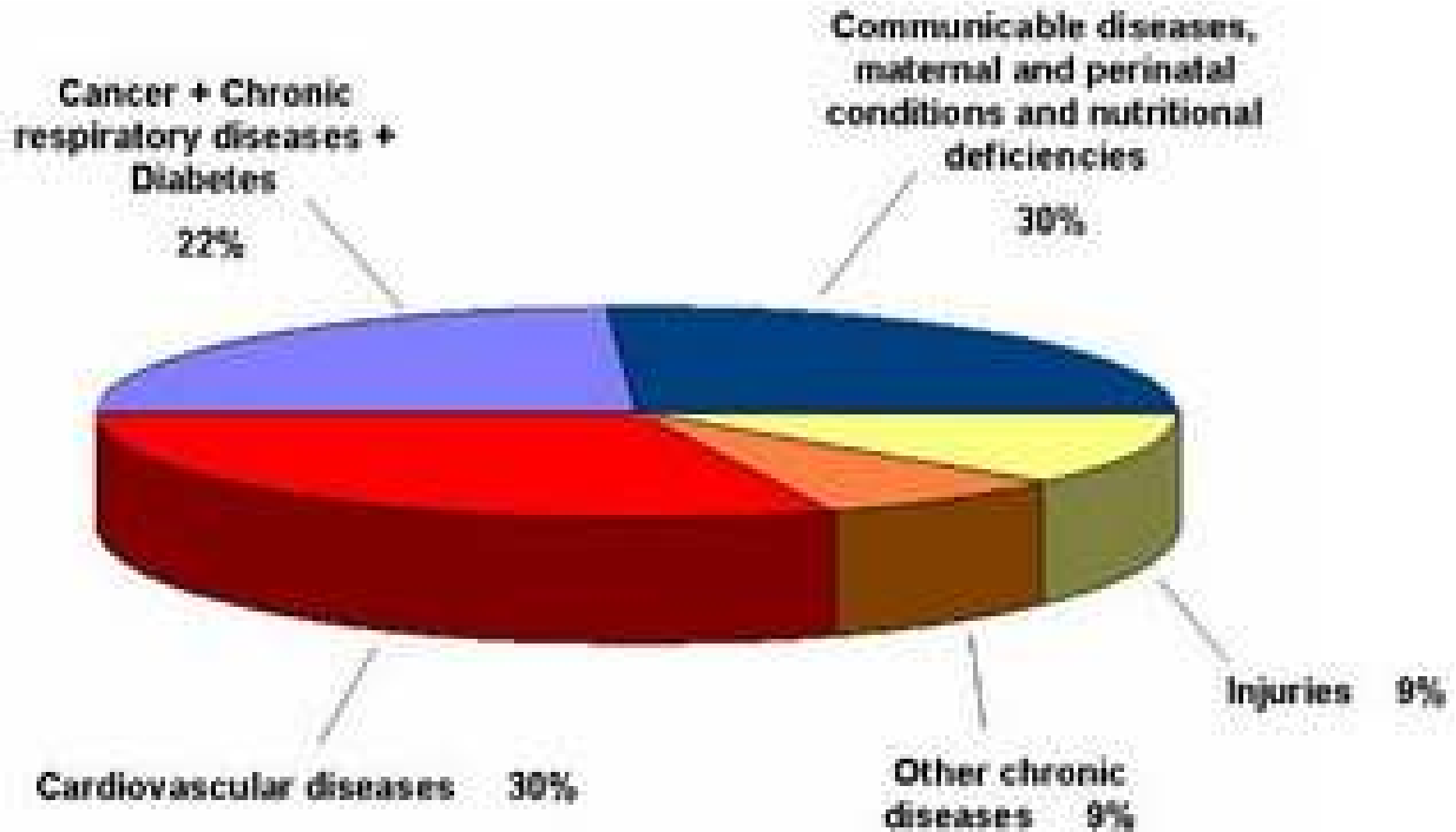# Prevention and management of hypertension and cardiovascular disease
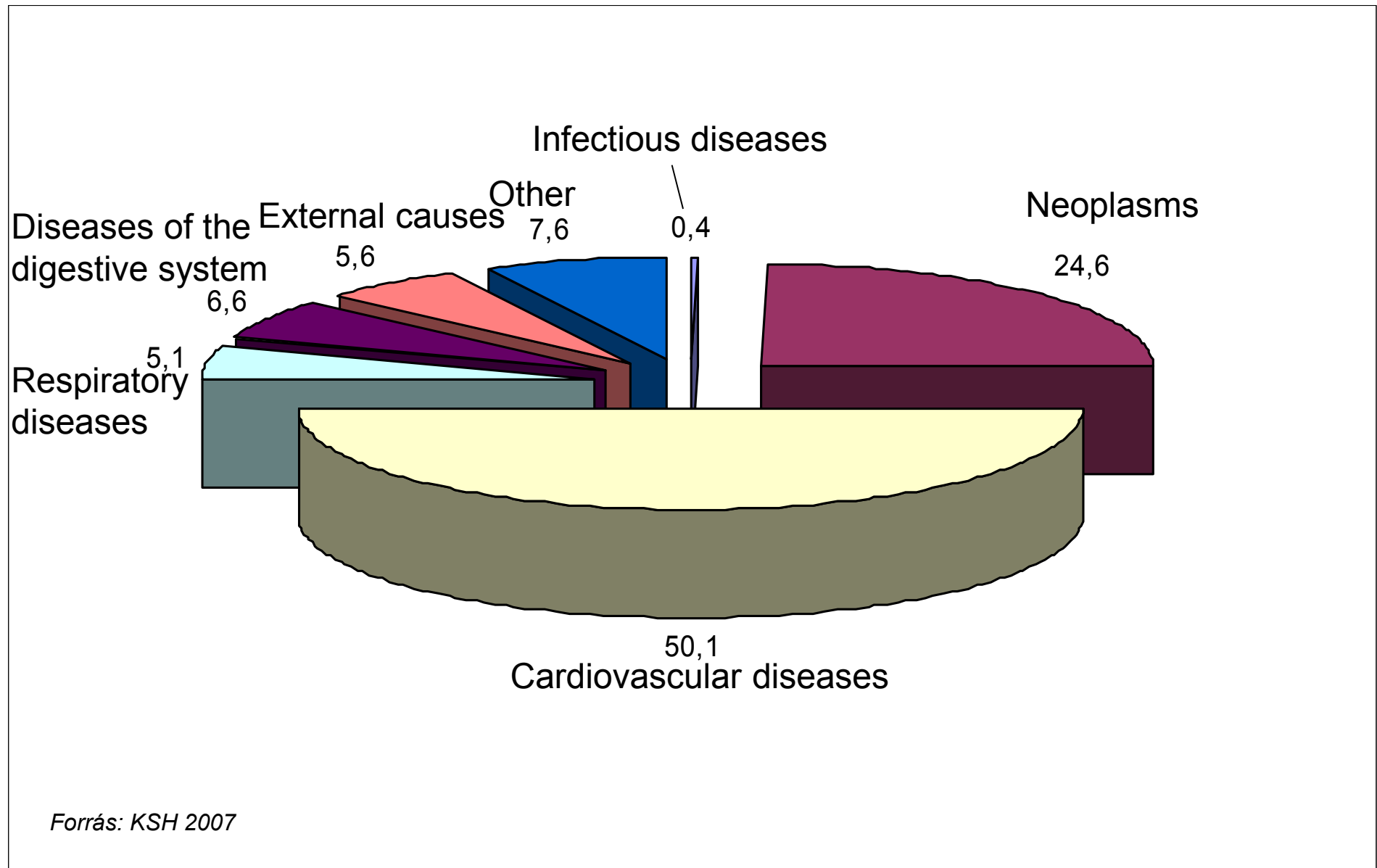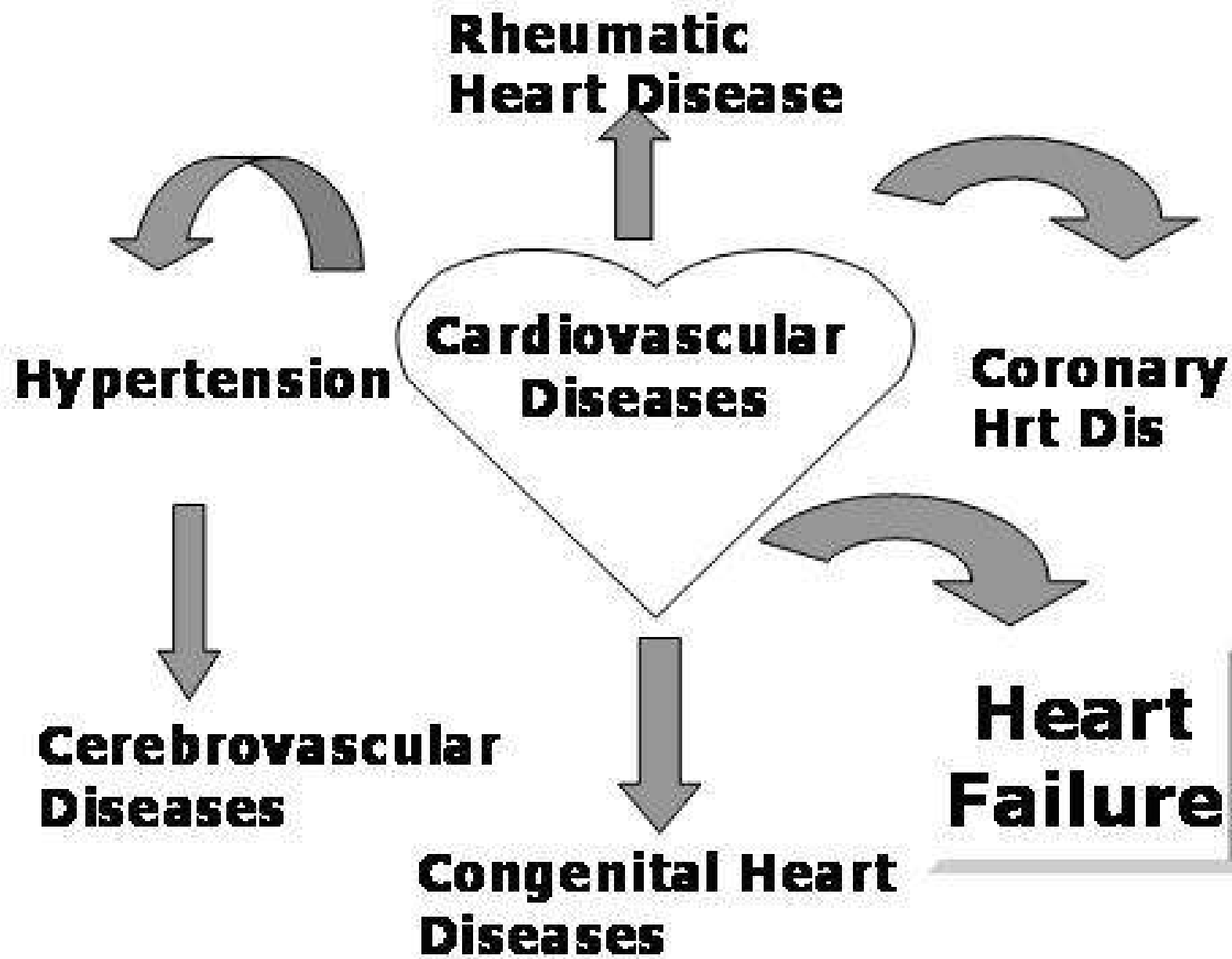
SU Department of Public Health

Cancer + Chronic respiratory diseases + Diabetes 22%

Communicable diseases, maternal and perinatal conditions and nutritional deficiencies 30%

