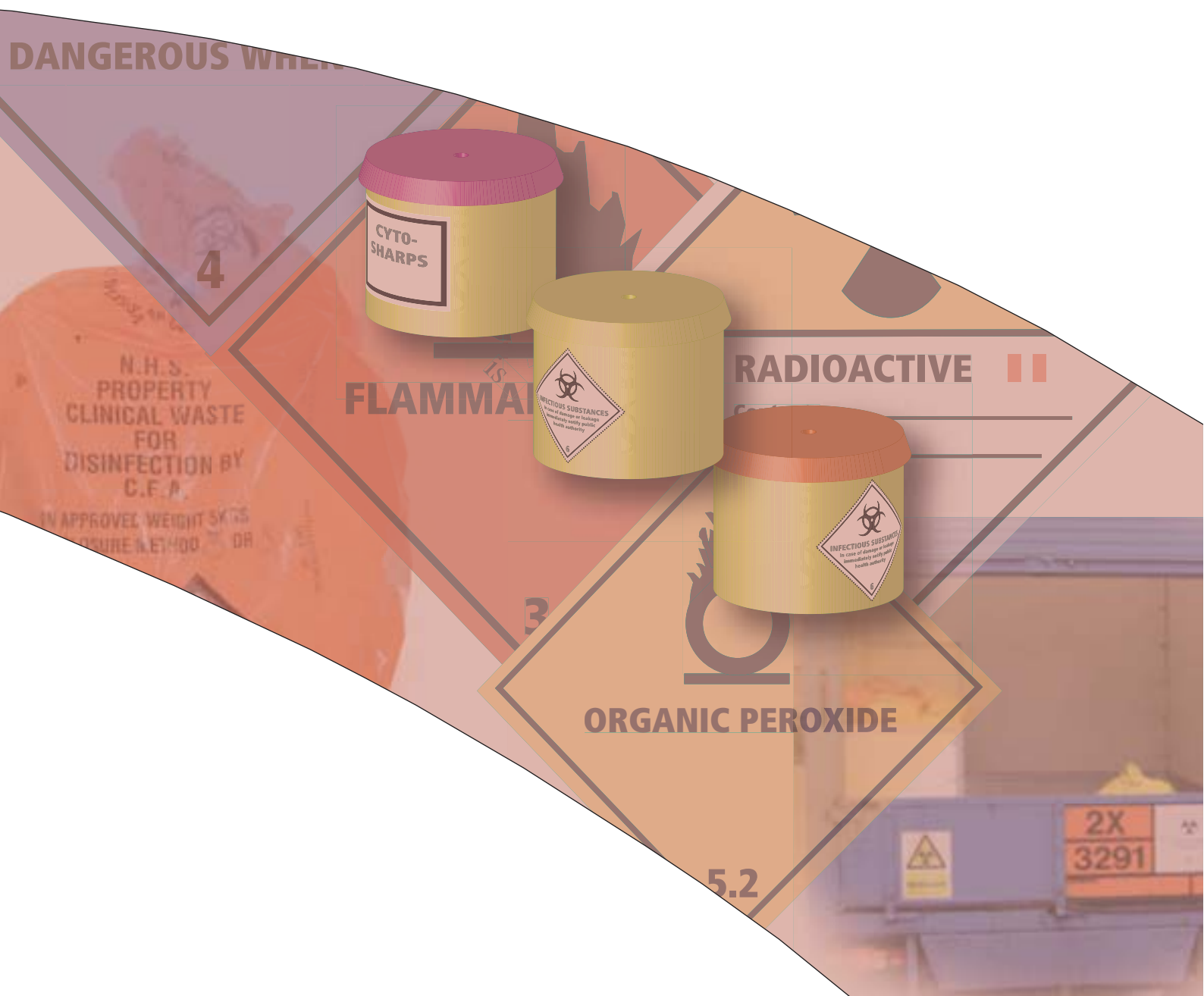


Environment and sustainability

Health Technical Memorandum

07-01: Safe management of healthcare waste



Policy	Estates	
HR / Workforce	Performance	
Management	IM & T	
Planning	Finance	
Clinical	Partnership Working	

Document Purpose Best Practice Guidance

ROCR Ref: **Gateway Ref:** 6874

Title Health Technical Memorandum 07-01: Safe Management of Healthcare Waste

Author Department of Health/Finance and Investment Directorate/Estates and Facilities Division

Publication Date November 2006

Target Audience PCT CEs, NHS Trust CEs, SHA CEs, Care Trust CEs, Foundation Trust CEs, Medical Directors, Directors of Nursing, PCT PEC Chairs, NHS Trust Board Chairs, Special HA CEs, GPs, Directors of Estates & Facilities; DH Libraries; House of Commons Library

Circulation List UK wide document that will be issued by partners - Defra; DfT, Health & Safety Executive; Environment Agency; Devolved Administrations and their Regulatory Bodies.

Description This document provides a framework for good practice for the management of healthcare waste

Cross Ref n/a

Superseded Docs This document is based on that previously provided by a document entitled "Safe disposal of clinical waste" produced by the Health Services Advisory Committee

Action Required n/a

Timing n/a

Contact Details Lorraine Brayford
 Department of Health
 Finance and Investment Directorate
 Estates and Facilities Division
 Quarry House
 Leeds
 LS2 7UE
lorraine.brayford@dh.gsi.gov.uk

For Recipient's Use

Environment and sustainability

Health Technical Memorandum

07-01: Safe management of healthcare waste

London: The Stationery Office



Department for
Transport



NHS
Purchasing and Supply Agency



Published by TSO (The Stationery Office) and available from:

Online

www.tsoshop.co.uk

Mail, Telephone, Fax & E-mail

TSO

PO Box 29, Norwich NR3 1GN

Telephone orders/General enquiries 0870 600 5522

Fax orders 0870 600 5533

E-mail customer.services@tso.co.uk

Textphone 0870 240 3701

TSO Shops

123 Kingsway, London WC2B 6PQ

020 7242 6393 Fax 020 7242 6394

16 Arthur Street, Belfast BT1 4GD

028 9023 8451 Fax 028 9023 5401

71 Lothian Road, Edinburgh EH3 9AZ

0870 606 5566 Fax 0870 606 5588

TSO@Blackwell and other Accredited Agents

© Crown copyright 2006

Published with the permission of the Estates and Facilities Division of the Department of Health, on behalf of the Controller of Her Majesty's Stationery Office.

This document/publication is not covered by the HMSO Click-Use Licences for core or added-value material.

If you wish to re-use this material, please send your application to:

Copyright applications

The Copyright Unit

OPSI

St Clements House

2–16 Colegate

Norwich NR3 1BQ

ISBN 0-11-322766-3

978-0-11-322766-2

First published 2006

Printed in the United Kingdom for The Stationery Office

The paper used in the printing of this document (Revive Silk) is 75% made from 100% de-inked post-consumer waste, the remaining 25% being mill broke and virgin fibres. Recycled papers used in its production are a combination of Totally Chlorine Free (TCF) and Elemental Chlorine Free (ECF). It is recyclable and biodegradable and is an NAPM and Eugropa approved recycled grade.



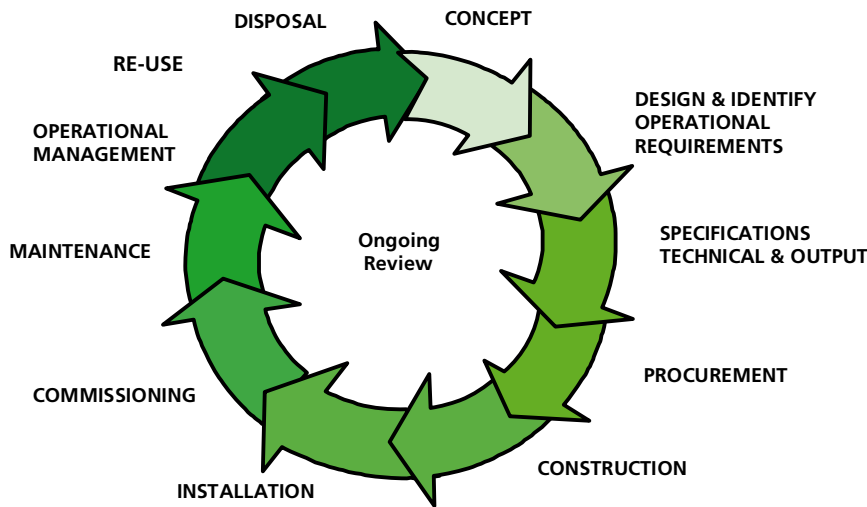
Preface

About Health Technical Memoranda

Engineering Health Technical Memoranda (HTMs) give comprehensive advice and guidance on the design, installation and operation of specialised building and engineering technology used in the delivery of healthcare.

The focus of HTM guidance remains on healthcare-specific elements of standards, policies and up-to-date established best practice. They are applicable to new and existing sites, and are for use at various stages during the whole building lifecycle:

Figure 1 Healthcare building life-cycle



Healthcare providers have a duty of care to ensure that appropriate engineering governance arrangements are in place and are managed effectively. The Engineering Health Technical Memorandum series provides best practice engineering standards and policy to enable management of this duty of care.

It is not the intention within this suite of documents to unnecessarily repeat international or European standards, industry standards or UK Government legislation. Where appropriate, these will be referenced.

Healthcare-specific technical engineering guidance is a vital tool in the safe and efficient operation of healthcare facilities. Health Technical Memorandum guidance is the

main source of specific healthcare-related guidance for estates and facilities professionals.

The core suite of nine subject areas provides access to guidance which:

- is more streamlined and accessible;
- encapsulates the latest standards and best practice in healthcare engineering;
- provides a structured reference for healthcare engineering.

Structure of the Health Technical Memorandum suite

The series of engineering-specific guidance contains a suite of nine core subjects:

- Health Technical Memorandum 00
Policies and principles (applicable to all Health Technical Memoranda in this series)
- Health Technical Memorandum 01
Decontamination
- Health Technical Memorandum 02
Medical gases

Health Technical Memorandum 03
Heating and ventilation systems

Health Technical Memorandum 04
Water systems

Health Technical Memorandum 05
Fire safety

Health Technical Memorandum 06
Electrical services

Health Technical Memorandum 07
Environment and sustainability

Health Technical Memorandum 08
Specialist services

Some subject areas may be further developed into topics shown as -01, -02 etc and further referenced into Parts A, B etc.

Example: Health Technical Memorandum 06-02 Part A will represent:

Electrical Services – Electrical safety guidance for low voltage systems

In a similar way Health Technical Memorandum 07-02 will simply represent:

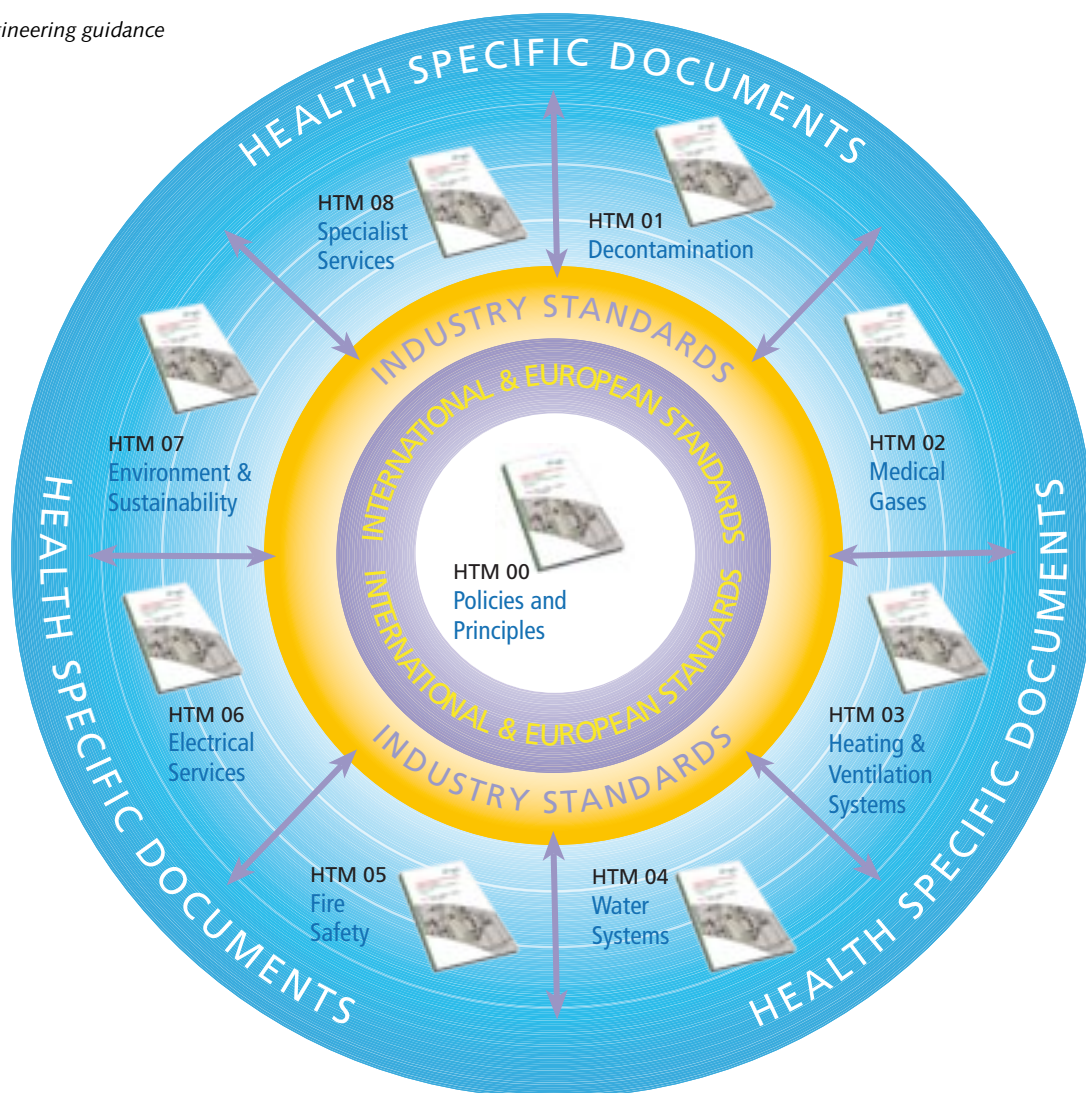
Environment and Sustainability – EnCO₂de.

All Health Technical Memoranda are supported by the initial document Health Technical Memorandum 00 which embraces the management and operational policies from previous documents and explores risk management issues.

Some variation in style and structure is reflected by the topic and approach of the different review working groups.

DH Estates and Facilities Division wishes to acknowledge the contribution made by professional bodies, engineering consultants, healthcare specialists and NHS staff who have contributed to the review.

Figure 2 Engineering guidance



Executive summary

Introduction

This document has been produced as a best practice guide to the management of healthcare waste.

Healthcare waste refers to any waste produced by, and as a consequence of, healthcare activities. For the purposes of this document, this guidance also applies to offensive/hygiene and infectious waste produced in the community from non-NHS healthcare sources.

The document replaces the Health Services Advisory Committee's (1999) guidance document 'Safe disposal of clinical waste'.

The guidance has been revised and updated to take into account the changes in legislation governing the management of waste, its storage, carriage, treatment and disposal, and health and safety.

Aim of this guidance

This guidance has been produced to provide a framework for best practice waste management to help healthcare organisations and other producers to meet legislative requirements.

The advice in this document and any recommended courses of action are not in themselves mandatory, but healthcare organisations or others choosing not to follow them are advised that it is essential that alternative steps be taken to comply with all relevant legislation.

Who should use this guidance?

This guidance has been written for all those involved in the management of healthcare waste, and provides practical advice and guidance for waste producers. While the main body of this guidance focuses on healthcare waste management issues associated with NHS healthcare practice, its content is also aimed at all producers of healthcare waste.

Key recommendations

This guidance recommends adopting:

- a new methodology for identifying and classifying **infectious** and **medicinal** waste that complies with health and safety, transport and waste regulations. The new methodology is described as the "unified" approach. Compliance with the unified approach will ensure that producers comply with and go beyond the regulatory requirements;
- a revised colour-coded best practice waste segregation and packaging system. Producers may wish to adopt this system to aid the identification and segregation of their waste. By adopting the best practice system, standardisation can be achieved across the UK;
- the use of European Waste Catalogue (EWC) codes. The clinical waste classification system using Groups A to E has been removed, as it no longer reflects appropriate segregation for treatment or disposal and does not easily equate to the use of European Waste Catalogue (EWC) Codes, which are now mandatory for all waste documentation;
- an offensive/hygiene waste stream to describe waste that is non-infectious (human hygiene waste and sanpro (sanitary protection) waste such as nappies, incontinence pads etc).

Acknowledgements

The following individuals and organisations have contributed to the production of this guidance:

Members of the Steering Group

Sue Berry Health Protection Agency/Infection Control Nurses Association

Lorraine Brayford Department of Health

Patricia Donnan Health Estates, Northern Ireland

Jeff Hart Department for Transport

Brian Latham Department of Health

Chris Lewis Welsh Health Estates

Bob McIntyre Environment Agency

Eddie McLaughlan Health Facilities Scotland

Michael Paton/Steve Copping Biological Agents Unit,
Health and Safety
Executive

Eamonn Prendergast Department for Environment,
Food and Rural Affairs

Wendy Rayner Enviros Consulting Ltd

Nigel Reader Department for Transport

Judith Reilly Health and Social Care Services Unit,
Health and Safety Executive

Tony Ryan NHS Purchasing and Supply Agency

Howard Stevens Welsh Health Environmental Forum

Eric Thomas Welsh Health Estates

Allison Townley Environment and Heritage Service,
Northern Ireland

Gary Walker Scottish Environment Protection Agency

Members of the working groups

Steve Bell Enviros Consulting Ltd

Stuart Budd Sterile Technologies Group/SMDSA

Martin Castle PIRA

N Davis Frontier Group

Dave Dingle Cannon Hygiene/SMDSA

Jim Dixon NHS National Performance Advisory Group

Lindsey Downes White Rose Environmental/SMDSA

Terry England Welsh Ambulance Services NHS Trust

Sian Fisher Catalyst Waste Solutions

Martin Foulser Cannon Hygiene/SMDSA

Vivienne Gillen Sterile Technologies Inc

John Hix Freight Transport Association

Malcolm Holliday The Freeman Hospital

Eric Lanyon Daniels (UK)

Chris Macrae Freight Transport Association

Maria Mahon Sheffield Teaching Hospitals

Alex Marland Polkacrest Ltd/SMDSA

John Newbold Biological Agents Unit, Health and
Safety Executive

Peter Olko

Liz Pearson NHS Purchasing and Supply Agency

David Scarrow Amcor Flexibles

Lawrence Strong WAMITAB

Ken Walker NHS Grampian/HFS Waste Management
Steering Group

Nick Williams PHS Ltd/SMDSA

Carol Wray NHS Purchasing and Supply Agency

Glossary and acronyms

ACDP. Advisory Committee on Dangerous Pathogens. ACDP advises the Health and Safety Commission, the Health and Safety Executive, health and agriculture ministers and their counterparts under devolution in Scotland, Wales and Northern Ireland, as required, on all aspects of hazards and risks to workers and others from exposure to pathogens.

ACOP. Approved Code of Practice. Approved by the Health and Safety Commission, with the consent of the Secretary of State, an ACOP gives practical advice on how to comply with the law. An ACOP has a special legal status. If someone is prosecuted for a breach of health and safety law, and it is proved that they did not follow the relevant provisions of an ACOP, they will need to show that they have complied with the law in some other way, or a court will find them at fault.

ADR. *Accord européen relatif au transport international des marchandises dangereuses par route* (European agreement concerning the international carriage of dangerous goods by road).

Authorisation. Generic term used to denote that a regulatory agency has granted an approval.

Category A/Category B. Classification of infectious substances in line with the Carriage Regulations.

Clinical waste. Waste that is clinical waste as defined by the Controlled Waste Regulations.

COSHH. Control of Substances Hazardous to Health Regulations.

