

**M10-EN.15 Risk Assessment Forms**

| Hazard  |  | Who (type of worker)         | Harm   | Required Safety Measures  |
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| Source  | Hazard description   |                              |  |   |
| <b>Ergonomics</b>                                   |  |                              |  |   |
| Handling, transferring or repositioning of patients | <ul style="list-style-type: none"> <li>- Repetitive movements</li> <li>- Pushing chairs or gurneys across elevation changes or up ramps</li> <li>- Lifting heavy objects (e.g. manually lifting immobile patients)</li> <li>- Overexertion; trying to prevent a patient from falling</li> <li>- Picking patient up from floor or bed</li> <li>- Multiple lifts per shift (more than 20)</li> <li>- Lifting alone, no available personnel to help</li> <li>- Lifting un-cooperative, confused patients</li> </ul> | Healthcare personnel, nurses | <ul style="list-style-type: none"> <li>- Injuries</li> <li>- Musculoskeletal disorders (MSDs)</li> </ul> | <ul style="list-style-type: none"> <li>- Never transfer patients/residents when off balance</li> <li>- Lift loads close to the body.</li> <li>- Never lift alone, particularly fallen patients/residents, use team lifts or use mechanical assistance.</li> <li>- Limit the number of allowed lifts per worker per day.</li> <li>- Avoid heavy lifting especially with spine rotated.</li> <li>- Have training in when and how to use mechanical assistance, and in ergonomic hazards and controls</li> <li>- Use proper mechanical assistance</li> </ul> |

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|                  | <ul style="list-style-type: none"> <li>- Lifting patients that cannot support their own weight</li> <li>- Distance to be moved, and from the patient</li> <li>- Ineffective training in body mechanics and proper lifting techniques</li> </ul>  |                      |   |  |
| Awkward Postures | <ul style="list-style-type: none"> <li>- Reaching across beds to lift patients</li> <li>- Twisting while lifting</li> <li>- Bending over to lift</li> <li>- Lateral or side bending</li> <li>- Back hyperextension or flexion</li> <li>- Reaching forward or twisting to support a patient from behind for assisting in walking</li> </ul> | Healthcare personnel | <ul style="list-style-type: none"> <li>- Back injuries</li> <li>- Musculoskeletal disorders (MSDs)</li> </ul> | <ul style="list-style-type: none"> <li>- Avoid awkward postures while lifting or moving patients</li> <li>- Educate and train employees about safer lifting techniques</li> <li>- Use assistance devices or other equipment whenever possible</li> <li>- Team lifting based on assessment</li> </ul> |

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|  | <ul style="list-style-type: none"> <li>- Excessive reaching above shoulder height while filing</li> <li>- Awkward postures</li> </ul>   | Administration personnel                  | Musculoskeletal disorders (MSDs) | <ul style="list-style-type: none"> <li>- Use adjustable desk with arm rests</li> <li>- Use head sets for answering phones</li> <li>- Use keyboards with mouse support</li> <li>- Arrange materials in front of your body, so they can be easily reached</li> <li>- Arrange the monitor so that the most frequently viewed area is a little lower than the horizontal eye level, and can be seen without looking up or leaning forward</li> <li>- Keep most of work activities within repetitive access area</li> <li>- Maintain straight wrist postures</li> <li>- Use lower filing cupboards, close to body</li> <li>- Use powered filing cupboards that adjust to any height</li> <li>- Use ladders or stools in order to access high files rather than reaching overhead</li> </ul> |
|  | <ul style="list-style-type: none"> <li>- Static postures from the continuous standing in one position during the surgeries, causing muscle fatigue and concentration of blood in the lower extremities</li> <li>- Awkward postures because</li> </ul> | Personnel at the operating room, surgeons | Musculoskeletal disorders (MSDs) | <ul style="list-style-type: none"> <li>- Use appropriate stools</li> <li>- Use shoes with well cushioned insteps and soles</li> <li>- Use a foot rest bar or a low stool</li> <li>- Have work surfaces with adjustable height</li> <li>- Pad the edge of work surfaces which come into contact with the elbow or forearm</li> </ul>  |

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|                            | surgeons have to tilt their head downwards for long periods of time  |                          |  | <ul style="list-style-type: none"> <li>– Keep any prolonged overhead activity (e.g. lower stacking shelves to shoulder height), to minimum</li> <li>– Rotate repetitive tasks</li> </ul>   |
| <b>Carbonless Paper</b>    |  |                          |  |  |
|                            | Contact with carbonless paper during admissions  | Administration personnel | <ul style="list-style-type: none"> <li>– Headaches</li> <li>– Sinus infections</li> <li>– Bronchitis</li> <li>– Eye, and skin irritations</li> <li>– Shortness of breath and hives</li> <li>– Allergic contact dermatitis (rarely)</li> </ul>                      | <ul style="list-style-type: none"> <li>– Use adequate good industrial hygiene and work practices</li> <li>– Use sufficient ventilation, humidity, and temperature controls</li> <li>– Do appropriate housekeeping (e.g. keeping desks clean and tidy, never leave food on the desks, etc)</li> <li>– Minimise hand-to-mouth and hand-to-eye contact,</li> <li>– Clean hands periodically</li> </ul>  |
| <b>Work related stress</b> |  |                          |  |  |
|                            | <ul style="list-style-type: none"> <li>– Patients that are critically ill</li> <li>– Emergency situations</li> <li>– Stressful situations</li> </ul> | Healthcare personnel     | <ul style="list-style-type: none"> <li>– Cardiovascular disease</li> <li>– Psychological disorders</li> <li>– Workplace injury</li> <li>– Headaches</li> <li>– Sleep disturbances</li> <li>– Difficulty in concentration</li> <li>– Job dissatisfaction</li> </ul> | <ul style="list-style-type: none"> <li>– Arrange workload in line with employees' capabilities and resources</li> <li>– Design work to provide meaning, stimulation, and opportunities for employees to use their skills</li> <li>– Know exactly your roles and responsibilities</li> <li>– Identify and reduce or eliminate the stressful aspects of work (e.g. excessive workload, conflicting expectations)</li> <li>– Employees should participate in decisions and</li> </ul> |

