

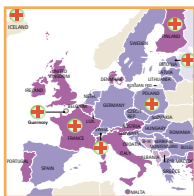
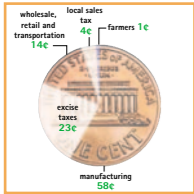
Tobacco is the only consumer product proven to kill more than half of its regular users. It is responsible for 5 million deaths worldwide every year.

By 2025, tobacco will be the leading cause of death and disability worldwide, killing more than 10 million people every year. If we fail to act now, tobacco will kill 650 million of today's smokers.

The latest edition of this groundbreaking atlas gives shape and meaning to statistics about tobacco use and control. Full-colour maps and graphics illustrate in a clear and accessible format the wide range of tobacco issues, revealing similarities and differences between countries, and exposing the behaviour of the tobacco companies. It also examines solutions and predicts the future course of the epidemic.

"The Tobacco Atlas is the best thing of its kind I've ever seen."

– C Everett Koop, former US Surgeon General



- Topics include:
- History of tobacco
 - Prevalence and consumption
 - Youth and passive smoking
 - Health risks and mortality
 - Economic costs of tobacco
 - Growing tobacco
 - Global trade and taxation
 - The tobacco industry
 - Marketing
 - Buying influence
 - Legal regulations and litigation
 - Health education and quitting
 - The Framework Convention on Tobacco Control
 - The future of the epidemic



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THE TOBACCO ATLAS

SECOND EDITION

COMPLETELY REVISED AND UPDATED

Mackay, Eriksen & Shafey

THE TOBACCO ATLAS SECOND EDITION



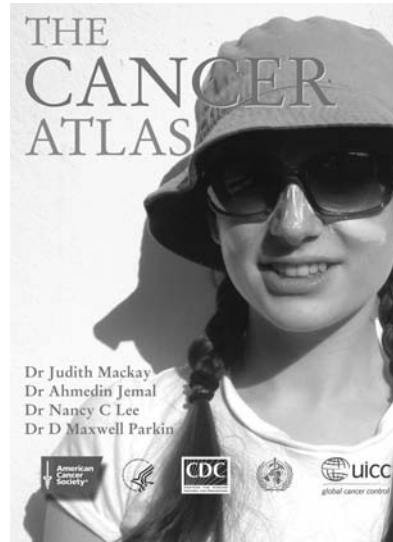
Dr Judith Mackay
Dr Michael Eriksen
Dr Omar Shafey

Supported by the Western Pacific Regional Office of WHO

ACS

In memory of
Sir Richard Doll (1912–2005) and Ruth Roemer (1916–2005)
for their lifetime achievements in battling the tobacco pandemic.

Also published by the
American Cancer Society:



THE TOBACCO ATLAS

SECOND EDITION

Dr Judith Mackay
Dr Michael Eriksen
Dr Omar Shafey



CONTENTS

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FOREWORD

Reviews of the first edition of *The Tobacco Atlas*:

“*The Tobacco Atlas* is the best thing of its kind I’ve ever seen.”

– C Everett Koop, former US Surgeon General

“Informative, so easy to read, beautiful to look at.”

– Annie J Sasco

International Agency for Research on Cancer

“I love the atlas! A gold-mine.”

– Ruben Israel

GLOBALink

“It’s really helpful and an informative guide for tobacco control advocates.”

– Syed Mahbubul Alam Tahin

Work for a Better Bangladesh

“A comprehensive, attractively produced profile of all major aspects of the tobacco epidemic and what has been done so far to try to reduce it.”

– David Simpson

International Agency on Tobacco and Health

“A manual of immense value for all people involved in smoking control.”

– Kjell Bjartveit

Norway

“A beautiful and informative book.”

– Tai Hing Lam

Department of Community Medicine
University of Hong Kong

“*The Tobacco Atlas* is excellent.”

– Gérard Dubois

Service d’Evaluation Médicale, France

“A definite hit.”

– Judy Wilkenfeld

Campaign for Tobacco-Free Kids, USA

A message from

John R Seffrin, PhD
Chief Executive Officer
American Cancer Society

What if the world, and especially its developing nations, were under sustained, strategic assault from a powerful entity with nefarious motives? What if our children – all of them – were a particular target of this evil entity? That is precisely what is happening in the world today, and the assaulting entity is neither an individual nor a nation. Instead, the world is facing a pandemic of epic proportions because it is under attack by a ruthless industry – the purveyors of tobacco.

