiction Institute (IAFA), to guarantee universal access to these programs for all citizens, including psychological support and free access to medications when appropriate. Likewise, monitoring the quality of private programs to guarantee their quality, in keeping with the guidelines established by the IAFA as the governing body in this area.

**W - Warn** about the dangers of tobacco use. This policy is aimed at increasing the effectiveness of health warnings to help reduce tobacco use (29) through:

- Improving the quality of health warnings according to the provisions of the Regulations of the Labeling of Tobacco Products and their Derivatives to promote cessation among smokers and a life without tobacco for new generations.

**E: Enforce prohibitions** on tobacco advertising, promotion and sponsorship. The objective of this policy is to reduce exposure to tobacco advertising, promotion and sponsorship (30) through:

- Compliance with the provisions of the FCTC and Article 12 of Law 9028, which prohibits the advertising, promotion and sponsorship of tobacco products in Costa Rica. The number of Environmental Managers must be increased to verify compliance.

**R - Raise taxes** on tobacco products. The objective of this policy is to reduce the affordability and accessibility of all tobacco products, especially among young people (31), through:

- Assuring that tax increases are in accordance with the inflation level provided for in Law 9028 to update the tax amount. Likewise, a monitoring and traceability system must be developed to guarantee that payments of the taxes established in Law 9028 and Law 9403, Law on the Ratification of the Treaty against Illicit Trade in Tobacco Products are made.

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APPENDIX A. 2015 GATS QUESTIONNAIRE COSTA RICA  
QUESTIONNAIRE FOR HOUSEHOLDS Part I

**Introduction**

(The person responding to the screening interview in the household must be at least 18 years old, and you must make sure that this person can provide accurate information about all household members. If necessary, the respondent's age should be verified to make sure he or she is at least 18 years old. The person in the household that responds to the screening interview may be less than 18 years old only if there are not any members in the household 18 years of age or older).

**Introduction 1:**

My name is (the name of the person conducting the interview) and I am an interviewer from the Ministry of Health. This is my identification (show identification). The Ministry of Health is carrying out a major survey on the use of tobacco, and this household has been selected to participate. The information you give me is strictly confidential and is protected by law. First, I have some questions to ask about your household.

HH1. First, I would like to ask some questions about your household. In total, how many persons live in this house?

(Include anyone who considers this household to be their usual place of residence)

HH2. How many members of this household are 15 years of age or older? ..... ..

(If HH2 = 00 (There are no members in the household older than or at least 15 years old)

(There are no eligible members in the household.) Thank the person you interviewed for their time, which will be coded in the record of visits as a code 201)

HH4 Now, I would like to obtain information about only those people who live in this household who are at least 15 years old. Let's start by listing them in order from the oldest to the youngest person.

HH4a. What is the first name of the oldest person / (the person who follows him or her) in age? ...

HH4b. How old is this person? ...

(If the respondent does not know, ask for an estimate of that person's age)

(If the reported age is between 15 and 17 years old, then ask for their date of birth)

HH4c. What is the month of the date of birth of this person? ...

HH4c YEAR. What is the year of the date of birth of this person? ...

(If the respondent does not know, enter code 7777

If the respondent refuses to answer, enter code 9999)

HH4d. Is this person a man or a woman?

Man (1)

Woman (2)

HH4e. Does this person currently smoke tobacco, including cigarettes, cigars, and pipes?

Yes (1)

No (2)

Does not know (7)

Refuses to answer (9)

(Repeat HH4a to HH4E for each person reported in HH2)

HH5. (The name of the selected eligible person is: ...

(Fill in the first name of the selected person)

Ask if the person selected to answer is available and, if so, proceed to the Individual questionnaire.

If the person selected to answer is not in at that moment, make an appointment to see him or her, and record this as a comment in the record of visits.

## INDIVIDUAL QUESTIONNAIRE

Consent 1.

(Select the appropriate age category below, if necessary, check the age of the individual selected to respond to the "CASE INFO" screen in the tool menu)

15-17 ... (1) Skip to consent 2

18 or older ... (2) Skip to consent 5

Emancipated minor (15-17) (3) Skip to consent 5

Consent 2.

Before starting the interview, I need to obtain the consent of one of the parents or the person in charge of (Name of the person who is going to respond) and also of the individual herself or himself (Name of the person who is going to respond.)

If both the individual who was selected to respond and the parent / guardian are available, continue with the interview.

If the parent / guardian is not available, end the interview and schedule an appointment to return.

If the minor who is going to respond is not available, continue and obtain only the consent of the responsible person

Consent 3.

(Read the following to the parent / guardian and to the person who has been selected to respond (if both are available):

I work with the Ministry of Health. This institution is collecting information on tobacco consumption in Costa Rica. This information will be used for public health purposes by the Ministry of Health.

Your household and (name of the person who will respond) have been selected at random. The answers of (name of the individual selected to answer) are very important for us and for the community, since these answers will represent many other people.

