

HOLY FAMILY HOSPITAL RAWALPINDI HOSPITAL WASTE MANAGEMENT PLAN

Waste segregation:

- Risk waste shall be separated from non-risk waste at the ward bedside, operation theatre, laboratory, or any other room in the hospital where the waste is generated by a doctor, nurse, or other person generating the waste.
- All disposal medical equipment and supplies including syringes. Needles plastic bottles, drips and infusion bags shall be cut or broken and rendered non-reusable at the point of use by the person using the same, or in case any such used by such person.
- All risk waste other than sharps, large quantities of pharmaceuticals, or chemical, waste with a high content of mercury or cadmium such as broken thermometer or used batteries or radioactive waste shall be placed in a suitable container made of metal or tough plastic with a pedal type or swing lid, lined with a strong yellow waste bag. The bag shall be removed when it is not more than three quarters full and sealed, preferably with self-locking plastic sealing tags and not by stapling. Each bag shall be labeled, indicating date, point of production ward and hospital quantity and description of waste and prominently displaying the bio hazard symbol. The bags removed should be immediately replaced with a new one of the same type.
- Sharp including the cut or broken syringes and needles shall be placed in metal or high density plastic containers resistant to penetration and leakage designed so that items can be dropped in using one hand and no items can be removed. The container shall be covered yellow and marked "DANGER! CONTAMINATED SHARPS" The sharp container shall be closed when three quarters full. If the sharp container is to be incinerated it shall be placed in the yellow waste bag with the other risk waste.
- Large quantities of **pharmaceutical waste** shall be returned to the suppliers. Small quantities shall be placed in yellow waste bag preferably after being crushed. Where this can be done safely. Large quantities of chemical waste and waste with a high content of mercury or cadmium shall not be incinerated but shall be placed in chemical resistant containers and sent to specialized treatment facilities.
- **Radioactive waste** which has to be stored to allow decay to background level shall be placed in a waste bag, in a large yellow container or drum. The container or drum shall be labeled; showing the radionuclide's activity on a given date and the period of storage required and marked 'RADIOACTIVE WASTE', with the radiation symbol. Non- infectious radioactive waste which has decayed to background level shall be placed in white waste bagged. Infectious Radioactive Waste which has decayed to background level shall be placed in yellow waste bags. High level and relatively long half-life radionuclides shall be packaged and stored in accordance with instructions of the original supplier under supervision of the RADIOLOGY Officer and sent back to the supplier for disposal.
- Non-risk waste shall be placed in a suitable container lined with a White Waste Bag.
- Adequate number of non-risk waste containers shall be placed in all areas of the hospital and notices affixed to encourage visitors to use them

Waste collection:

- Waste shall be collected in accordance with the schedules specified in the Waste Management Plan.
- Sanitary staff and sweepers shall when handling waste wear protective clothing at all-time including facemask, industrial aprons, leg protectors, industrial boots and disposal and heavy duty gloves as required.
- Sanitary staff and sweeper shall ensure that;
 - a. Waste is collected at least once daily
 - b. All waste bags are labeled before removal. Indicating the point of production, ward hospital and contents.
 - c. The removed waste bag and container immediately replaced with new ones of the same type
 - d. Where a waste bag is removed from a container, the container is properly cleaned before a new bag is fitted there in.

Waste transportation:

