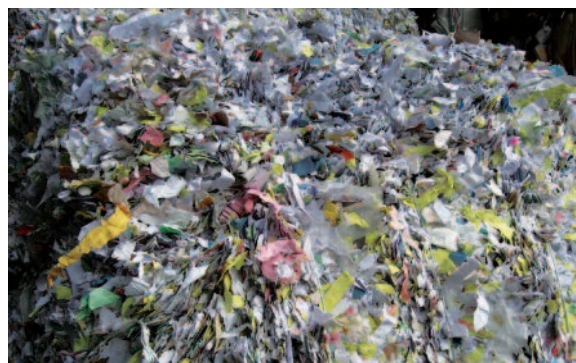


HEALTH SERVICE EXECUTIVE

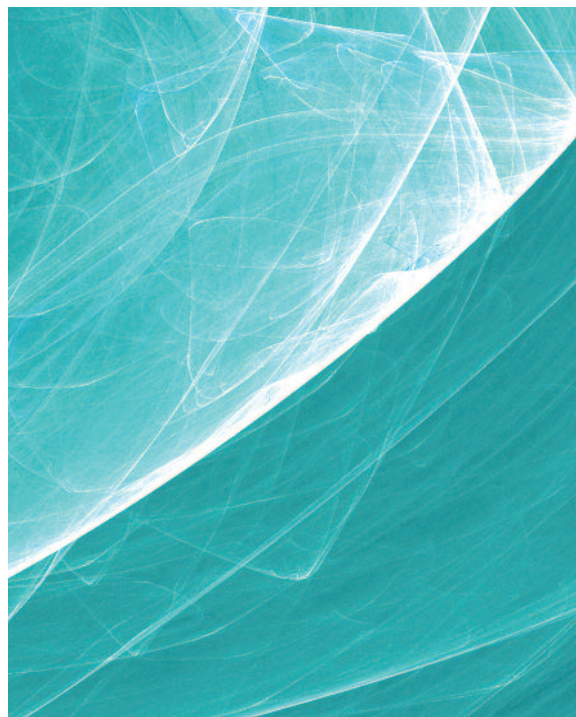


Feidhmeannacht na Seirbhíse Sláinte
Health Service Executive



Waste Management Awareness Handbook

2011



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Traditional perception of landfill

Appendices

Appendix A Poster Segregation and Packaging for Healthcare Risk and Non-Risk Waste

Segregation of Healthcare Waste Figure 6.1 from The Segregation, Packaging and Storage Guidelines for Healthcare Risk Waste

Standard Precautions Poster

Appendix B Example of Consignment Note (C1 Form) and European Waste Catalogue List (EWC)



Poor waste management

Introduction

Many different waste streams are generated in the delivery of the health services. The responsible management and disposal of such wastes is an onerous task for healthcare personnel, involving environmental, health and safety considerations.

This handbook has been prepared by the Estates Directorate of the HSE acting in an advisory capacity, to help develop awareness of good practice in waste management for all staff working in the healthcare sector. A general overview of waste management principles is provided and details of further references are included for those who require more specific information.

The Handbook, together with appropriate training, aim to inform staff, reduce the health and safety risk associated with healthcare waste and assist in achieving compliance with Government policies, statutory requirements and other relevant health sector guidelines. In doing so, they should also help to reduce the impact on the

environment as well as result in savings from the efficient management of the waste generated.

The Comptroller & Auditor General (C&AG) carried out a Value for Money examination of waste management in hospitals in 2004. The C&AG's report, published in 2005, found that while healthcare risk waste was well managed there was considerable scope for improvements in the management of other waste streams and the level of recycling was low. The C&AG report¹ sought to identify current practices in waste management, the level and type of waste produced and the associated disposal costs. The report highlighted a number of areas for improvement – notably the identification of costs and quantities for the disposal of some wastes and the lack of targets and performance measurement in hospital waste management plans. In response, the HSE has acknowledged the findings and has made waste management, as it relates to environmental protection and value for money, a key priority.

¹ **Comptroller and Auditor General Report on Value for Money Examination, Report No. 49, Value for Money in Hospitals, 2005.**
www.audgen.gov.ie

Scope

Healthcare Waste is defined as solid or liquid waste arising from healthcare or health related facilities. This waste comprises two fractions, namely risk waste and non-risk waste as illustrated below.

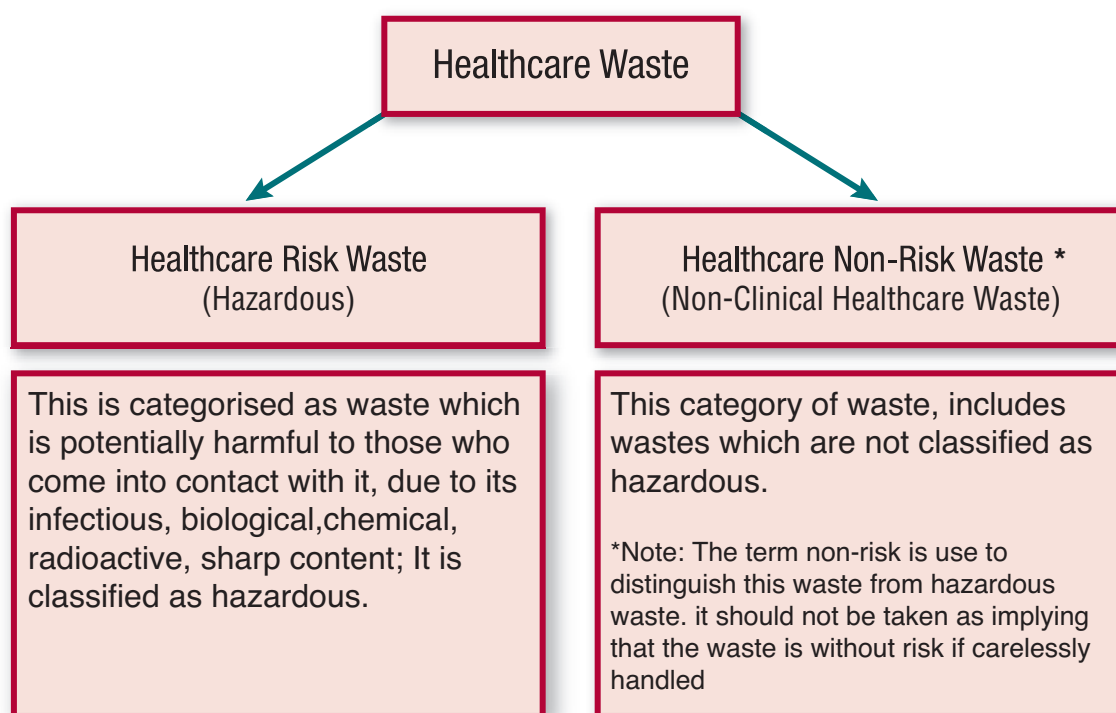


Figure 1: Healthcare Waste Catergorized

The Guidelines use as their basis:

- DOHC/HSE Segregation Packaging and Storage Guidelines for Healthcare Risk Waste – 2010 November 2010
- Comptroller & Auditor General (C&AG) Value for Money Report on Waste Management in Hospitals – 2005
- Healthcare Services Executive (HSE) Waste Management Policy - Estates Directorate Statement of Principles December 2010

The guidance given in this document in relation to Healthcare Waste is of a general nature. Those requiring more specific advice in this area are referred to the DOHC 2004 Guidelines updated 2010 by HSE.

1. Health Service Executive (HSE) Waste Policy

HSE WASTE MANAGEMENT POLICY²

Mission Statement:

“The Health Services Executive is committed to maintaining a waste management system that is safe, efficient, cost effective and respectful of the environment”

AIMS:

- To protect public health & safety.
- To provide a safe working environment for staff.
- To minimise the environmental impact of waste generation, transport, treatment and disposal.
- Reduce waste handling and disposal volumes and costs without compromising health care standards.
- To monitor performance and review Waste Management practices at least annually.
- Develop practical guidelines for:
 1. Waste minimisation
 2. Use of returnable packaging
 3. Re-usable products
 4. Recycling equipment within purchasing guidelines
- Introduce a continuing waste management education program for all staff to increase awareness of Occupational Health and Safety issues and waste minimisation principles.
- Adopt policies and procedures to minimise the environmental impact of waste treatment and disposal.

OBJECTIVES:

- Foster commitment from all staff and management to actively participate in
 1. Waste avoidance
 2. Waste reduction
 3. Waste reuse
 4. Waste recycling programs
- To comply with Environmental, Safety and Welfare legislation and Policies.
- To adopt and implement the Waste Management Policy throughout the HSE.

² Healthcare Services Executive (HSE) Waste Management Policy - Estates Directorate Statement of Principles December 2010.

2. National Legislation

All national policies and strategies aim to implement the waste management hierarchy (**Figure 2**). This prioritizes waste options in terms of environmental impact. These policies prioritise waste management options in terms of environmental impact. The first step in good waste management practise is to prevent or minimise the waste we produce. If waste production cannot be prevented then reuse and recycling are the next preferable options. Generating energy from waste is the next option, while the least favoured option is disposal.

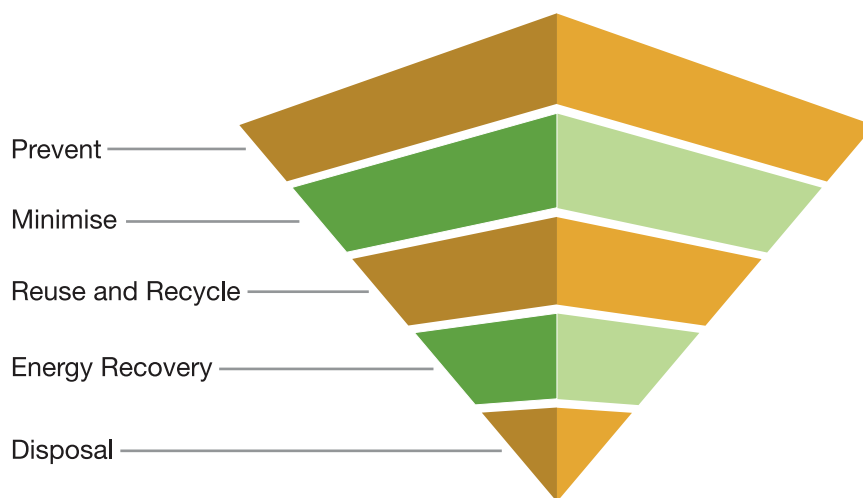


Figure 2: Waste Management Hierarchy

The three principal policy documents that provide the framework on which to base waste management practices are as follows:

- Waste Management - Changing Our Ways, Department of Environment & Local Government 1998,
- Preventing and Recycling Waste - Delivering Change, Department of Environment & Local Government 2002, and
- Waste Management, Taking Stock and Moving Forward, Department of Environment & Local Government 2004.

A list of the relevant legislation pertaining to waste in the healthcare sector is set out below. It is important that HSE waste management practices are compliant with all relevant legislation.