Employing insidious and immoral marketing tactics to lure the world’s youth into a life of addiction and disease, the tobacco industry is a plague that generates suffering on a par with the ravages of war, famine, and poverty. It is incumbent on the citizens of the world to unite and extinguish the tobacco threat to save future generations from the predations of this death-dealing juggernaut.

Tobacco, the only consumer product proven to kill more than half of its regular users, is responsible for about 5 million deaths worldwide every year. Today, that burden is roughly evenly divided between industrialized and developing nations. However, if current trends continue through 2025, tobacco will kill 10 million people worldwide each and every year and 7 million of these deaths will be in the developing world, in nations least prepared to deal with the financial, social, and political consequences of this global public health tragedy.

If we fail to act to prevent this tragedy, the consequences will most certainly be dire. Tobacco will eventually kill about 650 million smokers alive today, about 10% of the current total world population. Half of these people will die in middle age – when they are most productive for their economies, their societies, and their families. In



the last century alone, tobacco killed 100 million smokers. If left unchecked, tobacco will kill more than 1 billion people in this century.

This extraordinary suffering and death is not inevitable, however. Without intervention, the tobacco pandemic will be the worst case of avoidable loss of life in recorded history. Yet, with comprehensive, concerted action, we can eliminate the global scourge of tobacco and save hundreds of millions of lives within the next few decades.

How can we do it? We must help current smokers quit and prevent the tobacco industry from using its reprehensible marketing techniques to lure more of the world’s children into deadly addiction. If we choose to act, the number of lives saved could be astronomical. For example, if we were able to cut adult cigarette consumption by just 50 percent worldwide, we could avert more than 300 million needless deaths within the next 50 years. That’s 300 million real people – mothers and fathers, children and siblings – people who enrich their cultures, people who sustain their economies, and people who are loved by their families.

As smoking rates decline in the USA and many other industrialized nations, the tobacco industry

has dramatically stepped up its efforts in the emerging markets of Asia, Africa, and Latin America. Because tobacco kills its long-term customers, the industry must cultivate millions of new smokers each year just to break even. In the less restricted markets of the developing world, that means that no one is immune from the industry's tactics, especially the most vulnerable people of all – children.

Today, worldwide, one in seven teenagers aged 13 to 15 smokes. One-quarter of them tried their first cigarette before the age of 10. Nearly 100,000 children and adolescents become addicted worldwide *every day*. And it's no wonder. In the USA alone, the tobacco industry spent \$15.15 billion in 2003 to market its products; that's more than \$1.7 million every hour of every day.

Fortunately, thanks to the rigorous educational, scientific, and advocacy efforts of dedicated tobacco control activists worldwide, many nations of the world are taking a stand against tobacco by supporting the world's first global public health treaty – the World Health Organization's Framework Convention on Tobacco Control (FCTC). In fact, the campaign to reduce the global burden of tobacco-related disease celebrated a significant victory in November 2004 with the FCTC's ratification, a tremendous milestone for global public health. Now the challenge is to implement and enforce the FCTC's provisions so that we can save millions of lives each year just by reducing tobacco consumption.

Now, with the publication of this revised and updated second edition of *The Tobacco Atlas*, we take another important step forward in our collective efforts. This timely, evidence-based publication offers a wealth of compelling data to help tobacco control advocates of every nation combat the menace of tobacco in their communities, their nations, and the world. Information is a powerful tool in the hands of passionate, dedicated individuals, and this book provides an unparalleled resource to arm and inform tobacco's opponents worldwide.

In addition to the leading-edge data we need to inform our tobacco control strategies, *The Tobacco Atlas* also provides a more intangible, but no less powerful, weapon – hope. For the significant updates and exciting developments chronicled in this publication prove that we are indeed making progress against tobacco. Our broad network of determined activists is achieving positive change at the local, national, and international levels. Together, we are empowering the world to defend itself against the tobacco industry's relentless assault. With *The Tobacco Atlas* in our arsenal, we will continue to move toward victory over tobacco.

JOHN R SEFFRIN
Atlanta, USA

This book is intended for anyone concerned with personal or political health, governance, politics, economics, big business, corporate behaviour, globalization, smuggling, tax, religion, the internet, allocation of resources, poverty, gender issues, human rights, children, human development and the future.

