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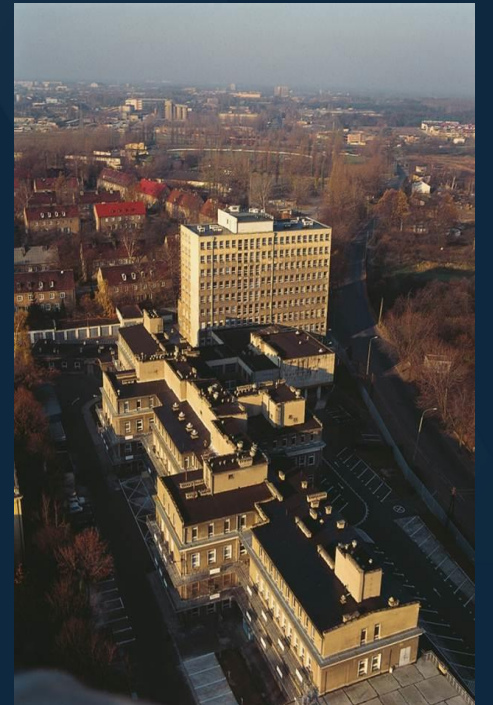
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# Carcinogens in Hospitals in Poland

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# Carcinogens at the workplace in Poland

## The main aspects:

- ensuring safe and healthy working conditions regarding domestic and constitutional legislative provisions;
- the assessment of occupational exposure to carcinogens and evaluation of occupational risk;
- the workers' health protection: health monitoring by the system of occupational health services; providing appropriate personal protective equipment and supervising by occupational safety professionals at the workplace;
- notification and recognition of occupational diseases.

# Safe and healthy working conditions

## The Work Safety and Hygiene Service in Poland (WS&HS)

- Regulated by the Labour Code Act of 1974;
- Responsible for advising employers on all aspects of work safety and hygiene;

## The main duties of the service comprise:

- supervision of work conditions,
- informing the employer about identified occupational risks and the possible mitigation measures,
- reviewing of work safety and hygiene instructions for individual work posts,
- participation in the risk assessment process as well as in the assessment of circumstances and causes of accidents at work,
- initiation and dissemination of information and knowledge about work safety and hygiene as well as ergonomics at the workplace.

# Safe and healthy working conditions in hospitals

Regulation of the Health and Social Welfare Minister of June 19, 1996 on occupational health and safety in the preparation, administration and storage of **cytostatic drugs in health care institutions**.  
Journal of Laws 1996 No 80, item 376 as amended

Requirements for  
rooms where the  
preparation of  
cytostatics takes place

Requirements for the  
method of  
administration of  
cytostatic drugs

Others



**§ 9. Employing pregnant and breastfeeding women to work with cytostatic drugs is forbidden.**

**§ 10. People working in contact with cytostatic drugs cannot perform activities during which they will be exposed to ionizing radiation.**

# Safe and healthy working conditions

In accordance with Art. 176 and art. 204 § 1 of the Labor Code, **pregnant women, breastfeeding women and juvenile employee are forbidden to work in exposure to carcinogenic or mutagenic factors and technological processes, specified in separate regulations**

## Work in exposure to harmful chemicals:

work involving exposure to substances and mixtures meeting the criteria for classification in accordance with the Regulation of the European Parliament and of the Council of Europe (EC) No 1272/2008 of 16 December 2008 on classification, labeling and packaging of substances and mixtures, amending and repealing Directive 67/548/EEC and 1999/45/EC and amending Regulation (EC) No. 1907/2006 (Official Journal EU L 353 of 31.12.2008, p. 1, as amended) in one or more of the following classes or a hazard category together with one or more of the following hazard statements:

### LIST OF STRENUOUS, HAZARDOUS OR HARMFUL WORKS FOR THE HEALTH OF PREGNANT AND BREASTFEEDING WOMENWORKS

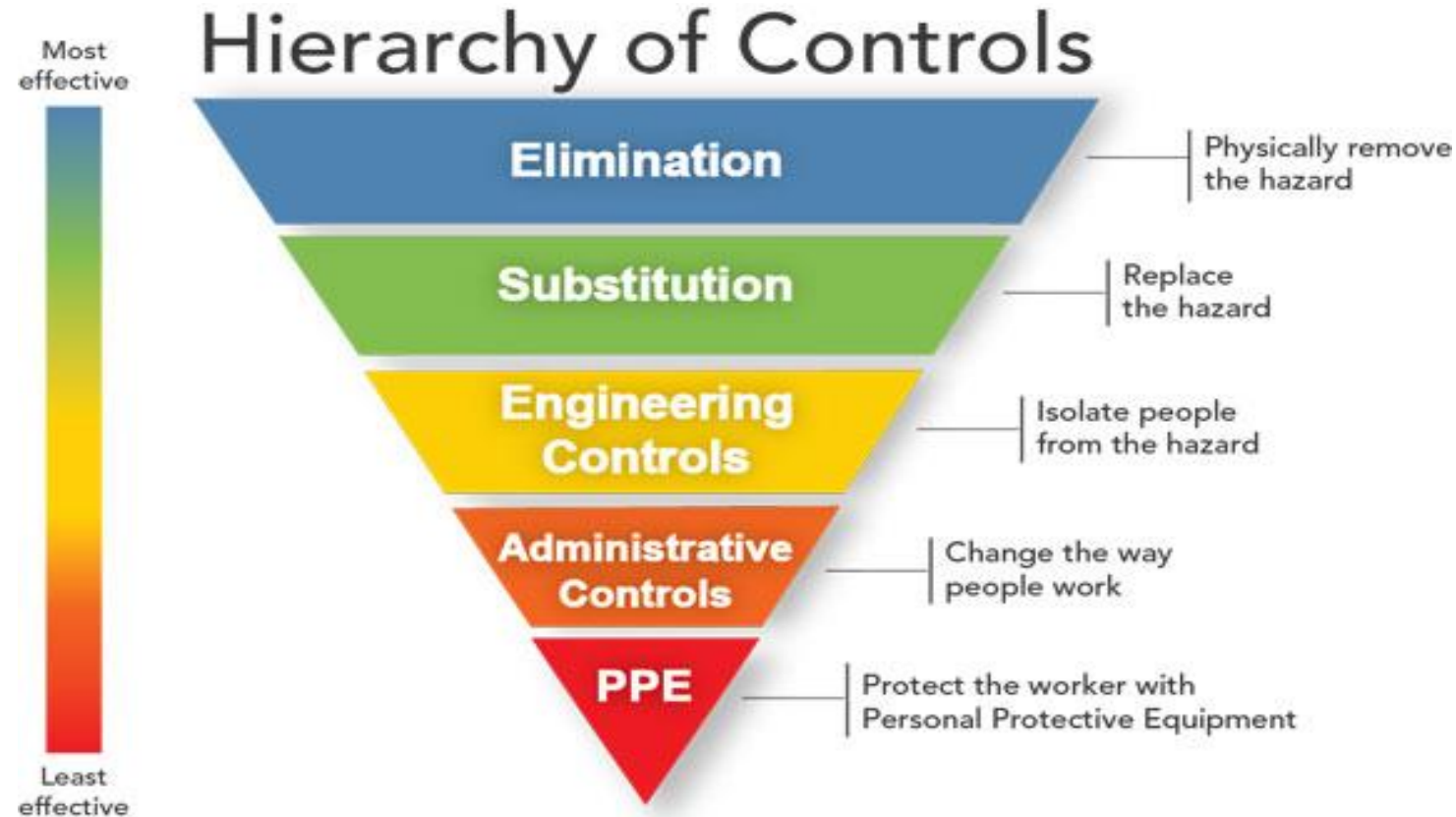
- a) germ cell mutagenicity, category 1A, 1B or 2 (H340, H341)
- b) carcinogenicity, category 1A, 1B or 2 (H350, H350i, H351),
- c) regardless of their concentration in the work environment;

### LIST OF WORKS FORBIDDEN TO JUVENILE EMPLOYEE

- carcinogenicity, category 1A, 1B or 2 (H350, H350i, H351),
- germ cell mutagenicity, category 1A, 1B or 2 (H340, H341),
- in exposure to asbestos.