Culture. Cultures (laboratory stocks) are the result of a process by which pathogens are intentionally propagated.

Cytotoxic and cytostatic. Classification of medicinal waste used in the List of Wastes Regulations.

DGSA. Dangerous goods safety adviser.

Defra. Department for Environment, Food and Rural Affairs.

DfT. Department for Transport.

Diagnostic specimen. A specimen collected from human or animal for the purpose of research, diagnosis, investigational activities, disease treatment or prevention.

Duty of care. When used in relation to waste management, this term refers to the statutory responsibilities of individuals and organisations.

EA. Environment Agency. Regulator responsible for environmental regulation (including waste) in England and Wales.

EHS. Environment and Heritage Service. Regulator responsible for environmental regulation (including waste) in Northern Ireland.

EWC. European Waste Catalogue. The EWC is a hierarchical list of waste descriptions established by European Commission decision 2000/532/EC. It is divided into 20 main chapters. Each of these has a two-digit code between 01 and 20. Chapters have one or more subchapters (with four-figure codes, the first two of which are the two digits of the chapter). Within these there are codes for individual wastes, each of which is assigned a six-figure code. Hazardous wastes are signified by entries where the code is followed by an asterisk. The EWC is implemented in England, Wales and Northern Ireland by the Hazardous Waste Regulations through the List of Wastes Regulations.

GMO. Genetically modified organism.

GMM. Genetically modified microorganism.

Hazardous waste.¹ Waste classified as hazardous waste by the Hazardous Waste Regulations and the List of Wastes Regulations.

Healthcare waste. Waste from natal care, diagnosis, treatment or prevention of disease in humans/animals. Examples of healthcare waste include:

- infectious waste;
- laboratory cultures;
- anatomical waste;
- sharps waste;
- medicinal waste;
- laboratory chemicals;

1 The term “special waste” is used in Scotland.

- offensive/hygiene waste from wards or other healthcare areas.

HFS. Health Facilities Scotland.

HSAC. Health and Safety Advisory Committee.

HSE. Health and Safety Executive. Regulator responsible for health and safety in the workplace in Great Britain.

HSENI. Health and Safety Executive for Northern Ireland. Regulator responsible for health and safety in the workplace in Northern Ireland.

Infectious waste. Waste that possesses the hazardous property “H9: Infectious” – that is, substances containing viable microorganisms or their toxins, which are known, or reliably believed, to cause disease in man or living organisms.

Licence. Approval or consent issued by a regulator for a specified activity.

Medicinal waste. Medicinal waste includes expired, unused, spilt, and contaminated pharmaceutical products, drugs, vaccines, and sera that are no longer required and need to be disposed of appropriately. The category also includes discarded items used in the handling of pharmaceuticals, such as packaging contaminated with residues, gloves, masks, connecting tubing, syringe bodies and drug vials.

There are a number of licensed medicinal products that are not pharmaceutically active and possess no hazardous properties (examples include saline and glucose). These wastes are not considered to be infectious/hazardous. (The above is not a definitive list but will include other items.)

Metabolite. Any substance that takes part in a chemical reaction in the body.

N.O.S. Not otherwise specified.

Offensive/hygiene waste. Offensive/hygiene waste is waste that:

- may cause offence due to the presence of recognisable healthcare waste items or body fluids;
- does not meet the definition of an infectious waste;
- does not possess any hazardous properties;
- is not identified by the producer, or holder, as needing disinfection, or any other treatment, to reduce the number of microorganisms present.

(Offensive/hygiene waste may also include autoclaved laboratory waste.)

Permit. Approval or consent issued by a regulator for a specified activity.

Pharmaceutically active. Pharmaceutically active products have hazardous properties and include, but are not limited to, cytotoxic and cytostatic medicinal wastes (hazardous waste). Examples of non-active pharmaceutical products include saline and glucose.

PPC. Pollution Prevention and Control. This is a regime for controlling pollution from certain industrial activities.

RID. *Règlement concernant le transport international ferroviaire des marchandises dangereuses* (Regulations concerning the international carriage of dangerous goods by rail).

RPA. Radiation Protection Advisor. Appointed person in line with the Ionising Radiations Regulations to advise on the use and management of radioactive substances.

SACGM. Scientific Advisory Committee for Genetic Modification.

SEPA. Scottish Environment Protection Agency. Regulator responsible for environmental regulation (including waste) in Scotland.

Sharps. Sharps are items that could cause cuts or puncture wounds. They include needles, hypodermic needles, scalpels and other blades, knives, infusion sets, saws, broken glass, and nails. There are two primary sources:

- those used in animal or human patient care/treatment; and
- those arising from non-healthcare community sources, for example body piercing and decoration, and substance abuse.

VOSA. Vehicle Operator Services Agency.

WEEE. Waste Electrical and Electronic Equipment (in relation to EC Directive 2002/96/EC and the forthcoming regulations).

WM2. Technical document produced by the Environment Agency, Scottish Environment Protection Agency, and the Environment and Heritage Service to provide guidance on the assessment and classification of hazardous waste based on the Hazardous Waste Directive definition of hazardous waste.

Contents

Preface		
Executive summary		
Acknowledgements		
Glossary and acronyms		
Chapter 1	Introduction	1
	Key changes from 'Safe disposal of clinical waste' (1999)	
	Scope and applicability	
	Who should use this guidance?	
	Status of the guidance	
Chapter 2	Introduction to legislative requirements	3
	Environment and waste legislation	
	Duty of care	
	Waste management licences, and pollution prevention and control permits	
	Health and safety legislation	
	Management responsibilities	
	The Control of Substances Hazardous to Health Regulations (COSHH)	
	The Management of Health and Safety at Work Regulations	
	Consulting employees	
	The Genetically Modified Organisms (Contained Use) Regulations	
	Transport legislation	
	The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations (known as the Carriage Regulations)	
	The Radioactive Material (Road Transport) Regulations	
	Procurement regulations	
	European procurement regulations	
	Procurement guidance	
	EC Directive on Waste Electrical and Electronic Equipment (WEEE)	
Chapter 3	Healthcare waste policy	10
Chapter 4	Regulatory definitions and classifications	11
	Waste management definitions and classifications	
	Domestic (municipal) waste	
	Clinical waste	
	European Waste Catalogue	
	Hazardous waste	
	Infectious waste	
	Medicinal waste	
	Controlled drugs	
	Amalgam waste	
	Mercury waste	
	Transport definitions and classifications	
	Classification of infectious waste for the purpose of transport	
	Classification of medicinal waste for the purpose of transport	
	Classification of other chemicals	
	Other definitions associated with healthcare waste	

	Medical devices	
	Implants	
	Radioactive waste	
	Microbiological cultures	
	Anatomical waste	
	Waste generated from funeral services	
Chapter 5	Unified definitions, classification and assessment framework	21
	Introduction	
	Waste assessment framework	
	Unified definition of infectious waste	
	Identification of infectious waste	
	Unified definition of medicinal waste	
	When should cytotoxic and cytostatic medicinal wastes be segregated from other medicinal wastes?	
	Offensive/hygiene waste	
	The waste assessment framework	
	Step 1a: Is the waste a healthcare waste?	
	Step 1b: Is the waste a waste arising from municipal sources which is similar to healthcare waste?	
	Step 2: Assess for the medicinal waste properties of a clinical waste	
	Step 3: Assess for the chemical waste properties of a clinical waste	
	Step 4: Assess for the infectious waste properties of a clinical waste	
	Step 5: Review the assessment of each element of the waste for medicinal, chemical, and infectious properties	
	Step 6: Assess for offensive properties	
Chapter 6	Waste audits	26
	Purpose of audit	
	Frequency of audits	
	Scope of audits	
	Audit techniques	
	Observation and recording of practice	
	Observation of waste receptacles	
	Detailed examination of waste	
	Staff questionnaire	
	Undertaking audits	
	Waste audit trails	
	Use of contractors	
Chapter 7	Waste segregation and national colour-coding approach	29
	Colour-coding	
	Colour-coding by waste management option	
	Colour-coded segregation charts	
	Radioactive waste	
	Purple/yellow stream (cytotoxic/cytostatic waste)	
	Yellow-stream infectious waste	
	Orange-stream infectious waste	
	Medicinal products	
	Liquid waste	
	Sharps waste	
	Category A infectious waste	
	Offensive/hygiene waste	
	Domestic waste	
	Amalgam	
	Fixer and developer	

	Large equipment	
	Implanted devices	
	Successful waste segregation	
	Background information	
	Appropriate equipment	
	Staff training	
	Evaluation and monitoring	
	Frequency of collection	
Chapter 8	Transport – packaging, marking, labelling and documentation	39
	Packaging	
	Limited quantities	
	Specific packaging issues	
	Soiled surgical instruments	
	Used linen	
	Waste medicines	
	Radioactive material	
	Cleaning receptacles	
	Infectious waste bags sent in bulk	
	Marking and labelling	
	Documentation	
Chapter 9	Storage	42
	Storage at the point of production	
	Bulk storage	
	Size of bulk storage areas	
	Refrigerated storage	
	Licences and permits	
Chapter 10	Transport operations	43
	External transport	
	Bulk transport	
	On-site transport	
Chapter 11	Treatment and disposal	45
	Rendered safe	
	Criterion A: reduction in pathogen numbers	
	Criterion B: destruction of anatomical waste	
	Criterion C: unusable and unrecognisable	
	The rendering safe of pharmaceuticals and chemicals within the waste	
	Treatment and disposal systems	
	High temperature processes	
	Non-burn/low temperature alternative technologies	
	Discharge to sewer	
	Specific treatment/disposal requirements	
	TSE-infected waste	
	Cytotoxic and cytostatic waste	
	Waste containing genetically modified microorganisms (GMMs)	
	Mercury	
	Amalgam	
Chapter 12	Waste management licensing and permitting	50
	Relationship with planning permission	
	Pollution prevention control (PPC) permits	
	The Waste Incineration Regulations	
	Waste management licences	
	Healthcare-related exemptions	
	Small infectious-waste treatment plant (on-site)	

	Laboratory autoclaves	
	Waste management licence and permit conditions	
	Compliance monitoring	
Chapter 13	Documentation	53
	Transport documentation	
	Waste transfer note	
	Registered waste carriers	
	Exemptions	
	Dual transfer/transport notes	
	Premises registration/notification	
	Consignment notes	
Chapter 14	Accidents and incidents	56
	Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR)	
	Spillages	
	Disinfectants	
	Mercury	
Chapter 15	Personal protection and hygiene	58
	Basic hygiene	
	Immunisation	
Chapter 16	Training and competence	59
	Training	
	Training procedures	
	Training records	
	Induction training	
	Job-specific training	
	Delivery of training	
	Framework contract for the delivery of waste management training within the healthcare sector	
Sector guides		61
Community nursing		62
	Colour-coding	
	Which type of packaging and what colour should you use?	
	Packaging	
	Colour	
	Infectious waste	
	Management of Category B infectious waste in the community	
	Assessing whether waste poses a risk of infection	
	Miscellaneous infectious waste	
	Sharps disposal	
	Self-medicating patients and sharps disposal	
	Patients with MRSA	
	Disposable instruments	
	Stoma/catheter bags	
	Wound vacuum drains	
	Maggots	
	Offensive/hygiene waste from healthcare	
	Transporting the waste	
Research and laboratory facilities		68
	Brief description of the sector activities	
	Waste classification and segregation	
	Microbiological cultures	
	Clinical specimens	
	Environmental samples	

	Autoclaved laboratory waste	
	Waste packaging and labelling	
	Packaging of infectious waste	
	Labelling of infectious waste	
	Waste storage and transport	
	On-site transport	
	Off-site transport	
	Waste treatment and disposal	
	General provisions	
Ambulance services		75
	Major incidents	
	Limbs and body parts	
	Laryngoscope blades	
	Sharps receptacles	
	Gloves	
	Emergency care practitioners (ECPs)	
	Disposal options	
	Option 1	
	Option 2	
	Option 3	
	Option 4	
Appendix A	European Waste Catalogue	77
Appendix B	Carriage information	78
Appendix C	Waste segregation chart	81
Appendix D	Waste audit procedure	83
	Audit – the purpose	
	Regulatory compliance	
	Approach to waste-producer audit	
	Duty of care issues	
	Waste audits – the benefits	
Appendix E	Waste assessment	85
	Introduction	
	Assessment of medicinal properties	
	Assessment of chemical properties	
	Assessment of infectious properties	
	Assessment of offensive/hygiene properties	
	Wastes containing residual medicines excreted, secreted or otherwise present in any bodily fluid arising from a human/animal	
	Domestic premises	
	Municipal premises other than domestic	
	EWC classification, waste description and packaging	
	Sharps (see paragraphs 63–69)	
	Soft waste (see paragraphs 107–113)	
	Summary of advice for non-healthcare waste producers	
References		98
	Acts and Regulations	
	Animal By-Products Regulations	
	Carriage Regulations	
	The Chemicals (Hazard Information and Packaging for Supply) Regulations	
	Controlled Waste Regulations	
	Controlled Waste (Registration of Carriers and Seizure of Vehicles) Regulations	
	COSHH	
	Duty of Care Regulations	

Environmental Protection Act
Genetically Modified Organisms (Contained Use) Regulations
Hazardous Waste Regulations
Health and Safety at Work legislation
Health and Safety (Consultation with Employees) Regulations
Ionising Radiations Regulations
Landfill Regulations
List of Wastes Regulations
Management of Health and Safety at Work Regulations
Medical Devices Regulations
Misuse of Drugs Regulations
Personal Protective Equipment at Work Regulations
Pollution Prevention and Control Regulations
Public Contracts Regulations
Radioactive Material (Road Transport) Regulations
Radioactive Substances Act
RIDDOR
Safety Representatives and Safety Committees Regulations
Waste and Contaminated Land Order
Waste Incineration Regulations
Waste Management Licensing Regulations
European legislation
British Standards
Department of Health guidance
Health and Safety Executive guidance
Advisory Committee on Dangerous Pathogens (ACDP) guidance
Department for Transport guidance
Department for Environment, Food and Rural Affairs (Defra) guidance
Scottish Executive Health Department guidance
Other guidance
Websites

1 Introduction

- 1.1 The guidance provided in this document has been produced as a UK-wide document. Regulatory requirements can be subject to variation across the UK. It is therefore essential that the applicability of particular legislation be checked before decisions are finalised. Users in the devolved regions should refer to local regulatory guidance.
- 1.2 In preparing this guidance, additional advice and information has been provided by a broad cross-section of the healthcare waste profession including waste producers, waste industry, waste management and other contractors and manufacturers of equipment and supplies.
- 1.3 The guidance is based on that previously provided by a document entitled 'Safe disposal of clinical waste' produced by the Health Services Advisory Committee and published by the Health and Safety Commission. This guidance has been revised and updated to take into account changes in the legislation governing the management of waste, its storage, carriage, treatment and disposal, and health and safety requirements. Of particular relevance are the:
- Waste Management Licensing Regulations;
 - Landfill Regulations;
 - Hazardous Waste Regulations (as applicable to England, Wales and Northern Ireland) and Special Waste Amendment (Scotland) Regulations;
 - List of Wastes Regulations;²
 - Controlled Waste Regulations;
 - Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations (the Carriage Regulations);
 - Control of Substances Hazardous to Health Regulations (COSHH); and
 - Pollution Prevention and Control Regulations.

2 These Regulations are not applicable in Scotland.

Key changes from 'Safe disposal of clinical waste' (1999)

- 1.4 Key changes contained in this document include guidance on:
- the definition and classification of infectious waste;
 - the definition and classification of medicinal waste;
 - changes in transport legislation;
 - a revised colour-coded best practice waste segregation and packaging system;
 - the use of European Waste Catalogue (EWC) Codes;
 - the classification of microbiological cultures for carriage and disposal.
- 1.5 The use of the clinical waste classification system using Groups A to E has been removed, as it is felt that its continued use is inappropriate. The A to E classification system no longer reflects appropriate segregation for treatment or disposal, and does not easily equate to the use of European Waste Catalogue (EWC) codes, which are now mandatory for all waste transfer documentation.
- 1.6 **Chapter 5** contains a classification system for healthcare waste which reflects and summarises the key requirements of waste, health and safety, and transport legislation. This approach is described as the "unified approach". This single classification system complies with the principal regulatory requirements and contains additional elements of best practice.

Note

The classification system used in the Advisory Committee on Dangerous Pathogens' (ACDP) 'Approved list of biological agents' (that is, of biological agents into hazard groups HG1–HG4) is not used for waste classification and transport, and therefore is not applicable to this document.

Scope and applicability

- 1.7 This guidance covers those types of waste produced directly from healthcare activities, and focuses on the management of medicinal and infectious waste.
- 1.8 This UK-wide guidance has been written for all those involved in the management of healthcare waste, and provides practical advice and guidance for waste producers. While the main body of this guidance focuses on healthcare waste management issues associated with NHS healthcare practice, its content is also aimed at all producers of healthcare waste.
- 1.9 The sector guides at the rear of this document have been specifically designed to meet the needs of a broad range of healthcare waste producers.

Who should use this guidance?

- 1.10 This guidance provides practical advice for all those involved in the management of healthcare waste, and is applicable to all who manage or come into contact with healthcare waste (waste producers, waste contractors and regulators), providing a basis of common understanding for all parties.

Status of the guidance

- 1.11 The guidance has been produced to provide a framework for best practice waste management across the UK in order to help healthcare organisations, and other healthcare waste producers, meet legislative requirements.
- 1.12 The advice in this document and any recommended courses of action are not in themselves mandatory, but healthcare organisations or others choosing not to follow them are advised that it is essential that alternative steps are taken to comply with all relevant legislation.

- 1.13 Regulatory organisations seek to secure compliance with the law, and may refer to this guidance as a combination of illustrating best practice and legal requirements.

- 1.14 This guidance will also help to ensure that all healthcare organisations:

- in England – comply with core standard C4(e) of the Department of Health’s ‘Standards for better health’;

Note

Core standard C17 of the Department of Health’s ‘National minimum standards for independent healthcare’ is the relevant standard for independent hospitals, independent clinics and independent medical agencies.

- in Wales, comply with Standard 19(d) of the Welsh Assembly Government’s ‘Healthcare standards for Wales’;
 - in Northern Ireland – comply with the Controls Assurance standard on waste management;
 - in Scotland – comply with the recommendations of Scottish Hospital Technical Note 3 (SHTN 3) ‘Management and disposal of clinical waste’.
- 1.15 References within this guidance relate to the minimum approved standard or technological solution. Further information on treatment and disposal options should be sought from waste management contractors and the appropriate regulatory authority.

2 Introduction to legislative requirements

Notes

1. Each jurisdiction (England and Wales, Scotland and Northern Ireland) within the UK has its own set of laws and regulations which differ from those of the other jurisdictions. The name of the regulatory instrument is often the same (or similar), although the date when it came into force may vary. It is for this reason that – wherever a regulatory instrument is cited in this document – the date has been omitted. A list of regulations applicable to each UK jurisdiction is given in the References section.
 2. As the term “hazardous waste” is used in England, Wales and Northern Ireland to describe waste with hazardous characteristics in line with the European Hazardous Waste Directive, this term is used throughout this document. Readers of this guidance in Scotland should use the term “special waste” in line with the Special Waste Amendment (Scotland) Regulations, which implement the requirements of the Hazardous Waste Directive in Scotland.
 3. The term “dangerous goods” signifies substances with intrinsic hazards posing a potential risk to persons or the environment while in the transport chain. Such substances are classified on the same basis for any mode of transport using United Nations criteria. Transport by road or rail in Great Britain is addressed in the Carriage of Dangerous Goods Regulations (updated biennially). Similar road transport legislation applies in Northern Ireland.
- 2.1 To effectively manage waste generated on healthcare premises, those responsible for the management of the waste should understand and must comply with the requirements of three separate regulatory regimes:
- a. health and safety;
 - b. environment and waste; and
 - c. transport.

- 2.2 For waste management practices to comply with these requirements, appropriate waste management services need to be procured.
- 2.3 Figure 1 shows the relationship between regulatory requirements, procurement practice and effective waste management. The three pillars of regulation dictate the requirements, while effective procurements take these into account and support waste management practices.