Cardiovascular diseases 30%

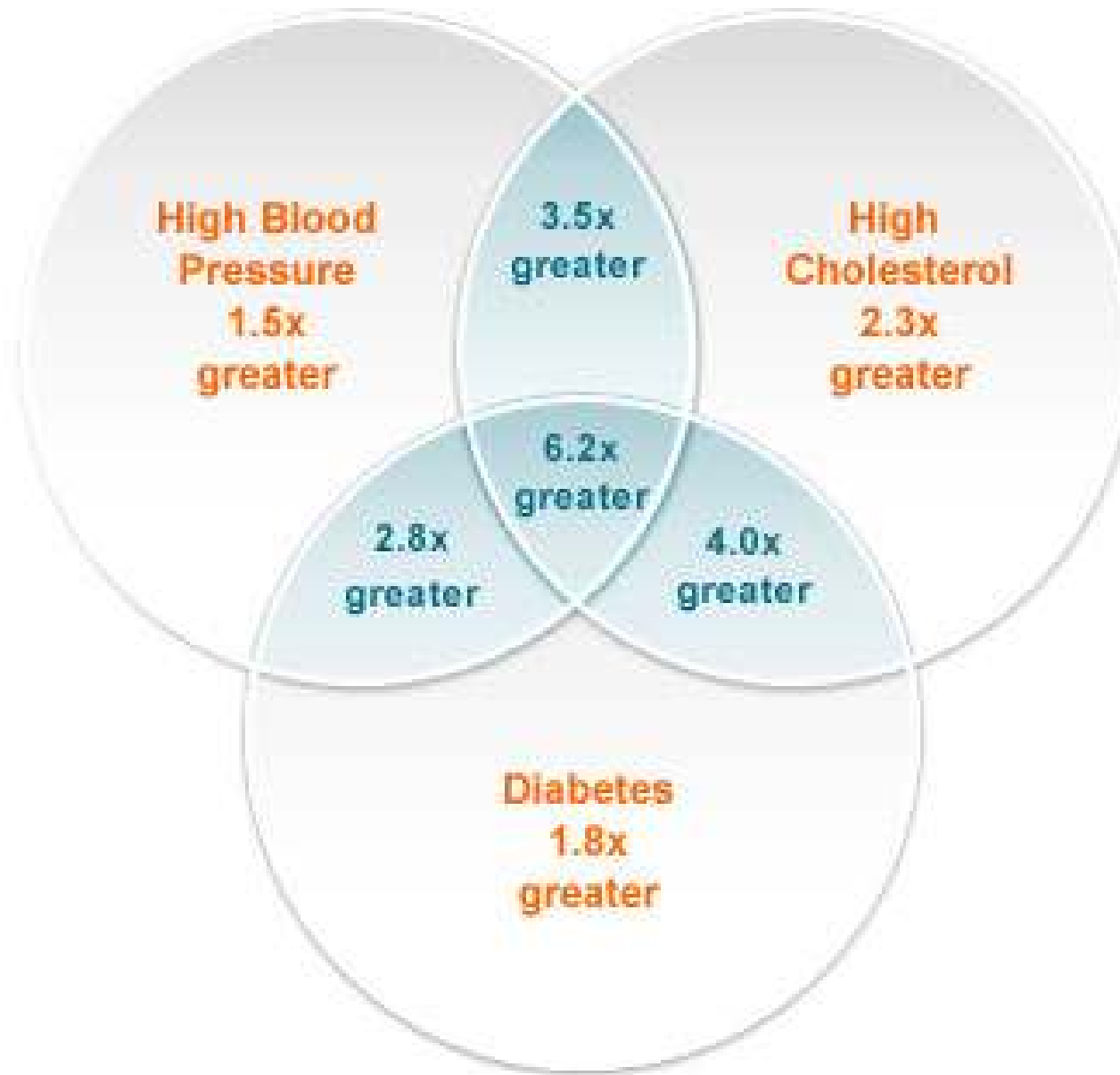Other chronic diseases 9%

Injuries 9%

Cardiovascular disease is the number one cause of death globally. An estimated 17.5 million people died from cardiovascular disease in 2005, representing **30 % of all global deaths**.

The main cause of death in Hungary (2007)

Infectious diseases

Other

External causes

Diseases of the digestive system

Respiratory diseases

Neoplasms 24,6

0,4

7,6

5,6

6,6

5,1

50,1
Cardiovascular diseases

Forrás: KSH 2007

Rheumatic Heart Disease

Hypertension

Cardiovascular Diseases

Coronary Hrt Dis

Cerebrovascular Diseases

Congenital Heart Diseases

Heart Failure

High Blood
Pressure
1.5x
greater

3.5x
greater

High
Cholesterol
2.3x
greater

6.2x
greater

2.8x
greater

4.0x
greater

Diabetes
1.8x
greater

Risk Factors for Heart Disease

Cardiovascular Disease

Death toll in 2002 (World): 16 655 000 (29.2% of all deaths)

Three most common forms:

        a. Ischemic heart disease - 7 168 000 (12.6%)

        b. Cerebrovascular disease - 5 494 000 (9.6%)

        c. Hypertensive heart disease - 907 000 (1.6%)
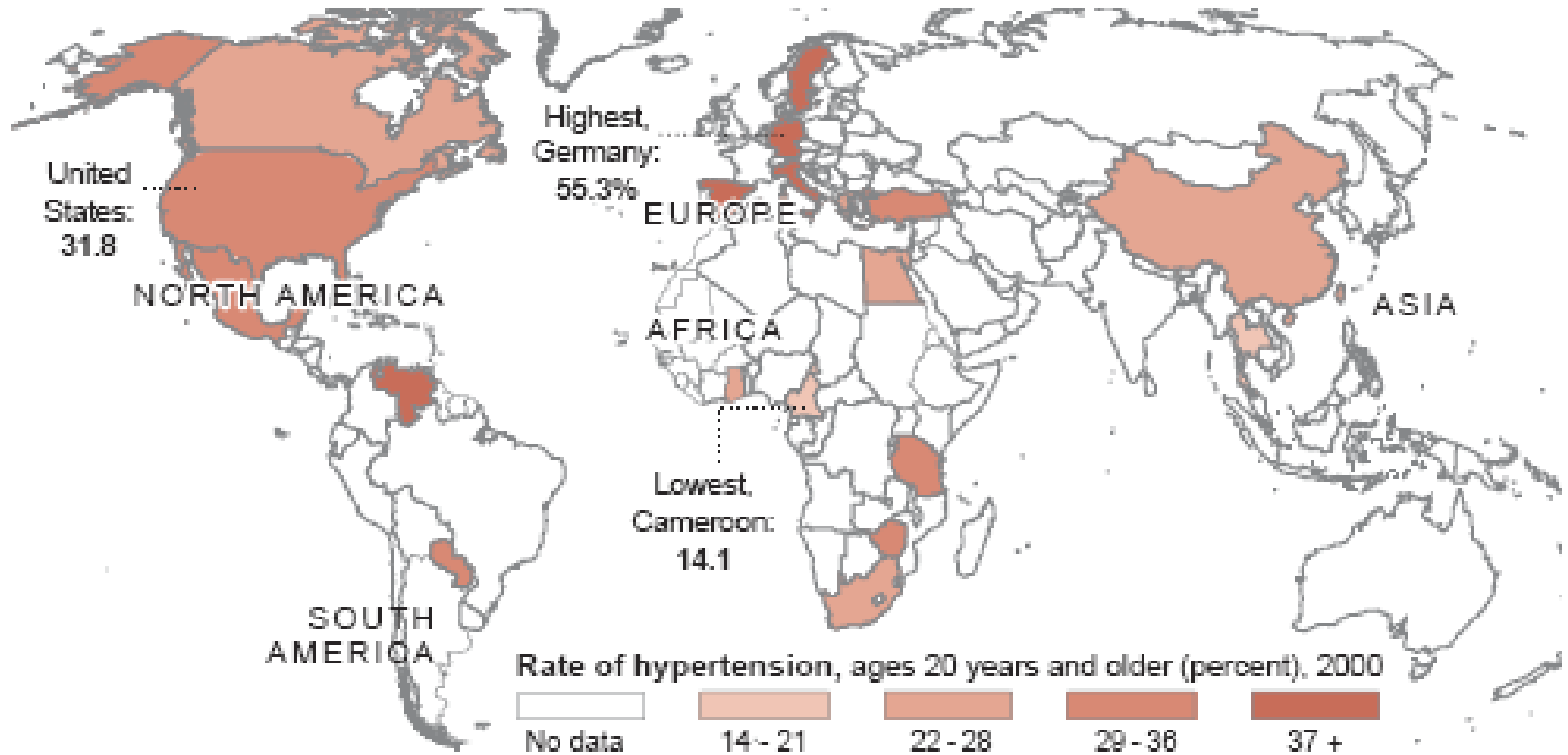
Disability-adjusted life years (DALYs) lost in 2002 (World):
147 541 000 (9.9% of all DALYs)

Three most common forms:

        a. Ischemic heart disease - 58 334 000 (3.9%)

        b. Cerebrovascular disease - 49 118 000 (3.3%)

        c. Hypertensive heart disease - 7 622 000 (0.5%)

High blood pressure, a major risk factor globally

Almost 1 billion people worldwide have high blood pressure, a recent report found.

United States: 31.8

NORTH AMERICA

Highest, Germany: 55.3%

EUROPE

AFRICA

ASIA

Lowest, Cameroon: 14.1

SOUTH AMERICA

Rate of hypertension, ages 20 years and older (percent), 2000

| No data | 14 - 21 | 22 - 28 | 29 - 36 | 37 + |

SOURCE: High Blood Pressure and Health Policy, 2005

# Risk Factors for Heart Disease

Risk factors you can't control

- **Age**
- **Family history (genetics)**
- **Race**
- **Gender**

Risk factors you can manage

- **Obesity**
- **Diabetes**
- **Smoking**
- **High blood pressure**
- **High LDL** (low-density lipoprotein, or "bad" cholesterol)
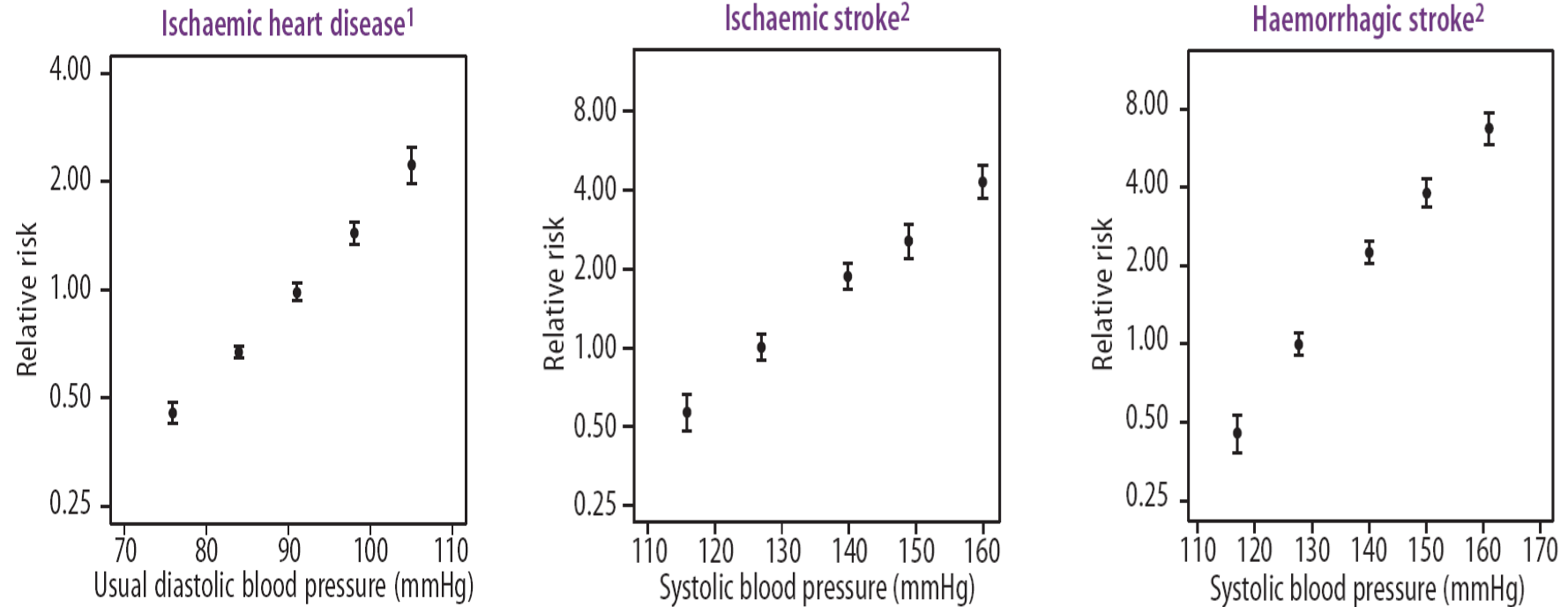- **Low HDL** (high-density lipoprotein, or "good" cholesterol)