- For on-site transportation, a waste collection trolley shall be free of sharp edges, easy to load, unload and to clean, and preferably stable three or four wheeled design with high sides. The trolley shall clean regularly.
- The sealed waste bags shall be carefully loaded by hand on the trolley to minimize the risk of puncture or tears,
- Yellow Bagged Risk Waste and white-bag non-risk waste shall be collected on separate trolley which shall be painted or marked in the corresponding colors.
- The collection route shall be the most direct one from the final collection point to the central storage facility designated in the waste management plan. The collected waste shall not be left even temporary anywhere other than at the designated storage facility
- Transportation off-site shall, unless otherwise agreed ne the responsibility of the local council which shall ensure that;
 - a. All the yellow- bagged waste is collected at least once daily.
 - b. All staff members handling yellow bagged waste wear protecting clothing.
 - c. Yellow-bagged waste is transported separately from all other waste.
 - d. Vehicles or skips are only use for the carriage of yellow-bagged waste and are free of sharp edges, easy to load or unload by hand, easy to clean and disinfect and fully enclosed, preferably with hinged and lockable shutters or lids, to prevent any spillage in the hospital premises or on the high way during transportation.
 - e. All concerned staff members are properly trained in the handling, loading, unloading, transportation and disposal of yellow bagged waste and are fully aware of emergency procedure for dealing with accidents and spillages.
 - f. All vehicles carry adequate supply of empty waste bags protective clothing, cleaning tools and disinfectant to clean and disinfect any spillage.
 - g. The transportation of waste is properly documented and all vehicles carry a consignment note from the point of collection to the incinerator or land-fill or other final disposal facility.
 - h. All vehicles are cleaned and disinfected after use.

Waste storage:

- A separate central storage facility shall be provided for yellow-bagged waste with a sign prominently displaying the biohazard symbol and clearly mentioning the facility stores risk waste.
- The designated central storage facility shall:
 - a. Be located within the hospital premises close to the incinerator, if installed, but away from food storage or food preparation areas.
 - b. Be large enough to contain all the risk waste product by hospital with spare capacity to cater for collection or incinerator breakdown
 - c. Be easy to clean and disinfect with an impermeable hard standing base, plentiful water supply and good drainage, lighting and ventilation
 - d. Have adequate cleaning equipment protective clothing, waste bag and containers located nearby and be easily accessible to collection vehicles and authorized staff, but totally enclosed and secure from unauthorized access including inaccessible to animals, insects and birds.
- No materials other than yellow bagged waste shall be stored in the central storage facility
- No waste shall be stored all central storage facility for more than twenty-four hours.
- Provided that in case of emergency where infectious waste is required to be stored for more than twenty-four hours, it shall be refrigerated at the a temperature of 3degree to 8degree centigrade.
- Containers with chemical waste which are to be specifically marked area in a lead shielded storage room.
- Containers with chemical waste which are to be specialized treatment facilities shall also be stored in a separate room.
- The central storage facility shall be thoroughly cleaned in accordance with procedures stipulated in the waste management plan.

Waste disposal:

Depending upon the type and nature of the waste material and the organism in the waste , risk waste shall be inactivated or rendered safe before final disposal by a suitable thermal, chemical, irradiations incineration, filtration or other treatment method, or by a combination of such methods involving proper validation and monitoring procedures. Effluent from the waste treatment method shall also be periodically tested to verify that it conforms to the National Environment Quality Standards before it is discharged into the sewerage system.

- Yellow bagged waste shall be disposed off by burning in an incinerator, by burial in a landfill or by any other method of disposal approved by the Federal Agency or a Provincial Agency concerned.
- Sharps container which have not been placed in yellow waste bags for incinerator, shall be disposed of by encapsulation or other method of disposal approved by the Federal Agency or a Provincial Agency concerned.
- The method of disposal, whether by burning in an incinerator or by burial in a landfill or otherwise, shall be operated by a hospital only after approval of its Environment Impact Assessment in accordance with the provision of section 12.

Provided that hospitals, local councils or other persons already using an incinerator or landfill on the date of commencement of these rules shall submit an Initial Environment Examination in respect thereof the Federal Agency or a Provincial Agency concerned within two months from the said date and may continue to use the incinerator or landfill pending decision on the FIA.