Figure 1 The three pillars of regulation



Environment and waste legislation

- 2.4 Environment and waste regulation across the UK specifies the roles and responsibilities of those involved in the management of waste.

Duty of care

- 2.5 Everyone who manages waste and/or has responsibility for the management of waste is required to fully comply with his or her own “duty of care”. The statutory requirements covering duty of care in waste management are contained in:

- Section 34 of the Environmental Protection Act;
- Section 5 of the Waste and Contaminated Land (Northern Ireland) Order;
- the Environmental Protection (Duty of Care) Regulations (England, Scotland and Wales); and
- the Controlled Waste (Duty of Care) Regulations (Northern Ireland).

2.6 Further advice is given in Defra’s (1996) ‘Waste management: the duty of care – a code of practice’ (statutory). There is also a leaflet available online: <http://www.defra.gov.uk/environment/waste/management/doc/index.htm>. See also the EHS website: http://www.ehsni.gov.uk/environment/wastemanage/regulations_dutyofcare.shtml

2.7 The statutory duty of care applies to everyone in the waste management chain. It requires producers and others who are involved in the management of the waste to prevent its escape, and to take all reasonable measures to ensure that the waste is dealt with appropriately from the point of production to the point of final disposal. A key element to the duty of care is the requirement for producers (other than householders) to keep a written description, adequately describing the type and quantity of waste. This should accompany the waste as it is moved from point of production to point of final disposal.

Main responsibilities of the waste producer in line with the duty of care:

- Describe the waste fully and accurately.
- Complete and sign a waste transfer note (or consignment note for hazardous waste) prior to waste being transferred to another party.
- Pack waste securely (where appropriate) in line with the Carriage Regulations.
- Store waste safely on-site.
- Register as a waste carrier (if required), and make all reasonable checks on waste carriers.
- Select an appropriate recovery or disposal method.
- Ensure waste falls within the terms of the waste contractor’s waste management licence, permit or exemption.

Note

At the time of writing this guidance, Defra is reviewing the policy and implementation of the duty of care requirements for England and Wales including certain aspects of requirements for carriers and brokers of waste. This comprehensive review will result in existing regulations and guidance for England and Wales being updated.

The regulators will enforce the duty of care so as to protect the environment and reduce the negative impacts of waste on people’s quality of life.

Local authorities’ responsibilities

2.8 Local authorities have specific duties in relation to healthcare waste. Section 45 of the Environmental Protection Act (in Northern Ireland, Article 20 of the Waste and Contaminated Land Order) states that it is the duty of each waste collection authority to arrange for the collection of household waste in its area. It also states that the authority may make a reasonable charge for the collection of certain types of household waste to reflect the higher disposal costs and separate collection arrangements that have to be made. Types of household waste for which a charge for collection can be made are listed in Schedule 2 of the Controlled Waste Regulations. These include clinical waste from a domestic property.

Waste management licences, and pollution prevention and control permits

2.9 The Environmental Protection Act, the Waste Management Licensing Regulations, the Waste and Contaminated Land (Northern Ireland) Order and the Pollution Prevention and Control (PPC) Regulations provide the legislative framework for waste management activities. These Regulations specify, through waste management licensing and related exemptions and pollution prevention control permits (“permits”), the way the waste should be managed and specific conditions which sites must adhere to.

2.10 Waste management licences and pollution, prevention and control (PPC) permits are required for the storage, treatment and disposal of many different types of waste. Generally, a licence is not required for the storage of waste on the site where it was produced, as this is covered by a waste management licence exemption. There are a large number of exemptions; guidance on waste

management licence exemptions, licences and permits is provided in [Chapter 12](#).

- 2.11 Waste management licences (and related exemptions) and permits are regulated by the following agencies:
- the Environment Agency (EA) in England and Wales;
 - the Scottish Environmental Protection Agency (SEPA) in Scotland; and
 - the Environment and Heritage Service (EHS) in Northern Ireland.

Health and safety legislation

- 2.12 The Health and Safety Executive (HSE) is the regulatory body with responsibility for enforcing health and safety in the workplace legislation in Great Britain. The Health and Safety Executive for Northern Ireland (HSENI) is the lead body responsible for the promotion and enforcement of health and safety at work standards in Northern Ireland.
- 2.13 Health and safety legislation is based on the assessment of risk. The Control of Substances Hazardous to Health Regulations (COSHH) and the Management of Health and Safety at Work Regulations, in line with health and safety at work legislation, specifically require those dealing with potentially infectious substances (including waste) to assess the risk to the public and staff who may come into contact with it. In practice, this involves the development of risk assessment policies and procedures and putting in place arrangements to manage the risks effectively. Arrangements for managing healthcare waste need to be part of an employer's overall health and safety management system. A number of guidance documents are available in relation to the management of infectious waste, including:
- **'The management of health and safety in the health services'** produced by the Health Service Advisory Committee (HSAC);
 - **'Biological agents: managing the risks in laboratories and healthcare premises'** produced by the Advisory Committee on Dangerous Pathogens and published on HSE's website;
 - **'Infections at work: controlling the risks'** produced by the Advisory Committee on Dangerous Pathogens and published on HSE's

website (this guidance is aimed at those who may be inadvertently exposed to microorganisms rather than those deliberately working with them).

Management responsibilities

- 2.14 Employers are responsible for complying with health and safety legislation. Even if staff are self-employed for tax or national insurance purposes, they are treated as employees for health and safety purposes. If any doubt exists about who is responsible for the health and safety of a worker, this should be clarified and included in the terms of a contract. However, legal duties with respect to Health and Safety at Work legislation cannot be passed on by means of a contract.

The Control of Substances Hazardous to Health Regulations (COSHH)

- 2.15 The COSHH Regulations set out the duty of employers to manage the risk of exposure to hazardous substances, including healthcare waste.

COSHH – Key points:

Employers must, among other things:

- assess the risks to employees and others from hazardous substances, including healthcare waste;
- make arrangements for reviewing the assessment as and when necessary, but at no less than two yearly intervals – and sooner if there is any reason to suggest the risk assessment is no longer valid;
- aim to eliminate or prevent these risks, and if this is not possible to adequately control the risks;
- provide suitable and sufficient information, instruction and training for employees about the risks;
- provide health surveillance and immunisation, where appropriate.

The Management of Health and Safety at Work Regulations

- 2.16 The Management Regulations and its associated Approved Code of Practice (ACOP) provide a framework for managing risks at work, including risks from healthcare waste, not covered by more specific requirements such as COSHH.

The Management Regulations – Key Points

Employers must among other things:

- make a suitable and sufficient assessment of the risks to employees and others. If they have five or more employees, they must record the significant findings of the assessment;
- take particular account in their assessment of risks to new and expectant mothers and their unborn and breast-feeding children;
- take particular account in their assessment of risks to young people;
- make arrangements for the effective planning, organisation, and control of risks;
- monitor and review any precautions;
- provide health surveillance where appropriate;
- have access to competent health and safety advice;
- provide information for employees;
- cooperate with other employers who may share the workplace.

Consulting employees

- 2.17 The Health and Safety (Consultation with Employees) Regulations and the Safety Representatives and Safety Committees Regulations deal with consultation of employees directly and via recognised trade unions.
- 2.18 Employers must consult employees and their representatives about aspects of their health and safety at work, including:
- any change which may substantially affect their health and safety;
 - the employer's arrangements for getting competent health and safety advice;
 - the information provided on reducing and dealing with risks;
 - the planning of health and safety training;
 - the health and safety consequences of introducing new technology.
- 2.19 By incorporating health and safety requirements in healthcare waste policy, employers are able to provide staff with information relevant to their job or role. The policy can then be used as a basis for training and discussions.

The Genetically Modified Organisms (Contained Use) Regulations

- 2.20 The Genetically Modified Organisms (Contained Use) Regulations are concerned with the protection of human health and safety (and the environment) from contained-use activities involving genetically modified organisms (GMOs) and genetically modified microorganisms (GMMs). The Regulations provide information on containment measures including inactivation requirements for waste contaminated with GMMs.
- 2.21 The Regulations' definition of genetic modification activity covers culture, storage, transport, destruction, disposal and other uses for which physical, chemical or biological barriers limit the contact of the GMO and provide a high level of protection for humans and the environment.
- 2.22 All those involved in genetic modification activities, including waste contractors, are required to be registered as GM centres.
- 2.23 Guidance on registration of a GM centre (notification), packaging, transport and disposal of this waste stream is given in HSE's 'A guide to the Genetically Modified Organisms (Contained Use) Regulations' and in detailed scientific advice provided by the Scientific Advisory Committee on Genetic Modification (SACGM). For further useful information, visit HSE's website <http://www.hse.gov.uk/biosafety/>

Transport legislation

- 2.24 Transport legislation is based on the principles of hazard and risk assessment, and substances (including waste) are classified according to their primary hazard.

The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations (known as the Carriage Regulations)

- 2.25 The carriage of dangerous goods is subject to regulatory control. The Carriage Regulations are intended to reduce, to reasonable levels, the risk of harm or damage to people, property and the environment posed by the carriage of dangerous goods.
- 2.26 In the UK, these regulations implement the requirements of the "European agreement concerning the international carriage by road (ADR)" and "regulations concerning the international carriage of dangerous goods by rail

(RID)". The Carriage Regulations make direct reference to ADR and RID. Both documents are revised biannually and the updated versions are incorporated into the UK by revision to the Carriage Regulations.

- 2.27 Other European and International regulations apply to the movement of dangerous goods by air, sea, and inland waterway. It is recommended that producers seek specialist advice if healthcare waste is to be transported by means other than road transport. In the UK, the vast majority of dangerous goods are carried by road.

Carriage Regulations – key points:

The regulations cover (by reference to ADR) among other things:

- training of personnel involved in the chain of distribution;
- substance classification and identification;
- packaging;
- marking, labelling and documentation;
- safety equipment and emergency procedures;
- safe loading;
- vehicle specification and operation.

- 2.28 Duties are imposed on parties at all stages of the supply chain including manufacturers, consignors, carriers and receivers.
- 2.29 The HSE is the regulatory body responsible for enforcing transport legislation in Great Britain. Police officers and the Vehicle and Operator Services Agency (VOSA)³ carry out “on the road” enforcement under an agency agreement with the HSE.
- 2.30 Further information on the Carriage Regulations can be found on the Department for Transport website <http://www.dft.gov.uk/freight/dangerousgoods> and on HSE’s website <http://www.hse.gov.uk/cdg>

Dangerous goods safety adviser

- 2.31 The Carriage Regulations may require healthcare managements to appoint a dangerous goods safety adviser (DGSA). The requirement to appoint such a person is a duty on the employer and is in large part dependent on the quantity of dangerous goods transported.

- 2.32 DGSAs will be required when the quantity of healthcare waste classified as dangerous in transport exceeds certain thresholds in ADR:

Transport category	Substances	Quantity
0	Category A substances (UN 2814/2900)	0
2	Clinical waste	333 kg/L
1	Medicines/chemical wastes PG I (cytotoxic drugs)	20 kg/L
2	Medicines/chemical wastes PG II (UN 1851/3248/3249)	333 kg/L
3	Medicines/chemical wastes PG III (UN 1851/3248/3249)	1000 kg/L

(Consult ADR for full details)

- 2.33 Any radioactive material subject to the Ionising Radiations Regulations requires a DGSA.
- 2.34 It is likely that larger undertakings (for example hospitals) will need to appoint DGSAs while small clinics and surgeries will not. Undertakings whose main or secondary activities are not the carriage or loading/unloading of dangerous goods – but who move such goods only occasionally – need not appoint DGSAs.
- 2.35 DGSAs do not need to be employees of the undertaking. Third-party consultants may be appointed.
- 2.36 The number of DGSAs to be appointed is not prescribed other than there should be a sufficient number appointed to ensure their functions and duties can be carried out effectively.
- 2.37 It is the duty of the DGSA to monitor and advise on dangerous goods carriage compliance and ensure that relevant incidents/accidents are properly investigated and reported. They must also prepare for the duty-holder an annual report on dangerous goods activities.
- 2.38 It is important that all those involved in the movement of healthcare waste are aware who provides DGSA support. The name and contact number(s) of the DGSA(s) should be listed in the site’s waste management policy.
- 2.39 Those healthcare sites that do not need to appoint DGSAs may still find it useful to approach DGSA consultants for general advice, on an ad-hoc basis, to ensure that they, as consignors of dangerous goods, are complying with the requirements concerning classification, packaging, marking, labelling and documentation. As all waste contractors will have to appoint DGSAs,

3 In England, Wales and Scotland only.

some of them may be able/prepared to assist with advice to their own customers.

Functions of the DGSA

The functions of the DGSA are as follows:

- monitoring compliance with the rules governing the transport of dangerous goods;
- advising the employer on the transport of dangerous goods;
- ensuring that an annual report to the employer is prepared on the activities of the employer concerning the transport of dangerous goods;
- monitoring practices and procedures relating to the activities of the employer which concern the transport of dangerous goods.

The Radioactive Material (Road Transport) Regulations

- 2.40 In addition to the requirements of the Carriage Regulations, the consignment and carriage of radioactive material such as medical isotopes is regulated by the Radioactive Material (Road Transport) Regulations.
- 2.41 Carriage of radioactive material is regulated by the Department for Transport in Great Britain (the EHS enforces the relevant transport regulations in Northern Ireland).

Note

Work is under way on new Carriage Regulations for 2007. The regulations will:

- apply to all classes of dangerous goods carried by road and rail;
- apply the 2007 editions of ADR and RID;
- replace the current Carriage Regulations and the Radioactive Materials (Road Transport) Regulations.

Procurement regulations

European procurement regulations

- 2.42 In addition to waste, transport, and health and safety regulations, procurement regulations must also be taken into consideration.

- 2.43 All publicly-funded organisations must ensure that all contracts established to collect and treat waste conform to the Public Contracts Regulations.
- 2.44 Information about public procurement regulations and OJEU ('Official Journal of the European Union') thresholds can be obtained from the Office of Government Commerce (<http://www.ogc.gov.uk>).

Procurement guidance

- 2.45 Further information on the EC public procurement regulations and how to develop and competitively tender waste collection and disposal contracts is available from:
- in England – the NHS Purchasing and Supply Agency: http://www.pasa.nhs.uk/sustainable-development/waste/waste_proguide.stm
 - in Northern Ireland – the Regional Supplies Service: <http://www.csarss.net>
 - in Scotland – National Procurement: <http://www.nhsscotlandprocurement.scot.nhs.uk/>
 - in Wales – Welsh Health Supplies: <http://www.whs.wales.nhs.uk/>

EC Directive on Waste Electrical and Electronic Equipment (WEEE)

- 2.46 The Waste Electrical and Electronic Equipment (WEEE) Directive (2002/96/EC) is European environmental legislation. It implements the principle of "extended producer responsibility", whereby producers of electronic and electrical equipment are required to take responsibility for the environmental impact of their products, especially when they become waste.
- 2.47 The broad aim of WEEE is to address the environmental impacts of waste electronic and electrical equipment and to encourage its separate collection and subsequent treatment, re-use, recovery, recycling and environmentally sound disposal.
- 2.48 Waste producers will likely fall within the "business-to-business" element and will need to take responsibility for their electronic and electrical equipment waste either by returning the waste to the producer from whom it was purchased (or their compliance scheme) or by disposing of it directly.
- 2.49 Waste electrical and electronic equipment can only be disposed of at permitted, licensed or exempt

sites, and due regard must be given to identifying and appropriately disposing of waste equipment dependent on any hazardous properties contained within that product.

- 2.50 The regulatory authorities (EA, SEPA, and EHS) will regulate and monitor producer responsibility. Where waste producers make their own arrangements for disposal of waste electrical and electronic equipment, records will need to be retained for at least two years.

Note

1. WEEE will come into force in 2007. Further guidance is awaited from the Department of Trade and Industry (DTI; <http://www.dti.gov.uk>).
2. Infected products and active medical implants do not fall within the requirements of WEEE (see [paragraphs 4.47–4.55](#)).

3 Healthcare waste policy

- 3.1 To effectively manage healthcare waste, all those involved in the management of the waste stream should have access to an appropriate healthcare waste policy that clearly identifies who is responsible for the waste and how it should be managed.
- 3.2 The policy should clearly identify the legal obligations set out in waste, health and safety, and transport legislation.
- 3.3 The policy should provide clearly written instructions on the way waste should be managed.
- 3.4 As a minimum, a healthcare waste policy should contain:
- a clear statement, outlining the aims of the policy;
 - legal and statutory obligations;
 - current waste management arrangements;
 - an outline of who has waste management responsibilities and the lines of accountability;
 - arrangements for implementing the policy;
 - processes for identifying improvement programmes and monitoring progress;
 - sources of further information and guidance (for example a healthcare organisation's waste guidance).
- 3.5 Ownership of the policy needs to be at the senior managerial level.
- 3.6 To be successful, the policy needs to address all key issues and be actively supported by those involved in each stage of the management of the waste.
- 3.7 The policy should take into consideration all aspects of waste management, should identify the roles and responsibilities of those involved in the waste management chain from “cradle to grave”, and should take into consideration procurement and disposal contractor requirements.
- 3.8 The policy should clearly state how all parties involved in waste management should communicate with each other ensuring compliance throughout the waste management chain.
- 3.9 The responsibilities of line managers and others need to be clear, and the waste management arrangements need to be properly monitored and regularly audited.
- 3.10 The existence of a policy should not be assumed to be an indication of practice. Practice can only be determined and monitored by robust audit procedures.
- 3.11 It is recommended that the organisation have access to a designated competent waste manager to coordinate and manage all healthcare waste and other waste management activities.
- 3.12 To be used effectively, the healthcare waste policy should link with other healthcare policies and guidance and should be used as the basis for staff training and awareness.
- 3.13 The contents of this guidance document address the key issues to be included within the healthcare waste policy document.

4 Regulatory definitions and classifications

- 4.1 This chapter outlines the definitions and classifications used in the UK for healthcare waste, transport, and health and safety legislation.
- 4.2 **Chapter 5** of this guidance document provides a simplified definition and classification system which complies with the requirements identified in this chapter.

Waste management definitions and classifications

- 4.3 Waste regulation requires the classification of waste on the basis of hazardous characteristics and point of production. The table below shows examples of the types of waste produced by the healthcare sector that are classified as hazardous and non-hazardous.

Examples of waste produced in the healthcare sector	
Hazardous waste	Non-hazardous waste
Infectious waste	Domestic waste (black-bag or municipal waste)
Fluorescent tubes	Food waste
Laboratory chemicals	Offensive/hygiene waste
Cleaning chemicals	Packaging wastes
Photo chemicals	Recyclates (paper, glass, aluminium etc)
Oils	Furniture
Batteries	Construction and demolition waste
Waste electronics	Grounds waste
Asbestos	
Paints	
Solvents	
Contaminated land	

Note: Adapted from Welsh Health Estates' 'Healthcare waste strategy for Wales' guidance document

Domestic (municipal) waste

- 4.4 For the purposes of this document, domestic waste is the same as, or similar to, waste from accommodation used purely for living purposes

(and without commercial gain) and which is suitable for disposal by landfill.

Clinical waste

- 4.5 The definition of clinical waste has historically been used to describe waste produced from healthcare and similar activities that pose a risk of infection or that may prove hazardous.
- 4.6 Taken from the Controlled Waste Regulations (issued under the Environmental Protection Act, and in Northern Ireland by the Waste and Contaminated Land (Northern Ireland) Order), clinical waste is defined as:
- (a) “. . . any waste which consists wholly or partly of human or animal tissue, blood or other bodily fluids, excretions, drugs or other pharmaceutical products, swabs or dressings, syringes, needles or other sharp instruments, being waste which unless rendered safe may prove hazardous to any person coming into contact with it; and
- (b) any other waste arising from medical, nursing, dental, veterinary, pharmaceutical or similar practice, investigation, treatment, care, teaching or research, or the collection of blood for transfusion, being waste which may cause infection to any person coming into contact with it.”
- 4.7 Broadly, therefore, clinical waste can be divided into two categories of materials:
1. waste which poses a risk of infection;
 2. medicinal waste.
- 4.8 The relationship between the definition of clinical waste and hazardous waste definitions is explained in **paragraphs 4.15–4.23** (see also **Figure 2** on page 24).
- 4.9 Clinical waste should be segregated from other types of waste and be treated/disposed of appropriately in suitably permitted, licensed or exempt facilities on the basis of the hazard it poses.

