

# Good practice manual for dealing with waste generated by medical institutions



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“Good practice manual for dealing with waste generated by medical institutions” includes recommendations for management of waste generated in medical institutions, as well as presents key Latvian regulatory requirements in these matters. The manual contains the experience of other countries as well as the recommendations of international organizations (World Health Organization, etc.) in this area.



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## **Introduction**

The manual is designed to cover major Latvian regulatory requirements relating to the management of waste generated in the health care institutions, as well as includes recommendations in this area. The manual contains the experience of other countries as well as the recommendations of international organizations (World Health Organization, Health Care Without Harm, etc.) in this area.

The target audience of the manual is medical staff, waste managers of medical institutions, as well as employees of authorities supervising how medical institutions deal with waste.

The users of the manual shall follow changes in the European Union and national legislation, since they can be regularly amended, repealed or adopted anew. Users should ensure that the minimum requirements described in the manual comply with the applicable laws and regulations.

The manual can also be used in other institutions, companies, organizations, whose activities may result in infectious waste or sharps waste listed in this manual (such as social care institutions, tattoo salons, etc.).

## **I. General Issues**

This manual includes recommendations for dealing with waste generated in medical institutions (hereinafter referred to as - institutions), as well as contains the essential regulatory requirements relating to this area.

In Latvia Waste Management general requirements are set out in the Waste Management Act and the subordinate Cabinet of Ministers Regulations. Some specific requirements for dealing with waste generated in medical institutions are included in Cabinet of Ministers Regulations which are subordinated to the Medical Treatment law, Epidemiological Safety Law and Pharmacy Law. Partly this sphere is covered by the Law of the Republic of Latvia “On Radiation Protection and Nuclear Safety”, Chemical Substances Law, the Law “On Pollution”, and other laws and regulations.

## II. Definitions

In accordance with the Medical Treatment Law *medical treatment institutions* are doctors' practices, State and local government institutions, commercial companies which are registered in the Register of Medical Treatment Institutions, conform to the mandatory requirements for medical treatment institutions and territorial units thereof specified in regulatory enactments and provide medical treatment services.

The terms used by the manual are defined by the *Waste Management Act*:

- **waste** – any object or substance which the holder discards or intends or is required to discard;
- **hazardous waste** – waste which displays one or more of the properties which make it hazardous;
- **municipal waste** – waste produced in a household, trade, in the process of provision of services or waste produced in other places which, because of its properties, is similar to domestic refuse;
- **production waste** – waste produced as a result of production process or construction;
- **waste holder** – any natural or legal person who complies with at least one of the following conditions: a) is a waste producer, b) is a natural or legal person in the actual possession of which is the waste;
- **waste producer** – any natural or legal person whose activities produce waste (original waste producer) or anyone who carries out pre-processing, mixing or other operations

resulting in a change in the composition or nature of the waste;

- **waste management** – the collection, storage, transport, recovery and disposal of waste (including incineration in municipal waste incineration facilities), the supervision of such activities, the after-care of disposal sites after their closure, as well as trade with waste and mediation in waste management;
- **waste manager** – a merchant, also waste dealer and waste management broker who has received the relevant permit for waste management in accordance with the procedures specified in this law or the regulatory enactments regarding pollution;
- **electrical and electronic equipment** – equipment which is dependent on electric currents or electromagnetic fields and equipment for the generation, transfer and measurement of electric currents and electromagnetic fields designed for use with a voltage rating not exceeding 1000 volts for alternating current and 1500 volts for direct current and falling under the categories determined by the Cabinet;
- **waste electrical and electronic equipment** – electrical or electronic equipment which is considered as waste, including all components, subassemblies and consumables which are part of the product at the time of discarding.

#### **The terms used within the meaning of the manual:**

- **Pre-treatment of waste** - alter the nature of the waste to enable other treatment or regeneration operations to be conducted (waste treatment and regeneration type R12 in accordance w/ legislation on the types of waste regeneration

and storage). It also refers to the physical or chemical treatment of waste based upon which a compound or mixture is created that is then stored (meeting the storage type D9 in accordance w/ legislation on waste regeneration and storage types).

- **central room of waste collection** – a room in a medical treatment institution, in which the waste is collected and temporarily stored before delivering the waste to the waste manager;
- **treatment of waste generated by a medical treatment institution**- activities performed with waste in the process of health care activities by health care institutions and waste managing companies by collecting the waste, performing the pre-processing, as well as performing further actions with the waste.