2.1 Waste Management Statutory Requirements

LEGISLATION	MAIN ASPECTS
<p>Waste Management Act, 1996 (S.I. No. 10) and amendments (S.I. No. 146 of 1998) and (S.I. No. 166 of 1998)</p> <p>Waste Management (Amendment) Act, 2001 (S.I. No. 36)</p>	<ul style="list-style-type: none"> • Obligation to prevent and minimise waste • Introduction of Producer Responsibility • Application of higher standards in accordance with EU and national waste management requirements • Waste Management Plans made a Local Authority executive function • Responsibility of waste management planning placed on local authorities • Allows for environmental levies • Definition of hazardous waste*
<p>Protection of the Environment (PoE) Act, 2003 (S.I. No. 27)</p>	<ul style="list-style-type: none"> • New powers for the EPA to gather and use evidence for prosecutions • Presumption that landowners are complicit in illegal dumping activity
<p>Waste Management (Licensing) Regulations, 1997, 2001, 2004</p> <p>(S.I. No. 133) (S.I. No. 397) (S.I. No. 395) (Refer also to Section 7)</p>	<ul style="list-style-type: none"> • Licensing by the EPA for waste facilities • Application for a waste license to be made to the EPA
<p>Waste Management (Facility Permit and Registration) Regulations 2007 & the waste management (Facility Permit and Registration) (Amendment) Regulations 2008</p> <p>(S.I. 821 Of 2007) entered into force on 1 June 2008</p>	<ul style="list-style-type: none"> • Recovery of wastes requires a facility permit or registration certificate • Application for facility permits or registration certificates to be made to the local authority • Non compliance of these regulations is an offense
<p>Waste Management (Collection Permit) Regulations, 2007</p> <p>(S.I. No. 820) (Refer also to Section 7)</p>	<ul style="list-style-type: none"> • Collection of waste on a commercial basis must be permitted • Application for a collection permit to be made to the local authority • Non compliance of these regulations is an offense
<p>Waste Management (Packaging) Regulations, 2007 (S.I. No. 798)</p>	<ul style="list-style-type: none"> • These regulations impose obligations on producers who supply packaging to the Irish market to promote the recovery and recycling of packaging waste
<p>Waste Management (Movement of Hazardous Waste) Regulations, 1998 (S.I. No. 147)</p> <p>(Refer also to Section 7)</p>	<ul style="list-style-type: none"> • Movement of hazardous waste within Ireland • Non compliance of these regulations is an offense under Section 36(3) of the Waste Management Act, 1996

*Refer to EPA Publications **European Waste Catalogue and Hazardous Waste List**, 2002 and the **Hazardous Waste Classification Tool and Final Report**, 2003 for more information on hazardous waste (see also **Appendix B** EWC List). www.environ.ie/en/Publications/Environment/Waste/WEEE/FileDownload,1343,en.pdf

LEGISLATION	MAIN ASPECTS
Waste Management (Shipments of Waste) Regulations, 2007 (S.I. No. 419) (Refer also to Section 7)	<ul style="list-style-type: none"> Controls placed on movement of waste within, into and out of the European community Non compliance of these regulations is an offense under Section 39(3) of the Waste Management Act, 1996
The Carriage of Dangerous Goods by Road Regulations, 2007 (S.I. No. 288) (Refer to Part 9; on safety advisors)	<ul style="list-style-type: none"> Outlines ADR requirements to be adhered to when transporting Dangerous Goods by road which apply the provisions of the <i>ADR 2009 European Agreement Concerning the International Carriage of Dangerous Goods by Road</i> Requires that a Dangerous Goods Safety Adviser (DGSA) be appointed to oversee all the necessary requirements when transporting Dangerous Goods
European Communities (Carriage of Dangerous Goods by Road) (ADR Miscellaneous Provisions) Regulations 2007 (S.I. No. 289 of 2007)	<ul style="list-style-type: none"> The Regulations contain provisions on an EC harmonised approach to the road checks aspect of their enforcement. They also implement certain exemptions which are in addition to those contained in the Annexes A and B to the “European Agreement Concerning the International Carriage of Dangerous Goods by Road” (ADR) 2007
Waste Management (Electrical and Electronic Equipment) Regulations, 2005 (S.I. No 290)	<ul style="list-style-type: none"> Amended the Waste Management Act, 1996 by inserting Part VB Waste Electrical and Electronic Equipment after section 53F and the Waste Management Act is now referred to as “Waste Management Acts 1996-2005”
Waste Management (Electrical and Electronic Equipment) Regulations, 2005 (S.I. No 402)	<ul style="list-style-type: none"> Impose obligations on suppliers and producers to promote the recovery of WEEE
Waste Management (Restriction of Certain Hazardous Substance in Electrical and Electronic Equipment) Regulations, 2005 (S.I. No. 341)	<ul style="list-style-type: none"> Prohibits the use of certain heavy metals in the production of electrical and electronic equipment Non compliance of these regulations is an offense under Section 53 of the Waste Management Act, 1996
The Waste Management (End of Life Vehicles) Regulations, 2006 (S.I. No. 282)	<ul style="list-style-type: none"> Target of 85% reuse/recovery by Jan 2006 (by average weight per vehicle) and 95% reuse/recovery by Jan 2015 Ensure all end-of-life vehicles are dismantled, treated and recovered in a manner that does not cause environmental pollution Minimise the use of specified hazardous substances in vehicles

www.irishstatutes.book.ie – refer to this website for update

Water Pollution Act 1977 & 1990: Waste Discharge Licensing, **Waste Management (Batteries & Accumulators) Regulations (SI 508/2008)**, **Food Waste Regulations 2009 (SI 508 /2009)**.

3. Responsibility of Holder of Waste

It is the responsibility of the manager in each location to comply with relevant waste management legislation. Each healthcare facility as a generator or holder of waste is responsible for ensuring that the waste is properly stored, transported and disposed of in compliance with statutory requirements.

The holder of waste can be defined as the owner, person in charge, or any other person having possession or control of the waste. For example a GP's surgery, dentist's surgery, nursing home or hospital manager are all holders of waste.

The holder of waste must ensure that anyone that the waste is passed onto such as a waste contractor is authorised to take

it. If the waste is illegally disposed of those responsible will be legally accountable for this. This obligation has no time limit and extends until the waste has either been finally and properly disposed of or recovered.

The holder of waste should ensure that at a minimum:

- All waste is stored and disposed of properly to ensure that it will not cause environmental pollution or cause a health and safety risk,
- Waste is only handled by individuals or companies that are authorised to deal with it, and
- A record is kept of all wastes.

HSE Producer Responsibilities:

- Ensure that waste contractors hold a valid waste collection permit.
 - i. Obtain a copy of their waste collection permit.
 - ii. Check that each waste contractor is permitted to carry the waste concerned from your Local Authority (EWC – European Waste Catalogue codes for healthcare risk waste and non risk waste should be stated on the waste collection permit).
 - iii. Check that the vehicle registration used to carry waste is listed on waste collection permit.
- Ensure that all appropriate documentation – C1 form is completed before the hazardous or risk waste leaves site.
- Ensure your waste is being taken to an EPA licensed facility for processing i.e. processing/treatment facility or landfill.

If the holder of waste does not comply as outlined above they can be prosecuted under Section 32 (6) of the Waste Management Acts 1996-2005.

Line-managers at all HSE facilities are responsible for managing their waste in compliance with the Regulations.

4. Approach to Waste Management

4.1 National Policies and Targets

The Department of Environment & Local Government's 'Changing Our Ways' policy statement was issued in September 1998. It set out national policy and key targets which the local authorities would implement and enforce to enable the regional waste management plans to deliver on national targets.

The key targets of '*Changing Our Ways*' for 2013 were:

- Diversion of up to 50% of household waste away from landfill,
- Diversion of a minimum of 65% of biodegradable waste from landfill,
- Development of waste recovery facilities for biodegradable waste up to 300,000 tonnes per annum,
- Recycling of 35% of municipal waste per annum,
- Reduction in number of municipal waste landfills to 20 state of the art facilities,
- Reduce landfill methane emissions by 80%, and
- Recycling of at least 85% of C&D waste.

Delivering Change - Preventing and Recycling Waste was published in March 2002. It reflects the basics '*Changing our Ways*' and advances to practical applications in achieving the policy. Moving away from landfilling is a major aspect of this policy provided through prevention and minimisation of waste. New national initiatives were accepted to speed up the process of change in social behaviour within the country.

These included:

- A plan to set up a National Waste Prevention Programme, and
- A proposal to establish Recycling Consultative Forum and a Market Development Group.

Waste Management, Taking Stock and Moving Forward is the latest published policy issued in April 2004. This policy was a progression report on waste management in Ireland. It reaffirmed the importance of the waste hierarchy to attain a sustainable waste management program.

There are twenty-one key points in this document some of which include:

- Launching of the National Waste Prevention Programme with immediate effect,
- Launching of a Market Development Group with immediate effect to develop a programme for recyclable materials,
- Allocation of funding for a range of local authority recycling projects,
- Advancements in development of thermal treatment and the lessening of landfilling works, and
- Developments in the Producer Responsibility Initiatives in relation to WEEE and telephone directories as well as the tyre and newsprint sectors.

The National Waste Prevention Programme was launched in April 2004 which is being led by the EPA. The aim of the Programme is to deliver waste prevention and minimisation through a range of initiatives addressing awareness-raising, technical and financial assistance, training and incentive mechanisms (www.nwpp.ie).

4.2 Waste Prevention/Minimisation/Reuse

Avoiding waste generation is the best option for dealing with waste. The amount of risk waste can be reduced by proper segregation of risk waste and non-risk waste. Waste audits indicate that non-risk waste placed in the risk waste stream increase the volumes of risk waste, which is five times more expensive to treat.

There are many means of preventing non-risk waste some examples which are listed below:

Prevention

- **Packaging** - Ensure all purchasing contracts have a measure put in place to reduce and prevent packaging. Try to reduce packaging by asking suppliers to cut down on product packaging and get a guarantee that suppliers will take back bulky packaging items such as pallets, cardboards and plastic outer wrapping.
- **Refills** - Use refillable dispensers where possible e.g. soap, paper towels etc. Use refill toner cartridges for printers, copiers and fax machines.
- **Cleaning products** - Purchase non-toxic cleaning products to avoid hazardous waste disposal.
- **Food** - Waste audits indicate that 75% of food waste is food ordered for hospital patients, but not consumed. To prevent food wastage provide different portion sizes and remove unpopular menu choices.

Try and source products locally and check that they are from a renewable resource and/or a recycled material. If waste cannot be prevented then effort must be made to minimise it or segregated so that it is suitable for recycling.

Minimisation

- **Cardboard** - Change to reusable packaging for daily deliveries.
- **Paper** - Print on both sides of the paper. Place posters near printers with instructions for double sided printing. Use e-mail memos instead of leaving notes. Store data on disc rather than paper copies.
- **Equipment** - Try to purchase durable equipment to increase life of product. Buy products that are guaranteed by a warranty.
- **Batteries** - Use rechargeable batteries where possible.

After prevention and minimisation reuse is the next best option when dealing with waste.

Reuse/Recycling*

- **Cooking oil** - Install equipment in kitchens to filter waste oil so it can be reused.
- **Paper** - Reuse scrap paper for internal notes. Shredded paper can be reused for packages.
- **Stationery** - Reuse interoffice envelopes, file folders and boxes.
- **Cardboard** - Reuse boxes for outgoing deliveries.
- **Furniture** - Repair and donate old furniture and equipment to charity. www.wastechange.ie
- **Crockery** - Reuse ceramic instead of polystyrene or plastic.
- **Glass** - Glass should be chosen over plastic as it is easier to recycle.

*The above list is not exhaustive; many other materials such as timber, metals, food waste textiles, construction and demolition waste can be reused or recycled.

4.3 Good Practice Notes from C&AG Value For Money Report, 2005 (Waste Management in Hospitals)

The Comptroller & Auditor General's (C&AG) Value For Money Report, 2005, outlined areas for improvement in waste management practices in hospitals in nine good practice notes:

1. Cutting down on the amount of waste produced,
2. Recycling suitable material,
3. Saving on the cost of risk waste containers,
4. Saving on the cost of treating and disposing of risk waste,
5. Making waste storage areas secure,
6. Ensuring staff are aware of the latest in good practice,
7. Performance based waste management plans,
8. Key performance measures for waste management, and
9. Learning from waste-related incidents.

4.4 Green Procurement

4.4.1 Green Procurement

Green Procurement can be defined as the procedure where environmental considerations are included in the procurement process. Public procurement accounts for 16% of EU Gross Domestic Product. The HSE accounts for 52% of Government's procurement allocation. Greening procurement would therefore have benefits for the environment.

