

International Finance Corporation Environmental, Health and Safety Guidelines

Health Care Facilities

Applicability of Guidelines

Health care facilities and activities subject to the requirements of these guidelines include large-scale¹ and small-scale² health care establishments, pharmaceutical activities, research facilities, and laboratories (including universities research and laboratory facilities).

Introduction

Health care facilities generate a variety of wastes including air and wastewater effluents, hazardous health care waste and domestic or municipal solid waste. Approximately 75-90% of health care waste, which is generated by administrative, housekeeping and maintenance functions, is general health care waste. The remaining 10-25% of waste is considered hazardous and may create a variety of health risks.

Contact with hazardous health care waste may result in disease, injury, and even death because of the nature and content of materials contained in such wastes. IFC requires sustainable management practices for all hazardous health care waste (see Guidance Note A). Hazardous health care waste may be categorized as in the following table.

Hazardous Health Care Waste Categories				
Waste Category –	Examples			
Description				
Infectious waste —	Laboratory cultures, waste from			
Waste suspected to	isolation wards, tissues, swabs,			
contain pathogens ³	materials or equipment that have			
	been in contact with infected			
	patients, excreta			
Pathological waste —	Body parts, blood and other body			
Human tissues or fluids	fluids.			
Sharp waste ⁴	Needles, infusion sets, scalpels,			
	knives, saws, blades, broken glass,			
	and nails			
Pharmaceutical waste	Pharmaceuticals that are expired or			
 Waste containing 	no longer used or needed, items			
pharmaceuticals	contaminated by or containing			
	pharmaceuticals (bottles, boxes)			
Genotoxic⁵ waste —	Waste containing cytostatic			
Waste containing	properties (used in cancer therapy),			
substances with genotoxic	genotoxic chemicals			
properties				
Chemical waste -	Laboratory reagents, film developer,			
Waste containing	disinfectants that have expired or are			
chemical substances	no longer needed, solvents			
Heavy metals — <i>Wastes</i>	Batteries, broken thermometers,			
with high content of	blood pressure gauges, etc.			
heavy metals				
Pressurized containers	Gas cylinders, gas cartridges, aerosol			
	cans			
Radioactive waste —	Unused liquids from radiotherapy or			
Waste containing	laboratory research, contaminated			
radioactive substances	glassware, packages or absorbent			
	paper, urine and excreta from			
	patients treated with unsealed			
	radionuclides, sealed sources			

³ Any organism that causes disease, such as a bacterium or virus

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Representative large-scale establishments include hospitals (university hospitals, general hospitals, district hospitals), other Healthcare establishments (emergency medical centres, Healthcare centres and dispensaries, obstetric and maternity clinics, outpatient clinics, dialysis centres, first aid posts and sick bays), long-term Healthcare establishments and hospices (transfusion centres and military medical centers), related laboratories and research centers (medical and biomedical laboratories, biotechnology laboratories and institutions, medical research centers), mortuary and autopsy centers, animal research and testing facilities, blood banks and blood collection services, and nursing homes for the elderly.

² <u>Representative small-scale Healthcare establishments</u> include physicians' offices, dental clinics, acupuncturists, chiropractors, specialized Healthcare establishments and institutions (convalescent nursing homes, psychiatric hospitals, and disabled persons' institutions), funeral services, ambulance services, and home treatment.

⁴ Sharps include items that may cause cuts or puncture wounds, including needles, hypodermic needles, scalpels and other blades, knives, infusion sets, saws, broken glass, and nails.

⁵ Genotoxic - Substances that are capable of interacting directly with genetic material causing DNA damage that can be assayed. Genotoxic substances may be carcinogenic, mutagenic, or teratogenic.

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Health Care Waste Management Philosophy

Waste management in health care facilities should adhere to the following measures suggested by the 1992 United Nations Conference on the Environment and Development (UNCED). Specifically, management of the health care organization should adopt the following principles.

1) Prevent and minimize the production of waste (integrate systems and practices to avoid the creation of waste into facility design and management and equipment and consumables purchasing);

2) Reuse or recycle waste to the degree feasible employing:

- a) Source reduction (measures such as purchasing restrictions to ensure the selection of methods or supplies that are less wasteful or generate less hazardous health care waste;
- b) Recyclable products (use materials that may be recycled either on- or off-site);
- c) Good management practices rigorously applied to purchase and control of chemicals and pharmaceuticals, and
- d) Segregation of wastes into different categories - essential to control quantities generated and associated management and disposal costs.

