Global Tobacco Epidemic and Public Health Response

Accessible version: https://youtu.be/nygtR03cwNA

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Director, Institute for Global Tobacco Control
Bloomberg Professor of Disease Prevention
Johns Hopkins Bloomberg School of Public Health
Outline

- Profile of global tobacco use
- Current and projected tobacco-related mortality and economic burden
- Role of the tobacco industry
- Public health tools to combat tobacco use
Tobacco and Smokeless Tobacco Come in Many Forms
Since the 1st publication of The Tobacco Atlas a decade ago, more than 43 trillion cigarettes have been smoked.

1 butt = 10 billion cigarettes
Global Cigarette Consumption in One Century Increased over 100 Times

Nearly 2/3 of the World’s Smokers Live in Just 10 Countries

Percent of cigarette consumption

- China: 38%
- Rest of the world: 42%
- US: 5%
- Russia: 7%
- Indonesia: 4%
- Japan: 4%
Male Smoking Prevalence (2010 or latest available)

Percent of Males Who Smoke Cigarettes
2010 or latest available

Countries where at least TEN TIMES MORE MEN THAN WOMEN smoke

Female Smoking Prevalence (2010 or latest available)

Smoking and Secondhand Smoke Damage Every Part of the Body

**Smoking**

**Cancers**
- Larynx
- Oropharynx
- Oesophagus
- Trachea, bronchus or lung
- Acute myeloid leukemia
- Stomach
- Pancreas
- Kidney and Ureter
- Colon
- Cervix
- Bladder

**Chronic Diseases**
- Stroke
- Blindness, Cataracts
- Periodontitis
- Aortic aneurysm
- Coronary heart disease
- Pneumonia
- Atherosclerotic peripheral vascular disease
- Chronic obstructive pulmonary disease (COPD), asthma, and other respiratory effects
- Hip fractures
- Reproductive effects in women (including reduced fertility)

**Secondhand Smoke**

**Children**
- Brain tumours*
- Middle ear disease
- Respiratory symptoms, impaired lung function
- Sudden Infant Death Syndrome (SIDS)
- Leukemia*
- Lower respiratory illness

**Adults**
- Stroke*
- Nasal irritation, Nasal sinus cancer*
- Breast cancer*
- Coronary heart disease
- Lung cancer
- Atherosclerosis*
- Chronic obstructive pulmonary disease (COPD)*, Chronic respiratory symptoms*, Asthma*, Impaired lung function*
- Reproductive effects in women: Low birth weight, Pre-term delivery*

* Evidence of causation: suggestive
Evidence of causation: sufficient
Tobacco: The Only Risk Factor Shared by Four Major Non-communicable Diseases

<table>
<thead>
<tr>
<th></th>
<th>Tobacco use</th>
<th>Unhealthy diets</th>
<th>Lack of physical activity</th>
<th>Use of alcohol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardiovascular</td>
<td>★</td>
<td>★</td>
<td>★</td>
<td>★</td>
</tr>
<tr>
<td>Diabetes</td>
<td>★</td>
<td>★</td>
<td>★</td>
<td>★</td>
</tr>
<tr>
<td>Cancer</td>
<td>★</td>
<td>★</td>
<td>★</td>
<td>★</td>
</tr>
<tr>
<td>Chronic Respiratory</td>
<td>★</td>
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Global Burden of Tobacco Past and Present

- Tobacco killed 100 million people in the 20th century
- Tobacco use is now the world’s single leading preventable cause of death
  - Kills more people than HIV/AIDS, TB, and malaria combined
  - Responsible for >15% of deaths among men and 7% among women
- Almost 6 million tobacco-caused deaths in 2011
- Tobacco kills up to half of lifetime smokers
- Smokers die an average of 14 years earlier than non-smokers

MMWR April 12, 2002, http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5114a2.htm
More Than 600,000 Deaths Caused by Secondhand Smoking, 2004

<table>
<thead>
<tr>
<th></th>
<th>Men</th>
<th>Women</th>
<th>Children</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>26%</td>
<td>47%</td>
<td>28%</td>
</tr>
<tr>
<td></td>
<td>156,000</td>
<td>281,000</td>
<td>166,000</td>
</tr>
</tbody>
</table>

75% of secondhand smoke deaths occur among women and children

Economic Burden of Tobacco-related Diseases

Direct Cost of Smoking

Nearly 5% of U.S. healthcare dollars is spent on treatment of tobacco-related diseases.