# Safe and healthy working conditions

Primary prevention should comprise a 'hierarchy of controls'

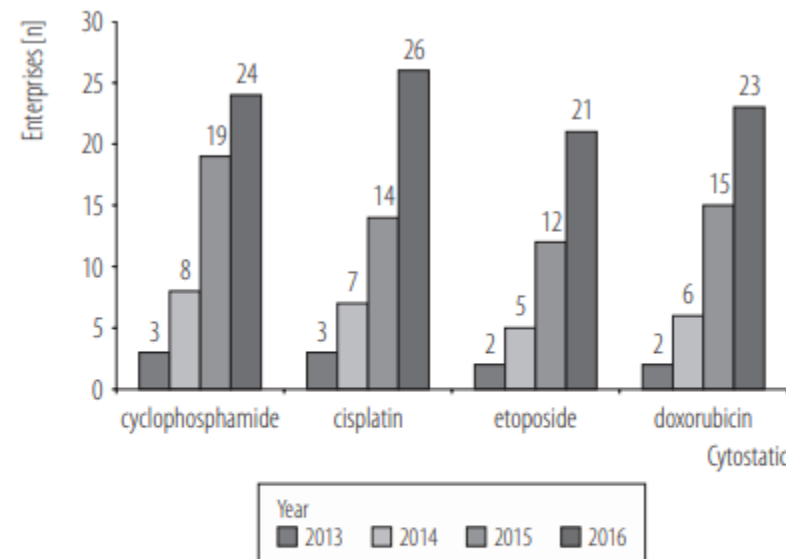


<https://www.cdc.gov/niosh/topics/hierarchy/default.html>

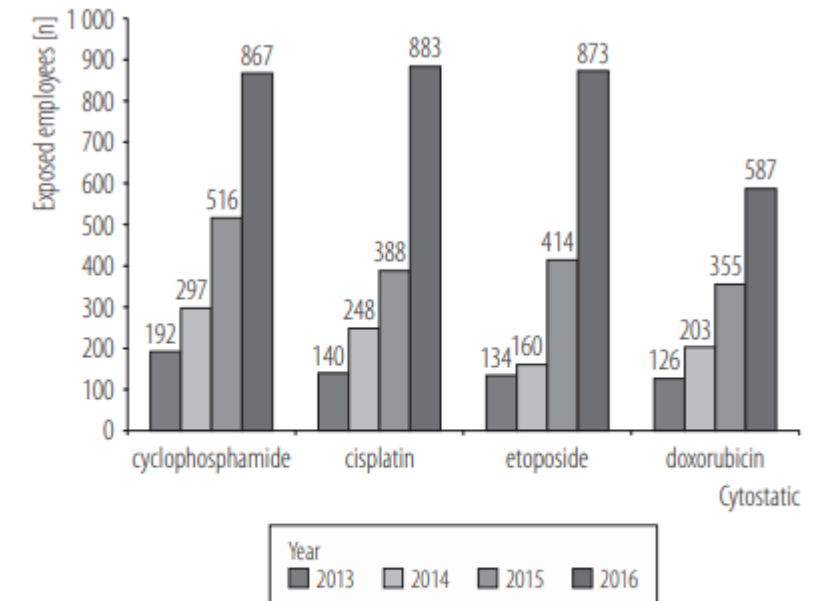


# Assessment of occupational exposure to carcinogens and evaluation of occupational risk

**4 cytostatics reported to the central register most often in 2013–2016 in Poland, with no harmonized classification, but meeting the CLP classification criteria as carcinogenic or mutagenic category 1**



**Figure 1.** Enterprises reporting exposure to the most common cytostatics to the Central Register of Data on Exposure to Carcinogenic or Mutagenic Substances, Mixtures, Agents or Technological Processes in Poland in 2013–2016 [61]



**Figure 2.** Employees exposed to the most common cytostatics reported to the Central Register of Data on Exposure to Carcinogenic or Mutagenic Substances, Mixtures, Agents or Technological Processes in Poland in 2013–2016 [61]

# Assessment of occupational exposure to carcinogens and evaluation of occupational risk

The study conducted in 4 Polish hospitals assessed the cytostatics contamination of the working environment at drug preparation and administration.

