

Chapter 5

Mental Health and Hygiene, Behaviour and Society

5.2. Alcohol and tobacco

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5.2.2. Tobacco use: Epidemiology and Prevention

5.2.2.1. Types of tobacco products and tobacco use

There are 2 basic types of using the leaves of the tobacco plant, burning/smoking or without burning.

Smoking tobacco is the act of burning dried or cured leaves of the tobacco plant and inhaling the smoke. Combustion uses heat to create new chemicals that are not found in unburned tobacco, such as tobacco-specific nitrosamines (TSNAs) and benzopyrene, and allows them to be absorbed through the lungs. People actually not smoking or who are non-smokers but are exposed to the tobacco smoke were named earlier as passive smoker. The correct name of this phenomenon is secondhand smoke (SHS) or environmental tobacco smoke (ETS).

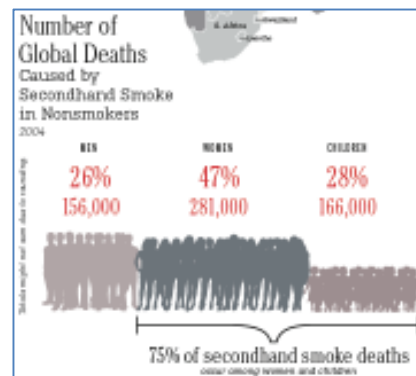
Smokeless tobacco is usually consumed orally or nasally, without burning or combustion. It increases the risk of cancer and leads to nicotine addiction similar to that produced by cigarette smoking.

Types of smoking tobacco:

- 1) Manufactured cigarettes (most prevalent worldwide)
 - a) they are most commonly consumed
 - b) consist of shredded or reconstituted tobacco, processed with hundreds of chemicals and various flavors
 - c) rolled into a paper-wrapped cylinder.
 - d) tipped with a cellulose acetate filter, they are lit at one end and inhaled through the other.
- 2) Roll-your-own (RYO) cigarettes (most prevalent in Europe and New Zealand)
 - a) hand-filled by the smoker from fine-cut loose tobacco and a cigarette paper.
 - b) RYO cigarette smokers are exposed to high concentrations of tobacco particulates, tar, nicotine, and TSNAs, and are at increased risk for developing cancers of the mouth, pharynx, larynx, lungs, and esophagus.
- 3) Cigars (most prevalent worldwide)
 - a) made of air-cured and fermented tobaccos rolled in tobacco-leaf wrappers.
 - b) The long aging and fermentation process produces high concentrations of carcinogenic compounds that are released upon combustion.
 - c) The concentrations of toxins and irritants in cigars are higher than in cigarettes.
 - d) Cigars come in many shapes and sizes
- 4) Kreteks (most prevalent in Indonesia)
 - a) clove-flavored cigarettes, they may also contain a wide range of exotic flavorings and eugenol, which has an anesthetic effect, allowing for deeper and more harmful smoke inhalation.
- 5) Bidis (*Most prevalent: South Asia (and are the most heavily consumed smoked tobacco products in India)*)



- a) consist of a small amount of crushed tobacco, hand-wrapped in dried temburni or tendu leaves, and tied with string.
 - b) Despite their small size, bidis tend to deliver more tar and carbon monoxide than manufactured cigarettes because users must puff harder to keep them lit.
- 6) Water pipes (*Most prevalent: North Africa, the Mediterranean region, and parts of Asia, but now spreading around the world*).
- a) also known as shisha, hookah, narghile, or hubble-bubble,
 - b) Operate by water filtration and indirect heat.
 - c) Flavored tobacco is burned in a smoking bowl covered with foil and coal.
 - d) The smoke is cooled by filtration through a basin of water and consumed through a hose and mouthpiece.
- 7) Secondhand smoke (SHS) or environmental tobacco smoke (ETS) is a mixture of side-stream smoke from the burning tip of a cigarette/ cigar/ pipe, and mainstream smoke which smokers exhale.
- a) Side-stream smoke contains higher concentration of carcinogens than mainstream smoke.
 - b) There is no safe level of exposure to SHS.



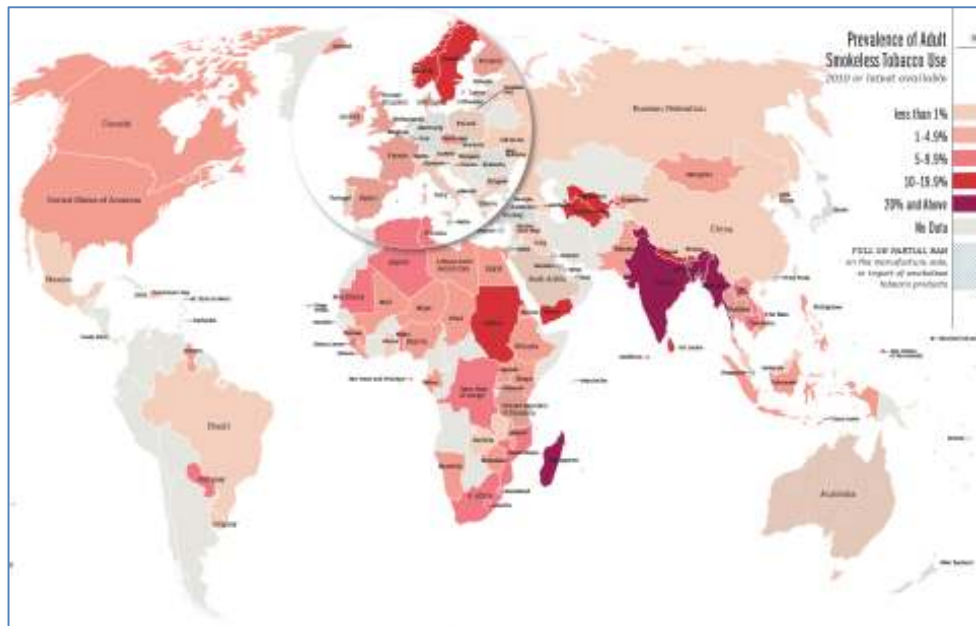
Types of smokeless tobacco:

- 1) Chewing tobacco (*most prevalent worldwide, but betel is most prevalent in India*)
- a) oral smokeless tobacco product
 - b) it is placed in the mouth, cheek, or inner lip and sucked or chewed.
 - c) “spit tobacco” because of the tendency by users to spit out the built-up tobacco juices and saliva.
 - d) Pan masala or betel quid consists of tobacco, areca nuts (*Areca catechu*), slaked lime (calcium hydroxide), sweeteners, and flavoring agents wrapped in a betel leaf (*Piper betle*).
- 2) Moist snuff (*Most prevalent: Scandinavia and US but becoming worldwide*)
- a) ground tobacco held in the mouth between the cheek and the gum.
 - b) Manufacturers are increasingly packaging moist snuff into small paper or cloth packets to make the product more convenient.
 - c) Also known as snus, khaini, sham-maah, nass, or naswa.



Snus is a finely ground and moistened tobacco, a bolus of which is placed under the upper lip for around an hour.

- d) Tobacco pastes or powders are similarly used, placed on the gums or teeth
- e) It is differently used by gender: More men use e.g. Finland and Egypt (products are perceived as masculine); and more women use eg. South Africa, Thailand, and Bangladesh (a discreet way to consume tobacco).



- 3) Dry snuff (*most prevalent in Europe*)
 - a) powdered tobacco that is inhaled through the nose or taken orally.
 - b) historically it was widespread in the 18th and 19th century, but since that time its use is in decline.
- 4) Dissolvable smokeless tobacco products (*Most prevalent in high-income countries*)



- a) they dissolve in the mouth without expectoration; they contain tobacco and numerous added constituents whose purpose is to deliver nicotine to the user via oral mucosal absorption.
- b) They are often extensions of well-known cigarette brands, such as Camel Sticks, Strips, and Orbs; Marlboro Sticks; products by Star Scientific (Ariva, Stonewall); and Zerostyle Mint by Japan Tobacco.



- c) These latest oral smokeless tobacco products are developed for use by smokers in any situation where they cannot or choose not to smoke.

Latest developments in tobacco manufacturing and the tobacco market


Despite the introduction of many new forms of tobacco, there is still no safe way of using tobacco — *whether inhaled, sniffed, sucked, or chewed*; whether some of the harmful ingredients are reduced; or whether it is mixed with other ingredients.

- 1) Latest products of the tobacco industry: Tobacco companies understand the importance of nicotine and want to continue to be the providers of choice for nicotine products, but they also understand the dangers created by the combustion of tobacco products, most notably that customers routinely die from their use. Therefore, tobacco companies are creating new products to keep individuals addicted to nicotine while

reducing toxic exposures caused by combustion. The main directions of development are producing

- a) Dissolvable smokeless tobacco products
 - b) Electronic Nicotine Delivery Systems: *ENDS*
- 2) Strategy against anti-tobacco legislation means misusing the loopholes and spreading product outside of the general ban. However the side effects and dangers are unknown. These products are e.g.
- a) Nicotinic lollipops
 - b) Nicotine water



- 3) Electronic cigarettes (E-cigarettes) are marketed as a “safe” alternative to smoking, nevertheless, laboratory analyses found carcinogens and toxic chemicals in these products. The use of E-cigarette is spreading rapidly throughout the world. Motivations: Quitting smoking, harm reduction, cheaper, novelty-seeking (mainly among students)
- 
- a) USA: grade 6–12 students ever used e-cigarette in 10% (CDC, 2012) 20–28 years old, 7% ever tried, 1,2% used in the past 30 days (K. Choi, 2013), College students (mean age: 20,5 years) 4,9% ever tried, (12% *nonsmokers*) 1,5% used in the past 30 days (E. Sutfin, 2013).
 - b) Poland: 15–24 years, 20% ever tried (boy > girl), 7% used in the past 30 days (smokers > nonsmokers) (M. Goniewicz, 2012).
 - c) Hungary: 13–15 years old – used in the past 30 days, 13%; boys 16%, girls 10%; 4,7% nonsmoker (GYTS 2012), 15+ years population 9% ever tried, 3% regularly/occasionally used (Special Eurobarometer 385, 2012)
 - d) Hungary (the latest study): university students (Simmelweis University, ELTE) 26,4% ever tried, 18,1% nonsmoker. Motivation: Curiosity/taste variety (M. Péntzes, 2013).
- 4) Designing cigarettes especially for the youth market: Nicotine is one of the harshest chemicals in tobacco smoke and the most important factor in tobacco dependence. It is highly aversive for first-time users. Therefore, to enhance initiation, it is important that a product balances the innate harshness of smoke with masking agents that allow inhalation. Menthol flavoring stimulates cold receptors and increases the ventilation.

Components of cigarette smoke

Tobacco smoke contains 7000 chemicals hundreds of them are toxic and 69 carcinogenic. The main components of cigarette smoke are:

- 1) Nicotine
- 2) N-nitrosamines, TSNAs
- 3) Polycyclic Aromatic Hydrocarbons (PAHs)
- 4) Volatile Compounds (VOCs) including Aldehydes, eg. toluene, benzene, acetaldehyde, acrolein, formaldehyde; acetone, 2-butanone; methane, ethane, butane; HCN, acetonitrile, acrylonitrile.
- 5) Heavy metals, eg. cadmium, mercury, lead, arsenic, cobalt, chromium, polonium
- 6) Aromatic amines, eg. aniline, naphthylamine, toluidine.
- 7) Additives: specific purposes → pH adjustment, maintenance of moisture (humectants: glycerol and propylene glycol), amelioration of the harshness of smoke, control of the burn rate, desirable flavor to the smoke (menthol, eugenol [clove cigarettes], fruit extracts, honey, cinnamon, chocolate, lavender, anise, licorice, ginger, vanillin). Appetite

suppressants (since 1960s) Source: Gonseth S et al.: The tobacco industry's past role in weight control related to smoking. Eur J of Public Health 2011, 22(2):234-23

Substances investigated and/or added for body weight control by tobacco industry and their putative mechanism(s) of action.

Substances	Putative mechanism(s) of action
Tartaric acid	Appetite-suppressant effect via drying of the mouth: tartaric acid volatilizes and is reformed in the mouth. Tartaric acid acts on the membranes in the mouth and produces a dryness that has an appetite-reducing effect.
2-Acetylpyridine	Appetite-suppressant effect via neutralization of the olfactory stimulus.
Catecholamine: ephedrine, amphetamine	Appetite-suppressant effect via dopaminergic stimulation.
Laughing gas	Appetite-suppressant effect via modifications of the taste of food.
Menthol	Appetite modifications via diminution of upper airways irritation.
Mariolide	Anorectic effect not eventually described.
Propylene glycol	Potential appetite-suppressant effect not eventually described.
Reserpine	Decrease of brain activity resulting in a decrease in salty food intake in rats.

Tobacco smoke includes as found in the right column.



Carcinogens in cigarette smoke

Virtually all compounds in the tables below are known carcinogens in experimental animals, and the International Agency for Research on Cancer (IARC) found sufficient evidence for carcinogenicity in animals for all the compounds. Using data on cancer in humans and, in some cases, other data, IARC established classifications for compounds as

- 1) group 1 (carcinogenic to humans),
- 2) group 2A (probably carcinogenic to humans), and
- 3) group 2B (possibly carcinogenic to humans).

IARC evaluation of evidence of carcinogenicity in humans

Carcinogen ^a	Quantity (per cigarette)	IARC evaluations of evidence of carcinogenicity in humans			IARC Monograph ^c (volume, year)
		In animals	In humans	IARC group ^b	
Polycyclic aromatic hydrocarbons					
Benz[<i>a</i>]anthracene	20–70 ng	Sufficient		2A	32, 1983; S7, 1987
Benzo[<i>b</i>]fluoranthene	4–22 ng	Sufficient		2B	32, 1983; S7, 1987
Benzo[<i>j</i>]fluoranthene	6–21 ng	Sufficient		2B	32, 1983; S7, 1987
Benzo[<i>k</i>]fluoranthene	6–12 ng	Sufficient		2B	32, 1983; S7, 1987
Benzo[<i>a</i>]pyrene	8.5–17.6 ng	Sufficient	Limited	1	32, 1983; S7, 1987; 92, in press
Dibenzo[<i>a,h</i>]anthracene	4 ng	Sufficient		2A	32, 1983; S7, 1987
Dibenzo[<i>a,i</i>]pyrene	1.7–3.2 ng	Sufficient		2B	32, 1983; S7, 1987
Dibenzo[<i>a,e</i>]pyrene	Present	Sufficient		2B	32, 1983; S7, 1987
Indeno[1,2,3- <i>cd</i>]pyrene	4–20 ng	Sufficient		2B	32, 1983; S7, 1987
5-methylchrysene	ND–0.6 ng	Sufficient		2B	32, 1983; S7, 1987
Heterocyclic compounds					
Furan	20–40 µg	Sufficient		2B	63, 1995a
Dibenzo[<i>a,h</i>]acridine	ND–0.1 ng	Sufficient		2B	32, 1983; S7, 1987
Dibenzo[<i>a,j</i>]acridine	ND–10 ng	Sufficient		2B	32, 1983; S7, 1987
Dibenzo[<i>c,g</i>]carbazole	ND–0.7 ng	Sufficient		2B	32, 1983; S7, 1987
Benzo[<i>b</i>]furan	Present	Sufficient		2B	63, 1995a
N-nitrosamines					
N-nitrosodimethylamine	0.1–180 ng	Sufficient		2A	17, 1978; S7, 1987
N-nitrosoethylmethylamine	ND–13 ng	Sufficient		2B	17, 1978; S7, 1987
N-nitrosodiethylamine	ND–25 ng	Sufficient		2A	17, 1978; S7, 1987
N-nitrosopyrrolidine	1.5–110 ng	Sufficient		2B	17, 1978; S7, 1987
N-nitrosopiperidine	ND–9 ng	Sufficient		2B	17, 1978; S7, 1987
N-nitrosodiethanolamine	ND–36 ng	Sufficient		2B	17, 1978; 77, 2000
N'-nitrosornicotine	154–196 ng	Sufficient	Limited	1	37, 1985; S7, 1987; 89, in press
4-(methylnitrosamino)-1-(3-pyridyl) 1-butanone	110–133 ng	Sufficient	Limited	1	37, 1985; S7, 1987; 89, in press
Aromatic amines					
2-toluidine	30–200 ng	Sufficient	Limited	2A	S7, 1987; 77, 2000
2,6-dimethylaniline	4–50 ng	Sufficient		2B	S7, 1993
2-naphthylamine	1–22 ng	Sufficient	Sufficient	1	4, 1974; S7, 1987
4-aminobiphenyl	2–5 ng	Sufficient	Sufficient	1	1, 1972; S7, 1987
Heterocyclic aromatic amines					
2-amino-9 <i>H</i> -pyrido[2,3- <i>b</i>]indole	25–260 ng	Sufficient		2B	40, 1986; S7, 1987
2-amino-3-methyl-9 <i>H</i> -pyrido[2,3- <i>b</i>]indole	2–37 ng	Sufficient		2B	40, 1986; S7, 1987
2-amino-3-methylimidazo[4,5- <i>f</i>]quinoline	0.3 ng	Sufficient		2A	S7, 1987; 56, 1993
3-amino-1,4-dimethyl-5 <i>H</i> -pyrido [4,3- <i>b</i>]indole	0.3–0.5 ng	Sufficient		2B	31, 1983; S7, 1987
3-amino-1-methyl-5 <i>H</i> -pyrido[4,3- <i>b</i>]indole	0.8–1.1 ng	Sufficient		2B	31, 1983; S7, 1987
2-amino-6-methylpyrido[1,2- <i>a</i> :3', 2'- <i>d</i>]imidazole	0.37–0.89 ng	Sufficient		2B	40, 1986; S7, 1987
2-aminodiprido[1,2- <i>a</i> :3',2'- <i>d</i>]imidazole	0.25–0.88 ng	Sufficient		2B	40, 1986; S7, 1987
2-amino-1-methyl-6-phenylimidazo [4,5- <i>b</i>]pyridine	11–23 ng	Sufficient		2B	56, 1993

Carcinogen ^a	Quantity (per cigarette)	IARC evaluations of evidence of carcinogenicity in humans			IARC Monograph ^c (volume, year)
		In animals	In humans	IARC group ^b	
Aldehydes					
Formaldehyde	10.3–25 µg	Sufficient	Sufficient	1	<i>S7, 1987; 62, 1995b</i>
Acetaldehyde	770–864 µg	Sufficient		2B	<i>S7, 1987; 71, 1999</i>
Phenolic compounds					
Catechol	59–81 µg	Sufficient		2B	<i>S7, 1987; 71, 1999</i>
Caffeic acid	<3 µg	Sufficient		2B	<i>56, 1993</i>
Volatile hydrocarbons					
1,3-butadiene	20–40 µg	Sufficient	Limited	2A	<i>S7, 1987; 71, 1999</i>
Isoprene	450–1,000 µg	Sufficient		2B	<i>60, 1994; 71, 1999</i>
Benzene	12–50 µg	Sufficient	Sufficient	1	<i>29, 1982; S7, 1987</i>
Nitrohydrocarbons					
Nitromethane	0.5–0.6 µg	Sufficient		2B	<i>77, 2000</i>
2-nitropropane	0.7–1.2 ng	Sufficient		2B	<i>S7, 1987; 71, 1999</i>
Nitrobenzene	25 µg	Sufficient		2B	<i>65, 1996</i>
Miscellaneous organic compounds					
Acetamide	38–56 µg	Sufficient		2B	<i>S7, 1987; 71, 1999</i>
Acrylamide	Present	Sufficient		2A	<i>S7, 1987; 69, 1994</i>
Acrylonitrile	3–15 µg	Sufficient		2B	<i>S7, 1987; 71, 1999</i>
Vinyl chloride	11–15 ng	Sufficient	Sufficient	1	<i>19, 1979; S7, 1987</i>
1,1-dimethylhydrazine	Present	Sufficient		2B	<i>4, 1974; 71, 1999</i>
Ethylene oxide	7 µg	Sufficient	Limited	1	<i>60, 1994; S7, 1987</i>
Propylene oxide	0–100 ng	Sufficient		2B	<i>60, 1994; S7, 1987</i>
Urethane	20–38 ng	Sufficient		2B	<i>7, 1974; S7, 1987</i>
Metals and inorganic compounds					
Arsenic	40–120 ng	Sufficient	Sufficient	1	<i>84, 2004</i>
Beryllium	0.5 ng	Sufficient	Sufficient	1	<i>S7, 1987; 58, 1993</i>
Nickel	ND–600 ng	Sufficient	Sufficient	1	<i>S7, 1987; 49, 1990</i>
Chromium (hexavalent)	4–70 ng	Sufficient	Sufficient	1	<i>S7, 1987; 49, 1990</i>
Cadmium	41–62 ng	Sufficient	Sufficient	1	<i>S7, 1987; 58, 1993</i>
Cobalt	0.13–0.20 ng	Sufficient		2B	<i>52, 1991</i>
Lead (inorganic)	34–85 ng	Sufficient	Limited	2A	<i>23, 1980; S7, 1987; 87, in press</i>
Hydrazine	24–43 ng	Sufficient		2B	<i>S7, 1987; 71, 1999</i>
Radioisotope polonium-210	0.03–1.0 picocurie	Sufficient		1	<i>78, 2001</i>

5.2.2.2. Factors influencing the initiation of tobacco use

Predictors of tobacco use are determined by the broadest social and physical environment.