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|                           |  |  | – Low self-confidence | actions affecting their jobs  |
| <b>Workplace Violence</b> |  |  |                       |   |
| Violent situations        | <ul style="list-style-type: none"> <li>– Crowded and emotional situations in emergencies</li> <li>– Patients being at the Emergency Department could be involved with crimes, weapons, or violence from other people that could put ED personnel at an increased risk of workplace violence</li> </ul> | Healthcare personnel at the Emergency Department | Injuries              | <ul style="list-style-type: none"> <li>– Installation of alarm systems (i.e. panic buttons, hand-held noise devices, and mobile phones)</li> <li>– Limit the access to the ED and to its personnel</li> <li>– Have a waiting room area with controlled access to ED</li> <li>– ED exits must exit out only</li> <li>– Control all access doors</li> <li>– Install locks in the areas where personnel moves, e.g. toilets</li> <li>– Place curved mirrors and adequate lighting and camera surveillance</li> <li>– Properly trained staff must exist at all times, to recognize and diffuse violent situations and patients</li> <li>– Be alert for possible violence or suspicious behaviour and report any incident</li> <li>– Use of an escort system, while dealing with a possibly violent person</li> <li>– Never work alone, especially in emergency departments</li> <li>– Supervise movements of psychiatric clients and patients within the facility</li> <li>– Identify risk factors that can cause or contribute to</li> </ul> |

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|   |   |   |            | <p>violence</p> <ul style="list-style-type: none"> <li>– Identify early warning signs of escalating behaviour</li> <li>– Have available tools for diffusing violent situations</li> </ul>   |
| <b>Blood, Blood borne Pathogens, Other Potentially Infectious Material (OPIM)</b> |   |   |            |   |
| Blood borne pathogens   | Contact with infected patients or materials | Healthcare personnel,<br>Laboratory personnel | Infections | <ul style="list-style-type: none"> <li>– Treat all blood and other potentially infectious body fluids as if they are infected and take appropriate precautions to avoid contact with these fluids</li> <li>– Use proper personal protective equipment (PPE), (gloves, gowns, and face masks)</li> <li>– Use thick utility gloves and gowns when sorting contaminated items</li> <li>– Use safer needle devices (e.g. needle-less connectors self-sheathing or retractable needles),</li> <li>– Have readily accessible hand washing facilities</li> <li>– Have sharps’ containers in close proximity to areas where sharps are used</li> <li>– Discard any contaminated needle and other sharp instrument immediately or as soon as possible after its use, into appropriate containers</li> <li>– Never bent, recap or remove contaminated needles and other contaminated sharps</li> <li>– Use biological safety cabinets or other appropriate combinations of personal protection or physical containment devices, such as special protective clothing, respirators, centrifuge safety cups, sealed</li> </ul> |

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|              |                                 |                      |              | <p>centrifuge rotors, etc</p> <ul style="list-style-type: none"> <li>– Use appropriate sinks for washing hands and a readily available eye wash facility. The sinks must be foot, elbow, or automatically operated and must be located near the exit door of the laboratory</li> </ul>  |
| Tuberculosis | Contact with patients having TB | Healthcare personnel | Tuberculosis | <ul style="list-style-type: none"> <li>– Practice early patient screening to identify potentially infectious patients, for the prevention of possible exposures</li> <li>– 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</li> <li>– Ask patients with a productive cough to wear a mask for the prevention of spreading the infection</li> <li>– Have a separated area with separate ventilation TB patients and especially in facilities where these patients are regularly treated</li> <li>– Give surgical masks to TB patients</li> <li>– 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</li> <li>– Place a sign at the entrance of a room, when a person suspected or confirmed with TB, leaves the area, until it is well ventilated</li> <li>– Treat all cultures or specimens that are possible to contain TB bacilli in such a way to ensure the</li> </ul> |

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|  |   |  |  | <p>containment of the organism</p> <ul style="list-style-type: none"> <li>- Use biological safety cabinets during work with infectious materials with a possibility of aerosolizing</li> <li>- Control access to the laboratory and waiting room</li> <li>- Have proper ventilation system</li> </ul>   |
| <p>Methicillin Resistance Staphylococcus Aureus (MRSA)</p> | <ul style="list-style-type: none"> <li>- Exposure due to environmental sources (e.g. homeless patients)</li> <li>- Contact with patients, surfaces, or medical devices contaminated with body fluids containing MRSA</li> </ul>                                   | <p>Healthcare personnel</p>                                      | <p>Infection with MRSA</p>   | <ul style="list-style-type: none"> <li>- Wash hands immediately after removal of gloves, between patient contacts and between tasks and procedures</li> <li>- Clean, disinfect and sterilise patient care equipment to limit any transmission of organisms</li> <li>- Provide training to the personnel for the prevention of MRSA infections</li> </ul>  |
| <p>Legionnaire's Disease</p>                               | <ul style="list-style-type: none"> <li>- Exposure from breathing aerosolized water containing the legionella bacteria.</li> <li>- Breathing of contaminated, aerosolized water</li> <li>- Transmission via the air from the central ventilation system</li> </ul> | <p>Healthcare personnel,<br/>Kitchen personnel,<br/>Janitors</p> | <p>Early symptoms:</p> <ul style="list-style-type: none"> <li>- Slight fever</li> <li>- Headache</li> <li>- Aching joints and muscles</li> <li>- Lack of energy or tiredness</li> <li>- Loss of appetite</li> </ul> <p>Later symptoms:</p> <ul style="list-style-type: none"> <li>- High fever</li> <li>- Cough</li> </ul> | <ul style="list-style-type: none"> <li>- Use water tanks and pipe work designed in such a way so that water is not allowed to stand undisturbed for long periods</li> <li>- Cover the water tanks properly, to prevent the entry of dirt, debris and pests, and regularly inspect, clean and disinfect them</li> <li>- Avoid water temperatures between 20°C and 45°C by insulating cold water tanks and pipes in warm spaces, and by storing hot water at 60°C and circulating at 50°C</li> <li>- Use properly designed cooling towers. Maintain and operate them as well and their associated water systems in an appropriate way.</li> </ul> |