- At the oncological wards of all hospitals, at least 1 out of 8 assessed drugs was identified (cyclophosphamide, methotrexate, ifosfamide, docetaxel, etoposide, 5-fluorouracil, gemcitabine, paclitaxel).
- The highest concentration of the analyzed drugs was described in **wipes collected from the floor under the infusion stand**.
- In 2 hospitals, the maximum concentrations were 75 ng/cm<sup>2</sup> and 59 ng/cm<sup>2</sup> – several hundred times **exceeding** the German standard value equaling 0.1 ng/cm<sup>2</sup>.

# Assessment of occupational exposure to carcinogens and evaluation of occupational risk

## The important issues concerning workplace exposure:

- The absorption of cytostatics **by inhalation** among medical personnel cannot be excluded;
- The absorption of a drug is possible by direct inhalation of drug aerosols formed during normal handling, as a result of the hypertension generated during drug preparation and administration, or direct inhalation of drug dust arising during tablets crushing, and also due to secondary contamination of the working surfaces, clothes and containers.

### The medical and nursing personnel of chemotherapy wards handling cytostatics in Polish hospitals reported such effects as:

- lacrimation, conjunctival dryness, redness and itching of the eyes (47%)
- skin irritation (44%),
- mucous membranes irritation (39%),
- increased eyebrows and eyelashes loss (30%),
- heart rhythm disorders (16%),
- nausea and vomiting (8%).

Walusiak J, Wągrowaska-Koski E, Pałczyński C. [Health effects of occupational exposure to cytostatics in medical personnel in the light of compulsory prophylactics: A cross-sectional study]. Med Pr. 2003;54(3):229–36. Polish.

Cieślicka A, Gębka M, Rząca M, Kocka K, Pietraszek A, Bartoszek A, et al. [The health consequences of occupational exposure to cytostatics among nurses.] J Educ Health Sport. 2016;6(9):566–74, <https://doi.org/10.5281/zenodo.154995>. Polish.

# Workers' health protection

## The Occupational Health Care System

### Institutes of Occupational Medicine

- The second level of occupational diseases diagnostics
- Referral centre for health check-ups at Regional Centres

### Regional Centres of Occupational Medicine

- The first level of occupational diseases diagnostics
- Prophylactic care of employees
- Referral centre for health check-ups at OHS units

### Units of Occupational Health Services

- Prophylactic care of employees

# Workers' health protection

## OHM tasks in the care of people exposed to carcinogens

1. An occupational medicine physician who provides preventive health care for employees is obliged to be familiarized with their **working conditions** and must have **documented information on the type and amount** of exposure to chemicals, their mixtures, factors or technological processes with a carcinogenic or mutagenic effect.
2. The employer is obliged, at the request of the OM physician, to order biological monitoring of exposure to chemicals, their mixtures, agents or technological processes with carcinogenic or mutagenic effects, and use other methods **to enable early detection of the effects** of this exposure.
3. The OM physician is obliged to **provide information** to:
  - the employee - about the results of his tests and assessment of health condition and the scope of preventive health care that he should undergo after stopping work in exposure to chemicals, their mixtures, factors or technological processes with carcinogenic or mutagenic effects;
  - the employer, employees' representatives and the occupational safety and health committee operating in the workplace - on the assessment of the health condition of employees, taking into account medical confidentiality.

# Workers' health protection

## OHM tasks in the care of people exposed to carcinogens

- In the case of recognition or suspicion of changes in the health status of an employee, which may cause a suspicion that they occurred as a result of exposure to chemical substances, their mixtures, agents or technological processes with a carcinogenic or mutagenic effect, the employer, at the request of the OM doctor, is obliged to commission **additional health tests of other workers exposed in a similar way**, verify the prior assessment of this exposure, and, if necessary, apply appropriate additional preventive measures.
- An employer who employs workers in exposure to substances and carcinogens or fibrotic dusts is **obliged to provide periodic medical examinations** also:
  - 1) after stopping work in contact with these substances, agents or dusts,
  - 2) after termination of employment, if the interested person submits an application for such research.

The tests are carried out at the employer's expense, and if the workplace has been closed, the tests are carried out in the voivodeship occupational medicine center competent for the place of residence and are financed from the budget of the voivodship self-government.

# Notification and recognition of occupational diseases

In Poland, cancer may be considered as occupational disease if it arises as a result of risk factors occurring in the workplace, considered carcinogenic to humans.