Norms within a society about whether, when, and for whom smoking is acceptable:

- 5) Religion– protective
- 6) Race, ethnicity, culture (in ascending order)
 - a) African,
 - b) African American,
 - c) American Indian,
 - d) Chinese
- 7) Gender
 - a) boys: use of smokeless tobacco, cigars and other tobacco products;
 - b) small differences in cigarette smoking among adolescents by gender
- 8) Socioeconomic Status (SES)
 - a) low SES → risk, but
 - b) early smoking is risk factor for low SES in future
- 9) Educational and academic achievement
 - a) lower level → risk
- 10) School environment
 - a) School smoking restrictions can curb youth smoking behavior when strictly enforced,
 - b) Density of tobacco retailers surrounding a school.
- 11) Extracurricular and organized activities – e.g. sports
- 12) Large physical environment
 - a) Involves features of public and private spaces that may make tobacco use more or less tolerated or enjoyable.
- 13) Smoke-free indoor- and outdoor-air policies
- 14) Restrictions on accessibility of tobacco products
 - a) sales to minors,
 - b) vending machines
- 15) Tobacco advertisement (restricted, prohibited)
 - a) Prohibiting any positive tobacco imaging,
 - b) Prohibiting tobacco promotion (movies, TV, video games, Internet, magazines)

Norms within small social groups

- 1) Peer factors
 - a) Friends' smoking behavior and the adolescents' perceptions of their friends' smoking behavior
 - b) Having smoking friends → more likely to initiate smoking (esp. girls)
 - c) Overestimation of the prevalence of peer smoking
- 2) Family factors
 - a) Parental smoking → effects stronger for girls
 - b) Siblings' smoking → effect may be stronger than parental smoking
 - c) Higher quality of adolescent-parent relationship (closeness, supportiveness) → protective factor
 - d) Family conflicts → risk factor

Intrapersonal cognitive and affective process

- 1) Negative affective states and affect regulation → risk for initiation and development of cigarette smoking
- 2) Depression, anxiety
- 3) Adolescents who experience greater subjective mood benefits of smoking are more likely to progress in their tobacco use.
- 4) Mental status
 - a) Beliefs about the consequences of tobacco use, e.g. tobacco use leads to positive social outcomes and it is relatively safe
 - b) decision-making capabilities, e.g. poor decision-making skills and difficulties in self-monitoring and
 - c) the ability to regulate or monitor one's behavior
- 5) Cognitive factors may be moderated by
 - a) family-level protective factors or
 - b) sociocultural factors (e.g. relatively high SES).

Genetic factors, neurobiological and neurodevelopmental processes

- 1) Heritability for tobacco use is more strongly associated with regular use and dependence than with the early stages of tobacco use,
- 2) Addiction to tobacco may have a relatively strong genetic component, however the expression of genetic risk for smoking is moderated by
 - a) small-group factors (e.g., peer smoking, parental monitoring, and engagement in team sports) and
 - b) larger social environmental factors (e.g., school-level norms, the prevalence of smoking among popular kids)
- 3) Youth at relatively greater risk for tobacco use show relatively less activation in brain structures associated with decision making and impulse control coupled with impairment in sensitivity to reward.
- 4) Some youth become dependent on nicotine shortly after trying tobacco.
- 5) Some evidence indicates that a mother's smoking during pregnancy may increase the likelihood that her offspring will become regular smokers.

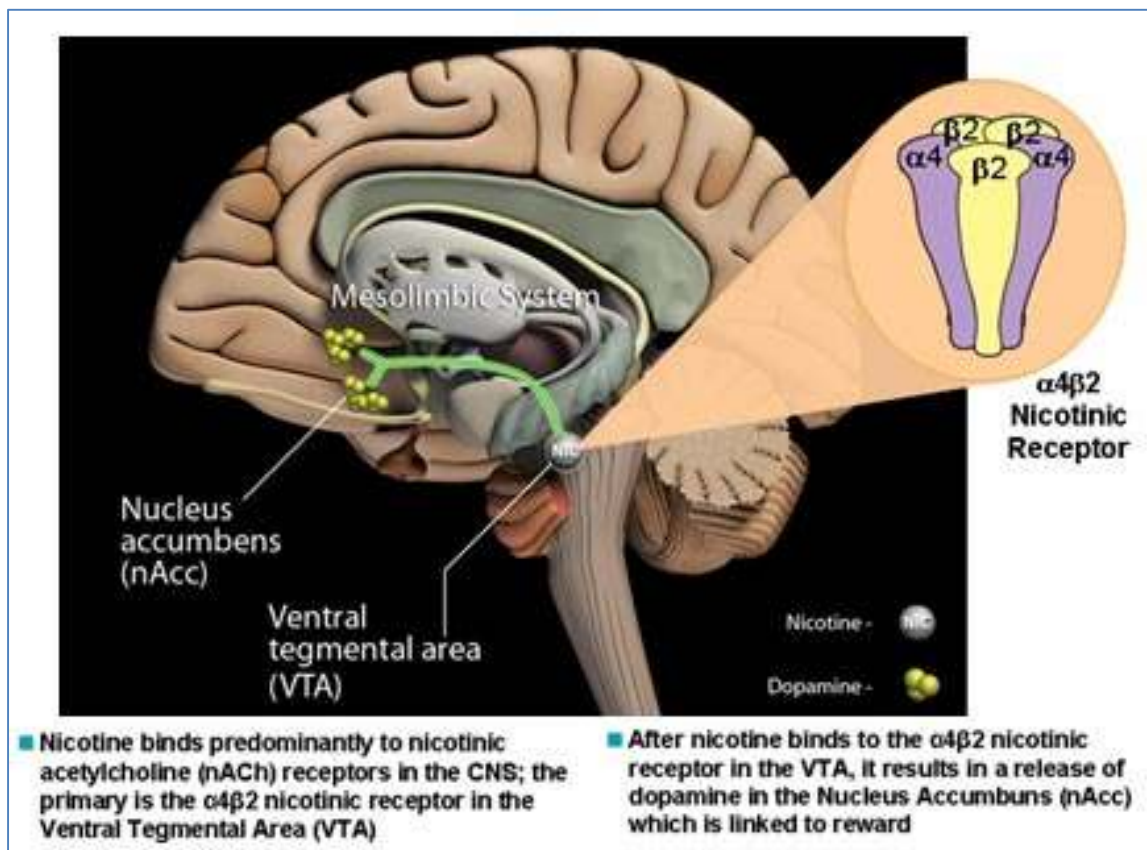
Are adolescents more vulnerable to drug abuse than adults?

- 1) Adolescent brain is immature, human brain matures until about age 24
 - a) Immature brain → poor judgment, impulsivity, inability to contemplate consequences
- 2) Three structures maturing through adolescence
 - a) Nucleus accumbens: pleasure center where drugs produce euphoria and pleasurable effects; modulates how much effort a particular reward is worth. The adolescent nucleus accumbens selects for low efforts, high excitement (e.g. video game, substance use)
 - b) Amygdala: controls emotional reactions to pleasurable and aversive experiences; In adolescents it is responsible for explosive reactions rather than controlled responses.
 - i) Prefrontal cortex: complex information processing, judgment, controls impulses, foreseeing consequences, making plans. In adolescents: poor judgment, impulsive behaviors.

There are five factors contributing essentially to the initiation of tobacco smoking:

- 1) *Socio-demographic factors*
 - a) socioeconomic status (SES),

- b) developmental challenges of adolescence
- c) gender, and
- d) race/ethnicity
- 2) *Environmental factors*
 - a) acceptability and availability of tobacco products,
 - b) interpersonal variables,
 - c) perceived environmental variables;
- 3) *Behavioral factors*
 - a) academic achievement,
 - b) problem behaviors,
 - c) influence of peer groups,
 - d) participation in activities, and
 - e) behavioral skills;
- 4) *Personal factors*
 - a) knowledge of the long-term health consequences of using tobacco,
 - b) functional meanings of tobacco use,
 - c) subjective expected utility of tobacco use,
 - d) variables related to self-esteem, and
 - e) personality;
- 5) *Current behavior relative to tobacco use*
 - a) intention to smoke and
 - b) smoking status.



5.2.2.3 Health impact of smoking

Nicotine and other drugs

Nicotine is the key chemical compound that causes and sustains the powerful addicting effects of commercial tobacco products. Inherited genetic variation in genes such as *CYP2A6* contributes to the differing patterns of smoking behavior and smoking cessation.

- 1) *Dependence*
Nicotine > heroin > cocaine > alcohol > caffeine
- 2) *Tolerance*
(alcohol = heroin = nicotine) > cocaine > caffeine
- 3) *Severity of withdrawal symptoms*
alcohol > heroin > nicotine > cocaine > caffeine
- 4) *The difficulty of maintaining abstinence*
(alcohol = cocaine = heroin = nicotine) > caffeine
- 5) *Mortality*
nicotine > alcohol > (cocaine = heroin) > caffeine
- 6) *Prevalence*
caffeine > nicotine > alcohol > (cocaine = heroin)

Nicotine dependence

- Physical
- Psychological
- Motivation approach

Motivational components nicotine dependence

- Automatism
- better cognitive function
- withdrawal
- Social and situational motivations
- Loss of control
- Weight-control
- Tolerance
- emotional attachment to cigarette
- Negative reinforcement
- Behavioral choose
- Positive reinforcement
- Key factors remembering to smoking
- Taste and sensory experiences

Nicotine withdrawal symptoms (DSM IV)

- Dysphoria or depression
- Insomnia
- Irritability, frustration, anger
- Anxiety
- Concentration disorder
- Decreased heart rate
- Increased appetite or weight gain

Criteria for substance (nicotine) dependence

<i>DSM-IV</i>	<i>ICD-10</i>
A maladaptive pattern of substance use, leading to clinically significant impairment or distress, as manifested by 3 or more of the following criteria, occurring at any time in the same 12-month period	
<ul style="list-style-type: none"> • Tolerance—need increased amounts of substance to achieve desired effect, or diminished effect with continued use of same amount • Withdrawal symptoms • Substance often taken in larger amounts or over longer period than intended • Persistent desire or unsuccessful efforts to cut down or control substance use • Great deal of time spent in activities necessary to obtain substance, use substance, or recover from its effects • Important social, occupational, or recreational activities given up or reduced because of substance use • Substance use continued despite knowledge of having persistent or recurrent physical or psychological problem likely to have been caused or exacerbated by substance 	<ul style="list-style-type: none"> • Increased tolerance • Physical withdrawal at times • Strong desire to take drug • Difficulty controlling use • Higher priority given to drug use than to other activities and obligations • Persistent use despite harmful consequences
<p><i>Source:</i> Adapted from Royal College of Physicians of London 2000 with permission from Royal College of Physicians, © 2000. <i>Note:</i> DSM-IV = <i>Diagnostic and Statistical Manual of Mental Disorders</i>, 4th ed.; ICD-10 = <i>International Classification of Diseases</i>, Tenth Revision.</p>	

Fagerström test for nicotine dependence:

PLEASE TICK (✓) ONE BOX FOR EACH QUESTION			
How soon after waking do you smoke your first cigarette?	Within 5 minutes	<input type="checkbox"/>	3
	5-30 minutes	<input type="checkbox"/>	2
	31-60 minutes	<input type="checkbox"/>	1
Do you find it difficult to refrain from smoking in places where it is forbidden? e.g. Church, Library, etc.	Yes	<input type="checkbox"/>	1
	No	<input type="checkbox"/>	0
Which cigarette would you hate to give up?	The first in the morning	<input type="checkbox"/>	1
	Any other	<input type="checkbox"/>	0
How many cigarettes a day do you smoke?	10 or less	<input type="checkbox"/>	0
	11 – 20	<input type="checkbox"/>	1
	21 – 30	<input type="checkbox"/>	2
	31 or more	<input type="checkbox"/>	3
Do you smoke more frequently in the morning?	Yes	<input type="checkbox"/>	1
	No	<input type="checkbox"/>	0
Do you smoke even if you are sick in bed most of the day?	Yes	<input type="checkbox"/>	1
	No	<input type="checkbox"/>	0
Total Score			
SCORE	1- 2 = low dependence 3-4 = low to mod dependence	5 - 7= moderate dependence 8 + = high dependence	

Health consequences of SHS exposure in adults:

- 1) More than 50 carcinogens have been identified in side-stream and SHS.
- 2) Increased risk for lung cancer (20-30% increase if living with a smoker).
- 3) Breast cancer
- 4) Nasal sinus cancer
- 5) Increased coronary heart disease morbidity and mortality (relative risk increase: 25-30%).
- 6) Stroke
- 7) Atherosclerosis
- 8) Exposure to SHS has a pro-thrombotic effect.
- 9) causes endothelial cell dysfunctions,
- 10) Odor dysfunction
- 11) Nasal irritation
- 12) acute respiratory symptoms including cough, wheeze, chest tightness, and difficulty breathing among persons with asthma as well as among healthy persons.
- 13) chronic respiratory symptoms.
- 14) Short-term SHS exposure and an acute decline in lung function in persons with asthma.
- 15) adult-onset asthma;
- 16) worsening of asthma control.
- 17) Risk for COPD

Health consequences of exposure to SHS in the fetus and children

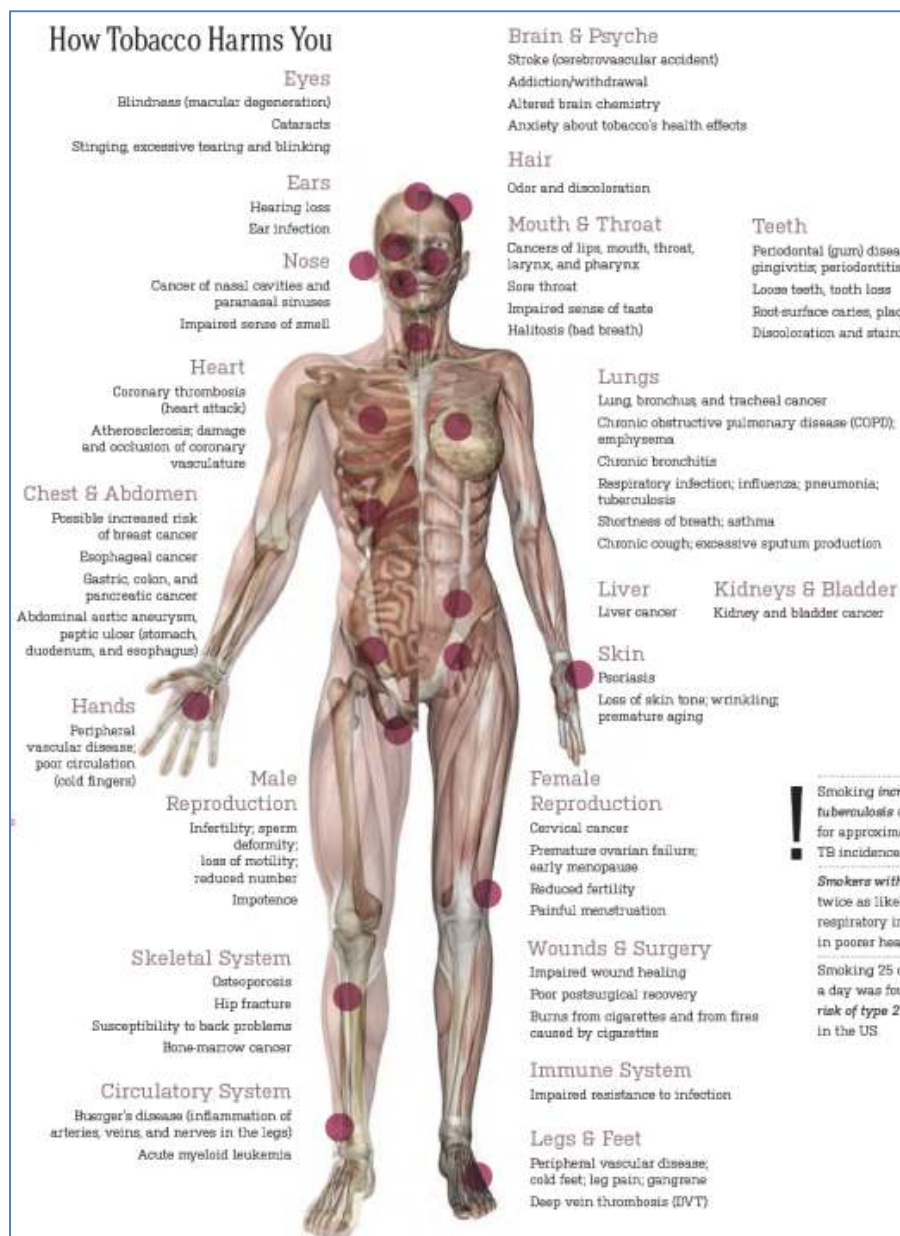
- 1) Maternal exposure to secondhand smoke during pregnancy and preterm delivery.
- 2) Sudden Infant Death
- 3) Low birth weight
- 4) Childhood cancer: prenatal and postnatal exposure to secondhand smoke and childhood leukemias, lymphomas, brain tumors.
- 5) lower respiratory illnesses in infants and children (especially smoking by the mother).
- 6) parental smoking and middle ear disease in children, including acute and recurrent otitis media and chronic middle ear effusion.
- 7) cough, phlegm, wheeze, and breathlessness among children of school age.
- 8) Ever having asthma among children of school age.
- 9) Onset of wheeze illnesses in early childhood and childhood asthma.
- 10) maternal smoking during pregnancy and persistent adverse effects on lung function across childhood.
- 11) exposure to secondhand smoke after birth and a lower level of lung function during childhood.