This second edition of *The Tobacco Atlas* maps the history and current situation, and makes some predictions for the future of the tobacco epidemic up to the year 2050. It illustrates how tobacco is not just a simple health issue, but involves the whole of government, economics, big business, politics, trade, crimes such as smuggling, litigation and deceit.

The atlas also shows the importance of a multifaceted approach to reducing the epidemic, by WHO, other UN agencies, non-governmental organizations (NGOs), the private and business sector – in fact, the whole of civil society.

Since the first edition of *The Tobacco Atlas* was published in 2002, there have been several significant developments in tobacco control. The main one is the WHO Framework Convention on Tobacco Control (FCTC), which came into effect in 2005, and which uniquely uses international law to further public health.

One valuable extension of making the data more available has been the creation of an interactive, online version of this atlas, available at <http://www.tobaccoresearch.net/atlas.html>. In addition, more research has been undertaken, especially in developing countries. The economics of tobacco has been more carefully studied, showing that tobacco control is good for the wealth as well as the health of nations. More countries have passed legislation such as bans on tobacco

promotion, the requirement of health warnings, and the creation of smoke-free areas in public places, while other countries have increased taxation, expanded national capacity and analyzed tobacco industry documents, exposing the activities of the tobacco industry in their country. Bhutan has become the first country in the world to ban tobacco sales.

Yet, despite this progress and mostly due to population increases in the world, the number of smokers and the number of tobacco-related deaths is rising. This unfortunate trend is likely to continue for the foreseeable future. This burden is falling increasingly on developing countries, and the concern that more women are smoking cannot be underestimated.

The publication of this second edition marks a critical juncture in the epidemic. We stand at a crossroads, with the future in our hands. We can choose to stand aside or take weak and ineffective measures. Alternatively we can embrace the spirit and letter of the Framework Convention on Tobacco Control and implement robust and enduring measures to protect the health and wealth of nations. History will judge the course taken and the outcome will be measured in millions of lives.

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An interactive, online version of this atlas is available at the Global Tobacco Research Network site: <http://www.tobaccoresearch.net/atlas.html> and we are grateful to the Johns Hopkins Bloomberg School of Public Health's Institute for Global Tobacco Control, the American Cancer Society and the National Cancer Institute, for supporting this site, which has been developed by Myriad Editions.

Many people have helped in the preparation of this atlas. First, we especially would like to thank our principal researchers: Priti Bandi, Department of Epidemiology and Surveillance Research, American Cancer Society, USA; David Boisclair, Health Economist, Montreal, Canada; Valerie Bycott, Institute of Public Health, Georgia State University, USA; Stacy Crim, Department of Epidemiology and Surveillance Research, American Cancer Society, USA; G Emmanuel Guindon, Department of Research Policy and Cooperation, World Health Organization; Anna Jeanne Layton, International Affairs Department, American Cancer Society, USA; and Stacey Martin, Institute of Public Health, Georgia State University, USA.

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1 Types of tobacco use

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23 Framework Convention on Tobacco Control

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24 Smoke-free areas

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Stubbed out cigarette © Christopher T Martin

Part Six: World Tables

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28: Quitting

Young woman breaking a cigarette © WHO/Pierre Viot

31: The future

Young people © WHO/J L Ray

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GLOSSARY

Information about different types of tobacco use is given on pp18–19.

Addiction – Physiological or psychological dependence on a substance characterized by neurochemical changes, compulsive drug-seeking behaviour, dose tolerance, withdrawal symptoms, uncontrolled craving, and self-destructive behaviour. Common addictive drugs include alcohol, opiates, and nicotine.

Advertising – Any form of commercial communication, recommendation or action with the aim of promoting a tobacco product or tobacco use, either directly or indirectly, including point-of-sale, direct mail, magazine, newspaper, or outdoor advertising. Includes sponsorship.

BCE – Before the Common Era.

Bupropion – an antidepressant pharmaceutical used to help people quit smoking.

Cancer – A type of disease in which abnormal cells divide uncontrollably. Cancer cells can invade nearby tissues and spread through the bloodstream and lymphatic system to other parts of the body. Tobacco consumption significantly increases the risk of developing many types of cancers.