High blood pressure has been called the "silent killer" because it usually produces NO symptoms
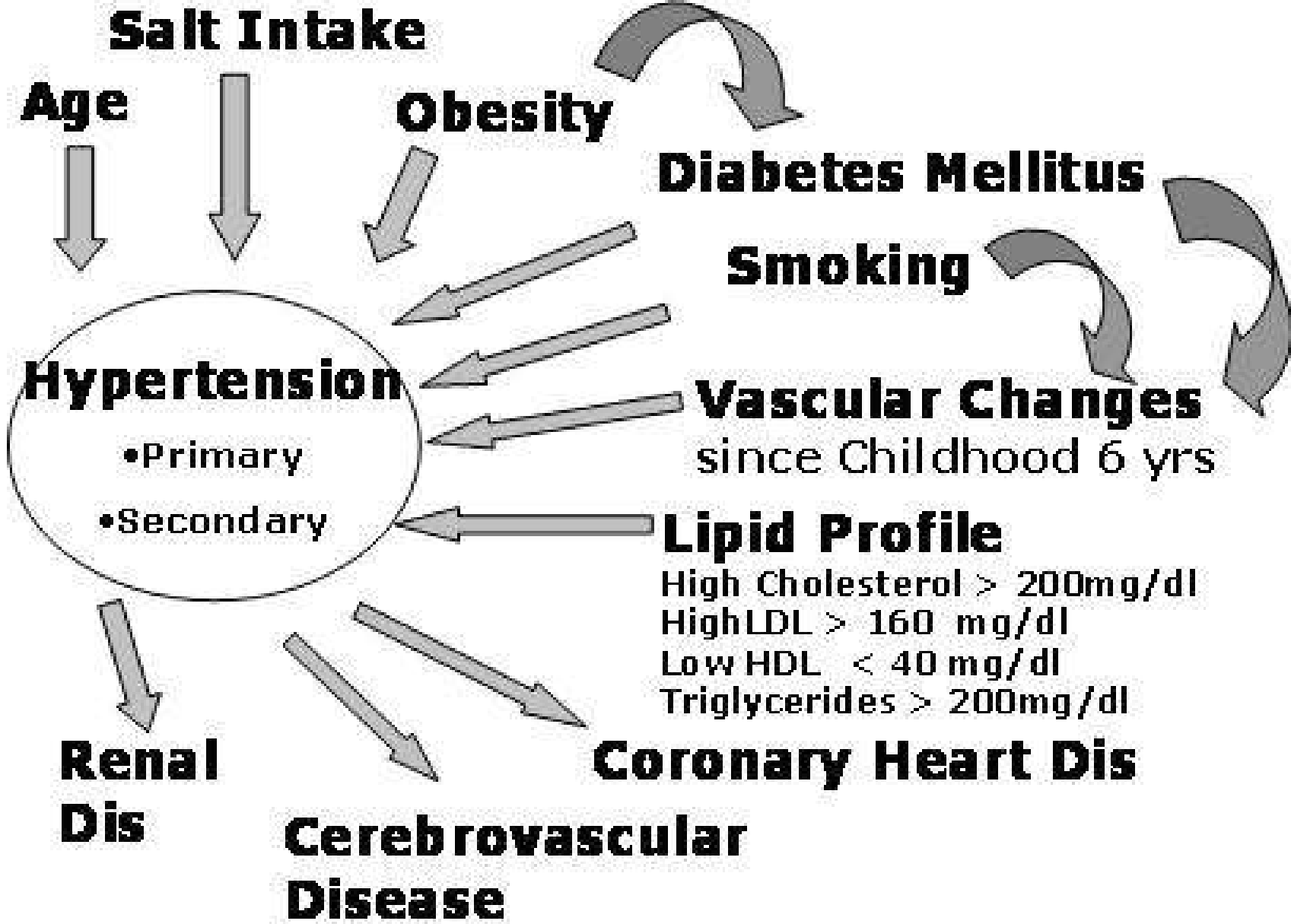
Significance of HBP as a health risk factor

➢Attributable disease burden in 2000: 4,4% of global total DALYs

➢Estimated avoidable disease burden: 1,7-1,9% of global total DALYs

Source: World Health Report 2002. Available at URL: http://www.who.int

Classification of blood pressure

Category	Systolic	Diastolic
Optimal	< 120	< 80
Normal	120–129	80–84
High normal	130–139	85–89
Grade 1 hypertension (mild)	140–159	90–99
Grade 2 hypertension (moderate)	160–179	100–109
Grade 3 hypertension (severe)	≥ 180	≥ 110
Isolated systolic hypertension	≥ 140	< 90

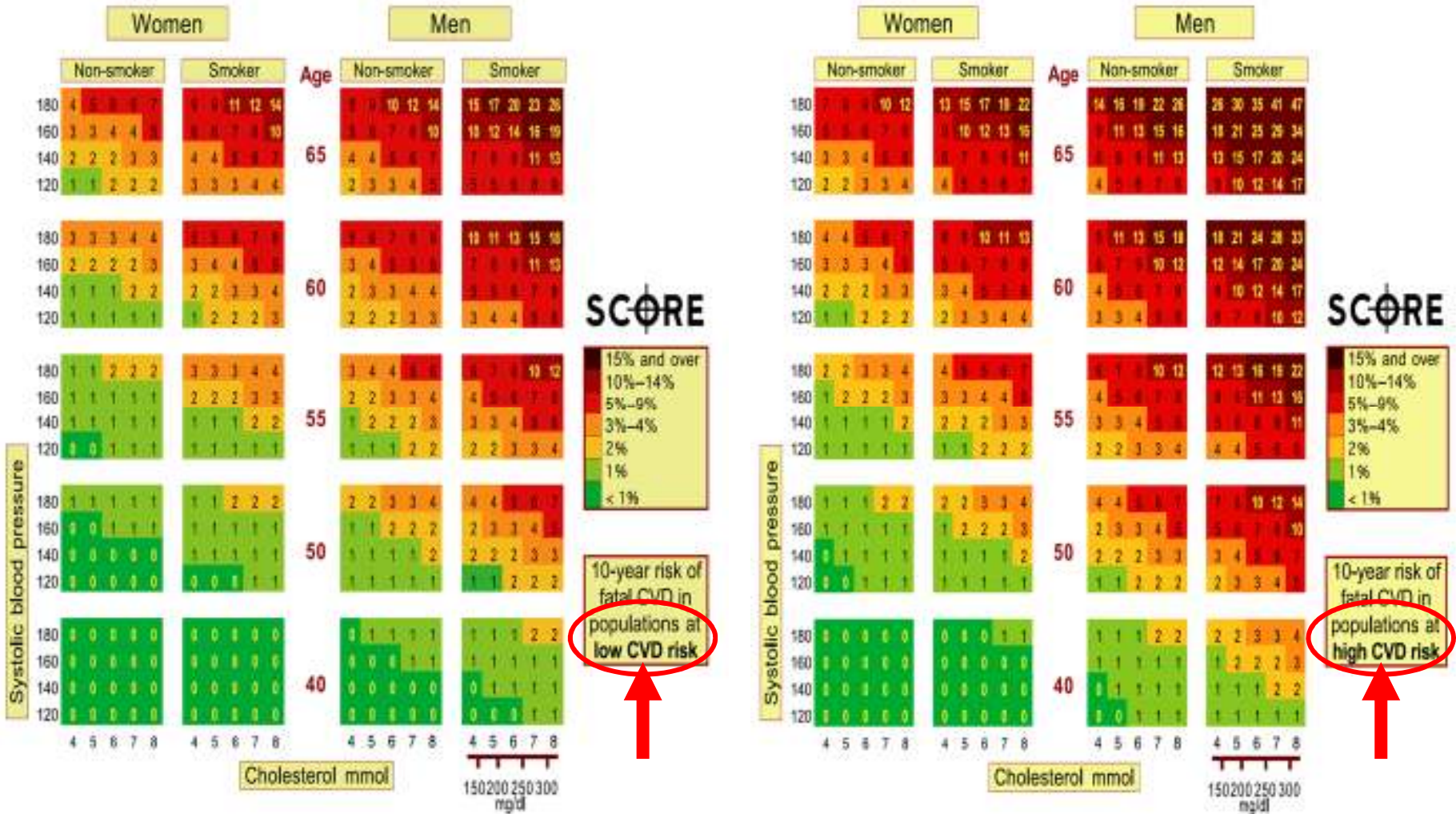# Stratification of total cardiovascular risk - overview

Other risk factors and disease history	Blood pressure (mmHg)				
	Normal SBP 120–129 or DBP 80–84	High normal SBP 130–139 or DBP 85–89	Grade 1 SBP 140–159 or DBP 90–99	Grade 2 SBP 160–179 or DBP 100–109	Grade 3 SBP ≥ 180 or DBP ≥ 110
No other risk factors	Average risk	Average risk	Low added risk	Moderate added risk	High added risk
1–2 risk factors	Low added risk	Low added risk	Moderate added risk	Moderate added risk	Very high added risk
3 or more risk factors or TOD or diabetes	Moderate added risk	High added risk	High added risk	High added risk	Very high added risk
ACC	High added risk	Very high added risk	Very high added risk	Very high added risk	Very high added risk

ACC, associated clinical conditions; TOD, target organ damage; SBP, systolic blood pressure; DBP, diastolic blood pressure.

Source: 2003 ESH/ESC Hypertension Guidelines. Journal of Hypertension 2003, Vol 21 No 10.

Ten-year risk of fatal cardiovascular disease – the SCORE system

Source: Estimation of ten-year risk of fatal cardiovascular disease in Europe: the SCORE project.
European Heart Journal (2003) 24, 987–1003.

High blood pressure

Definition: Systolic BP >139 **OR** Diastolic BP > 89 mmHg (or the use of antihypertensive medication).

- ***Over 90% of hypertension is primary.***

- ***The "50% rule":*** *~50% of people with HBP know of their disease; ~50% of those who know are treated; ~50% of those treated live with normal BP.*

- *Generally the lower BP is, the higher life expectancy one has.*

- *Main risk factors:* **overweight; high sodium/salt & low potassium intake; relatively high, chronic alcohol consumption; physical inactivity, poor coping skills (high stress); male gender; family history**

- Avoidable (theoretically) cause of death – importance of routine secondary prevention (opportunistic screening)

HBP management I.