3) Treat or arrange for treatment of waste by environmentally sound methods;

4) Dispose of residues in permitted, controlled, and properly designed disposal sites, and

5) Phase out the use of polyvinyl chloride (PVC) materials consistent with the availability of suitable replacement materials in the marketplace.

Guideline Requirements

Waste Management Plan Development and Implementation

Development, implementation, and institutionalisation of a waste management plan is required by IFC to ensure appropriate segregation, collection, storage, treatment, and disposal of wastes. The scope, content and design of the waste management program will vary according to facility operation. However, the following elements are required.

- Identify all wastes generated or to be generated at the facility by type, characteristics and estimated quantities.
- Define the existing or planned internal control measures required to comply with regulatory requirements⁶ governing general and hazardous health care wastes.
- Develop waste management policies and procedures⁷ for waste identification, collection, storage, treatment, disposal, and quality assurance monitoring.
- Incorporate waste management responsibilities into individual job descriptions and incentive compensation programs.

Appendix A provides an outline of a Hazardous Health Care Waste Management Plan (HHWMP). Such a plan must be developed by the health care facility proponent and implemented either by the proponent's management staff or the organization contracted to manage the facility. Contract specifications for management companies must incorporate IFC's requirements for plan implementation and management.

Air Emissions Limits

Concentrations of contaminants emitted from the stacks of significant sources with an equivalent heat output of greater than 10 million British thermal units per hour (Btu/hr), including boilers, furnaces and electrical generating equipment but excluding incinerators must not exceed the limits in the following table.

⁷ Procedures must clearly define management responsibilities, and management-approved activities and responsibilities (all personnel levels) to bring about the intended result.

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⁶ Regulatory requirements may include applicable host country regulations, Health Care facility certification or accreditation organizations, policy and guidelines requirements imposed by lending organizations (e.g. IFC, IBRD), and other requirements.

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Parameter	Limit
Particulate matter	• 50 mg/Nm ³ for units ≥50 MWe
	output
	 100 mg/Nm³ for units <50 MWe
	output
Nitrogen oxides, as	
NO ₂	
- coal fired	750 mg/Nm³ (260 nanograms per
	Joule (ng/J)
- oil fired	460 mg/Nm ³ (130 ng/J)
- gas fired	320 mg/Nm ³ (86 ng/J)
Sulfur dioxide (SO ₂)	Not to exceed 2000 mg/Nm ³

Air Emission Limits for Incinerators

Proposed incineration of hazardous health care waste must be accompanied by technical information about the facility, technology, manufacturer's emissions guarantees, specifications, existing regulatory agency permits and operating licences, and mandatory maintenance schedules to ensure guaranteed performance. These data must be submitted to IFC for approval. The air emission limits for such facilities are summarized in the following table.

Parameter	Maximum Value		
Particulate matter (PM10) mg/Nm3	100		
Carbon Monoxide (CO) ppmdv ⁸	40		
Nitrogen Oxides (NOx) ppmdv	250		
Hydrogen Chloride (HCl) ppmdv	100		
Mercury (Hg) mg/Nm ³	0.55		
Cadmium (Cd) mg/Nm ³	0.16		
Dioxins/furans (CDD/CDF) ng/m ³	125 (total)		

Adapted from: World Health Organization (1999). Safe Management of Wastes from Health Care Activities

Health Care Facility Wastewater Management

Health care wastewater may negatively impact receiving surface waters or disrupt municipal treatment works. IFC permits the discharge of health care facility wastewater to municipal or other sewerage systems if the following conditions apply.

- The facility separately collects excreta (urine, faeces, blood, vomitus, etc.) from patients being treated with Cytotoxic drugs and adequately treats it along with other Cytotoxic waste;
- The sewerage conveys wastewater to an operating treatment works;
- The operating treatment works must provide written assurance that they will accept and have the capacity to treat the additional load generate by the health care facility and that the treatment works' treated effluent complies with national liquid effluent standards.

On-site wastewater pre treatment or treatment systems should incorporate the following unit processes

- Primary treatment;
- Secondary biological treatment;
- Tertiary treatment (rapid sand filtration or polishing lagoons);
- Disinfection to break point chlorination⁹ using chlorine dioxide, sodium hypochlorite, calcium hypochlorite, or chlorine gas.
- Sludge disposal to a secure landfill.

Final effluent <u>must</u> comply with the limits in the following table.