Health consequences of tobacco use among adolescents

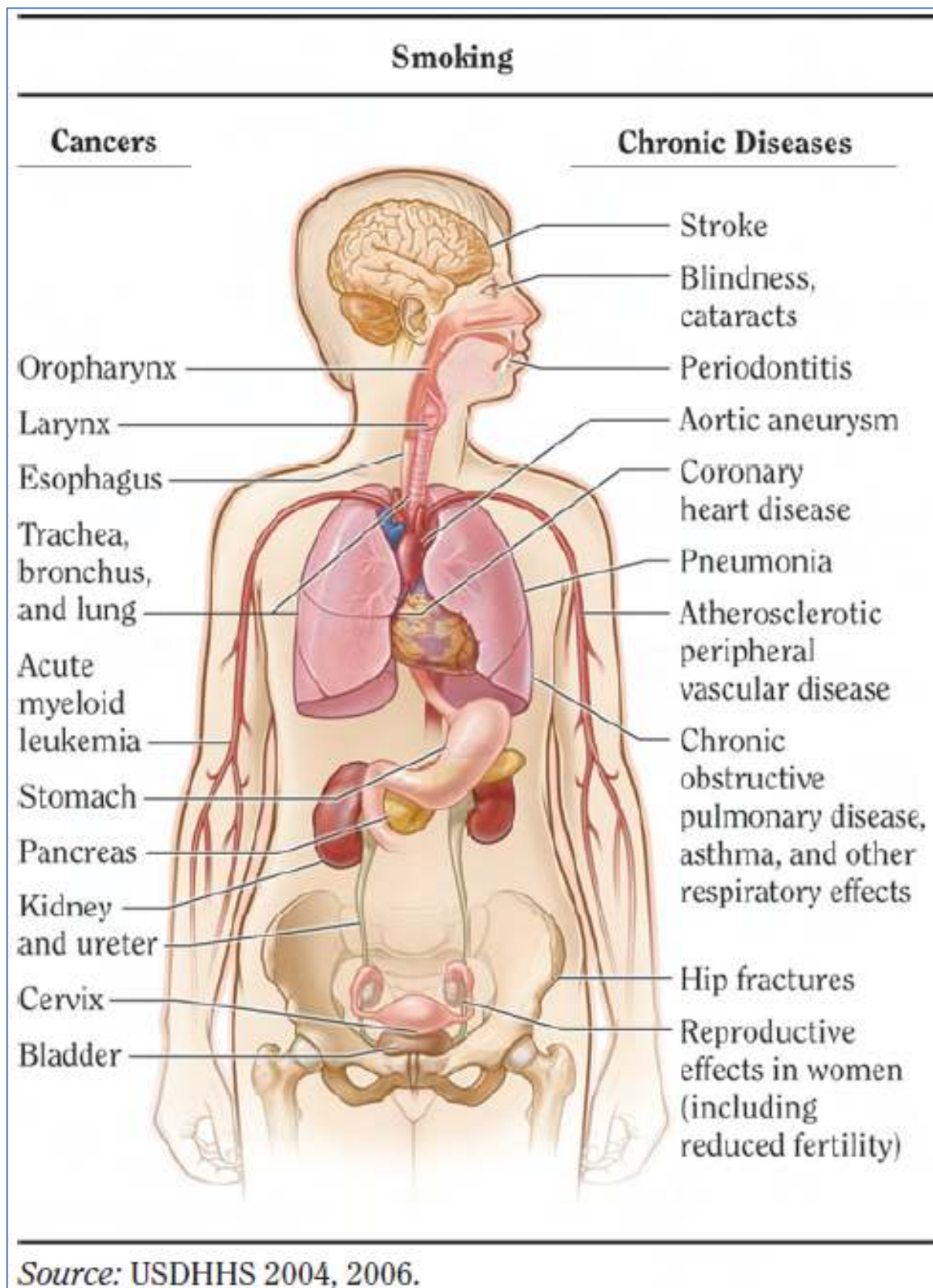
For many of the chronic diseases caused by smoking, the risks increase with the duration and cumulative amount of this behavior. The age of starting to smoke has consequences for the age at which the risks of smoking become manifest.

- 1) The evidence is sufficient to conclude that there is a causal relationship between smoking and addiction to nicotine, beginning in adolescence and young adulthood.
- 2) The evidence is suggestive but not sufficient to conclude that smoking contributes to future use of marijuana and other illicit drugs.

- 3) The evidence is suggestive but not sufficient to conclude that smoking by adolescents and young adults is *not* associated with significant weight loss, contrary to young people's beliefs.
- 4) The evidence is sufficient to conclude that there is a causal relationship between active smoking and both reduced lung function and impaired lung growth during childhood and adolescence.
- 5) The evidence is sufficient to conclude that there is a causal relationship between active smoking and wheezing severe enough to be diagnosed as asthma in susceptible child and adolescent populations.
- 6) The evidence is sufficient to conclude that there is a causal relationship between smoking in adolescence and young adulthood and early abdominal aortic atherosclerosis in young adults.
- 7) The evidence is suggestive but not sufficient to conclude that there is a causal relationship between smoking in adolescence and young adulthood and coronary artery atherosclerosis in adulthood.



Health consequences causally linked to smoking



Source: USDHHS 2004, 2006.



Health Risks of Smoking During Pregnancy

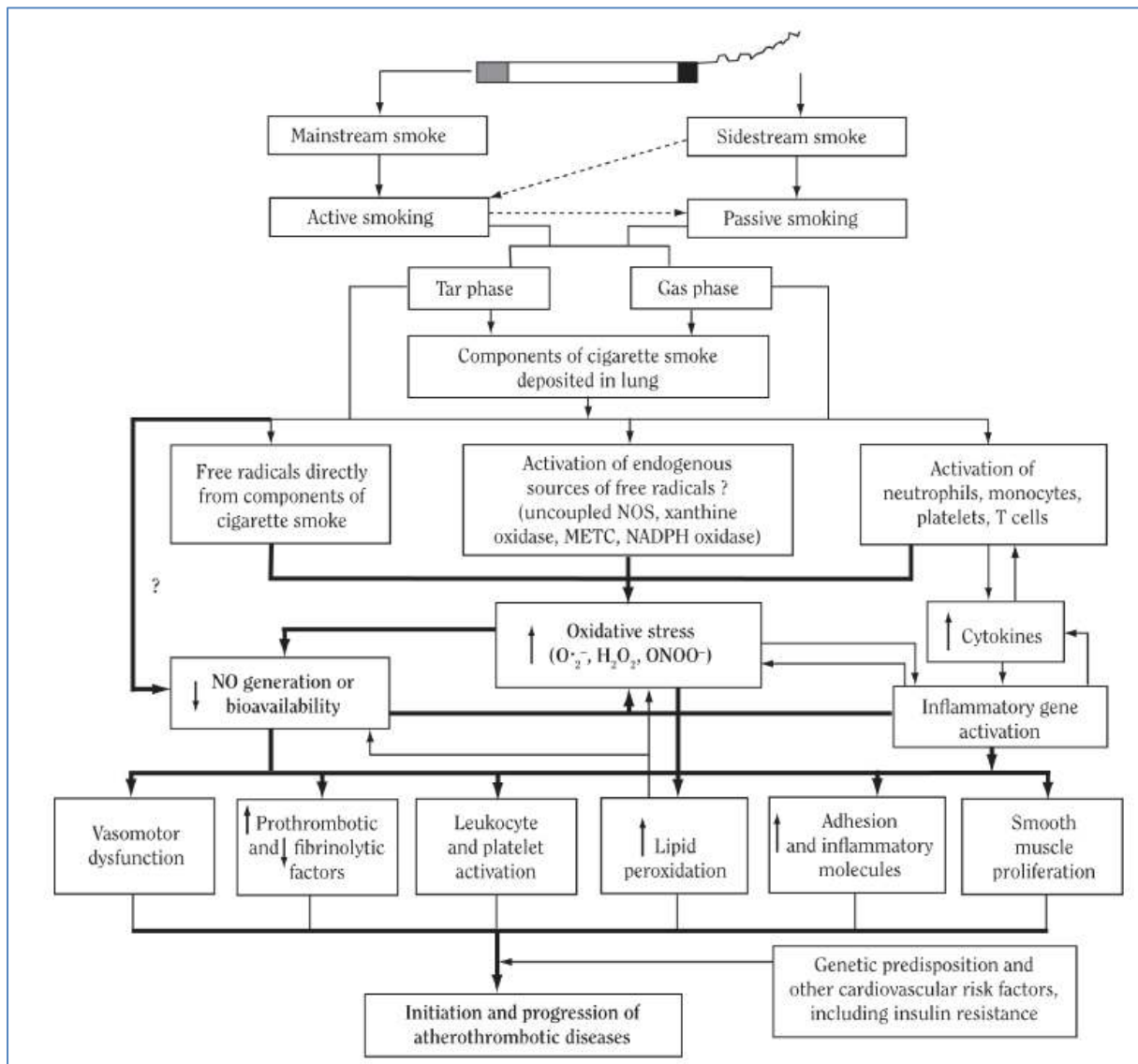
Mother

- Abruptio placentae
- Placenta previa
- Premature rupture of membranes
- Premature birth
- Spontaneous abortion/
miscarriage
- Ectopic pregnancy

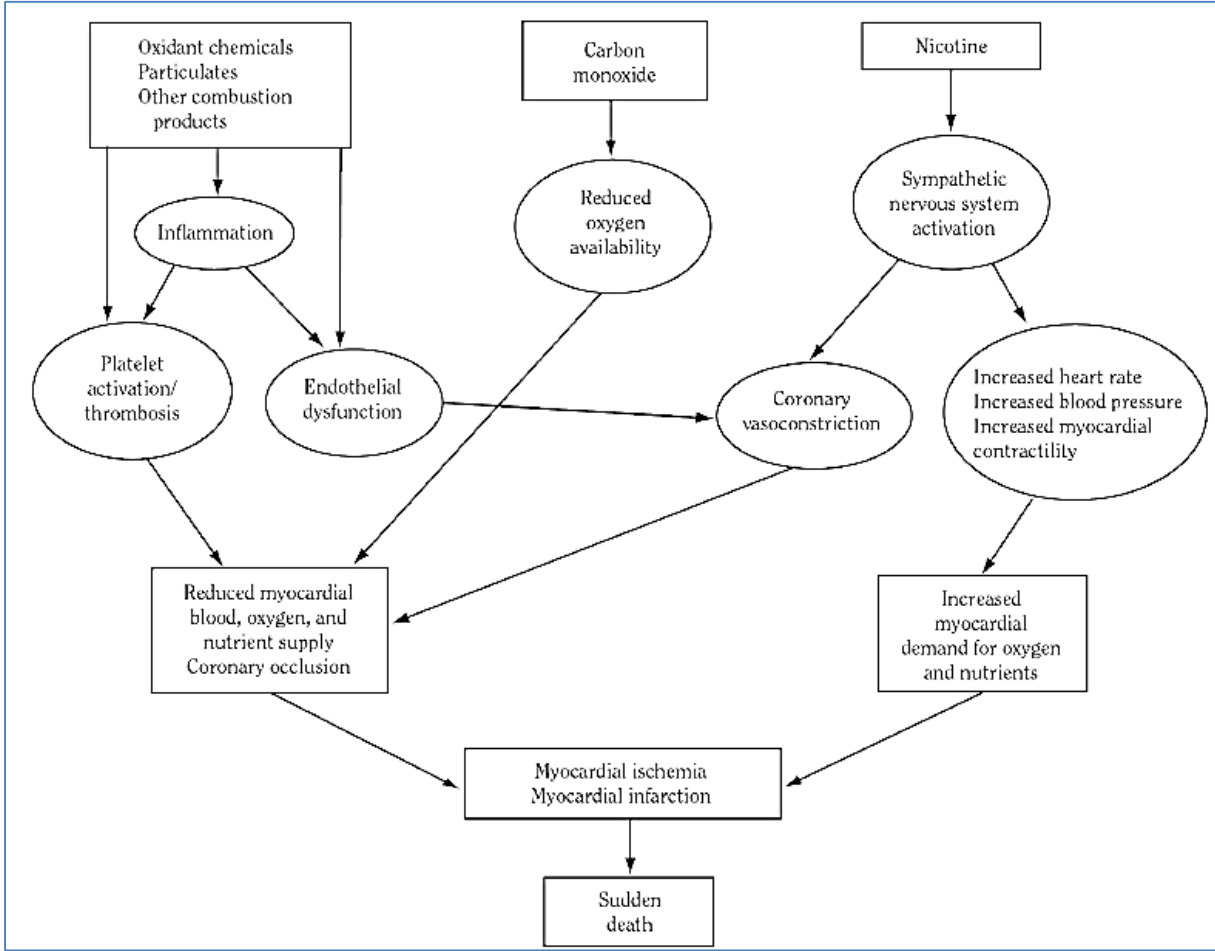
Fetuses, Infants, Children

- Stunted gestational
development
- Stillbirth
- Sudden Infant Death
Syndrome (SIDS)
- Reduced lung function and
impaired lung development
- Asthma exacerbation
- Acute lower respiratory infection;
bronchitis; pneumonia
- Respiratory irritation;
cough; phlegm; wheeze
- Childhood cancers
- Oral cleft

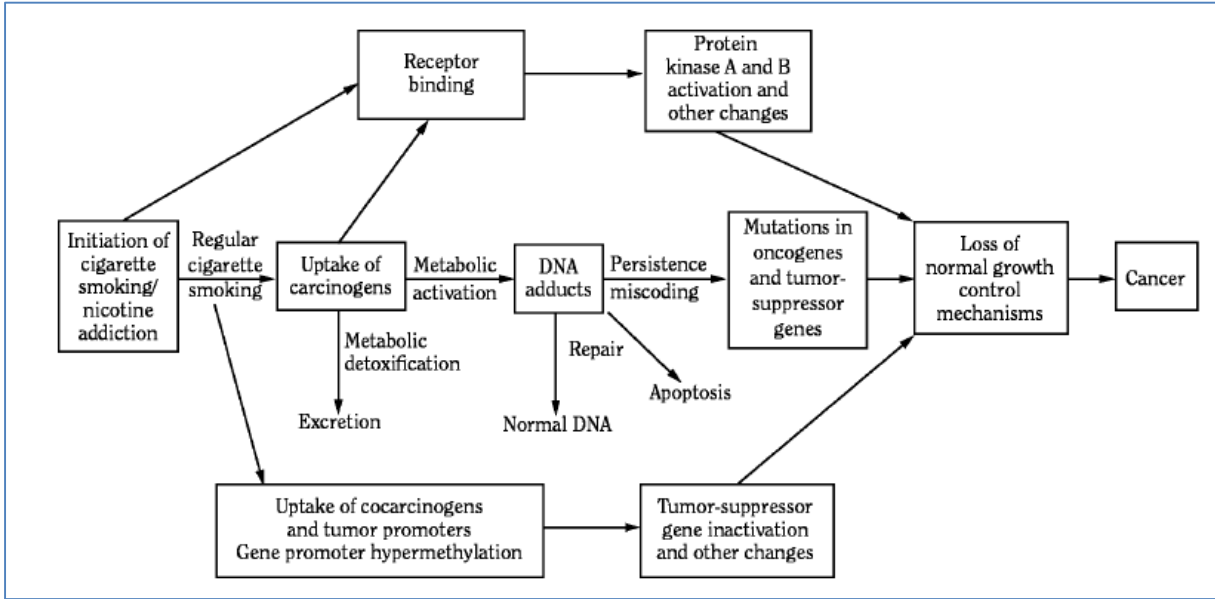
Cardiovascular dysfunction: Potential pathways and mechanisms mediated by cigarette smoking. (H₂O₂ = hydrogen peroxide; METC = mitochondrial electron transport chain; NADPH = reduced nicotinamide adenine dinucleotide phosphate; NO = nitric oxide; NOS = nitric oxide synthase; O₂⁻ = superoxide anion; ONOO⁻ = peroxynitrite.)



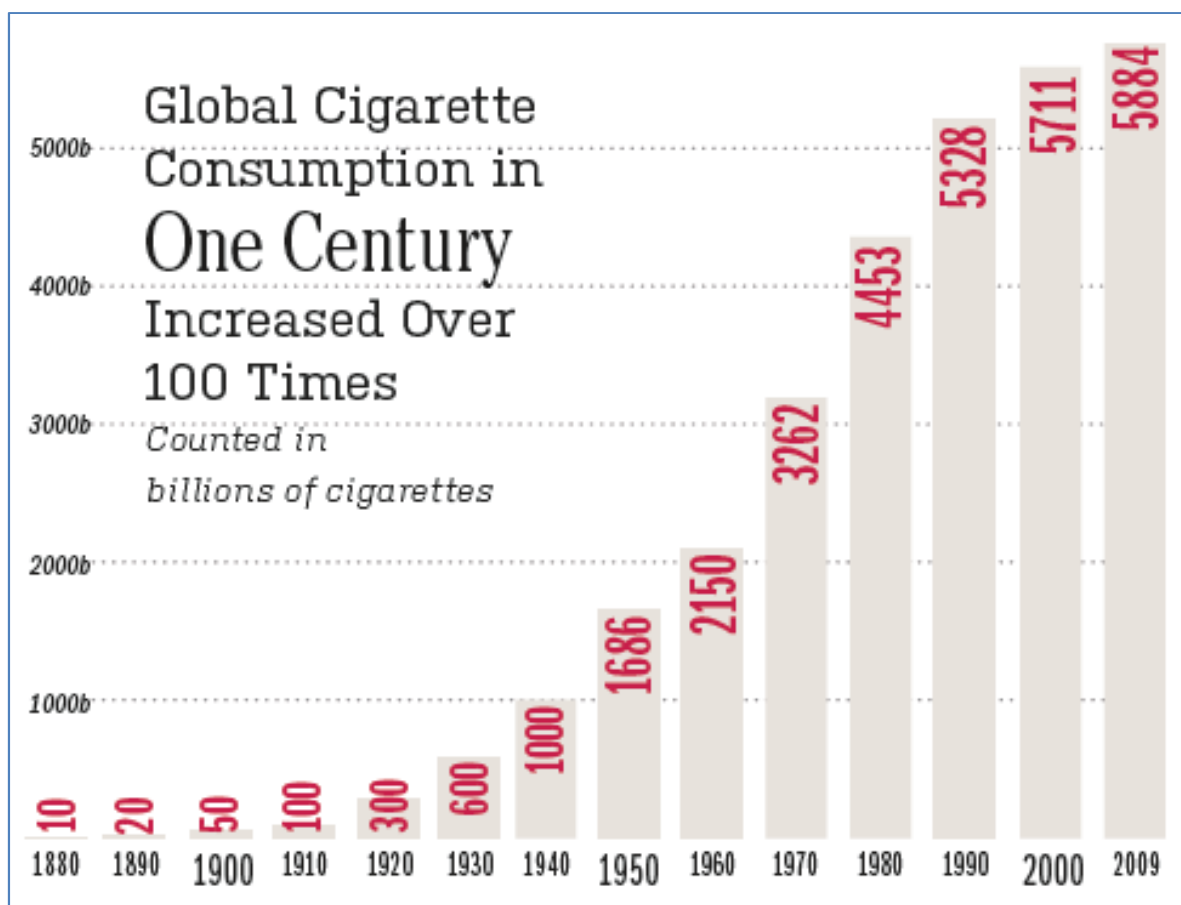
Overview of mechanisms by which cigarette smoking causes an acute cardiovascular event