The interview will last about 30 minutes. The participation of (name of the person who will respond) in this survey is totally voluntary. The information that (name of the respondent) will give us, will be kept strictly confidential and (name of the person who will respond) will not be identified by his or her answers. Personal information will not be shared with any other person, not even with other family members including you. (Name of the respondent) can withdraw from the study at any time and he or she can also refuse to answer any question.

We will provide you with the necessary contact information. If you have any questions about this survey, you can contact the telephone numbers on the list.

If you consent to the participation of (Name of the person chosen to respond) in this survey, then we will conduct a private interview with him or her.

(Ask the parent / guardian): Do you consent to the participation of (name of the person who will respond)?

Yes (1) Go to consent 4

No (2) End the interview

Consent 4 (Is the minor selected to respond present?)

Is present (1) Go to consent 6

Is not present (2) Go to consent 5

Consent 5. (Read the following to the person in charge of responding):

I work with the Ministry of Health. This institution is collecting information on tobacco consumption in Costa Rica. This information will be used for public health purposes by the Ministry of Health.

Your household and you have been selected at random. Your answers are very important for us and for the community since these answers will represent many other people. The interview will last about 30 minutes. Your participation in this survey is totally voluntary. The information that you give us will be kept strictly confidential and you will not be identified by your answers. Personal information will not be shared with any other person,

not even with other family members. You can withdraw from the study at any time and can also refuse to answer any question.

We will provide you with the necessary contact information. If you have any questions about this survey, you can contact the telephone numbers on the list.

(Complete if consent 4 = 2: Your parent / guardian has given their consent for you to participate in this study)

Consent 6. (Ask the respondent) Do you agree to participate?

Yes (1) Proceed with the interview

No (2) End interview

## **SECTION A. GENERAL CHARACTERISTICS**

A00. First, I'm going to ask you some general details about you and your household.

A01. (Record the gender based on observation; ask if necessary)

Male (1)

Female (2)

A09. What is your ethnic group / race?

White or mestizo (1)

Black or of African descent (2)

Mulatto (3)

Chinese (4)

Indigenous (5)

Other (6)

Refuses to answer (9)

A02a. What is your month of birth?

01 January (1)

02 February (2)

03 March (3)

04 April (4)

05 May (5)

06 June (6)

07 July (7)

08 August (8)

09 September (9)

10 October (10)

11 November (11)

12 December (12)

Does not know (77)  
Refuses to answer (99)

A02b. In what year were you born? ...  
(If the respondent does not know, enter 7777. If the respondent refuses to answer, enter 9999)  
(If the month = 77/99 or the year = 7777/9999, ask A03, otherwise skip to A04.)

A03. How old are you?...  
(If the respondent is not sure, ask for an estimate and record an answer.  
If the respondent refuses to answer, stop here since we can not continue the interview without knowing the age)

A03a. (Was the response estimated?)  
Yes (1)  
No (2)  
Unknown (7)

A04 What is the highest level of education you have completed? (Select only one category)  
No formal education (1)  
Did not complete primary school (2)  
Primary school completed (3)  
Secondary education not completed (4)  
Secondary education completed (5)  
University education not completed (6)  
University education completed (7)  
Does not know (77)  
Refuses to answer (99)

A05. Which of the following categories best describes your "main" type of work during the last 12 months? Government employee, non-governmental employee, independent worker, student, household worker, retired, unemployed but able to work, or unemployed and unable to work?

Government employee (1)  
Non-governmental employee (2)  
Independent worker (3)  
Student (4)  
Household work (5)  
Retired or receiving a pension (6)  
Unemployed but able to work (7)  
Unemployed and unable to work (8)  
Does not know (77)  
Refuses to answer (99)

A06. Please tell me if this household or any person living in this household has the following services:

Yes No Does not know No answer

- a. Electricity? (1) (2) (7) (9)
- b. Fixed telephony? (1) (2) (7) (9)
- c. Cell phone? (1) (2) (7) (9)
- d. TV? (1) (2) (7) (9)
- e. Radio? (1) (2) (7) (9)
- f. Refrigerator? (1) (2) (7) (9)
- g. Car? (1) (2) (7) (9)
- h. Motorcycle? (1) (2) (7) (9)
- i. Washing machine? (1) (2) (7) (9)
- j. Desktop computer or laptop? (1) (2) (7) (9)

## **SECTION B. TOBACCO CONSUMPTION**

B00. I would now like to ask you some questions about "smoking" tobacco, including cigarettes, cigars, pipes.

Please do not answer at this time about smokeless tobacco or electronic cigarettes.

B01. Do you "currently" smoke tobacco on a daily basis, less than daily, or not at all?

Daily (1) Skip to B04

Less than daily (2)

Not at all; does not smoke now (3) Skip to B03

Does not know (7) Skip to the next section

Refuses to answer (9) Skip to the next section

B02. Have you smoked tobacco daily in the past?

Yes (1) Skip to B08

No (2) Skip to B10

Does not know (7) Skip to B10

Refuse (9) Skip to B10

B03. Have you smoked "in the past" daily, less than daily, or not at all?