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|                     |                                      |                   | <ul style="list-style-type: none"> <li>- Difficulty in breathing or shortness of breath</li> <li>- Chills</li> <li>- Chest pain</li> <li>- Gastrointestinal symptoms (vomiting, diarrhoea, nausea, and abdominal pain)</li> </ul> | <ul style="list-style-type: none"> <li>- Clean and disinfect the systems at least every six months</li> <li>- Have a regular treatment of water for the prevention of scale, corrosion and microbiological growth</li> <li>- Where practicable, replace cooling towers with dry cooling systems</li> <li>- Implement a program for ensuring the reduction of potential work related diseases</li> <li>- Conduct a risk assessment of potential sources of Legionnaires' disease bacteria</li> <li>- Develop a management plan for the maintenance and operation of water systems</li> <li>- Regular inspect every potential sources of the disease (showers, whirlpools, etc)</li> <li>- Manage correctly possible pathogenic biological agents in cooling towers, hot water, and other aerosolizing water systems, within the workplace</li> </ul> |
| Food Borne Diseases | Eating or handling contaminated food | Kitchen personnel | Intoxications and infections from bacteria such as Escherichia coli (E-coli), Salmonella, Staphylococcus Aurous, etc.   | <ul style="list-style-type: none"> <li>- Wash hands carefully before food preparation</li> <li>- Wash hands, utensils, and kitchen surfaces with hot soapy water after touching raw meat or poultry</li> <li>- Cook beef and beef products (hamburgers), poultry and eggs thoroughly</li> <li>- Eat cooked food promptly and refrigerate leftovers within 2 hours after cooking</li> <li>- Wash fruits and vegetables thoroughly, especially</li> </ul>   |

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|                                     |  |                      |   | <p>those that will be eaten raw</p> <ul style="list-style-type: none"> <li>– Drink only pasteurized milk and juices and treated surface water</li> <li>– Wash hands carefully after using the bathroom, changing infant diapers</li> </ul>   |
| <b>Hazardous drugs or chemicals</b> |  |                      |   |  |
| Hazardous drugs                     | Exposure through the skin, mouth, or by inhalation | Healthcare personnel | <ul style="list-style-type: none"> <li>– Skin, eye, and nose irritations</li> <li>– Skin burns</li> </ul> | <ul style="list-style-type: none"> <li>– Only trained personnel must administer hazardous drugs</li> <li>– Do not allow pregnant or breast-feeding personnel to come in contact with these drugs</li> <li>– 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)</li> <li>– Discard the gloves after each use and immediately if contaminated. Discard the gowns when leaving the patient-care area and immediately if contaminated</li> <li>– Use disposable linen or protective pads for incontinent or vomiting patients</li> <li>– Wash hands thoroughly after handling hazardous drugs</li> <li>– Use bins or shelves for the storage of hazardous drugs designed for the prevention of breakage and limitation of contamination in case of leakage. Bins must have barrier fronts, or other design features reducing the chance of drug containers falling to the</li> </ul> |

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|                     |  |                      |  | <p>floor</p> <ul style="list-style-type: none"> <li>– When hazardous drugs need refrigeration, store them separately from non-hazardous drugs, in individual bins to prevent any breakage and leakage</li> </ul>  |
| Hazardous chemicals | Contact with hazardous chemicals   | Healthcare personnel | <ul style="list-style-type: none"> <li>– Skin, eye, and nose irritations</li> <li>– Skin burns</li> </ul>                  | <ul style="list-style-type: none"> <li>– Use splatter guards (Plexiglas barriers), for the prevention of any splashes</li> <li>– Use “Automatic sinks” sensor-controlled or with foot, knee, elbow in order to use them without using your hands</li> <li>– Use centrifuge tubes with caps</li> <li>– Use biological safety cabinets</li> <li>– Use appropriate personal protective equipment</li> <li>– Appropriate PPE (e.g. gloves, goggles, splash aprons)</li> <li>– Ask for proper training and information on hazardous chemicals</li> <li>– Place proper warning labels</li> <li>– Have suitable first aid facilities for quick drenching or flushing the eyes and body within the workplace for immediate emergency use</li> <li>– Use automatic dishwashers in order to minimise exposure to cleaning chemicals.</li> </ul> |
| Mercury Exposure    | Exposure from accidental spills during sterilization and centrifugation of | Healthcare personnel | <ul style="list-style-type: none"> <li>– Organic forms of mercury can cause damage to the brain and the nervous</li> </ul> | <ul style="list-style-type: none"> <li>– Replace glass thermometers and sphygmomanometers for preventing the spills</li> </ul>  |

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|   | <p>thermometers in central supply areas.</p> <p>Exposure happens either through inhalation or skin contact. If spills are not promptly cleaned up, mercury may accumulate on surfaces, vaporize and then be inhaled by unaware employees.</p> <p>Both the organic and the inorganic forms of mercury are primarily neurotoxins.</p> |                      | <p>system</p> <ul style="list-style-type: none"> <li>- Inorganic forms primarily affect the kidney</li> </ul>   | <ul style="list-style-type: none"> <li>- Properly train employees to be aware of the procedures followed when a spill occurs (clean up, etc), and they must follow these policies correctly, (e.g. isolation of the contaminated area, etc)</li> <li>- Have spill kits available, for the clean up of small spills</li> </ul>  |
| <ul style="list-style-type: none"> <li>- Ethylene oxide, glutaraldehyde and paracetic acid used for sterilization</li> <li>- Methyl Methacrylate (MMA)</li> </ul> | <ul style="list-style-type: none"> <li>- Contact with the skin, eyes</li> <li>- Accidental ingestion</li> </ul>   | Healthcare personnel | <ul style="list-style-type: none"> <li>- Eye irritation and cornea injury</li> <li>- Frostbite, severe irritation and blistering of the skin</li> <li>- Ingestion of EtO can cause gastric irritation and liver injury</li> </ul> <p>Acute effects from the inhalation:</p> <ul style="list-style-type: none"> <li>- Respiratory irritation</li> <li>- Lung injury</li> <li>- Headache,</li> <li>- Nausea,</li> <li>- Vomiting</li> </ul> | <ul style="list-style-type: none"> <li>- Avoid close contact with newly sterilized unaerated loads. Aerate them before moving them to transfer carts.</li> <li>- Use appropriate PPE (gloves, canister respirator, etc) when changing cylinders</li> <li>- Use EtO detector systems, and room monitors for signalling in case of gas leakage</li> <li>- Use glutaraldehyde products in well ventilated rooms, and large enough to ensure adequate dilution of vapour</li> <li>- Store in closed containers and in well ventilated areas</li> <li>- Use the local exhaust ventilation, such as a properly functioning fume hood for controlling vapour</li> <li>- Remember to replace lids after using the product</li> </ul> |