Parameter	Limit milligrams per liter (mg/L)		
pН	6-9 units		
Biochemical oxygen demand (BOD5)	50		
Chemical oxygen demand (COD)	250		
Oil and grease	10		
Total suspended solids (TSS)	20		
Cadmium	0.1		
Lead	0.1		
Mercury	0.01		
Chlorine, total residual ⁹	0.2		
Phenols	0.5		

⁹ The processes of shocking the water with significant quantities of chlorine to oxidize all contaminants and organic wastes and leave all remaining chlorine as free chlorine.

⁸ ppmdv — part per million dry volume

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Solid and Hazardous Waste Management

IFC requires the preparation of a Hazardous Health Care Waste Management Plan. Appendix A provides details on the elements of this plan.

Monitoring, Reporting and Supervision

Monitoring Data¹⁰ Collection

Monitoring data should be collected so that an accurate evaluation of performance can be presented to IFC annually. Data should be analysed and reviewed at regular intervals and compared with WBG guidelines and host country requirements so that corrective actions can be initiated promptly.

Records of monitoring and scheduled maintenance to preserve performance guarnatees should be reported to the responsible authorities and relevant parties, as required. Monitoring frequency for the parameters listed in these guidelines will be carried out as follows.

- At least once per month for potable water supply and liquid effluents;
- Annually for air emissions;
- Prior to entering all confined spaces and/or any space disinfected or sterilized as part of infection control activities; and
- Radiation surveys for sites with active source licenses every three years or more frequently if source licenses require it.

Preservation of Records and Reporting to IFC

The sponsor shall maintain records of significant environmental, health and safety matters. Records shall include the following.

 All incidents resulting in an incapacity to work for at least one full workday beyond the day on which the accident or illness occurred;

- The total number of days of absence from work as the result of an incident;
 Fatalities;
- Air emissions monitoring data;
- Potable water quality monitoring;
- Liquid effluent monitoring data;
- Radiation surveys results;
- Environmental, health and safety training conducted including course topics and attendees, and on-going efforts to reduce observed lost time accidents;
- Spills, fires and other emergencies;
- Number of emergency response drills and spill response drills conducted without equipment deployment; and
- Number of emergency response drills and spills response drills conducted with equipment deployment.

An annual summary of the above information will be provided to IFC in the Annual Monitoring Report (AMR). These data shall be presented side-by side with host country regulatory limits and WBG guideline numerical limits. Exceedances shall be accompanied by an analysis of the exceedance, a proposed solution and a schedule for implementation of the proposed solution.

In addition, an updated HHWMP should be submitted along with the AMR illustrating any substantive changes and adjustments to actual operating conditions and experience.

Supervision

IFC staff or a designate will visit the project from time-to-time to verify that IFC's environmental, social, health and safety requirements are being met. Verification will be against, the HHWMP, IFC's guidelines and policies,¹¹ applicable host country laws and regulations, and any project environmental, social, health and safety covenants. Generally speaking, supervisory visits will be annually if the project is larger scale and has a higher inherent environmental and social risk. Visits will be less frequent if the project is smaller scale and has lower inherent risks.

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¹⁰ Note: Actual testing for effluent and air emission parameters is required. Data summaries may be presented to IFC. However, sponsors must maintain original analytical data and present these upon demand to IFC.

¹¹ In reviewing projects for financing, IFC refers to its ten 'safeguard policies', and to its project review procedures.

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Community Involvement and Awareness

The project sponsor is responsible for keeping the host community adequately informed, and to provide means for public feedback.

It is good practice for the potentially affected public to be:

- given general information on the nature and extent of off-site environmental and human health effects arising out of routine and emergency operations at the health care facility;
- supplied with specific information on appropriate behaviour and safety measures in the event of an accident involving hazardous substances; and
- afforded access to information needed to understand possible accidents and allowed to contribute to decisions concerning hazardous health care waste management and community preparedness plans.

Life and Fire Safety (L&FS) Requirements

All new and existing buildings accessible to the public and financed by IFC must be designed and operated in full compliance with IFC's Life and Fire Safety (L&FS) guideline. Please refer to the L&FS guideline document for specific requirements.

<u>References and Suggested Information</u> <u>Resources</u>

Danish Waste Management Association/Association of Danish Hospital Administrators (DAKFA/FSAD) (1991). *Waste. European conference on hospital waste management*. Copenhagen.