### **Classifying chemicals according to the Chemical Substances Law**

- Chemical substances and mixtures shall be considered to be dangerous chemical substances and dangerous mixtures if they may be classified into the following classes:
  - 1) corrosive chemical substances or mixtures;
  - 2) irritating chemical substances or mixtures;
  - 3) sensitising chemical substances or mixtures;
  - 4) carcinogenic chemical substances or mixtures;
  - 5) mutagenic chemical substances or mixtures;
  - 6) chemical substances or mixtures which are toxic to the reproductive system;
  - 7) chemical substances or mixtures which are dangerous to the environment;
  - 8) explosive chemical substances or mixtures;

- 9) chemical substances or mixtures which are strong oxidants;
- 10) extremely flammable substances or mixtures;
- 11) extremely flammable substances or mixtures;
- 12) flammable chemical substances or mixtures;
- 13) very toxic chemical substances or mixtures;
- 14) toxic chemical substances or mixtures;
- 15) harmful chemical substances or mixtures.

### **III. Requirements for Dealing with Waste Generated in the Institutional Hygienic and Counter-Epidemic Treatment Plan**

The institution shall perform the account of the waste generated or managed and shall submit the information to the environmental protection authorities, as well as the relevant local government in accordance with the requirements for hazardous waste tracking, identification, storage, packaging, labeling and shipment tracking procedures.

Handling the waste, the institution shall observe the laws and regulations on waste management (including - Cabinet regulations containing waste management requirements in medical institutions (packaging, management, waste disposal and storage in its territory, waste pre-treatment, home visits, etc.), local binding regulations on waste management, as well as the requirements for dealing with waste generated by institutions included in the institutional hygienic and counter-epidemic treatment plan (hereinafter referred to as – the plan).

In accordance with the laws on requirements for institutional hygienic and counter-epidemic treatment the head of the institution is responsible for the elaboration of the plan of the medical institution. The head of the institution shall also organize work to ensure implementation of the plan - appointing a person responsible for the implementation of the institution plan and internal controls of it, or establishing a nosocomial infection control committee, composed of the hospital administration representative (hereinafter referred to as the person responsible for the institution plan).

The institution's waste management plan shall include:

- 1) the list of types of the waste generated by the institution;

- 2) procedures for dealing with waste generated by the institution;
- 3) the conditions of the staff responsibilities for dealing with waste;
- 4) the conditions of labour protection when handling waste;
- 5) measures to reduce waste authority;
- 6) the waste tracking procedures for the institution;
- 7) the procedures by which employees are trained to handle the waste generated by the institution.

The institution is recommended at least once a year to evaluate the plan implementation results on waste issues and, if necessary, refine the plan.

### **Employee training**

Employees who or involved in dealing with waste generated by an institution or in organizing and overseeing these activities, before starting the work shall be recommended to get acquainted with the procedures laid down in an institution and which determine how to properly handle the waste generated by the institution, and subsequently at least once a year, the institution is recommended to organise such training.

The training shall include information on:

- state policy for waste management in the state and the institution;
- the regulatory laws;
- waste handling activities of the employees concerning the waste generated by the institution, their roles and responsibilities;
- practical training concerning the waste generated by the institution.

The institution may establish and implement in its action with the waste generated in addition to the requirements of legislation other

measures, unless they are contrary to the laws and regulations. Good practice in this area is compiled by the World Health Organization (hereinafter referred to as WHO) and other international organizations (such as "Health Care Without Harm"), it is recommended to use the experience of other states.

#### **IV. General Recommendations for Dealing with Waste Generated in the Institutions**

The institution shall take measures to reduce waste, provided that they do not endanger human health or the environment and that they meet the regulatory requirements for waste management:

- by using durable, reusable or recyclable products or goods as much as possible;
- by sorting waste (separating hazardous waste of different categories, as well as by collecting separately municipal waste (separating from each other waste containing paper, waste containing metal, waste containing plastic, waste containing glass));
- establishing a good working practice and environmentally friendly products or methods (such as moving away from mercury-containing medical devices, choosing environmentally friendly cleaning products, carrying out various operations so as to create the least possible amount of waste, etc.);
- providing pre-treatment (thermal, mechanical, chemical or other) of waste (in particular - infectious waste) to prevent hazards of waste incineration.