## Occupational diseases in Poland (national list):

**Point 17. Malignant neoplasms induced by human carcinogens present in work environment:**

- 1) lung cancer, bronchus cancer;
- 2) pleural or peritoneal mesothelioma;
- 3) neoplasms of the hematopoietic system;
- 4) skin cancer;
- 5) bladder cancer;
- 6) malignant neoplasms of the liver;
- 7) larynx cancer;
- 8) malignant neoplasms of nose and accessory sinuses;
- 9) cancers caused by ionizing radiation.



# Notification and recognition of occupational diseases

## Regulation of the Council of Ministers of 30 June 2009 on occupational diseases

If there is a suspicion of an occupational cancer etiology, "occupational exposure is assessed with regard to **carcinogenic factors** - chemical substances, their mixtures, factors or technological processes with a carcinogenic or mutagenic effect specified in the regulations issued under Art. 222 § 3 of the Act of June 2, 1974 - Labor Code, **location of the primary tumor** and **latency period**".

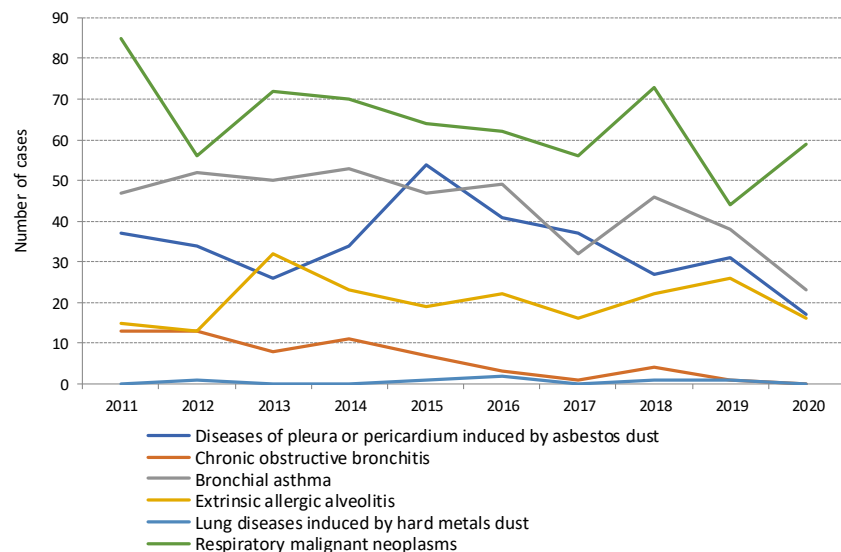
A legal act based on art. 222 § 3 of the Labor Code is: Regulation of the Health Minister of 24 July 2012 on chemical substances, their mixtures, agents or technological processes with a carcinogenic or mutagenic effect at the workplace (Journal of Laws of 2012, item 890, as amended), which specifies including:

- a list of chemical substances, their mixtures, agents or technological processes with a carcinogenic or mutagenic effect.



# Occupational cancers in Poland, 2011-2020

Data from the Central Register of Occupational Diseases in Poland



In Poland the numbers of cases of occupational diseases including cancer are likely to be **underestimated**, in comparison to data from other countries.

Occupational diseases	Cases [n]						Rate per 100 000 employed persons				
	2016	2017	2018	2019	2020	Total	2016	2017	2018	2019	2020
Total occupational diseases	2119	1942	2022	2065	1850	9998	14,3	12,7	12,9	12,9	11,5
Occupational malignant neoplasms	66	63	77	52	64	322	0,4	0,4	0,5	0,3	0,4

# Recognition of occupational cancers – guidelines for recognition

Reliably documented clinical diagnosis of cancer confirmed by histological examination and determination of the primary tumor;

Confirmation of exposure at the workplace to the factor considered as carcinogenic in humans in accordance with the current list of these factors;

Determining the degree and duration of occupational exposure;

Determining if the organ localization of the cancer and the type of carcinogen are consistent with the current medical knowledge;

Determining if the cancer latency period is long enough to establish a causal relationship with the exposure;

Taking into account the influence of non-occupational cancer risk factors (smoking);

Estimation of the contribution of radiation in cancer induction.

If there is exposure to more than one human carcinogen in the workplace with affinity for the same organ, the risk of cancer increases and the latency period may be reduced.



**HVALA**  
**THANK YOU**