(If the respondent has smoked both "daily" and "less than daily" in the past, choose the "daily" option.)

Daily (1) Skip to B11

Less than daily (2) Skip to B13

Not at all (3) Skip to the next section  
Does not know (7) Skip to the next section  
Refuses to answer (9) Skip to the next section

### **Current daily smokers**

B04. How old were you when you started smoking tobacco "daily"?  
(If the respondent does not know or refuses to answer, enter option 99)  
(If B04 = 99, go to B05. Otherwise, skip to B06.)

B05. How many years ago did you start to smoke tobacco "daily"?  
(If the respondent refuses to answer, enter 99)

B06. On average, how many of the following products do you currently smoke each day?  
Also, tell me if you smoke the product, but not every day.

(If the respondent reports that he or she smokes the product but not every day, enter 888) If the respondent answers in terms of packages or cartons, try to find out how many cigarettes there are in each one and calculate the total number of units)

a. Manufactured cigarettes? Per day...

A1. (If B06a = 888) On average, how many?

How many manufactured cigarettes do you currently smoke every week? Per week ...

b. Hand-rolled cigarettes? Per day...

B1. (If B06b = 888) On average, how many hand-rolled cigarettes do you currently smoke per week? Per week ...

c. Kreteks? Per day...

C1. (If B06c = 888) On average how many kreteks do you currently smoke per week? Per week ...

d. Pipes full of tobacco? Per day...

D1. (If B06d = 888) On average how many pipes full of tobacco do you currently smoke per week? Per week ...

e. Cigars or cigarillos? Per day...

E1. (If B06e = 888) On average how many cigars or cigarillos do you currently smoke per week? Per week ...

F. Number of water pipe sessions per day? Per day...

F1. (If B06f = 888) On average, how many water pipe sessions per week do you participate in? Per week...

g. Any other? ... (g1. Please specify the other type that you currently smoke every day. Per day....

G2. (If B06g = 888) On average, how much of (Include Product Name) do you currently smoke per week? Per week...

B07. How long after you wake up do you smoke for the first time? Would you say less than 5 minutes, between 6 and 30 minutes, between 31 and 60 minutes or more than 60 minutes?

Less than 5 minutes (1)

6 to 30 minutes (2)

From 31 to 60 minutes (3)

More than 60 minutes (4)

Refuses to answer (9)

Skip to the next section.

#### LESS THAN DAILY SMOKERS

B08. How old were you when you start smoking tobacco "daily"? .....

(If the respondent does not know or refuses to answer, enter 99)

(If B08 = 99, go to B09. Otherwise, skip to B10)

B09. How many years ago did you start smoking tobacco "daily"? ...

(If the respondent refuses to answer, enter 99)

B10. How many of the following do you typically smoke during a week?

(If the person reports doing the activity "within the last 30 days", but less than once per week, enter 888)

(If the individual responds in terms of packages or cartons, try to determine how many there are in each, and calculate the total number of units)

A. Manufactured cigarettes? Per week

B. Hand-rolled cigarettes? Per week

C. Kreteks? Per week

D. Pipes full of tobacco? Per week

E. Cigars or cigarillos? Per week

F. Number of water pipe sessions per week? Per week

G. Any other...? Per week

G1 Please specify the other type which you typically smoke during a week

Skip to the next section

(FORMER SMOKER)

B11. How old were you when you started smoking tobacco "daily"? .....

(If the respondent does not know or refuses to answer, enter 99)

(If B11 = 99, go to B12, otherwise, skip to B13a)

B12. How many years ago did you start to smoke tobacco "daily"? .....

(If the respondent refuses to answer, enter 99)

B13a. How long ago did you stop smoking?

(This question is pertinent only when the individual stopped smoking regularly; do not include isolated episodes of smoking)

Enter the unit in this screen and the number in the following screen)

Years (1)

Months (2)

Weeks (3)

Days (4)

Less than a day (5) Skip to B14

Does not know (7) Skip to the next section

Refuses to answer (9) Skip to the next section

B13b. (Enter the number of years / months / weeks / days)

(If B13a / b is less than 1 year (less than 12 months), go to B14. Otherwise, skip to the next section)

B14. Have you visited a doctor or health care provider during the last 12 months?

Yes (1)

No (2) Skip to B18

Refuses to answer (9) Skip to B18

B15. How many times have you visited a doctor or health care provider during the last 12 months? Would you say 1 or 2 times, 3 to 5 times, or 6 or more times?

1 to 2 (1)

3 to 5 (2)

6 or more (3)

Refuses to answer (9)

B16. During any visit to a physician or health care provider during the past 12 months, were you asked if you smoke tobacco?

Yes (1)

No (2) Skip to B18

Refuses to answer (9) Skip to B18

B17. During any visit to a physician or health care provider during the past 12 months, were you advised to stop smoking tobacco?

Yes (1)

No (2)

Refuses to answer (9)

B18. During the past 12 months, did you use any of the following to try to stop smoking tobacco?