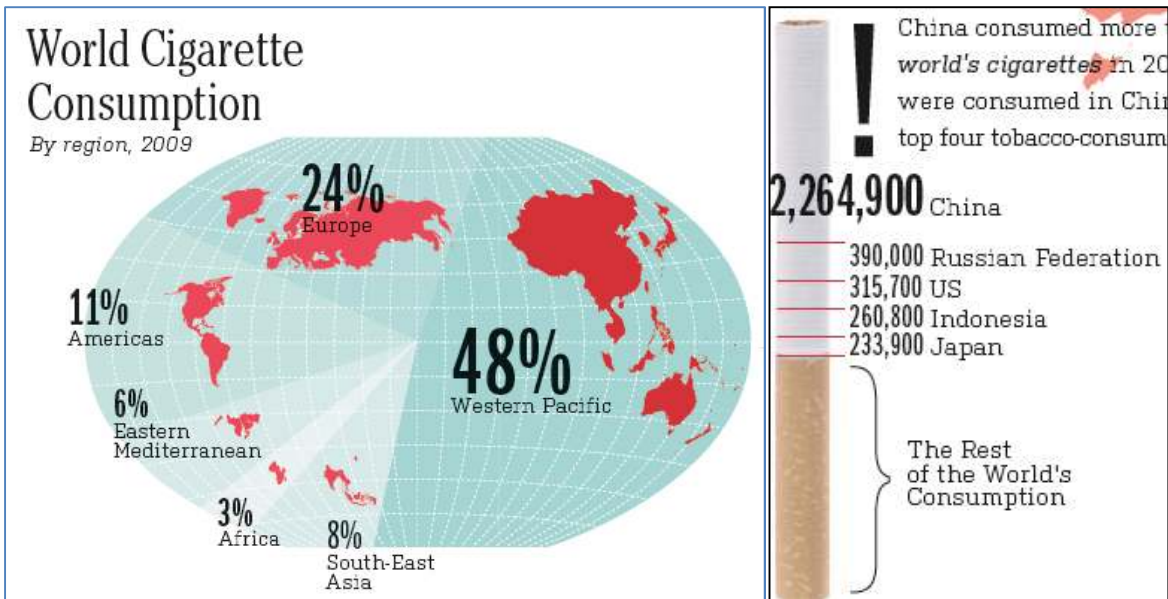


Link between cigarette smoking and cancer through carcinogens in tobacco smoke



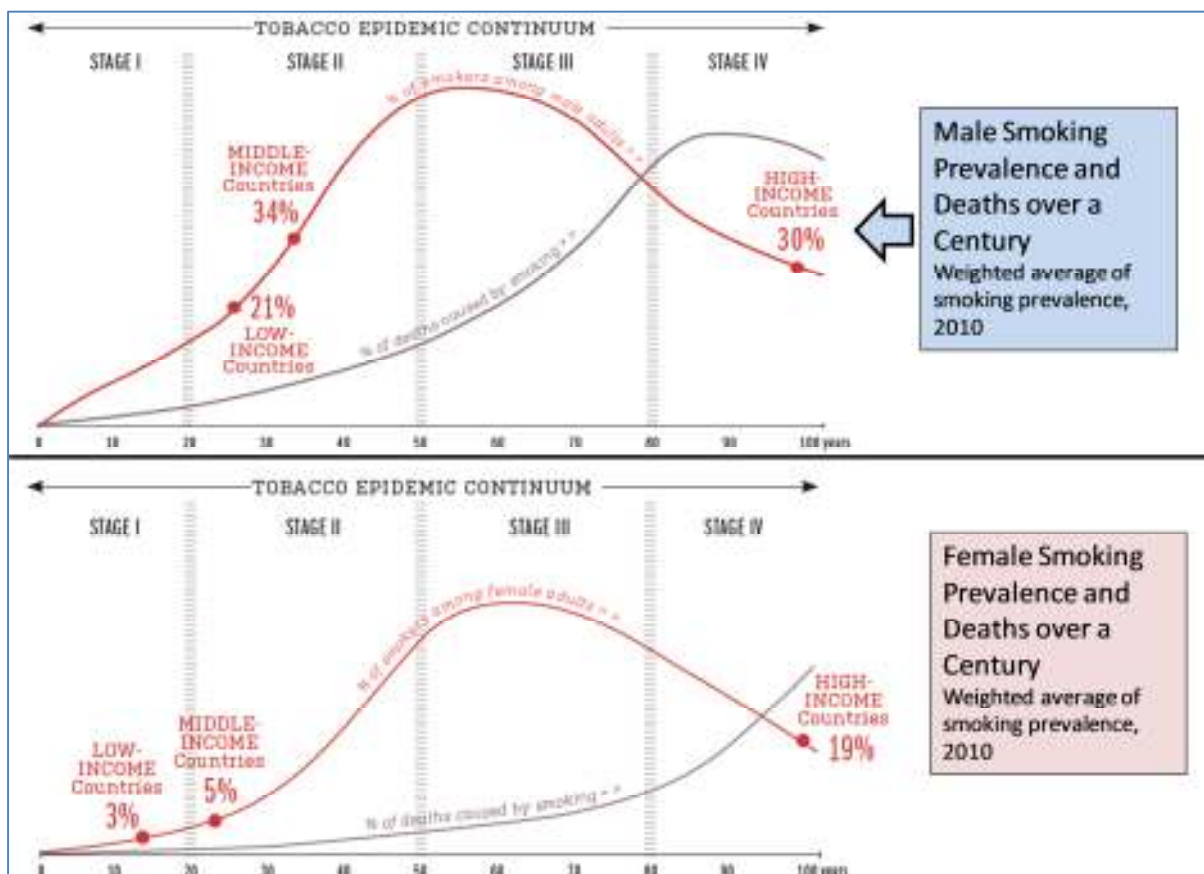
5.2.2.4. Tobacco smoking epidemic





The global tobacco epidemic can be segmented into four stages in which men typically precede women.

- Stage 1 represents the very beginning of the epidemic when the prevalence of smoking has begun to rise but there is as yet no appreciable smoking attributed mortality.
- Stage 2 smoking prevalence increases rapidly but smoking attributed deaths still account for a small proportion (less than 5%) of all deaths.
- Stage 3 smoking prevalence is stable or decreasing but smoking attributed mortality increases to a maximum of 20%- 50% of all deaths in middle age (35-69 years).



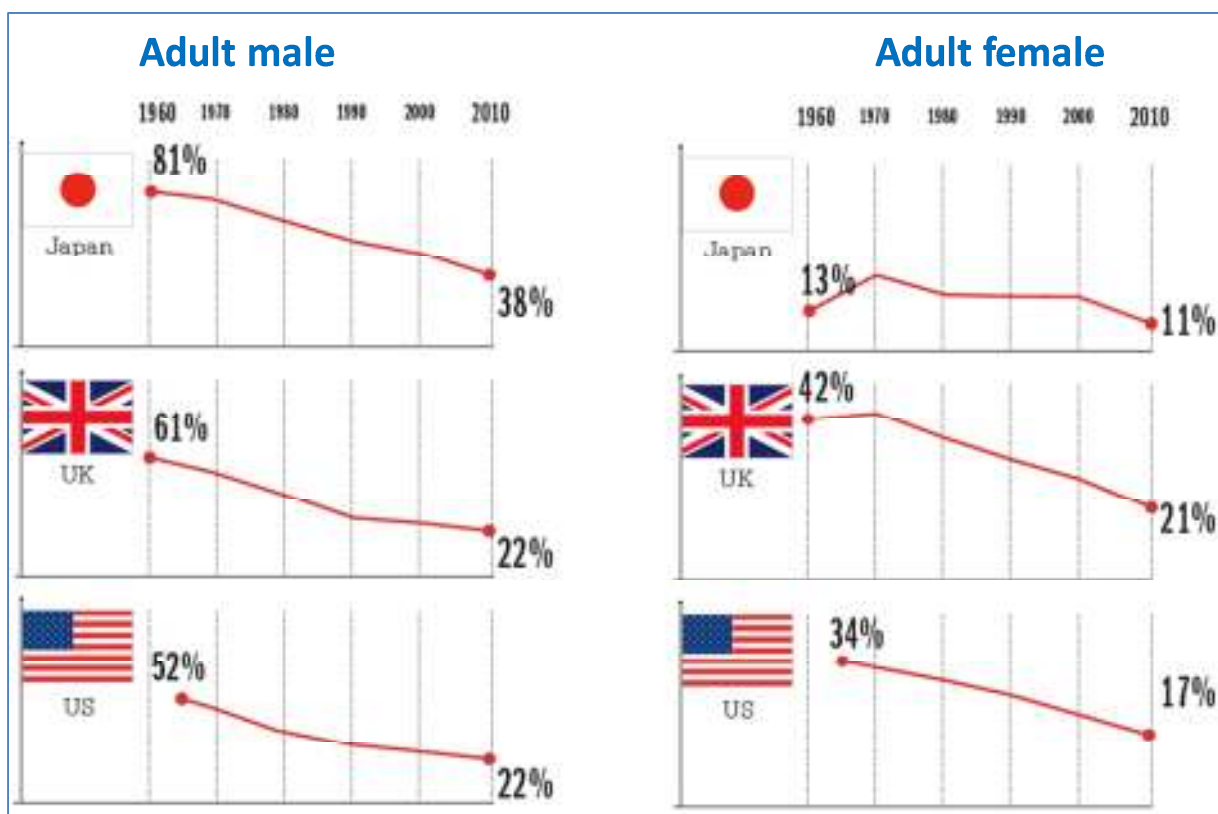
- Stage 4 smoking prevalence (and eventually smoking-attributed mortality) decrease towards lower limits that are not yet defined.

While countries may have similar prevalence rates, each country's location on the curve is important. Countries on the upslope of the trajectory are in the early stages of the epidemic and experience different challenges than those countries on the downslope.

About 800 million adult men worldwide smoke cigarettes. Almost 20% of the world's adult male smokers live in high-income countries, while over 80% are in low- and middle-income countries. Smoking kills ~4 million men annually. Prevalence rates are declining, but the number of smokers increasing due to general population growth.

Nearly 200 million adult women worldwide smoke cigarettes. In 2010, half of the world's female smokers were in high-income countries and the remaining half in low- and middle-income countries. Tobacco companies: Marketing directly to women, and create an association between smoking and gender equality. Today in many low- and middle-income countries where there are potential new smokers and sparse marketing restrictions.

Smoking trends in Japan, the U.K. and the U.S.



Contrasted to the decreasing trends in the highest income countries, there is a higher prevalence of tobacco smoking in the low and middle income countries.

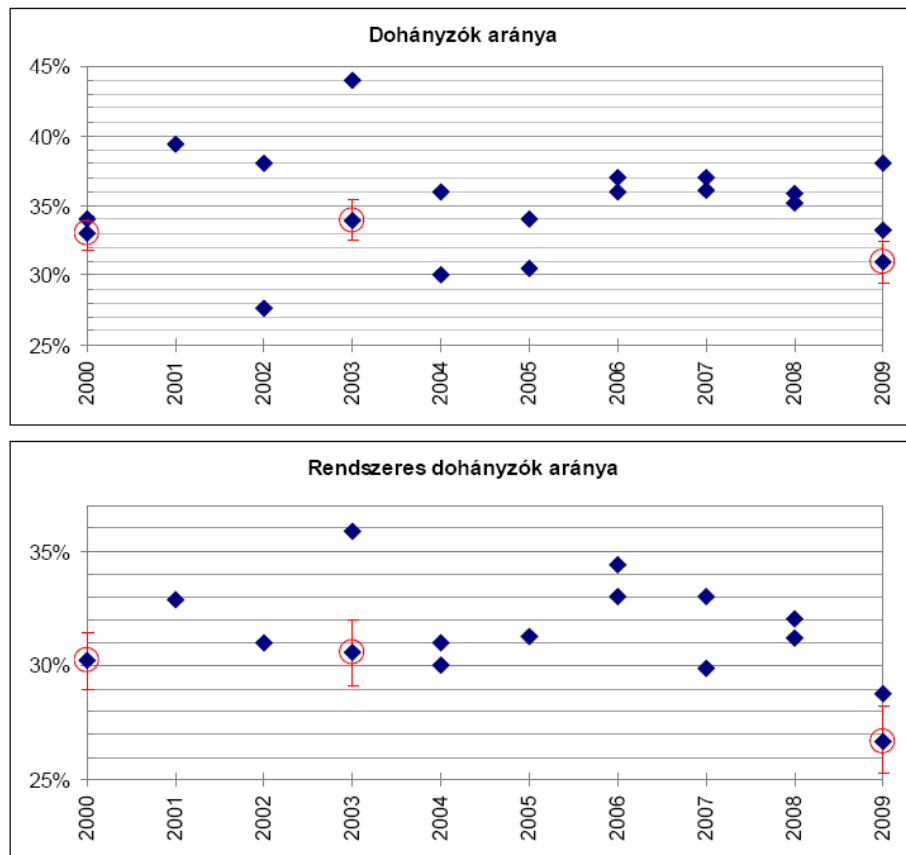
Percent of males who smoke cigarettes, based on 210 or latest available data.



Percent of females who smoke cigarettes, based on 210 or latest available data.



There is a slight downward trend of smoking prevalence in Hungary between 2000 and 2009. The upper table shows the general prevalence, the lower table only the regular smokers.