European Waste Catalogue

4.10 Recent regulatory changes, notably the Landfill Regulations, the Hazardous Waste Regulations and the List of Wastes Regulations,⁴ require producers to adequately describe their waste using both a written description and the use of the appropriate European Waste Catalogue (EWC) code(s).

4.11 The EWC is produced by the European Commission in accordance with the European Waste Framework Directive (75/442/EEC) to provide common terminology for describing waste throughout Europe. The EWC list is reviewed periodically and incorporates the European Hazardous Waste List pursuant to the Hazardous Waste Directive 91/689/EEC.

Note

In the UK, the joint-agency guidance document on hazardous waste entitled WM2 uses a colour-coded EWC to aid identification of hazardous wastes. Absolute entries are shown in red. Mirror entries are shown in blue (see paragraphs 4.17–4.19).

4.12 The EWC categorises waste into 20 chapters; each chapter is linked to a production sector. Within each chapter, each type of waste is described using a six-digit numerical code:

- a. the first two digits of the code relate to the EWC chapter;
- b. the second two digits relate to any sub-grouping within the chapter; and
- c. the final two digits are unique to the waste.

4.13 **Table 1** provides a list of all Chapter 18 (healthcare waste) EWC codes.

4.14 The requirement of waste regulation to use EWC codes has resulted in a change in the way healthcare waste is classified.

Note

Healthcare waste producers are likely to produce a broad range of waste materials, many of which should be classified using EWC codes other than those stated in Chapter 18 of the EWC. For example: X-ray fixer and developer may be best described using the EWC codes in Chapter 9 of the EWC, which includes “waste from the photographic industry”.

Hazardous waste⁵

4.15 The Hazardous Waste Regulations and the List of Waste Regulations define and regulate the segregation and movement of hazardous waste in England and Wales from the point of production to the final point of disposal or recovery. These Regulations, among other things, require producers of hazardous waste to notify (register with) the regulatory authority (see [paragraph 13.12](#)).

Note

In Northern Ireland and Scotland, producers (or consignors) of hazardous waste are not required to register with the regulatory authority (EHS and SEPA, respectively). Instead, they must provide 72 hours’ prior notification to the relevant regulator of their intention to move hazardous/special waste. Specific guidance is available from EHS and SEPA on the relevant procedures for Northern Ireland and Scotland.

4.16 The Regulations do not provide comprehensive guidance on the classification of waste. However, guidance is provided by the UK environmental regulatory authorities (WM2). This document is based on supporting European Directives and test methods.

Note

Cross-border consignments of waste (from one devolved region to another) should be made by the producer of the waste using their “home” regulator’s guidelines (for example, producers of waste in Scotland should follow the consignment procedure laid down by SEPA for all waste including waste leaving Scotland for treatment and disposal).

Hazardous waste technical guidance WM2

4.17 The UK environmental regulatory authorities (Environment Agency (EA), Scottish Environment Protection Agency (SEPA) and the Environment and Heritage Service (EHS) in Northern Ireland) have produced a joint guidance document on the interpretation, definition and classification of hazardous waste entitled ‘WM2’.

WM2 is available from <http://www.environment-agency.gov.uk>

4 The List of Wastes Regulations do not apply to Scotland.

5 In Scotland, “hazardous waste” is “special waste” under the Special Waste Regulations.

Table 1 EWC coding for the types of healthcare waste

EWC code	Description of waste
18 01 XX	Waste from natal care, diagnosis, treatment or prevention of disease 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*	Waste whose collection and disposal is subject to special requirements in order to prevent infection
18 01 04	Waste whose collection and disposal is not subject to special requirements in order to prevent infection, eg dressings, plaster casts, linen, disposable clothing
18 01 06*	Chemicals consisting of dangerous substances
18 01 07	Chemicals other than those listed 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

EWC code	Description of waste
18 02 XX	Waste from research, diagnosis, treatment or prevention of disease involving animals
18 02 01	Sharps except 18 02 02*
18 02 02*	Waste whose collection and disposal is subject to special requirements in order to prevent infection
18 02 03	Waste whose collection and disposal is not subject to special requirements in order to prevent infection
18 02 05*	Chemicals consisting of dangerous substances
18 02 06	Chemicals other than those listed in 18 02 05*
18 02 07*	Cytotoxic and cytostatic medicines
18 02 08	Medicines other than those mentioned in 18 02 07*

*Hazardous waste list entries

Hazardous wastes can be absolute entries (in which case they are always hazardous – highlighted red in the Table) or mirror entries (which can be either hazardous or non-hazardous depending on their properties – highlighted blue in the Table). A description of each EWC chapter can be found in [Appendix A](#)

4.18 WM2 provides guidance on the classification of **absolute*** and **mirror** entries in the EWC in relation to the 14 hazard groups identified in the Hazardous Waste Regulations. The 14 hazard groups originate from the Hazardous Waste Directive and are shown in Table 2.

4.19 Appendix C of the WM2 guidance provides comprehensive guidance on the classification of waste in each of the hazard groups. Paragraphs 4.20–4.27 and **paragraph 4.36** provide a summary of the WM2 guidance with respect to infectious, medicinal and amalgam healthcare waste.

Infectious waste

4.20 The Hazardous Waste Regulations define infectious as:

H9: Infectious	Substances containing viable microorganisms or their toxins which are known or reliably believed to cause disease in man or other living organisms
----------------	--

Table 2 The 14 hazard groups identified in the Hazardous Waste Regulations

H1	Explosive
H2	Oxidising
H3A	Highly Flammable
H3B	Flammable
H4	Irritant
H5	Harmful
H6	Toxic
H7	Carcinogenic
H8	Corrosive
H9	Infectious
H10	Toxic for reproduction
H11	Mutagenic
H12	Substances that release toxic gases
H13	Substances capable of yielding substances listed above
H14	Ecotoxic

- 4.21 Waste traditionally known as “clinical waste” on the basis of infection risk is infectious waste.
- 4.22 WM2 provides UK guidance on the interpretation and risk-based identification of infectious waste. Failure to segregate infectious waste from non-infectious waste will mean that the entire waste stream (that is, where it includes any quantity of infectious waste) will need to be classified as infectious waste and consigned for appropriate treatment and recovery or disposal.

Note

In England and Wales, it is a legal requirement of the Hazardous Waste Regulations to segregate infectious waste (waste that is subject to special requirements) from other wastes. This duty is not specified in the Hazardous Waste Regulations in Northern Ireland nor in the Special Waste Regulations in Scotland. However, source segregation of infectious waste is considered best practice.

- 4.23 Absolute EWC entries for infectious waste (hazardous property H9) are only found in Chapter 18 of the EWC. The relevant EWC codes for infectious waste are shown in Table 3.

Table 3 EWC coding for infectious waste

EWC Code	Description of Waste
18 01 XX	Waste from natal care, diagnosis, treatment or prevention of disease in humans
18 01 03*	Waste whose collection and disposal is subject to special requirements in order to prevent infection
18 02 XX	Waste from research, diagnosis, treatment or prevention of disease involving animals
18 02 02*	Waste whose collection and disposal is subject to special requirements in order to prevent infection

Medicinal waste

- 4.24 The EWC has entries for medicinal waste in both Chapter 18 (“Healthcare waste”) and Chapter 20 (“Municipal waste”) as shown in Table 4.
- 4.25 Medicinal waste is classified into two categories:
- cytotoxic and cytostatic medicines;
 - medicines other than those classified as cytotoxic and cytostatic.

Table 4 EWC coding for medicinal waste

EWC Code	Description of Waste
18 01 XX	Waste from natal care, diagnosis, treatment or prevention of disease in humans
18 01 08*	Cytotoxic and cytostatic medicines
18 01 09	Medicines other than those mentioned in 18 01 08*
18 02 XX	Waste from research, diagnosis, treatment or prevention of disease involving animals
18 02 07*	Cytotoxic and cytostatic medicines
18 02 08	Medicines other than those mentioned in 18 02 07*
20 XX XX	Municipal waste (household waste and other similar commercial, industrial and institutional waste (including separately collected fractions))
20 01 31*	Cytotoxic and cytostatic medicines
20 01 32	Medicines other than those mentioned in 20 01 31

- 4.26 Only cytotoxic and cytostatic medicines are classified as hazardous waste. However, other (non-cyto) medicinal waste may require specialist treatment/disposal (see paragraphs 5.11–5.19).
- 4.27 Failure to segregate cytotoxic and/or cytostatic medicines from other medicines will mean that the entire medicinal waste stream (that is, where it includes any quantity of cytotoxic and/or cytostatic medicines) will need to be classified as hazardous medicinal waste and consigned for disposal to a suitably authorised waste incinerator.

Note

The hazardous properties of non-cyto-medicinal waste should still be considered for the purposes of duty of care (for example “H3B: Flammable”; “H4: Irritant”; “H5: Harmful”; “H14: Ecotoxic”).

Controlled drugs

- 4.28 Controlled drugs are subject to special legislative controls as they are potentially harmful.

Definition of controlled drugs

- 4.29 The Misuse of Drugs Regulations list the medicines which are classified as controlled drugs. There are currently five schedules which dictate the level of control applied to each medicine – schedule one having the most controls, and schedule five the fewest.

Legal framework for working with controlled drugs

- 4.30 The Regulations also set out the regime of control that governs the various legitimate clinical activities associated with controlled drugs, for example:
- which professionals are allowed to prescribe, order, supply or administer the drugs;
 - destruction and/or disposal procedures (see paragraph 4.32);
 - associated record-keeping requirements.
- 4.31 Regulations on the Safe Custody of Controlled Drugs 1973 list additional requirements in terms of safe storage (for example lockable cupboards of sufficient strength).

Destruction/disposal

- 4.32 Under the Regulations, all Schedule 1 and 2 stock-controlled drugs can only be destroyed in the presence of a person authorised under those Regulations to witness destruction. When a stock-controlled drug is destroyed, details of the drug must be entered into the controlled drugs register. This should include:
- the name of the drug;
 - its form;
 - its strength and quantity;
 - the date it was destroyed; and
 - the signature of the authorised person who witnessed the destruction, and the person witnessing it (that is, two signatures).
- 4.33 Once issued/dispensed to a patient, the requirements for witnessed destruction do not apply, although there is a general duty of care to ensure the appropriate disposal of waste medicines that are returned by patients.
- 4.34 NHS organisations should be aware of who within their organisation is authorised to witness destruction. Further guidance and details of the categories of people currently authorised are available on the Department of Health website.

Standard operating procedures

- 4.35 From January 2007 (subject to Parliamentary approval), Regulations under the Health Act 2006 will require healthcare organisations to have written standard operating procedures (SOPs) on the use and management of controlled drugs within their organisation. These should cover:

- ordering and receipt of controlled drugs;
- assigning responsibilities;
- where the controlled drugs are stored;
- who has access to the controlled drugs;
- record-keeping; and
- who should be alerted if complications arise.

Links to associated legislation and guidance can be found on the controlled drugs section of the Department of Health website (<http://www.dh.gov.uk/PolicyAndGuidance/MedicinesPharmacyAndIndustry/Prescriptions/ControlledDrugs/fs/en>).

Amalgam waste

- 4.36 The only entry for amalgam waste is in Chapter 18 of the EWC and it is classified as a hazardous waste (see Table 5). All dental practices are required to have amalgam separators fitted. See Defra's guidance on dental amalgam (<http://www.defra.gov.uk/environment/waste/special/index.htm>).

Table 5 EWC coding for amalgam waste

EWC Code	Description of Waste
18 01 XX	Waste from natal care, diagnosis, treatment or prevention of disease in humans
18 01 10*	Amalgam waste from dental care

Mercury waste

- 4.37 All waste materials containing or contaminated with mercury are classified as hazardous waste.

Transport definitions and classifications

- 4.38 The Carriage Regulations do not specifically regulate waste materials. They apply to all dangerous goods regardless of whether a substance is waste or not. Goods are assessed on their hazardous characteristics and, if applicable, are classified into one of nine classes of dangerous goods. The nine classes are shown, along with examples of healthcare waste in each, in [Appendix B](#).
- 4.39 Once goods have been classified into their appropriate class, this information is used to identify appropriate packaging and labelling requirements. The packaging and labelling in relation to the Carriage Regulations is discussed in greater detail in [Chapter 8](#).

Note

The Dangerous Goods Division of the Department for Transport has issued “Authorisation 53”, which allows the immediate use of provisions that will be introduced in the 2007 edition of ADR. Among the changes that can be adopted now are:

- changes to the definition of cultures;
- alignment of medicinal or clinical wastes with the codes in the EWC;
- requirements on the bulk carriage of wastes of Class 6.2 (UN 3291).

Details can be downloaded from the Department for Transport website under “authorisations” (<http://www.dft.gov.uk/freight/dangerousgoods>).

In Northern Ireland a similar “Authorisation 53” is in place and issued by the HSENI.

Classification of infectious waste for the purpose of transport

4.40 Class 6.2 of ADR classifies infectious substances. Infectious waste is classified into two categories – Category A and Category B (full details can be found in ADR):

- **Category A:** an infectious substance which is transported in a form that, when exposure to it occurs, is capable of causing permanent disability, life-threatening or fatal disease to humans or animals;
- **Category B:** an infectious substance which does not meet the criteria for inclusion in Category A.

4.41 Waste which is known or suspected to be contaminated with pathogens presenting the most severe risk of infection is classified as a Category A waste. Category A waste includes infectious waste from highly infectious diseases such as the Ebola virus and cultures of certain infectious diseases including *Clostridium botulinum* (further examples of Category A pathogens can be found in [Appendix B](#)).


4.42 With the exception of certain laboratory waste, very little Category A waste will be produced from healthcare premises within the UK. The vast majority of infectious waste produced from the healthcare sector will be classified as Category B.

4.43 Table 6 shows the classifications used for infectious waste in the Carriage Regulations.

Note

Offensive/hygiene waste is not infectious; therefore, for transport purposes, it is not classified as a dangerous good.

Table 6 Transport classification for infectious waste

Waste classification (EWC)	Transport classification for infectious waste	
Infectious waste: human healthcare 18 01 03*	CAT A UN 2814	Class 6.2 (infectious) 
	CAT B UN 3291	
Infectious waste: animal healthcare 18 02 02*	CAT A UN 2900	
	CAT B UN 3291	

Classification of medicinal waste for the purpose of transport

4.44 Medicinal waste must be classified in accordance with the rules of classification for transport. Many types of this waste will fall into Class 6.1 (toxic substances), but others may fall into class 3 (flammable liquids). [Table 7](#) shows the most common UN numbers, but there may be some medicines in other dangerous goods classes that will have different UN numbers. These are not included in this guide.





Classification of other chemicals

4.45 A number of other waste substances cannot be assigned to the entries for medicinal waste but must be assigned to the most appropriate entry in the dangerous goods regulations. For example:

- because amalgam contains mercury, it must be assigned to “UN 2025 mercury compounds N.O.S Class 6.1 PG III”;
- aerosols used in healthcare must be assigned to “UN 1950 aerosols Class 2”;
- developers for X-rays are often corrosive or environmentally hazardous liquids and must be classified accordingly (normally the original packaging from the supplier or material safety data sheet will indicate the appropriate UN number).

4.46 COSHH specifically requires consideration of waste that contains substances hazardous to health,

Table 7 Transport classification for medicinal waste

Waste Classification (EWC)	UN description	Transport classification for medicinal waste	
Human healthcare: Cytotoxic and Cytostatic 18 01 08* 18 01 09 other medicines	Medicine, Liquid, Toxic, N.O.S	UN 1851	Primary Class 6.1 (Toxic)  No subsidiary label
Animal healthcare: Cytotoxic and Cytostatic 18 02 07* 18 02 08 other medicines	Medicine, Liquid, Flammable, Toxic, N.O.S	UN 3248	Primary Class 3 (Flammable Liquids)  Subsidiary label: Class 6.1 (Toxic) 
	Medicine, Solid, Toxic, N.O.S	UN 3249	Primary Class 6.1 (Toxic)  No subsidiary label

including any biological agents that may be present and the hazard groups they belong to. Reference should be made to the COSHH Approved Code of Practice and ACDP's 'Approved list of biological agents'.

Other definitions associated with healthcare waste

Medical devices

4.47 Medical devices are defined in the Medical Devices Regulations as:

“An instrument, apparatus, appliance, material or other article, whether used alone or in combination, together with any software necessary for its proper application, which:

(a) is intended by the manufacturer to be used for human beings for the purpose of:

- (i) diagnosis, prevention, monitoring, treatment or alleviation of disease,*
- (ii) diagnosis, monitoring, treatment, alleviation of or compensation for an injury or handicap,*

(iii) *investigation, replacement or modification of the anatomy or of a physiological process, or*

(iv) *control of conception;*

and

(b) *does not achieve its principal intended action in or on the human body by pharmacological, immunological or metabolic means, even if it is assisted in its function by such means, and includes devices intended to administer a medicinal product or which incorporate as an integral part a substance which, if used separately, would be a medicinal product and which is liable to act on the body with action ancillary to that of the device.”*

Infected/used medical devices

4.48 Where implanted medical devices have been in contact with infectious bodily fluids and have been assessed to be infectious, they should be classified and treated as infectious waste.

4.49 If the device contains hazardous substances or components including nickel cadmium and mercury-containing batteries, the description of the waste on the consignment note must fully describe the waste and all its hazards. For example, an implanted device with a nickel cadmium battery should be classified as:

18 01 03* Infectious waste containing Nickel Cadmium batteries

[Hazards: Infectious (H9) and Corrosive (H8)]

The waste description should accurately describe the waste.

Disinfected/unused medical devices

4.50 Disinfected medical devices should be classified as non-infectious healthcare waste. The description given of the waste must adequately describe the waste and any hazardous characteristics (even if the waste is not classed as hazardous waste).

4.51 For example, a disinfected device containing a nickel cadmium battery should be classified as:

16 02 13 Discarded equipment containing hazardous components other than those mentioned in 16 02 09 to 16 02 12.

[Hazard: Corrosive (H8)]

The waste description should accurately describe the waste.

Other classifications within subchapter 16 02 may apply to disinfected electrical devices.

Implants

4.52 Special care should be taken if a deceased person has an implant, particularly if it has electronic components such as an implantable cardioverter defibrillator or other implanted cardiac aid. For example:

- there may be a risk of electric shock to a person removing and subsequently handling them;
- cremation or disposal by incineration might cause batteries to explode, leaking toxic gas.

4.53 Such implants should be deactivated, removed with consent (see Note after paragraph 4.55), decontaminated, and disposed of in a safe manner in the hazardous waste stream.

Removal

4.54 Protocols for the removal of implants should be determined locally. It is recommended that local cardiac units, manufacturers/suppliers and funeral directors be consulted. They may find it helpful to draw on guidance published by the Association of British Healthcare Industries, the National Association of Funeral Directors, the Institute of Cemetery and Crematorium Management, and the Medicines and Healthcare products Regulatory Agency's (MHRA) circular MDA SN 2002(35).

Disposal

4.55 Disposal may include return to the manufacturer or cardiac unit to access stored data (see also [paragraphs 7.42–7.43](#)). The receiving authority needs to be aware of duty-of-care implications.

Note

Removed items are waste produced by the healthcare organisation. Where the patient has asked to retain the item, it is not considered waste, since it has not been discarded.

Radioactive waste

4.56 This guidance covers the management of low-level radioactive infectious waste produced from healthcare activity. It does not cover the management and disposal of sealed radioactive sources.