Yes No Refuses

a. Counseling, including a smoking cessation clinic? (1) (2) (9)

b. Nicotine replacement therapy, such as a patch or chewing gum? (1) (2) (9)

c. Other prescription medications such as Varenicline? (1) (2) (9)

d. Traditional medicines, such as acupuncture or homeopathy? (1) (2) (9)

e. A telephone support line for people who want to stop smoking? (1) (2) (9)

f. Changing to smokeless tobacco? (1) (2) (9)

h. Trying to quit smoking without assistance? (1) (2) (9)

g. Any other method? (1) (2) (9)

g1. Please specify the method you used to try to stop smoking...

## **SECTION EC: ELECTRONIC CIGARETTES**

EC0. The next questions refer to the consumption of electronic cigarettes: An electronic cigarette / cigar (also called an electronic vaporizer, e-Cig or e-Cigar) is an electronic inhalation system originally designed to simulate and substitute for tobacco consumption. These devices use a small resistor and battery to heat and vaporize a liquid solution. This vapor can release nicotine or only produce aromas.

EC1. Before today, have you heard about electronic cigarettes?

Yes (1)

No (2) Skip to the next section

Refuses to answer (9) Skip to the next section

EC2. "Currently," do you use electronic cigarettes daily, less than daily or not at all?

Daily (1) Skip to the next section

Less than daily (2) Skip to the next section

Not at all (3)

Refuses to answer (9)

EC3. Have you used, "at least once", an electronic cigarette?

Yes (1)

No (2)

Refuses to answer (9)

### **SECTION C. SMOKELESS TOBACCO**

C00. The following questions refer to the consumption of smokeless tobacco, such as: chewing tobacco and tobacco powder. Smokeless tobacco is tobacco that is not smoked, but it is inhaled through the nose, kept in the mouth, or chewed.

C01. "Currently", do you consume smokeless tobacco daily, less than daily or not at all? (If the respondent does not know what smokeless tobacco is, you can either present an illustrative card, or read the definition from the questionnaire screen (QXQ))

Daily (1) Skip to C04

Less than daily (2)

Not at all (3) Skip to C03

Does not know (7) Skip to the next section

Refuses to answer (9) Skip to the next section

C02. Have you used smokeless tobacco daily in the past?

Yes (1) Skip to C08

No (2) Skip to C10

Does not know (7) Skip to C10

Refuses to answer (9) Skip to C10

C03 In the "past", have you used smokeless tobacco daily, less than daily or not at all? (If the respondent has used both "daily" and "less than daily" in the past, choose the "daily" option)

Daily (1) Skip to the next section

Less than daily (2) Skip to the next section

Never (3) Skip to the next section

Does not know (7) Skip to the next section

Refuses to answer (9) Skip to the next section

## **INDIVIDUALS WHO CURRENTLY USE SMOKELESS TOBACCO DAILY**

C04. How old were you when you first started using smokeless tobacco "daily"?

(If the respondent does not know or refuses to answer, enter 99)

(If C04 = 99, ask C05. Otherwise, Skip to C06.)

C05. How many years ago did you first start to use smokeless tobacco "daily"?

(If the respondent refuses to answer, enter 99)

C06. On average, how many times a day do you consume the following products? Also, let me know if you consume the product even if it is not every day.

(If the respondent reports consuming the product but not every day, enter 888)

a. Inhale tobacco through your mouth? Per day.....

A1. (If C06a = 888) On average, how many times per week do you inhale tobacco through your mouth? Per week .....

b. Inhale tobacco through your nose? Per day...

B1. (If C06b = 888) On average, how many times per week do you inhale tobacco through your nose?

Per week .....

c. Chewing tobacco? Per day...

C1. (If C06c = 888) On average, how many times per week do you chew tobacco?

Per week .....

d. Any other product? ..... (d1.) Please, specify what is the product that you currently use each day? Per day ...

d2. (If C06e = 888) On average, how many times per week do you use the product (Fill in the name of the product) currently? Per week .....

C07. How long after you get up do you use smokeless tobacco for the first time? Would you say in less than 5 minutes, 6 to 30 minutes, 31 to 60 minutes, or more than 60 minutes?

In less than 5 minutes (1)

6 to 30 minutes (2)

31 to 60 minutes (3)

More than 60 minutes (4)

Refuses to answer (9)

Skip to the next section

**PEOPLE WHO CURRENTLY USE SMOKELESS TOBACCO LESS THAN DAILY**

C08. How old were you when you first started using smokeless tobacco "daily"?

.....

(If the respondent does not know or refuses to answer, enter 99)

(If C08 = 99, skip to C09. Otherwise, skip to C10.)

C09. How many years ago did you consume smokeless tobacco "daily" for the first time?

.....

If the respondent refuses to answer, enter 99

C10. How many times a week do you usually consume the following products?

(If the respondent reports doing the activity "during the last 30 days" but less than once a week, enter 888)

a. Inhaling tobacco through the mouth? Times per week .....

b. Inhaling tobacco through the nose? Times per week .....

c. Chewing tobacco? Times per week .....

d. Any other product? Times per week .....