Blood pressure (mmHg)

Other risk factors and disease history	Normal: SBP 120–129 or DBP 80–84	High normal: SBP 130–139 or DBP 85–89	Grade 1: SBP 140–159 or DBP 90–99	Grade 2: SBP 160–179 or DBP 100–109	Grade 3: SBP ≥ 180 or DBP ≥ 110
No other risk factors	No BP intervention	No BP intervention	Lifestyle changes for several months, then drug treatment if preferred by the patient and resources available	Lifestyle changes for several months, then drug treatment	Immediate drug treatment and lifestyle changes
1-2 risk factors	Lifestyle changes	Lifestyle changes	Lifestyle changes for several months, then drug treatment	Lifestyle changes for several months, then drug treatment	Immediate drug treatment and lifestyle changes
3 or more risk factors or TOD or diabetes	Lifestyle changes	Drug treatment and lifestyle changes	Drug treatment and lifestyle changes	Drug treatment and lifestyle changes	Immediate drug treatment and lifestyle changes
ACC	Drug treatment and lifestyle changes	Immediate drug treatment and lifestyle changes	Immediate drug treatment and lifestyle changes	Immediate drug treatment and lifestyle changes	Immediate drug treatment and lifestyle changes

ACC, associated clinical conditions; DBP, diastolic blood pressure; SBP, systolic blood pressure; TOD, target organ damage.

Source: 2003 ESH/ESC Hypertension Guidelines. Journal of Hypertension 2003, Vol 21 No 10.

HBP management II.

Lifestyle intervention:
- weight-control (BMI < 25)
- lower Na^+ intake < 2-3g
- higher proportional consumption of fruits and vegetables
- moderate alcohol consumption
- regular physical exercise
- stress-management

Medical intervention: depends on BP level & overall CV risk status
- *Elevated normal*: only lifestyle intervention
- *Borderline HT*: lifestyle for 6-12 months, if no change: medication
- *Mild HT*: lifestyle for 3-6 months…
- *All others:* lifestyle + medication
- *Drugs*: diuretics, β-blockers, ACE inhibitors…

Specific dietary guidelines for prevention of hypertension

➢ *Sodium intake:* ideally < 2-3g/day (<6g NaCl/day)

    ✓   Don't buy foods or drinks which list sodium content among their first few constituents (usually indicates high content).

    ✓   Try to buy fresh or frozen food instead of preserved or canned goods.

    ✓   Decrease or omit salt when cooking.

    ✓   Don't salt foods.   STOP SÓ

➢ *Decrease alcohol intake*

➢ *Decrease total energy intake (overweight & obesity)*

➢ *For **detailed dietary recommendations** see the (Dietary Approaches to Stop Hypertension) **DASH diet** @:*
http://www.nhlbi.nih.gov/health/public/heart/hbp/dash/

Secondary prevention of HBP

Basic principles:
- diagnosing hypertension relies on simple BP measurement
- it is a cheap, reliable and easy way for detecting hypertension
- hypertension is most frequently diagnosed in the late phase of specific organ damage („the silent killer")

BLOOD PRESSURE SHOULD BE MEASURED ROUTINELY AT EVERY PATIENT-PHYSICIAN ENCOUNTER!

Where?
- at the GP's office
- at school and occupational physician's practices
- as a part of community health programs (at pharmacy's)
- at home using automatic devices
- etc… **wherever possible, whenever possible**..

Diagnostic considerations

Measuring & diagnosing HBP:

- at least 2 measurements on each occasion;

- if HBP suspected, repeated measurement on another occasion;

- nothing to eat drink or smoke (patient) immediately before measurement;

- use of properly calibrated equipment with appropriate cuff-size;

- short rest before measurement;

- at least a minute between separate measurements.

Selected quality indicators of secondary HBP prevention in primary care

$$\frac{\text{patients with at least one BP measurement in a given year}}{\text{all patients in the same year}}$$

Desirable: at least 90%

$$\frac{\text{patients whose CV lifestyle risk factors were assessed}}{\text{patients treated for HBP}}$$

Desirable: at least 70%

$$\frac{\text{patients classified according to total CV risk status}}{\text{patients diagnosed with HBP}}$$

Desirable: at least 70%

Useful Internet Resources:

American Heart Association   www.americanheart.org

World Health Organization   www.euro.who.int
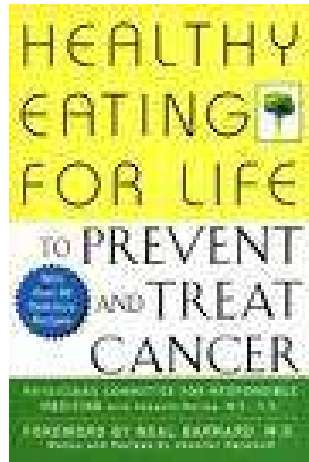
The Healthy Heart Kit   www.healthyheartkit.com

Hypertension Online   www.hypertensiononline.org

European Society for Cardiology   www.escardio.org

U.S. National Heart Lung and Blood Institute
   www.nhlbi.nih.gov/

Cancer

HEALTHY EATING FOR LIFE TO PREVENT AND TREAT CANCER

Is cancer a significant public health issue?

➢ **Most cancers develop as a result of exposure to *modifiable risk factors*!**

➢ **Most cancers have a *long detectable preclinical phase* which allows for early detection and effective treatment!**

Who is affected by cancer?

87%
50+ years

12%
25-49 years

1%
under 25 years
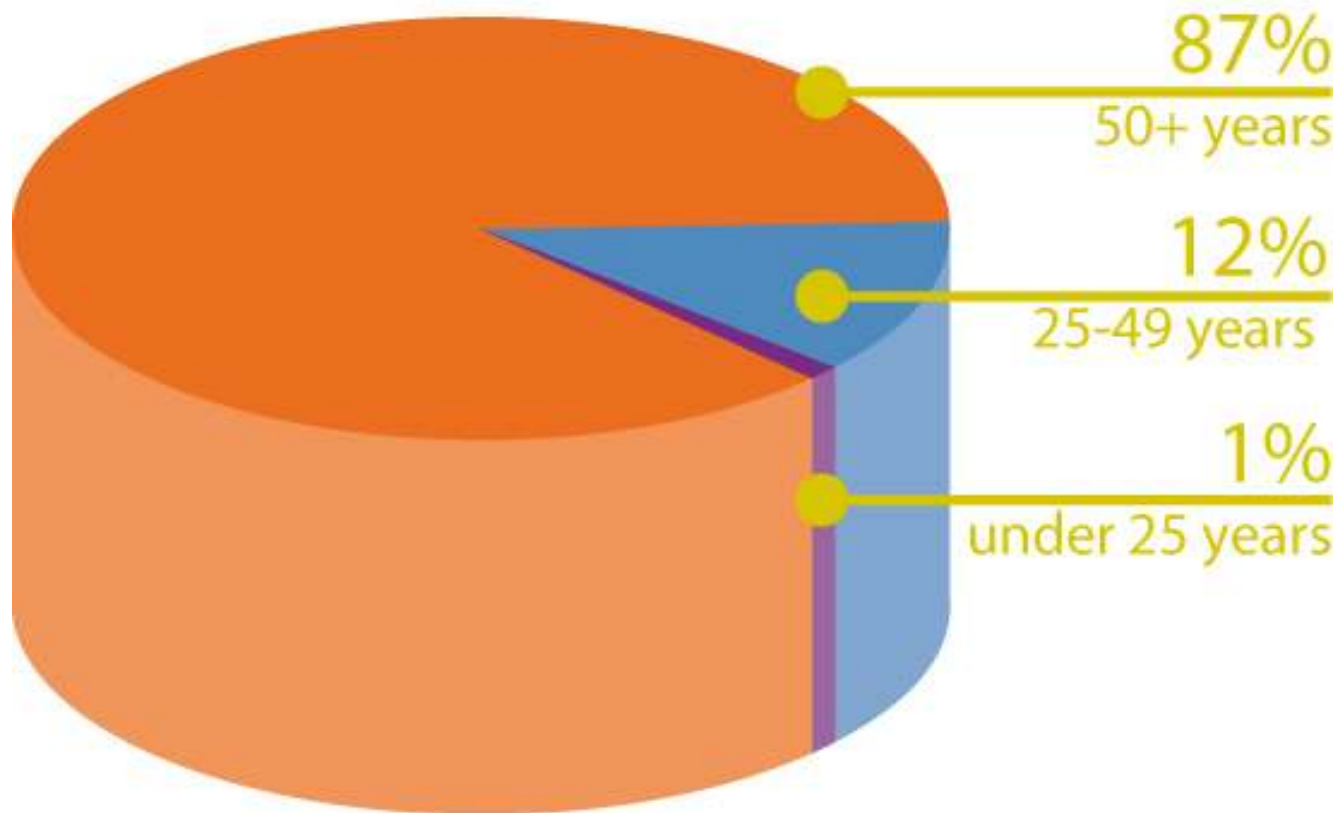
Who is affected by cancer? **Of all new cancer cases in 2007, 87% were in people over the age of 50, 12% in people between the age of 25 to 49 and 1% in people under the age of 25.**

Is cancer a significant public health issue?

Global data (2002)

Total number of new cases: **~ 11 000 000**

Total number of deaths: **~   7 000 000**

Total number of DALYs lost: **~ 75 500 000**

Proportion of all deaths due to cancer: **~ 12,5%**

Proportion of total DALY loss due to cancer: **~ 5,1%**

Sources: World Health Report 2004. WHO, 2004. Available: http://www.who.int
                   IARC GLOBOCAN 2002 database. Available: http://www-dep.iarc.fr/

What is the burden of neoplastic diseases <u>in Hungary</u>?

- *Every fourth death* is caused by cancer (it is the second most frequent cause of death)

- Cancer *mortality in the under 65 year old population* is *twice that of the European Union's* corresponding figure (2000)

- <u>Age-standardized cancer *mortality is the third highest in the World* and the *highest in Europe*</u> (2002)

- <u>*Lung cancer (trachea, bronchus and lung) mortality and colon and rectum cancer mortality figures are highest in the World*</u> (2002)

- *Lung-, colon and mouth and oropharynx cancer mortality are highest in Europe* (2002)

- <u>Nearly *80000 new cases of cancer* develop every year</u>

„What kinds?" – Cancer incidence in Hungary

Males	Females
1. Trachea, bronchus and lung	1. Breast
2. Skin	2. Skin
3. Prostate	3. Stomach and intestines
4. Stomach and intestines	4. Trachea, bronchus and lung
5. Bladder and other urological	5. Bladder and other urological
6. Mouth and oropharynx	6. Rectum and anus
7. Rectum and anus	7. Lympho-hematological
8. Lympho-hematological	8. Uterine cervix
9. Liver, gall bladder and bile ducts	9. Liver, gall bladder and bile ducts
10. Eye, brain and CNS	10. Eye, brain and CNS

„Where?"