- $2,803 million for Canada
- $96,000 million for USA
- $5,700 million for Mexico

Future Global Burden of Tobacco

- Without urgent action, 1 billion people will die from tobacco in the 21st century
  - 500 million deaths among persons alive today
  - Unchecked, worldwide deaths from tobacco products will exceed 8 million a year by 2030

Every death from tobacco products is preventable!

Vector of Disease

Host

Agent

Environment

Vector = Tobacco industry

Cohen, et al. AJPM 2010;39:352-6
tobacco.health.usyd.edu.au/assets/pdfs/tobacco-industry/trustus.pdf
Trend in Tobacco Production
Production Quantity in Million Metric Tons, 1965–2009

China

Brazil

India

United States

Argentina

## Global Cigarette Market Share, 2008

<table>
<thead>
<tr>
<th>Company</th>
<th>Cigarettes (billions)</th>
<th>Share of global market</th>
</tr>
</thead>
<tbody>
<tr>
<td>China National Tobacco Company</td>
<td>2,143</td>
<td>38.3%</td>
</tr>
<tr>
<td>Philip Morris International</td>
<td>869</td>
<td>15.5%</td>
</tr>
<tr>
<td>British American Tobacco</td>
<td>830</td>
<td>14.8%</td>
</tr>
<tr>
<td>Japan Tobacco</td>
<td>612</td>
<td>10.9%</td>
</tr>
<tr>
<td>Imperial (UK)</td>
<td>329</td>
<td>5.9%</td>
</tr>
<tr>
<td>Altria/Philip Morris USA</td>
<td>169</td>
<td>3.0%</td>
</tr>
<tr>
<td>Korea Tobacco &amp; Ginseng (S. Korea)</td>
<td>102</td>
<td>1.8%</td>
</tr>
<tr>
<td>RJ Reynolds</td>
<td>90</td>
<td>1.6%</td>
</tr>
</tbody>
</table>

Callard C. Tobacco Control 2010; 19:285-90
Tobacco Company Revenue and Profits
Top 6 Companies, 2010

Total profit
$ 35.1 billion

Total revenue
$346.2 billion

<table>
<thead>
<tr>
<th>Company</th>
<th>Total revenue (in billions)</th>
<th>Total profit (in billions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Altria/Philip Morris USA</td>
<td>20.5</td>
<td>3.9</td>
</tr>
<tr>
<td>Imperial Tobacco</td>
<td>36.4</td>
<td>2</td>
</tr>
<tr>
<td>British American Tobacco</td>
<td>53.9</td>
<td>4.2</td>
</tr>
<tr>
<td>Japan Tobacco International</td>
<td>64.4</td>
<td>1.5</td>
</tr>
<tr>
<td>Philip Morris International</td>
<td>60.2</td>
<td>7.5</td>
</tr>
<tr>
<td>China National Tobacco Corporation</td>
<td>75.7</td>
<td>16</td>
</tr>
</tbody>
</table>

$9.9 billion was spent on cigarette advertising and promotion

- >$34 for every man, woman, and child

83% of the tobacco companies’ marketing budgets are spent on price discounts, coupons, and retail value-added promotions

In general, in the United States, tobacco companies spent almost twice as much on marketing as junk food, soda, and alcohol companies combined
Undue Influence

“Genius comes from hard work. Tobacco helps you to be successful.”

Monitor tobacco use and prevention policies
Protect people from tobacco smoke
Offer help to quit tobacco use
Warn about the dangers of tobacco
Enforce bans on tobacco advertising, promotion and sponsorship
Raise taxes on tobacco

Conclusions

- The tobacco epidemic will cause the most harm to low- and moderate-income countries with high population
  - Tobacco use is growing fastest in these countries, fueled by steady population growth
  - The tobacco industry is expanding its advertising, marketing, and promotion to the developing world
  - Many of these countries have fewer resources to respond to the health, social, and economic problems caused by tobacco use, which will exacerbate the tobacco epidemic’s impacts
  - This will create a ‘perfect storm’ of future tobacco-caused disease and death, unless there is a strong response from the public health community
Global Tobacco Surveillance System: From Data to Action