The institution may generate the following main waste groups:

1) Hazardous wastes or wastes which are treated as hazardous waste (hereinafter referred to as hazardous waste):

- sharps

*For example, needles, syringes, scalpels, broken glass from the medical equipment, etc.*



- infectious waste;

*Infectious wastes - wastes that contain or may contain germs, viruses, parasites, fungi, i.e., microbiological waste, waste containing blood or other body fluids, wastes from the strict regime's isolation, the waste from infectious person's, which creates the risk of infection for employees or other persons. To whether the waste is considered infectious or potentially infectious, in case of doubt, the medical practitioner who is involved in the person's birth, disease diagnosis, medical treatment or prevention process evaluates the situation.*

- anatomic waste;

*For example, human body parts, organs or liquid waste arising from the result of childbirth or abortion (placenta, umbilical, embryo), etc*

- cytotoxic and cytostatic medicinal wastes;
- medicines of poor quality or unsuitable medicines which are returned to suppliers;

- hazardous wastes containing chemicals;

*For example, laboratory reagents, photographic process waste, unsuitable or unnecessary disinfectants, wastes containing heavy metals, such as broken thermometers and blood pressure measuring apparatus, etc.*

- 2) radioactive waste (radioactive waste arising from the radiodiagnostic and radioterapeutic procedure as a result, for example, unused radiopharmaceuticals, radioactive empty contaminated instruments (syringes, needles, etc.), patients who have undergone radiodiagnostic and radiotherapeutic procedures, biological secretions, radioactive empty contaminated objects and materials (swabs, dressings and other articles and materials that come in direct contact with patients)).
- 3) municipal waste (including linen, disposable clothing, diapers, if there is no reason to believe that they are infectious waste (they are not contaminated with the patient's biological fluids (blood, sputum, faeces, etc.)), drug waste, which do not correspond to medicinal waste mentioned previously);
- 4) environmentally hazardous waste products in accordance with the laws of the natural resources tax (for example, waste batteries and waste electrical and electronic equipment, etc.).

Industrial waste may be generated in the territory of the institution if production process or construction process takes place.

### **Treatment of waste generated in the medical institution**

Handling waste in the institution, it is prohibited to mix municipal, hazardous, industrial and radioactive waste. It is prohibited to mix different types of hazardous waste (it is also prohibited to mix infectious waste with other category waste).

It is prohibited to dilute hazardous waste, except where the institution itself is engaged in pre-processing and under the procedures provided by the Law on Pollution has received a permission for performing polluting activities of category A or B polluting activities, which permits hazardous waste dilution.

If the institution carries out pre-treatment activities, as well as waste management operations (collection, transportation, incineration or other activities), it in the cases provided by the laws and regulations on waste management receives permission for waste management.

- 1) To deliver municipal waste generated by the institution for management, the institution enters into a contract with the municipal waste manager, who has obtained a permit for municipal waste management under the procedures provided by the *Waste Management Law* and has concluded the contract with the municipality for municipal waste management.

When delivering municipal waste for management, the institution observes the relating laws and regulations, binding regulations issued by the municipality for management of municipal waste (separate collection) in its territory, as well as acts in accordance with the contract concluded with the municipal waste managing company.

- 2) To deliver hazardous, radioactive or production waste generated by the institution for management the institution shall conclude the contract with waste managers who have obtained a permit for hazardous and industrial waste management under the procedures provided by the *Waste Management Law* or have obtained a permit for management of radioactive waste under the procedures provided by the law “*On Radiation Protection and Nuclear Safety*”.

Transferring hazardous, radioactive or industrial waste for management, the institution shall act in accordance with relevant laws and regulations, as well as in accordance with contracts which are signed with the waste managing companies.

## **V. General Packaging Requirements for Collection, Storage and Transportation of Hazardous Waste**

An institution, through a contract with hazardous waste managers, agrees on the packages to be used by an institution for collection and storage of hazardous waste, including the placement of labels on the packaging and completion of labels.

For the reduction of risks an institution ensures on the hazardous waste packaging, which is provided for hazardous waste collection, storage or transport a label placement in accordance with the contract concluded with the hazardous waste manager. An employee of an institution, or a manager of hazardous waste, in accordance with the concluded contract, ensures the completion of a label in accordance with laws and regulations on hazardous waste tracking, identification, storage, packaging, labeling and shipment tracking procedure.

The following information should be included in the label: waste type, source of waste, content of chemical substances of the waste (if information is available), packaging date and name of person who packed the waste, as well as caution sign acc. to the regulations on registration, identification, storage, packaging, labelling and transportation of hazardous freights.

Hazardous waste is collected and sorted in the packaging of appropriate size, specially provided for collection of hazardous waste (disposable bag, disposable or reusable container, box or container), which is waterproof, lightweight and with a secure closure.