EPA (U.S. Environmental Protection Agency), Handbook: Operation and Maintenance of Hospital Medical Waste Incinerators, EPA/625/6-89/024, January 1990.

Mara D, Cairncross S (1989). *Guidelines for the safe use of wastewater and excreta in agriculture and aquaculture.* Geneva, World Health Organization.

McRae G, Shaner H (1996). *Guidebook for Hospital Waste Reduction Planning and Program Implementation*. Chicago, American Hospital Association.

Pruss, A., Giroult, E., Rushbrook, P., (EDS). 1999. Safe management of wastes from healthcare activities. Geneva. World Health Organization.

Reference Websites

The Nightingale Institute for Health and the Environment

http://www.nihe.org

The University of Massachusetts – Lowell's Sustainable Hospital Project http://www.uml.edu/centers/LCSP/hospitals/

USEPA virtual hospital tour – focus on mercury reduction <u>http://www.epa.gov/seahome/mercury/src/title.</u> <u>htm</u>

USEPA publication on Pollution Prevention for Selected Hospital Waste Streams http://200.10.250.47/eswww.fulltext/repind62/gp p/gpp.html

Health Care Without Harm http://www.noharm.org/index.cfm

Hospitals for a Healthy Environment http://www.h2e-online.org/

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Appendix A

Comprehensive Hazardous Health Care Waste Management Plan (HHWMP)

The information is intended for use by staff of the International Finance Corporation and its consultants in carrying out the policies set out in the Operational Policy on Environmental Assessment (OP 4.01) and related documents.

Comprehensive Hazardous Health Care Waste Management Plan (HHWMP)

A facility-specific Hazardous Health Care Waste Management Plan (HHWMP) must be prepared by the sponsor, reviewed and approved by IFC, and then endorsed by the sponsor's highest level of management. Subsequently, it must be thoroughly implemented by the sponsor's management personnel or the entity contracted to manage the health care operation.

Communication of Management Endorsement of the HHWMP

Management is required to communicate to all workers through available means (e.g. training, employee job descriptions, annual performance reviews and incentive compensation plans) that adherence to the HHWMP is a mandatory aspect of each person's employment.

The HHWMP document should be made available to all employees. This can be accomplished via the facility or corporation Intranet <u>or</u> distributed as controlled copies¹² to supervisors and managers if Intranet information dissemination is not available. Individual <u>employees must have unrestricted</u> <u>access</u> to the HHWMP at various locations throughout the health care facility.

The HHWMP should also be used as the nucleus of employee training and orientation. Training sessions should familiarize employees with the content and procedures and availability of the plan and focus on use of the plan and procedures as a source of essential information and assistance in solving problems.

The HHWMP should incorporate a contingency plan that addresses alternative, managementapproved approaches built into the waste management system to ensure managementendorsed behavior in the event of some sort of failure. For example, the HHWMP should incorporate alternatives in the event that the primary procedure for waste disposal fails (e.g. closure of disposal facility).

The HHWMP should incorporate an Emergency Response Plan. This aspect of the plan should define preparedness and training for spill containment, clean-up and waste management procedures. Actual experience from spills and similar emergencies should be tracked and the findings of accidents, spills, and other unplanned events incorporated into training to reduce the frequencies of unplanned events.

Occupational Safety and Health

The HHWMP must incorporate a health care worker safety and health program. IFC requires implementation of an occupational safety and health program for all investments. This program and the HHWMP must include the following characteristic health care occupational health considerations.

- Medical surveillance for health care workers including immunization and post-exposure prophylactic treatment;
- Outcomes monitoring to define the nature of frequently occurring events;
- Incorporation of preventive measures for the most frequently occurring events (see above) into the HHWMP.

Training

The HHWMP must incorporate training programs for all health care facility workers¹³ incorporating the following:

- Establish baseline knowledge and understanding of preferred practices;
- Lessons learned from outcomes monitoring.

¹² Controlled copies are distributed to specific individuals and these individuals are responsible for updating the table of contents and contents of the documents as changes are made and distributed to controlled copyholders.

¹³ Health care workers include: Healthcare providers, hospital cleaners, maintenance workers, operators of waste treatment equipment, and all operators involved in waste handling and disposal within and outside Healthcare establishments

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- Potential risks associated with health care wastes;
- Value of immunization against viral hepatitis (B);
- Importance of consistent use of PPE;
- Spill containment and clean-up;
- Appropriate mandatory equipment and clothing for workers.