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|                         |  |                      | <ul style="list-style-type: none"> <li>- Diarrhoea</li> <li>- Shortness of breath</li> <li>- Cyanosis</li> <li>- Cancer</li> <li>- Reproductive effects</li> <li>- Mutagenic changes</li> <li>- Neurotoxicity</li> </ul>            | <p>(read the warning signs)</p> <ul style="list-style-type: none"> <li>- Substitute with other cold sterilants (such as glutaraldehyde, hydrogen peroxide, sodium hypochlorite, etc).</li> <li>- Install a ventilated exhaust hood above the sterilizer door</li> <li>- Install machine alarms that cause an automatic shutdown, when the ventilation is inadequate.</li> <li>- Conduct periodic personal monitoring, for leaks at gas-line connectors by using passive dosimeters</li> <li>- Keep a record of detected leaks and services done on an EtO room.</li> <li>- Replace sterilizer/aerator door gaskets, valves, and fittings when necessary</li> <li>- Mix hazardous chemicals used in surgeries, (e.g. Methyl Methacrylate) only in a well ventilated, closed system</li> </ul> |
| Waste Anaesthetic Gases | <ul style="list-style-type: none"> <li>- Exposure because of poor work practices during surgical procedures, anesthetization of patients, leaking of gas-line connections, improper or inadequate maintenance of the machine, and/or patient exhalation after the surgical procedure, while</li> </ul> | Healthcare personnel | <ul style="list-style-type: none"> <li>- Nausea, dizziness, drowsiness</li> <li>- Headaches</li> <li>- Fatigue</li> <li>- Irritability</li> <li>- Coordination and judgment problems</li> <li>- Sterility, miscarriages,</li> </ul> | <ul style="list-style-type: none"> <li>- Try to prevent any anaesthetic spills, in order to decrease the amount of waste anaesthetic gases in the surgery, and turn off vaporizers of anaesthesia machines when not using them</li> <li>- Use appropriate anaesthetic gas scavenging systems</li> <li>- Evacuate properly any waste gas, by collecting and removing them, by detecting and correcting leaks, and effectively ventilating the room</li> <li>- Use of a well-designed waste anaesthetic gases</li> </ul>   |

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|                  | <p>in recovery</p> <ul style="list-style-type: none"> <li>– Escape of these gases during the initial assembling and checking of the anaesthesia system or the scavenging system</li> <li>– Escaping from around the patient's anaesthesia mask</li> <li>– During the clearing of the system at the end of a medical procedure</li> </ul> |                      | <p>birth defects,</p> <ul style="list-style-type: none"> <li>– Cancer, liver and kidney diseases</li> </ul> | <p>scavenging system for collecting, removing, and properly disposing of the gases.</p> <ul style="list-style-type: none"> <li>– Do not discharge gases near the air intake of the room</li> <li>– Use proper masks (e.g. scavenging nasal mask)</li> <li>– Have a proper heating, ventilation, and air conditioning system in the operating room</li> <li>– Use anaesthetic respirators where appropriate</li> <li>– Inspect and maintain properly the scavenging system of waste anaesthetic gases, the anaesthesia machines, and the ventilation system, A daily check must take place, for preventing any leaks</li> <li>– Select, fit or position adequately the face masks</li> <li>– Inflate sufficiently the tracheal tube cuff</li> <li>– Connect in properly the tubes and fittings for the anaesthesia machine</li> <li>– Turn the gas off when the mask is removed from the patient's face</li> <li>– Use appropriate PPE, such as face masks, and sufficiently inflated endotracheal tubes</li> <li>– Take a comprehensive training and information program</li> </ul> |
| Compressed Gases | Depending on the particular gas, there is a potential for simultaneous exposure to both  | Healthcare personnel | <ul style="list-style-type: none"> <li>– Injuries</li> <li>– Burns</li> </ul>                               | <ul style="list-style-type: none"> <li>– Secure cylinders containing compressed gases, in order to avoid possible falls</li> <li>– Clearly identify cylinders with the name of the</li> </ul>   |

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|                      | mechanical and chemical hazards   |   | <ul style="list-style-type: none"> <li>- Fire</li> <li>- Explosion</li> <li>- Corrosion</li> <li>- Skin irritations</li> </ul>                       | <p>content</p> <ul style="list-style-type: none"> <li>- Use hand trucks, carts, etc, when moving cylinders. Never roll or drag them</li> <li>- Never attempt to repair any damaged cylinder or to force frozen or stuck cylinder valves</li> <li>- Close off the cylinders when not in use</li> <li>- Do not store cylinders with flammable gases (hydrogen or acetylene) close to open flames, areas where electrical sparks are generated, or where other sources of ignition may be present</li> </ul>  |
| <b>Laser hazards</b> |   |   |  |  |
|                      | Exposure to lasers used in the operating rooms during removal and cauterization of tissue, from accidental operation and/or when proper controls are not in effect. | Healthcare personnel,<br>Surgeons, nurses | <ul style="list-style-type: none"> <li>- Burns to skin and eyes possibly resulting in blindness</li> <li>- Electric shock</li> <li>- Fire</li> </ul> | <ul style="list-style-type: none"> <li>- Use goggles during laser surgeries for the protection of cornea conjunctive and other ocular tissue.</li> <li>- Use tightly woven fabrics and opaque gloves for the protection against laser radiation</li> <li>- Use laboratory jacket or coat for the protection of arms. It is important to use protective clothing during exposure to high radiation levels</li> <li>- Check lasers, prior every procedure, and during extended procedures</li> <li>- Cover laser systems adequately, and especially those with high voltage capacitance. Also, ground them properly</li> <li>- Cover the windows of the surgery for the protection of the personnel outside</li> </ul> |