New cancer cases/100 000 (2004)

	421.6 - 549.64
	549.64 - 677.68
	677.68 - 805.72
	805.72 - 933.76
	933.76 - 1061.8
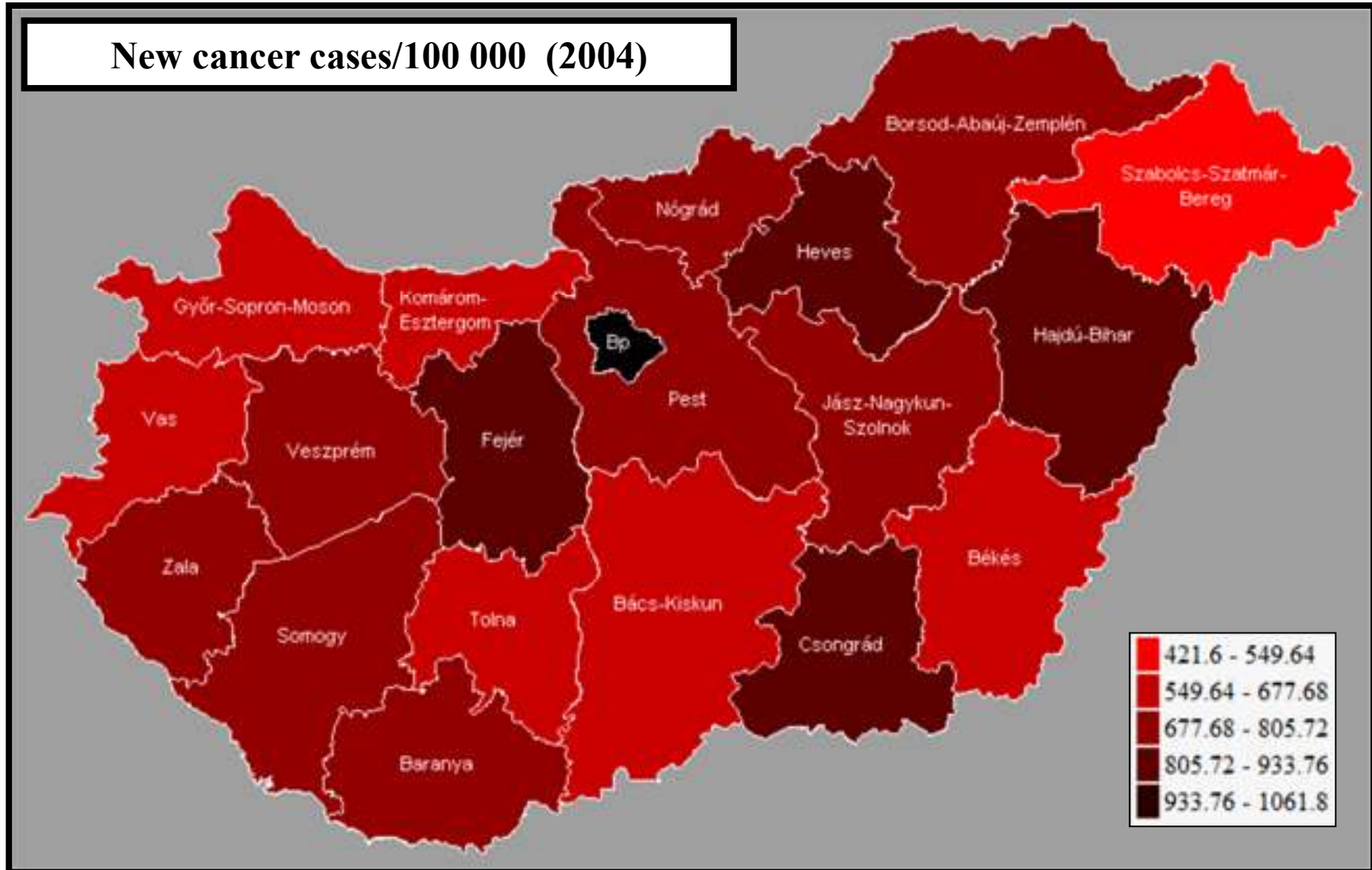
How about your home country?

The IARC GLOBOCAN 2002 database

http://www-dep.iarc.fr/

Contribution of selected risk factors for all cancer deaths, worldwide, in high-income countries, and in low- and middle-income countries

Legend: Worldwide | Low- and middle-income countries | High-income countries

Y-axis: Proportion of cancer deaths attributable risk factor (%)

Categories: Tobacco, Alcohol, Low fruit and vegetable consumption, Overweight and obesity, Physical inactivity, Human papilloma virus infection
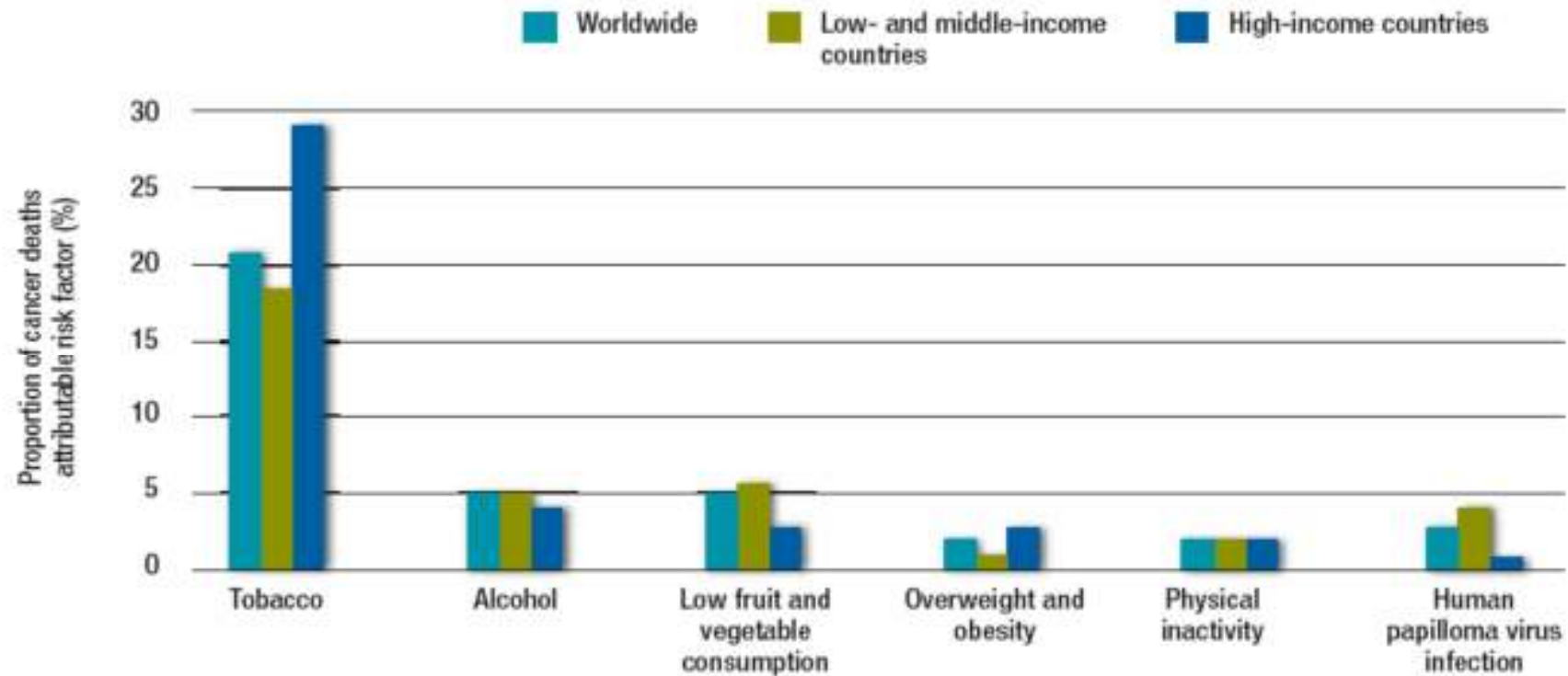
Source: based on data from Danaei et al., 2005.

WHO estimates that 40% of all cancer deaths is preventable.
Tobacco use and harmful alcohol use are among the most important risk factors for the disease.

Cancer deaths:
every year at least 7 million people die from cancer

Tobacco use and exposure	**1,5 million cancer deaths**
Chronic hepatitis B infection	340 000 liver cancer and cirrhosis deaths
HPV	250 000 cervical cancer deaths
Occupational carcinogens	152 000 cancer deaths
Overweight, obesity, physical inactivity	274 000 cancer deaths
Harmful alcohol use	**351 000 cancer deaths**
Indoor and outdoor air pollution	71 000 cancer deaths

*Source: WHO*

Cancer Death Rates*, for Women, US,1930-2002.
Note rise in lung cancer, decrease in uterus, stomach and colo-rectum. Breast cancer was very stable until 1990s.
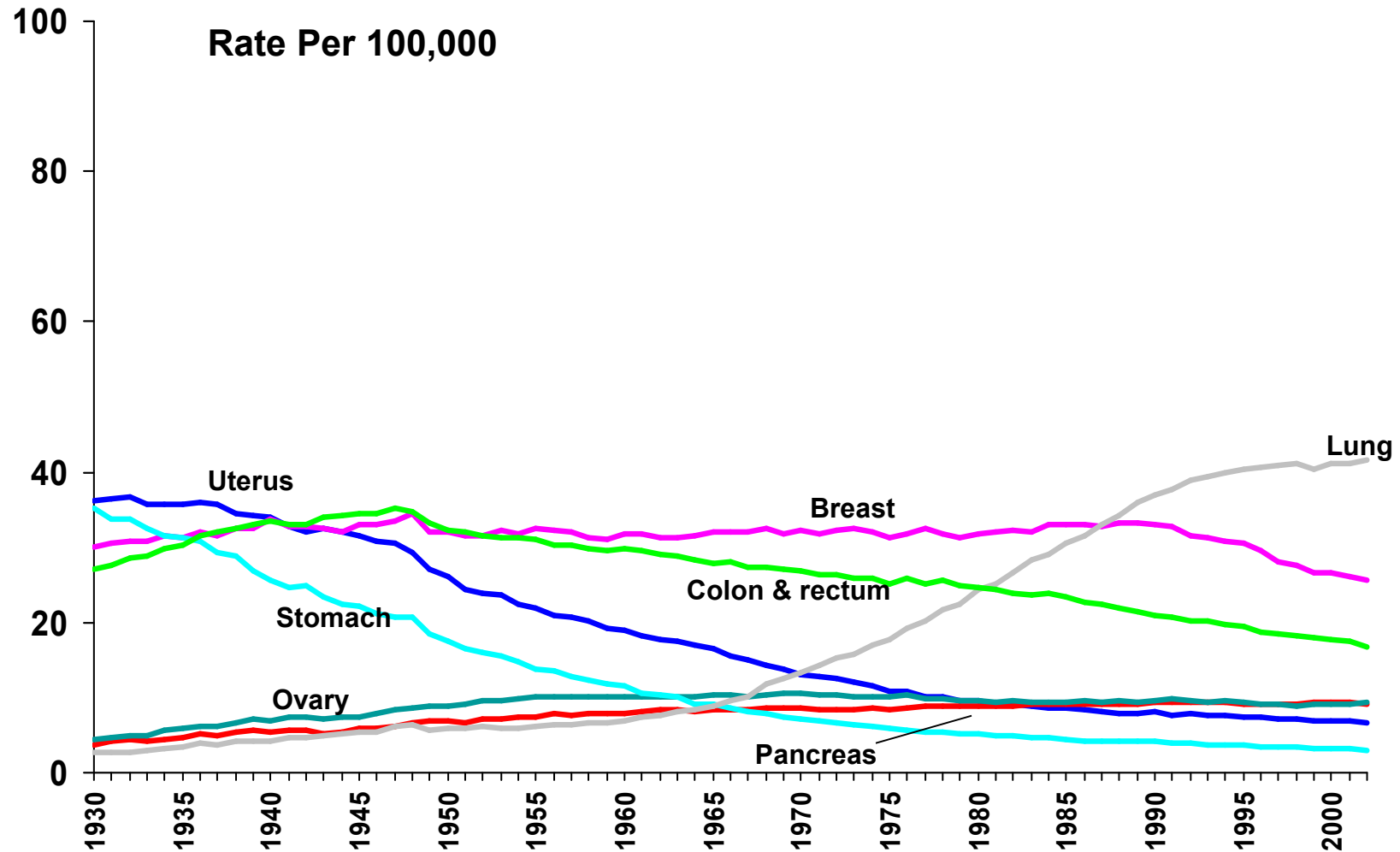
Rate Per 100,000

Lung
Uterus
Breast
Colon & rectum
Stomach
Ovary
Pancreas

*Age-adjusted to the 2000 US standard population.
Source: US Mortality Public Use Data Tapes 1960-2002, US Mortality Volumes 1930-1959,
National Center for Health Statistics, Centers for Disease Control and Prevention, 2005.