- 4.57 Radioactive waste generated from healthcare includes radionuclides used in therapeutic and diagnostic medicine. Generally, this waste is considered to be low-level radioactive waste and is subdivided into three categories:
- long half-life: ^3H , ^{14}C ;
 - radioiodines: ^{123}I , ^{125}I , ^{131}I (any mixed waste containing radioiodine will be in this category);
 - other Beta/Gamma emitters: ^{89}Sr , ^{35}S , ^{32}P , ^{51}Cr , ^{201}Tl , ^{111}In , ^{67}Ga , $^{99\text{m}}\text{Tc}$, ^{57}Co , ^{75}Se , ^{65}Zn , ^{59}Fe , ^{22}Na , ^{24}Na , ^{45}Ca .
- 4.58 The UK environmental regulatory authorities (EA, SEPA, and EHS) regulate the storage and use of radioactive material in hospitals. Small users of radioactive sources (including hospitals) require authorisation to discharge or dispose of radioactive waste except where it is permitted under an exemption order. The Environment Act gives the regulators authorisation to permit discharges and disposal.
- 4.59 Most radioactive waste comes under the Radioactive Substances Act. However, if radioactive waste is exempt from the requirements of Section 13 or 14 of the Radioactive Substances Act and has one or more hazardous properties, this waste will be a hazardous waste where classified as such in the EWC.

Note

For information on the EWC description requirements for radioactive waste in Scotland, contact your local SEPA office.

Radioactive waste and carriage

- 4.60 Radioactive waste should be labelled with the appropriate class according to its hazard characteristics in accordance with the Radioactive Material (Road Transport) Regulations. Radioactive waste is classified as Class 7 substances. The hazard warning diamond used may vary, based on the isotope and the level of hazard posed. An example of the hazard warning diamond is shown below:



Radiation protection adviser

- 4.61 The Ionising Radiations Regulations specify that a Radiation Protection Adviser (RPA) should be appointed to advise on the use and management of radioactive materials. The RPA should work with healthcare staff and a DGSA to ensure the safe management and transfer of radioactive waste.

Microbiological cultures

- 4.62 See the “Microbiological cultures” section in the “Research and laboratory facilities” sector guide.

Anatomical waste

- 4.63 For the purpose of this guidance document, the definition of anatomical waste includes body parts or other recognisable anatomical items, such as pet carcasses, which may be offensive to those who come into contact with such items.
- 4.64 The EWC lists anatomical waste with blood bags and blood preserves as shown in Table 8.

Table 8 EWC coding for anatomical waste

EWC Code	Description of Waste
18 01 XX	Waste from natal care, diagnosis, treatment or prevention of disease in humans
18 01 02	Body parts and organs including blood bags and blood preserves (except 18 01 03*)
18 01 03*	Waste whose collection and disposal is subject to special requirements in order to prevent infection

- 4.65 However, it is recognised that producers may wish to segregate these types of waste at source because they often have differing disposal requirements.

Teeth

- 4.66 As the disposal of teeth from dental premises is unlikely to cause offence, dental practitioners may treat this as non-anatomical infectious waste. Dental practitioners must ensure that all waste is treated appropriately, and teeth containing amalgam (see paragraph 4.36) should be segregated and sent for appropriate recovery/disposal (see <http://www.defra.gov.uk/environment/waste/special/index.htm>).

Foetal remains

- 4.67 Disposal of foetal remains should be in accordance with available guidance:

- DH provides information on disposal following pregnancy loss at <http://www.dh.gov.uk/PolicyAndGuidance/HealthAndSocialCareTopics/Tissue/TissueGeneralInformation/fs/en>.

The key issue is about open and sensitive communication with the mother (or parents) and for bereavement managers (or other relevant NHS staff) to be aware of the issues and make arrangements that meet the wishes of the parents in the most sensitive manner possible. This will involve close liaison with cremation managers in most cases;

- the Human Tissue Authority also has a Code of Practice on removal, storage and disposal of human organs and tissues (in draft awaiting

Parliamentary approval). This is available at <http://www.hta.gov.uk/regulation/codes/> (refer to B17–B19);

- in Scotland: SOHDD MEL(1992)4 – ‘Scottish Office instruction on the sensitive disposal of foetuses and foetal tissue following termination of pregnancy’.

Waste generated from funeral services

- 4.68 Guidance on the disposal of waste generated from funeral services can be found in HSE’s ‘Controlling the risks of infection at work from human remains’ (<http://www.hse.gov.uk/pubns/web01.pdf>).

5 Unified definitions, classification and assessment framework

Introduction

5.1 This guidance document has considered the regulatory requirements of health and safety, transport, and waste legislation. It introduces a unified methodology and definitions that enable the producer to determine whether the waste is:

- infectious clinical waste;
- hazardous waste;
- offensive/hygiene waste;
- dangerous for carriage.

5.2 The methodology presented in this chapter considers definitions and classifications that enable unification of these regimes into a single assessment framework (see paragraphs 5.4 and 5.22–5.50).

5.3 The unified approach has been developed to help waste producers comply with regulatory requirements. Use of the unified approach is not mandatory but is considered best practice. Compliance with the unified approach will ensure that producers comply with the regulatory requirements.

Waste assessment framework

5.4 **Appendix E** provides the assessment procedures for the medicinal, chemical, infectious, and offensive properties incorporated in the assessment framework described in this chapter. These procedures are designed to produce an appropriate classification of individual waste items when used as part of the framework. The following paragraphs explain the general principles employed in the assessment framework and **Appendix E**.

Unified definition of infectious waste

5.5 To produce a single classification system for infectious waste, the following definitions and classifications have been considered:

- the definition of clinical waste given in the Controlled Waste Regulations;

- those definitions given in the Hazardous Waste Regulations (and WM2 guidance);
- the definition of infectious substances given in ADR.

Identification of infectious waste

5.6 Infectious waste is essentially a waste that poses a known or potential risk of infection, regardless of the level of infection posed. Even minor infections are included within the definition of infectious.

5.7 Healthcare waste generated from healthcare practices, or produced by healthcare workers in the community, is considered to be infectious waste unless assessment has taken place. This assessment is based on item- and patient-specific clinical assessment by a healthcare practitioner.

5.8 Municipal waste from domestic minor first-aid and self-care – of a type that does not involve recourse to a healthcare practitioner – is assumed to be non-infectious unless a healthcare practitioner indicates otherwise. Therefore, soiled waste such as nappies, sanitary products and plasters are not considered to be infectious unless a healthcare practitioner gives the producer advice to the contrary.

5.9 Similarly, municipal-type waste from industrial and commercial premises is assumed to be non-infectious providing that a risk assessment has been conducted. Therefore, soiled waste such as sanitary products and plasters are not considered to be infectious unless a healthcare practitioner gives specific advice to the contrary.

5.10 Waste contaminated with non-infectious bodily fluids is capable of causing offence and therefore requires appropriate packaging to alert those in the waste management chain of the contents. This document identifies such waste as offensive/hygiene waste.

Unified definition of medicinal waste

5.11 Medicinal waste includes expired, unused, spilt, and contaminated pharmaceutical products, drugs,

vaccines, and sera that are no longer required and need to be disposed of appropriately.

- 5.12 The category also includes discarded items contaminated from use in the handling of pharmaceuticals, such as bottles or boxes with residues, gloves, masks, connecting tubing, syringe bodies and drug vials.
- 5.13 This document divides medicines into three broad groups:
1. cytotoxic and cytostatic;
 2. pharmaceutically active, but not cytotoxic and cytostatic;
 3. not pharmaceutically active and possessing no hazardous properties (examples include saline and glucose).
- 5.14 Medicinal waste is listed in both Chapter 18 and Chapter 20 of the EWC. The term “cytotoxic and cytostatic” relates to the classification of waste medicines in the EWC as shown in [Table 4](#) (Chapter 4). Only cytotoxic and cytostatic medicines are classified as a hazardous waste, although other medicines often possess hazardous properties and therefore require appropriate treatment and disposal.
- 5.15 A cytotoxic and cytostatic medicine is a medicinal product possessing any one or more of the hazardous properties:
- H6: Toxic;
 - H7: Carcinogenic;
 - H10: Toxic for reproduction;
 - H11: Mutagenic.
- 5.16 Medicines other than cytotoxic and cytostatic medicines may have hazardous properties that should be identified to subsequent holders for the purposes of duty-of-care and for transport.
- 5.17 To establish whether a medicinal product has the above-mentioned hazardous characteristics, pharmacists should refer to the products material safety data sheets (MSDS; sometimes referred to as “COSHH sheets”).

When should cytotoxic and cytostatic medicinal wastes be segregated from other medicinal wastes?

- 5.18 It is best practice to segregate cytotoxic and cytostatic medicines from other medicines. Waste contractors may request this, as not all incinerators

are authorised for cytotoxic and cytostatic medicines. In most cases, however, it is not a legal requirement.

- 5.19 In England, Wales and Northern Ireland, the Hazardous Waste Regulations place prohibitions on producers mixing waste types. The mixing of a cytotoxic and cytostatic medicine with any other medicine, including other cytotoxic and cytostatic medicines, is prohibited where:
- they are chemically incompatible; or
 - the necessary treatment/disposal of the waste is affected.

Offensive/hygiene waste

- 5.20 The term offensive/hygiene waste describes waste which is non-infectious and which does not require specialist treatment or disposal, but which may cause offence to those coming into contact with it. Offensive/hygiene waste includes waste previously described as human hygiene waste and “sanpro” waste, and does not need to be classified for transport.
- 5.21 Examples of offensive/hygiene waste include:
- incontinence and other waste produced from human hygiene;
 - sanitary waste;
 - nappies;
 - medical/veterinary items and equipment which do not pose a risk of infection, including gowns, plaster casts etc;
 - animal faeces and soiled animal bedding.

The waste assessment framework

- 5.22 The assessment framework considers:
- the definition of an infectious clinical waste;
 - the definition of a hazardous waste;
 - the structure of the EWC and the classification of the waste;
 - the general principles of the Carriage Regulations.
- 5.23 To determine their classification, all healthcare waste items must be clinically and specifically assessed by the producer, at the time of production, for:
- medicinal properties (see [Appendix E](#) and [Figure E1](#));

- chemical properties (see [Appendix E](#) and [Figure E2](#)); and
- infectious properties (see [Appendix E](#) and [Figure E3](#)).

5.24 Where the healthcare waste has none of these properties, an assessment methodology is provided to determine if it is offensive/hygiene waste.

5.25 The assessment framework is presented in [Figure 3](#). Paragraphs 5.27–5.50 provide an explanation of each step.

5.26 Staff segregating waste should be provided with clear instructions on the segregation process and should be provided with appropriate training (see [Chapter 16](#)). Colour-coded waste receptacles should be supplied for each waste stream.

Step 1a: Is the waste a healthcare waste?

5.27 Healthcare waste is listed in Chapter 18 of the EWC.

5.28 The term healthcare waste relates to waste that is both:

- produced by healthcare activities; and
- is of a type specifically associated with such activities.

5.29 This term does not include non-specific wastes that are also commonly produced by other non-healthcare activities, for example photochemicals, paper, food, electrical equipment, vehicular wastes etc.

5.30 [Figure 2](#) shows the different types of healthcare waste classified according to whether they are hazardous or non-hazardous. It is for illustrative purposes only and is not intended to be used as part of the assessment framework.

Step 1b: Is the waste a waste arising from municipal sources which is similar to healthcare waste?

5.31 There are a small number of municipal non-healthcare waste streams that are similar in nature to healthcare waste and are considered within the assessment framework.

5.32 Specifically included are the following:

- human hygiene wastes (sanitary products, nappies, incontinence waste etc);
- animal hygiene wastes (animal bedding, dog faeces etc);

- wastes from non-healthcare activities, for example sharps and related wastes from body-piercing or application of tattoos, and wastes arising from substance abuse (drug litter).

5.33 Excluded from this would be waste produced by self-medicating patients (for example people with diabetes). This is classified as healthcare waste.

Step 2: Assess for the medicinal waste properties of a clinical waste

5.34 This step provides the assessment for each element (components and contaminants) of the waste for medicinal properties.

5.35 Each element is classified as either clinical or non-clinical, hazardous or non-hazardous on the basis of its medicinal properties alone. The appropriate EWC code is also indicated.

5.36 See [Figure E1](#) and [paragraphs 4–27](#) in [Appendix E](#).

Step 3: Assess for the chemical waste properties of a clinical waste

5.37 This step provides the assessment for each element (components and contaminants) of the waste for chemical properties.

5.38 Each element is classified as either clinical or non-clinical, hazardous or non-hazardous on the basis of its chemical properties alone. The appropriate EWC code is also indicated.

5.39 See [Figure E2](#) and [paragraphs 28–42](#) in [Appendix E](#).

Step 4: Assess for the infectious waste properties of a clinical waste

5.40 This step provides the assessment for each element (components and contaminants) of the waste for infectious properties.

5.41 Each element is classified as either clinical or non-clinical, hazardous or non-hazardous on the basis of its infectious properties alone. The appropriate EWC code is also indicated.

5.42 See [Figure E3](#) and [paragraphs 43–82](#) in [Appendix E](#).

Step 5: Review the assessment of each element of the waste for medicinal, chemical, and infectious properties

- 5.43 Steps 2–4 provide an assessment of each element of the waste for the three properties that define hazardous and clinical waste status.
- 5.44 Step 5 reviews these results.
- 5.45 Where an element of the waste is identified as an infectious and/or hazardous waste due to one or more of these properties, this classification applies.
- 5.46 Where a waste contains multiple elements with different classifications, the waste is mixed and each element must be described and classified separately.
- 5.47 If the waste contains any elements which Steps 2–4 have indicated, it:

- is not clinical waste;
- is not hazardous waste; nor
- has not been assigned EWC codes by Steps 2–4, these elements can be assessed for offensive properties.

5.48 If found to be offensive, these elements must also be classified and describe separately within a mixed waste.

Step 6: Assess for offensive properties

- 5.49 This step provides a suitable assessment for offensive/hygiene waste.
- 5.50 See Figure E4 and paragraphs 83–113 in Appendix E.

Figure 2 Healthcare waste and hazardous waste

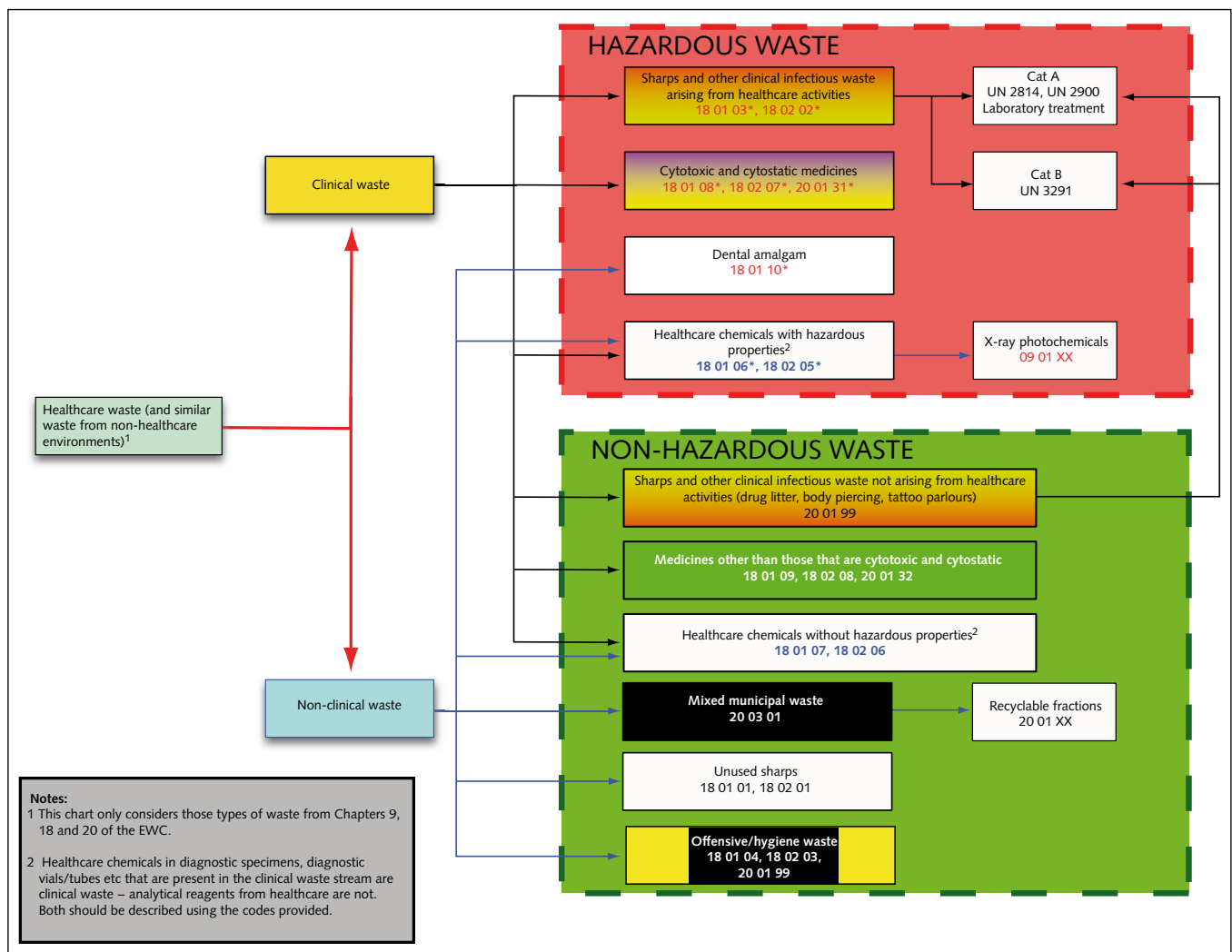
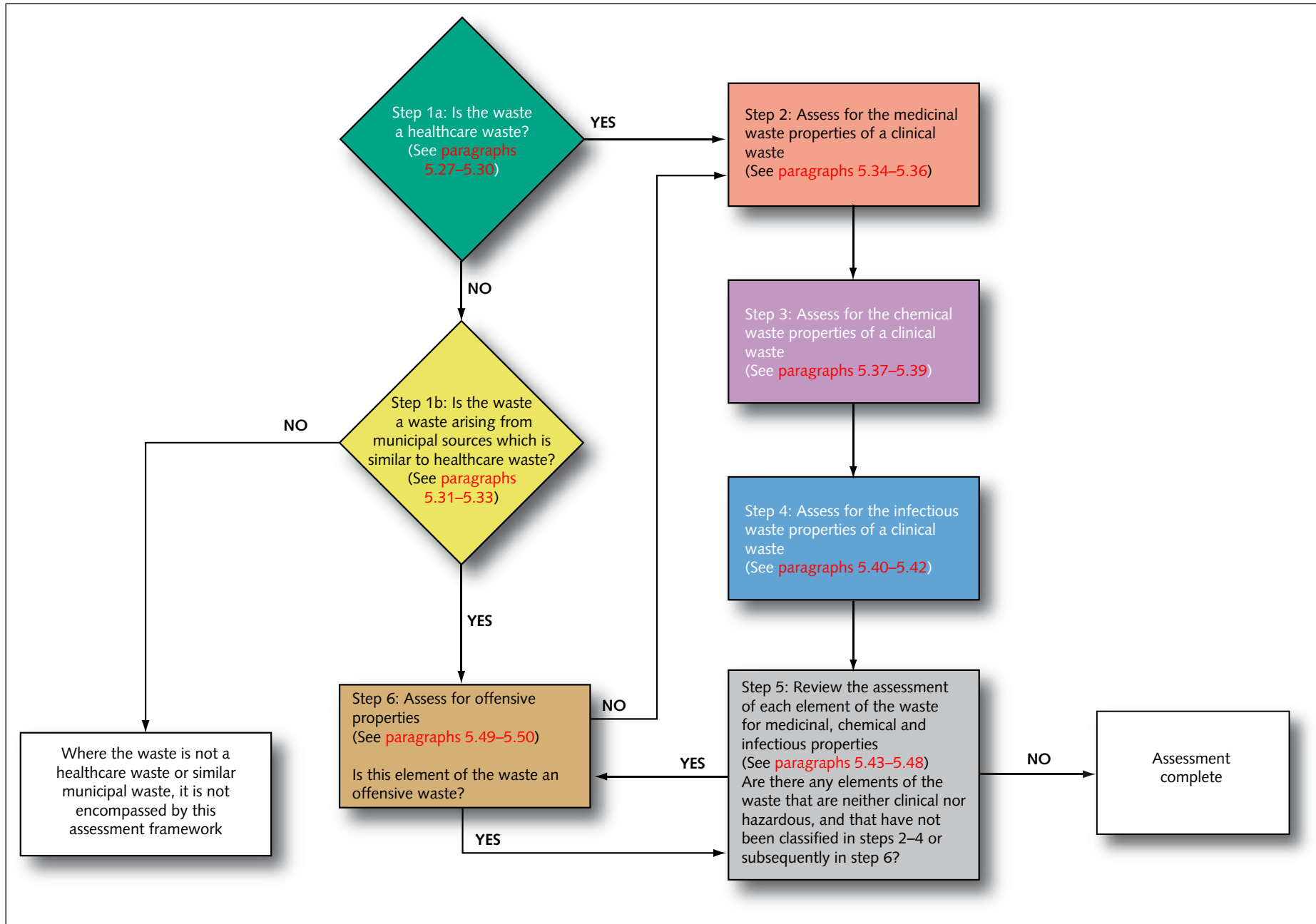


Figure 3 Assessment framework for healthcare, and similar municipal, wastes



6 Waste audits

Purpose of audit

- 6.1 Waste audits are an essential tool in assessing the composition of a waste stream for the purposes of duty of care and for monitoring waste segregation and minimisation schemes.
- 6.2 Audit results identify the type and quantity of waste produced; this information can be used to develop and influence waste management policies and procedures. Audits also provide useful information on the composition of waste produced, and the results may be used to identify appropriate re-use or recycling options and opportunities to minimise waste by amending purchasing policies.
- 6.3 Audits play a vital role in demonstrating compliance with regulatory standards. Waste producers are required, in line with the duty of care, to ensure that waste is effectively segregated to ensure that the waste is treated and disposed of appropriately.
- 6.4 Documented evidence from waste audits showing effective segregation demonstrates that the producer is complying with regulations. It also reassures the waste contractor that the waste received is suitable for disposal at the appropriate permitted waste facility.

