

## **M10-EN.3 EMERGENCY DEPARTMENT AND INTENSIVE CARE UNIT**

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### **M10-EN.3.1 Blood, Blood borne Pathogens, Other Potentially Infectious Material (OPIM)**

Emergency Department (ED) and Intensive Care Unit (ICU) workers are at particular risk from their exposure to blood, OPIM, and blood borne pathogens because of the urgent, life-threatening nature of emergency treatment. Hepatitis B Virus (HBV), Hepatitis C Virus (HCV), and Human Immunodeficiency Virus (HIV), are included in these pathogens.

#### **Safety Precautions**

- Treat all blood and other potentially infectious body fluids as if they are infected and take appropriate precautions to avoid contact with these fluids
- Use proper personal protective equipment (PPE), such as gloves, gowns, and face masks, when dealing with blood or OPIM, or mucous membranes. Wear gloves while performing vascular access procedures, or when handling contaminated items or surfaces (**M10.3.1.jpg**)
- Use thick utility gloves and gowns that offer additional protection when sorting contaminated items. These utility gloves may be decontaminated for re-use if the integrity of the glove is not compromised. Nevertheless, discard them if they exhibit any sign of deterioration

**Employers** must provide their personnel with:

- Safer needle devices (e.g. needle-less connectors self-sheathing or retractable needles), in order to avoid any exposure to blood and blood borne pathogens (**M10.3.2.jpg**, **M10.3.3.jpg**)
- Readily accessible hand washing facilities where they can wash their hands immediately or as soon as possible after they remove their gloves (**M10.3.4.jpg**)
- Sharps' containers in close proximity to areas where sharps are used

In addition, employees should adopt the following **practices**:

- Discard any contaminated needle and other sharp instrument immediately or as soon as possible after its use, into appropriate containers
- Never bent, recap or remove contaminated needles and other contaminated sharps

### **M10-EN.3. 2 Tuberculosis**

The personnel at the Emergency Department can be exposed to Tuberculosis (TB) and other infectious agents from the patients in the waiting room and treatment areas.

#### **Safety Precautions**

- Practice early patient screening (e.g. through the completion of a questionnaire) to identify potentially infectious patients, for the prevention of possible exposures
- Treat patients as having suspected infectious TB, if they have both a persistent cough lasting at least three weeks, and at least two of the following additional symptoms: bloody sputum, night sweats, weight loss, fever, and anorexia
- Ask patients with a productive cough to wear a mask for the prevention of spreading the infection
- A separated area with separate ventilation must exist for TB patients and especially in facilities where these patients are regularly treated. If this is not possible, TB patients must wear surgical masks and stay in the radiology room the minimum amount of time possible, then be returned without delay to their isolation rooms
- Use biological hazard tags or warning labels on air transport components (e.g. fan, ducts, filters, etc), that may logically contain air infected with TB, to warn their employees or any other person being at this area of possible hazards of contamination
- When a person suspected or confirmed with TB, leaves the area, the sign at the entrance of the room must remain until it is properly ventilated, ensuring that any unprotected employee does not accidentally enter while an infection risk is still present
- Where healthcare facilities serve populations with a high occurrence of TB, the general ventilation, supplement or use additional engineering approaches in general-use areas where TB patients are likely to go (e.g. waiting-room areas, emergency departments, and radiology rooms). These engineering approaches include:
  - A single-pass, non-recirculating system exhausting air directly outside
  - A re-circulation system that passes air through High Efficiency Particulate Air filters before re-circulating it to the general ventilation system
  - Use of Upper Air Ultraviolet Germicidal Irradiation, a process that exposes micro-organisms (bacteria, moulds, fungi or viruses) to ultraviolet radiation, in order to break their molecular structure. By breaking their organic molecular bonds the radiation causes them irreparable cellular damage

**Employers** must place warning signs at the waiting rooms (e.g. “If you are coughing you may be asked to wear a mask”). Until the verification testing is negative, the possible infectious patients should be isolated, either to isolation rooms, or to a designated isolation area. A warning sign should exist outside the respiratory isolation room to prevent accidental entry. A signal word (i.e. “STOP”, or “NO ADMITTANCE”) or biological hazard symbol should be presented, and as well as a major message (e.g. “Special respiratory isolation”, “Respiratory isolation”). When respirators need to be used, then the employers must provide the personnel with them and ensure that they use them.