Cancer Death Rates*, for Men, US,1930-2002,
Note rise of lung cancer, decrease in stomach cancer.
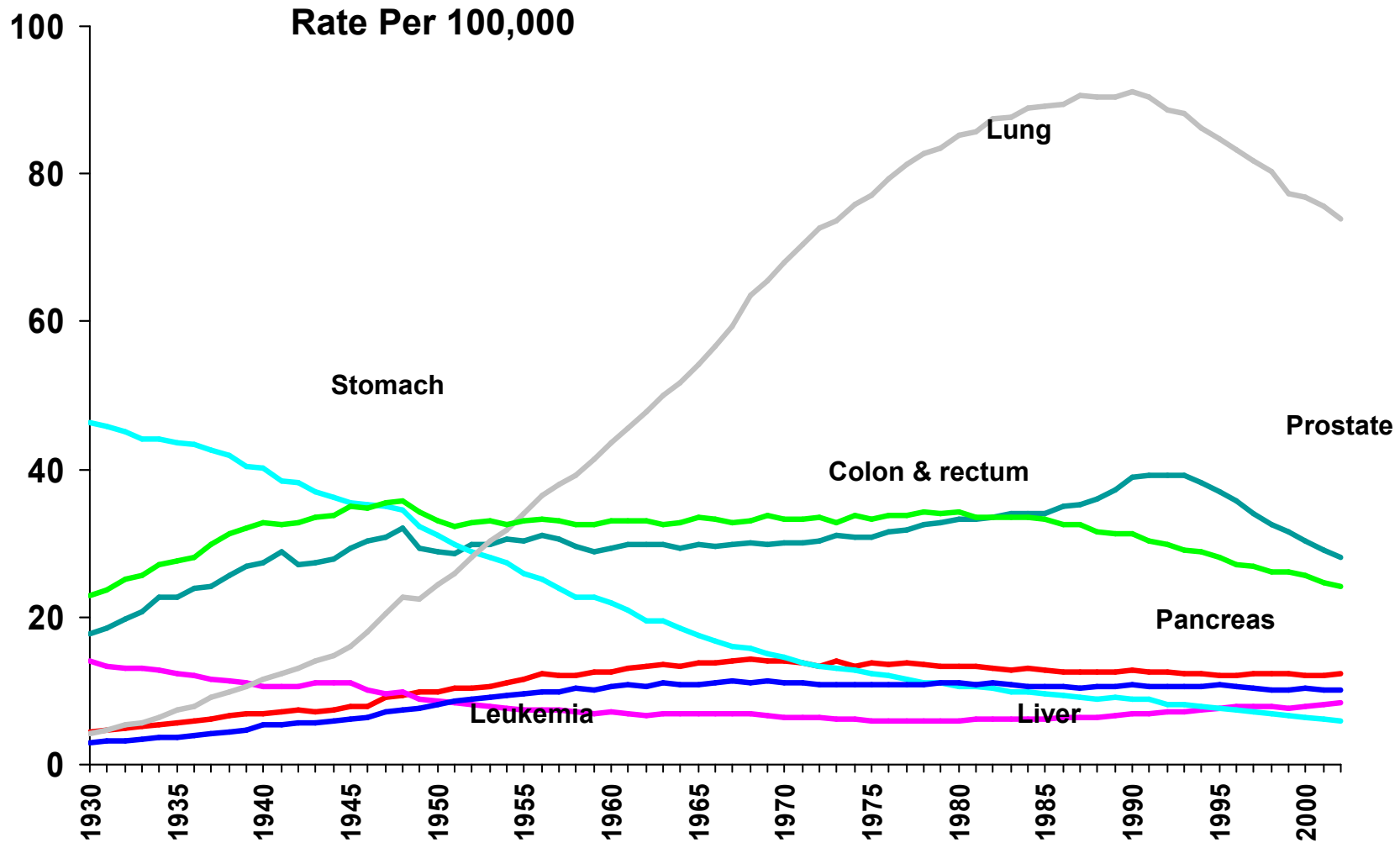
*Age-adjusted to the 2000 US standard population.
Source: US Mortality Public Use Data Tapes 1960-2002, US Mortality Volumes 1930-1959,
National Center for Health Statistics, Centers for Disease Control and Prevention, 2005.

Causes and risk factors of cancer

Tobacco smoking

Of the 7 million annual cancer deaths, 40% are preventable. Of these avoidable cancer deaths, tobacco accounts for 60%. Lung cancer is the leading form of tobacco-caused cancer, followed by tumours of the larynx, pancreas, kidney and bladder.

Dietary factors

The vegetable and fruit intake play protective role.

Obesity and physical exercise

Overweight and obesity alone account for 40% of endometrial cancer. Collectively, overweight and obesity, and physical inactivity account for 159 000 colorectal cancer deaths each year, and 88 000 breast cancer deaths each year.

Alcohol

Harmful alcohol use causes 351 000 cancer deaths annually and is a risk factor for many cancers, including oral, pharynx, larynx, oesophagus, liver, colorectal and breast.

Causes and risk factors of cancer

Infectious agents

Hepatitis B, C, HPV, H. pylori

Occupational and environmental agents

Asbestos, arsenic …

Ionizing and non-ionizing radiation

Ionizing radiation is a well established carcinogen for certain cancers, like lung, breast and thyroid cancer and most types of leukaemia. Radon is the second most important risk factor for lung cancer after tobacco.

Non-ionizing radiation (UV, sunbed) is risk factor for skin cancers.

Medical procedures and drugs

Chemotherapy (leukaemia), immunosupressive therapy (Non-Hodgkin lymphoma), radiotherapy (cancer in the irradiated organs), replacement

oestrogen therapy (endometrial cc), Phenacetin-containing analgesics (cancer of the renal pelvis)

Genetic factors

Population-level strategies

- *Minimizing exposure* to known environmental carcinogens
  - Decreasing levels of **environmental pollutants**
  - Development and implementation of **workplace safety** regulations
  - Development and implementation of **food safety** standards
- *Providing protection*
  - **Vaccination** (HBV, HPV)
- *Early detection*
  - Organized population screening
- Increasing *knowledge and information* on cancers
  - **Organized health-education** and risk-communication
  - Basic-, clinical and epidemiological **research**
  - Establishment and maintenance of **cancer-registries**

Aflatoxin

Brazil-nut

pistachio

fig
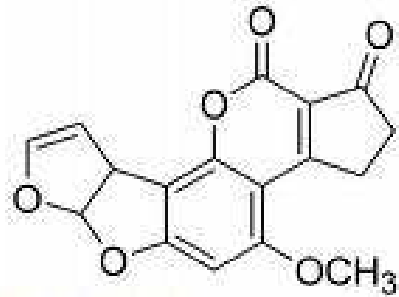
peanut

It is toxic, and cancer-causing, and is produced as secondary metabolites by the fungi, Aspergillus flavus and Aspergillus parasiticus. At least 13 different types of aflatoxin are produced in nature, but aflatoxin B1 is considered the most toxic.

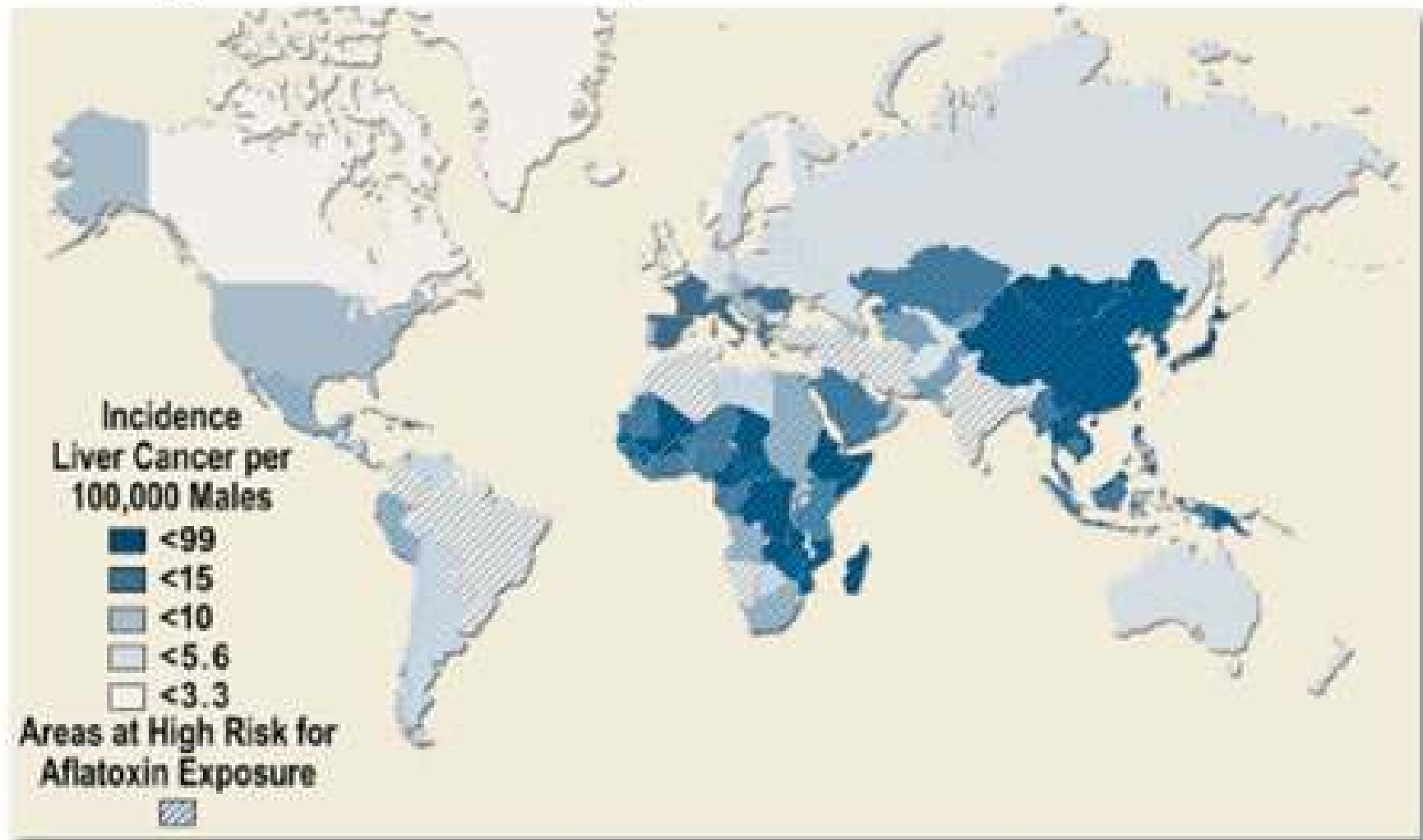# Policy strategies for cancer prevention

- ## *Tobacco*
  - Ban smoking in public places—arenas, malls, restaurants, work places
  - Higher taxes on tobacco products

- ## *Dietary Obesity*
  - Ban advertising of sugary drinks and unhealthy foods directed at children
  - Remove vending machines that dispense high fat, sugary sweets or drinks out of schools and workplace cafeterias
  - Reformulate processed meals, snacks and food reformulated to contain less sugar, refined starches, fat and salt.
  - Ban trans-fat

Correlation Between Populations with High Liver Cancer Rates and High Risk of Chronic Exposure to Aflatoxin Contamination

Incidence Liver Cancer per 100,000 Males
- <99
- <15
- <10
- <5.6
- <3.3

Areas at High Risk for Aflatoxin Exposure

Individual level strategies for cancer prevention

- ***Primary prevention***
  - **Avoiding / minimizing contact with known carcinogens**:
    - **Non-smoking**
    - **Moderate alcohol consumption**
    - **Safe sex**
    - **Moderate sun-bathing / tanning**
  - **Healthy diet**
  - **Regular physical exercise**
  - **Adaptive coping strategies and stress management**