D1. Please specify the other product that you currently use during a typical week:

..... ..

C19. (Ask this question if B01 = 2 and C01 = 2. Otherwise, skip to the next section)

You mentioned that you smoke tobacco, but not every day, and that you also use smokeless tobacco, but not every day. Thinking about both smoking tobacco and use of smokeless tobacco, would you say you consume tobacco daily or less than daily?

Daily (1)

Less than daily (2)

Refuses to answer (9)

Skip to the next section

**SECTION D1. CESSATION-TOBACCO SMOKING**

If B01 = 1 or 2 (the person who answers currently uses tobacco), continue here.

If B01 = 3, 7 or 9 (the respondent does not use tobacco now), skip to the next section.

D01. The following questions have to do with any attempt you may have made during the past 12 months to quit smoking. Please think about tobacco smoking only.

During the past 12 months, have you tried to stop smoking?

- Yes (1)
- No (2) Skip to D04
- Refuses to answer (9) Skip to D04

D02a. Thinking about the last time you tried to quit smoking, how long did you stop smoking?

(Choose the unit on this screen and the number on the next screen)

- Months (1)
- Weeks (2)
- Days (3)
- Less than 1 day (24 hours) (4) Skip to D03
- Does not know (7) Skip to D03
- Refuses to answer (9) Skip to D03

D02b. (Enter the number of (months / weeks / days) ...

D03. During the past 12 months, did you use any of the following methods or techniques to try to stop smoking tobacco?

Yes No Refuses

- a. Counseling, including a smoking cessation clinic? (1) (2) (9)
- b. Nicotine replacement therapy, such as a patch or chewing gum? (1) (2) (9)
- c. Other prescription medications such as Varenicline? (1) (2) (9)
- d. Traditional medicines, such as acupuncture or homeopathy? (1) (2) (9)
- e. A telephone support line for people who want to stop smoking? (1) (2) (9)
- f. Changing to smokeless tobacco? (1) (2) (9)
- h. Trying to quit smoking without assistance? (1) (2) (9)
- g. Any other method? (1) (2) (9)

D04. Have you visited a physician or health care provider during the last 12 months?

- Yes (1)
- No (2) Skip to D08
- Refuses to answer (9) Skip to D08

D05. How many times did you visit a physician or health care provider during the last 12 months? Would you say 1 or 2 times, 3 to 5 times, or 6 or more times?

1 or 2 (1)

3 to 5 (2)

6 or more (3)

Refuses to answer (9)

D06. During any visit to a physician or health care provider during the past 12 months, were you asked if you smoke tobacco?

Yes (1)

No (2) Skip to D08

Refuses to answer (3) Skip to D08

D07. During any visit to a physician or health care provider during the past 12 months, were you advised to stop smoking tobacco?

Yes (1)

No (2)

Refuses to answer (3)

D08. Which of the following best describes your thinking about quitting?

I'm planning to stop during the next month, I'm thinking about stopping during the next 12 months, I'm going to quit some day but not within the next 12 months, or I'm not interested in quitting?

Stop during the next month (1)

Thinking of stopping during the next 12 months (2)

Going to quit some day, but not during the next 12 months (3)

I'm not interested in quitting (4)

Does not know (7)

Refuses to answer (9)

## **SECTION E. PASSIVE SMOKING OR SECONDHAND SMOKING**

E01. Now I would like to ask you some questions about smoking in different places.

Which of the following best describes the rules about smoking inside your household? Smoking is allowed inside the household; in general, smoking is not allowed inside your household but exceptions are made; smoking is never allowed inside your household; or, there are no rules about smoking in your house?

Allowed (1)

Not allowed but exceptions are made (2)

Never allowed (3) Skip to E04

There are no rules about smoking (4) Skip to E03

Does not know (7) Skip to E03

Refuses to answer (9) Skip to E03

E02. Are you allowed to smoke in all rooms inside your household?

Yes (1)

No (2)

Does not know (7)

Refuses to answer (9)

E03. How often does "anyone" smoke inside your household? Would you say daily, weekly, monthly, less than monthly or never?

Daily (1)

Weekly (2)

Monthly (3)

Less than monthly (4)

Never (5)

Does not know (7)

Refuses to answer (9)

E04. Do you currently work outside of your home?

Yes (1)

No / Does not work (2) Skip to E09

Refuses to answer (9) Skip to E09

E05. Do you usually work indoors or outdoors?

Indoors (1) Skip to E07

Outdoors or in the open air (2)

Both (3) Skip to E07  
Refuses to answer (9)

E06. At your workplace, are there indoor or outdoor covered areas?

Yes (1)  
No (2) Skip to E09  
Does not know (7) Skip to E09  
Refuses to answer (9) Skip to E09

E07. Which of the following best describes the rules about smoking in areas within the building where you work?: Smoking is allowed anywhere; smoking is allowed only in some covered areas; smoking is not allowed in any covered areas, or are there no rules?

Allowed anywhere (1)  
Allowed only in some areas inside the building (2)  
Not allowed in any area inside the building (3)  
There are no rules (4)  
Does not know (7)  
Refuses to answer (9)

E08. During the past 30 days, did anyone smoke inside the building where you work?

