EPIDEMIOLOGY of TOBACCO USE

“CIGARETTE SMOKING... is the chief, single, avoidable cause of death in our society and the most important public health issue of our time.”
C. Everett Koop, M.D., former U.S. Surgeon General

All forms of tobacco are harmful.

WORLDWIDE PREVALENCE of ADULT TOBACCO USE

TRENDS in ADULT SMOKING, by SEX—United States, since 1955

CURRENT* ADULT USE of ANY FORM of TOBACCO or E-CIGARETTES, U.S., 2021

STATE-SPECIFIC PREVALENCE of SMOKING among ADULTS, 2014–2015

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PREVALENCE of ADULT CIGARETTE SMOKING, by RACE/ETHNICITY—U.S., 2021

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>12.9%</td>
</tr>
<tr>
<td>Black or African American</td>
<td>11.7%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>7.7%</td>
</tr>
<tr>
<td>Asian</td>
<td>5.4%</td>
</tr>
</tbody>
</table>

PREVALENCE of ADULT CIGARETTE SMOKING, by EDUCATION—U.S., 2021

<table>
<thead>
<tr>
<th>Education</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>No high school diploma</td>
<td>20.1%</td>
</tr>
<tr>
<td>GED diploma</td>
<td>30.7%</td>
</tr>
<tr>
<td>High school graduate</td>
<td>17.1%</td>
</tr>
<tr>
<td>Some college</td>
<td>16.1%</td>
</tr>
<tr>
<td>Bachelor’s degree</td>
<td>5.3%</td>
</tr>
<tr>
<td>Graduate degree</td>
<td>3.2%</td>
</tr>
</tbody>
</table>

TRENDS in TEEN SMOKING, by ETHNICITY—U.S., 1977–2021

Tobacco Industry Advertising

- $8.06 billion spent in the U.S. in 2021
- $21.1 million a day

Public Health versus “BIG TOBACCO”

The biggest opponent to tobacco control efforts is the tobacco industry itself. Nationally, the tobacco industry is outspending our state tobacco control funding. For every $1 spent by the states, the tobacco industry spends $12.50 to market its products.

The TOBACCO INDUSTRY

- For decades, the tobacco industry publicly denied the addictive nature of nicotine and the negative health effects of tobacco.
- April 14, 1994: Seven top executives of major tobacco companies state, under oath, that they believe nicotine is not addictive: http://www.jeffreywigand.com/7ceos.php
- Tobacco industry documents indicate otherwise
- Documents available at http://legacy.library.ucsf.edu
- The cigarette is a heavily engineered product.
- Designed and marketed to maximize bioavailability of nicotine and addictive potential
- Profits over people
An EFFECTIVE MARKETING STRATEGY: "LIGHT" CIGARETTES

The difference between Marlboro and Marlboro Lights...

an extra row of ventilation holes

Image courtesy of Mayo Clinic Nicotine Dependence Center - Research Program / Dr. Richard D. Hurt
The Marlboro and Marlboro Lights logos are registered trademarks of Philip Morris USA

SMOKING in MOVIES

- Cigarette smoking is pervasive in movies
- Evident in at least ½ of box-office hits
- Average, 10.9 smoking incidents per hour
  (Charlsworth and Davis, 1980; Modern 113:359-362)
- There is a dose-response, causal relationship between exposure to
  smoking in movies and youth smoking initiation
  (National Cancer Institute, 2008, The Role of the Media in Promoting and
  Reducing Tobacco Use)

70% of adults support assigning an “R” rating to movies with smoking.

For more information on smoking in movies, go to http://smokefreemovies.ucsf.edu

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FDA REGULATION of TOBACCO PRODUCTS

The FDA Center for Tobacco Control Products is responsible for regulation of:

- Cigarettes
- Cigarette tobacco
- Roll-your-own tobacco
- Smokeless tobacco
- E-cigarettes*

*Not a tobacco product

ANNUAL U.S. DEATHS ATTRIBUTABLE to SMOKING, 2005–2009

<table>
<thead>
<tr>
<th>Disease Category</th>
<th>Deaths</th>
<th>Percent of all smoking-attributable deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardiovascular &amp; metabolic diseases</td>
<td>160,000</td>
<td>33%</td>
</tr>
<tr>
<td>Lung cancer</td>
<td>130,059</td>
<td>27%</td>
</tr>
<tr>
<td>Pulmonary diseases</td>
<td>113,100</td>
<td>23%</td>
</tr>
<tr>
<td>Second-hand smoke</td>
<td>41,280</td>
<td>9%</td>
</tr>
<tr>
<td>Cancers other than lung</td>
<td>36,000</td>
<td>7%</td>
</tr>
<tr>
<td>Other</td>
<td>1,633</td>
<td>&lt;1%</td>
</tr>
</tbody>
</table>