- All risk waste deliver to an Incinerator shall be burned within 24hours.
- Ash and residues from Incineration and other method shall be placed in robust, noncombustible container and send to the local council designated risk waste landfill site.
- Landfill shall be located at sites with minimal risk of pollution of the water and river. Assess to the site shall be restricted to the authorized personnel only. Risk waste shall be buried in a separate area of the landfill under a layer of earth or non- risk waste of at least one meter depth which shall than b compacted.
- The landfill shall be regularly monitored by the local council to check ground water and contamination and air pollution. The local council shall also ensure that the landfill operators are properly trained, especially in safe disposal procedure, use of protective equipment, hygiene and emergency response procedures.
- Daily collection of waste from hospital shall be taken by the vehicles of the local council immediately to the designated landfill site or incinerator by the most direct route in accordance with prior scheduling of collection times and journey times.
- Radioactive waste which has decayed to background level shall either be buried in the landfill site or incinerated.

EXPLANATION:

An incineration facility for radioactive waste shall require, in addition to approval of its EIA by the Federal Agency or Provincial Agency concerned, registration with and issue of license by PNRA, and reconciled with the requirement of the Pakistan Nuclear Regulatory Authority Ordinance 2001(III of 2001) and the guidelines made thereunder in connection with management and disposal of radioactive waste.

- All liquid infectious waste shall be discharged into the sewerage system only after been properly treated and disinfected.

EXPLANATION I:

- Liquid Radioactive waste shall be discharged into the sewerage system only after it has decayed to background level and after it has been ensured that the radioactive materials are dispersible in water failing which it shall be filtered.

EXPLANATION II:

Radioactive waste containing tritium and carbon-14 isotopes shall be stored separately and shipped to the disposal site of the Pakistan Atomic Energy Commission, Karachi Nuclear Power Plant (KANUPP), Karachi or Pakistan Institute of Science & Technology (PINS TECH), Islamabad.

- In the case of gaseous radioactive waste, portable filter assembly shall be used to extract iodine and xenon. The used filters shall be treated as solid radioactive waste.

Accident and spillages:

In case of accident or spillages, the following action shall be taken namely:

- The emergency procedure mentioned in the waste management plan shall be implemented immediately.
- The contaminated area shall be immediately evacuated, if required.
- The contaminated area shall be cleared and, if necessary, disinfected.

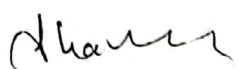
- Exposure of staff members shall be limited to the extent possible during the cleanup operation, and appropriate immunization may be carried out, as required.
- Any emergency equipment used shall be immediately replaced in the same location from which it was taken.
- All hospital staff members shall be properly trained and prepared for emergency response including procedures for treatment of injuries, clean-up of the contaminated area and prompt reporting of all incidents of accidents, spillages and near-misses.
- A waste management officer shall immediately investigate, record and review all such incidents to establish causes and submit his report to a Waste Management Team.
- The waste Management Team shall review the report, and where necessary shall amend the Waste Management Plan to prevent reoccurrence of such incidents, and take such further action as may be required.

Waste minimization and reuse:

- To minimize hospital waste each hospital shall introduce:
 - a. Purchasing and stock control, involving careful management of the ordering process to avoid overstocking, particularly with regard to date-limited pharmaceutical and other products, and to accord preference to products involving low amounts of packaging.
 - b. Waste recycling programme involving return of unused or waste chemicals in quantity to the supplier for reprocessing, return of pressurized gas cylinders to suppliers for refilling and reuse, sale of materials such as mercury, cadmium, nickel and lead-acid to specialized recyclers, and transportation of high level radioactive waste to the original supplier.
 - c. Waste reduction practices in all hospital departments.
- To encourage reuse, each hospital shall separately collect and sterilize either thermally or chemically in accordance with approved procedures, surgical equipment and other items which are designed for reuse and are resistant to the sterilization process.

Inspection And Legal Proceeding: -

- The authorized officer may inspect any hospital incinerator or landfill located within the area of his jurisdiction to check that the provision of the rules are being complied with.
- Any contravention of any provision of the rules, if discovered by the authorized officer shall report the same to the agency with intimation to the DCO concerned
- The agency, after becoming satisfied about the contravention of the rules on the basis of evidence, may initiate legal action against the offender under section 16 of the act.


 Medical Superintendent,
 Chairman Waste Management Committee,
 Holy Family Hospital,
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