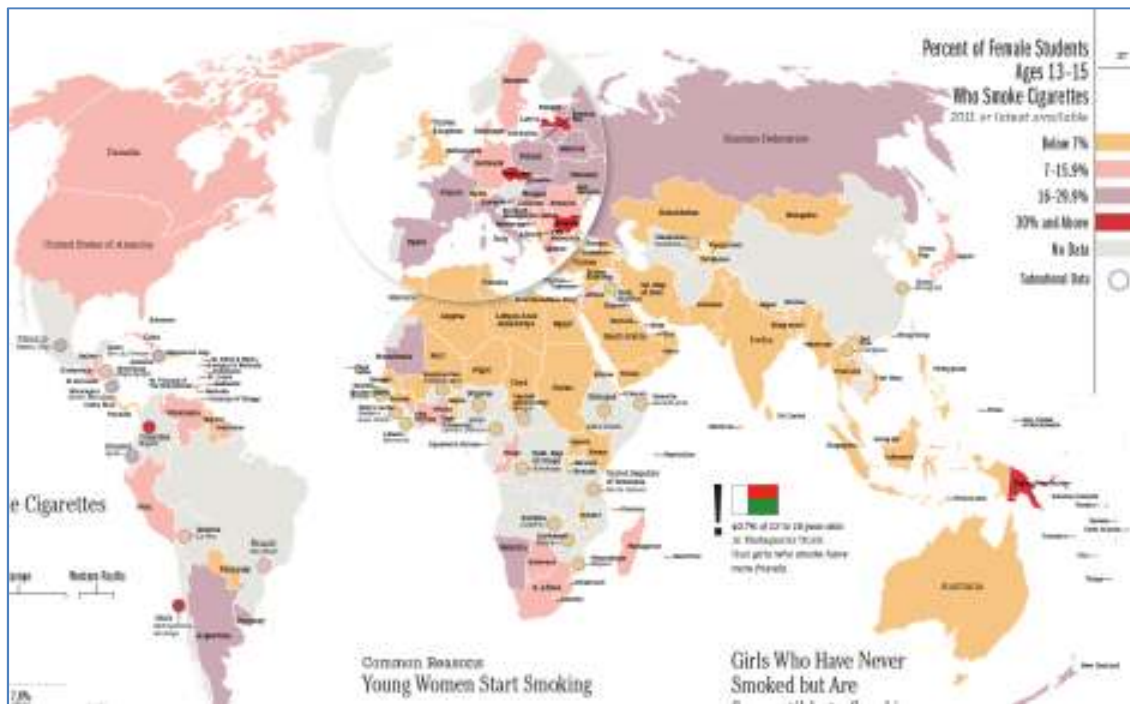


Adolescent smoking

Percent of male students ages 13-15 who smoke cigarettes

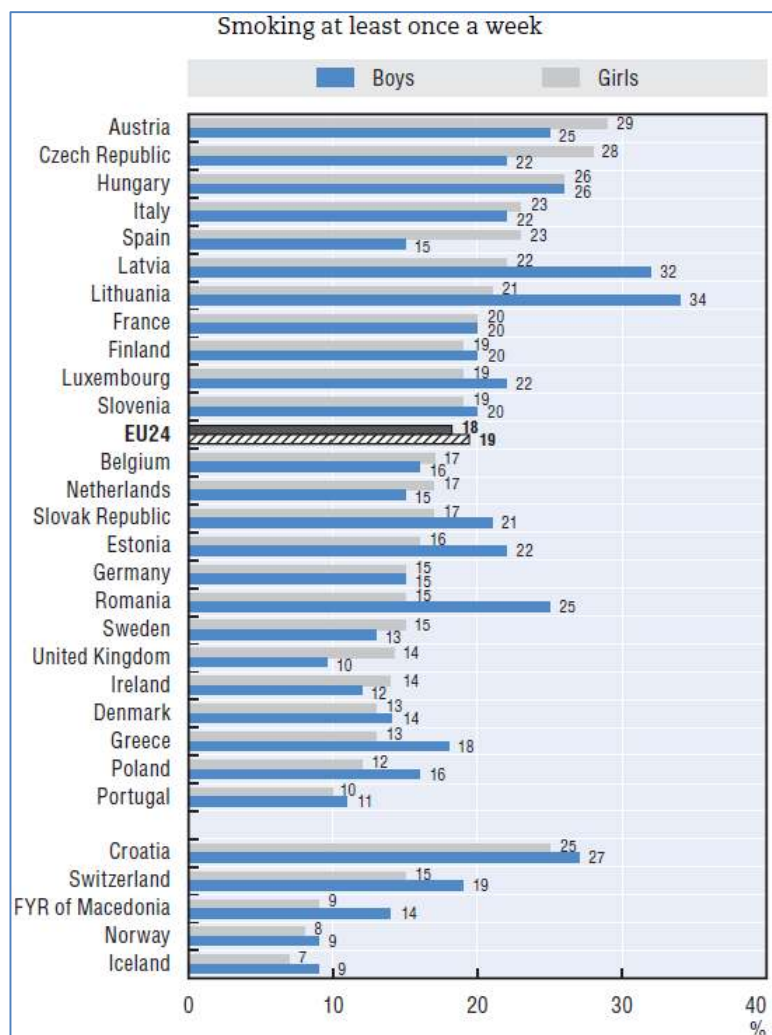


Percent of female students ages 13-15 who smoke cigarettes

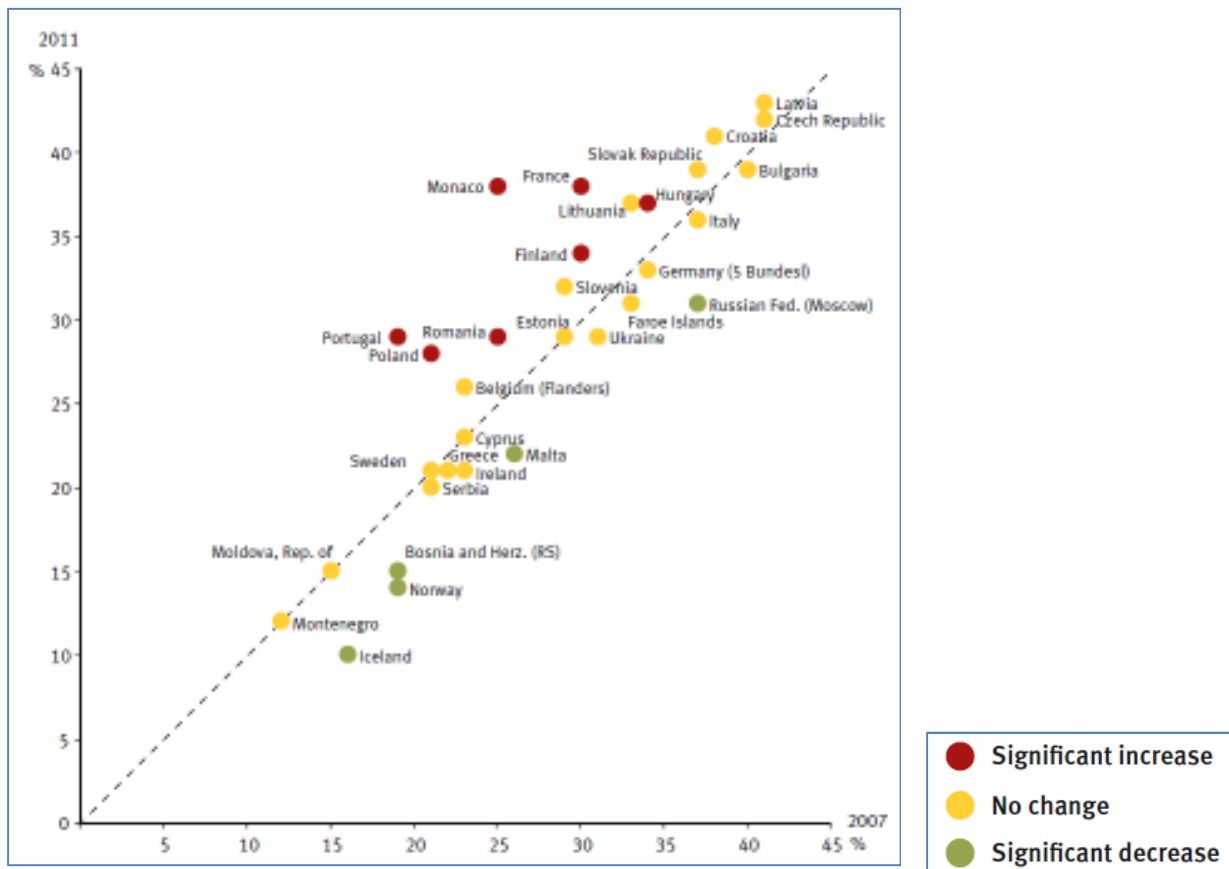


Smoking among 15-year-olds, 2009-2010

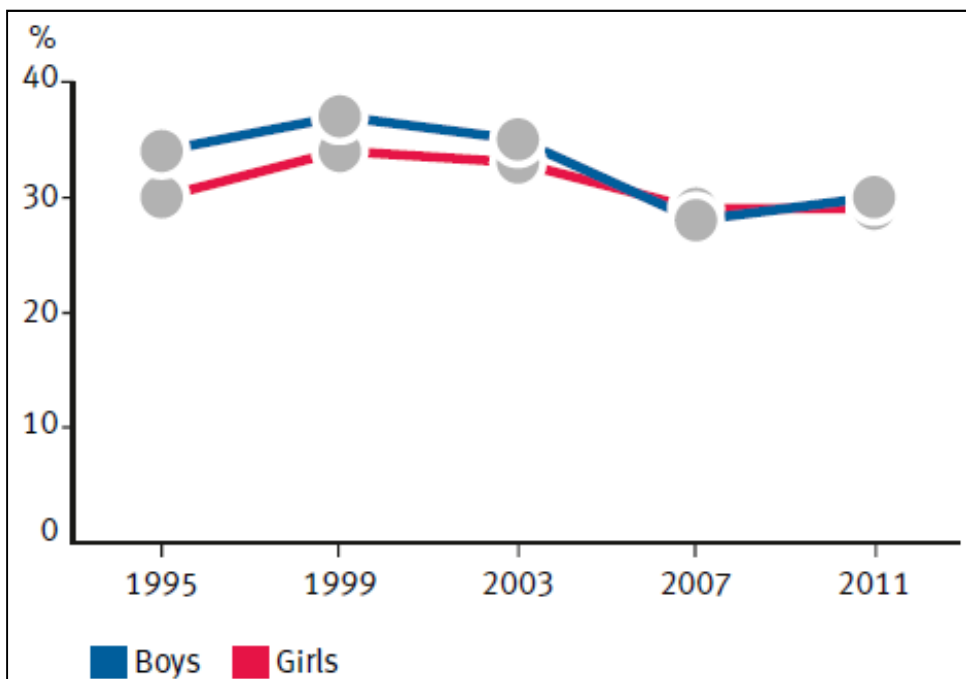
Currie C et al., eds. Social determinants of health and well-being among young people. Health Behaviour in School-aged Children (HBSC) study: international report from the 2009/2010 survey



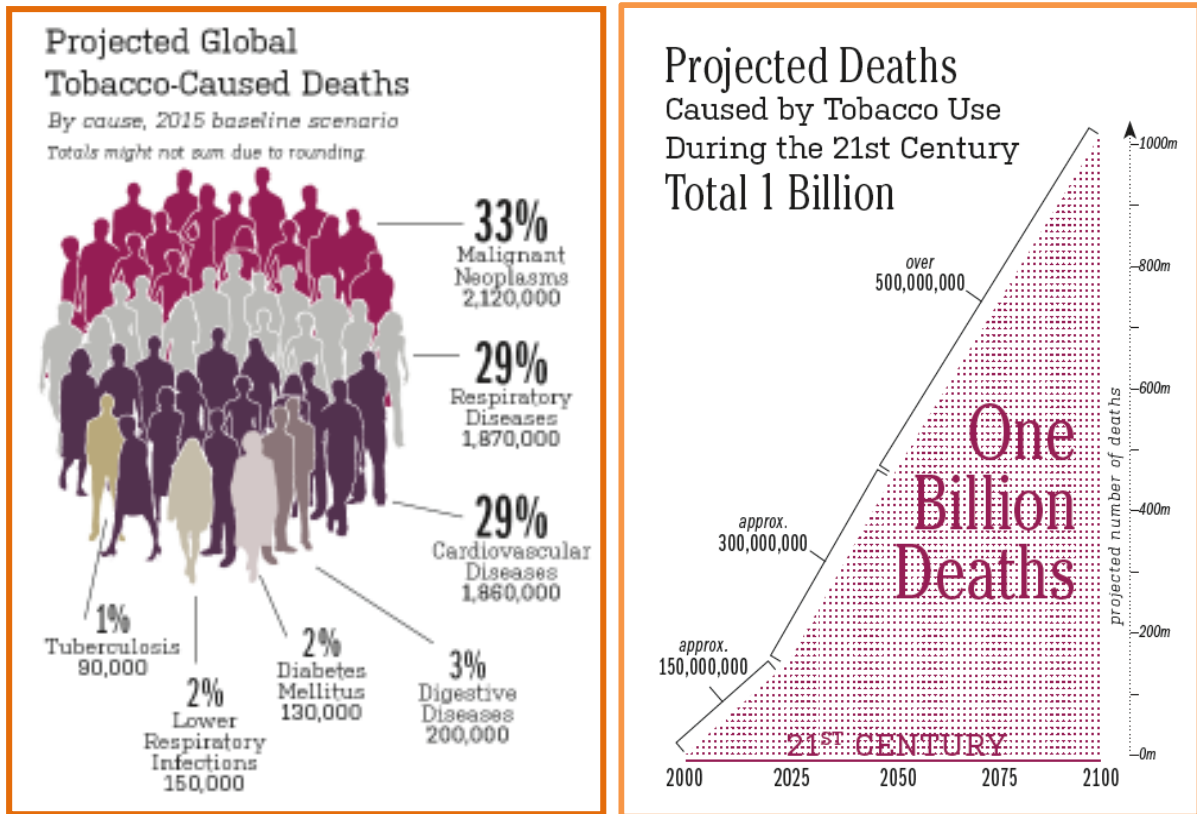
Changes of cigarette use during the past 30 days 2007-2011. (students in percentages).



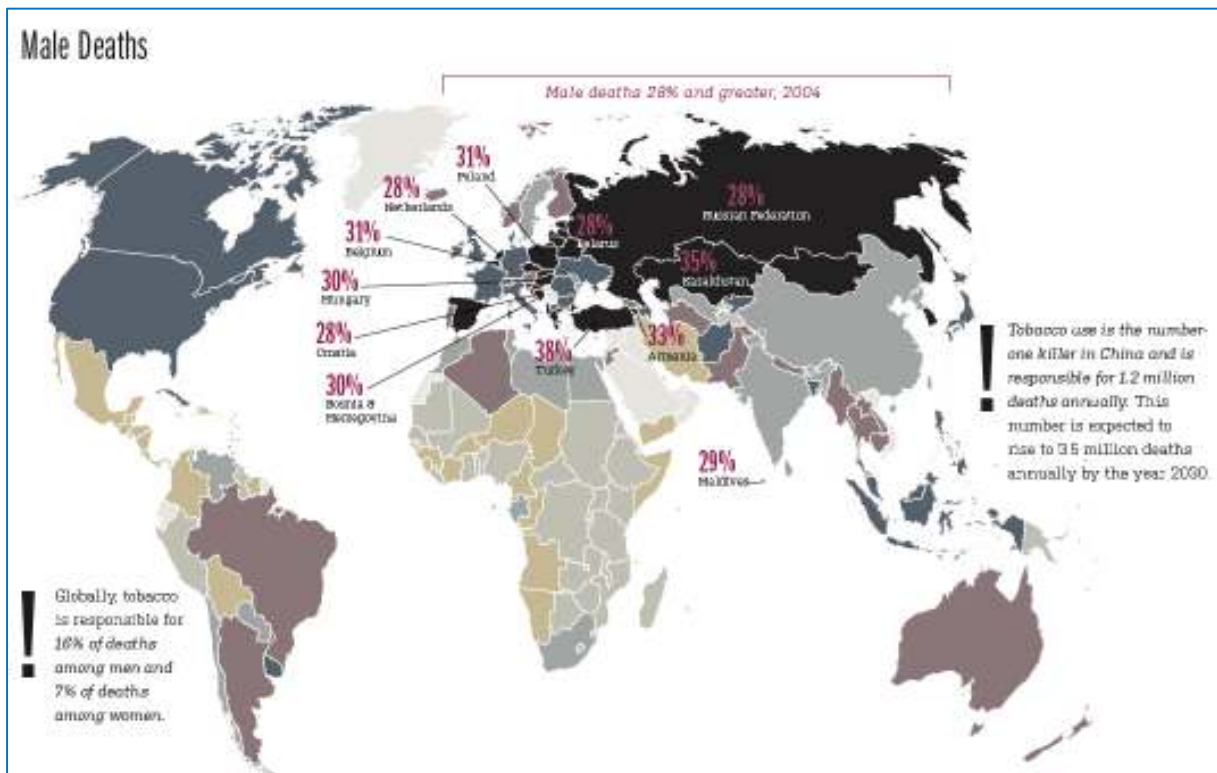
Cigarette use during the past 30 days by gender 1995–2011. Averages for 19 countries in %. Hibell B et al., eds. The 2011 ESPAD Report. Substance use among students in 36 European countries.

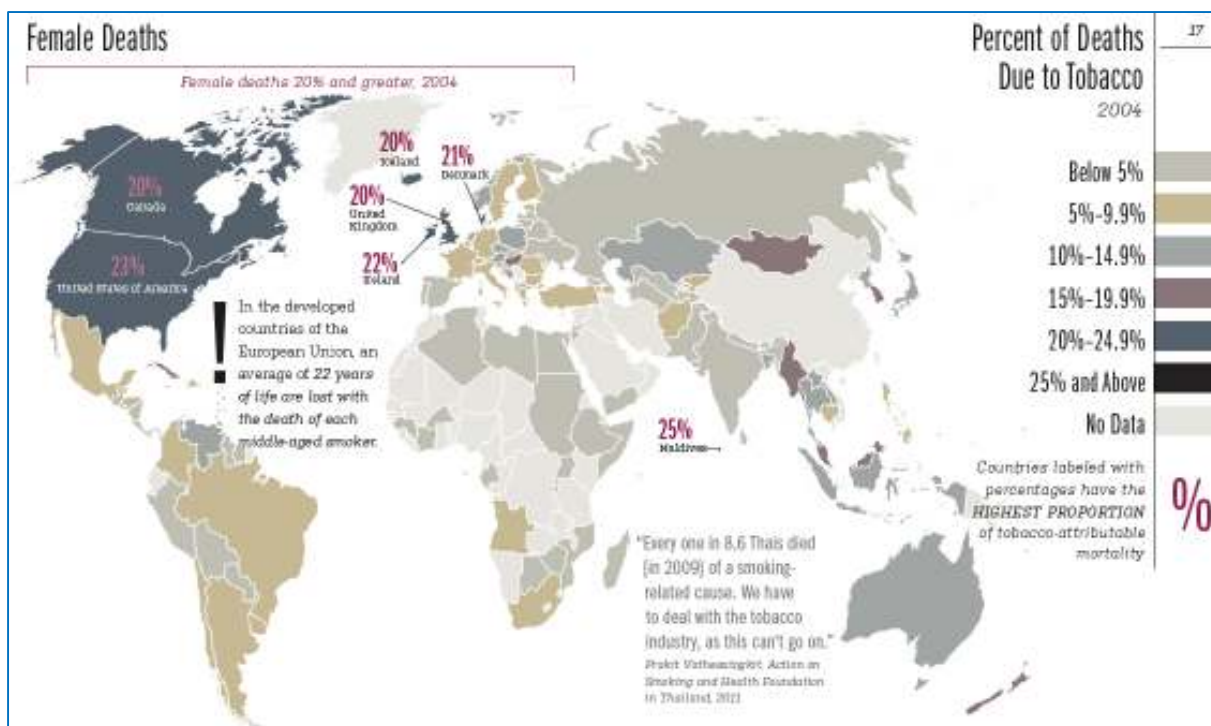


Tobacco related mortality

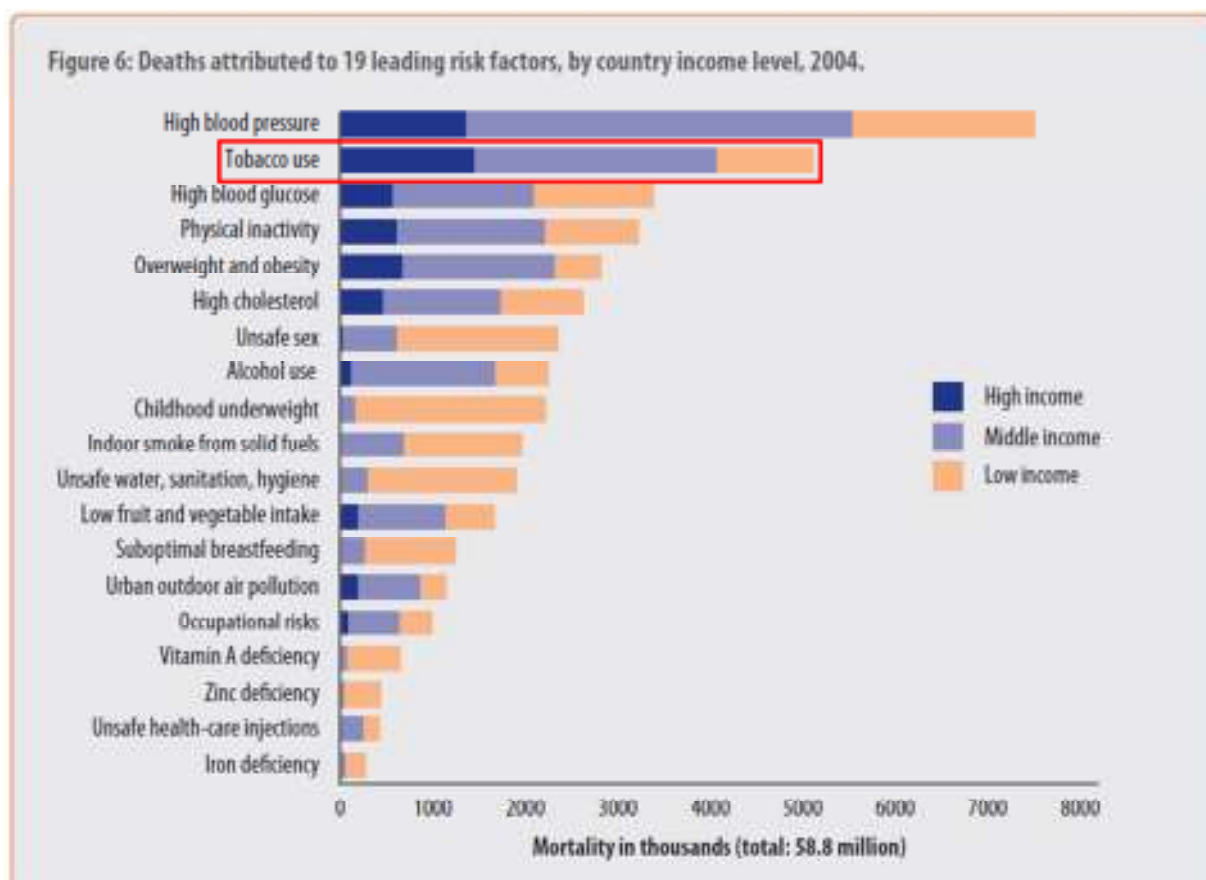


Globally, tobacco is responsible for 16% of deaths among men and 7% of deaths among women