Yes (1)  
No (2)  
Does not know (7)  
Refuses to answer (9)

E08a. (Asked only if E08 = Yes)

How often does anyone smoke inside the building where you work? Would you say daily, weekly, monthly or less frequent than monthly?

Daily (1)  
Weekly (2)  
Monthly (3)  
Less frequent than monthly (4)  
Does not know (7)  
Refuses to answer (9)

E09. During the past 30 days, did you visit any building or government office?

Yes (1)  
No (2) Skip to E23  
Does not know (3) Skip to E23  
Refuses to answer (9) Skip to E23

E10. Did anyone smoke inside a building or government office that you visited during the last 30 days?

Yes (1)  
No (2)  
Does not know (7)  
Refuses to answer (9)

E23. During the past 30 days, did you visit any private workplace that was not your place of work?

Yes (1)  
No (2) Skip to E11  
Does not know (7) Skip to E11  
Refuses to answer (9) Skip to E11

E24. Was someone smoking inside these private work places that you visited during the last 30 days?

Yes (1)  
No (2)  
Does not know (7)  
Refuses to answer (9)

E11. During the past 30 days, did you visit any health services establishment?

Yes (1)  
No (2) Skip to E13  
Does not know (7) Skip to E13  
Refuses to answer (9) Skip to E13

E12. Did anyone smoke inside any of the health care facilities you visited during the past 30 days?

Yes (1)  
No (2)  
Does not know (7)  
Refuses to answer (9)

E13. During the past 30 days, did you visit one or more restaurants?

Yes (1)

No (2) Skip to E25

Does not know (7) Skip to E25

Refuses to answer (9) Skip to E25

E14. Did anyone smoke inside any of the restaurants you visited during the past 30 days?

Yes (1)

No (2)

Does not know (7)

Refuses to answer (9)

E25. During the past 30 days, did you visit one or more bars or nightclubs?

Yes (1)

No (2) Skip to E15

Does not know (7) Skip to E15

Refuses to answer (9) Skip to E15.

E26. Did anyone smoke in any of the bars or nightclubs that you visited during the past 30 days?

Yes (1)

No (2)

Does not know (7)

Refuses to answer (9)

E15. During the past 30 days, did you use any public transportation?

Yes (1)

No (2) Skip to E21

Does not know (7) Skip to E21

Refuses to answer (9) Skip to E21

E16. Was someone smoking on the public transportation that you used in the last 30 days?

Yes (1)

No (2)

Does not know (7)

Refuses to answer (9)

E21 During the past 30 days, did you visit any university?

Yes (1)

No (2) Skip to E19

Does not know (7) Skip to E19

Refuses to answer (9) Skip to E19

E22. Was someone smoking inside the university (s) you visited during the past 30 days?

Yes (1)

No (2)

Does not know (7)

Refuses to answer (9)

E19. During the last 30 days, did you visit any school, educational center, or place where classes are given?

Yes (1)

No (2) Skip to E17

Does not know (7) Skip to E17

Refuses to answer (9) Skip to E17

E20. Was someone smoking inside the school or educational center you visited during the last 30 days?

Yes (1)

No (2)

Does not know (7)

Refuses to answer (9)

E17. Considering what you know or think, can breathing smoke produced by other people cause serious diseases in non-smokers?

Yes (1)

No (2)

Does not know (7)

Refuses to answer (9)

E18. Based on what you know or believe, is it true that breathing the smoke that another person emits while smoking causes any of the following conditions?

Yes No Does not know No answer

to. Heart disease in adults? (1) (2) (7) (9)

- b. Lung diseases in children? (1) (2) (7) (9)
- c. Lung cancer in adults? (1) (2) (7) (9)

E29. Do you support or oppose the laws to prohibit smoking inside buildings in the following public places?

Support Does not support, Does not know, Did not answer

- to. Hospitals? (1) (2) (7) (9)
- b. Workplaces? (1) (2) (7) (9)
- c. Restaurants? (1) (2) (7) (9)
- d. Bars? (1) (2) (7) (9)
- e. Public transportation? (1) (2) (7) (9)
- f. Schools? (1) (2) (7) (9)
- g. Universities? (1) (2) (7) (9)
- h. Places of worship? (1) (2) (7) (9)

## **SECTION F-ECONOMIC ASPECTS. MANUFACTURED CIGARETTES**

If (B01 = 1 or 2 (the respondent currently smokes daily or less than daily) and B06a or B10 are greater than zero and less than or equal to 888 (the respondent smokes manufactured cigarettes), then continue with this section.

Otherwise, skip to the next section.