TOTAL: >480,000 deaths annually


ANNUAL SMOKING-ATTRIBUTABLE ECONOMIC COSTS

- Health care expenditures: $132.5 billion
- Lost productivity costs due to premature mortality: $156.4 billion
- Total economic burden of smoking, per year: $288.9 billion
- Societal costs: $20.52 per pack of cigarettes smoked


COMPOUNDS in TOBACCO SMOKE

An estimated 8,700 compounds in tobacco smoke, including 72 proven or suspected human carcinogens

- **Gases**
  - Carbon monoxide
  - Hydrogen cyanide
  - Ammonia
  - Benzene
  - Formaldehyde

- **Particles**
  - Nicotine
  - Nitrosamines
  - Lead
  - Cadmium
  - Polonium-210

Nicotine is the addictive component of tobacco products, but it does NOT cause the ill health effects of tobacco use.

HEALTH CONSEQUENCES of SMOKING

- **Cancers**
  - Bladder/kidney/ureter
  - Blood (acute myeloid leukemia)
  - Colon/rectum
  - Esophagus/stomach
  - Liver
  - Lung
  - Oropharynx/larynx
  - Pancreatic
  - Pulmonary
  - Asthma
  - COPD
  - Pneumonia/tuberculosis
  - Chronic respiratory symptoms
- **Cardiovascular diseases**
  - Aortic aneurysm
  - Coronary heart disease
  - Cerebrovascular disease
  - Peripheral vascular disease
- **Reproductive effects**
  - Reduced fertility in women
  - Poor pregnancy outcomes (e.g., congenital defects, low birth weight, preterm delivery)
  - Infant mortality
- **Other:** cataract, diabetes (type 2), erectile dysfunction, impaired immune function, osteoporosis, periodontitis, postoperative complications, rheumatoid arthritis


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HEALTH CONSEQUENCES of SMOKELESS TOBACCO USE

Periodontal effects
- Gingival recession
- Bone attachment loss
- Dental caries

Oral leukoplakia

Cancer
- Oral cancer
- Pharyngeal cancer

2006 REPORT of the SURGEON GENERAL: INVOLUNTARY EXPOSURE to TOBACCO SMOKE

- Second-hand smoke causes premature death and disease in nonsmokers (children and adults)
  - Children:
    - Increased risk for sudden infant death syndrome (SIDS), acute respiratory infections, ear problems, and more severe asthma
    - Respiratory symptoms and slowed lung growth if parents smoke
  - Adults:
    - Immediate adverse effects on cardiovascular system
    - Increased risk for coronary heart disease and lung cancer
  - Millions of Americans are exposed to smoke in their homes/workplaces

Indoor spaces: eliminating smoking fully protects nonsmokers
- Separating smoking areas, cleaning the air, and ventilation are ineffective

The Health Consequences of Involuntary Exposure to Tobacco Smoke: Report of the Surgeon General

QUITTING: HEALTH BENEFITS

- Circulation improves, walking becomes easier
- Lung function increases
- Excess risk of CHD decreases to half that of those who continue to smoke
  - 2 months to 3 months
  - 1 to 9 months
  - 1 year
  - 5 years
  - 10 years
  - After 15 years

Lung cancer death rate is similar to half that of those who continue to smoke
- Risk of cancer of mouth, throat, esophagus, bladder, kidney, pancreas decrease
- Risk of stroke is reduced to that of people who have never smoked
- Risk of CHD is similar to that of people who have never smoked

 BENEFICIAL EFFECTS of QUITTING: PULMONARY EFFECTS

Reduction in cumulative risk of death from lung cancer in men

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SMOKING CESSATION: REDUCED RISK of DEATH

- Prospective study of 34,439 male British doctors
- Mortality was monitored for 50 years (1951–2001)

On average, cigarette smokers die approximately 10 years younger than do nonsmokers.

Among those who continue smoking, at least half will die due to a tobacco-related disease.


FINANCIAL IMPACT of SMOKING

Buying cigarettes every day for 50 years at $8.39 per pack* (does not include interest)

<table>
<thead>
<tr>
<th>Packs per day</th>
<th>$153,118</th>
<th>$229,676</th>
<th>$306,235</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.0</td>
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<td></td>
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</tr>
</tbody>
</table>

Annual cost of smoking 1 pack per day: $3,062


EPIEMIOLOGY of TOBACCO USE: SUMMARY

- Fewer than one in five adults are current smokers; smoking prevalence varies by sociodemographic characteristics
- Nearly half a million U.S. deaths are attributable to smoking annually
- Smoking costs the U.S. an estimated $288.9 billion annually
- For the individual, a smoking a pack-a-day costs $3,062 annually, plus associated health-care costs
- At any age, there are benefits to quitting smoking
- The biggest opponent to tobacco control efforts is the tobacco industry

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