Quality Assurance

The HHWMP must incorporate quality assurance activities to monitor waste management and to ensue that waste is segregated, stored, transported and disposed in accordance with the plan. Observed shortcomings should be used to modify the plan, procedures and employee training in order to eliminate variances from the plan.

Waste Segregation

The HHWMP must define managementapproved characterization and segregation procedures for wastes generated by the health care facility by functional area and waste type and volume (*see Table 1*). The key to effective management is segregation (separation) of individual waste types at the point of generation into color-coded bags or containers. Clear-cut identification of the waste types in collection containers is an essential element in appropriate handling, treatment and disposal of waste by type. This activity reduces costs and protects public health.

The HHWMP must define managementapproved waste collection locations and containers. Waste collection containers should be clearly identified and placed in all locations where waste may be generated. Graphics and text should be provided adjacent to the container to emphasize waste management requirements, prohibitions and precautionary information.

Waste separation and identification requirements should be posted at each waste collection point. All collection containers should be closed and removed when they are 75% full. Recommended color-coding and containers for hazardous health care waste accumulation are summarized in *Table 1*.

Waste Storage

Collected waste placed into local storage awaiting on-site treatment or transport for offsite treatment and disposal must be stored in a secure location. Storage should be situated inside the health care establishment and dedicated for the purpose. Waste storage facility design should incorporate the following minimum standards.

- Provide locking access doors to prevent access by unauthorized persons;
- Provide secure storage for each waste type;
- Store bagged or containerized waste in an area appropriately sized for the quantity of waste produced and the frequency of collection;
- Situate away from fresh, dry or refrigerated food stores or food preparation activities;
- Situate away from heating, ventilation and air conditioning systems;
- Store cytotoxic waste separately from other health care waste;
- Store radioactive waste (waste to be stored during radioactive decay) in containers that prevent dispersion, behind lead shielding;
- Provide well drained, impermeable flooring that is easy to clean and disinfect;
- Provide water supply for cleaning purposes;
- Provide wastewater discharge to sanitary sewer;
- Incorporate easy access for staff assigned to collect and store waste;
- Incorporate easy access for waste collection vehicles;
- Provide protection from the sun;
- Employ construction adequate to exclude animals, insects, birds;
- Provide good light and passive ventilation;
- Provide supplies at the storage area: cleaning equipment, protective clothing,

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waste bags or containers, spill cleanup kits, other needed materials.

Hazardous Health Care Waste Treatment and Disposal Options

A variety of suitable treatment and disposal technologies may be proposed in the HHWMP to effectively render waste suitable for final disposal (*See Table 2*). Selected technologies should be justified in terms of local conditions and availability of technological support.

Hazardous Health Care Waste Transport Control Strategy

On Site Transport

Health care waste should be transported within the health care facility by means of wheeled trolleys and/or containers or carts not used for any other purpose, and meet the following specifications.

- Easy to load and unload
- No sharp edges that could damage waste accumulation and storage bags/containers during loading or transport, and
- Easy to clean.

Off-site Site Transport

The health care facility is responsible for safe packaging and adequate labeling of waste to be transported off-site and for authorization of its destination. Off-site transport packaging, placarding, and labeling must comply with national regulations governing the transport of hazardous wastes. In the absence of local laws and regulations governing hazardous materials transport, health care facility management should adhere to the guidance provided in regulations implementing the United States' Hazardous Materials Transportation Act, and Recommendations on the transport of dangerous goods published by the United Nations. If the health care facility anticipates shipment of hazardous health care waste abroad for treatment and disposal, packaging and labelling must comply with international agreements.

The health care facility's hazardous health care waste transport control strategy should incorporate the following.

- Design a consignment note to take into account the waste control system and operation within the host country. In the absence of host country standards for documentation, use the United Nations-recommended "Multimodal Dangerous Goods Form";
- Preparation of a consignment note (shipping manifest) to accompany waste from point of origin to site of final disposal;
- Require the transporter by contract specification to return the appropriate portion of the consignment note (shipping manifest) to the waste generator confirming intact delivery of the waste to the intended destination;
- Require the transporting organization by contract specification to be registered with or otherwise permitted by the host country waste regulation authority approved for establishing and maintaining operations of this type;
- Require the waste disposal facility by contract specification to certify permitted waste disposal and/or provide a waste destruction certificate for the materials on the consignment note.