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|             |  |                        |  | <ul style="list-style-type: none"> <li>- Have safety interlocks which shutdown the laser system if anyone enters the surgery</li> <li>- Maintain and check the laser system accordingly with manufacturer's instructions, only by qualified personnel</li> <li>- Place warning signs</li> </ul>   |
| Laser Plume | The vapours, smoke, and particulate debris produced during laser surgical procedures are called laser plumes | Surgeons and assistans | <ul style="list-style-type: none"> <li>- Eye, nose, and throat irritation</li> <li>- Nausea</li> <li>- Vomiting</li> <li>- Nasal congestion</li> <li>- Chest tightness</li> <li>- Abdominal cramping</li> <li>- General flu-like symptoms</li> <li>- Fatigue</li> <li>- At high concentrations:</li> <li>- Visual and upper respiratory tract irritation</li> <li>- Visual problems for the surgeons</li> <li>- It may have mutagenic potential</li> </ul> | <ul style="list-style-type: none"> <li>- Have proper ventilation (use portable smoke evacuators and room suction systems)</li> <li>- Use of proper personal protective equipment (masks, goggles, etc)</li> <li>- Keep the smoke evacuator or room suction hose nozzle inlet very close to the surgical site to effectively capture airborne contaminants</li> <li>- Activate the smoke evacuator every time airborne particles are produced during all surgical or other procedures</li> <li>- Consider every tube, filter, and absorber as infectious waste and be dispose appropriately</li> <li>- Install new filters and tubing before each procedure</li> <li>- Inspect smoke evacuator systems regularly for the prevention of possible leaks</li> </ul> |

| <b>Radiation Exposure</b> |                                       |                      |  |   |
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|                           | Exposure during diagnostic procedures | Healthcare personnel | <p>Body and/or genetic in nature:</p> <ul style="list-style-type: none"> <li>– Large whole-body exposures cause nausea, vomiting, diarrhoea, weakness, and death.</li> <li>– Genetic effects may lead to congenital defects in the employee's offspring</li> <li>– Acute (erythema and dermatitis)</li> <li>– Chronic (skin cancer and bone marrow suppression)</li> </ul> | <ul style="list-style-type: none"> <li>– Mark rooms that are used for radiation procedures properly (with the radiation caution symbol and the wording “Caution Radiation Area’) and only authorised personnel can enter</li> <li>– Nearby workers must be given adequate warning when x-ray using portable units will be taken</li> <li>– X-ray controls must be in place for the prevention of unintentional activation of the unit</li> <li>– Where portable x-ray units and radioisotopes are used, only the patient and trained personnel must be allowed in the room</li> <li>– Check every x-ray equipment before each use, in order to ensure that the secondary radiation cones and filters are in place</li> <li>– Clearly identify the patients that have received radioactive implants or other therapeutic radiology procedures. Place labels on their bedding, dressings and wastes</li> <li>– Equip X-ray rooms with a barrier wall with a lead plated glass window so technician can step behind barrier wall to take the x-ray, and avoid exposure to radiation</li> <li>– Use Lead plated glass as a barrier for the protection against radiation exposure when procedures must be done close to the patient</li> </ul> |

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|                    |   |   |  | <ul style="list-style-type: none"> <li>– Use Lead strips for protection from radiation exposure during fluoroscopy procedures</li> <li>– Wear Lead aprons and gloves for the protection of employees and patients, in the direct x-ray field. Employees must also wear opaque goggles</li> <li>– Procedures using remote fluoroscopy can be run from controls in an adjacent room, free from radiation exposure</li> <li>– Keep a separate storage area for radioactive sources. This area should be adequately shielded. Radioactive materials should have document and retain inventories. Only authorized personnel must have access to storage areas</li> <li>– Keep records of the radiation exposure of all employees for whom personal monitoring is required and inform them for their individual exposure at least once a year</li> <li>– Indicate a specific person that will be responsible for the assurance of proper maintenance of the portable x-ray equipment</li> </ul> |
| Chemotherapy drugs | <ul style="list-style-type: none"> <li>– Exposure due to bad practice of dissolution</li> <li>– Injuries from bad use of used needles or ampoules</li> <li>– Direct contact with the skin or mucous membranes (e.g. from a spillage/splashing)</li> </ul> | Healthcare personnel at the chemotherapy department | <ul style="list-style-type: none"> <li>– Cancerous, mutagenic and teratogenic effects</li> <li>– Skin, eyes and mucous membranes irritation</li> </ul> | <ul style="list-style-type: none"> <li>– Use totally enclosed systems, unless this is not reasonably practicable</li> <li>– Use adequate ventilation systems and appropriate organisational measures</li> <li>– Use PPE (gloves, goggles, respiratory protection, clothing) where adequate control of exposure cannot be achieved by other measures alone</li> </ul>  |

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|                               | <ul style="list-style-type: none"> <li>– Bad operation control of the device used for the provision of the drugs</li> <li>– Leakage of drug from the infusion device</li> <li>– Wrong handling of patients (blood, biological excretions)</li> <li>– Unreasonable staying (food, drink, smoking) at the area of dissolution and drug supply</li> <li>– Accident during disposal and transportation of wastes</li> </ul> |                      |            | <ul style="list-style-type: none"> <li>– Use good hygiene practices and the provided welfare facilities (e.g. washing facilities)</li> <li>– Organise work to reduce the quantities of drugs used, the number of employees potentially exposed and their duration of exposure, to the minimum.</li> <li>– Ensure the safe handling, storage and transport of cytotoxic drugs and waste material containing or contaminated by them</li> <li>– Train the personnel involved in handling cytotoxic drugs or cleaning areas possible to contamination for the risks and the precautions they must take</li> </ul> |
| <b>Contaminated Equipment</b> |   |                      |            |  |
|                               | <p>Contact with contaminated:</p> <ul style="list-style-type: none"> <li>– Equipment and working surfaces</li> <li>– Protective coverings</li> <li>– Reusable containers</li> <li>– Glassware</li> </ul>  | Healthcare personnel | Infections | <ul style="list-style-type: none"> <li>– Clean and decontaminate all the equipment, environmental and working surfaces after contact with blood or OPIM</li> <li>– Clean with soap and water solution before its decontamination, equipment that is contaminated at a great extend, because some anti-microbial products will not work in the presence of blood, interfering with the sterilizing process</li> <li>– Remove protective coverings (i.e. plastic wrap or aluminium foil) and replace as soon as possible, when they become visibly contaminated, or at the</li> </ul>                            |