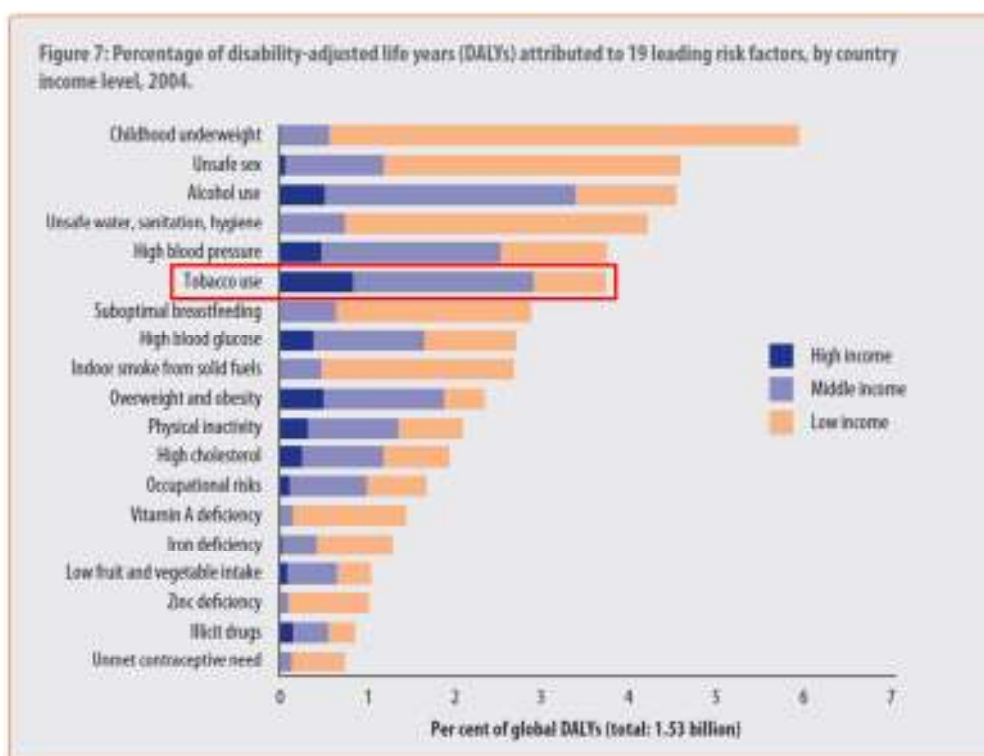




Related to mortality, tobacco use is on the 2nd place among 19 leading risk factors



Related to the disability-adjusted life years (DALYs), tobacco use is on the 6th place among 19 leading risk factors



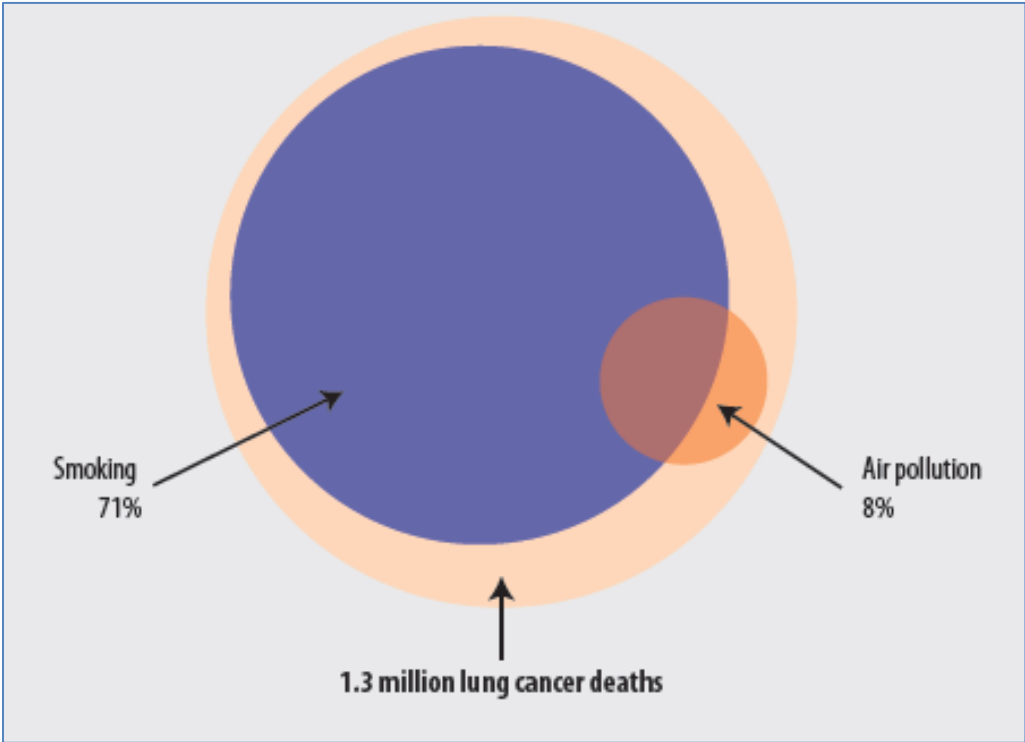
Ranking of mortality risk factors related to the income level of the countries

Risk factor	Deaths (millions)	Percentage of total	Risk factor	Deaths (millions)	Percentage of total
World			Low-income countries*		
1 High blood pressure	7.5	12.8	1 Childhood underweight	2.0	7.8
2 Tobacco use	5.1	8.7	2 High blood pressure	2.0	7.5
3 High blood glucose	3.4	5.8	3 Unsafe sex	1.7	6.6
4 Physical inactivity	3.2	5.5	4 Unsafe water, sanitation, hygiene	1.6	6.1
5 Overweight and obesity	2.8	4.8	5 High blood glucose	1.3	4.9
6 High cholesterol	2.6	4.5	6 Indoor smoke from solid fuels	1.1	4.8
7 Unsafe sex	2.4	4.0	7 Tobacco use	1.0	3.9
8 Alcohol use	2.3	3.8	8 Physical inactivity	1.0	3.8
9 Childhood underweight	2.2	3.8	9 Suboptimal breastfeeding	1.0	3.7
10 Indoor smoke from solid fuels	2.0	3.3	10 High cholesterol	0.9	3.4
Middle-income countries*			High-income countries*		
1 High blood pressure	4.2	17.2	1 Tobacco use	1.5	17.9
2 Tobacco use	2.6	10.8	2 High blood pressure	1.4	16.8
3 Overweight and obesity	1.6	6.7	3 Overweight and obesity	0.7	8.4
4 Physical inactivity	1.6	6.6	4 Physical inactivity	0.6	7.7
5 Alcohol use	1.6	6.4	5 High blood glucose	0.6	7.0
6 High blood glucose	1.5	6.3	6 High cholesterol	0.5	5.8
7 High cholesterol	1.3	5.2	7 Low fruit and vegetable intake	0.2	2.5
8 Low fruit and vegetable intake	0.9	3.9	8 Urban outdoor air pollution	0.2	2.5
9 Indoor smoke from solid fuels	0.7	2.8	9 Alcohol use	0.1	1.6
10 Urban outdoor air pollution	0.7	2.8	10 Occupational risks	0.1	1.1

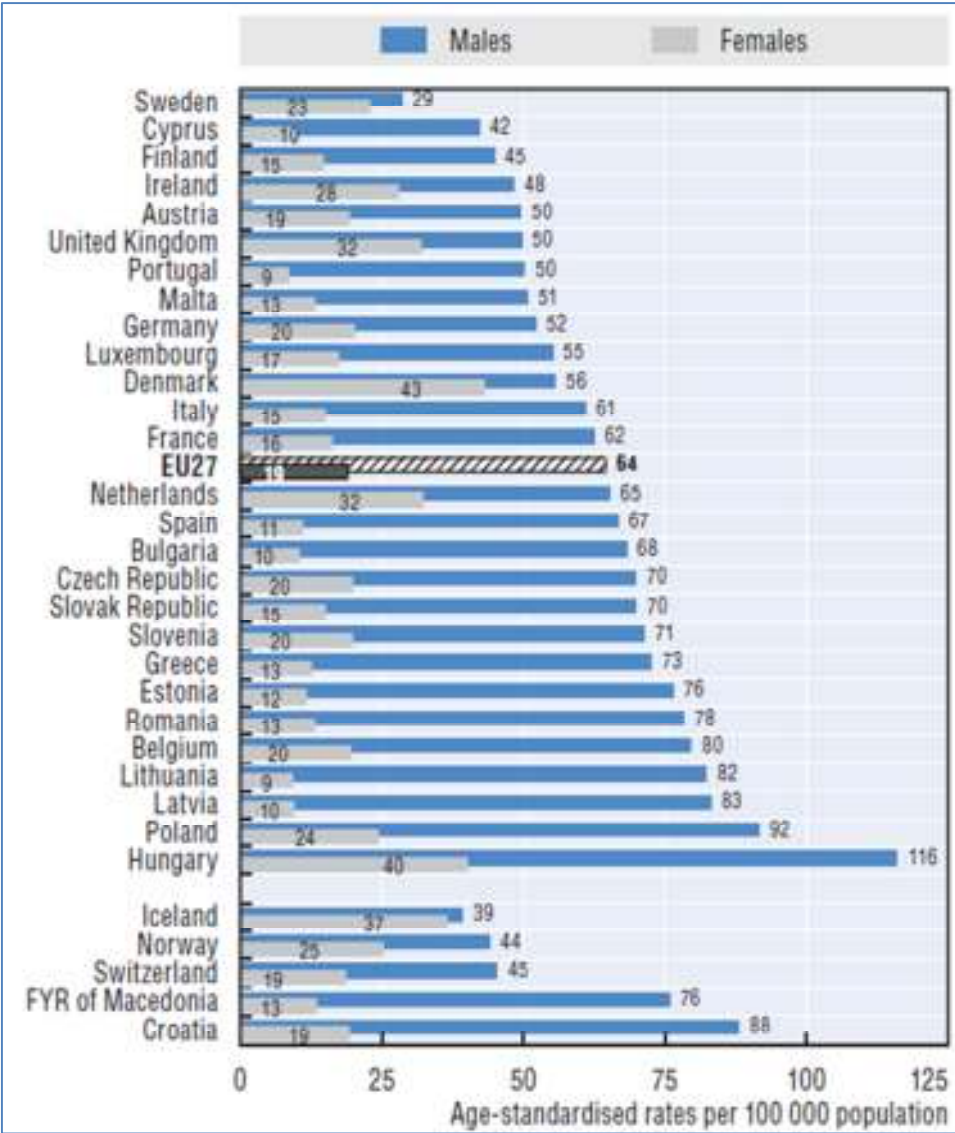
Ranking of selected DALY risk factors related to the income level of the countries

Risk factor	DALYs (millions)	Percentage of total	Risk factor	DALYs (millions)	Percentage of total
World			Low-income countries*		
1 Childhood underweight	91	5.9	1 Childhood underweight	82	9.9
2 Unsafe sex	70	4.6	2 Unsafe water, sanitation, hygiene	53	6.3
3 Alcohol use	69	4.5	3 Unsafe sex	52	6.2
4 Unsafe water, sanitation, hygiene	64	4.2	4 Suboptimal breastfeeding	34	4.1
5 High blood pressure	57	3.7	5 Indoor smoke from solid fuels	33	4.0
6 Tobacco use	57	3.7	6 Vitamin A deficiency	20	2.4
7 Suboptimal breastfeeding	44	2.9	7 High blood pressure	18	2.2
8 High blood glucose	41	2.7	8 Alcohol use	18	2.1
9 Indoor smoke from solid fuels	41	2.7	9 High blood glucose	16	1.9
10 Overweight and obesity	36	2.3	10 Zinc deficiency	14	1.7
Middle-income countries*			High-income countries*		
1 Alcohol use	44	7.6	1 Tobacco use	13	10.7
2 High blood pressure	31	5.4	2 Alcohol use	8	6.7
3 Tobacco use	31	5.4	3 Overweight and obesity	8	6.5
4 Overweight and obesity	21	3.6	4 High blood pressure	7	6.1
5 High blood glucose	20	3.4	5 High blood glucose	6	4.9
6 Unsafe sex	17	3.0	6 Physical inactivity	5	4.1
7 Physical inactivity	16	2.7	7 High cholesterol	4	3.4
8 High cholesterol	14	2.5	8 Illicit drugs	3	2.1
9 Occupational risks	14	2.3	9 Occupational risks	2	1.5
10 Unsafe water, sanitation, hygiene	11	2.0	10 Low fruit and vegetable intake	2	1.3

Lung cancer deaths in 2004 in the World



Lung cancer mortality rates, males and females in EU, 2010 (data are age-standardized to the WHO European standard population.)
 OECD (2012), *Health at a Glance: Europe 2012*, OECD Publishing.

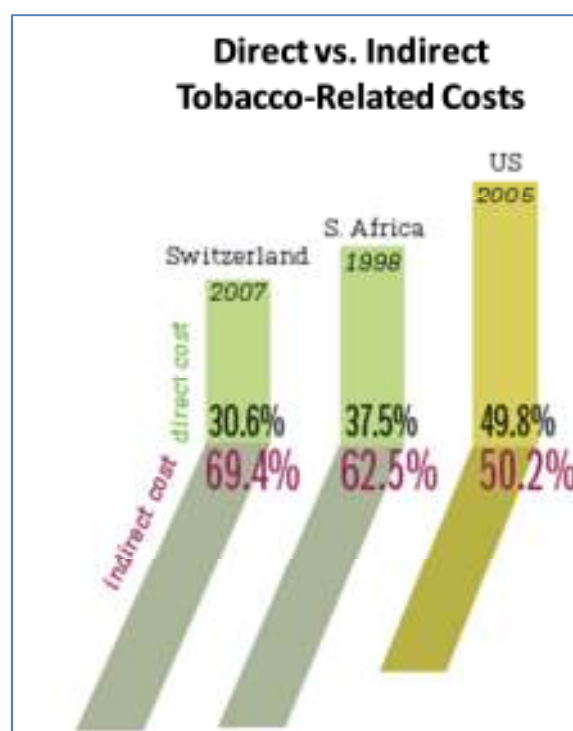


5.2.2.5. Economic impact: the Costs of Tobacco Use to the Society

The social burden of tobacco smoking

- 1) *Direct costs*
 - a) Healthcare expenditures
 - b) Drug expenditures
 - c) Sick allowance
 - d) Disability pension
- 2) *Indirect costs*
 - a) Income loss by premature death
 - b) Income loss due to illness
 - c) Loss in labor productivity
 - d) Fire damage
 - e) Loss of taxes and contributions to the state budget

From 2000 to 2004, the value of cigarettes sold in the US averaged \$71 billion per year, while *cigarette smoking was responsible for an estimated \$193 billion in annual health-related economic losses* (\$96 billion in direct medical costs and approximately \$97 billion in lost productivity).



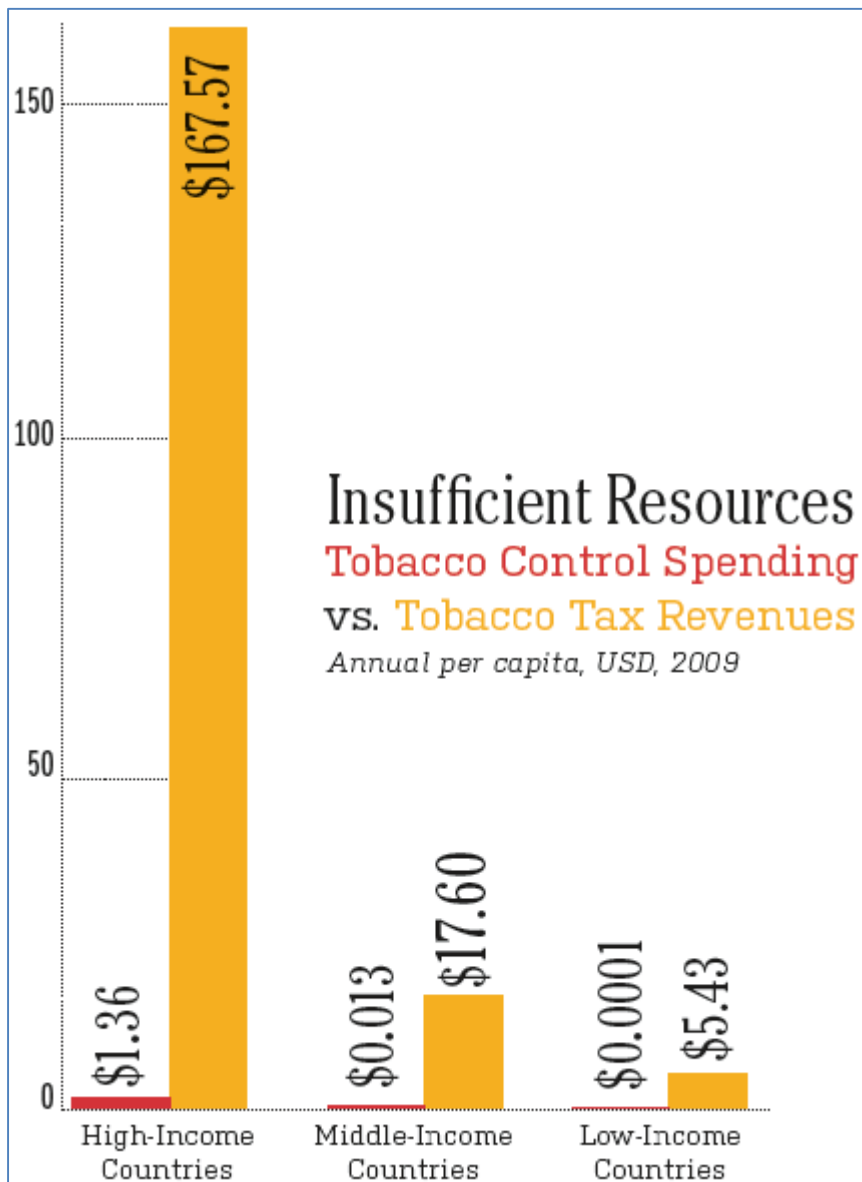
The Costs of Smoking to the Society in Hungary

Costs (billion HUF)		Income (billion HUF)	
Direct expenditures	354	Taxes and other	360
Drug expenditure	108		
Inpatient care	88		
Premature death	78		
Disability pension	73		
Other	7		
Indirect expenditures	87		
Total	441	Total	360

-81 billion HUF

(Bodrogi J.: Economic impact of tobacco smoking. In: Balázs P.: Increasing capacity for tobacco research in Hungary 2008–2013. Budapest, 2013)