4.4.2 Waste Producer Responsibility Schemes

The producer responsibility concept focuses on the need for producers to take responsibility for the environmental impact of putting goods on the market.

Existing compliance schemes in Ireland, dealing with Packaging Waste, End of Life Vehicles (ELV's) and Waste Electrical & Electronic Waste (WEEE), batteries and accumulators are supported by Regulations made under the Waste Management Acts, 1996-2005.

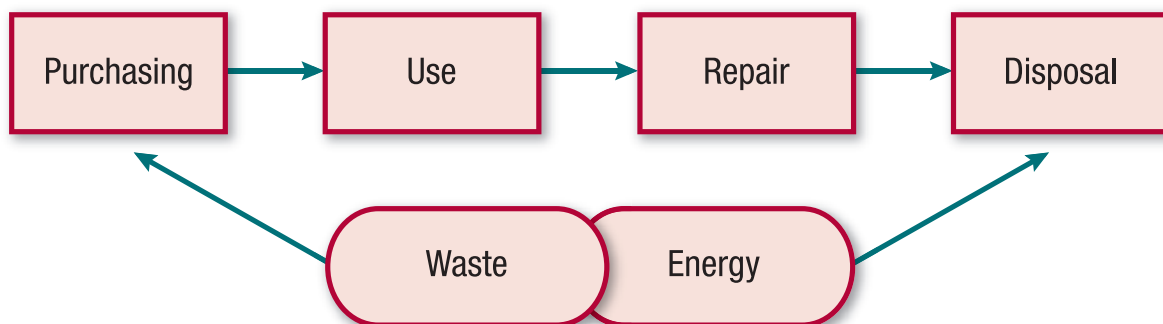


Figure 3: Life Cycle Analysis

4.4.3 Procurement Policy

Waste generation and the impact on the environment, particularly when viewed over the lifetime of a product, can be greatly influenced at the procurement stage. The HSE policy on procurement includes a statement on the protection of the environment and sustainability

HSE Procurement Policy on Environment

As a significant public sector purchaser the HSE recognises that it has a particular role to play in contributing to the protection of the environment and the promoting of sustainable development, while pursuing best value for money for its contracts. The HSE will, therefore, endeavour to:

Comply with all relevant environmental legislation.

Encourage and persuade suppliers to investigate and introduce environmentally-friendly processes and products.

Specify, whenever possible and reasonably practicable, the use of environmentally-friendly processes and products.

Ensure that, where appropriate, environmental criteria are used in the award of contracts.

Ensure that consideration is given to inclusion, within all specifications, of a facility for potential suppliers to submit prices for environmentally-friendly alternatives.

Ensure that appropriate consideration is given to the costs and benefits of environmentally-friendly alternatives.



Waste Electronic Electrical Equipment (WEEE) White Goods

5. Healthcare Waste

Within the HSE, waste is produced by staff, patients and members of the public. The waste types generated in the healthcare sector are outlined below:

WASTE TYPES	DESCRIPTION	DESTINATION (BEST PRACTICE)
RISK WASTE		
Healthcare Waste	Healthcare Waste is defined as solid or liquid waste arising from health-care or health related facilities.	Disinfection/Energy Recovery or Disposal and Thermal Treatment
NON RISK WASTE		
Municipal Waste	Consists of general household items	Recycling/Residual for Landfill Disposal
Canteen/Food Waste*	Food residue and peelings	Composting
Cooking Oil/Grease/Fats	Used oil	Recycling
Paper & Cardboard	Packaging material, paper and non-confidential paper	Recycling
Confidential Waste	Confidential paper files, documents etc. shredded.	Shredding and Recycling
Textiles	Clothes, Curtains, Bed linen etc.	Recycling
Glass	Bottles	Recycling
Metal	Drink cans/metal furniture etc.	Recycling
Plastic	Drink, food and medicine packaging	Recycling
Consumable items pertaining to the use of medical equipment	Plastic items, packaging, bottles, tubing, masks etc. (only plastics that carry the recycling logo can be recycled). 	Recycling
Potentially Offensive Material	Incontinence wear, stoma bags, urinary drainage bags	Disposal to Landfill

*See CRÉ/HSE food waste fact sheet at [FOODWaste.ie](https://www.foodwaste.ie).

Also S.I. No. 508 of 2009. Waste Management Food Regulations 2009

WASTE TYPES	DESCRIPTION	DESTINATION (BEST PRACTICE)
NON RISK WASTE		
Construction & Demolition (C&D) Waste	Wastes arising from construction, renovation and demolition activities such as soil, rubble, bricks, metals etc.**	Recycling/Residual for Landfill Disposal
Green Waste	Waste that arises from landscaping or gardening work	Composting
Bulky Waste	Beds, mattresses and obsolete furniture	Reuse/Recycling/Residual for Landfill Disposal
Wastewater	Disposal to waters/sewer. Any discharge to sewer other than domestic sewage must be licenced by a Local Authority (Section 3 provides details on Discharge License Application Process)	
HAZARDOUS WASTE		
WEEE	Waste Electrical and Electronic Equipment including hazardous component i.e. transformers and capacitors containing PCBs	Removal of hazardous component and recycling
Batteries, Fluorescent Tubes, Ink Jet Cartridges		Removal of hazardous component and recycling
Obsolete paints, engine oil, cleaning agents, weed killer, chemicals		Removal of hazardous component and recycling



Segregated and baled paper and cardboard for recycling

**MBCA Guide to Construction & Demolition Waste Legislation, May 2003.

www.ncdwc.ie/html/documents/GuidetoConstructionandDemolitionWasteLegislation.pdf

The following figure show samples results of waste audits.

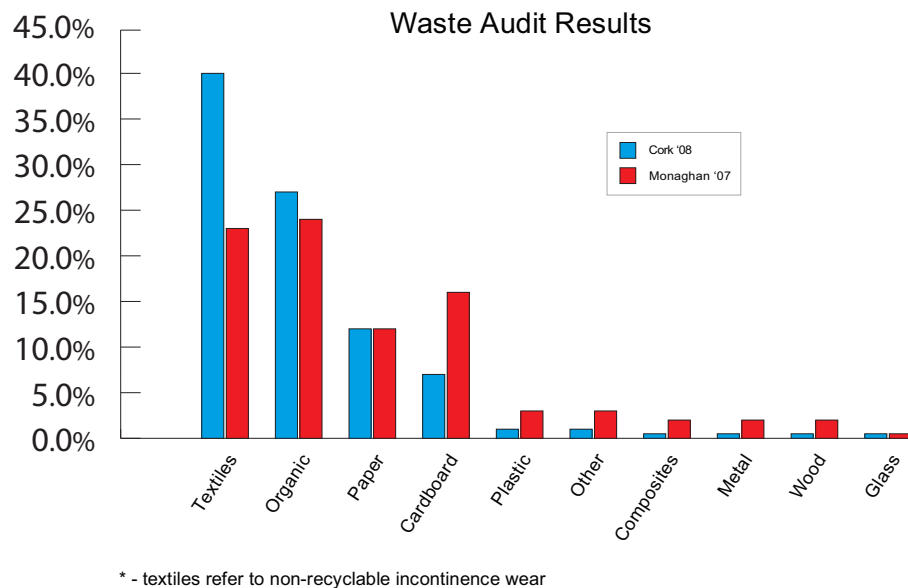


Figure 4: Clonakilty/Monaghan CTC Audit (PCCC)

**Composition of Hospital Waste, 2001
(Waterford Regional Hospital)**

*Hospital Equipment, Construction & Demolition waste, Timber Pallets
& Textiles were excluded from this waste audit.

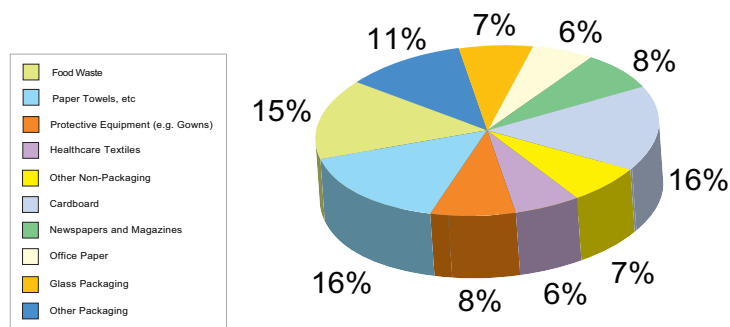


Figure 5: Waterford EPA Audit (Acute)

Origin of Food Waste in a Hospital

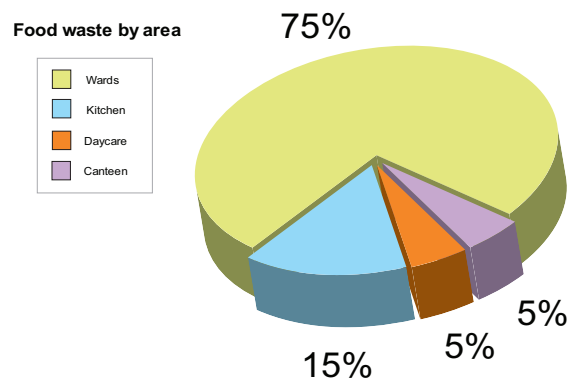


Figure 6: Origin of Food Waste in a Hospital

5.1 Segregation and Packaging

For a more detailed guidance on the management of healthcare risk waste refer to the *Segregation and Packing Guidelines*.³

The correct segregation of waste at the point of generation is crucial to the management of all wastes. **Figure 7** illustrates the basic segregation and packaging requirements for risk waste. **Appendix A** provides more details.

- The first level of segregation involves the division of healthcare waste into risk and non-risk waste.
- Risk waste is classified as Dangerous Goods under ADR requirements, there-

fore, the Medical Waste packaging must be UN Approved. Two different types of packaging are used for healthcare risk waste, bags and rigid containers. Yellow plastic bags should not be used for sharp or breakable items or for liquids.

- There are no particular packaging and segregation requirements for non-risk waste but segregation where possible to meet the requirements of recycling schemes should be completed.
- Non-risk waste is usually packaged in black or transparent bags. However transparent bags provide for ease of identification of waste types and prevent cross-contamination with risk waste.

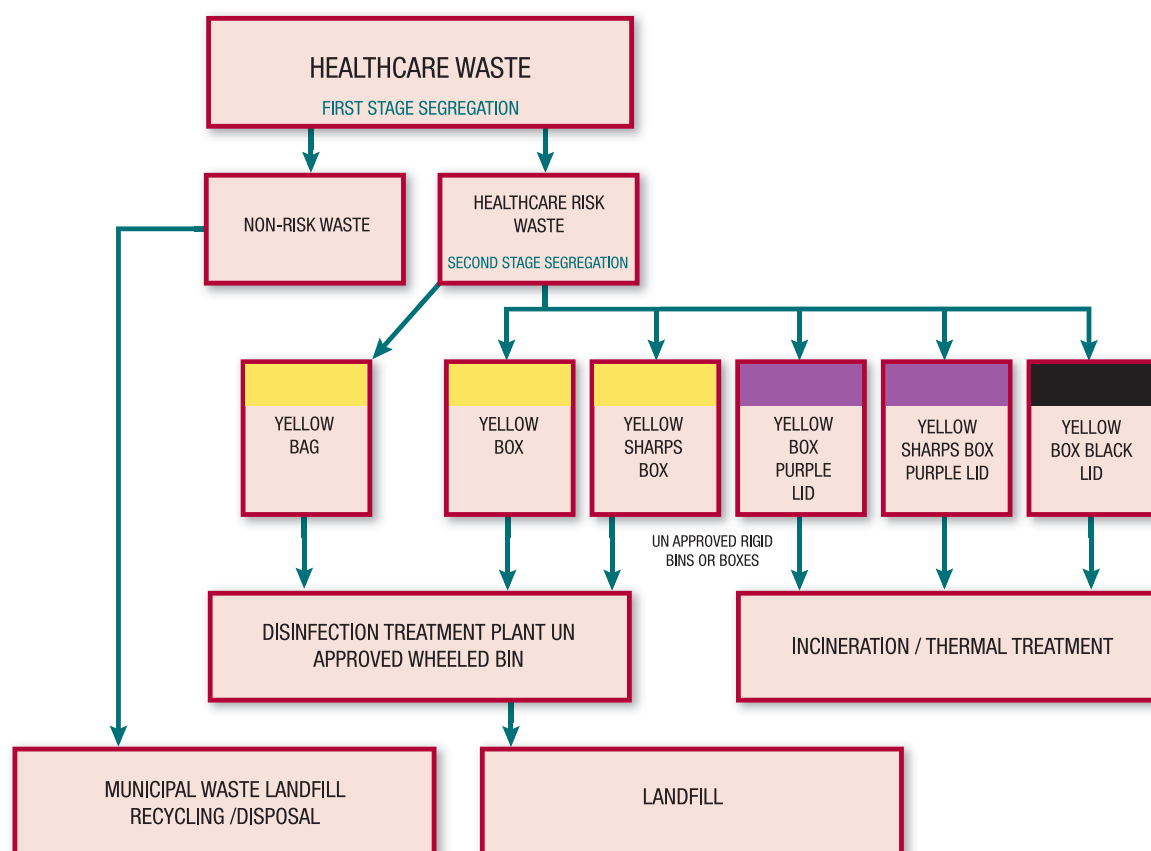


Figure 7: Healthcare Waste - Basic segregation and packaging schematic

³ Segregation, Packaging and Storage Guidelines for Healthcare Risk Waste, DOHC/HSE, 2010 by HSE.