- ***Secondary prevention***
  - **Regular self-examination** (breast cc, testicular cc, skin cc…)
  - **Regular health checkups including recommended cancer-screening based on age and personal risk factors**
  - **Attending organized screening programs**

1. Processsed meats like hotdogs and bacon

Sodium Nitrate when placed in processed meats and consumed produces **nitrosamines**

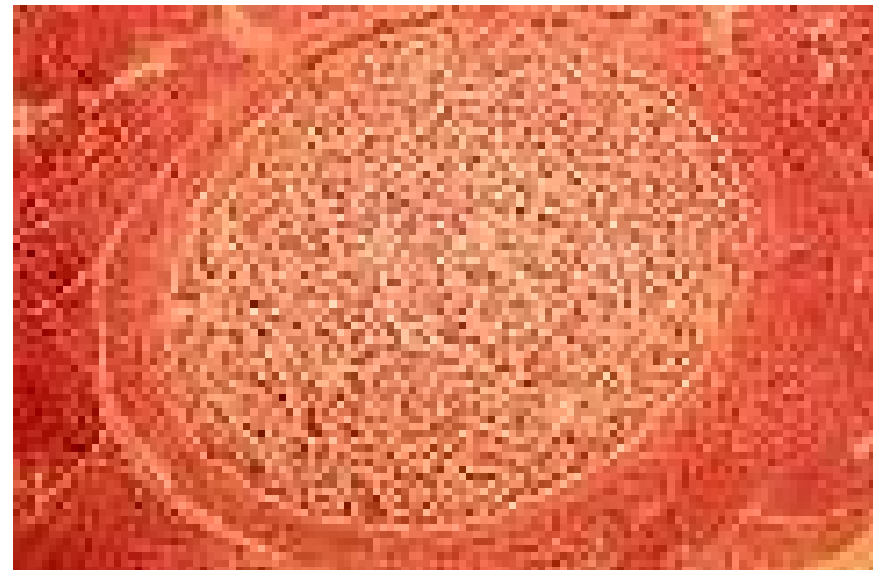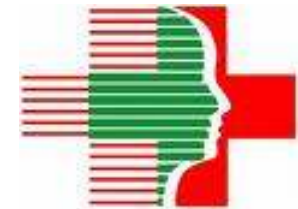## 2. Doughnuts

3. French Fries

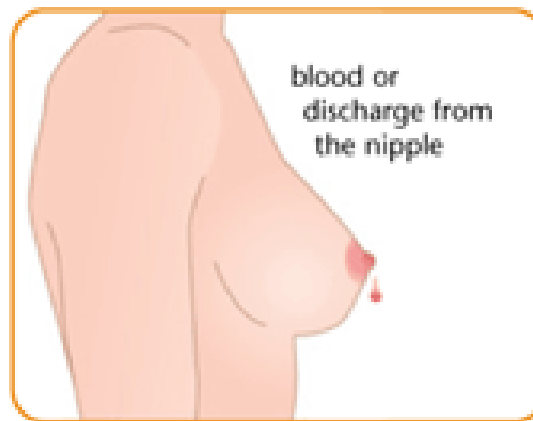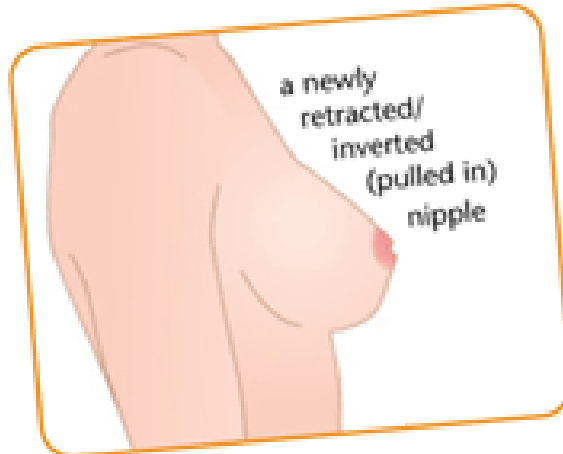**Trans-fats** are usually contained in hydogenated oils and these substances increase the bad cholesterol in the body.
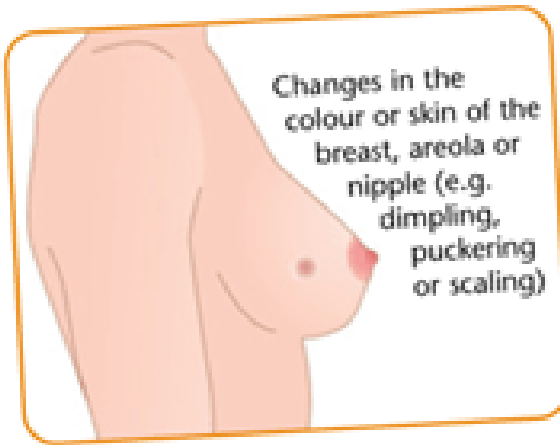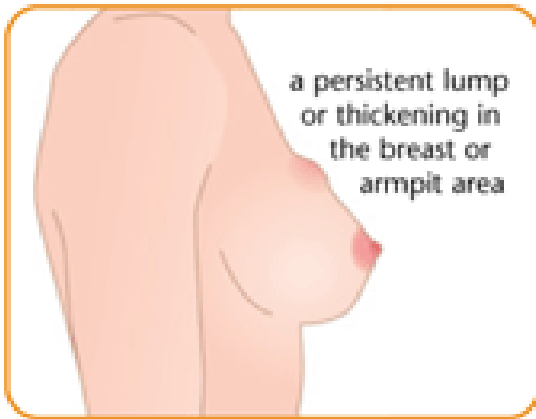
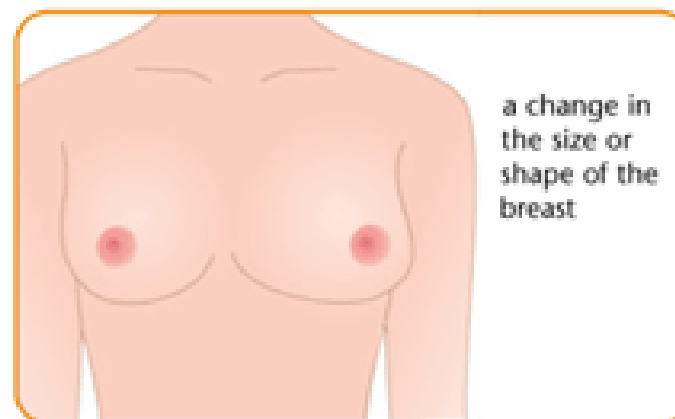

4. Chips, crackers and cookies

Breast cancer, population screening - in HUNGARY

- women between **45 – 65 years**

- every 2 years

- in Hungary: in a year about 7500 new breast cancer case and 2500 deaths

a persistent lump or thickening in the breast or armpit area

Changes in the colour or skin of the breast, areola or nipple (e.g. dimpling, puckering or scaling)

a newly retracted/ inverted (pulled in) nipple

blood or discharge from the nipple

Consult a doctor as soon as possible if you notice any of these changes.

a change in the size or shape of the breast

Cervix cancer, population screening - in HUNGARY

- women between 25 – 65 years
- in 3 years

- in Hungary: about 1500 new cases yearly and 500 deaths
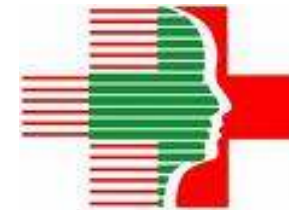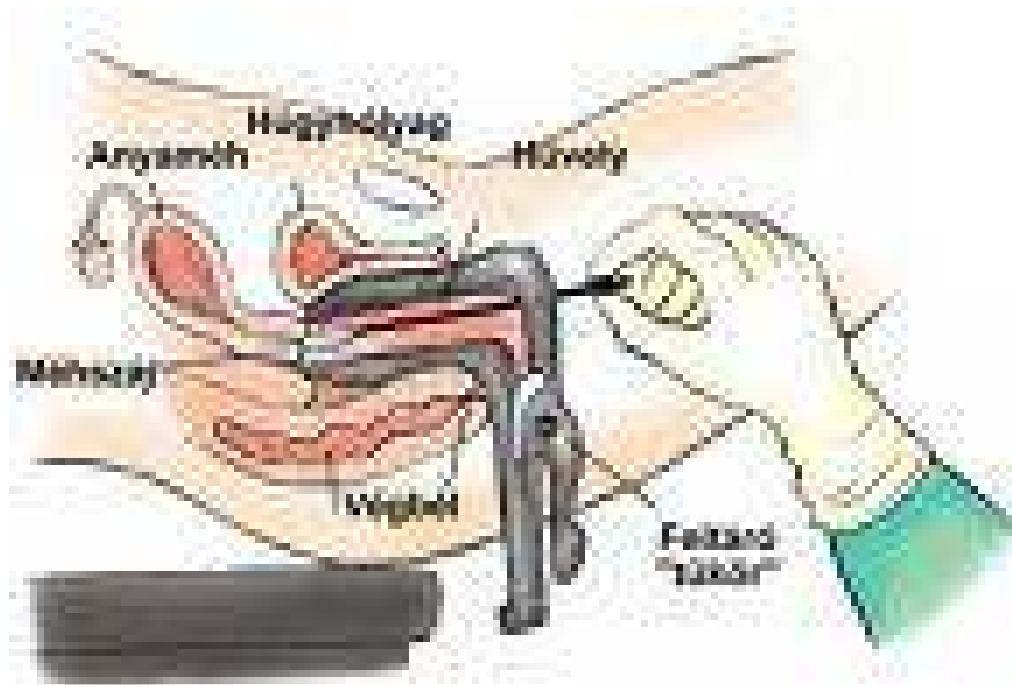
HPV is the leading cause of cervical cancer in women and the **CDC recommends that (three doses of) the vaccine be given to girls when they are 11 – 12 years old** (but can be given between 9 and 26 years old).

There are approximately 40 types of genital HPV. Somes types can cause cervical cancer in women and can also cause other kinds of cancer in both men and women. Other types can cause genital warts in both males and females. The HPV vaccine works by preventing the most common types of HPV that cause cervical cancer and genital warts.

USA: National surveys have found that about 7% of children have had sexual intercourse before age 13, and about 25% have done so by age 15.
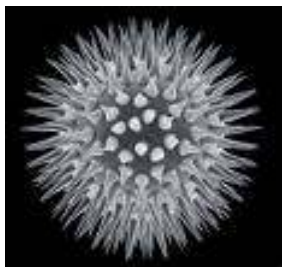
Colorectal cancer, population screening - in HUNGARY

- between 50 – 70 years

- every 2 years

- in Hungary about 7500 new cases yearly and 5000 deaths

Stool testing for blood in the stool is getting more sophisticated. A new study has shown that use of a simple immunochemical fecal occult blood test (FOBT),
in combination with the traditional guaiac FOBT is capable of accurately detecting colorectal cancer and may reduce the need for more complex and less pleasing procedure of invasive colonoscopy.

Organized population screening (in Hungary)

- ***Breast cancer screening***
    - Has been operating since 2001 more or less successfully
    - Women between ages 45 and 65 years are invited every 2 years
    - Operates through a network of mammography screening stations
- ***Cervical cancer screening***
    - Organized screening since 2003
    - Women between ages 25 and 65 years are invited every 3 years
    - Constrained to institutes with accredited cytopathology laboratories
- ***Colon cancer screening***
    - First introduced in 2004, gradual implementation currently in progress
    - Men and women between ages 45 and 65 years are invited every 2 years for a **stool sample test for blood** (Weber's test)
    - Will probably operate through the GP network, but sample processing will take place at accredited laboratories only

The European Code Against Cancer I.