### **M10-EN.3. 3 Bacteria**

#### **Methicillin Resistance Staphylococcus Aureus (MRSA)**

Staphylococcus aureus is a common bacterium found on the skin of healthy people. If staphylococcus enters the body it can cause a minor infection such as boils or pimples or serious infections such as pneumonia or blood infections. The resistant bacteria to methicillin (used for the treatment of staphylococcus) are called Methicillin-resistant Staphylococcus Aureus (MRSA).

This kind of bacteria usually infects elderly or very sick hospital patients. Sometimes, those who have had frequent, long-term or intensive use of antibiotics, those who are using intravenous drugs may be at more risk, as well and those who are immune-suppressed, or with long-term illnesses. The infection can be developed in an open wound such as a bedsore or when there is a tube such as a urinary catheter that enters the body

#### **Potential Hazards**

Exposure of Emergency Department employees to MRSA infections can occur from environmental sources (e.g. homeless patients). Their hands can be contaminated by contact with patients, or surfaces in the workplace, and medical devices that are contaminated with body fluids containing MRSA. If the personnel are infected, they can become carriers who can infect other employees or patients.

#### **Safety Precautions** (in addition to those mentioned in M10-EN.3.1)

- Wash hands immediately after removal of gloves, between patient contacts and between tasks and procedures
- Clean, disinfect and sterilise patient care equipment to limit any transmission of organisms

#### **Employers** should:

- Establish MRSA data and provide treatment information to their employees
- Provide training to their health care personnel for the prevention of MRSA infections

### M10-EN.3. 4 Hazardous Chemicals

Chemicals can be found in many departments of a health care institution, such as:

<b>Types of chemicals</b>	<b>Departments that can be found</b>
Disinfectants	Patient areas
Sterilants	Central supply, surgery rooms, doctors offices
Medicines	Pharmacy, Patient areas
Laboratory reagents	Laboratories
Housekeeping/maintenance chemicals	Hospital- wide
Food ingredients and products	Kitchen, cafeteria
Pesticides	Hospital-wide

The personnel at the Emergency Department can be exposed to hazardous chemicals (e.g. during decontamination of emergency patients after a chemical spill) or exposed to hazardous drugs.

#### **Safety Precautions**

A program must exist for the maximisation of the employee's safety during decontamination of patients, and during administration, disposal, and preparation of hazardous drugs. Engineering controls can be used, such as:

- Splatter guards (Plexiglas barriers), for the prevention of any splashes (M10.3.5.jpg)
- “Automatic sinks” that are sensor-controlled or with foot, knee, elbow in order for the employees to use them without using their hands
- Centrifuge tubes with caps
- Biological safety cabinets

A daily check is essential to ensure that proper air exchange and air flow exist. The employers must keep all the records of maintenance for the ventilation systems, and for the laboratory hoods and other equipment.

Health care personnel often are exposed to hazardous drugs and usually antineoplastic (cancer) drugs, because they neglect to:

- use biological safety cabinets during drugs' preparation
- use appropriate personal protective equipment
- follow the correct practices while preparing or handling these drugs

## **Safety Precautions**

Employers must:

- Assess potential hazards
- Provide proper PPE (gloves and gowns), for the protection against hazardous chemicals and drugs; and for the protection of eye and face whenever splashes, sprays, or aerosols of hazardous drugs may be created resulting in eye, nose, or mouth contamination.
- Ensure that the personnel use the proper PPE.

Protective gowns can be disposable; made of lint-free, low-permeability fabric, with a solid front, long sleeves and tight-fitting elastic or knit cuffs

Change gloves regularly or immediately if they are torn, punctured, or contaminated with a spill. Wash hands prior using gloves, and after their removal

### **M10-EN.3.5 Hazardous drugs during care giving**

Employees can be exposed to hazardous drugs during care giving, while they deal with excreta that may contain high concentrations of hazardous drugs.