***Example:*** bags, bags holders and containers used for collection of infectious waste



If for the hazardous waste collection a bag is used, ensure that:

- bag volume corresponds to the volume of waste collection container or bag holder size;
- specially-made bags for infectious waste collection are used;
- metal wire or metal staples are not used for tying up a hazardous waste collection bag.

During the collection of hazardous waste, the bag provided for hazardous waste collection is filled up to two-thirds of the volume of the bag, then it is closely tied up or closed and delivered to the waste collection area or the waste collection site (see Chapter XVI), or the waste pre-treatment facilities, if any. The relevant shall be processed in an institution.

If the packing provided for the collection of hazardous or household waste on the outside is soiled with blood or other biological fluids or excretions, before the transfer this bag is placed into another bag, which is closely tied up. In this case the contaminated waste and packaging is considered as hazardous waste.

The hazardous waste collection bag, tank, box or container that is designed for transportation of hazardous waste shall be labeled in

accordance with laws and regulations on transport of dangerous goods.

If for the collection of hazardous waste a multiple-use tank, box or container which comes into contact with hazardous waste is used, the packaging disinfection shall be provided to prevent the spread of infectious diseases and the threat to the environment.

## VI. Dealing with Sharps



**Type of waste:** Contaminated sharps

Regardless of whether sharps or their waste are contaminated, they must be treated as hazardous waste.

**Actions:** handled in special sharp containers which are marked

A special strong, durable, crushproof, permeable to water, puncture-proof labeled container shall be used for collection of sharp waste. Container needs to be labeled with the bio-hazardous sign.

It is prohibited to remove by hand from the used syringes (if the manufacturer has not provided) a needle, to break a needle, or bend the needle. The needle from the used syringe may be removed only if the design allows or provides the separation of the needle, or if a specific device for separation of a needle is available in the institution. It is forbidden to put caps on the used syringe needles, except when not putting the cap on the used syringe needle can cause a threat to human life and health, as well as to the environment.

Used disposable sharp objects and other sharp waste are collected in the container immediately after use.

It is prohibited to collect sharps in non-puncture resistant or breakable container (e.g. cardboard box, bag, glass bowl, etc.).

*Example: special containers for sharps*



(I)



(II)

The containers are filled up to two thirds of the volume of the container, then they are tightly closed and it is ensure that they are delivered to the waste collection area / location or waste pre-treatment facilities, if the waste pre-treatment takes place. If the container provided for the collection of sharps is punctured, it is placed in another container that is labeled in accordance with the requirements. The container produced for the collection of sharps is filled according to the manufacturer's instructions.

The container used for the collection of sharps shall be placed as close as possible to the location of the procedure, without causing threat to the patient.

## **Pre-treatment of sharps**

If the institution has adequate facilities and the institution has received a permission for performing category A or B polluting activities, as provided by laws and regulations, it carries out pre-treatment of sharps as required (see Chapter XVIII).

If it is not possible to provide pre-treatment of sharps in the institution, they are delivered to the hazardous waste managing company.

## VII. Treatment of Infectious Waste

Infectious waste which is not sharps objects or sharps waste, are placed in a durable, waterproof bag of a different colour (where possible in a yellow, red or orange bag).

*Similarly, as in the sphere of labour protection in Latvia, using safety signs, in signal colouring the red colour is used to indicate, for example, dangerous activities, dangerous objects, while yellow or amber colour is used to indicate that shall be careful.*



### **Waste type:** Infectious Waste

Infectious waste collection bags or containers are labeled with danger sign for infectious substances.

**Action:** Infectious sharp objects or liquid infectious waste is placed in a waterproof container or tank, ensuring that the waste cannot leak or fall out.

Infectious waste after collection and packaging are delivered to area/room of waste collection or to the waste pre-treatment facilities.

On request of hazardous waste managing company, if it is stated in the contract signed between the medical institution and the managing company), the waste is placed in containers provided for transportation that meets the requirements for the carriage of dangerous goods.

## **Treatment of infectious waste**

If the waste pre-treatment is performed in the institution, the waste obtained during the pre-treatment process, if infectivity is prevented, is classified as municipal waste and it is managed as municipal waste.

For inactivation and testing of infectious waste, see. Chapter XVIII!

If the waste pre-treatment is not performed, the waste according to the contract concluded is delivered to the hazardous waste managing company, who has received permits of Category A or B for the performance of polluting activities as provided by the laws and regulations.

### **Important:**

*Microbiological waste from laboratories or infectious waste from the strict regime isolation ward prior to being taken from a laboratory or department shall be disinfected.*

Infectious anatomical waste is handled in accordance with the requirements laid down for dealing with anatomical waste (see Chapter VIII).