Frequency of audits

- 6.5 At a minimum, audits are recommended prior to developing or updating waste management procedures and at routine intervals to monitor compliance with waste segregation schemes.
- 6.6 Annual audits provide a snapshot of waste management practices, while more frequent audits allow producers to monitor the effectiveness of waste segregation and minimisation initiatives, and to take action to remedy non-compliances as soon as practically possible.
- 6.7 It is neither practical nor reasonable to expect healthcare producers to audit all waste produced on a site at the same time. Therefore, the use of periodic smaller audits, which over a year build

up to provide coverage of all aspects of waste management, is considered best practice.

Scope of audits

- 6.8 Audits should cover (at minimum) the following waste types:
- hazardous waste:
 - infectious waste (including sharps);
 - medicinal waste (including sharps);
 - dental amalgam;
 - other;
 - offensive/hygiene waste;
 - domestic waste:
 - kitchen waste;
 - separately collected fractions, for example recyclables.
- 6.9 Audit procedures for waste should take into account the specific risk posed, and the audit procedure should be adapted to minimise exposure to the waste via risk assessment.

Audit techniques

- 6.10 There are a number of methods that can be used to audit a waste stream. The type and effectiveness of the audit undertaken depends on the nature of the waste stream and the purpose of the audit. To audit the entire waste stream, more than one audit method may be required.
- 6.11 An audit protocol containing four audit tools is provided in [Table 9](#). The table provides a guide to the minimum frequency with which each part of audit should be conducted.
- 6.12 The audit should be representative of:
- the full range of waste receptacles in use;
 - the full range of departments where waste is produced; and
 - all staff who may produce waste.

Table 9 Example waste audit protocol

Type of Audit	Application				
	Sharps boxes	Infectious waste	Cytotoxic/ cytostatic substances	Waste medicines	Offensive/ hygiene waste
Audit observation and recording of practice	Y	Y	Y	Y	Y
Observation of waste receptacles	Y	Y	Y	Y	Y
Staff questionnaire	Y	Y	Y	Y	Y
Detailed examination of waste	N	N	N	Y	(Y)

(Y) = Where it can be practicably achievable with an appropriate risk assessment

Observation and recording of practice

- 6.13 Audits should involve a review of staff waste management practices and, in particular, the effectiveness of segregation procedures.
- 6.14 The audit entails the observation, recording and classification of each waste item as it is placed into a receptacle.
- 6.15 The final step in the audit is to confirm that the paperwork (consignment or transfer note) accompanying the waste when it leaves the premises reflects the audit findings. This applies to all waste types, including hazardous waste, and should be carried out once a year at minimum.

Observation of waste receptacles

- 6.16 This provides a mechanism of spot checks intended to underpin the observation and recording of practice.
- 6.17 In-use receptacles are visually inspected without removing the waste. For example, the contents of a sharps box can be viewed from the aperture or opening of the box.
- 6.18 This applies to all waste types, including hazardous waste, and should be carried out a minimum frequency of once per quarter.

Detailed examination of waste

- 6.19 Detailed waste analysis is used to determine the nature and composition of waste materials, and involves the manual sorting of waste to determine the effectiveness of segregation procedures.
- 6.20 Audit procedures should take into account the specific risks posed and risk assessments undertaken to reduce, so far as is reasonably practicable, exposure to the waste. Exposure to the identified risks should be prevented. The use of personal protective equipment should be considered as

additional to other control measures, when necessary, to adequately control exposure.

Staff questionnaire

- 6.21 Staff understanding and practice can be audited by the use of questionnaires. These can be used to target specific areas or may be used randomly. Questionnaires may be used to review staff practice for all waste types including hazardous waste. The main use of this tool is to identify issues for, and to establish, staff awareness.

Note

With regard to the effectiveness of segregation practice or waste composition, questionnaires do not provide sufficient information for use in completing waste documentation or in demonstrating compliance.

Undertaking audits

- 6.22 Audits should only be undertaken by staff who have been trained in the audit procedure and are fully aware of the risk and hazards posed by the audit protocol. The audit protocol should be stated in the waste management policy.
- 6.23 A detailed method statement should be produced for each audit tool clearly stating the following:
- who should undertake the audit;
 - what is included within the audit;
 - how the audit should be undertaken;
 - the method of recording and reporting the findings of the audit;
 - the management responsibility and mechanism to act on the findings.
- 6.24 The method statement should also state any inherent risks and the control measures required,

for example personal protection equipment (PPE) required. See [Appendix D](#) for details on the waste audit procedure.

Waste audit trails

6.25 Under environmental legislation, waste producers have a cradle-to-grave responsibility for the control, management and disposal of their waste. To be sure that waste is being disposed of at appropriately licensed facilities in accordance with duty-of-care requirements and local waste management procedures, it is recommended that waste producers undertake a waste audit trail, at least, every year. This will entail checking the route of the waste from being collected and leaving the site through to final disposal. Audit trails may be undertaken more frequently if circumstances require.

Use of contractors

6.26 Commercial contractors and consultants may be used to undertake waste audits. Producers are advised to consider the following:

- the producer is responsible for the health and safety of contractors working on their site (see [paragraphs 2.12–2.19](#));
- waste removed from the site for the purpose of an audit should comply with relevant waste and transport legislation;
- the organisation conducting the audit should not be affected by the outcome. Conflicts of interest should be avoided.

7 Waste segregation and national colour-coding approach

7.1 Segregation of waste at the point of production into suitable colour-coded packaging is vital to good waste management. Health and safety, carriage and waste regulations require that waste is handled, transported and disposed of in a safe and effective manner. The following colour-coded waste segregation guide represents best practice and ensures, at minimum, compliance with current regulations.

7.2 It is recommended that this national colour-coded system be embraced with immediate effect by new facilities or organisations that produce healthcare waste. Existing facilities and organisations should seek to reorder the new colour-coded supply of waste receptacles as they replace depleted stocks. It is estimated that this process might happen within one year of this document being published.

7.3 The following waste types are included in this segregation guide:

- clinical waste;
- infectious radioactive waste;
- non-infectious radioactive waste;
- sharps contaminated with cytotoxic/cytostatic products;
- sharps contaminated with other medicinal waste products;
- infectious waste contaminated with cytotoxic/cytostatic products;
- infectious waste contaminated with other medicinal products;
- infectious waste;
- amalgam waste;
- cytotoxic and cytostatic waste;
- other medicinal waste;
- offensive/hygiene waste;
- domestic waste;
- large equipment, for example mattresses;

- implanted/infectious medical devices;
- waste electrical and electronic equipment (WEEE).

This is a comprehensive breakdown of all healthcare waste types. Waste producers should choose the most appropriate waste receptacle for the waste generated in a particular area.

Colour-coding

7.4 Proper segregation of different types of waste is critical to safe management of healthcare waste and helps control management costs. The use of colour-coded receptacles is key to good segregation practice.

Colour-coding by waste management option

7.5 The colour-coded segregation system outlined in this chapter identifies and segregates waste on the basis of waste classification and suitability of treatment/disposal options. The use of this colour-coding system is not mandatory and is not specified in regulations. Producers may wish to adopt this system to aid the identification and segregation of their waste. By adopting the best practice system, standardisation can be achieved across the UK.







7.6 Reference is made to the minimum required standard of waste treatment/disposal. However, waste may be sent to alternative treatment/disposal methods which operate to an equivalent or higher standard. Any disposal facility should hold the appropriate licence suitable for the waste to be treated or disposed of.

7.7 **Figure 4** summarises the colour-coding system.

Colour-coded segregation charts

7.8 The charts shown in **Figures 5 and 6** identify the type of packaging and packaging colour required for each waste stream. The charts assume that the packaging meets the requirements of the Carriage Regulations (UN compliant) where appropriate. (**Chapter 8** provides guidance on compliant packaging.)

Figure 4 Colour coding key to segregation system

Colour	Description
	Waste which requires disposal by incineration Indicative treatment/disposal required is incineration in a suitably permitted or licensed facility.
	Waste which may be “treated” Indicative treatment/disposal required is to be “rendered safe” in a suitably permitted or licensed facility, usually alternative treatment plants (ATPs) . However this waste may also be disposed of by incineration.
	Cytotoxic and cytostatic waste Indicative treatment/disposal required is incineration in a suitably permitted or licensed facility.
	Offensive/hygiene waste* Indicative treatment/disposal required is landfill in a suitably permitted or licensed site. This waste should not be compacted in unlicensed/permitted facilities.
	Domestic (municipal) waste Minimum treatment/disposal required is landfill in a suitably permitted or licensed site. Recyclable components should be removed through segregation. Clear/opaque receptacles may also be used for domestic waste.
	Amalgam waste For recovery

* The use of yellow/black for offensive/hygiene waste was chosen as these colours have historically been universally used for the sanitary/offensive/hygiene waste stream

Figure 5 Waste packaging and colour-coding


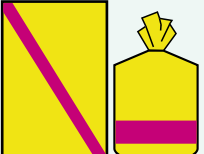
Waste receptacle	Waste types	Example contents	Indicative treatment/disposal
 “Over-stickers” with the radioactive waste symbol may be used on yellow packaging	Healthcare waste contaminated with radioactive material	Dressings, tubing etc from treatment involving low level radioactive isotopes	Appropriately licensed incineration facility
	Infectious waste contaminated with cytotoxic and/or cytostatic medicinal products	Dressings/tubing from cytotoxic and/or cytostatic treatment	Incineration

Figure 5 Waste packaging and colour-coding (continued)

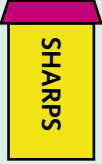
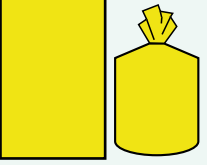
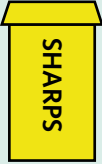
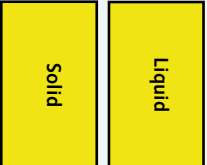
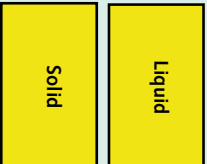
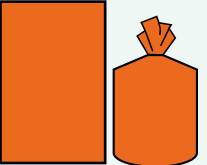
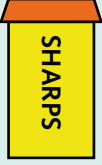



Waste receptacle	Waste types	Example contents	Indicative treatment/ disposal
	Sharps contaminated with cytotoxic and cytostatic medicinal products ¹	Sharps used to administer cytotoxic products	Incineration
	Infectious and other waste requiring incineration including anatomical waste, diagnostic specimens, reagent or test vials, and kits containing chemicals	Anatomical waste from theatres	Incineration
	Partially discharged sharps not contaminated with cyto products ¹	Syringe body with residue medicinal product	Incineration
	Medicines in original packaging	Waste in original packaging with original closures	Incineration
	Medicines NOT in original packaging	Waste tablets not in foil pack or bottle	Hazardous waste incineration
	Infectious waste, potentially infectious waste and autoclaved laboratory waste	Soiled dressings	Licensed/permitted treatment facility
	(i) Sharps not contaminated with medicinal products ² Or (ii) Fully discharged sharps contaminated with medicinal products other than cytotoxic and cytostatic medicines	Sharps from phlebotomy	Suitably authorised incineration or alternative treatment facility ¹
	Offensive/hygiene waste	Human hygiene waste and non-infectious disposable equipment, bedding and plaster casts	Deep landfill

Figure 5 Waste packaging and colour-coding (continued)

Waste receptacle	Waste types	Example contents	Indicative treatment/ disposal
 Black bag or clear bag is acceptable	Domestic waste	General refuse, ³ including confectionery products, flowers, etc	Landfill
	Amalgam waste	Dental amalgam waste	Recovery

Notes:

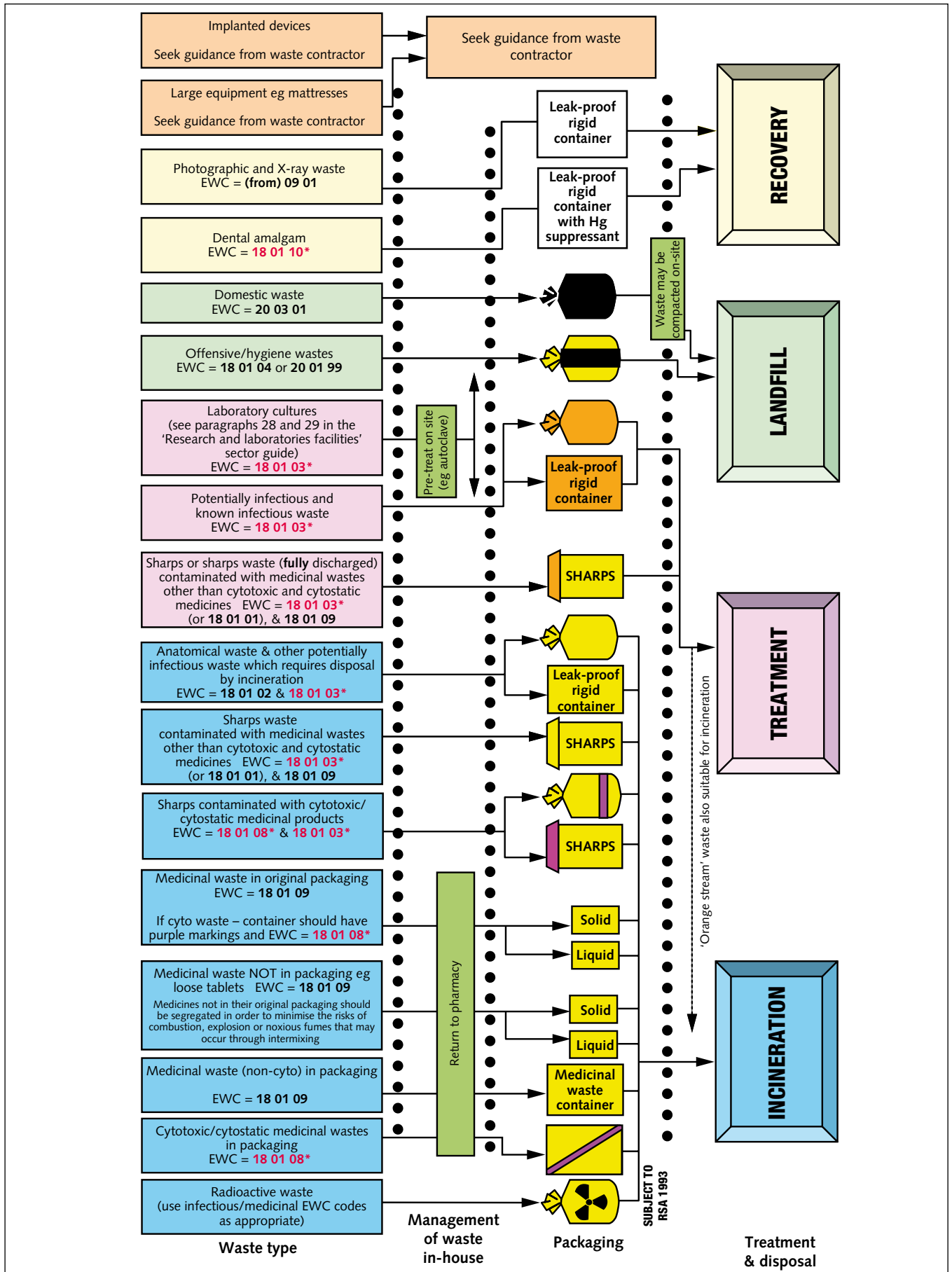
1. The authorisation type and content for alternative treatments in Northern Ireland, Scotland, England and Wales may differ. Not all facilities are authorised to process the waste from (ii). It is therefore important that the waste description specifically indicates the presence or absence of the waste type identified in (ii).

Important: It is not acceptable practice to intentionally discharge syringes etc containing residual medicines in order to dispose of them in the “fully discharged” sharps receptacle.

Partially discharged syringes contaminated with residual medicines should be disposed of in the yellow- or purple-lidded sharps receptacle shown above.

2. The requirements for packaging are significantly affected by the presence of medicinal waste and the quantity of liquid present in the container. See [paragraphs 8.13–8.20](#) for further information.
3. General refuse is that waste remaining once recyclates (that is, paper, cardboard) have been removed. The range of permissible packaging is discussed in [Chapter 8](#)

Figure 6 Waste segregation chart



Radioactive waste

7.9 Radioactive healthcare waste is waste contaminated with low-level radioisotopes. This waste requires disposal in suitably licensed facilities, which will normally be by incineration. The use of “over-stickers” on yellow packaging is appropriate for this waste.

Purple/yellow stream (cytotoxic/cytostatic waste)

7.10 Purple/yellow stream waste is waste consisting of or contaminated with cytotoxic and/or cytostatic products, and requires incineration in suitably licensed or permitted facilities. Healthcare facilities that produce cytotoxic and/or cytostatic waste need to ensure that suitable purple/yellow receptacles are available for this waste stream, including rigid receptacles for medicinal waste and/or infectious waste, bags for infectious waste, and colour-coded sharps receptacles.

7.11 Purple/yellow-stream waste is hazardous waste and is subject to the controls of the Hazardous Waste Regulations.

Yellow-stream infectious waste

7.12 Yellow-stream infectious waste requires disposal by incineration in a suitably licensed or permitted facility. This waste stream includes anatomical waste and may include other types of waste which require incineration to comply with national or regional policy, including unautoclaved waste from clinical laboratories.

7.13 On rare occasions, microbiological cultures and other infectious waste classified as Category A infectious substances in ADR (high risk) may require disposal off-site. In such instances the waste should be placed in appropriate yellow UN-approved packages for this type of waste (these may differ from other yellow containers used in hospitals). Wherever possible, Category A infectious substances (including waste) should be treated on site (using an autoclave or equivalent) before being transported for disposal.

7.14 Yellow-stream infectious waste is hazardous waste and is subject to the controls of the Hazardous Waste Regulations.

Orange-stream infectious waste

7.15 Orange-stream infectious waste may be treated to render it safe prior to final disposal. Treatment may only take place in a suitably licensed or permitted facility.