Carcinogen – A substance that causes cancer. Tobacco contains many potent chemical carcinogens, including tobacco-specific nitrosamines (TSNs), polyaromatic hydrocarbons (PAHs), and volatile organic compounds (VOCs).

Chronic bronchitis – Inflammation of the bronchial mucous membrane characterized by cough, hypersecretion of mucus, and expectoration of sputum over a long period of time, associated with increased vulnerability to bronchial infection. *See also* Chronic obstructive pulmonary disease.

Chronic obstructive pulmonary disease (COPD) – A chronic lung disease, such as asthma or emphysema, in which breathing becomes slowed or forced. *See also* Chronic bronchitis.

Consumption – Total cigarette consumption is the number of cigarettes sold annually in a country, usually in millions of sticks. Total cigarette consumption is calculated by adding a country's cigarette production and imports and subtracting exports. "Per adult" cigarette consumption is calculated by dividing total cigarette consumption by the total population of those who are 15 years and older. Smuggling may account for inaccuracies in these estimates.

Coronary artery disease/coronary heart disease – The narrowing or blockage of the coronary arteries (blood vessels that carry blood and oxygen to the heart) usually caused by atherosclerosis (a build up of fatty material and plaque inside the coronary arteries).

Costs – Macroeconomic costs associated with tobacco use. *Direct costs:* health costs related to diseases caused by tobacco; health-service costs, such as hospital services, physician and outpatient services, prescription drugs, nursing-home services, home healthcare, allied healthcare; changed expenditures due to increased utilization of services.

Indirect costs: productivity costs caused by tobacco-related illness or premature death; loss of productivity and earnings.

Total costs: The sum of direct and indirect tobacco-attributable costs to society.

Cotinine – Nicotine's major metabolite, which has a significantly longer half-life than nicotine. Cotinine measurement is often used to estimate a patient's tobacco/nicotine usage prior to quitting, and to confirm abstinence self-reports during follow-up. Cotinine is commonly measured in serum, urine, and saliva.

Emphysema – A pathological condition of the lungs marked by an abnormal increase in the size of the air spaces, resulting in laboured breathing and an increased susceptibility to infection. It can be caused by irreversible expansion of the alveoli, or by the destruction of alveolar walls.

Environmental tobacco smoke (ETS) – Smoke inhaled by an individual not actively engaged in smoking. It contains the same harmful chemicals that smokers inhale. *See also* Passive smoking.

Excess mortality – The amount by which death rates for a given population group (eg smokers) exceed that of another population group chosen as a reference or standard (eg non-smokers).

Framework Convention on Tobacco Control – The WHO Framework Convention on Tobacco Control (WHO FCTC) is the first treaty negotiated under the auspices of the World Health Organization. It lays down an international, legal template for action on tobacco control.

Global Youth Tobacco Survey (GYTS) – The World Health Organization (WHO) and Centers for Disease Control and Prevention (CDC) developed the GYTS to track tobacco use among young people across countries, using a common methodology and core questionnaire.

Health professionals – Includes, in the context of this atlas: anaesthetists, clinical nurses, dental students (third-year), dentists, health-science students, hospital staff, medical doctors, medical residents, medical students (pre-clinical, clinical-year and third-year), nursing students, pharmacy students (third-year).

Health warnings – Verbal, written or visual warnings, required by governments on packets or advertisements of all tobacco products.

Ingredient – Every component of the product that is smoked or chewed, including all additives and flavourings, contents such as paper, ink and filters, and materials used in the manufacturing process (such as adhesives etc) present in the finished product in burnt or unburned form.

Marketing – A range of activities aimed at ensuring continued sales and profitability of a product. These include advertising, promotions, public relations and sales.

Nicotiana tabacum – The tobacco plant. Its leaves contain high levels of the addictive chemical nicotine and many cancer-causing chemicals. The leaves may be smoked (in cigarettes, cigars, and pipes), applied to the gums (as

dipping and chewing tobacco), or inhaled (as snuff). Tobacco use and exposure to secondhand tobacco smoke causes many types of cancer, as well as heart, respiratory, and other diseases.

Nicotine – An addictive, poisonous alkaloid chemical found in tobacco that acts as a stimulant, increasing heart rate and use of oxygen by cardiac muscle. Also used as an insecticide. The lethal dose for a human adult is about 50mg.