## **VIII. Treatment of anatomical waste**

**Regardless of whether the anatomical waste is infectious, it must be treated as hazardous waste.**

Anatomical waste is in collected durable, waterproof packaging and an employee ensures their delivery to a central waste collection area, place or pathology department with a morgue or dead storage facilities (if any office is).

Biopsy tissue, teeth and a small tissue material waste in dental offices until their transfer to the manager of waste shall be stored in special waste containers or tightly sealed plastic containers with a waterproof closure disinfectant (e.g. 10% formalin fluid, or 2.5% sodium hypochlorite solution).

Anatomical waste is transferred to the cremation or the pre-processing on-site by chemical methods (for example, the tissue cutting equipment), if the institution has adequate facilities, or is transferred or delivered according to the contract to the merchant, with whom the contract is concluded and who is authorized to engage in such waste management.

## IX. Treatment of Pharmaceutical Waste

Pharmaceutical waste, except waste containing cytotoxic and cytostatic medicines is not considered as hazardous waste, however, it is treated as hazardous waste.

Wastes containing cytotoxic and cytostatic medicines are hazardous waste in accordance with laws and regulations *on waste classification and characteristics that make the waste hazardous*. These wastes are delivered to a hazardous waste managing company, with whom the institution has signed a contract on the management of waste and who is authorized to deal with the management of such waste.

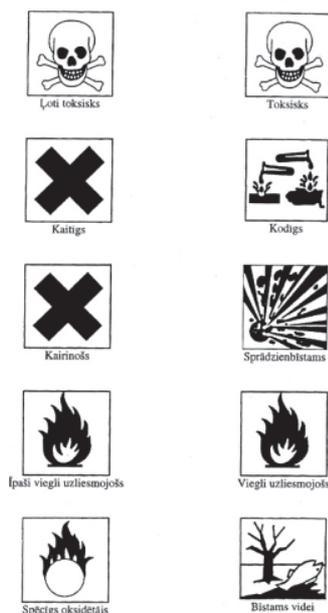


Cytotoxic waste is collected in puncture-proof, leak-proof containers labeled with the designation “**Cytotoxic Waste**”.

Medicines of poor quality or unfit for use (other than cytotoxic and cytostatic medicines) are treated as hazardous waste in accordance with laws and regulations *on drug acquisition, storage, utilization, registration and disposal destruction procedures in medical institutions*.

## X. Treatment of Chemical Waste

The waste containing hazardous chemicals (acc. to the *Law on Chemical Substances*) is collected in a container or a tank in accordance with the physical state in order to prevent a potential risk the waste poses to public and animal health and the environment.



The container or tank containing hazardous chemicals shall be marked in accordance with labeling requirements for chemical substances and chemical products.

### **Photographic process waste**

- Photographic process wastes (e.g. solvents, developers, film, photo paper, etc.) are collected separately in a container or tank and are delivered for processing to the hazardous waste manager, who has received regulatory statutory authorization.
- Photographic process waste containing liquids, such as photographic film, plates and photo paper may be collected in cardboard boxes, if it is aligned with the hazardous waste manager.

### **Treatment of mercury-containing waste**

- Amalgam waste is managed in accordance with laws and regulations concerning minimum requirements for medical institutions.
- If mercury is spilled in the institution, its residue is collected in a glass container, poured with mercury vapour suppression agents such as potassium permanganate solution (KMnO<sub>4</sub>), the container is tightly sealed and sent to the waste collection

area as hazardous waste. Performing these actions, an employee must use gloves and respirator or wet gauze mask. The place where mercury was found is treated with mercury vapour suppression agents (e.g., potassium permanganate (KMnO<sub>4</sub>) solution or soap-soda solution). Wet cleaning and ventilation of all the rooms shall be performed. During the mercury collection process, the window shall be opened (if it does not face the other side of the institution area) and, if possible, the persons who are not participating in the collection of mercury must be asked to leave the premises.

*Mercury, items and materials used in the collection of mercury are considered hazardous waste.*

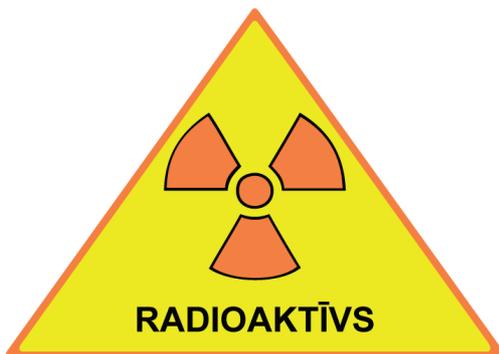
## **XI. Requirements for Handling Environmentally Hazardous Waste Products**

Environmentally hazardous waste is collected separately from other wastes in accordance with the laws and regulations on waste management.