Sack used for orange-stream infectious waste

7.16 Orange-stream infectious waste is waste known or suspected to contain pathogens classified in Category B as specified in the Carriage Regulations.

7.17 Orange-stream infectious waste is hazardous waste and is subject to the controls of the Hazardous Waste Regulations.

Note

Under the Landfill Regulations, it is prohibited to send infectious waste direct to landfill for disposal.

Medicinal products

7.18 Medicinal products contained within their original packaging (foil packs, bottles etc) may be packaged in non-UN-compliant packages subject to limited quantity (LQ) exemptions in line with the Carriage Regulations (see ADR 3.4 and SP 601 in ADR 3.3).

7.19 The limited quantity exemption permits the use of non-UN-compliant combination packages up to thresholds specified by the LQ code for the substance concerned. Above this threshold, medicinal products must be transported in UN-compliant packages.

7.20 All cytotoxic and cytostatic medicinal waste should be segregated and packaged and disposed of accordingly. Reference should be made to [paragraphs 5.11–5.19](#) and to [paragraph 11.8](#) for the appropriate disposal route for non-cyto medicinal products (see also [paragraphs 8.13–8.20](#)).

Note

Residual medicinal waste is waste pharmaceuticals no longer in their original packaging. As it is not possible to identify the properties of this waste, it should be placed in UN-compliant packages for disposal by incineration.

If cytotoxic/cytostatic medicinal residues are present, the receptacle should be labelled as such.

Liquid waste

- 7.21 Liquid waste or solidified liquid waste should be placed in a rigid leak-proof receptacle for disposal. Many infectious waste treatment facilities require the waste to be solidified prior to removal, and producers should seek guidance from their waste management contractor regarding this.
- 7.22 Liquid waste may be treated to render it safe in suitably licensed or permitted facilities. However, not all treatment facilities are licensed to accept such waste, and producers should seek guidance from their waste contractor regarding the most appropriate disposal route for this waste, and should use appropriate colour-coded receptacles.

Note

Under the Landfill Regulations, liquid waste cannot be sent for disposal to a landfill site.

Sharps waste

- 7.23 Sharps are items that could cause cuts or puncture wounds, including needles, syringes with needles attached, broken glass ampoules, scalpel and other blades, and infusion sets (the sharps part thereof).
- 7.24 **It is not acceptable practice to take any action to intentionally discharge syringes etc containing residual medicines in order to dispose of them in the “fully discharged” sharps receptacle (that is, the orange-lidded receptacle). If the syringe is partially discharged and contaminated with residual medicines, it should be disposed of in the yellow-lidded sharps receptacle.**
- 7.25 Sharps waste does not include:
- syringe bodies (in the absence of a needle);
 - medicinal waste in the form of:
 - (i) bottles;
 - (ii) vials;

- (iii) ampoules;
- (iv) tubes or tablets;
- (v) swabs; or
- (vi) other soft infectious waste or anatomical waste.

- 7.26 Sharps may be treated to render them safe in suitably licensed or permitted facilities prior to final disposal. However, if the sharps are contaminated with cytotoxic or cytostatic products, they should be placed in suitably coloured receptacles (yellow/purple) and disposed of in suitably authorised incineration facilities.
- 7.27 For sharps to be considered for alternative treatments, the producer must demonstrate that they have robust segregation procedures in place to separate those sharps that require incineration from those suitable for alternative treatment. Where robust segregation of sharps contaminated with cytotoxic or cytostatic products cannot be guaranteed, all sharps waste should be incinerated.

Colour-coding of sharps receptacles

- 7.28 The colour of the container will depend on how the waste should be treated and disposed of:
- **Orange receptacles** – orange-lidded sharps receptacles should be used for waste that can be subjected to alternative treatment such as plastic single-use instruments and non-medicinally-contaminated sharps. In some cases (dependent on authorisation type and regulator), this may extend to fully discharged medicinally (other than cytotoxic and cytostatic) contaminated sharps; the waste documentation must make it clear that fully discharged medicinally contaminated sharps are present. This reduces the likelihood of the waste being disposed of at an unauthorised facility;
 - **Yellow receptacles** – yellow-lidded sharps receptacles should contain waste that requires disposal by incineration only, such as sharps containing a quantity of medicinal product (for example undischarged sharps or partially discharged sharps);
 - **Yellow/purple receptacles** – purple-lidded sharps receptacles should be used for waste that is contaminated with cytotoxic and cytostatic medicinal products.



Sharps receptacle used for waste contaminated with cytotoxic and cytostatic medicinal products

Note

At the time of writing this guidance, Defra is reviewing the policy and implementation of the duty of care requirements including certain aspects of requirements for carriers and brokers of waste. This comprehensive review will result in existing regulations and guidance being updated.

Partially discharged syringes etc should be disposed of in a receptacle that has been UN-approved for liquids. In particular, medication should be returned to pharmacy and/or deposited in a suitable approved labelled container for disposal. The waste documentation should accurately reflect the receptacle contents and identify the presence of waste medicines where present. Further information is provided in [paragraphs 8.13–8.20](#).

Category A infectious waste

7.29 Infectious waste known or suspected to be contaminated with pathogens classified in Category A of ADR should be treated on-site prior to removal to a disposal facility; on-site treatment may include autoclaving in purpose-built autoclave facilities.

- 7.30 In exceptional circumstances (for example an autoclave malfunction), waste that is normally autoclaved should be packaged for carriage and transferred to an incinerator as soon as possible. It should not be allowed to accumulate for more than 24 hours. Where the waste is stored for any period, it should be stored securely, and access restricted to authorised and trained personnel.
- 7.31 For guidance on the packaging of infectious waste, see the “Research and laboratory facilities” sector guide.

Offensive/hygiene waste

- 7.32 Offensive/hygiene waste is defined in paragraphs [5.20–5.21](#). Offensive/hygiene waste is not considered to be an infectious waste; however, it may cause offence and should not be compacted unless in accordance with the conditions of a waste management licence or permit.
- 7.33 Offensive/hygiene waste may be landfilled in suitably licensed facilities.

Note

Before being sent for disposal to a landfill site, robust source segregation is necessary, and pre-treatment may be required in order to avoid infectious waste being mixed in with the offensive/hygiene waste, which is in contravention of waste legislation. Acceptance of this waste for disposal ultimately depends on meeting the conditions of the landfill licence/permit.

Domestic waste

- 7.34 Domestic waste is waste similar in nature and composition to waste generated in the home. Domestic waste should not contain any infectious materials, sharps or medicinal products. Domestic waste may be placed in black or clear bags for disposal.

Amalgam

- 7.35 Amalgam waste consists of amalgam in any form, and includes all other materials contaminated with amalgam. Amalgam waste should be placed in white rigid receptacles with a mercury suppressant. Amalgam waste should be sent to suitable licensed or permitted waste management facilities where the waste undergoes a mercury recovery process prior to final disposal (see also <http://www.defra.gov.uk/environment/waste/special/index.htm>).

Fixer and developer

- 7.36 Fixer and developer may be classified as hazardous waste depending on the type of materials used. Reference should be made to manufacturers' safety data sheets for product information.
- 7.37 If appropriate, fixer and developer should be sent to a suitably licensed or permitted waste facility for material recovery. If recovery is not appropriate, fixer and developer should be incinerated at suitably licensed or permitted facilities.
- 7.38 If the material is recycled or processed on the site of production, for example for silver extraction, the premises may be subject to waste management licensing controls and may require a trade effluent consent.

Note

These items/substances may be deemed dangerous goods for carriage on public roads and highways.

Large equipment

- 7.39 Where practicable, equipment should be decontaminated prior to disposal. Once decontaminated, infectious properties may be removed; however, the equipment may still contain hazardous properties, which will be subject to statutory waste management controls.
- 7.40 Where disinfection is not practicable, producers should contact their waste management contractor to establish the best practice packaging and treatment/disposal options.
- 7.41 Disposal of large electronic equipment will need to be in accordance with the Waste Electrical and Electronic Equipment Regulations (forthcoming) and, if hazardous, the Hazardous Waste Regulations.

Implanted devices

- 7.42 Implanted devices are defined in paragraphs 4.47–4.55. It is suggested that producers contact their waste contractor to establish the best practice disposal route for implanted devices. It is also recommended that the producer contact the manufacturer of the device to establish whether the device may be disinfected and whether a “take-back” scheme exists for this waste.
- 7.43 [Appendix C](#) contains additional information in the form of a waste identification chart, which shows

the waste, carriage and treatment/disposal options for each type of waste listed.

Successful waste segregation

- 7.44 For segregation systems to be effective, staff need to be provided with:
- background information and reasons for segregation;
 - appropriate equipment, such as sufficient colour-coded waste receptacles;
 - clear instruction and training (see [Chapter 16](#)).

Background information

- 7.45 Background information should be provided to staff for them to fully understand why waste segregation is required. Information can be made available to staff in a number of ways including the use of posters, training materials and information leaflets.

Appropriate equipment

- 7.46 For segregation systems to work effectively, it is important that staff be provided with the necessary equipment, including appropriate colour-coded and labelled waste receptacles and sack holders. The location of waste receptacles is important, as they must be positioned in locations that meet the requirements of work practice.
- 7.47 Staff are likely to adapt with ease to new segregation systems if the design of the system means that staff actions are intuitive. If the actions required are time-consuming or laborious, staff may struggle to comply with the system, resulting in the inappropriate segregation of waste.
- 7.48 The following issues should be considered in the design and supply of receptacles for waste segregation:
- waste should be placed in waste receptacles/sacks in holders, or other appropriate receptacles, as close to the point of production as possible;
 - receptacles/sacks should be replaced when three-quarters full;
 - receptacles should be securely sealed; the use of plastic tie closures is recommended for healthcare waste sacks;
 - labelling of sacks to indicate their origin, for example by coding on the sack itself, by suitable

permanent marker, by a label showing clearly the name of the hospital and the department, or by pre-printed self-adhesive labels or tape;

- collections should be at an appropriate frequency.

Staff training

- 7.49 Clear information, instruction and training on categorising waste needs to be provided for everyone working in areas where healthcare waste arises. It is helpful if posters showing the different waste streams and types of waste are displayed at appropriate locations.
- 7.50 Implementing a system for segregation of healthcare waste streams may involve significant changes in waste management practices. Preparation is essential:
- to ensure that staff are involved in the process of change;
 - to ensure that non-clinical (that is, domestic-type) waste is redirected from the healthcare infectious waste stream in order to minimise the risk of system failure.
- 7.51 All staff who come into contact with healthcare waste should receive training; ideally this should be specific to their job function. [Chapter 16](#) provides further information on training.

Evaluation and monitoring

- 7.52 It is essential that the procedures used for segregating waste are monitored and evaluated on a regular basis. Waste audits are an ideal way of evaluating the success of segregation procedures. Once the results of the audit are known, it is important to give feedback to staff on how the arrangements are working.

Frequency of collection

- 7.53 Where waste accumulates in small quantities daily, the interval between collections should be as short as reasonably practicable. With regard to infectious waste, excluding sharps, the collection period should be no less than once a week, unless the waste is refrigerated. It is recommended that sharps receptacles are exchanged at regular intervals of no less than three months.
- 7.54 Arrangements should be made to routinely transport waste from ward level to a storage area pending collection by a waste contractor. See [paragraphs 10.8–10.10](#) for on-site transport and [Chapter 9](#) for storage.
- 7.55 If waste is permitted to accumulate, producers should seek guidance from the appropriate environmental regulatory authority regarding the need for a waste management licence.

8 Transport – packaging, marking, labelling and documentation

- 8.1 The Carriage Regulations specify the requirements for:
 - classification and identification;
 - packaging;
 - marking;
 - labelling;
 - documentation.
- 8.2 The person or entity responsible for requiring the dangerous goods to be transported off-site (the consignor) is the duty-holder in most instances.
- 8.3 The Carriage Regulations use criteria that are different from other legislative systems. Classification for healthcare waste management is addressed in [paragraphs 4.38–4.46](#).
- 8.4 The Regulations require that all dangerous goods be identified using a four-digit number (UN

number) and a description (proper shipping name), and are assigned to a “class” of dangerous goods. [Appendix B](#) contains a chart that gives examples of healthcare waste and other dangerous goods likely to be encountered in the waste stream.

Packaging

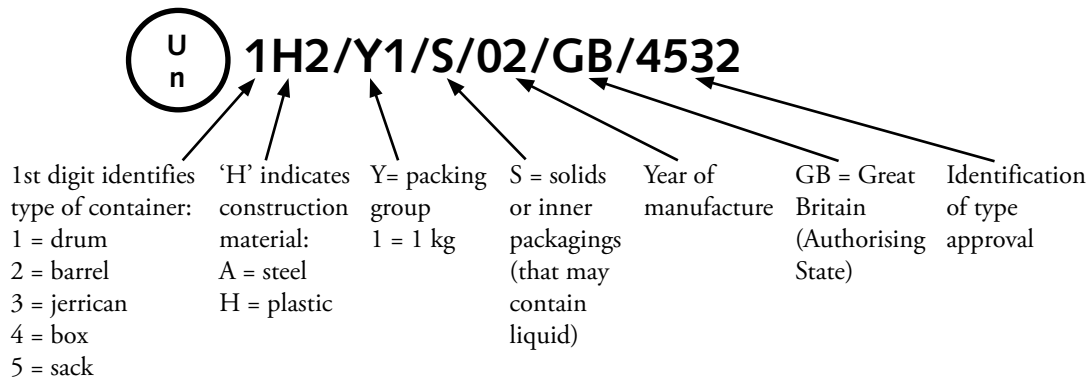
- 8.5 Once the UN number of a substance is known, ADR provides information on the packing group, packing instruction and any special packing provisions that apply.
- 8.6 Table 10 shows the most common packing provisions for healthcare waste.
- 8.7 Where a packing instruction is indicated, only packaging that has been UN-tested and approved (unless otherwise specified) must be used. Such packaging can be identified by the UN mark

Table 10 Packing provisions for healthcare waste

Dangerous goods (UN number)	Proper shipping name	Packing instruction	Packaging examples
Category A			
UN 2814	Infectious substance, affecting humans	P620	Three-part packaging
UN 2900	Infectious substance, affecting animals only	P620	
Category B			
UN 3291	Clinical waste N.O.S	P621	Wheeled bins
Medicinal waste			
UN 1851	Medicine, liquid, toxic N.O.S	P001	Boxes, drums
UN 3248	Medicine, liquid, flammable, toxic N.O.S		
UN 3249	Medicine, solid, toxic N.O.S		
Dental amalgam			
UN 2025	Mercury compound, solid, N.O.S	Limited quantity	Box
Aerosols			
UN 1950	Aerosols	Limited quantity	Box

Note: UN 3373 which used to be known as “Diagnostic specimens” but is now called “Biological Substance – Category B” should never be used for waste consignments.

applied to the package. An example of a mark is shown below:



8.8 If the letter “S” appears in the UN mark, as shown above, the packaging may only be used for solids and not free liquids. Most sharps boxes are type-approved for solids only and must not be used for the disposal of liquids (see paragraphs 8.14–8.15).

Limited quantities

8.9 ADR specifies that some dangerous goods in small quantities need not be packaged in UN-type approved packagings. This is referred to as limited quantity exemptions. Such dangerous goods will be packaged in a small receptacle (never more than 5 L for liquids/5 kg for solids), several of which may be placed in an outer packaging that may not exceed a gross mass of 30 kg in total. This is a widely misunderstood concept, and it is recommended that advice is sought from a DGSA if using these provisions. There are no limited quantities for clinical waste (UN 3291).

Specific packaging issues

8.10 Some healthcare waste issues do not fit easily into the system described above. The most common are addressed below.

Soiled surgical instruments

8.11 Where healthcare organisations are obliged to carry used surgical instruments by road to a centralised sterile services facility, such instruments, dependent on an assessment of infection risk, should normally be classified as UN 3291 (clinical waste). It is extremely unlikely that surgical instruments contaminated with pathogens of Category A need to be transported off-site. If this is necessary, a special authorisation will be required from the Department for Transport.

Used linen

8.12 The majority of used linen being transported to off-site laundries will not normally be assessed as dangerous for transport. There will be some occasional circumstances where soiled laundry will need to be classified as dangerous for transport, such as when a consignment is thought to contain pathogens which pose a significant risk of spreading disease and the load is heavily soiled to the extent that the potential for exposure and infection is high. In such instances the load should then be classified and packaged as UN 3291. Special bags are available for contaminated mattresses.

Waste medicines

8.13 Medicinal waste will come in two types for the purpose of transport regulations such as solids (pills and powders) and liquids (ampoule contents etc).

8.14 Practice in the past has been to place UN-packaged medicinal liquids and solids into the same drums/sharps bin, thereby mixing substances. There is great danger that a chemical reaction could take place, causing heating, fire or even explosion. ADR states:

“Dangerous goods shall not be packed together in the same outer packaging or in large packagings, with dangerous or other goods if they react dangerously with each other and cause:

- (a) combustion or evolution of considerable heat;*
- (b) evolution of flammable, asphyxiant, oxidizing or toxic gases;*
- (c) the formation of corrosive substances; or*
- (d) the formation of unstable substances”.*

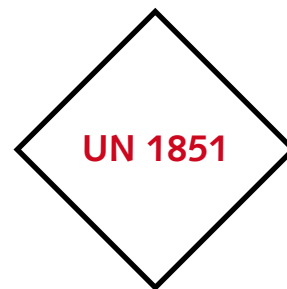
- 8.15 Therefore, waste medicines should as far as possible be disposed of in their original packagings (receptacles).
- 8.16 If solids are still in their original blister packs or are bagged/bottled, they should be collected and placed in suitable outer packaging for transport (such as fibreboard or plastic boxes). This will require labelling in accordance with ADR – in the main, such packages are likely to fall under limited quantity provisions (see [paragraph 8.9](#)).
- 8.17 A similar procedure can be adopted for liquids, provided measures are taken to minimise breakage of the primary packaging (such as cushioning/absorbent material).
- 8.18 Where the pills are loose or the liquids container has lost its closure (stopper/cap), a suitable receptacle that is compatible with the product should be used. Once a suitable receptacle is found, the procedures above can be followed.
- 8.19 Sharps bins are tested for solids. They are not approved for the carriage of liquids. It is recognised that most sharps will be contaminated with liquids/fluids. A few millilitres of liquid are unlikely to present a risk of adverse chemical reaction, and such quantities in a sharps box are acceptable for transport.
- 8.20 However, the pouring of partially used vials of liquid or discharges of syringes into sharps boxes is not in compliance with the regulations and is not permitted.
- 8.23 It is important that local waste policies include a cart-cleaning procedure clearly specifying frequency and monitoring of the cleaning process to avoid the potential for cross-contamination between sites.
- 8.24 The cleaning procedure should ensure that drainage bungs are properly replaced after cleaning and that missing bungs are replaced to prevent leakage of waste liquids. This should be agreed between the healthcare organisation and the waste disposal contractor.

Infectious waste bags sent in bulk

- 8.25 Where infectious waste bags are loaded directly into a vehicle (see [paragraphs 10.5–10.7](#)), this constitutes bulk transport and not packaged transport. The waste bags must be UN-approved but must also comply with BS EN ISO 7765:2004 and BS EN ISO 6383:2004, and be marked accordingly.

Marking and labelling

- 8.26 Marking is the application of the UN number and where necessary the proper shipping name onto the package.
- 8.27 Labelling is the application of the label (commonly referred to as the hazard warning diamond) appropriate to the class of dangerous goods (see [Appendix B](#)).
- 8.28 For dangerous goods in limited quantities, the only mark required is the UN number(s) (of the substance(s) contained in the package) placed inside a diamond shape.



Radioactive material

- 8.21 This section does not address packaging for radioactive material; however, packagings must be rigid and comply with the requirements of the material. Any clinical waste contaminated with radioactive material and placed in a plastic bag is not adequate for transport.

Cleaning receptacles

- 8.22 Transport regulations require that no dangerous goods residue shall adhere to the outside of packagings. If any dangerous substances adhere to the inside of a receptacle, the receptacle, even though nominally empty, must continue to be treated as dangerous goods.