F01a. The following questions refer to the last time you bought cigarettes to smoke yourself. The last time you bought cigarettes for yourself, how many cigarettes did you buy? (Enter the unit in this screen and the exact number in the next screen)

- Individual cigarettes (1)
- Packages (2)
- Cartons (3)
- Other (specify) (4) F01c (Specify the unit)
- I never bought cigarettes (5) Skip to the next section
- No answer (9) Skip to F03

F01b (Specify the exact number of (cigarettes / packages / cartons / or other)

- (If F01a = cigarettes, skip to F02)
- (If F01a = packages, skip to F01d (package)
- (If F01a = cartons, skip to F01d Cart)
- (If F01a = other, skip to F01d Other)

F01 dPack. Did each package contain 20 cigarettes, or a different quantity?

20 (1)

A different quantity (7) F01dPackA. How many cigarettes were there in each package?

No answer (9)

(Skip to F02)

F01dCart. Did each carton contain 200 cigarettes, or a different quantity?

200 (1)

A different quantity (7) F01dCartA. How many cigarettes were there in each carton?

No answer (9)

F01dOther. How many cigarettes were there in each unit of the other specified (F01c)? .....

(If the respondent does not answer, enter 999)

F02. In total, how much did you pay for this purchase? .....

(If the respondent does not know or does not answer, enter 99999)

(The amount can be between 25 and 20,000)

F03. Which brand did you choose the last time you bought cigarettes?

Belmont (1)

Camel (2)

Delta (3)

Derby (4)

Dunhill (5)

Kent (6)

Kool (7)

L & M (8)

Lucky Strike (9)

Marlboro (10)

Next (11)

Pall Mall (12)

Viceroy (13)

Vogue (14)

Other (15) F03a. (Specify the brand) ...

No answer (99)

F04. The last time you bought cigarettes, where did you buy them?

Store (2)

Street vendor (3)

Duty-free shop (5)

Outside the country (6)  
Kiosk (7)  
Internet (8)  
From another person (9)  
In another place (10) F04a. (Specify the place) .....  
Does not remember (77)  
No answer (99)

F05. Were these cigarettes filtered or unfiltered?

Filtered (1)  
Unfiltered (2)  
No answer (9)

## **SECTION G. MEDIA**

G01intro. The following questions have to do with your exposure to the media and advertising during the last 30 days.

G01. During the last 30 days, have you noticed "information" about the dangers of smoking cigarettes or that encouraged you to quit smoking in any of the following places?

Yes No Does not apply Did not respond  
to. In newspapers or magazines? (1) (2) (7) (9)  
b. On television? (1) (2) (7) (9)  
c. On the radio? (1) (2) (7) (9)  
d. On billboards? (1) (2) (7) (9)  
e. In some other place? (1) (2) (7) (9)  
(Do not include health warnings on cigarette packages)  
e1. Please specify where ...

G02. In the past 30 days, did you notice any health warning on cigarette packages?

Yes (1)  
No (2) Skip to G04  
Did not see any package of cigarettes (3) Skip to G04  
No answer (9) Skip to G04

G03. (Ask this question if B01 = 1 or 2. Otherwise, skip to G04.)

During the past 30 days, has any health warning on cigarette packages led you to think about quitting?

Yes (1)  
No (2)  
Does not know (7)  
No answer (9)

G04. During the past 30 days, have you noticed any "advertisement promoting" cigarettes in any of the following places?

Yes No Does not apply Did not answer

- a. In stores where cigarettes are sold? (1) (2) (7) (9)
- b. On television? (1) (2) (7) (9)
- c. On the radio? (1) (2) (7) (9)
- d. On billboards? (1) (2) (7) (9)
- e. On posters? (1) (2) (7) (9)
- f. In newspapers or magazines? (1) (2) (7) (9)
- g. In theaters? (1) (2) (7) (9)
- h. On the internet? (1) (2) (7) (9)
- i. In vehicles or public transportation stops? (1) (2) (7) (9)
- j. Anywhere else? (1) (2) (7) (9)

J1. Please specify where ...

G05. In the past 30 days, have you noticed that any sport or sporting event is associated with cigarette brands or cigarette companies?

Yes (1)  
No (2)  
Does not know (7)  
No answer (9)

G06. In the last 30 days, have you noticed any of the following types of cigarette promotions?

Yes No Does not know Did not answer

- to. Free samples of cigarettes? (1) (2) (7) (9)
- b. Cigarettes at reduced prices? (1) (2) (7) (9)
- c. Coupons for cigarettes? (1) (2) (7) (9)
- d. Gifts or discount offers on other products if you buy cigarettes? (1) (2) (7) (9)
- e. Clothing or other products with a logo or brand of cigarettes? (1) (2) (7) (9)
- f. Cigarette promotions by mail? (1) (2) (7) (9)

## **SECTION H. AWARENESS, ATTITUDES AND PERCEPTIONS**

H01. The following question is related to tobacco "smoking".

Based on your knowledge or beliefs, does smoking tobacco cause serious diseases?