The waste batteries and accumulators, as well as waste electrical and electronic equipment and other environmentally harmful waste products must not be placed in the tank or container for municipal waste.

## **XII. Treatment of Radioactive Waste**

Radioactive waste shall be treated in accordance with the *requirements of laws and regulations on the handling of radioactive waste and related materials*, as well as in accordance with laws and regulations *on minimum requirements for medical institutions and their departments*.



Radioactive waste is collected and stored separately from other waste. Container of radioactive waste shall be labelled with radioactivity hazard marking.

In accordance with the minimum requirements for medical institutions and their departments:

- 1) In the control area of the radio-nuclide therapy department there is a room for temporary storage of solid radioactive waste until its transfer to the authorities who are entitled to carry out disposal of radioactive waste and perform long-term storage;
- 2) In the control area of the radio-nuclide therapy department there is a room for storage of radioactive waste;
- 3) In the room or place of radioactive pharmaceuticals entering in the radionuclidic diagnosis cabinet there are containers for collection, labeling and storage of radioactive waste to their decay;
- 4) In the room of diagnostic equipment in the radionuclidic diagnosis cabinet there are lead containers for solid radioactive waste storage before it collapse.

### **XIII. Treatment of Municipal Waste and its Packaging**

Municipal waste is collected in the packaging of appropriate size, specially provided for collection of waste (cardboard boxes, tanks, containers, disposable bags). They are easy and safe resealable.

Requirements for bags for municipal waste collection:

- bag volume corresponds to the volume of waste collection container or bag holder size. It is recommended that the maximum capacity does not exceed 100 liters;
- metal wire or metal staples shall be forbidden to be used for tying up or fixing bags provided for household waste collection.

Bags provided for municipal waste collection shall be filled so as to be capable of being tied. It is recommended to fill a waste collection bag no more than two-thirds of the volume.

Municipal waste is collected in accordance with the requirements for sorting set in the local government binding regulations and the contract signed with the municipal waste managing company.

The collected municipal waste shall be delivered to the waste collection area or the household waste containers according to the contract signed between a medical care institution and the municipal waste managing company.

Food waste from medical institutions:

- shall be collected and processed according to the requirements of European Parliament and Council Regulation of 21 October 2009 No1069/2009 and the European Commission Regulation of 25 February 2011 No 142/2011 if it is intended for use in animal feed;

- shall be collected and treated as infectious waste if it is not intended for use in animal feed.

The waste which does not contain hazardous chemicals, in accordance with the laws and regulations on classification, labeling and packaging of chemical substances, shall be managed as household waste.

Aerosol containers are considered as household waste when they are completely empty. These containers should not burn.

*If the institution has not properly sorted waste, household waste may contain sharps, infectious waste or other waste. Therefore, when dealing with household waste, labour protection requirements shall be observed!*

#### **XIV. Treatment of Industrial Waste**

If in the institution or its territory the manufacturing process takes place or construction work is performed, industrial waste may be generated. If the institution is defined as a generator of the waste, the waste shall be delivered to the waste managing company (with which the institution has signed the contract on the management of this waste and who is authorized to deal with the management of such waste) or the institution shall deliver the industrial waste to a specially equipped manufacturing waste collection point.

## **XV. Labour Protection**

The institution dealing with waste generated in the institution shall observe the laws and regulations on labour protection.

Employees who are involved in the collection and removal (transportation) of waste, during the performance of the above mentioned work shall use gloves in accordance with *laws and regulations on the basic requirements for hygiene regime in institution*. Personal protective equipment shall be used for transportation of hazardous waste within the institution territory in accordance with *the prepared lists concerning labour risk assessment*.

Work clothes and boots, waterproof apron shall be used to transport the hazardous waste. Employees must be provided with a face shield and respirator.

Handling of chemicals, such as disinfectants, the information included in the data sheet of chemical substances and mixtures shall be observed.

## **XVI. Collection and Storage of Waste within the Medical Institution**

Waste shall be sorted as close to its source as possible.

If in the institution, when handling the waste, household and hazardous waste are mixed with each other; all mixed wastes are considered as hazardous waste. It is prohibited to separate the mixed waste.

It is forbidden to sort infectious waste. If infectious waste is mixed with other types of waste, all waste is considered as infectious waste.