Off-Site Hazardous Health Care Waste Treatment

Off-site hazardous health care waste management and disposal must be approved by IFC. To facilitate IFC's review and approval, technical information about the proposed facility, technologies employed, regulatory agency permits and operating licenses, emissions measurement data, residue disposal site(s) design and operations data and

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supplemental information that will facilitate a complete technical evaluation as to environmental and social sustainability must be submitted to IFC for evaluation.

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Type of Waste	Container Color and special markings	Type of container	Recommended Supplemental Practices		
Highly infectiousYellow marked HIGHLYwasteINFECTIOUS		Strong leak-proof plastic bag or container capable of being autoclaved marked with the international infectious substance symbol	Sterilize immediately by autoclaving whenever possible		
Highly infectious waste	ghly infectious Alternate color-coding is RED Strong leak-proof plastic bag or aste containers or bags <u>destined for</u> container capable of being <u>immediate autoclaving</u> and autoclaved marked with the marked HIGHLY INFECTIOUS international infectious symbol substance symbol		Sterilize immediately by autoclaving whenever possible		
Other infectious waste, pathological and anatomical waste	YELLOW	Leak-proof plastic bag or container	Sterilize immediately by autoclaving whenever possible		
Sharps	YELLOW marked SHARPS	Puncture proof container	Collect all together whether contaminated or not. Container specifications: puncture proof, rigid and impermeable, tamper proof		
Chemical and pharmaceutical waste	BROWN	Plastic bag or container. Wastes with a high content of heavy metals (mercury, cadmium or other) should be collected separately.	Large quantities of obsolete or expired pharmaceuticals stored in hospital wards or departments should be returned to the pharmacy for disposal. Other pharmaceutical waste (spilled or contaminated drugs or packaging containing drug residues) should be deposited in a correct container at the point of generation). Large quantities of chemical waste should be packed in chemical resistant containers and sent to specialized treatment facilities if available. Containers to clearly mark the identity of the chemical inside. Hazardous chemical wastes should never be mixed.		
Cytotoxic ¹⁴ waste	BROWN leak-proof containers clearly labelled CYTOTOXIC WASTES	Strong leak-proof containers	See recommended supplemental practice above.		
Radioactive waste	-	Lead box labelled with the radioactive symbol	Handle in accordance with source licenses, relevant international regulations, and other applicable regulatory and/or guidelines setting agencies or organizations.		
General Health Care waste	Black	Plastic bag	General Health Care waste – add to domestic refuse for disposal		

$Table \ 1-Waste\ Containerization\ and\ Marking$

Adapted from: World Health Organization (1999). Safe Management of Wastes from Health Care Activities.

¹⁴ <u>Chemicals</u> that are <u>directly toxic</u> to <u>cells</u>, preventing their <u>reproduction</u> or <u>growth</u>. Cytotoxic <u>agents</u> can, as a <u>side effect</u>, <u>damage</u> <u>healthy</u>, non-cancerous <u>tissues</u> or <u>organs</u> which have a <u>high proportion</u> of actively <u>dividing cells</u>, for example, <u>bone marrow</u>, <u>hair</u> <u>follicles</u>. These <u>side effects limit</u> the <u>amount</u> and <u>frequency</u> of <u>drug administration</u>.

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Technology or Management				Waste Type			
Method	Infectious	Anatomical	Sharps	Pharmaceutical	Cytotoxic ¹⁵	Chemical	Radioactive
Pyrolitic incinerator	Yes	Yes	Yes	Small quantities ¹⁶	No	Small quantities	Low-level infectious
Chemical disinfection	Yes	No	Yes	No	No	No	No
Wet thermal treatment	Yes	No	Yes	No	No	No	No
Microwave irradiation	Yes	No	Yes	No	No	No	No
Encapsulation	No	No	Yes	Yes	Small quantities	Small quantities	No
Sanitary landfill	Yes	No	No	Small quantities	No	No	No
Discharge to sewer	No	No	No	Small quantities	No	No	Low-level liquid waste
Inertization	No	No	No	Yes	Yes	No	No
Other methods	-	-	-	Return expired drugs to supplier	Return expired drugs to supplier	Return unused chemicals to supplier	Decay by storage

$Table \ 2-Hazardous \ Health \ Care \ Waste \ Treatment \ Options$

Adapted from: World Health Organization (1999). Safe Management of Wastes from Health Care Activities

¹⁵ Thermal destruction of Cytotoxic waste generally requires a minimum temperature of 800° C.

¹⁶ Not to exceed 5 grams on a daily basis.

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