(http://www.cancercode.org)

- **Do not smoke; if you smoke, stop doing so. If you fail to stop, do not smoke in the presence of non-smokers**

- **Avoid obesity**

- **Undertake some brisk physical activity every day**

- **Increase your daily intake and variety of vegetables and fruits: eat at least five servings daily. Limit your intake of foods containing fats from animal sources**

- **If you drink alcohol, whether beer, wine or spirits, moderate your consumption to two drinks per day if you are a man and one drink per day if you are a woman**

- **Care must be taken to avoid excessive sun exposure. It is specifically important to protect children and adolescents. For individuals who have a tendency to burn in the sun active protective measures must be taken throughout life**

- **Apply strictly regulations aimed at preventing any exposure to known cancer causing substances. Follow all health and safety instructions on substances which may cause cancer. Follow advice of national radiation protection offices**

The European Code Against Cancer II.

(http://www.cancercode.org)

- **Women from 25 years of age** should **participate in cervical screening**. This should be within programmes with quality control procedures in compliance with European Guidelines for Quality Assurance in Cervical Screening

- **Women from 50 years of age** should **participate in breast screening**. This should be within programmes with quality control procedures in compliance with European Union Guidelines for Quality Assurance in Mammography Screening

- **Men and women from 50 years of age** should **participate in colorectal screening**. This should be within programmes with built-in quality assurance procedures

- **Participate in vaccination programmes against Hepatitis B** virus infection

Dietary prescriptions (Hungary)

- **Maintain a normal BMI** through calorie intake proportional to your activity level and engage in regular physical exercise

- Increase your intake of **fruits and vegetables**

- **Choose predominantly whole-grain cereals, lower consumption of sweets and sugar**

- **Lower your intake of red meats**, avoid grilled, smoked or marinated meat

- Choose low-fat milk and dairy products

- **Lower consumption of animal fat**

- Eat **less salt**

- **Avoid excess alcohol consumption** (females < 10g/day, males < 20g/day)

- **Do not drink very hot drinks** or have very hot soup often

- **Drink less coffee**

- **Avoid foods potentially contaminated with toxic molds** (A. flavus – aflatoxin etc.)

Back off on the red meat. Eat less than 500 grams (18 ounces) a week, and banish processed meats from your diet altogether.

The role of the primary care physician

- Accurate assessment and communication of patient's personal cancer risk
- *Opportunistic cancer-screening* (routinely or for high-risk patients)
  - ✓ **Breast** examination
  - ✓ **Testes** examination
  - ✓ Rectal digital examination (**rectum** and **prostate** cancer)
  - ✓ Examination of the **oral cavity**
  - ✓ Inspection of any suspicious **skin** phenomena (ABCD rule!)
- High risk cases should be referred to specialist care and follow-up
- Patient education on risk factors, symptoms and the importance of regular self examination and participation in organized screening

The ABCD Rule for Early Detection of Melanoma

A is for **ASYMMETRY:** One-half of a mole or birthmark does not match the other.

B is for **BORDER:** The edges are irregular, ragged, notched, or blurred.

C is for **COLOR** The color is not the same all over, but may have differing shades of brown or black, sometimes with patches of red, white, or blue.

D is for **DIAMETER:** The area is larger than 6 millimeters (about Ľ inch -- the size of a pencil eraser) or is growing larger.
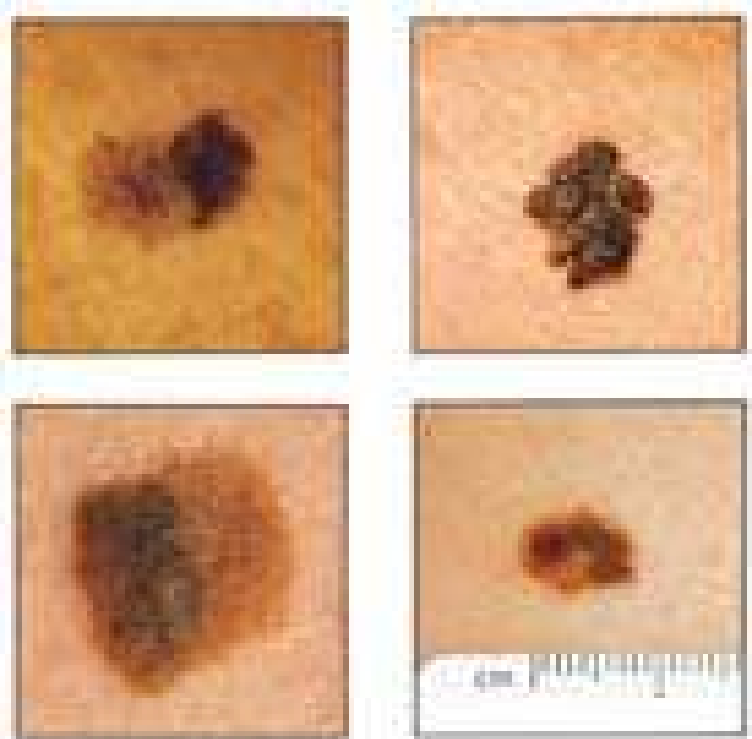
Tasks for <u>primary care physicians</u> in the prevention of specific types of cancer: three examples

Primary sources: Döbrőssy L. <u>Megelőzés az alapellátásban</u>. Mi a teendő? Medicina, 2004.
**Gonzales R, Kutner JS. Current practice guidelines in primary care. Lange, 2006.**

Lung cancer

Main tasks:

- **Avoid smoking**, especially in public, especially at workplace

- **Strongly advise young non-smokers not to start smoking**

- Attempt brief intervention and **support smoking cessation**

- Advise smokers to avoid beta-carotene supplementation

- **Educate** patient on signs and symptoms of lung cancer

- Although routine screening with chest x-ray, sputum smear or low-dose, high-definition spiral CT is not recommended, **screening and/or close monitoring should be considered for persons at high risk** (over 40 years of age, heavy smoker, mostly males)

Annual Adult Per Capita Cigarette Consumption US
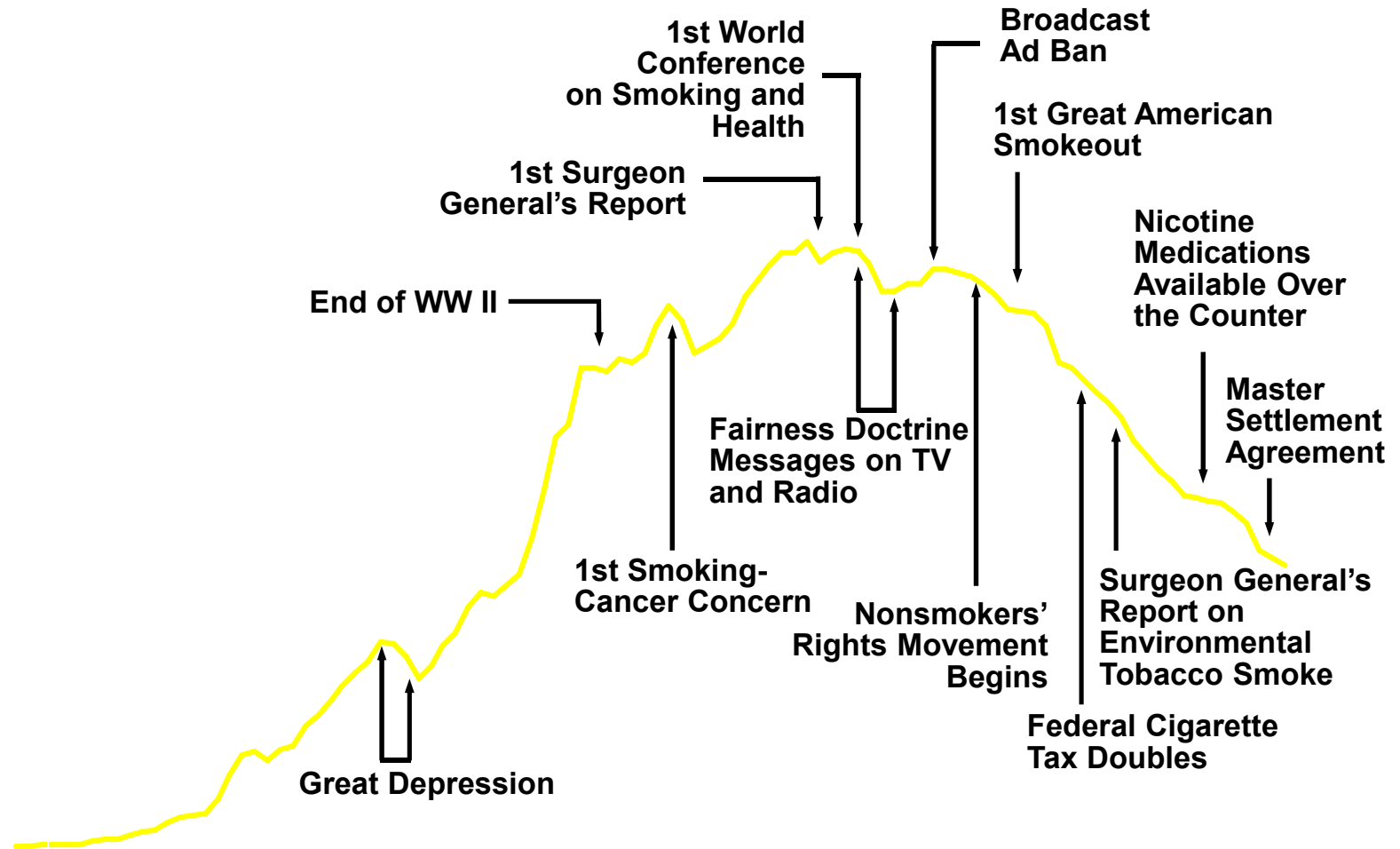
Sources: Centers for Disease Control and Prevention and the United States Department of Agriculture.

Colon and rectum cancer

Main tasks:

- Possibility for primary prevention is limited, but there is some evidence, that NSAIDs and postmenopausal hormone-replacement (HRT) may decrease risk

- Smoking should be discouraged

- Patient education on characteristic symptoms

- Patients presenting with enteric symptoms should receive digital rectal examination

- Fecal occult blood test (FOBT) every 1-2 years over age 50

- Positive FOBT should be followed up with colonoscopy

- Positive family history or the presence of certain syndromes (polyposis, long-standing Crohn's disease or ulcerative colitis) may warrant closer monitoring and investigation of genetic risk factors, possibly the screening of blood-relatives

- For persons at increased risk, screening should include colonoscopy every five years

Oral and oropharyngeal cancer

Main tasks:

- Brief / minimal intervention **against smoking and alcohol abuse**

- **Patient education** concerning characteristic symptoms and precancerous lesions

- **Routine examination of the oral cavity** (as a part of routine physical checkup) and enquiry about any oral complaints

- **For high risk patients** (over 40, smoker, high alcohol consumption, low oral hygiene, no regular dental visits, mostly males) **refer to specialist screening**

- If high risk patient has low probable compliance or referral is not possible examine oral cavity thoroughly for leukoplakia, erythroplakia, ulceration… etc.

- If there is any suspicion of cancer, refer to specialist care

Useful Internet Resources

- **Internet-based Hungarian Health Datawarehouse (IMEA)**
  http://hawk.eski.hu:8080/IMEA/index.html
- **International Agency for Research on Cancer (IARC)**
  http://www.iarc.fr
- **The World Health Organization's Cancer Control website**
  http://www.who.int/cancer
- **European Code Against Cancer**
  http://www.cancercode.org/
- **U.S. National Cancer Institute**
  http://www.cancer.gov
- **American Cancer Society**
  http://www.cancer.org