The equipment provided for the removal of hazardous waste in the territory of the institution shall not be used for the removal of other substances or objects. The equipment provided for handling hazardous waste shall be washed and disinfected so as to ensure that waste collection and transfer that does not endanger human life and health, as well as the environment.

***Example:** carts used for transportation of waste within the institution's territory*



Bins in the authority's premises are placed in easily cleaned areas or premises.

The institution shall ensure regular emptying of waste tanks, as well as washing and disinfecting, to ensure that waste collection and transfer is performed in a manner that does not endanger human life, health and the environment. Waste shall not be accumulated in the area of its generation. The waste is recommended to bring to the central waste collection area or room for waste collection at least once a day (if necessary, more frequently).

### **Waste collection premises**

Institutions have separate waste collection facilities. In medical treatment facilities it is recommended to arrange a separate waste collection room in each department.

In outpatient institutions, with no more than two treatment and diagnostic rooms, waste collection area can be replaced by space garbage collection.

Inpatient medical institutions also have a central waste collection area. Waste collection facilities, as well as the central waste collection room at the entrance are marked with their names, as well as a warning that the area contains hazardous waste. All waste collection areas must be locked.

The central waste collection area of inpatient medical institutions is recommended to be placed as far away from patient care spaces available to the public rooms, catering facilities, as possible.

If both municipal and hazardous wastes are stored in the same waste collection / storage room or area, the storage of the above mentioned waste must be ensured in such a way as to prevent waste mixing.

Cytotoxic and radioactive waste need to be stored separately from other waste.

Waste collection / storage area / room must be:

- with easy to clean surfaces;
- well-lighted;
- with ventilation;
- protected from impacts of weather conditions;
- protected from the animal (rodent) and human unauthorized access.

The central waste collection room must contain impermeable to water and pollutants floor, it must be cleaned after each waste disposal, where appropriate, by disinfection, to prevent danger to human life and health, as well as to the environment. The waste collection area or the place shall be cleaned and disinfected to ensure that waste placement in the waste collection room or place, or waste removal from the waste collection rooms or areas, not endangering human life and health, and the environment.

Waste storage time and temperature must meet the regulatory *requirements for waste collection, sorting and bundling of biodegradable waste sites*. According to it:

- hazardous waste which is infectious, shall be stored for no longer than one week from the occurrence. The waste is stored no longer than one month after the occurrence if the temperature of 2-8 ° C is provided for storage of the waste;
- non-infectious hazardous waste shall be stored not longer than 3 month from the occurrence.

In addition it is recommended to observe the condition that if the infectious waste that is not sharp waste is kept in the central waste collection room for longer than 48 hours there must be cooling equipment to provide at least 2 to 8 degrees Celsius.

Anatomical waste must not be stored without refrigeration for more than 2 to 3 hours. Anatomical waste can be stored up to 3 months, if

they can secure from -4 to +4 degrees Celsius temperature. Anatomical waste decomposition shall not be allowed.

Hazardous waste containers used, and other reusable packaging, the waste handling equipment shall be disinfected daily or when the waste is spilled or waste have not been properly packed. Disinfection is carried out with a wide range of microbiological effects of disinfectants.

The central waste collection area shall be disinfected daily with a wide range of microbiological effects of disinfectants.

The place for waste collection shall be disinfected daily or when the waste is spilled or was not properly packaged. Disinfection is carried out with a wide range of microbiological effects of disinfectants.

## **XVII. Waste transportation**

Hazardous waste from medical institutions is transported in accordance with laws and regulations on *transportation of dangerous goods*.

## XVIII. Pre-treatment of waste

### **Definition:**

- **Pre-treatment of waste** - alter the nature of the waste to enable other treatment or regeneration operations to be conducted (waste treatment and regeneration type R12 in accordance w/ legislation on the types of waste regeneration and storage). It also refers to the physical or chemical treatment of waste based upon which a compound or mixture is created that is then stored (meeting the storage type D9 in accordance w/ legislation on waste regeneration and storage types).

If an institution has appropriate equipment for waste pre-treatment performance and it is authorized for performing Category A or B polluting activities in accordance with *laws and regulations on pollution*, the institution carries out pre-processing to reduce the waste hazards, such as disinfection, or to change the appearance of waste (to make waste unrecognizable, for example, by grinding).

If the institution does not perform waste pre-treatment it disposes the waste or in accordance with the contract, in cases provided by the *Waste Management Law*, delivers the waste to the waste manager, with whom a contract in accordance with laws and regulations on waste management is concluded, and who has received the permission of the management of waste in accordance with *laws and regulations on pollution or waste management*.