5.2 Storage

The following are typical examples of best practice for storage of healthcare waste.

5.2.1 Hospitals

In hospitals waste should be stored at a central location with sub-collection stations at designated locations within the hospital.

5.2.1.1 Central Waste Store Specification (External and Internal)

- Sufficient capacity for the frequency of collection including additional storage space for missed collections or accumulations during public holidays,
- Secure ventilated room for the storage of hazardous and other sensitive waste. This room should be equipped with a freezer cabinet for the storage of large anatomical items,
- Separate covered storage area for clean healthcare risk waste bins prior to distribution,
- Appropriate warning signs indicating the presence of healthcare risk waste/bio-hazard displayed at all entrances,
- If flammable wastes are stored, a no smoking policy must be enforced,
- Secure from interference by unauthorised persons, children or animals,

- Well ventilated, well lit, drained with an impervious hardstanding floor and have a covered storage area for full healthcare risk waste wheelie bins,
- Easily accessible to collection vehicles,
- Equipped with spillage kits and washing/cleaning and disinfection facilities for dealing with spillages etc.

5.2.1.2 Waste Sub-Collection Stations (Internal)

- Dedicated rooms which provide short-term storage requirements,
- Storage of both non-risk and risk waste should be kept separate,
- Waste brought to the collections stations in yellow bags and rigid boxes and other containers will normally be transferred into wheeled bins or trolleys in the collection station,
- Access should be limited to staff,
- The area should be well lit and have washable walls and floors which are resistant to disinfectants and detergents, and
- Appropriate safety and first aid equipment should be provided.



Acute hospital waste storage facility

5.2.2 Health Centres/Clinics Storage Units for Healthcare Risk Waste:



WASTE STORE

Dimensions: 1500w x 1500d x 2200h mm (4.5 cubic metres)



LARGE CAPACITY WALK IN STORE

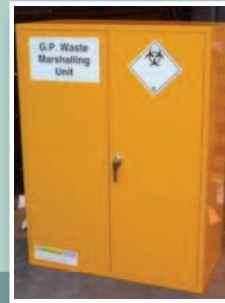
Dimensions: 2400w x 2400d x 2400h mm (11 cubic metres)

5.2.3 Storage Units for Healthcare Risk Waste

Features should include:

- Suitable for external or internal use,
- Secure and vandal proof,
- Large capacity bunds to capture and retain spillages,
- Emergency spill kit,
- Lockable internal safety cabinet to segregate hazardous chemicals/waste (Amalgam etc.),
- Safety/warning signage, and
- Ventilation panels.

Examples of waste storage units. Suitable for general practice and small health centres/clinics.



WASTE CABINET

Model	Storage Capacity	Dimensions
GP.05	0.5 cubic metres	915w x 460d x 1220h mm
GP1.5	1.57 cubic metres	1500w x 700d x 1500h mm



WASTE BUNKER

Model	Storage Capacity	Dimensions
GPB.05	0.5 cubic metres	1200w x 600d x 850h mm
GPB1.0	1.0 cubic metres	2000w x 600d x 850h mm

**HEALTH RISK WASTE WHEELED-BIN**

Storage Capacity
770 Litres

Dimensions
785w x 1260d x 1370h mm

**DOMESTIC WASTE WHEELED-BIN**

Storage Capacity
1100 Litres

Dimensions
985w x 1380d x 1370h mm + 200mm for wheels

**FOOD WASTE/SMALL (DOMESTIC) NON-RISK WASTE WHEELED-BIN**

Storage Capacity
240 Litres

Dimensions
580w x 725d x 1075h mm



CHEMICAL WASTE CABINET

Dimensions: 1500W x 1500W X 2200H (4.4Cubic metres)

5.2.4 Waste Containment



PHARMA WASTE UNIT

(Secure cabinet used in conjunction with a 50 Litre Sharps/Pharma Waste Container). Dimensions: 430w x 470d x 770h mm

5.3 Health & Safety Considerations

5.3.1 Handling

The general principles when handling healthcare waste are as follows:

- Appropriate Personal Protective Equipment (PPE) should be worn when handling waste and all employees handling infectious waste must be vaccinated (Refer to Immunisation Guidelines for Ireland, National Immunisation Advisory Committee of Royal College of Physicians of Ireland, 2002 edition), and
- Waste bags, boxes and containers should be closed when two-thirds full or at the manufacturer's fill line and labelled, tagged and securely sealed to prevent spillages,
- Containers holding liquid must have sufficient absorbent material or jelling agent to prevent leakages from the container.
- Porters/care assistants should not remove bags/containers unless they are labelled/tagged appropriately,
- Manual handling of waste bags/containers should be minimised,
- Waste bags should be picked up by the neck only and should not be thrown or dropped to avoid puncture or other damage,
- To prevent the risk of injury waste bags should not touch the body during handling and containers should be carried by the handle,
- Wash hands thoroughly after handling waste with soap and hot water.

5.3.2 Spillages

All spillages from healthcare risk waste bags or containers should be treated as potentially hazardous and dealt with as follows:

- Do not leave spillages unattended. A member of staff should remain in the area while another gets assistance
- Adequate protective clothing should be worn when cleaning up spillages
- In the event of a spillage of healthcare risk waste, the Department Manager should be informed and the area should be disinfected immediately
- All staff involved in any aspect of packaging storage and transport of healthcare risk waste should receive standard precaution training as appropriate to their task this should include:
 - Hand hygiene,
 - Proper use of Personal Protective Equipment (PPE)
 - Management of blood and body fluid spillage

5.3.3 Sharps²

Do not recap needles after use.

A needle stick injury should be dealt with as follows:

- Clean the wound,
- Encourage bleeding immediately by squeezing the site of the injury and wash with warm water and soap,
- Do not suck the wound,
- If there is a protruding foreign body/object, do not press on the object.
- Apply firm pressure on either side of the wound and build up padding on either side of the object,

- Secure with a bandage and seek medical advice immediately, and
- Report the incident to your Department Manager immediately.

Appendix A contains a copy of the standard precautions poster that includes some precautions that are relevant to healthcare risk waste.

5.4 Waste Tracking and Record Keeping

All healthcare risk waste containers should be traceable to the point of generation (for example in hospitals from the ward/section where the waste originated from). A tagging or bar coding system provides a tracking system for healthcare risk waste. The following information should be recorded to assist traceability:

- details of point of generation
- date of collection
- tags and tracers reference numbers
- waste type and quantities
- details of waste contractor and carriers
- destination of waste
- disposal/treatment methods

It is the waste generators responsibility to ensure that the despatch documentation is in order and completed correctly. Annual audits of the waste contractor should be carried out this should include the waste carrier and facility of destination. Tagging records should be kept on file for three years and copies of completed C1 forms kept on file for a minimum of five years (for hazardous waste only).

² Guidelines for the Prevention and Management of Percutaneous Injuries and other Exposure Incidents in Healthcare Workers of Health Board Managed Health Care Facilities within the Health Service Executive, ERHA, Infection Control Advisory Committee, 2001.

6. Contractors, Transport and Final Disposal

The transportation of healthcare waste is governed by several sets of regulations dealing with different concerns relating to the materials transported. All waste carriers require waste collection permits/licenses. C1 forms, TFS forms and Dangerous Goods/ADR requirements apply to hazardous/healthcare risk waste.

Every step of the waste management chain is strictly regulated. Waste generators should remember that they have a responsibility to ensure that waste sent off-site is managed in a responsible manner. Working correctly with your waste service provider can ensure this objective. The following list gives some ideas of best practice. It is up to each generator to keep abreast of the relevant environmental health and safety legislation.

Do

Assessing/sorting your waste

- Do determine the source, nature and quantity of waste generated i.e. is it recyclable or non-recyclable? Is it non-hazardous or hazardous waste? A specialist waste contractor is required to deal with hazardous waste.
- Do segregate your waste streams correctly on-site.
- Do not place hazardous waste with other non-hazardous waste.
- Do ensure that hazardous waste is not mixed with other categories of hazardous waste or with non-hazardous waste.
- Do not put liquid slops or cooking oil into compactors. This can lead to a discharge, during uplift or transport, causing slippage hazards.
- Do provide the service provider with a safe means of access and egress from your on-site waste storage area at agreed times.
- Do train staff to store and handle waste streams correctly on-site.

Getting the Documentation right

- Do develop a written waste procedure.
- Do provide information to the waste service provider on safe working procedures on-site and any temporary hazards associated with the collection and handling of the waste.
- Do obtain documentary proof of waste transfer, receipt and final recovery or disposal by the waste service provider(s) involved.
- Do realise that movement of hazardous waste within the state must be accompanied by a consignment note (C1 form) in accordance with the Waste Management (Movement of hazardous Waste) Regulations.
- Do be aware that waste transferred out of the state must comply with the requirements of the Transfrontier Shipment (TFS) Regulations.
- Do keep detailed records of all hazardous waste shipments for a minimum of five years. These records should include TFS and C1 documentation.

Choosing/working with your service provider

- Do examine the credentials of prospective waste service provider(s) and their facilities/services.
- Do verify this information and the waste service provider's compliance history with the Environmental Protection Agency (EPA) or local authority.
- Do ensure that the waste haulage contractor (who collects the waste) holds a valid waste collection permit in accordance with the Waste Management (Collection Permit) Regulations.
- Do ensure the service provider's facility has sufficient capacity to accept and deal with your waste stream in the correct manner.
- Do ensure that the facility's license authorises it to accept the particular type of waste involved.
- Do ensure your waste is collected and delivered to an appropriately licensed/

permitted facility. Under waste management law all waste management facilities must be either licensed by the EPA or permitted by the relevant local waste authority.

- Do liaise with your service provider on designing a waste storage area on-site. Talk to your service provider about maximising the use of your waste management equipment on-site e.g. compactor skip, bins and balers.
- Do notify the service provider if there is any changes in the waste's composition.

Don't

- Do not transfer waste to hauliers who do not have a valid waste collection permit.
- Do not move hazardous waste within the state without a consignment note (C1 form).
- Do not use unlicensed facilities for waste disposal/recovery. It is illegal.