## **Safety Precautions**

- Wear appropriate PPE such as gloves, gowns, etc, (especially nurses or housekeepers dealing with body fluids from patients that received hazardous drugs in the last 48 hours)
- Use disposable linen or protective pads for incontinent or vomiting patients
- Discard the gloves after each use and immediately if contaminated. Discard the gowns when leaving the patient-care area and immediately if contaminated
- Wash hands thoroughly after handling hazardous drugs

### **M10-EN.3.6 Latex Allergy**

Due to the fact that gloves, and often latex ones, must be worn frequently in the Emergency Department and in the health care facility in general, health care workers can develop latex allergy. (M10.3.6.jpg, M10.3.7.jpg)

## **Safety Precaution**

In case of latex allergy **employers** must:

- Provide a latex-free work environment, where possible
- Ensure that non-latex gloves and other latex-free products are used (such as hypoallergenic gloves, glove liners, powder-free gloves, etc)
- Choose a low protein, powder-free glove, for reducing any systemic allergic responses, where latex must be used

### **M10-EN.3.7 Equipment Hazards**

Injuries are possible when employees are not properly trained on the use of equipment (e.g. defibrillators). One of the common hazards in a workplace is electricity. In health care facilities a wide variety of electrical equipment is used, very often in hazardous environments, such as: wet or damp locations or adjacent to flammables or combustibles. Electric shock may occur as a result of lack of maintenance or misuse of equipment and/or its controls (**M10.3.8.jpg**). Possible **electrical hazards** include:

- Three-wire (grounded) plugs are attached to two-wire cords that are ungrounded (**M10.3.9.jpg**)
- Ground projections are bent or cut off
- Ungrounded appliances attached to ungrounded multiple-plug “spiders” (**M10.3.10.jpg, M10.3.11.jpg**)
- Extension cords with improper grounding
- Cords moulded to improperly wired plugs

### **Safety Precautions**

- Turn off any equipment before unplugging it
- Do not use electrical equipment when hands, working surface or floor are wet (**M10.3.12.jpg**)
- Do not use any appliance, equipment or wall receptacle that seems damaged (**M10.3.13.jpg**)
- Do not use any device that is combusted until it is inspected
- Use extension cords only temporarily and only in urgent situations
- Use extension cords designed to carry the voltage required
- Report every shock immediately and do not use it unless is inspected

**Employers** are required to:

- Train their personnel properly on electrical safety
- Inspect and monitor regularly the status of equipment in every health care department
- Provide their employees adequate working space and access to equipment

The **employees** must remember to:

- Visually inspect cords, and not use them if they are frayed or damaged. Equipment cords must be grounded and especially the one near sources of water
- Visually inspect the equipment before using it, and if something does not look right, they must call for assistance and not use it
- Use appropriate personal protective equipment and safe work practices for hazards for example: gloves during handling hot items, not opening autoclaves or sterilizers until they are sufficiently cooled

### **M10-EN.3. 8 Slips/Trips/Falls**

Due to the emergency atmosphere (i.e. high traffic and compact treatment spaces) slips, trips, and/or falls are possible. A potential slip and fall hazard might occur, in case of a water spillage on the floor accidentally, electrical cords running across pathways, and/or if emergency equipment or supplies block passageways.

#### **Safety Precautions**

- Coverage of floors with non slippery material
- Keep floors clean and dry in all circumstances
- Keep aisles and passageways clear and in good condition, without obstructions
- Mark mobile equipment with a bright colour, or a tape “X”, for distinguishing it from the floor and make it more visible to employees

#### **Employers must:**

- Provide floor plugs or ceiling plugs for the equipment, in order that power cords do not need to be across pathways
- Give instructions to employees to use the handrail on stairs, to avoid undue speed, and to maintain an unobstructed view of the stairs ahead of them-even if that means asking for help when managing a large load

**Good work practices** recommend that spills must be reported and cleaned up immediately. No skid waxes must be used, as well as surfaces coated with grit or waterproof footwear for decreasing any possible slip/fall hazards.

### **M10-EN.3. 9 Working Space**

Intensive care units and especially the neonatal ones may be designed without walls between patient spaces. This may allow employees to be unknowingly exposed to aerosolized chemicals and x-ray radiation that escape from nearby work areas.

#### **Safety Precautions**

- Adequate ventilation must exist in every room in order for the contaminants to be removed
- Adequate filtering must be installed, where air recirculation is needed
- Warn and remove nearby personnel if procedures such as x-rays will take place
- Administer aerosolized chemicals in such a way to prevent exposure of the personnel or the patients

### **M10-EN.3.10 Working hours**

At the health care sector, the need for 24hour health care is essential. The health care personnel must work on a circular schedule, with a combination of shifts during the day and night. It includes 8hour shifts in morning, afternoon and night. Shifts rotate in such a way to enable the worker to return smoothly back to a daily schedule. Besides the 8hour shifts, other schemes exist such as the 12hour shifts, and those with a decreased weekly schedule.

