



Safe handling recommendations for occupational safety

1. Since the early 1980s, international attention has increasingly been drawn to the potential risks associated with occupational exposure to antineoplastic, carcinogenic and other hazardous drugs used in the treatment of cancer
2. In 2022 ESOP (European Society of Oncology Pharmacy) established a SIG (Special Interest Group) focusing on safe working and occupational exposure, called MASHA SIG. MASHA is an acronym for Research about Environmental Contamination by Cytotoxics and the **MA**nagement of **S**afe **HA**ndling Procedures)
3. The SIG recommendations list in a concise, clear, and scientifically accurate way, some basic concepts around safe handling which can be widely disseminated to healthcare personnel in an attempt to reduce the risks of exposure to antineoplastic agents
4. They are based on the ESOP Quality Standards for the Oncology Pharmacy Service (QuapoS) which provide accurate and detailed recommendations for the proper handling of oncology drugs



Safe handling recommendations for occupational safety

1. *Receiving and storage*

- All packages with oncology drugs must be delivered to the pharmacy with a yellow hand label
- Oncology drugs delivered to the pharmacy must be separated from other medications
- Oncology drugs should be unpacked by trained personnel in a dedicated area
- Personnel should wear protective gloves when unpacking oncology drugs
- Oncology drugs should be stored separately from other medication and clearly labelled (preferably with a yellow hand label)
- Oncology drugs should not be stored above eye level
- A spill kit must be available in the delivery and storage areas



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2. *Compounding*

- Only trained personnel are allowed to compound according to national requirements
- Compound in a separate, dedicated, clearly labelled, work area in the cleanroom of the pharmacy
- Compound in an isolator or a biological safety cabinet (BSC)
- Devices for compounding (e.g spikes or closed systems) cannot replace BSC
- Avoid unfiltered recirculation of air in the room or from the room
- Only unpack and handle vials when wearing gloves
- Only compound when wearing adequate personal protective equipment (PPE), with a minimum of gloves and gowns with full length cuffs
- Change gloves at least every 30 minutes
- Use spikes for compounding, whenever possible
- Dispense all compounded drugs with a barrier (i.e. a safe cap for syringes or side-line filled with a neutral fluid for infusion bags)



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3. Internal transport of parenteral oncology drugs

- Transport oncology drugs in sealed, leak-proof secondary packaging
- Use clearly labelled (yellow hand) dedicated leak-proof transport containers that can be cleaned and decontaminated easily
- Train logistics employees in safe handling and how to act in case of accidents or spills



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4. *Administration (clinical and outpatient oncology wards)*

- Use dedicated areas which are clearly marked for administration of oncology drugs
- Wear personal protective equipment (at least appropriate disposable gloves and gowns)
- Use multi-way infusion sets with luer-lock connections
- After administration, rinse and then dismount the infusion set as a whole
- Contaminated materials must be disposed of in a dedicated and clearly labelled hospital waste container



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5. *Clinical patient care*

- Use dedicated areas for care of patients who are treated with oncology drugs
- Assign dedicated toilets and sanitary areas to patients who are treated with oncology drugs
- In the period when patient excreta is contaminated:
 - Wear gloves and gowns when handling excreta
 - Do not decant urine from these patients
 - Use gloves and gowns when washing patients



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6. Cleaning of areas where oncology drugs are handled (pharmacy compounding area, clinical and outpatient oncology wards)

- Only allow trained cleaners to clean
- Use written cleaning protocols
- Use dedicated cleaning equipment
- Work from the cleanest, to the dirtiest, areas
- Clean preparation and administration areas, safety cabinets or isolators, at least daily
- Disinfect safety cabinets or isolators, where oncology drugs are compounded, at least daily, with an alcohol solution (70% isopropyl alcohol or ethanol)
- Check the efficacy of the cleaning protocol periodically by taking wipe samples after cleaning
- Treat all used cleaning materials as potentially contaminated



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7. *Environmental monitoring*

- Environmental monitoring for oncology drug contamination in the work place should be part of a comprehensive program in hospitals
- Measurement of hazardous substances can be done by quantifying them in air samples or taking wipes from surfaces
- The wipe sampling plan should set out specific goals, list the actions and equipment required to achieve them, specify the names of the attendees and the timelines for the activities
- Discuss results with the local working team
- If contamination is present, identify the source of the contamination, review standard operating procedures (SOPs) and consider additional cleaning and decontamination procedures
- The assessment procedure should be repeated on a regular basis



Safe handling recommendations for patients

8. *Oral oncology drugs*

Handling oral oncology drugs:

- Choose an appropriate area where you can handle it safely (away from children, kitchen)
- Wash your hands before and after each dose. If you are a caregiver wear gloves.
- The tablets should be swallowed whole with a glass of water (do not crush, chew or dissolve)
- Always keep the same time schedule

Storage:

- Keep the medicines in their original packaging, at recommended temperature conditions, away from direct sunlight and sources of heat or moisture. Keep out of the reach and sight of children.
- Bring leftover medication to the hospital at each visit. Do not discard the medication on your own.

Precautions:

- Check with your health care team before getting any vaccinations, surgery, dental work or other medical procedures
- Do not take this medicine and contact a health care professional if you are allergic or intolerant to any component of the tablet
- Take precautions if you live with persons who are trying to conceive, pregnant or breast-feeding
- Smoking or drinking alcohol may decrease the effectiveness of the treatment or increase the occurrence of side effects



Safe handling recommendations for patients

9. *Spillage of oncology drugs*

- Only trained employees are allowed to clean a spillage
- A spill kit must be located in all areas where oncology drugs are handled
- Use written protocols for usage of the spill kit
- Report, secure and mark contaminated area. Ask all unnecessary employees to vacate the area
- Use a spill kit or other single use equipment dedicated to cleaning spillage and wear all necessary PPE (double gloves, cleanroom long gown or coverall with elastic sleeves, shoe covers, filter mask and goggles)
 - Removing powder: use wet paper towels to cover the spillage and let the powder be absorbed by the liquid. Never use a hand brush for cleaning up powder. Removing liquid: use dry paper towel. Put soaked towels in a plastic bag, repeat if necessary. Close bags as soon as possible
 - After all spillage has been removed with towels, clean the area with generous amounts of decontaminating solution
 - All waste bags, cleaning materials, cloths and gloves should be put into a robust external waste bag clearly labelled as cytotoxic material
 - Secure the external waste bag by sealing tightly with cable ties and place in a waste container designated for hazardous waste
- Write an incident report