The Costs of Smoking to the Society in Hungary

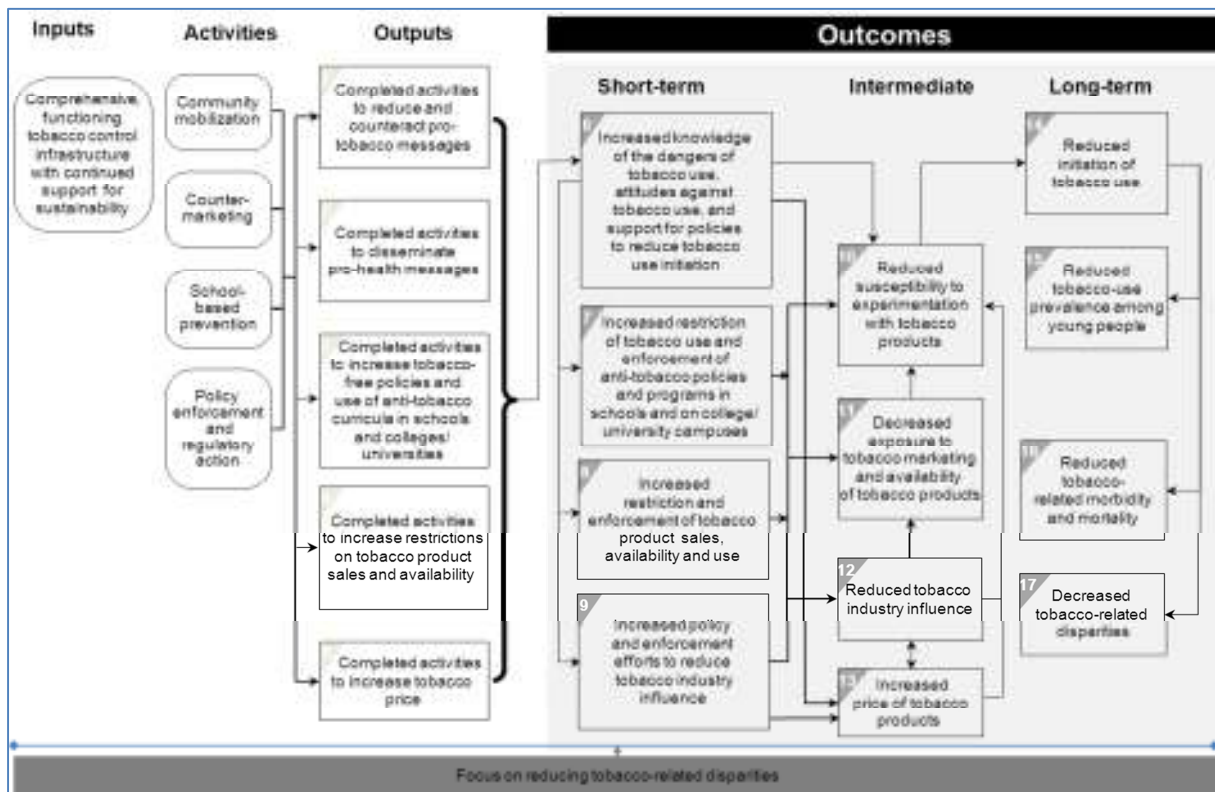


5.2.2.6. Prevention and tobacco control

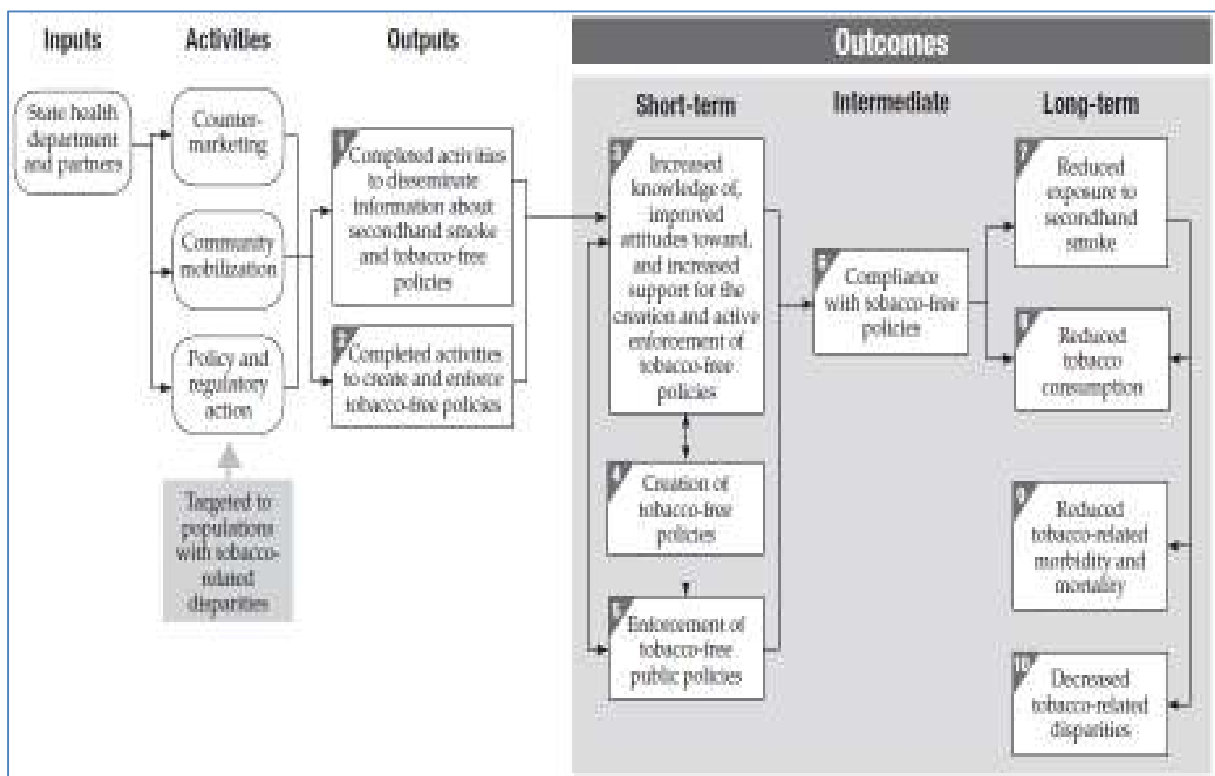
Below, logic models depict the presumed causal pathways that connect program inputs, activities, and outputs with short-term, intermediate, and long-term outcomes. The logic models for the goal areas can be used in several ways:

- 1) To see the links between program activities; outputs; and short-term, intermediate, and long-term outcomes.
- 2) To identify relevant short-term, intermediate, and long-term outcomes.
- 3) To assist in selecting indicators to measure outcomes.

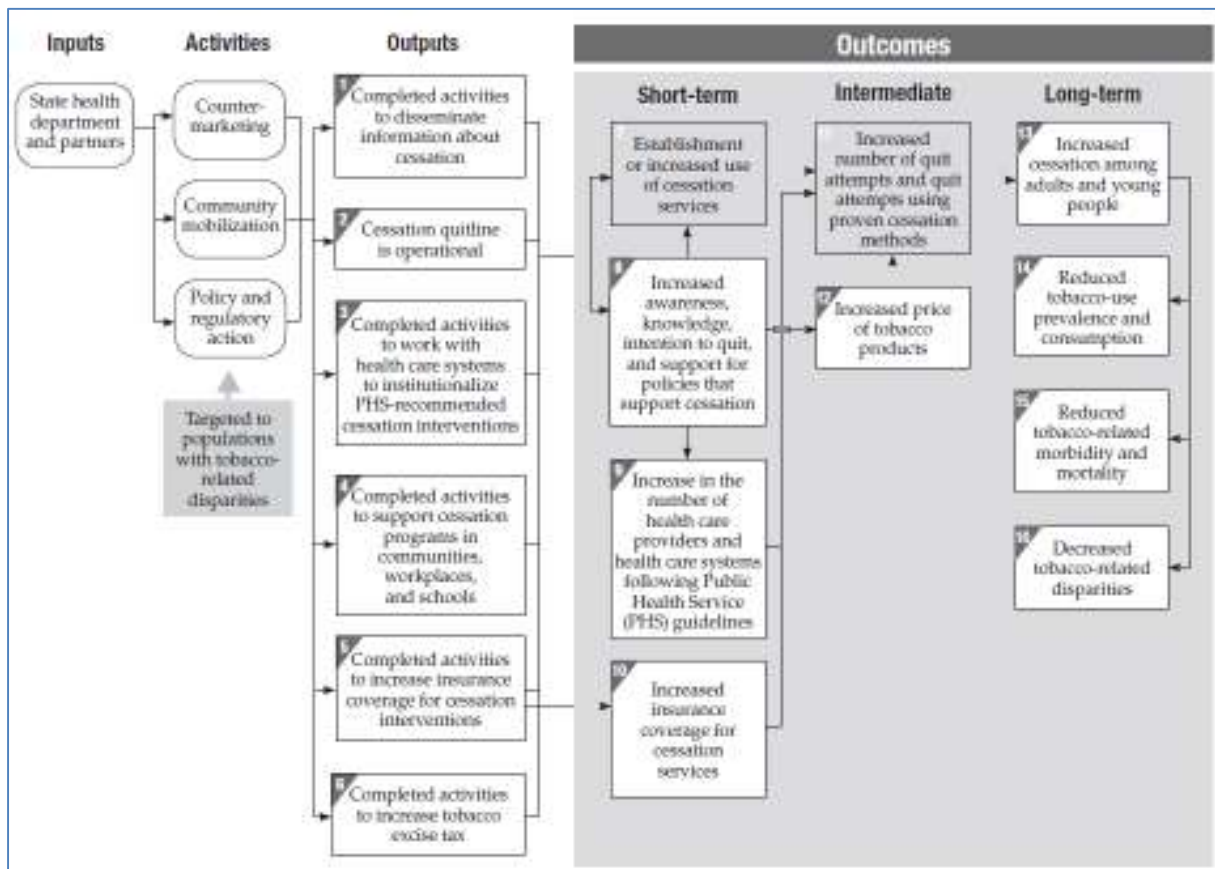
Preventing Initiation of Tobacco Use among Young People



Eliminating Nonsmokers' Exposure to Secondhand Smoke



Promoting Quitting among Adults and Young People



WHO Framework Convention on Tobacco Control (WHO FCTC)

- 1) An evidence-based treaty that reaffirms the right of all people to the highest standard of health.
- 2) It was developed in response to the globalization of the tobacco epidemic.
- 3) Opened for signature in 2003; entered into force February 2005.
- 4) Parties to this Convention [are] determined to give priority to their right to protect public health,
- 5) the WHO FCTC is a global trend-setter.

The WHO FCTC and its guidelines provide the foundation for countries to implement and manage tobacco control. To help make this a reality, WHO introduced the MPOWER measures.

These measures are intended to assist the country-level implementation of effective interventions to reduce the demand for tobacco, contained in the WHO FCTC.





The FCTC aims demand and supply reduction at the same time on the market.

Demand reduction provisions are contained in articles 6-14:

- 6) *Price and tax measures to reduce the demand for tobacco*, and
- 7) Non-price measures to reduce the demand for tobacco, namely:
- 8) Protection from exposure to tobacco smoke;
- 9) Regulation of the contents of tobacco products;
- 10) Regulation of tobacco product disclosures;
- 11) Packaging and labeling of tobacco products;
- 12) Education, communication, training and public awareness;
- 13) Tobacco advertising, promotion and sponsorship;
- 14) Demand reduction measures concerning tobacco dependence and cessation.

Supply reduction provisions are contained in articles 15-17:

- 1) Illicit trade in tobacco products;
- 2) Sales to and by minors; and,
- 3) Provision of support for economically viable alternative activities.

Article 6 – Taxation and pricing

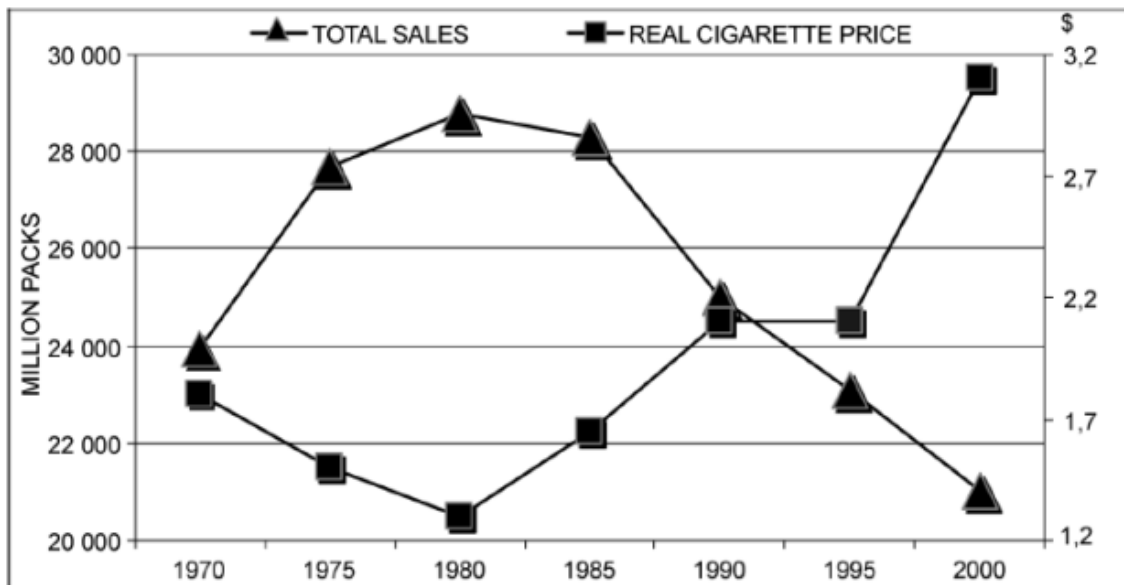
Increases in cigarette prices lead to reductions in the prevalence of smoking.

- 10% tax increase will trigger 3-5 % consumption decrease in developed countries.
- 10 % tax increase produce 5-8% consumption decrease in developing countries.

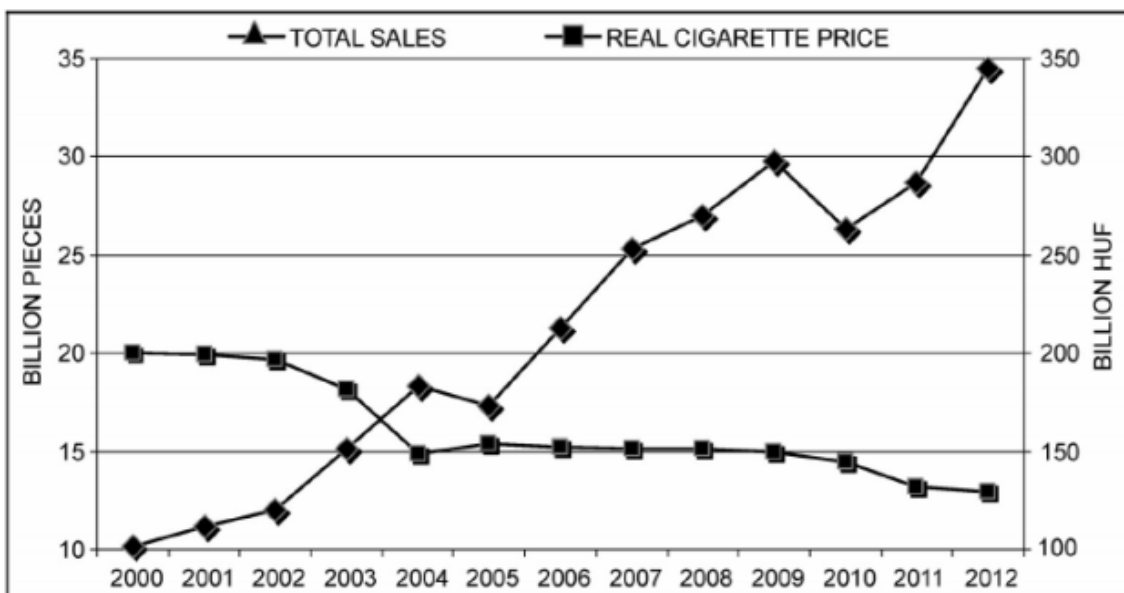
The effects of price on smoking prevalence involve both a *decrease in initiation* of smoking among youth and an *increase in cessation* among adults. Adolescents and young adults are

more responsive than adults to changes in cigarette prices. Higher cigarette prices will prevent young adults from progressing into higher intensities of smoking. There is inverse relationship among adolescents between product-specific tobacco taxes (or prices) and the propensity to use smokeless tobacco, the intensity of its use, and the prevalence of cigar smoking.

Total cigarette sales and cigarette prices in the US, 1970–2000



Cigarette consumption and excise tax in Hungary, 2000-2012



Bodrogi J.: Economic impact of tobacco smoking. In: Balázs P.: Increasing capacity for tobacco research in Hungary 2008–2013. Budapest, 2013 ISBN: 978-615-5365-00-3

Article 8 – Protection from exposure to tobacco smoke

Smoke-free legislation in the EU, January 2013:

http://ec.europa.eu/health/tobacco/docs/smoke-free_legislation_table_en.pdf

In Hungary: Act XLI of 2011, amendment of Act XLII of 1999 on the protection of non-smokers and the regulation of tobacco sales, marketing and use (entered into force 1st January 2012). Fully smoke-free indoor public places, workplaces. Partially smoke-free outdoor public places.

	General Workplace	Enclosed Public Places	Restaurants	Bars	Health Care Facilities	Education Facilities	Public Transport	Hotels & Accommodation	Residential Care	Prisons
Austria ⁱ	⊙	⊙	○	○	⊙	⊙	⊙	⊙	⊙	⊙
Belgium ⁱⁱ	⊙	⊙	⊙	⊙	⊙	●	●	⊙	⊙	⊙
Bulgaria ⁱⁱⁱ	●	●	●	●	●	●	⊙	●	●	●
Cyprus ^{iv}	⊙	●	●	●	●	●	●	●	X	○
Czech Republic ^v	○	○	X	X	⊙	●	⊙	○	⊙	○
Denmark ^{vi}	⊙	⊙	⊙	○	⊙	⊙	⊙	○	⊙	⊙
Estonia ^{vii}	○	○	⊙	⊙	○	○	○	○	○	○
Finland ^{viii}	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
France ^{ix}	⊙	⊙	⊙	○	●	●	●	⊙	⊙	⊙
Germany ^x	⊙	⊙	○	○	⊙	⊙	⊙	⊙	⊙	⊙
Greece ^{xi}	●	●	●	○	●	●	●	●	●	●
Hungary ^{xii}	●	●	●	●	⊙	●	●	⊙	●	⊙
Ireland ^{xiii}	●	●	●	●	●	●	●	⊙	⊙	⊙
Italy ^{xiv}	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
Latvia ^{xv}	⊙	⊙	●	●	⊙	●	⊙	⊙	⊙	⊙
Lithuania ^{xvi}	⊙	●	●	●	●	●	●	○	⊙	⊙
Luxembourg ^{xvii}	⊙	●	⊙	○	⊙	●	⊙	⊙	⊙	⊙
Malta ^{xviii}	●	●	●	●	●	●	●	⊙	●	●
Netherlands ^{xix}	⊙	⊙	⊙	○	⊙	⊙	⊙	⊙	⊙	⊙
Poland ^{xx}	⊙	●	⊙	⊙	●	⊙	⊙	⊙	⊙	⊙
Portugal ^{xxi}	○	○	○	○	○	⊙	●	○	○	⊙
Romania ^{xxii}	⊙	⊙	○	○	●	⊙	●	○	⊙	⊙
Slovakia ^{xxiii}	⊙	●	⊙	X	●	●	⊙	⊙	⊙	⊙
Slovenia ^{xxiv}	⊙	⊙	⊙	⊙	●	●	⊙	⊙	○	⊙
Spain ^{xxv}	●	●	●	●	●	●	●	⊙	⊙	⊙
Sweden ^{xxvi}	⊙	⊙	⊙	○	⊙	⊙	⊙	⊙	⊙	⊙
Unit. Kingdom ^{xxvii}	●	●	●	●	●	●	●	⊙	⊙	⊙
Turkey ^{xxviii}	●	●	●	●	●	●	●	⊙	●	⊙
Former Yugoslav Republic of Macedonia	●	●	●	●	●	●	●	●	●	●
Norway ^{xxix}	⊙	⊙	●	●	⊙	●	○	⊙	⊙	⊙
Serbia ^{xxx}	●	●	○	○	●	●	●	⊙	⊙	⊙
Iceland	⊙	⊙	●	●	⊙	●	●	⊙	⊙	○
Croatia	⊙	●	●	○	●	●	●	⊙	●	⊙

Second-hand smoke kills: There is no safe level of exposure to secondhand smoke, which contributes to a range of serious and often fatal diseases, including heart disease, respiratory illness, and lung and other cancers. Children can also be harmed by second-hand smoke exposure, and babies in utero and newborns are particularly susceptible.