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|                             |  |                   |            | <p>end of a work shift if they may have become contaminated during the shift</p> <ul style="list-style-type: none"> <li>– Inspect and decontaminate any bin, bucket can, and/or similar receptacles intended for reuse, frequently.</li> <li>– Never pick up glassware that is broken and possible to be contaminated, with hands. Use instead mechanical means, such as brush and dustpan, tongs or forceps, etc</li> <li>– Place proper labels or tags on contaminated equipment (such as IV poles), identifying the portions of the equipment that are contaminated</li> </ul>  |
| <b>Contaminated Laundry</b> |  |                   |            |  |
|                             | Exposure to blood or other potentially infectious materials through contaminated laundry that was improperly labelled, or handled. | Laundry personnel | Infections | <ul style="list-style-type: none"> <li>– Handle this kind of laundry as little as possible with minimal agitation</li> <li>– Bag contaminated laundry at the location of use</li> <li>– Do not sort or rinse laundry at the location where it was used</li> <li>– Use labelled bags (with the biohazard symbol) for transferring laundry</li> <li>– Place and transport the wet contaminated laundry that presents a likelihood of soak-through of or leakage from the bag/container; in colour-coded bags/containers that prevent soak-through and/or leakage of fluids to the exterior</li> <li>– Never hold the contaminated laundry bags close to</li> </ul> |

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|                      |                             |  |  | <p>your body or squeeze them while transportation, to avoid any punctures from improperly discarded syringes</p> <ul style="list-style-type: none"> <li>– Use the normal laundry cycles in accordance with the recommendations of washer and detergent manufacturer</li> <li>– Wear appropriate PPE (such as gloves, gowns, face shields, masks, etc) while handling and/or sorting contaminated laundry</li> <li>– Use thick utility gloves while sorting contaminated laundry</li> <li>– The bags used for the bagging process must be melted away. They can be thrown directly into washers without unload or remove contaminated laundry from them</li> </ul> |
| <b>Medical Waste</b> |                             |  |  |   |
|                      | Contact with clinical waste | Healthcare personnel (doctors, nurses, waste disposal workers) | <ul style="list-style-type: none"> <li>– Infections</li> <li>– Diseases (Hepatitis, E. coli infection, Tuberculosis, etc)</li> <li>– Digestive problems (diarrhoea)</li> </ul> | <ul style="list-style-type: none"> <li>– Always consider all clinical wastes as infectious</li> <li>– Provide information and training on the hazards to health and associated risks posed by medical waste</li> <li>– Use personal protective equipment (PPE)</li> <li>– Handle and dispose medical waste safely</li> <li>– In case of exposure, report the incident and obtain immediate treatment</li> <li>– Wash your hands frequently</li> <li>– Dispose waste in puncture resistant containers lined</li> </ul>   |

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|  |  |  |  | <p>with leak-proof plastic bags marked as biological waste</p> <ul style="list-style-type: none"> <li>– When handling medical waste wear puncture resistant gloves and handle all contaminated wastes carefully avoiding direct contact</li> <li>– Hold only the outsides of the container when handling and never reach in</li> <li>– Do not load containers beyond their capacity, and contents must never be compacted</li> <li>– Do not mix medical waste with other domestic or workplace garbage</li> <li>– Handle sharps with care and treat them like they are infectious materials</li> <li>– Separate all waste into three categories <ul style="list-style-type: none"> <li>○ general health care waste (e.g. paper and packaging, drinks containers)</li> <li>○ potentially infectious (or hazardous) health care waste (all waste items contaminated, or suspected of being contaminated, with body fluids such as bandages and gauze, swabs)</li> <li>○ used sharps (including broken glass), put into rigid containers (if possible yellow too)</li> </ul> </li> <li>– Use different colours for general and potentially infectious wastes, such as black for general waste and yellow for potentially infectious wastes.</li> <li>– Never place loose sharp items (e.g. needles and blades) in plastic bags or similar containers that can</li> </ul> |
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|                 |   |  |  | <p>be easily punctured</p> <ul style="list-style-type: none"> <li>– Cover all waste bins and avoid using open containers and wastebaskets</li> <li>– Remove regularly medical waste preferably at least once per working shift</li> <li>– Seal and label all bags with medical waste</li> <li>– Enforce a waste management system and an infection control or hygiene committee, as well and specialist infection control personnel</li> </ul>  |
| <b>Asbestos</b> |   |  |  |   |
|                 | <p>Inhalation of airborne fibres during work in furnace rooms where boilers are insulated with asbestos, or while repairing old piping or while doing minor renovations.</p> <p>Asbestos exposures can also occur when insulation in old buildings is removed during renovations.</p> | <p>Maintenance workers and engineers</p> | <ul style="list-style-type: none"> <li>– asbestosis (scarring of the lungs resulting in loss of lung function that often progresses to disability and to death)</li> <li>– mesothelioma (cancer affecting the membranes lining of the lungs and abdomen)</li> <li>– lung cancer and cancers of the oesophagus, stomach, colon, and rectum</li> </ul> | <ul style="list-style-type: none"> <li>– Place signs at entrances to mechanical rooms/areas containing asbestos where employees may enter</li> <li>– Follow any permissible exposure limits that exist</li> <li>– Provide an asbestos awareness training course to those performing housekeeping activities in an area containing asbestos</li> <li>– Provide appropriate respirators, protective clothing, exposure monitoring, hygiene facilities and practices, warning signs, labelling, record keeping, and regular medical examinations</li> <li>– Only fully trained personnel can remove asbestos using proper methods and PPE</li> </ul> |
| <b>Noise</b>    |   |  |  |   |