Samira Asma, DDS, MPH
Chief, Global Tobacco Control Branch
Office on Smoking and Health
Centers for Disease Control and Prevention
GTSS: Global Tobacco Surveillance System

- A set of globally standardized surveys
- Monitoring not only the problem of tobacco use, but also tobacco control solutions
- Enhance capacity to design, implement, monitor and evaluate tobacco control policies
“…integrate tobacco surveillance programs into national, regional, and global health surveillance programs so that data are comparable and can be analyzed at the regional and international levels, as appropriate.”
GTSS: Global Tobacco Surveillance System

**GYTS** | GLOBAL YOUTH TOBACCO SURVEY

**GATS** | GLOBAL ADULT TOBACCO SURVEY

**TQS** | TOBACCO QUESTIONS FOR SURVEYS
GYTS: Global Youth Tobacco Survey
1999–2012

- Largest public health surveillance system
- School-based surveys of students 13–15 years
- Self-administered using global standard protocol
- National, state or provincial
- 180 countries/sites completed
GYTS: Global Youth Tobacco Survey
Key Findings

- 1 in 10 students currently smoke cigarettes
- 1 in 10 students currently use other tobacco products
- 1 in 4 smokers first tried by age 10
- 2 in 3 smokers want to quit
- 4 in 10 students exposed to secondhand smoke in homes and over half in public places

GATS: Global Adult Tobacco Survey
2008–2012

- Nationally representative household surveys
- Active in 31 countries
- Covers 66% of world’s population
- Covers 68% of world’s smokers

Phase 1
Bangladesh, Brazil, China, Egypt, India, Mexico, Philippines, Poland, Russian Federation, Thailand, Turkey, Ukraine, Uruguay, Viet Nam

Phase 2
Argentina, Indonesia, Malaysia, Nigeria, Panama, Qatar, Romania

Phase 3
Cambodia, Cameroon, Colombia, Kazakhstan, Kenya, Laos, Pakistan, Senegal, South Africa, Uganda

Repeats
Thailand, Turkey

GATS: Global Adult Tobacco Survey

- **GATS in numbers**
  - 1 million household level data
  - 350,000 household interviews
  - 50 languages and dialects
  - 3,600 fieldworkers trained
  - 3,000 handhelds
  - 1,500 fieldwork days

65 million data points collected representing 3.6 billion people!

Core questionnaire and optional questions
Sampling design
Series of manuals and guidelines
Expert review committees
  - Questionnaire review
  - Sample design and weighting
Electronic data collection
GATS: Global Adult Tobacco Survey
Key Findings

- 794 million adults currently use tobacco
- 350 million exposed to secondhand smoke at work
- 5 in 10 current smokers plan to quit or thinking about quitting
- 2 in 10 noticed cigarette marketing in stores where cigarettes are sold

Adult Awareness of Tobacco Advertising, Promotion, and Sponsorship-14 countries. MMWR 2012; 61(20)
**Protect**

Exposure to Secondhand Smoke at Workplace


In the past 30 days preceding the survey.

- China: 63.3%
- Bangladesh: 62.2%
- Egypt: 59.9%
- Viet Nam: 55.9%
- Turkey: 37.3%
- Russian Federation: 34.9%
- Poland: 33.6%
- Ukraine: 33.1%
- Philippines: 32.6%
- India: 29.9%
- Thailand: 27.2%
- Brazil: 23.3%
- Mexico: 18.6%
- Uruguay: 16.5%
Offer Help
Former Smokers Who Quit

Current smokers who made a quit in the past 12 months
Thought about Quitting Smoking Because of Warning Labels on Cigarette Packages

Among those who noticed health warning on cigarette packages in the past 30 days preceding the survey
Noticed Cigarette Marketing in Stores

In the past 30 days preceding the survey

Raise Affordability

Affordability as the relative income price - Median price paid per 2000 sticks as % of per capita GDP

- 3 to 22 questions
- MPOWER focus
- Integration, standardization, and comparability

Bangladesh, Brazil, China, Egypt, Korea, Lesotho, Saudia Arabia, Sri Lanka, Republic of Georgia, Thailand
Current Tobacco Users Aged ≥25 Years, Bangladesh