Despite the type of shift, sleeping time disorders occur, resulting in a disturbance of workers biological rhythms also. Rotating shift system, as well night shifts, have negative results on the health and well-being of health care workers. It affects their sleeping habits, their mental condition; it disturbs their body and has effects on their social life as well.

### **Safety Precautions and good practices**

- The circular schedule must have clockwise direction. For example, an afternoon shift must never follow a morning one
- The maximum number of continuous night shifts must be three. Often this depends on the personal desire of a worker that wants to work more night shifts in a row to get used to them, in contrast with others that can work only for two
- Morning shift must begin after eight o' clock in the morning, in order for the personnel to feel less tired and stressed
- Elasticity must exist on the starting and ending time of shifts
- Night shifts must last less than the others. The workers do not have the ability to work with the same tension during a night shift
- Rotation of shifts must exist, with stability and successively, in order for the personnel to organise their personal and social lives
- 12hour shifts cause less sleeping disorders, both qualitative and quantitative
- Resting days must be two in a row, for resting better. When the resting days are interrupted, workers do not rest enough, resulting their return at work with accumulated tension
- The personnel must be allowed, when possible to choose their shift. If they control at some level their working hours, then the work related problems can also be controlled

### **M10-EN.3.11 Workplace Stress**

Work related stress increases a workers' risk for health problems. All hospital employees are exposed to stress, but not as much as those working in departments such as the Emergency Department of the Intensive Care Unit. Stressors causing work related stress, and exhaustion, can be shift work, long hours, and intense emotional situations, (e.g. the suffering and death of patients). (Link: M10-EN.2.4)

### **M10-EN.3.12 Workplace Violence**

Another frequent problem at the Emergency Department is workplace violence, due to the crowded and emotional situations that can occur with emergencies. In addition, patients being at the ED could be involved with crimes, weapons, or violence from other people that could put ED personnel at an increased risk of workplace violence.

### **Safety Precautions**

When it comes to workplace violence, preventive measures can be introduced from the employers. These measures can include environmental, work practices and training solutions.

## **Environmental**

**Engineering controls** can also be used, such as:

- Installation of alarm systems, such as panic buttons, hand-held noise devices, and mobile phones. The panic buttons can be hidden in the ED, on personnel, and at the check-in area, that can be pushed for emergency help. These buttons could notify hospital security as well as directly contact the local Police Station
- Limitation of access to the ED and to its personnel by the implementation of:
  - A waiting room area with controlled access to ED. Patients must be let in by a receptionist from a secure door
  - ED exits that exit out only, in order to prevent people from the street to enter into the ED unless they come in through the waiting room area
- Adequate lighting and camera surveillance
- Use of metal detectors
- Control of all access doors
- Installation of locks in the areas where personnel moves, e.g. toilets
- Placement of curved mirrors and adequate lighting
- Provision of well-lit parking lots

## **Work Practices**

- Identification of high-risk patients
- Existence of properly trained staff at all times. The personnel can recognize and diffuse violent situations and patients
- Existence of personnel alert for possible violence or suspicious behaviour that reports any incident
- Adequate personnel, with experienced health workers on each shift
- Use of an escort system, while dealing with a possibly violent person
- Prohibition of employees working alone, especially in emergency departments
- Provision of an easy and effective process to report suspicious behaviour, harassment, threats, or violent assaults to those accountable.
- Supervision of movements of psychiatric clients and patients within the facility

A **security management program** can be established, addressing workplace violence in the ED, and used as part of **good work practices**. This program can include:

- Intervention measures (verbal, social, physical, pharmacological, etc)
- Placement of warning signs of Increasing Anger/Violence (i.e. Pacing and/or restlessness, Clenched fist, Increasingly loud speech, Threats or Cursing, etc)
- Establishment of counselling and treatment for employees experienced workplace violence
- Reconsider prevention policies, reporting procedures, support systems and action plans

- Identify risk factors that can cause or contribute to violence
- Identify early warning signs of escalating behaviour
- Provide workers with tools for diffusing violent situations
- Use incidents to review system and policy failures

**Employers** can provide a "secure" room for patients identified to be violent, with:

- Video camera surveillance
- Visual surveillance (provision of a window )
- Door locks on those patient rooms and locked cabinets
- Beds with tie down straps, furniture and equipment attached to the floor so patients can't throw them at health care workers.