Unsegregated mixed waste

Checklist of Waste Contractor's licenses and permits

Waste License	This is issued by the EPA and defines the nature of environmentally acceptable waste management activities at a waste facility. Details of facilities with a waste license can be obtained from the EPA (www.epa.ie).
Waste Collection Permit	This is issued by the local authority and authorises waste collection activities. Holders of a waste collection permit can only collect within the jurisdiction of the issuing local authority and they are reviewed every 2 years. Hauling waste or passing waste on to an unauthorised collector is an offense.
Waste Permit	The local authority issues this permit. It legitimates the operation of the waste infrastructure that is not big enough or does not pose a large enough impact on to the environment, to warrant a waste license. It is usually issued for the temporary storage of non-hazardous waste for more than 6 months. It is up to you to ensure that your contractor has a permit for the area in which waste is being collected and whether the proposed waste movement is in accordance with any conditions contained in the permit.
Registration Cert	Issued by the local authority for the temporary storage of hazardous waste (less than 6 months).
C1 Form	<p>This is used to track movements of hazardous waste from its source to the waste management facility, to be used for disposal or reclamation. It needs to be completed by each party in the waste transaction. Exceptions from using a C1 form are:</p> <ul style="list-style-type: none"> ■ Authorised movements of hazardous waste when such materials are to be exported from Ireland to other countries. ■ Hazardous waste collected from bring centres or by segregated collection services provided to members of the public. ■ Transfer of waste oils. ■ Movement of End of Life Vehicles (ELVs).
Transfrontier Shipment from (TFS)	<p>This is required when exporting waste from Ireland for disposal, as well as for hazardous wastes passing to recovery. It is made up of 2 parts:</p> <ul style="list-style-type: none"> ■ Notification form, which must be completed before waste is moved. This sets out the advance consent of the affected EU member states. ■ Movement/Tracking form, which accompanies the shipment when it is moved. It provides information on the actual movement of each load.

6.1 Collection Permits

Under the Waste Management (Collection Permit) Regulations, 2007 (S.I. No. 820) waste carriers must apply for a waste collection permit. These permits are issued

by the local authority. It is the responsibility of the waste holder to ensure that the waste carrier possess a valid waste collection permit number, for the waste type in question.

6.2 Consignment Note - C1 Form

When transporting hazardous waste (including healthcare risk waste) off-site within Ireland a consignment note must be completed by the consignor and accompany the waste during carriage in accordance with Waste Management (Movement of Hazardous Waste) Regulations, 1998 (S.I. No. 147).

The consignment note is available from the local waste authority (LA) in whose functional area the waste originates. Each form is uniquely numbered and is made up of five differently coloured identical pages, with each page being sub-divided into three parts (A, B & C). A carboning system allows entries made on the uppermost page to be reproduced on the other pages.

Note: NEW WASTE TRANSFER FORM SYSTEM 2011

It is expected that new legislation will be introduced in 2011 making Dublin City Council, National TFS Office, sole authority for the administration of Waste Transfer Forms (WTF). These will replace the current C1 Form system. The fundamental change to the current C1 system is the move to an online system which will discontinue the requirement to retain paper records of waste movements. It is expected that this should reduce the administrative burden for those shipping the same type of waste regularly e.g. healthcare risk waste. It is also expected that pick-ups from multiple locations will be permitted on a single WTF Form. That being the case, it may become necessary to use separate consignment notes containing the required ADR information for each site visited in addition in order to satisfy the Carriage of Dangerous Goods Regulations.

Copy	To be completed by:
White Copy	Carrier
Green Copy	LA of Consignor (Origin)
Blue Copy	LA of Consignee (Destination)
Yellow Copy	Consignee
Pink Copy	Consignor

C1 Form	To be completed by:
Part A	Consignor (Producer or Holder, HSE)
Part B	Carrier (Transporter)
Part C	Consignee (EPA Licensed Waste Facility or Waste Contractor)

The consignor (HSE) completes and signs Part A and keeps the bottom pink copy and passes the rest of the C1 form to the carrier. The carrier, in turn completes Part B and keeps the white copy before finally passing the consignment note to the consignee who must return the completed form to the two local authorities (LA of origin and destination) after completing Part C and keep the yellow copy. A separate consignment note must be raised for each shipment of hazardous waste. **Appendix B** contains an example of a completed C1 Form. The EWC Codes required for C1 forms are listed in the European Waste Catalogue and Hazardous Waste List, 2002. Where the waste is being shipped abroad, further documentation is necessary (TFS Form).

6.3 Transfrontier Shipment (TFS) Form

The legal requirements on moving waste from Ireland to other countries are set out in the Waste Management (Shipments of Waste) Regulations, 2007 (S.I. No. 419) and in the Regulation (EC) No. 1013/2006 of the European Parliament and of the Council of 14 June 2006 on shipments of waste.

The TFS Form consists of a two part document:

- Notification Document
- Movement/Tracking Document

The TFS Form can be used for single shipment or for a "general notification" for a specified number of shipments and each has a unique number for tracking purposes. Dublin City Council is designated as the National TFS Office. When the waste has been processed the Form is completed and is sent to the National TFS Office with the Certification of Disposal/Recovery/Destruction.

Refer to Transfrontier Shipment of Waste Guidelines for Exporting Waste from and Importing Waste in the Republic of Ireland, National TFS Office Waste Management Section, Dublin City Council.

6.4 Dangerous Goods Regulations (ADR)

Under agreed international rules for the transportation of all types of Dangerous Goods for the different modes of transport. There are specific requirements for the classification, packaging, labelling and documentation of dangerous goods as well as the training of personnel involved in the transport of such dangerous goods. Further information is provided on www.hsa.ie.

The two classes of dangerous substances which are specifically relevant to waste healthcare are Class 6.1-toxic substances and Class 6.2-infectious substances.

Legislation requires that safety adviser (SA) be appointed to oversee all the necessary requirements when transporting Dangerous Goods. The duties of a SA are outlined as follows:

Healthcare institutions generating hazardous waste must be able to call on an appropriate qualified Safety Adviser to advise on the packaging and transport of said waste.

Functions of Safety Advisers

The functions of a safety adviser shall include in particular the following:

- (a) monitoring compliance with the rules governing the transport of dangerous goods;
- (b) advising the undertaking on the transport of dangerous goods;
- (c) ensuring that an annual report to the undertaking is prepared on the activities of the undertaking concerning the transport of dangerous goods;
- (d) monitoring the following practices and procedures relating to the activities of the undertaking which concerns the transport of dangerous goods –
 - (i) the procedures for compliance with the rules governing the identification of dangerous goods being transported,
 - (ii) the practice of the undertaking in taking into account, when purchasing means of transport, any special requirements in connection with the dangerous goods to be transported,
 - (iii) the procedures for checking the equipment used in connection with the transport of dangerous goods,
 - (iv) the proper training of the undertaking's employees and the maintenance of records of such training,
 - (v) the implementation of proper emergency procedures in the event of any accident or incident that may affect safety during the transport of dangerous goods,
 - (vi) the investigation of and, where appropriate, preparation of reports on serious accidents, incidents or serious infringements recorded during the transport of dangerous goods,
 - (vii) the implementation of appropriate measures to avoid the recurrence of accidents, incidents or serious infringements,
 - (viii) the account taken of the legal prescriptions and special requirements associated with the transport of dangerous goods in the choice and use of sub-contractors or third parties,
 - (ix) verification that employees involved in the transport of dangerous goods have detailed operational procedures and instructions,
 - (x) the introduction of measures to increase awareness of the risks inherent in the transport of dangerous goods,
 - (xi) the implementation of verification procedures to ensure the presence, on board the means of transport, of the documents and safety equipment which must accompany transport and the compliance of such documents and equipment with health and safety regulations, and
 - (xii) the implementation of verification procedures to ensure compliance with legislation governing loading and unloading of dangerous goods.

6.5 Trade Effluent

It is an offense under Irish legislation to cause or permit any pollutant matter to enter waters. There is a waste water licensing system that allows certain discharges into water or sewer as long as it meets the requirement of the discharge license. The discharges must be monitored and recorded, the licence will require the licence holder to take and test discharge samples at least four times per annum.

Records must be maintained and submitted to the Local Authority. The Local Authority must also be informed, without delay of any modification or extensions as these may require a review of the license.

The public have a legal right to examine documentation and make representations regarding an application for a proposed license (see Discharge License Application Process below).

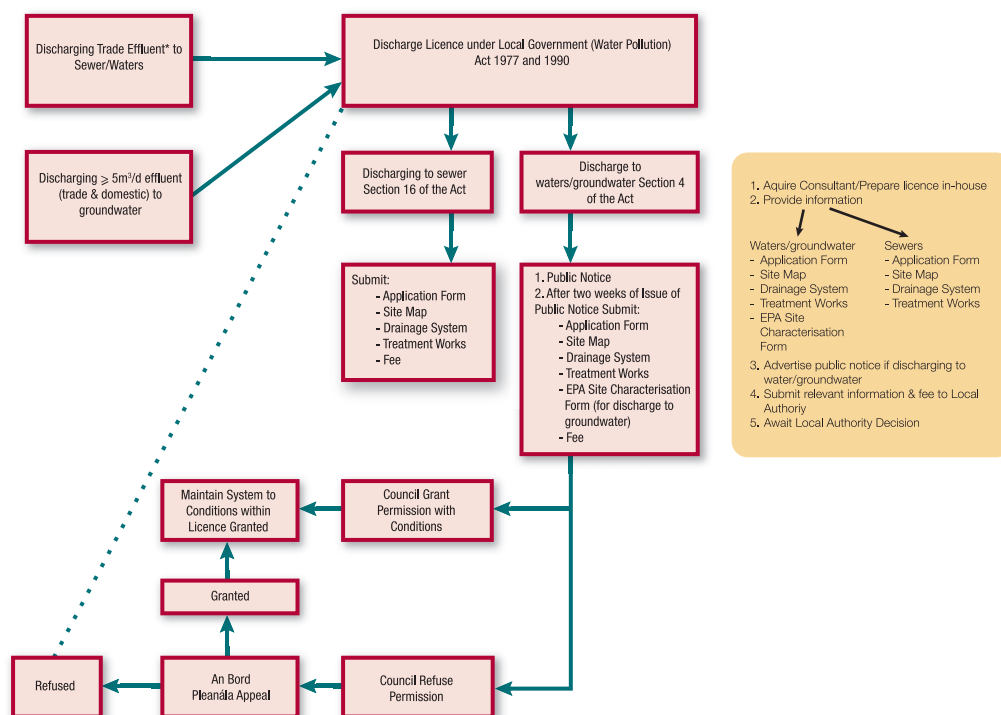
A discharge license is granted subject to the fulfilment of certain conditions. They may include the following:

Times the discharges are made.	What effect the discharges will have?
Sampling of discharge.	Records and information supplied to the Local Authority.
Discharge outlet construction.	Existence of metres, manhole inspection points.
Preventive measures.	Emergency routines.

Local Authorities place particular significance on accidental discharges and their consequences; it is important that all potential liquid waste is contained on-site.

The Local Authority will require policies and procedures to be put in place to deal with emergency situations; accidental spillages, liquid isolation and mop-up.

Discharge License Application Process



*"Trade Effluent" means effluent from any works, apparatus, plant or drainage pipe used for the disposal to waters or to a sewer of any liquid (whether treated or untreated), either with or without particles of matter in suspension therein, which is discharged from premises used for carrying on any trade or industry (including mining), but does not include domestic sewage or storm water.

7. Waste Audits

The hospital/line manager should ensure that a competent person is made responsible for waste management and that audits of waste activities are carried out regularly.

A waste audit is defined as an examination of the waste in your organisation to quantify the amount and type of waste produced and how it is currently managed. **The contents of waste containers should be examined only by suitable trained persons, who are properly equipped to carry out such a procedure.**

Figure 8 provides a step by step breakdown of the steps involved in carrying out a waste audit.

It is worthwhile to use a questionnaire during the audit. A sample questionnaire is shown below.