- **Overall**: 54.3% (Global Adult Tobacco Survey, 2009) vs. 51.0% (NCD Risk Factor Survey, 2010)
- **Male**: 69.7% (Global Adult Tobacco Survey, 2009) vs. 70.0% (NCD Risk Factor Survey, 2010)
- **Female**: 39.1% (Global Adult Tobacco Survey, 2009) vs. 34.4% (NCD Risk Factor Survey, 2010)

NCD, Non-communicable diseases
Data Dissemination

http://apps.nccd.cdc.gov/GTSSData/default/default.aspx
"What Gets Measured, Gets Done"

- Globally standardized survey data on tobacco control is available for 180 countries
  - Unprecedented cross-country comparisons
  - Tracking not only the problem, but also the solutions
International Advances in Tobacco Control

Michael Eriksen, ScD
Dean, Institute of Public Health
Georgia State University
There ARE Effective and Proven Strategies

100 million global deaths can be prevented by the end of the century through a group of policy and regulatory interventions.

This number of lives saved is possible through a modest prevalence decline (from 25% to 20%), using the assumption that 1/3 of users will die from smoking related diseases.

There **ARE** Evidence-Based Interventions

- Sustained funding of comprehensive programs
- Excise tax increases
- 100% smoke-free policies
- Comprehensive ad restrictions
- Aggressive media campaigns
- Cessation access
Smoke-Free Areas Doubled from 2008 to 2010

Public Support for Comprehensive Smoking Bans in Bars and Restaurants after Implementation

Impact of Pictorial Warnings on Brazilian Smokers

Plain Packaging in Australia

Plain packaging to be implemented by December 1, 2012, pending ongoing litigation.
Health Warning Labels

*Percent of principal display area of cigarette package legally mandated to be covered by health warning
Marketing Bans

* Direct and indirect advertising bans, 2007
** Four, five or six direct bans and at least one indirect ban
***One, two or three direct bans or at least one indirect ban

Comprehensive Advertising Bans Amplify Other Interventions

Average change in cigarette consumption 10 years after introduction of advertising bans in 2 groups of countries

<table>
<thead>
<tr>
<th>Country Group</th>
<th>Change in Cigarette Consumption</th>
</tr>
</thead>
<tbody>
<tr>
<td>14 countries with a comprehensive ban</td>
<td>-9%</td>
</tr>
<tr>
<td>78 countries without a ban</td>
<td>-1%</td>
</tr>
</tbody>
</table>

Tobacco Prices and Consumption
South Africa and Morocco

- Relationship between cigarette consumption and excise tax rate in South Africa
- Smoking goes down as prices go up

Walbeek C. 2003. Tobacco excise taxation in South Africa (left graph), http://ped.sagepub.com/content/12/4_suppl/25.long
Aloui O. 2003. Analysis of the economics of tobacco in Morocco (right graph)
Change in Affordability of Tobacco Products by WHO Region, 2000–2010

- Americas: -4.0%
- Eastern Mediterranean: -47.5%
- South-East Asia: -34.6%
- Europe: 9.2%
- Western Pacific: -18.3%

Tobacco Control is Underfunded

- Per capita total tax revenue from tobacco products
- Per capita public spending on tobacco control
Most of the World’s People Are Not Yet Fully Protected Against Tobacco Harms

Share of world population

<table>
<thead>
<tr>
<th>Policy</th>
<th>Increase 2008–2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smoke-free environments</td>
<td>11%</td>
</tr>
<tr>
<td>Cessations programs</td>
<td>14%</td>
</tr>
<tr>
<td>Warning labels</td>
<td>15%</td>
</tr>
<tr>
<td>Mass media</td>
<td>28%</td>
</tr>
<tr>
<td>Advertising bans</td>
<td>6%</td>
</tr>
<tr>
<td>Taxation</td>
<td>8%</td>
</tr>
</tbody>
</table>

World Health Organization
Interactive maps, downloadable data, Power points, country fact sheets

Upcoming editions: Arabic, French, Spanish, Chinese

Sign up @TobaccoAtlas.org for alerts of upcoming editions, new features
Conclusions

- Internationally, tobacco control policy initiatives have been broadly accepted
- Evidence-based prevention best practices—the MPOWER package—have been codified
- Challenges to implementation include
  - Global underfunding of tobacco control
  - Regional, country-to-country, and within country variability in policies and enforcement
  - Ongoing industry marketing and influence
http://www.cdc.gov/about/grand-rounds