Nicotine replacement therapy (NRT) – A type of treatment for smoking that aids cessation by providing a low dose of nicotine to ease cravings experienced by addicted smokers. NRTs include devices such as transdermal patches, nicotine gum, nicotine nasal sprays and inhalers.

Passive smoking – Inhaling cigarette, cigar, or pipe smoke produced by another individual. It is composed of second-hand smoke (exhaled by the smoker), and sidestream smoke (which drifts off the tip of the cigarette or cigar or pipe bowl). Also known as environmental tobacco smoke (ETS).

Polyaromatic hydrocarbon (PAH) – A type of organic compound composed of several benzene rings. PAHs, many of which are carcinogenic, are produced during charbroiling of meat, incomplete combustion of fossil fuels, and burning of tobacco. Tobacco smoke is the most important source of human exposure.

Prevalence – Smoking prevalence is the percentage of smokers in the total population. Adult smoking is usually defined as smoking among those aged 15 years and older.

Promotion – Includes special offers, gifts, price discounts, coupons, company websites, speciality item distribution and telephone advertising used to facilitate the sale or placement of any cigarette. Also includes allowances paid to cigarette retailers, wholesalers, full-time company employees or any other persons involved in cigarette distribution.

Retailer – A person engaged in a business that includes the sale of a tobacco product to consumers.

Risk – The likelihood of incurring a particular event or circumstance (eg risk of disease measures the chances of an individual contracting a disease).

Smoke-free area – Area where smoking or holding a lighted cigarette, cigar or pipe is banned.

Smokeless tobacco – Includes snuff and chewing tobacco; not a safe alternative to smoking. Smokeless tobacco is as addictive as smoking and can cause cancer of the gum, cheek, lip, mouth, tongue, and throat.

Smoker – Someone who, at the time of the survey, smokes any tobacco product either daily or occasionally.

Stroke – A condition in which a blood vessel in the brain bursts or is clogged by a blood clot. This leads to an inadequate blood supply to the brain and death of the brain cells, and usually results in temporary or permanent neurological deficits.

Tar – The raw anhydrous nicotine-free condensate of smoke.

Tar and nicotine yield – The amount of tar and nicotine in milligrammes in one cigarette, as determined by a machine designed to measure smoke. Machine yields of tar and nicotine levels are not necessarily what smokers actually inhale.

Tobacco-attributable mortality – The number of deaths attributable to tobacco use within a specific population.

Tobacco control organization – A non-profit organization, the purpose of which is to reduce tobacco consumption and protect nonsmokers from the effects of involuntary smoking.

Tobacco industry documents – Previously secret, internal industry papers that have now been placed in the public domain as a result of court rulings.

Tobacco product – Any product manufactured wholly or partly from tobacco and intended for use by smoking, inhalation, chewing, sniffing or sucking, with the exception of medicinal preparations containing nicotine.

Tobacco production – Tobacco-leaf production in metric tonnes refers to the actual tobacco leaves harvested from the field, excluding harvesting and threshing losses and any part of the tobacco crop not harvested for any reason.

Tobacco-specific nitrosamine (TSN or TSNA) – A group of seven toxic chemicals found only in tobacco products. N'-nitrosornicotine (NNN), (4-methylnitrosamino)-1-(3-pyridyl)-1-butanone (NNK), and N-oxide, 4-(methylnitrosamino)-1-(3-pyridyl N-oxide)-1-butanol (NNAL; a metabolic product of NNK), are the most carcinogenic.

Tobacco taxes – The sum of all types of taxes levied on tobacco products. There are two basic methods of tobacco taxation:

Nominal or specific taxes: based on a set amount of tax per unit (eg cigarette) or gramme of tobacco. These taxes are often differentiated according to the type of tobacco product (eg filtered vs non-filtered cigarettes, pipe tobacco vs cigars).

Ad valorem taxes: assessed as a percentage markup on some determined value (tax base), usually the retail selling price of tobacco products or a wholesale price. These taxes include any value-added tax (VAT) where applicable.

Tobacco use – The consumption of tobacco products by burning, chewing, inhalation, or other forms of ingestion.

Volatile organic compound (VOC) – An organic (carbon-containing) compound that evaporates at room temperature. VOCs contribute significantly to indoor air pollution and respiratory disease.

Warning labels – Verbal, written or visual warnings, required by governments on packets or advertisements of all tobacco products. *See also* Health warnings.