Emergency Medical Services Guidance Note #4

Issue: EMS Worker Exposure to Hazardous Drugs

PREAMBLE

Hazardous drugs (HDs) are drugs known or suspected to cause adverse health effects from exposures in the workplace. HDs include those used for cancer chemotherapy, antiviral drugs, hormones, some bioengineered drugs and other miscellaneous drugs. The majority of HDs belong to the category of antineoplastic drugs. These medications are cytotoxic in nature and therefore play a key role in chemotherapy. There is a rapidly growing trend towards out-of-hospital therapies that incorporate HDs into the treatment plan. EMS workers are increasingly seeing the use of these medications and therefore have related potential exposure issues.

Advances in medication formulations as well as technology are making it possible for more and more patients to be treated outside of the hospital setting. Some are treated with mobile delivery systems that are compact, low tech and very efficient in injectable drug delivery and some are treated via the oral route. Paramedics may encounter patients that are currently receiving these medications in virtually any call scenario or environmental location and may not immediately be aware of the potential hazard. There is no prescribed ‘badging’ or demarcation for patients and therefore paramedics must utilize other means to assess for this emerging hazard.

BACKGROUND

HDs have been classified by the National Institute for Occupational Safety and Health (NIOSH). There are 6 characteristics exhibited in humans or animals as follows:

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<th>CHARACTERISTIC</th>
<th>DESCRIPTION</th>
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<td>Carcinogenic</td>
<td>Applies to any substance that can cause cancer.</td>
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<tr>
<td>Teratogenic</td>
<td>Applies to any substance/agent capable of producing embryonic malformation.</td>
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<tr>
<td>Genotoxic</td>
<td>Applies to any substance with the ability to damage the genetic material (DNA) and cause mutations.</td>
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<tr>
<td>Reproductive Toxicity</td>
<td>Applies to substances affecting fertility (e.g. miscarriages, late fetal death or infertility).</td>
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<tr>
<td>Organ Toxicity at Low Doses</td>
<td>Applies to substances with toxic effects on an organ or health at low dose (e.g., liver damage, local necrosis of exposed tissue, etc.).</td>
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HEALTH AND SAFETY PRECAUTIONS AND CONTROL MEASURES

Employers must identify the hazards associated with HDs and assess the risk posed to workers from these hazards as the elimination of a drug or the substitution of a less hazardous product is not an option. Accordingly, employers should complete an objective risk assessment that assesses the nature and the level of risk to which workers may be exposed and develop policies, programs, and training accordingly.

The following exposure control program elements should be in place at all times, where hazardous drugs or their waste products are encountered. Since the usual controls an employer might utilize to protect the worker are not available to EMS employers, more emphasis is required on training and education. This should encompass primary point of care assessments upon arrival on the scene, early recognition strategies, and the identification of appropriate personal protective equipment (PPE) to use when required to deal with HDs or contaminated waste products (drug delivery apparatus, vomit, urine, feces, blood, etc.).

As a result of the increasing prevalence of HD delivery systems in the community, there has been an increase of incidents where EMS workers have the potential of an exposure. Multiple routes of entry are possible, including absorption, ingestion and inhalation, depending on the formulary and delivery apparatus being utilized.

Engineering Controls:

- Ventilation of the area. This is best accomplished when early recognition of the hazard has occurred. Open doors and/or windows of the home, office, apartment or vehicle in order to reduce the concentration levels within the environment. Once in the ambulance, ensure that the ventilation exhaust system is set on high as a minimum measure.
- Keep patient covered if possible, reducing their contact with items outside of the patient environment.
- Utilize safety engineered needles (SENs) and needleless systems.
- Utilize Canadian Standards Association (CSA) puncture and fluid resistant containers that are clearly marked for HDs (for needles, syringes, vials and delivery equipment).
- If advanced airway is in place, then a ‘Closed Circuit’ system should be available for suctioning.
Administrative Controls:

- Management policies and procedures for PPE usage, donning and doffing procedures, respiratory protection, good hygiene practices including hand hygiene, isolation, securing of medications and delivery apparatus recognition.
- Information, instruction and training programs aimed at educating the worker specifically in ways to protect themselves when dealing with patients receiving antineoplastic treatments (safe handling of these patients and associated drug delivery apparatus, the risks associated with exposure, appropriate equipment, hand hygiene, use of PPE, environmental cleaning, uniform / linen disposition and exposure reporting).
- Procedures for safe handling and disposal of cytotoxic waste products (emesis, urine, feces, blood, etc.).
- Consider post-call inclusion into the hazardous address agreement with CACC, if in place.
- Accident/incident reporting and investigation.
- Post accidental exposure and follow-up protocols.
- Occupational hygiene evaluation / environmental cleaning monitoring.
- Regular review of the above materials with the Joint Health and Safety Committee or Health and Safety Representative and workers.

Personal Protective Equipment:

- All paramedics should adopt an early HD query in their scene assessment on every call. Questions like; “Have you had Chemotherapy in the past week?” should be utilized in the primary assessment. If the answer is positive then it will trigger the PPE response protocol. This response will be dependent on whether there is a spill by mobile device of the HD or a body fluid hazard present.
- Perform hand hygiene.
- Disposable gowns made of non-permeable materials should be utilized. More porous options are more comfortable but do not provide an integral barrier to compressed moisture wicking (i.e. fore and aft lift of incontinent patient).
- N-95 or higher as soon as it is apparent that a hazard is present.
- Face and eye protection (e.g., when splash, spray or aerosols of HDs or waste products are possible).
- Gloves to be worn over cuffs of gowns should be .18 to .23 mm in thickness or the use of two pairs of good quality, powder free disposable nitrile or neoprene gloves are to be worn.
OCCUPATIONAL HEALTH AND SAFETY ACT (OHSA) REQUIREMENTS

Section 25 (2)(h) of the OHSA requires employers to take every precaution reasonable in the circumstances for the protection of a worker.

Section 25 (2)(a) of the OHSA requires employers to provide information, instruction and supervision to a worker to protect the health or safety of the worker.

Section 25 (2)(d) requires employers to acquaint a worker or a person in authority over a worker with any hazard in the workplace and in the handling, storage, use, disposal and transport of any article, device, equipment or a biological, chemical or physical agent.

Ontario Regulation 474/07 Needle Safety made under the OHSA.

REFERENCES AND RESOURCE MATERIALS

Safe Handling of Hazardous Drugs in Healthcare; Public Services Health and Safety Association, 2013.  


Evidence-based Series - Safe Handling of Cytotoxics; Cancer Care Ontario  
https://www.cancercare.on.ca/toolbox/qualityguidelines/other-reports/collaborative-pr-ebs/

Safe Handling of Hazardous Drugs; ASSTSAS/IRSST Prevention Guide  

This document should be shared with the workplace Joint Health and Safety Committee or Health and Safety Representative, incorporated into the workplace occupational health and safety policy and program where appropriate, and posted on the Public Services Health & Safety Association website and the websites of other interested stakeholders.
This Guidance Note has been prepared to assist the workplace parties in understanding their obligations under the Occupational Health and Safety Act (OHSA) and the regulations. It is not intended to replace the OHSA or the regulations and reference should always be made to the official version of the legislation.

It is the responsibility of the workplace parties to ensure compliance with the legislation. This Guidance note does not constitute legal advice. If you require assistance with respect to the interpretation of the legislation and its potential application in specific circumstances, please contact your legal counsel.