Waste characterisation is defined “as the process by which the composition of different waste streams is analysed.”

A waste management plan can be formulated following the waste audit outlining recommendations for improvement in waste management.

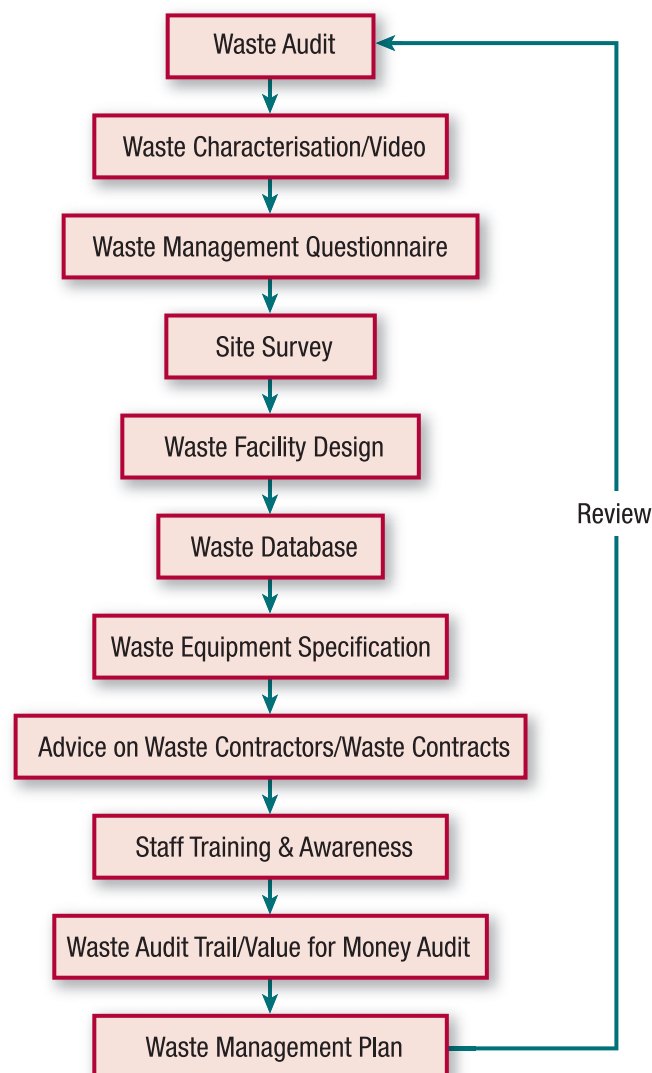


Figure 8: Waste Audit Procedure

Sample Waste Management Questionnaire		
Question	Interviewee's Comments	Guidance
Responsibility		
1. Has a person responsible for waste management, within the hospital, been identified? If yes, Who?		Allocate responsibility for the implementation, assessment and updating of the sites waste management plan to a named individual.
Waste segregation		
2. Are wastes segregated into appropriate categories? Non-Risk Waste. Risk Waste. Hazardous. Recyclable Waste.		Cost can be reduced and risks minimised if wastes are segregated appropriately. The indiscriminate mixing of hazardous and non hazardous waste will result in the whole load having to be disposed of by the more expensive hazardous waste disposal method.
3. Are staff aware of segregation requirements via training, written procedures or notices?		Successful waste management depends upon staff using the facilities properly.
Storage containers		
4. Are appropriate containers used for storing waste? UN approved yellow containers for risk waste.		The size of the container should be appropriate for the volumes of waste produced and the fabric of the container should be compatible with the nature of the waste. Controls are necessary to ensure correct use.
5. Are the containers sensibly located?		Place the containers in a suitable location to encourage users to segregate recyclables and to avoid accidental contamination from incorrect waste types and to minimise handling and transport.
6. Are the containers suitably labelled?		Labelling ensures correct segregation and makes operators aware of any associated hazards.
Waste handling		
7. Are wastes handled in a safe manner? Use of personal protective equipment?		Containers for waste are likely to be placed close to the point of production, where they will be moved to an outside area for collection for transport and disposal. Ensure that appropriate safety measures are in place.
8. Are containers lidded and tagged where appropriate? Are they locked/lockable?		To prevent spillage and littering of site. Healthcare risk waste should be tagged and secure before leaving the area of production.
Waste storage area		
9. How and where is the waste stored?		Store waste in a secure designated area to minimise potential harm to the environment, employees and waste contractors. Ensure proper supervision and inspect regularly. Provide safe access and egress for both the placing of waste into storage and for its removal by waste contractors.

Sample Waste Management Questionnaire

Question		Interviewee's Comments	Guidance
Waste storage area			
10.	How long are wastes stored prior to transport?		Records should be kept of wastes stored. Procedures should be in place to prevent the build up of particular types of waste which may be difficult to dispose of or cause a potential hazard, e.g. fire risk, spillage or leakage.
11.	What safety and emergency procedures are in place?		The external waste storage area should be covered with a hardstanding material resistant to corrosion and suitably impervious. If hazard liquid wastes are stored, the area should be bunded. If flammable wastes are stored, a no smoking policy must be enforced.
12.	Are records kept of waste produced and of their safe and correct disposal?		Details of dates, quantities, disposal methods, disposal location, contractor and costs should be recorded and centrally accessible.
13.	Are transfer notes completed for all controlled wastes and hazardous wastes generated on the site?		Transfer notes for hazardous waste should be kept on site for five years for inspection as part of the Duty of Care requirements. However, all hazardous waste consignment notes must be kept on site for a minimum of five years.
14.	Are all waste carriers permitted or licensed?		All waste carriers should be licensed under the Waste Management (Collection Permit) Regulations, 2001; S.I. No. 402 of 2001. Copies on file.
Procedures			
15.	What procedures exist covering general waste management operations?		Detailed procedures are required to cover segregation, handling, containers, labelling, safety requirements and hazardous disposal or handling methods required. Include records of tracking tags for risk waste.
Costs			
16.	How are recovery/disposal costs allocated?		Identify the disposal costs for each type of waste. Seeing disposal costs allocated to a particular hospital/department/section raises the incentive of producers to reduce waste generation and manage waste properly.
Recycling and waste minimisation			
17.	Are ways of reusing waste reviewed?		Consider reusing cardboard boxes, envelopes or using shredded paper as protective packaging.
18.	Are opportunities for recycling pursued?		Continue to assess the cost effectiveness of introducing new recycling schemes.

Figure 9 is an example of results from one acute hospital healthcare risk waste audit that was carried out in 2006. From the total amount of waste collected in the audit (177kg) healthcare risk waste made up 45% (79kg) and healthcare non-risk waste made up 44% (78kg) of the waste with the remaining 11% (20kg) containing sharps

boxes. The result in this case shows the potential for savings, given that the 44% non risk waste fraction could be disposed of to landfill at on fifth the cost of healthcare risk waste. Regular training on risk waste segregation is essential to reduce waste costs.

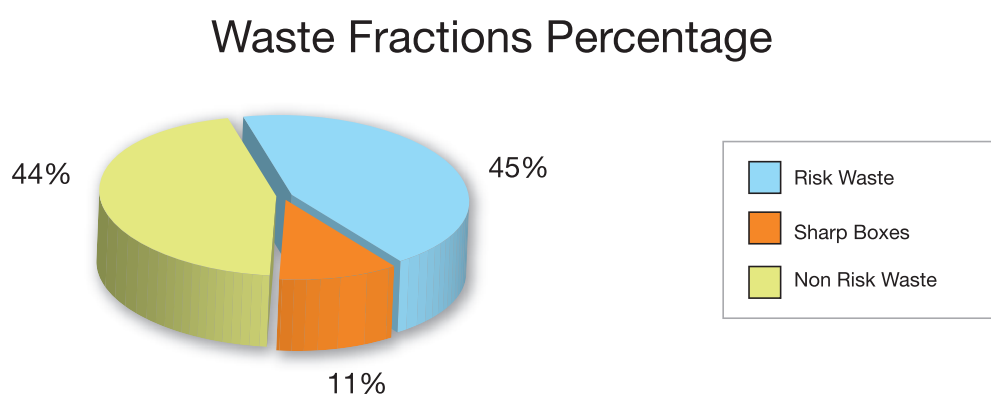


Figure 9: The Results of a Sample Healthcare Risk Waste Audit



Figure 10: Photo of Non-Risk & Risk Waste Mixed before Segregation



Figure 11: Photo of Waste Segregated into Non-Risk Waste and Risk Waste Fractions

Sources of information

ORGANISATION	CONTACT DETAILS
Department of Health and Children	www.dohc.ie
Cré Composting Association of Ireland Teo	www.cre.ie
Department of the Environment Heritage & Local Government (DEHLG)	www.environ.ie Tel: 01 888 2000
ENFO - Information on the Environment	www.enfo.ie Tel: 01 888 2001 or 1890 200 191
Enterprise Ireland	www.envirocentre.ie Tel: 01 808 2229
Environmental Protection Agency (EPA)	www.epa.ie Tel: 1890 33 55 99
EPA National Waste Prevention Programme	www.epa.ie/whatwedo/resource/prevent/nwpp/
FÁS	www.fas.ie Tel: 01 607 0969
Health and Safety Authority (HSA)	www.hsa.ie Tel: 01 6147000
Health Service Executive (HSE)	www.hse.ie
ICLEI - Local Governments for Sustainability	www.iclei-europe.org/procurement
Institute of Wastes Management (Irish Centre)	www.ciwm.co.uk Tel: 0044 1604 620426
Irish Statute Book	www.irishstatutebook.ie
Life Cycle Assessment (LCA)	http://waste.eionet.europa.eu www.oecd.org
Race Against Waste	www.raceagainstwaste.ie Tel: 1890 667639
Repak Ltd.	www.repak.ie Tel: 01 4670190
National Construction and Demolition Waste Council	www.ncdwc.ie

ADR 2009 European Agreement Concerning the International Carriage of Dangerous Goods by Road.

Comptroller and Auditor General Report on Value for Money Examination - Waste Management in Hospitals, Department of Health and Children, March 2005

European Waste Catalogue and Hazardous Waste List, EPA, 2002

www.environ.ie/en/Publications/Environment/Waste/WEEE/FileDownload,1343,en.pdf

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Immunisation Guidelines for Ireland, National Immunisation Advisory Committee of Royal College of Physicians of Ireland, 2002 edition

www.ndsc.ie/hpsc/A-Z/vaccinePreventable/vaccination/Guidance/

MBCA Guide to Construction & Demolition Waste Legislation, May 2003

www.ncdwc.ie/html/documents/GuidetoConstructionandDemolitionWasteLegislation.pdf

National Hazardous Waste Management Plan, EPA, 2008

www.epa.ie/downloads/pubs/waste/haz/nhwmp2001/

National Strategy on Biodegradable Waste,

Department of the Environment, Heritage and Local Government, 2006

www.cre.ie/National_Strategy_BioWaste.html

Preventing and Recycling Waste - Delivering Change,

Department of the Environment, Heritage and Local Government, 2002

www.epa.ie/downloads/pubs/waste/plans/name,11646,en.html

Procedure for Identifying Hazardous Components of Waste, EPA, 2004

www.epa.ie/downloads/pubs/waste/plans/name,11651,en.html

Race Against Waste Action at Work,

Department of the Environment, Heritage and Local Government, 2005

www.raceagainstwaste.com/take_action/large_org/

Report on the Second National Acute Hospitals Hygiene Audit, NHO, HSE, 2006
www.hse.ie

Segregation, Packaging and Storage Guidelines for Healthcare Risk Waste,
DOHC/HSE November 2010.
www.dohc.ie/publications/segregation_packaging.html

Transfrontier Shipment of Waste Guidelines for Exporting Waste from and Importing Waste in the Republic of Ireland, National TFS Office, Dublin City Council, Eblana House, 68-71 Marrowbone Lane, Dublin 8, Ireland
nationaltfs@dublincity.ie

Waste from Electrical & Electronic Equipment, EPA, May 2001
www.epa.ie/downloads/pubs/waste/weee/name,11649,en.html

Waste Management - Changing Our Ways,
Department of the Environment, Heritage and Local Government, 1998
www.epa.ie/downloads/pubs/waste/plans/name,11643,en.html

Waste Management, Taking Stock and Moving Forward,
Department of the Environment, Heritage and Local Government, 2004
www.epa.ie/downloads/pubs/waste/plans/name,11660,en.html

Healthcare Services Executive (HSE) Waste Management Policy
Estates Directorate Statement of Principles December 2010.

