

# Cancer epidemiology

It is a separate scientific field that collects and analyzes data related to the occurrence and mortality of malignant diseases.

## Descriptive epidemiology

- Describes data on the occurrence and mortality of individual tumors,
- usually uses relative figures per 100,000 population,
- concepts:
  - **incidence** (number of new tumors),
  - **prevalence** (number of tumors in a certain period of time),
  - **mortality** (death rate).

## Analytical epidemiology

- They try to find causal connections in the description (e.g. smoking - lung cancer, stomach cancer - Japan...),
- the number of tumors is increasing, the second place in mortality (after diseases of the cardiovascular system),
- **rise** - lung cancer (today mainly in women, it is starting to decrease in men),
- **decrease** - stomach cancer, cervical cancer (effective prevention),
- **persistent condition** - mammary cancer,
- in the Czech Republic, there is a high incidence of colorectal cancer, kidney cancer,
- currently there is a decrease in lung cancer - in the 70s MI started at a younger age, people stopped smoking.
- **in which the Czech Republic leads,**
  - we have the most kidney cancers in the world (they do not have such a mortality rate, they are not talked about as much), as well as colorectal cancer, pancreatic cancer,
  - we are 1st in Europe in mortality from cancer of the body of the uterus and ovaries.
- The country with the highest incidence of cancers - Hungary,
- the highest incidence of melanomas - Scandinavia (residents travel a lot).

### Incidence of cancers in the Czech Republic (year 2017):

""Incidence""

- men
  1. Prostate cancer (C61)
  2. ZN of the colon and rectum (C18-C20)
  3. CN trachea, bronchi and lungs (C33, C34)
- women
  1. Breast cancer (C50)
  2. neoplasms in situ (D00-D09)
  3. ZN of the colon and rectum (C18-C20)
  4. CN trachea, bronchi and lungs (C33, C34)

""Mortality""

- men
  1. CN trachea, bronchi and lungs (C33, C34)
  2. ZN of the colon and rectum (C18-C20)
  3. Prostate cancer (C61)
- women
  1. CN trachea, bronchi and lungs (C33, C34)
  2. Breast cancer (C50)
  3. ZN of the colon and rectum (C18-C20)

""Prevalence""

- men

1. Prostate cancer (C61)
2. ZN of the colon and rectum (C18-C20)
3. Renal disease (C64)

- women

1. Breast cancer (C50)
2. neoplasms in situ (D00-D09)
3. ZN of the uterus (C54, C55)
4. ZN of the colon and rectum (C18-C20)

**CAVE!** - skin tumors are not counted here, non-melanoma skin cancer (C44) ranks first in incidence

## Carcinogens

- Tobacco – 15-30% of tumors,
- chronic infections 10-25%,
- nutrition 30%,
- other 5%,
- tobacco – lungs, tongue + oral cavity, stomach, kidneys, cone, bladder, pancreas (?),
- chron. infection – EBV (Burkitt's lymphoma), *Helicobacter pylori*, VHB, VHC, papillomaviruses,
- ca stomach – it is famous in Japan – probably thanks to Sushi – raw meat (many infections),
- 99% of cervical cancers – papillomavirus.

## Screening

For more information see Prevention and screening in oncology.

## Hereditary cancer

- Only 10% of tumors can be traced to a familial occurrence,
- have some common features, occur at a younger age, are usually AD hereditary, are more often multifocal,
- the most common hereditary tumors include:
  - **retinoblastoma** – Rb gene mutation, bilateral retinoblastoma, more frequent bone sarcomas and breast and lung tumors,
  - **familial polyposis of the colon** – mutation of the APC gene,
  - **Gardner's and Turcot's syndrome** – polyposis of the GIT, cancer both in the colon and elsewhere (often medullary carcinoma of the thyroid gland), it is a deletion on Chromosome 17 and 18,
  - **FAMMM** (familial atypical multiple mole melanoma) syndrome – deletion on chromosome 1, dysplastic nevi and melanomas,
  - **Li-Fraumeni syndrome** – family occurrence of breast cancer and other tumors (p53 defect),
  - **Lynch syndrome I** (HNCPP – hereditary nonpolyposis colorectal cancer) – colon cancer without polyposis (repair defect),
  - **Lynch syndrome II** – in addition to colon cancer, there are also other cancers (stomach, breast, endometrium, endocrine...),
  - other – Wilms tumor, Neurofibromatosis, MEN sy, Hereditary breast and ovarian cancer (BRCA1, BRCA2 genes).

## Related Articles

- Incidence of tumors
- Hereditary tumor syndromes
- Cancer prevention
- Cancer screening
- Cancer risk factors

Kategorie:Epidemiology Kategorie:Oncology