For pre-treatment only the waste listed in the permit and that is technically feasible and acceptable for treatment according to the manufacturer's conditions, may be accepted.

Infectious waste pre-treatment process is carried out in such a way as to ensure that the waste generated during the pre-treatment process meets the set requirements and they are not considered hazardous waste.

- The waste is not considered hazardous if it contains bacteria, fungi, viruses, parasites and mycobacteria are inactivated to 6 log 10 or higher, and *Geobacillus stearothermophilus* or *Bacillus atrophaeus* spores are inactivated by 4log10 or higher level.

Anatomical waste pre-treatment process is handled so far, until waste becomes unrecognizable. The handling of anatomical waste must comply with ethical and religious standards.

All waste pre-treatment activities may be carried out in rooms with good drainage and water and pollutant-proof flooring.

If necessary, before a waste pre-treatment process waste storage is provided in the pre-treatment site in a manner to prevent cross contamination. Hazardous wastes prior to their pre-treatment are stored in closed, strong, leak-proof containers.

The waste placed in the bags immediately after their arrival at the place of pre-treatment shall be put in containers where they must be kept until the pre- treatment performance.

An institution or a waste manager, who performs the infectious waste pre-treatment, follows the equipment, operating instructions, and provides pre-processing according to the requirements set by the A or B polluting activities permit issued for the performance of the above mentioned activities.

An institution or a waste manager, who performs the infectious waste pre-treatment provides that once a month the inspection of the operation of the equipment of infectious waste pre-treatment takes place, using the waste samples resulting from the waste pre-treatment process and testing their compliance with the requirements. The accredited laboratory shall perform sample sterility (infectivity) tests to check whether the plant's operation provides prevention of waste hazards.

**Example:** Set for testing of microbiological inactivation of infectious waste: set for autoclaving unit (I) and chemical treatment system (II)



I



II

Waste sampling and verification of compliance shall be performed by laboratories that are accredited in the limited liability company "Standardization, Metrology and Accreditation Centre" in accordance to standard ISO/IEC 17025:2005, "General requirements for the competence of testing and calibration laboratories ISO / IEC 17025:2005" and for which the Ministry of Economic Affairs has published a notice in the newspaper "Latvijas Vēstnesis" (hereinafter referred to as - the laboratory), or laboratories and institutions to which the competent institutions of the relevant state of the European Union, European Economic Area, European Free Trade Association, or Economic Cooperation and development

Organization have issued a certificate or approval in accordance with the rules of European Union Member States, stating that the relevant studies have been conducted and supervised in accordance with good laboratory practice requirements.

## **XIX. Medical Treatment at Home**

*Employees of the medical institution making home visits are fully responsible for the waste generated from their activities.*

Making home visits outside the medical establishment, the employees of the institution after the performance of the procedures shall place sharps in a container for sharp objects, and infectious waste – in a waterproof bag or container provided for infectious waste collection.

After the home visit the employees of the institution shall deliver the collected hazardous waste to the institution to ensure their future management.

## REFERENCES

The manual uses the following legislation:

1. Waste Management Law (adopted 28.10.2008.) And its subordinate regulations of the Cabinet;
2. Medical Treatment Law (adopted 12.06. 1997.) and its subordinate regulations of the Cabinet;
3. Labour Protection Law (adopted 20.06.2001.) And its subordinate regulations of the Cabinet;
4. Epidemiological Safety Law (adopted 11.12.1997.) And its subordinate regulations of the Cabinet;
5. Pharmaceutical Law (adopted 10.04.1997.) And its subordinate regulations of the Cabinet;
6. Chemical Substances Law (adopted 01.04.1998.) And the downstream of the Cabinet.
7. Law "On Pollution" (adopted 15.03.2001.) and its subordinate regulations of the Cabinet;
8. The law "On Radiation Safety and Nuclear Safety" (adopted 26.10.2000.) and its subordinate regulations of the Cabinet.
9. Draft of the Regulations of the Cabinet of Ministers "Management of medical waste generated by medical treatment institutions."

The manual has used for the development of recommendations:

1. World Health Organization materials.
2. Organization "Health Care Without Harm" materials.
3. International materials on the waste generated by health care institutions (UK, Ireland, France, Lithuania, Armenia, Philippines).
4. Documents of the global project of United Nations Development Programme and Global Environment Fund "Demonstrating and Promoting Best Techniques and Practices for

Reducing Health-Care Waste to Avoid Environmental Releases of  
Dioxins and Mercury".