Smoke-free laws save lives: Completely smoke-free environments with no exceptions are the only proven way to protect people from second-hand smoke. Separate smoking rooms and ventilation systems do not prevent secondhand smoke exposure. Governments must maintain strong support for laws once they are enacted through proactive and uniform enforcement that achieves high compliance levels. Experience in a growing number of countries and subnational areas shows that it is possible to enact and enforce effective smoke-free laws and that doing so is popular with the public, does not harm business, and improves health. Public opinion polling continues to show consistent strong support for smoke-free laws wherever they are enacted. Smoke-free environments also help smokers who want to quit, and encourage people to make their homes smoke-free to protect children and other non-smokers.

Smoke-free laws do not hurt business: Despite tobacco and hospitality industry claims, experience shows that in every country where comprehensive smoke-free legislation has been enacted, smoke-free environments are popular, easy to implement and enforce, and result in either a neutral or positive impact on businesses, including the hospitality sector.

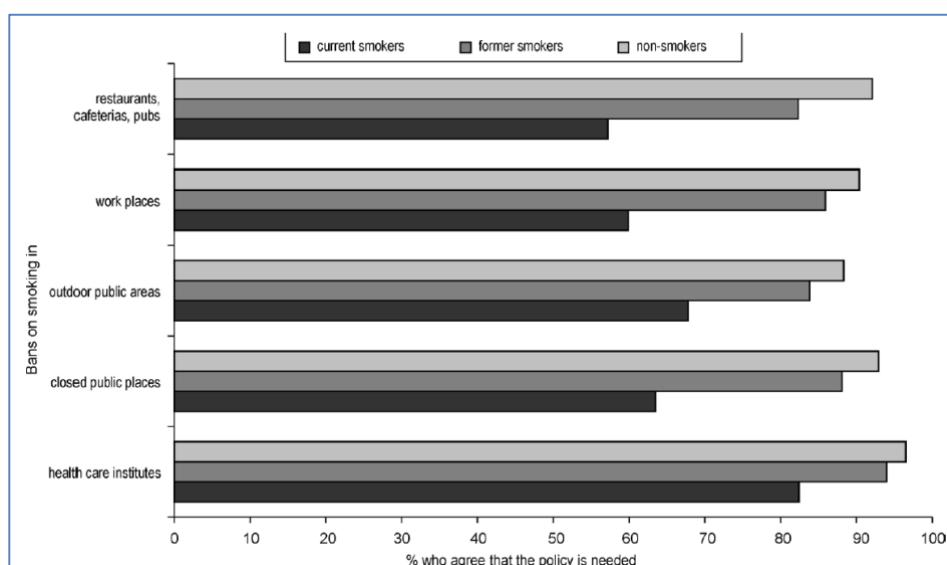
Full enforcement (public enforcement and government authority enforcement) of smoke-free laws is necessary, immediately after enactment. It is part of the process to change social norms toward tobacco use.

Full protection = full indoor smoking ban. Ventilation and designated smoking rooms are not effective (only partial protection).

Health benefits of smoke-free regulations:

- Reduce respiratory symptoms
- Reduce illness from heart disease
- Reduce lung cancer
- Helps smokers to reduce smoking and successful quitting
- Encourage establishment of smoke-free homes.

Support for tobacco control policies and smoking status in Hungary, 2009.



(Paulik E.: Social determinants of smoking and quitting in Hungary. In: Balázs P.: Increasing capacity for tobacco research in Hungary 2008–2013. Budapest, 2013)

Article 11 – Packaging and labeling tobacco products

Well-designed health warnings and messages are part of a range of effective measures to communicate health risks and to reduce tobacco use. Effective warning labels increase smokers' awareness of health risks, and increase the likelihood that smokers will think about cessation and reduce tobacco consumption.

Effectiveness of health warnings by design: text-only health warnings < pictorial health warnings < text and pictorial warnings < large pictorial and text warnings < plain packaging with large pictorial and text warnings.



Australia, 1 December 2012: Use of all brand logos and colours have been replaced with generic brown colour. Graphic pictorial health warning labels, cover 75% of the front and 90% of the back of the package with additional text warnings on the package sides, and also include the national quit line number.

Graphic health warnings in Hungary: Hungary:

http://net.jogtar.hu/jr/gen/hjegy_doc.cgi?docid=A1300039.KOR Entered into force: 1 January, 2013.

Article 12 – Education, communication, training and public awareness

Key information needed to educate and communicate:

- 1) Addictiveness of tobacco
- 2) Risks and harms of tobacco consumption
- 3) Risks and harms of SHS
- 4) Adverse health, economic and environmental consequences of tobacco production and consumption.

Guideline for the implementation of Article 12:

- Providing an infrastructure to raise public awareness: should include a tobacco control focal point within the national government to catalyze, coordinate and facilitate delivery of tobacco-related education, communication and training programs, and to monitor and evaluate these programs.
- Running effective education, communication and training programs
- Involving civil society: Governments should also identify and involve key community tobacco control leadership and consider providing direct financial or other support to tobacco control efforts undertaken by civil society.
- Ensuring wide access to information on the tobacco industry
- Strengthening international cooperation: sharing information and best practices between and among countries as well as the importance of collaborating to raise global public awareness of tobacco control.
- Monitoring of implementation and revision of the guidelines.

Article 13 – Tobacco advertising, promotion and sponsorship (TAPS)

Scope of comprehensive ban: All type (direct and indirect) of TAPS should be banned:

- 1) Retail sale and display: display and visibility of tobacco products at points of sale and vending machines constitutes advertising and promotion.
- 2) Packaging and product design is TAP. Attractive designs to consumers should be banned. Adapting plain packaging.
- 3) Internet sales
- 4) Brand stretching and sharing: a tobacco brand name, emblem, trademark, logo or trade insignia or any other distinctive feature is connected with a non-tobacco product or service to link the two.
- 5) Corporate social responsibility: tobacco companies seek to portray themselves as good corporate citizens. *Contributions of any kind to any event, activity or individual should be banned.* Publicity given to “socially responsible” business practices of the tobacco industry should also be banned, as it constitutes a form of advertising and promotion. (Eg. Sponsoring research, sponsoring tobacco prevention program.)
- 6) Depiction of tobacco in entertainment media: traditional media (print, television and radio) and all media platforms, including Internet, mobile telephones and other new technologies, as well as films.

Article 14 – Demand reduction measures concerning tobacco dependence and cessation

At least 3 types of clinical treatment should be included in a tobacco control program:

- 1) Cessation intervention (advice) in primary health care
- 2) Quit lines:
 - a) effective population-level approach to help tobacco users quit;
 - b) easily accessible and toll-free telephone quit lines should be included in any comprehensive tobacco control program.
- 3) Pharmacological therapy (nicotine replacement therapy = NRT)
- 4) Other elements of successful cessation:
 - a) The knowledge that *tobacco use is highly addictive*: education of negative consequences and health benefits.
 - b) *Support* for tobacco users in their *cessation efforts*.
 - c) Essential: *clinicians and health care* delivery system consistently *identify and document tobacco use status* and treat every tobacco user (minimal cessation intervention)
 - d) *Government* must support cessation treatment
 - e) *Widely available*, accessible cessation service

Hierarchy of cessation:

- 1) Leaflets, web-based self-cessation service
 - a) Minimal intervention in health care (5A’s: Ask, Advice, Asses, Assist, Arrange follow-up)
- 2) Quit line (reactive or proactive)
- 3) Individual, group counseling
 - a) cognitive-behavioral strategies (self-monitoring, coping skills) and achieving a sufficient dosage of programming
 - b) Social influence strategies (addressing social influences that serve to promote or maintain smoking)
 - c) Motivational strategies (techniques to clarify desire for change and reduce ambivalence toward change)

- 4) Organized cessation service (with educated health professional, long-term, cognitive-behavioral strategy)

Minimal Intervention Strategy (5A's)

- 1) **Ask** each patient about his or her tobacco use status at every visit and record the patient's response. (*How do you feel about your smoking? Have you thought about quitting? What would be the hardest thing about quitting? Are you ready to quit now? Have you tried to quit before? What helped when you quit before? What led to any relapse? What challenges do you see in succeeding in giving up smoking? How many minutes after waking do you have your first cigarette? How many cigarettes do you smoke a day? Did you experience any craving or withdrawal symptoms at any previous quit attempts? What is the longest time you managed to quit? Ask about any previous quit attempts: What happened/caused you to restart smoking?*)
- 2) **Advise** clear, nonjudgmental, and personalized suggestions for quitting. Tell patients that you understand quitting is difficult and challenging, but it can also be the most important thing they can do for their own health and for their families. (*Recommend total abstinence - not even a single puff. Drinking alcohol is strongly associated with relapse. Inform friends and family and ask for support. Consider writing a 'contract' with a quit date. Removal of cigarettes from home, car and workplace; Give practical advice about coping with withdrawal. Withdrawal symptoms occur mostly during the first two weeks. Relapse after this time relates to cues or distressing events. Remind patients of the health benefits of quitting.*)
- 3) **Assess** each patient's readiness and interest in quitting. The patient's response to your questions about his/her willingness and readiness to quit will affect the next step in the process. If he or she is willing to quit, you'll offer resources and assistance (next). If not, you'll help the patient determine the barriers to cessation. (*What is the positive side of smoking? What are the downsides to smoking? What do you fear most when quitting? How important is quitting to you right now? What reasons do you have for quitting smoking? On a scale of 1-10, how interested are you in trying to quit? What would need to happen to make this a score of 9 or 10? or What makes your motivation a 9 instead of a 2? What would be the hardest thing about quitting? What are the barriers to quitting? What situations are you most likely to smoke?*)
- 4) **Assist** each patient with a specific cessation plan. This will include materials, resources, pharmaceuticals, or referrals. Patients should be encouraged to pick a quit date and given support and feedback. (*Provide assistance in developing a quit plan; Help a patient to set a quit date; Offer self-help material; Explore potential barriers and difficulties. Review the need for pharmacotherapy. Refer to a quitline and/or an active call back program.*)
- 5) **Arrange** follow up visits. If patients relapse, let them know you and your staff members will be there to help them dust off and start over again. Help them keep in mind that quitting takes practice, and often is not achieved after the first attempt. (*Offer a follow up appointment within 7 days. Affirm success when you next see the patient. Reinforce successful quitting: positive feedback helps sustain smoking cessation. Don't talk about 'failure', 'relapse' is very common. Help the patient work out 'what went wrong this time' and how they prevent a relapse next time.*)

Promote motivation to quit (The 5R's)

Relevance	Encourage the patient to indicate why quitting is personally relevant, being as specific as possible. Motivational information has the greatest impact if it is relevant to a patient's disease status or risk, family or social situation (e.g., having children in the home), health concerns, age, gender, and other important
Risks	The clinician should ask the patient to identify potential negative consequences of tobacco use. The clinician may suggest and highlight those that seem most relevant to the patient. The clinician should emphasize that smoking low-tar/low-nicotine cigarettes or use of other forms of tobacco (e.g., smokeless tobacco, cigars, and pipes) will not eliminate these risks.
Roadblocks	The clinician should ask the patient to identify barriers or impediments to quitting and provide treatment (problem-solving counseling, medication) that could address barriers. Typical barriers might include: Withdrawal symptoms, Fear of failure, Weight gain, Lack of support, Depression, Enjoyment of tobacco, Being around other tobacco users, Limited knowledge of effective treatment options.
Repetition	The motivational intervention should be repeated every time an unmotivated patient visits the clinic setting. Tobacco users who have failed in previous quit attempts should be told that most people make repeated quit attempts before they are successful.

Smoking cessation guideline

Treating tobacco use and dependence. Clinical practice guideline, 2008 update

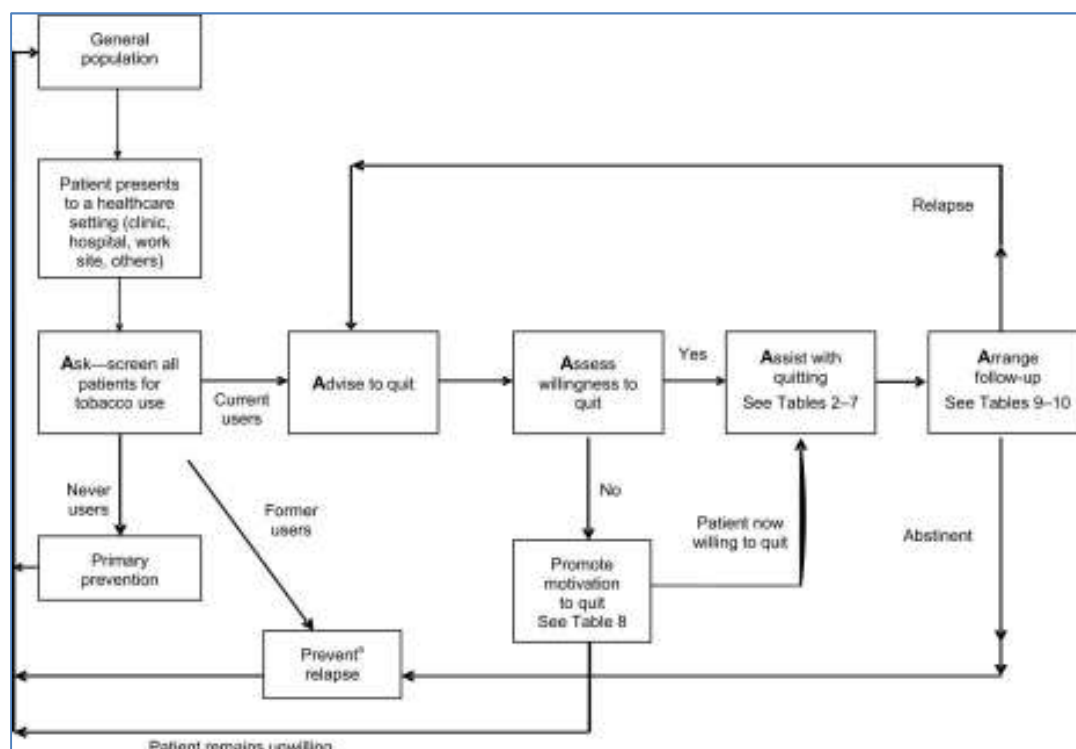
http://www.ahrq.gov/professionals/clinicians-providers/guidelines-recommendations/tobacco/clinicians/treating_tobacco_use08.pdf

In Hungary: Hungarian guideline to support smoking cessation (2009)

Updated version: December 2013

http://www.koranyi.hu/index.php?option=com_content&view=article&id=85&Itemid=261

Model for treatment of tobacco use and dependence (The Clinical Practice Guideline Treating Tobacco Use and Dependence 2008 Update)



Effectiveness and abstinence rates for various medications and medication combinations compared to placebo at 6-months post-quit ($n=86$ studies). The term “arms” refers to the separate treatment or control groups comprised by the analyzed studies.

Medication	Number of arms ^a	Estimated OR (95% CI)	Estimated abstinence rate (95% CI)
Placebo	80	1.0	13.8
Monotherapies			
Varenicline (2 mg/day)	5	3.1 (2.5, 3.8)	33.2 (28.9, 37.8)
Nicotine nasal spray	4	2.3 (1.7, 3.0)	26.7 (21.5, 32.7)
High dose nicotine patch (>25 mg) (these included both standard or long-term duration)	4	2.3 (1.7, 3.0)	26.5 (21.3, 32.5)
Long-term nicotine gum (>14 weeks)	6	2.2 (1.5, 3.2)	26.1 (19.7, 33.6)
Varenicline (1 mg/day)	3	2.1 (1.5, 3.0)	25.4 (19.6, 32.2)
Nicotine inhaler	6	2.1 (1.5, 2.9)	24.8 (19.1, 31.6)
Clonidine	3	2.1 (1.2, 3.7)	25.0 (15.7, 37.3)
Bupropion SR	26	2.0 (1.8, 2.2)	24.2 (22.2, 26.4)
Nicotine patch (6–14 weeks)	32	1.9 (1.7, 2.2)	23.4 (21.3, 25.8)
Long-term nicotine patch (>14 weeks)	10	1.9 (1.7, 2.3)	23.7 (21.0, 26.6)
Nortriptyline	5	1.8 (1.3, 2.6)	22.5 (16.8, 29.4)
Nicotine gum (6–14 weeks)	15	1.5 (1.2, 1.7)	19.0 (16.5, 21.9)
Combination therapies			
Patch (long-term; >14 weeks) + ad lib NRT (gum or spray)	3	3.6 (2.5, 5.2)	36.5 (28.6, 45.3)
Patch + bupropion SR	3	2.5 (1.9, 3.4)	28.9 (23.5, 35.1)
Patch + nortriptyline	2	2.3 (1.3, 4.2)	27.3 (17.2, 40.4)
Patch + inhaler	2	2.2 (1.3, 3.6)	25.8 (17.4, 36.5)
Patch + second generation antidepressants (paroxetine, venlafaxine)	3	2.0 (1.2, 3.4)	24.3 (16.1, 35.0)
Medications not shown to be effective			
Selective serotonin reuptake inhibitors (SSRIs)	3	1.0 (0.7, 1.4)	13.7 (10.2, 18.0)
Naltrexone	2	0.5 (0.2, 1.2)	7.3 (3.1, 16.2)

Electronic information

5.2.2.1 Types of tobacco products and tobacco use

<http://www.tobaccoatlas.org/>

<http://www.surgeongeneral.gov/library/reports/tobaccosmoke/chapter3.pdf>

<http://www.tobaccoatlas.org/>

5.2.2.2. Factors influencing the initiation of tobacco use

http://www.surgeongeneral.gov/library/reports/preventing-youth-tobacco-use/sgr_2012_chapt4.pdf

5.2.2.3. Health impact of smoking

<http://www.surgeongeneral.gov/library/reports/tobaccosmoke/index.html>

<http://www.surgeongeneral.gov/library/reports/secondhandsmoke/report-index.html>

http://www.surgeongeneral.gov/library/reports/preventing-youth-tobacco-use/sgr_2012%20chapt2.pdf

<http://www.tobaccoatlas.org/>

5.2.2.4. Tobacco smoking epidemic, and mortality

<http://dx.doi.org/10.1787/9789264183896-en>

<http://www.tobaccoatlas.org/>

http://www.who.int/healthinfo/global_burden_disease/GlobalHealthRisks_report_full.pdf

5.2.2.5. Economic impact: the Costs of Tobacco Use to the Society

5.2.2.6. Prevention and tobacco control

ftp://ftp.cdc.gov/pub/fda/fda/key_Indicators.pdf

http://www.who.int/fctc/text_download/en/index.html

<http://www.who.int/tobacco/mpower/2008/en/index.html>

http://www.who.int/tobacco/mpower/2009/gtcr_download/en/index.html

http://www.who.int/tobacco/global_report/2011/en/index.html

http://www.who.int/tobacco/global_report/2013/en/index.html

Web-based smoking cessation options:

<http://smokefree.nhs.uk/>

<http://smokefree.gov/>

In Hungary: <http://dohanyzasleszokas.koranyi.hu/index.php/hirek>

www.koranyi.hu

<http://www.leteszemacigit.hu/>

<http://www.dohanyzasvisszaszoritasa.hu/>

<http://www.fokuszpont.dohanyzasvisszaszoritasa.hu/>

Topics suggested for students' oral presentations:

- 1) Prevalence of tobacco use and evaluation of WHO FCTC in your home country.
- 2) Prevalence of tobacco use, tobacco prevention programs for youth and cessation service in your home country.