Glossary of terms used

Biodegradable Content: the percentage content of waste which is biodegradable. For municipal waste this usually fluctuates around 60%-70%.

Biodegradable Municipal Waste (BMW) or Organic Waste: municipal waste that is capable of undergoing anaerobic or aerobic decomposition, such as food and garden waste, paper and paperboard.

Bio-hazard: or biological hazard is an organism, or substance derived from an organism, that poses a threat to (primarily) human health.

Biological Treatment: involves composting, anaerobic digestion, mechanical/biological treatment or any other process for stabilising and sanitising biodegradable waste.

Bulky Waste: Large items of solid waste such as obsolete furniture, beds and mattresses.

Commercial/Industrial (C/I) Waste: waste from a premises used wholly or mainly for the purposes of a trade or business (including non-processed industrial waste) or for the purposes of sport, recreation, education or entertainment but does not include household, agricultural or industrial waste.

Compost: the stable, sanitised and humus-like material rich in organic matter and free from offensive odours resulting from the composting process of separately collected biowaste.

Composting: the autothermic and thermophilic biological decomposition of separately collected biowaste in the presence of oxygen in order to produce compost.

Construction & Demolition (C&D) Waste: All waste that arises from construction, renovation and demolition activities and all wastes referred to in Chapter 17 of the European Waste Catalogue (EWC) e.g. concrete, bricks, tiles, mortar, wood etc.

Cytotoxic and Cytostatic Medicines: any medicinal product that has one or more of the following hazardous properties: Toxic (H6), Carcinogenic (H7), Mutagenic (H11) or Toxic for Reproduction (H10).

Dangerous Goods: A dangerous good is any solid, liquid or gas that can harm people, other living organisms, property, or the environment (See ADR 2009).

Disinfection: is the destruction of pathogenic and other kinds of micro-organisms.

Disposal to Landfill: means a waste disposal facility used for the deposit of waste onto or under land.

Domestic/Household Waste: the waste produced within the grounds of a building or self-contained part of a building used for the purposes of living accommodation.

Energy Recovery: Process where energy is recovered from thermal treatment of waste.

Green Waste: waste arising from gardens, public parks consisting of garden trimmings, leaves, shrubs, plants, grass, trees etc.

Hazardous Waste: means “waste of a class listed in the current Hazardous Waste Catalogue, which either:

- constitutes Category I type waste as specified in Part I of the Second Schedule to the Waste Management Act 1996 and has any of the properties specified in Part III of the same Schedule; or
- constitutes Category II type waste as specified in Part I of the Second Schedule to the Waste Management Act 1996 that contains any of the constituents specified in Part II of the same Schedule and has any of the properties specified in Part III of the same Schedule.

Healthcare Waste: Healthcare waste is defined as the solid or liquid waste arising from healthcare. This waste comprises two fractions, namely risk waste and non-risk waste.

Healthcare Non-Risk Waste: This is categorised as non-risk waste. The term non-risk is used to distinguish this waste from hazardous waste. It should not be taken as implying that the waste is without risk if carelessly handled.

Healthcare Risk Waste: This is categorised as waste which is potentially harmful to those who come into contact with it, due to its infectious, biological, chemical, radioactive, sharp content; It is classified as hazardous.

Incineration: a process by which heat is applied to waste in order to reduce its bulk, prior to final disposal which may or may not involve energy recovery.

Material Recovery Facilities: facilities where recyclables are sorted into specific categories and processed, or further transported to processors for remanufacturing.

Municipal Waste: waste from households, as well as commercial and other waste, which because of its nature or composition, is similar to waste from households, or any other waste having any of the properties specified in Part III of the Second Schedule to the Waste Management Act, 1996 that may be prescribed as hazardous waste.

Packaging Waste: any material container or wrapping, used for or in connection with the containment, transport, handling, protection, promotion, marketing or sale of any product or substance, including such packaging as may be prescribed.

PP: Polypropylene, category of plastic.

Producer Responsibility: imposes accountability over the entire lifecycle of products and packaging introduced on the market. This means that companies which manufacture import or sell products and

packaging are required to be financially or physically responsible for such products after the useful life.

PVC: Polyvinyl chloride, category of plastic.

Recovery: any activity carried out for the purpose of reclaiming, recycling or re-using waste in whole or in part.

Recyclables: waste materials that may be subjected to any process or treatment to make it re-useable in whole or in part.

Recycling: the subjection of waste to any process or treatment to make it re-useable in whole or in part.

Residual Municipal Waste: the fraction of municipal waste remaining after the source separation of municipal waste fractions, such as food and garden waste, packaging, paper and paperboard, metals, glass and is usually unsuitable for recovery or recycling.

Resource Recovery: the extraction and use of resources from waste material.

Reuse: Use the material again without processing.

Segregated Collections: entail waste collectors collecting a range of recyclable waste, employing separate bins for the main waste streams (usually dry recyclables, organic waste, and residual waste).

Thermal Treatment: a process by which heat is applied to waste in order to reduce its bulk, prior to final disposal. Thermal treatment can involve a number of processes such as incineration, pyrolysis and gasification.

Treatment Facilities: facilities where waste undergoes thermal, physical, chemical or biological processes that change the characteristics of waste in order to reduce its volume or hazardous nature or facilitate its handling, disposal or recovery.

Waste Audit: An examination of the waste in your organisation to see the amount and type of waste produced and how it is currently dealt with.

Waste Characterisation: The process by which the composition of different waste streams is analysed.

Waste Electrical and Electronic Equipment (WEEE): General rule if it has a plug or battery it's WEEE. Ten Categories of WEEE identified: large/small household appliances, IT & telecommunication equipment, consumer equipment, lighting equipment, electrical and electronic tools, toys, leisure and sports equipment, medical devices, monitoring and control equipment, automatic dispensers.

Waste Management Facility: a site or premises used for the recovery or disposal of waste.

Waste Management Plan: A plan of action outlining recommendations for improvements in waste management.

Waste Prevention/Minimisation/Reduction: any technique, process or activity that either avoids, reduces or eliminates waste at its source, or results in re-use or recycling.

Waste Producer: a person whose activities produce waste or who carries out pre-processing, mixing or other operations resulting in a change in the nature or composition of waste.

Waste Segregation: The separate of waste into individual material fractions at source.

Waste: any substance or object which the holder discards, or intends, or is required to discard, and anything which is discarded as if it were a waste, as per the Waste Management Act, 1996.



Baled and segregated material for recycling

APPENDIX A

Segregation and Packaging Poster for Healthcare Risk and Non-Risk Waste

Segregation of Healthcare Waste Figure 6.1 from
The Segregation, Packaging and Storage Guidelines for Healthcare Risk Waste,
Department of Health and Children & Health Service Executive

& Standard Precautions Poster

SEGREGATION & PACKAGING OF HEALTHCARE RISK & NON-RISK WASTE

RISK WASTE

YELLOW BAG



- All blood-stained or contaminated items including: Dressing, swabs, bandages, personal protective equipment (gowns, aprons, gloves)
- Suction catheters & tubing
- Incontinence waste from known or suspected enteric infections

* NO SHARPS OR FLUIDS

RISK WASTE

YELLOW SHARPS BIN WITH BLUE OR RED LID



- Needles
- Syringes
- Scalpels
- Sharp tips of I.V. sets
- Contaminated slides
- Blood-stained or contaminated glass
- Stitch cutters
- Guide wires/trocars
- Razors

Note: Use Long Bin for large trocars, knives, stapling guns, etc.

* NO FLUIDS

RISK WASTE

YELLOW 30/60 LITRE RIGID BIN WITH YELLOW LID



- Blood Administration Sets
- Contained Blood and body fluids
- Non-cultured laboratory waste (including autoclaved microbiological cultures)
- Disposable suction liners
- Redivac drains
- Histology waste
- Sputum containers

Note: Use Placenta Bins for Placentas

* NO SHARPS

RISK WASTE

YELLOW 30/60 LITRE RIGID BIN WITH PURPLE LID



- Cytotoxic contaminated Healthcare Waste including left over cytotoxic drug preparations.
- Pharmaceutical waste and discarded chemicals & medicines from pharmacy.

* NO SHARPS

RISK WASTE

YELLOW SHARPS BIN WITH PURPLE LID



- Contaminated cytotoxic sharps, needles, syringes, sharp instruments and broken glass

* NO FLUIDS

RISK WASTE

YELLOW RIGID BIN WITH BLACK LID



- Non-autoclaved microbiological cultures
- Large anatomical body parts
- Waste from known or suspected CJD cases
- Non-autoclaved large metal surgical objects e.g. hips

* NO SHARPS

N.B BAGS MUST NOT BE USED FOR SHARP OR BREAKABLE ITEMS OR FOR LIQUIDS

YELLOW BAGS MUST BE SECURELY CLOSED WITH CABLE TIE WHEN 2/3 FULL

DO NOT OVER FILL BAGS OR BINS

BINS MUST BE SECURELY CLOSED WHEN 2/3 FULL OR AT MANUFACTURER'S FILL LINE

LABEL ALL HEALTHCARE RISK WASTE APPROPRIATELY PRIOR TO COLLECTION

NON-RISK WASTE

BLACK OR CLEAR BAGS



- Incontinence wear (from non-infectious patients)
- Oxygen face masks
- Empty urinary drainage and empty stoma drainage bags
- Clear tubing (e.g. oxygen, urinary catheters, ventilator, naso gastric)
- Enteric feeding bags & Syringes
- Giving sets with tips removed
- Non contaminated gloves, aprons and masks
- Empty CAPD Bags
- All other household non-recyclable waste

