

**INTERNATIONAL SEMINAR
ON THE PROTECTION OF HOSPITAL WORKERS FROM
OCCUPATIONAL RISKS RELATED TO CARCINOGENS
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Carcinogens in hospitals in Portugal: Multidisciplinary Risk Assessment

Hospitals are complex organizations with multiple purposes, including diagnosing and treating patients. Some of the hospital patients are workers who have been victims of occupational exposure to carcinogens. But, at the same time, hospitals also have jobs for health professionals with potential exposure to multiple carcinogens, with an eventual cumulative effect.

Anti-neoplastic drugs, cytostatics, are a relevant example of a carcinogen used in the workplace, which represents one of the highest challenges for the occupational health and safety services. From the point of view of medical research in occupational health, hospitals are also the reference work environment for the development of procedures to control professional exposure to carcinogens in other organizations and professional environments. An example of this is the veterinary facilities, where common procedures for the preparation/administration of anti-neoplastic agents still maintain insufficient practices, which are no longer acceptable in a hospital environment.

On the other hand, anti-neoplastics also pose major challenges in the application of the STOP Ground Rules (substitution, technical measures, organizational measures, personal protection) of the Roadmap on Carcinogens. Although great advances have been achieved with improvements to the technical measures, its replacement is not viable in anti-neoplastics, as they are specific treatment for patients.

Occupational exposure to cytostatics can occur in several tasks: (1) reception, transport and storage, (2) preparation (reconstitution/dilution of drugs), (3) administration (connection/disconnection of the EV delivery system), (4) collection/disposal of administration material and other waste, (5) disposal of excreta from treated patients, (6)

direct contact with the product: contact with surfaces, cleaning of the preparation unit, cleaning of spills, etc.

The main exposure routes are:

- Skin: direct contact with drugs or surfaces or equipment contaminated by them
- Inhalation: some drugs can vaporize at room temperature or when manipulated generate aerosol or dust formation
- Oral: uncommon, related to contaminated hands
- Parenteral: bite accidents

The IARC (International Agency for Research on Cancer) identifies several cytotoxic drugs that have sufficient evidence to be considered carcinogenic to humans (based on the risk of cancer in treated patients). Cyclophosphamide is one of the most studied antineoplastic agents. Environmental control and biomonitoring of occupational exposure indicators are a challenge for occupational health, as occupational exposure is mainly characterized by:

- low doses for extended periods of time, and
- high doses in accidental situations.

During the Portuguese Presidency of the Council of the EU, our working group had an intense debate on the best framework for anti-neoplastic drugs in an update of the European Directive on CMR (carcinogens, mutagenics and toxics for reproduction). The debate continues.

“[...] The European Parliament and stakeholders have also stressed the need to protect healthcare staff exposed to hazardous medicinal products as well as other risks. The European Commission and EU-OSHA have launched extensive studies and dialogues with experts and stakeholders on how to address these risks as part of efficient healthcare provision.” (EU strategic framework on health and safety at work 2021-2027: Occupational safety and health in a changing world of work, Brussels, 28 June 2021)