Yes (1)

No (2)

Does not know (7)

Did not answer (9)

H02. Based on what you know or believe: Does smoking cause any of the following ?:

Yes No Does not know Did not answer

a. Stroke (paralysis caused by clots in the brain)? (1) (2) (7) (9)

b. Heart attack? (1) (2) (7) (9)

c. Lung cancer? (1) (2) (7) (9)

d. Emphysema? (1) (2) (7) (9)

e. Chronic bronchitis? (1) (2) (7) (9)

f. Bladder cancer? (1) (2) (7) (9)

g. Breast cancer? (1) (2) (7) (9)

h. Stomach cancer? (1) (2) (7) (9)

i. Premature birth or pregnancy losses? (1) (2) (7) (9)

k. Dental cavities? (1) (2) (7) (9)

l. Sexual impotence? (1) (2) (7) (9)

m. Hair loss? (1) (2) (7) (9)

H02\_3. Do you think that cigarettes are addictive?

Yes (1)

No (2)

Does not know (7)

No answer (9)

H03. Based on what you know or believe, does consuming "smokeless tobacco" cause serious diseases?

Yes (1)

No (2)

Does not know (7)

No answer (9)

H05. Would you support or oppose a tax increase on tobacco products?

Support (1)

Oppose (2)

Does not know (7)

Did not answer (9)

**END OF THE INDIVIDUAL QUESTIONNAIRE**

I00. Those are all the questions I have. Thank you very much for participating in this important survey.

I02. (Record here any notes or observations you have about the interview)

## **Appendix B. Statistical Analysis**

### **Weighting**

Complex surveys data analysis was used to obtain prevalence estimates with 95.0% confidence intervals. Before the survey was analyzed, the sample weight was calculated for each of the respondents to improve the representativeness of the sample in terms of size, distribution and characteristics of the population studied. The analysis was carried out using the statistical package SPSS, version 23. Standard errors were calculated using Taylor series linearization.

Statistical significance was measured by comparing the 95.0% confidence intervals of the two estimates to determine if they were statistically significantly different, which is considered to be true only if their confidence intervals do not overlap. If the confidence intervals overlap, other tests should be performed to determine if there is a statistically significant difference, which was not done for for this report.

### **Sample weights**

The weighting process for the GATS was carried out in three stages: (1) the base or design weight, calculated from all the stages of the random selection, (2) an adjustment for non-response by PSU, the sample of households, and the sample of individuals eligible for the survey, and (3) a post-stratification adjustment of sample totals to reflect the known totals for the population.

### **Base weights**

The inverse of the probability of selection is based on the design weight (base weight) for each respondent, which is the product of the selection probabilities for each stage of the design. Probabilities were calculated separately for each sampling stage to calculate the sampling weights. The selection stage includes the probabilities of each PSU, stratified by area of residence (urban / rural); the probability of selection for *manzanas* (an area equivalent to approximately seven-tenths of a hectare) and pseudo-*manzanas*; the selection probabilities for the household; and the selection probabilities for eligible individuals in the selected households.

### **Adjustment for non-responses**

The design weights were adjusted for non-responses at the household and the individual levels. The adjustments of non-responses for households were made within the PSU. The adjustment corresponding to weighting at the household level was calculated as one divided by the weighted response rate of the households for each PSU in the sample. The response rate at the individual level was calculated by area of residence according to the list of

individuals, sex, age and current state of tobacco consumption. Table B.1 shows the adjustment factors at the individual level for the total number of households selected, and for an eligible person at the individual level for the total number of selected households.

Table B.1. Non-response adjustment factor at the individual level

Area	N Households	N Final	Adjusted
Total	9,680	8,607	1.046
Urban	4,850	4,257	1.049
Rural	4,830	4,350	1.043

### Calibration adjustment after stratification

The objective of a calibration adjustment after stratification is to align the weighted sums of the sample data with the corresponding totals in the target population. The population of the 2011 census by place of residence (urban / rural), sex (male / female) and age group (15-24, 25-44, 45-64 and 65+) was used as a basis for calibration adjustment after stratification. Table B.2 shows the post-stratification adjustment factors used for the calibration: The final analysis weighting for each respondent's data was calculated as the product of the base weights, the non-response adjustment, and the post-stratification calibration adjustment. The final weights were used in all analyses to produce estimates of population parameters.

Table B. 2  
Post-stratification calibration adjustment factors

Area	Sex	Age	Adjustment
<b>Urban</b>	Male	15-25	1.16
		25-45	1.16
		45-65	1.17
		65+	1.16
	Female	15-25	1.07
		25-45	1.07
		45-65	1.07
		65+	1.07
<b>Rural</b>	Male	15-25	1.12
		25-45	1.12
		45-65	1.12
		65+	1.12

	15-25	1.05
Female	25-45	1.05
	45-65	1.05
	65+	1.05

### **Effect of weighting on accuracy of estimators**

Variation in the sample weights tends to increase the sampling error in the key indicators of the survey. Increases in estimation errors are the result of multiplicative increments in the coefficient of determination, and a lack of correlation between the size of the weights and estimates of the measure of interest. The more variable the weights are, the greater the value of the multiplicative effect (Meffw), which should preferably be less than 2.00. The value of Meffw for urban areas is 1.44 and for rural areas is 1.43, which means that variations in the sample weights are very similar to the variation of all estimates for individual respondents in rural and urban areas.

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