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|                      | Exposure to high levels of noise | Healthcare personnel at food service areas, laundries and engineering areas (where the boiler room is included) | <ul style="list-style-type: none"> <li>– High blood pressure and decreased circulation in hands and feet</li> <li>– Headaches</li> <li>– Increased irritability</li> <li>– Difficult communication between co-workers</li> <li>– Reduced work ability</li> <li>– Increased difficulty to perform tasks requiring alertness, concentration and attention to detail</li> </ul> | <ul style="list-style-type: none"> <li>– Introduce a program for the decrease of noise in the health care facility</li> <li>– Regular measure noise at the facility</li> <li>– Have a hearing test for new employees, and annual audiometric testing for all employees</li> <li>– Isolate noisy equipment</li> <li>– Install protective shields and acoustic ceilings and carpets</li> <li>– Use proper PPE (for hearing protection)</li> <li>– Limit the employees’ exposure time to excessive noise</li> </ul> |
| <b>Latex Allergy</b> |                                  |   |  |  |
|                      | Contact with hands               | Healthcare personnel  | Allergies<br>Skin irritation   | <ul style="list-style-type: none"> <li>– Use non-latex gloves and other latex-free products (such as hypoallergenic gloves, glove liners, powder-free gloves, etc)</li> <li>– Choose and use a low protein, powder-free glove, for reducing any systemic allergic responses</li> </ul>   |
| <b>Electricity</b>   |                                  |   |  |  |

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| <p>Electrical circuits</p> | <ul style="list-style-type: none"> <li>- Contact with live parts</li> <li>- Faulty electrical equipment/machinery or wiring.</li> <li>- Damaged receptacles and connectors.</li> <li>- Wear and tear on electrical equipment or tools can result in insulation breaks, short-circuits and exposed wires</li> <li>- Three-wire (grounded) plugs are attached to two-wire cords that are ungrounded</li> <li>- Ground projections are bent or cut off</li> <li>- Cords moulded to improperly wired plugs</li> </ul> | <p>Healthcare personnel using electrical equipment</p> | <ul style="list-style-type: none"> <li>- Electrocution or electric shock</li> <li>- Fire and explosion</li> <li>- Burns</li> <li>- Death</li> </ul> | <ul style="list-style-type: none"> <li>- Use appropriate electrical equipment with circuit protection</li> <li>- Use equipment in accordance with any instructions of the manufacturer</li> <li>- Ground properly all electrical service near sources of water</li> <li>- Tag out and remove from service all damaged receptacles and portable electrical equipment</li> <li>- Repair all damaged receptacles and portable electrical equipment before placing them back into service</li> <li>- Train the personnel not to plug or unplug energized equipment with wet hands</li> <li>- Use safeguards for personnel protection and electrical protective equipment</li> <li>- Maintain regularly the electrical equipment</li> <li>- Install a residual current device for each electrical socket</li> <li>- Turn off any equipment before unplugging it</li> <li>- Do not use electrical equipment when hands, working surface or floor are wet</li> <li>- Do not use any appliance, equipment or wall receptacle that seems damaged</li> <li>- Replace cracked or worn extension cords and while disconnecting pull the plug and not the cord</li> <li>- Visually inspect cords and electrical equipment, and do not use them if they are frayed or damaged</li> <li>- Use safe practices when handling electrical equipment</li> </ul> |
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|                          | Overloading of circuits   | Healthcare personnel                        | <ul style="list-style-type: none"> <li>– Reduced performance equipment</li> <li>– Overheating of electrical equipment – Possible fire</li> <li>– Explosions</li> <li>– Injuries and burns</li> </ul> | <ul style="list-style-type: none"> <li>– Do not create an “octopus” on a single wall outlet</li> <li>– Do not use looped or coiled cords</li> <li>– Select appropriate size of the cord to satisfy the needs of the equipment</li> <li>– Use extension cords designed to carry the voltage required</li> </ul>   |
| Extension cords          | Trips and falls   | Healthcare personnel, patients and visitors | Injuries from the trips and falls due to the cords   | <ul style="list-style-type: none"> <li>– Use extension cords only temporarily and only in urgent situations</li> <li>– Do not leave extension cords to hung from counters</li> <li>– Do not place extension cords along rooms and corridors</li> </ul>   |
| <b>Kitchen Equipment</b> |   |   |  |  |
|                          | <ul style="list-style-type: none"> <li>– Contact with hot surfaces</li> <li>– Accidents because of sharp objects, frayed electrical cords, unguarded equipment</li> </ul> | Kitchen personnel                           | <ul style="list-style-type: none"> <li>– Injuries</li> <li>– Burns</li> <li>– Cuts and lacerations</li> <li>– Electrical shocks</li> <li>– Amputations, strangulations</li> </ul>                    | <ul style="list-style-type: none"> <li>– Handle, use and store knives and other sharps with caution.</li> <li>– Keep cutlery sharpened and in good condition</li> <li>– When cutting, the direction of the cut should always be away from the body</li> <li>– Turn the handles of cooking utensils away from the front of the cooker</li> <li>– Have a designated storage area for keeping knives, saws, and cleavers when these are not in use.</li> <li>– Do not store blades with the cutting edge exposed</li> </ul> |

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|                    |  |  |  | <ul style="list-style-type: none"> <li>- Install knife holders on work tables</li> <li>- Never put knives and other sharp objects into sinks between periods of use.</li> <li>- Hold the cover for deflecting the steam from their face, when they uncover a container of steaming materials</li> <li>- Use proper PPE, such as gloves (e.g. for the protection of cuts, burns, etc), gowns (e.g. protecting from splashes of hot liquids)</li> <li>- Use tamps or push sticks or other hand tools when feeding or removing food from grinders, slicers, or choppers</li> <li>- Isolate hazards (e.g. put barrier guards over a mixer when it is in use for preventing strangulation or amputation)</li> <li>- Provide machine guards to protect machine's operator and/or other employees near the machine from hazards.</li> <li>- Meat slicers, must be properly guarded and operated only by a person trained in safe work practices to avoid cuts and amputations</li> <li>- Place guard on continuous feed dishwashers to prevent any accidental scalding of employees by steam and hot water, and possible nip-point injuries from rollers and conveyors</li> </ul> |
| <b>Fire Safety</b> |  |  |  |  |