Figure 6.1 SEGREGATION OF HEALTHCARE WASTE⁺ – typical contents

YELLOW BAG <ul style="list-style-type: none"> ALL BLOOD-STAINED OR CONTAMINATED ITEMS INCLUDING:- DRESSINGS, SWABS, BANDAGES, PERSONAL PROTECTIVE EQUIPMENT (GOWNS, APRONS, GLOVES) SUCTION CATHETERS, TUBING AND WOUND DRAINS INCONTINENCE WASTE FROM KNOWN OR SUSPECTED ENTERIC INFECTIONS <p>NB. BAGS MUST NOT BE USED FOR SHARP ITEMS, BREAKABLE ITEMS OR LIQUIDS</p> <p>DO NOT OVERFILL</p> <p>BAG MUST BE SECURELY CLOSED WITH CABLE TIE OR TAPE WHEN 2/3 FULL MAXIMUM</p>	YELLOW RIGID BIN OR BOX WITH YELLOW LID <ul style="list-style-type: none"> BLOOD AND BLOOD ADMINISTRATION SETS BODY FLUIDS (not in bulk) <p>SEE NOTE RE LIQUIDS BELOW</p> <ul style="list-style-type: none"> DISPOSABLE SUCTION LINERS REDIVAC DRAINS BIOLOGICAL HISTOLOGY WASTE NON-CULTURED LAB WASTE & AUTOCLAVED MICROBIOLOGICAL CULTURES SPUTUM CONTAINERS FROM KNOWN OR SUSPECTED TB CASES <p>DO NOT OVERFILL</p> <p>BOX MUST BE SECURELY CLOSED WHEN AT MAXIMUM 3/4 FULL OR, AT MANUFACTURER'S FILL LINE</p>	YELLOW SHARPS BIN OR BOX <p>USED SHARP MATERIALS SUCH AS:</p> <ul style="list-style-type: none"> NEEDLES SYRINGES SCALPELS SHARP TIPS OF I.V. SETS CONTAMINATED SLIDES BLOOD-STAINED OR CONTAMINATED GLASS STITCH CUTTERS GUIDE WIRES/TROCHARS RAZORS <p>DO NOT OVERFILL</p> <p>NOT FOR LIQUIDS</p> <p>BOX MUST BE SECURELY CLOSED WHEN AT MAXIMUM 3/4 FULL OR, AT MANUFACTURER'S FILL LINE</p>	YELLOW RIGID BIN OR BOX WITH PURPLE LID <ul style="list-style-type: none"> NON-SHARPS HEALTHCARE WASTE CONTAMINATED WITH CYTOTOXIC/CYTOSTATIC MEDICINES OR OTHER TOXIC PHARMACEUTICAL PRODUCTS <p>SEE NOTE REGARDING LIQUIDS BELOW</p> <p>DO NOT OVERFILL</p> <p>BOX MUST BE SECURELY CLOSED WHEN AT MAXIMUM 3/4 FULL OR, AT MANUFACTURER'S FILL LINE</p>	YELLOW SHARPS BIN OR BOX WITH PURPLE LID <ul style="list-style-type: none"> NEEDLES, SYRINGES, SHARP INSTRUMENTS AND BROKEN GLASS CONTAMINATED WITH CYTOTOXIC/CYTOSTATIC MEDICINES OR OTHER TOXIC PHARMACEUTICAL PRODUCTS <p>DO NOT OVERFILL</p> <p>NOT FOR LIQUIDS</p> <p>BOX MUST BE SECURELY CLOSED WHEN AT MAXIMUM 3/4 FULL OR, AT MANUFACTURER'S FILL LINE</p>	YELLOW RIGID BIN OR BOX WITH BLACK LID <ul style="list-style-type: none"> PLACENTAS (SEE NOTE BELOW RE ABSORBENT MATERIAL) LARGE ANATOMICAL BODY PARTS BSE/TSE RELATED BLOOD OR TISSUE CONTAMINATED LARGE METAL OBJECTS (SEE 6.4.1.1.4) <p>DO NOT OVERFILL</p> <p>BOX MUST BE SECURELY CLOSED WHEN AT MAXIMUM 3/4 FULL OR, AT MANUFACTURER'S FILL LINE</p>	YELLOW RIGID BIN OR BOX WITH BLUE LID⁴ <ul style="list-style-type: none"> UN-REGULATED MEDICINAL/ PHARMACEUTICAL SUBSTANCES i.e. products not classified as DANGEROUS GOODS under ADR Regulations <p>Note: These waste substances are best managed by returning them for disposal to the pharmacy in their original packaging.</p> <p>If the products belong to a different "dangerous goods" class e.g. toxic or flammable solids, liquids or aerosols, they must be packaged and labelled in accordance with their classification and entry in ADR as instructed by the Safety Adviser.</p>	BLACK BAG* - FOR NON-RISK WASTE <ul style="list-style-type: none"> INCONTINENCE WEAR (from non-infectious patients) OXYGEN FACE MASKS EMPTY URINARY DRAINAGE BAGS CLEAR TUBING (e.g. oxygen, urinary catheters, ventilator, I.V., N.G.) ENTERIC FEEDING BAGS GIVING SETS WITH TIPS REMOVED ALL OTHER HOUSEHOLD NON-RECYCLABLE WASTE <p>DO NOT OVERFILL</p>
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LIQUIDS: Dangerous Goods Regulations require the use of absorbent material or gelling agent to prevent any spillages from UN packaging containing healthcare risk waste involving free liquids unless the container is specifically approved for liquids. All significant quantities of liquid must be in "leak-proof" containers.

Notes: (1) All bags and containers must have an individual tracing tag or label.

(2) + Containers, marking and labels for healthcare risk waste must conform to ADR requirements.

(3)* Some Waste Authorities may require healthcare non-risk waste to be packaged in 'clear', or otherwise identified plastic bags.

(4) Blue (or grey) lidded containers are suggested for this stream - see 6.4.1.3 and related footnote

Standard Precautions

Cover all cuts and abrasions



Apply a waterproof dressing

Get immunised against Hepatitis B infection: if you might be in contact with blood, body fluids or human tissue

Hand hygiene



Wash and dry your hands thoroughly:

- Before and after all patient contact;
 - After contact with blood, body fluids, mucous membranes or broken skin;
 - After gloves have been removed.
- Alcohol based hand rubs or gels may be used as an alternative to hand washing if hands are visibly clean

Personal Protective Equipment



- For contact with blood or body fluids; wear gloves and disposable plastic apron
- In addition, if splashing/spraying of blood or body fluids anticipated; wear goggles/mask or visor plus gloves and disposable plastic apron/fluid repellent gown
- Change Personal Protective Equipment (PPE) between patients/clients.

Sharps



- Assemble sharps box correctly, do not overfill
- Position sharps box in a safe place close to point of use
- Discard all sharps/sharp items in a sharps box immediately after use
- Do not re-cap, bend, disassemble or break needles
- The user is responsible for disposing of sharps

Sharps injury/Splash of blood

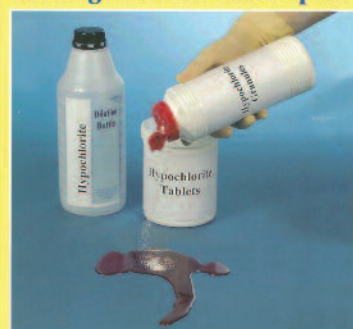
- Encourage the puncture site to bleed
- Wash area with water
- Apply waterproof dressing
- Identify source patient (if appropriate). Seek medical advice and follow up
- Notify head of department/person in charge
- Record incident/accident on appropriate form. Always follow local policy.



When a splash of blood/body fluids occurs to the eyes, nose, mouth or broken skin:

- Wash immediately with water or a normal saline solution and proceed as outlined above

Management of blood spills



- Wear appropriate personal protective equipment (PPE) such as gloves, disposable plastic apron.
- Decontaminate all blood spills with a chlorine based disinfectant or suitable alternative. Follow the manufacturers instructions and always follow local policy

Medical devices/ Patient care equipment



- Ensure medical devices labelled as "Single Use Only" are not reprocessed or reused
- This symbol means "Single Use Only"
- Ensure "Reusable Equipment" is appropriately decontaminated between patients.

Environmental cleaning/ decontamination



Ensure all environmental surfaces, particularly those in contact with patients/residents, are routinely cleaned with detergent and water (and disinfected when required). Always follow local policy

Waste

Laundry



- Segregate all healthcare risk and non-risk waste in appropriate bag/container such as
 - risk waste in yellow bag
 - non-risk waste in clear or black bags.
- Place soiled, fouled or infected linen in an alginate or water soluble bag before placing in laundry bag

APPENDIX B

Example of Consignment Note (C1 Form) and European Waste Catalogue List (EWC)

WASTE MANAGEMENT (MOVEMENT of HAZARDOUS WASTE) REGULATIONS 1998**Form C.I. Consignment Note for consignments of hazardous waste transported within the State**

(NOT to be used for transshipment into or out of the State)

PART A (to be completed by the consignor) B (serial no.) -----

1. Name and address of consignor: **Another Hospital, Sandy Lane, Cross Roads, Dundrum, Dublin 16**
 Tel: **01 - 987 6543** Fax: **01 - 9876544**
2. Name and chemical composition of waste* **UN3291 Clinical Waste, Unspecified, N.O.S. 6.2, II**
3. European Waste Catalogue/Hazardous Waste list Description(s) and Code(s): ... **Wastes whose collection and disposal is subject to special requirements in order to prevent infection - 18 01 03**
4. Origin of waste (name and address of producer, if different from 1.)
5. Process(es) that waste originates from: **Healthcare treatment for Humans**
6. Quantity (indicate kg or litres): **511 kg**
7. Size, type³ and number of containers: ... **10 x 770 litre wheeled bins.**
8. Physical characteristics⁴: **solids and liquids**
9. Components which are hazardous (giving concentrations in each case): ... **Possible infection risk - cannot be quantified** ...
10. Hazardous properties⁵ and special handling instruction (if any): **May contain sharps and be infectious; wear gloves and overalls.**

11. Name and address of consignee: ... **Healthcare Waste Treatment Ltd., Unit 1, Industrial Estate, Dublin 12.**

Responsible person – Mr XXXX XXXX, Contact Tel No. 01-1234567

12. I, the consignor, certify that the information given in Part A above is complete and correct to the best of my knowledge.

Signed **Hospital Person** Date **1/1/2010**

Name (block letters) ... **HOSPITAL PERSON** on behalf of **Another Hospital**

Position held by person signing **Hospital Person Position**

PART B (to be completed by the carrier)

13. I, the carrier,⁷ certify that I collected the waste described in Part A in vehicle (reg. no.) at (time) on (date)

and that I have been informed of the hazardous nature of the waste, as set out in that Part.

Signed **Driver** on behalf of ... **Healthcare Waste Treatment Plant plc**

Name (block letters) Signature of consignor as witness **Hospital Person**

PART C (to be completed by the consignee)

14. Name and address of consignee:

..... Tel: Fax:

15. Waste licence number (if applicable)⁸ Waste permit number (if applicable)⁹

Certificate of registration (if applicable)¹⁰

16. The waste described in Part A was delivered to me by (carrier) in vehicle (reg. No.)

..... at (time) on (date) On behalf of (consignor)

17. (a) The consignment was accepted: (b) The consignment was rejected

18. If the consignment was rejected, state the reason(s)

.....

19. If the consignment of waste was accepted, state the recovery/disposal activity(ies) to which it will be subject and provide code number and description of the technology involved¹¹

.....

20. I, the consignee, certify that the information given in Part C above is complete and correct to the best of my knowledge.

Signed Date

Name (block letters) on behalf of

Position held by person signing

* full description may be attached on separate page

Footnotes ¹ to ¹¹ see relevant definitions and lists in the "Instructions for completion of Consignment notes for Hazardous Waste".

CARRIER'S COPY - to be given to the carrier of the waste, after completion of PART C by the consignee, and retained by the carrier

European Waste Catalogue and Hazardous Waste List – 1 January 2002

18	WASTES FROM HUMAN OR ANIMAL HEALTH CARE AND/ OR RELATED RESEARCH (except kitchen and restaurant wastes not arising from immediate health care)
18 01	Wastes from natal care, diagnosis, treatment or prevention of diseases in humans.
18 01 01	sharps (except 18 01 03)
18 01 02	body parts and organs including blood bags and blood preserves (except 18 01 03)
18 01 03*	wastes whose collection and disposal is subject to special requirements in order to prevent infection
18 01 04	wastes whose collection and disposal is not subject to special requirements in order to prevent infection (for example dressings, plaster casts, linen, disposable clothing, and diapers)
18 01 06*	chemicals consisting of or containing dangerous substances
18 01 07	chemicals other than those mentioned in 18 01 06
18 01 08*	cytotoxic and cytostatic medicines
18 01 09	medicines other than those mentioned in 18 01 08
18 01 10*	amalgam waste from dental care
18 02	wastes from research, diagnosis, treatment or prevention of disease involving animals
18 02 01	sharps except (18 02 02)
18 02 02*	wastes whose collection and disposal is subject to special requirements in order to prevent infection
18 02 03	wastes whose collection and disposal is not subject to special requirements in order to prevent infection
18 02 05*	chemicals consisting of or containing dangerous substances
18 02 06	chemicals other than those mentioned in 18 02 05
18 02 07*	cytotoxic and cytostatic medicines
18 02 08	medicines other than those mentioned in 18 02 07

* Asterisk beside number denotes hazardous wastes