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|  | <p>Potential source of fire is the heat from equipment such as burners, ovens, and grills, because of:</p> <ul style="list-style-type: none"> <li>- Poor housekeeping</li> <li>- Grease traps that are not emptied (possible grease fires)</li> <li>- Dirty ducts (possible flue fires)</li> <li>- Inappropriate storage of flammable items</li> <li>- Faulty or worn electrical cords</li> </ul> | <p>Kitchen personnel</p>    | <ul style="list-style-type: none"> <li>- Injuries</li> <li>- Burns</li> <li>- Death</li> </ul> | <ul style="list-style-type: none"> <li>- Keep grill and grill duct work free from flammable residues and properly maintain them</li> <li>- Store flammable items away from heat producing equipment</li> <li>- Routinely empty the grease traps</li> <li>- Have a training on how to handle with safety the equipment in the dietary department</li> <li>- Have adequate number of portable fire extinguishers</li> <li>- Know the emergency action plan and the fire prevention plan in order to know how to act in case of an emergency</li> </ul>  |
|  |   | <p>Healthcare personnel</p> | <ul style="list-style-type: none"> <li>- Injuries</li> <li>- Burns</li> <li>- Death</li> </ul> | <ul style="list-style-type: none"> <li>- Control any accumulation of flammable and combustible waste materials and residues so that they do not contribute to a fire emergency</li> <li>- Use suitable storage containers for flammable substances, ventilation systems to dilute or remove flammable gas, extraction systems to remove combustible materials, and equipment selected not to be a source of ignition are key elements for the elimination of fire</li> <li>- Have a training on fire hazards of the materials and processes to which your are exposed</li> <li>- Maintain regularly and properly the systems</li> </ul> |

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|                    |   |                               |   | <p>installed on heat producing equipment, for the prevention of accidental ignition of combustible materials</p> <ul style="list-style-type: none"> <li>– Provide at least two exits or means of egress exist, in case of emergency. These exits must be clearly marked, and access to them must remain clear of any obstruction at all times.</li> <li>– Establishing means of detecting and giving warning in case of fire</li> <li>– Know hoe to use the fire-fighting equipment, that must be readily accessible and in good working condition</li> </ul>   |
| <b>Heat stress</b> | <p>Work in high temperatures such as in boiler room, kitchen and laundry department</p> <p>If the building is old, then inadequate ventilation and cooling systems can create a heat hazards during summer time in every department</p> | Laundry and kitchen personnel | <ul style="list-style-type: none"> <li>– Discomfort</li> <li>– Increased fatigue</li> <li>– Incapability to concentrate</li> <li>– Heat stroke</li> <li>– Exhaustion</li> <li>– Cramps</li> <li>– Fainting</li> </ul> | <ul style="list-style-type: none"> <li>– Have general ventilation and local exhaust ventilation at points of high heat production</li> <li>– Have proper education and training on the detection of early signs of heat-related illness</li> <li>– Use protective clothing and equipment, as well shields in case of radiant heat</li> <li>– Drink large quantities of drinking water</li> <li>– Use cooling fans and air conditioning in a high temperature area</li> <li>– Rotate work and breaks. Prefer frequent short breaks in cool areas, allowing employees' body to cool down</li> <li>– Perform the heaviest work in the coolest part of the day</li> </ul> |

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|                          |   |   |                                   | <ul style="list-style-type: none"> <li>- Wear light, loose-fitting, breathable (like cotton) clothing</li> <li>- Avoid using caffeine and alcoholic beverages while working in hot environments</li> <li>- Alternate work and rest periods. Take frequent short breaks in cool areas to allow your body to cool down</li> <li>- Monitor temperatures, humidity and workers' responses to heat at least hourly.</li> <li>- Supervisors should be able to detect early signs of heat-related illness and permit workers to interrupt their work if they are extremely uncomfortable.</li> <li>- Educate employees to recognize the need to replace fluids and salt lost through perspiration.</li> <li>- First aid employees must be available;</li> </ul> |
| <b>Slips/Trips/Falls</b> |   |   |                                   |  |
|                          | A potential slip and fall hazard might occur, in case of a water spillage on the floor accidentally | Healthcare personnel, patients and visitors | Injuries from the slips and falls | <ul style="list-style-type: none"> <li>- Use floors with non slippery material</li> <li>- Keep floors clean and dry in all circumstances</li> <li>- Keep aisles and passageways clear and in good condition, without obstructions</li> <li>- Mark mobile equipment with a bright colour, or a tape "X", for distinguishing it from the floor and make it more visible to employees</li> <li>- Use the handrail on stairs, to avoid undue speed</li> <li>- Report and clean spills immediately</li> </ul>   |

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| Equipment hazards associated with helicopters | <p>Exposure to tail rotor and the main rotor system (helicopter blades).</p> <p>Hats, loose clothing, gloves etc, can be sucked into the engine air intake fans and cause the helicopter to malfunction and potentially crash.</p> | Personnel working at the heliport area | <p>Injuries</p> <p>Death</p>  | <ul style="list-style-type: none"> <li>- Only fully trained personnel in helicopter equipment hazards can have access in helicopter area. Avoid the tail rotor and the helicopter blade area</li> <li>- Never Do Cardio-Pulmonary Resuscitation (CPR) to patients on transport carts while the carts are under the helicopter blade. This may elevate height of the personnel to the extent of being hit by the helicopter blades</li> </ul> |
| <b>Fuels</b>                                  | Exposure to fuelling hazards such as fire or explosions occurring from a spark or match in the helipad area.   | Personnel working at the heliport area | <ul style="list-style-type: none"> <li>- Injuries</li> <li>- Burns</li> </ul> | <ul style="list-style-type: none"> <li>- Do not smoke at heliport area</li> <li>- Place proper signs</li> <li>- Attach a grounding cable to the helicopter during fuelling, to prevent sparks</li> </ul>   |