Documentation

- 8.29 For dangerous goods consigned in limited quantities, transport documentation is not required. In other cases, although waste contractors may be willing to provide appropriate documentation, the legal duty remains with the consignor (see [Chapter 13](#)).

9 Storage

- 9.1 Healthcare waste receptacles may need to be stored before being transported to treatment/disposal sites. They should not be allowed to accumulate in corridors, wards or other places accessible to unauthorised personnel or members of the public.
- 9.2 Healthcare waste should be stored securely so as to prevent the escape of waste, harm to the environment, and harm to human health. Failure to do so is a breach of the statutory duty of care. This applies to storage at the point of production and bulk storage areas.

Storage at the point of production

- 9.3 Storage areas at ward level should be secure and located away from public areas. Storage areas should be sufficient in size to allow packaged waste to be segregated and so as to avoid waste of different classifications being stored together in the same area.

Bulk storage

- 9.4 Bulk storage areas may be situated within healthcare premises or at a licensed or permitted transfer or treatment/disposal facility.
- 9.5 Regardless of location, bulk storage areas should be:
- reserved for healthcare waste only;
 - well-lit and ventilated;
 - close to any on-site incineration or other disposal facility;
 - sited away from food preparation and general storage areas, and from routes used by the public;
 - totally enclosed and secure;
 - provided with separate storage for sharps receptacles and waste medicines, which may need a higher degree of security to prevent unauthorised access;
 - sited on a well-drained, impervious hard-standing;

- readily accessible but only to authorised people;
- kept locked when not in use;
- secure from entry by animals and free from insect or rodent infestations;
- provided with wash-down facilities;
- provided with washing facilities for employees;
- clearly marked with warning signs;
- provided with separate, clearly labelled areas for waste that requires, rather than is destined for, different treatment/disposal options;
- provided with access to first-aid facilities;
- appropriately drained, that is, to a sewer (with discharge consent).

Size of bulk storage areas

- 9.6 All bulk stores should have storage capacity to match the proposed frequency of collection. Bank (or other) holidays need to be taken into account, and a margin provided for any interruption in the disposal system.

Refrigerated storage

- 9.7 Refrigerated storage may be required in hot weather if the waste poses a statutory nuisance, due to odour. If refrigeration is required, refrigerated storage units must be fitted with a device for opening from inside as a precaution against people being trapped.

Licences and permits

- 9.8 A waste management licence or pollution prevention control permit may be required for the bulk storage of waste, even at the site of production. Reference should be made to [Chapter 12](#) for further information.
- 9.9 Waste brought into healthcare premises from other healthcare sources (for example other premises within a trust) may also require a suitable authorisation.

10 Transport operations

External transport

- 10.1 Transport of healthcare waste classified as dangerous in accordance with Carriage Regulations on highways and roads to which the public have access must be in full compliance with the Regulations. The scope of the regulations is dependent on the quantities of dangerous goods to be carried. Dangerous goods carried in limited quantities (see [paragraph 8.9](#)) are exempt from other provisions of the Carriage Regulations.
- 10.2 ADR specifies transport categories to determine the load thresholds over which the full provisions of ADR apply. For healthcare waste, these thresholds are indicated in [paragraph 2.32](#). Below these thresholds the following apply:
- one 2 kg fire extinguisher must be carried on the vehicle;
 - general awareness training to all involved in the transport operation must be provided.
- 10.3 Above the threshold the following apply:
- additional vehicle equipment, fire extinguishers and PPE must be provided;
 - vehicles must be marked with orange plates;
 - formal Department for Transport approved driver training must be provided;
 - additional operational provisions as specified in ADR must be incorporated.
- 10.4 Particular attention should be paid to the carriage of small quantities of waste in vehicles, as happens in community nursing for example. If a bag of waste is placed directly into any vehicle, including a car, the vehicle and driver must comply with the full provisions of ADR. It is recommended that community practitioners review the types of packaging used and, where possible, avoid the use of sacks alone. Further information on community nursing is provided in the 'Community nursing' sector guide.

Bulk transport

- 10.5 Only bulk transport of UN 3291 is permitted. The load thresholds (see [paragraph 2.32](#)) only apply to waste in packages, in accordance with the packaging instructions. Therefore, if waste is carried in bulk (for example the carriage of hazardous infectious waste in sacks), the full provisions apply immediately regardless of load or vehicle size. However, the recommendation is that bulk transport should not be undertaken.
- 10.6 In ADR, there is a special provision for the carriage of certain infectious waste classified as **VV11**:
- “Carriage in bulk is permitted in specially equipped vehicles and containers in a manner which avoids risks to humans, animals and the environment, e.g. by loading the wastes in bags or by airtight connections.”*
- 10.7 Provision VV11 permits the carriage of these types of waste in bulk (sacks) in specially equipped vehicles. The sacks to be used are specified in [paragraph 8.25](#).

On-site transport

- 10.8 On roads to which the public do not have access, dedicated trucks, trolleys, tugs or wheeled containers are needed to transport waste receptacles to storage areas. To prevent contamination, they should not be used for any other purpose. They need to be designed and constructed so that they:
- are easy to clean and drain;
 - contain any leakage from damaged receptacles or containers;
 - are easy to load and unload;
 - do not offer harbourage for insects or vermin; and
 - do not allow particles of waste to become trapped on edges or crevices.

10.9 Containers for on-site transport need to be steam-cleaned or disinfected following leakages or spills, and at regular intervals. If containers are heavily used, cleaning is likely to be required at least weekly. The healthcare waste procedures need to specify the method and frequency of steam cleaning or disinfection.

10.10 Internal vehicles should not be used to transport waste materials on roads to which the public do not have access unless they meet the full provisions of the Carriage Regulations as appropriate.

Note

When transporting waste materials by sea, the International Maritime Dangerous Goods (IMDG) code must be followed. This code was developed as a uniform international code for the transport of dangerous goods by sea covering such matters as packing, container traffic and stowage, with particular reference to the segregation of incompatible substances.

11 Treatment and disposal

- 11.1 All treatment and disposal facilities, regardless of size or type of technology used, are required to “render safe” the waste. The requirements of rendering safe depend on the type of waste treated and on the nature of the contaminants present in the waste.

Rendered safe

- 11.2 “Rendered safe” is an accepted method or process that has been applied which:
- demonstrates the ability to reduce the number of infectious organisms present in the waste to a level that no additional precautions are needed to protect workers or the public against infection by the waste;
 - destroys anatomical waste such that it is no longer generally recognisable;
 - renders sharps unusable and no longer in their original shape and form;
 - destroys the component chemicals of medicinal waste.

(For laboratory autoclaves, see the ‘Research and laboratories facilities’ sector guide.)

- 11.3 Alternative treatment plants should achieve the three criteria detailed below in order to demonstrate that the waste is rendered safe. These criteria apply to:
- all non-incineration technologies that are used to treat clinical/healthcare waste;
 - each individual device regardless of load capacity and permitting status;
 - existing operational devices, as well as to devices being newly installed.
- 11.4 Where these have not been met, the waste is not considered to have been rendered safe. This is applicable for the purposes of landfill, and further treatment would be required.

Criterion A: reduction in pathogen numbers

- 11.5 Microbial inactivation is a critical element of the “rendering safe” of certain types of healthcare waste. There are three critical aspects:
- for infectious waste, the treatment must demonstrate, as a minimum, the Level III criteria provided by the State and Territorial Association on Alternative Treatment Technologies (STAATT) or equivalent;
 - for cultures of pathogenic microorganisms, the Level IV criteria must be achieved (pre-maceration or shredding is not appropriate for such wastes; see paragraph 53 of the ‘Research and laboratories’ sector guide);
 - the ability to achieve these criteria must be demonstrated for the worst-case challenge load, and in a manner that meets the requirements of any applicable guidance issued by the waste regulatory agencies.

STAATT Level III: inactivation of vegetative bacteria, fungi, lipophilic/hydrophilic viruses, parasites and mycobacteria at a 6 log₁₀ reduction or greater; and inactivation of *Geobacillus stearothermophilus* or *Bacillus atrophaeus* spores at a 4 log₁₀ inactivation or greater.

Criterion B: destruction of anatomical waste

- 11.6 Treatment of anatomical waste requires that the waste be rendered unrecognisable in suitable permitted facilities, which at this time means incineration.

Criterion C: unusable and unrecognisable

- 11.7 This criterion applies to both non-incineration and incineration technologies. Hazardous and non-hazardous healthcare waste processed through alternative treatment plants may need to be macerated, rendering it unusable and unrecognisable.

Note

Microbiological cultures should not be macerated prior to treatment, as maceration may significantly increase the risk of aerosol emission.

The rendering safe of pharmaceuticals and chemicals within the waste

- 11.8 All pharmaceutically active substances present in the waste, both hazardous and non-hazardous, should be destroyed during disposal at a suitably authorised facility.

Treatment and disposal systems

- 11.9 Treatment and disposal systems for healthcare waste can be segregated into two broad types:

- high temperature (incineration/combustion processes);
- non-burn/low temperature alternative technologies.

- 11.10 While there are a large number of systems available to treat healthcare waste, they all use heat, chemicals, irradiation or combinations of these methods. The selection of the most appropriate system is dependent on:

- the composition of the waste;
- the volume of the waste to be treated;
- support capabilities of the supplier;
- staffing requirements;
- initial and continuing operating costs.

- 11.11 Treatment and disposal methods need to be reliable and consistently achieve the required standard of treatment. Their performance needs to be measurable and the process controlled to reproduce the target standards.

- 11.12 Managers of waste treatment and disposal need to work to audited procedures which take into account the risks to operators as well as other people on the site, as well as the need to maintain standards of waste treatment.

- 11.13 All treatment and disposal facilities that accept hazardous waste require a waste management licence or PPC permit. All treatment and disposal facilities that accept waste on-site for treatment or disposal require a waste management licence, a valid exemption or PPC permit to operate. Waste

management licensing is discussed in more detail in [Chapter 12](#).

High temperature processes

Incineration

- 11.14 Healthcare waste incinerators come in a variety of designs, but all are required to meet temperature and emission limits. Generally they have a primary combustion chamber operating at 800–1000°C and a secondary chamber operating at 850–1100°C with gas retention times of two seconds. The incinerator plant includes gas-cleaning equipment to reduce emissions to air and comply with the Waste Incineration Directive.

Pyrolysis

- 11.15 Pyrolysis involves the high temperature (545–1000°C) combustion of waste in the absence of oxygen. In generating these high temperatures, the systems treat, destroy and reduce the volume of clinical waste.

Plasma technology

- 11.16 In a plasma system, an electric current is discharged through an inert gas (for example argon) to ionise it and in turn cause an electric arc to create temperatures as high as 6000°C. The clinical waste within the system is brought to temperatures between 1300 and 1700°C, destroying potentially pathogenic microbes and converting the waste into a glassy rock or slag, ferrous metal and inert gases.

Gasification

- 11.17 Gasification is similar to the process of controlled air incineration in that the waste materials are thermally decomposed, but in an oxygen-starved (sub-stoichiometric) atmosphere. The waste in the gasification process is ignited and reduced in a self-sustaining process. No support fuel is consumed except for that required to initiate combustion. The decomposition results in the generation of volatile gaseous material and, depending on the waste content, various vaporised tar-oil fractions. The waste gas is passed through a series of scrubbers/filters and cyclonic separators to provide a clean “producer gas”.

Non-burn/low temperature alternative technologies

Heat (thermal) disinfection systems

- 11.18 These systems rely on heating the waste to a fixed temperature for a specified time to deactivate the infectious elements in the waste. The continuous monitoring and recording of waste temperature and time are critical to ensuring the required temperature level is achieved for the entire body of the waste.
- 11.19 **Autoclaves.** In autoclaving, saturated steam (steam holding water as a vapour) is introduced into a vessel above atmospheric pressure. Some autoclaves are designed to shred waste during the treatment cycle; other systems rely on the use of a pre-treatment process to macerate the waste before the waste is heated. The use of internal paddles/arms/ridges designed to mix the waste inside the autoclave chamber may not meet the requirements for maceration.
- 11.20 **Steam auger.** This industrial thermal disinfection process operates at atmospheric pressure using a combination of residence time and temperature to treat the waste and render it safe. Waste is shredded prior to its entry into a steam auger, where it is turned and treated with steam to achieve the required inactivation of pathogens.
- 11.21 **Dry heat.** Some waste treatment systems available for both large (for example hospitals) and small-quantity generators (for example GP/dentist practices) thermally inactivate potentially pathogenic microorganisms through the use of electrically generated heated air, oil or molten plastic. A number of commercial facilities in the UK use a hot-oil process.
- 11.22 **Microwaves.** Microwaves are electromagnetic waves with a frequency between radio waves and infrared waves on the electromagnetic spectrum. When applied to the treatment of waste, the mechanism of microbial inactivation is thermal. It is important for the waste to be wet, either as a result of moisture naturally occurring in the waste stream or by the addition of moisture in the form of steam. The combination of the two – microwaves and moisture – creates the thermal process. Some treatment processes utilise microwaves to heat water to form steam which is then applied to the infectious waste stream. “Dry” microwave systems are also available. These use direct microwave energy in a nitrogen atmosphere

to treat the waste and produce higher treatment temperatures than those used by “wet” microwave technologies.

- 11.23 **Macrowaves.** These systems apply low-frequency radio waves to inactivate microbes contained within the waste. The macrowaves heat the waste from the inside of the materials to their external surfaces.

Chemical disinfection systems

- 11.24 Chemicals have an extensive and well-documented history in the clinical setting in disinfecting environmental surfaces and medical devices. Chemicals commonly used are sodium hypochlorite, chlorine dioxide, peracetic acid, glutaraldehyde and quaternary ammonium compounds. The waste must first be shredded in order to bring all surfaces of the waste into direct contact with the chemicals. Some systems combine heat with the chemicals to reduce the treatment cycle. The key concerns are that:
- the disinfectant has the ability to act on all the key pathogen groups;
 - the disinfectant is maintained in the waste at sufficient concentration or is given enough time to achieve the required level of treatment for each of the key pathogen groups; and
 - the treated waste (which may be highly absorbent) is not rendered chemically hazardous due to the presence of residual disinfectant.

Other chemical systems

- 11.25 Other chemical processes have a potentially wider application than disinfection. Alkaline hydrolysis exposes the waste to hot alkali for a period of several hours and can, for example, reduce carcasses or cadavers to bone shadows. None of these systems are operational in the UK at present. The organic rich outflow from these units is likely to have a very high biological oxygen demand (BOD), and should be subjected to additional treatment to ensure that effluent is dewatered, with only the water being discharged to foul sewer.

Landfill

- 11.26 Infectious waste is banned from landfill, although it can be pretreated (for example by alternative treatment) so that it is non-infectious and suitable for landfill. Some types of healthcare waste may be

disposed of directly to landfill (for example non-infectious offensive/hygiene waste). Landfill sites are classified into one of three categories: hazardous, non-hazardous and inert. They all must comply with the strict technical and operational requirements of the Landfill Directive. Importantly, waste which is sent to landfill must be pretreated. Guidance on the pretreatment requirements in England and Wales, Northern Ireland, and Scotland is available from the respective regulatory authorities (EA, EHS and SEPA).

Discharge to sewer

- 11.27 Any discharge to sewer, other than domestic sewage, must have the prior agreement of the statutory responsible bodies. Anybody intending to dispose to sewer any waste that may present a substantially greater risk than domestic sewage (such as disposable items that are macerated) should first seek advice from the sewerage undertaker.
- 11.28 Known issues with regard to discharges are:
- bodily fluids – blood and similar substances, for example from suction canisters or wound drains, should not be discharged to foul sewer without disinfection. It is advisable to seek the approval of the sewerage undertaker;
 - photochemicals (X-ray) – these are suitable for recycling; it is poor practice, even if permitted by a discharge consent, to discharge this material to foul sewer;
 - cardboard bed-pans and urine bottles – maceration and discharge of shredded material to foul sewer is known to cause obstruction of the sewage network. It is essential that the sewerage undertaker is aware of the presence of this material, and that its disposal is permitted by the producer's "trade effluent consent".
- 11.29 Radioactive waste from diagnosis and intensive radiotherapy has low radioactivity and a short half-life. If the waste is a water-miscible fluid, and the discharge authorisation permits, it may be disposed of to sewer.

Specific treatment/disposal requirements

TSE-infected waste

- 11.30 Waste known or suspected to be contaminated with transmissible spongiform encephalopathy (TSE) agents, including CJD, must be disposed of by high-temperature incineration in suitable authorised facilities.
- 11.31 Additional guidance on the management of TSE-infected waste is given in the Department of Health's 'Transmissible spongiform encephalopathy: Safe working and the prevention of infection' available from: <http://www.advisorybodies.doh.gov.uk/acdp/tseguidance>.

Cytotoxic and cytostatic waste

- 11.32 Waste contaminated with cytotoxic and/or cytostatic substances should be disposed of in suitably authorised facilities, which will normally be incineration facilities.
- 11.33 Sharps boxes containing sharps contaminated with cytotoxic and/or cytostatic products should be disposed of in suitable authorised facilities that accept cytotoxic and cytostatic waste.

Waste containing genetically modified microorganisms (GMMs)

- 11.34 Waste contaminated with genetically modified microorganisms (GMMs) must be inactivated by a validated means.
- 11.35 "Inactivation" is defined as the:
- "complete or partial destruction of GMMs so as to ensure that any contact between the GMMs and humans or the environment is limited to an extent commensurate with the risks identified in the risk assessment and to provide a high level of protection for humans and the environment".*
- 11.36 This implies that the degree of inactivation required will vary depending on the nature of the GMMs being used.
- 11.37 There are a number of commercial treatment/disposal facilities currently used for infectious waste that are able to effectively inactivate GMO or GMM waste. However, inactivation of contaminated waste by these facilities does not obviate the requirement to have an autoclave on-site, in the building or in the laboratory suite (depending on the risk classification of the waste

involved). There is a clear distinction as to where the inactivation needs to take place, depending on the risk class of the waste:

- **Class 1** – waste to be inactivated by validated means;
- **Class 2** – waste to be inactivated by validated means (recommended best practice – waste to be autoclaved within the building prior to off-site treatment/disposal);
- **Class 3** – waste to be inactivated within the laboratory suite prior to off-site treatment/disposal;
- **Class 4** – waste to be inactivated within the laboratory prior to off-site treatment/disposal.

11.38 Waste containing GMMs that is collected for treatment/disposal by contractors before it has been inactivated is subject to the requirements of the Contained Use Regulations. For example, contractors may collect waste in sealed receptacles, which they then incinerate or otherwise treat to ensure inactivation. The contractor in this case is undertaking a contained use activity, namely destruction of the GMOs, and must register as a GM centre with the competent authority. Guidance on the activity notification (registration) is available from the HSE.

11.39 Where the waste has been treated to inactivate it prior to collection by a waste contractor, the contractor is not undertaking a contained use activity. The waste may be collected and treated or disposed of without the need to consider the Genetically Modified Organisms (Contained Use) Regulations. Further guidance on the inactivation and disposal of GMO and GMM waste can be obtained from the HSE (<http://www.hse.gov.uk/biosafety/>).

Mercury

11.40 The disposal of mercury is subject to specific control. Mercury can be recovered from mercury waste.

Amalgam

11.41 The Hazardous Waste Regulations require that dental amalgam waste is kept separate from other waste and consigned to an appropriate waste management facility. To comply with these requirements, dentists need to fit amalgam separators and consign the amalgam to an appropriate facility for disposal or recovery. See Defra's guidance on dental amalgam (<http://www.defra.gov.uk/environment/waste/special/index.htm>).

12 Waste management licensing and permitting

12.1 EU policy on waste management is that member states should promote:

- waste reduction and prevention;
- the use of cleaner technologies;
- reusable/recyclable products;
- energy recovery;
- reduction of disposal of waste to landfills; and
- an integrated network of waste management facilities.

12.2 This should be achieved without danger to human health or the environment. As a consequence, most waste management activities – ranging from a small transfer station through to recycling facilities, composting and landfilling, to incineration – require some form of authorisation under legislation which aims to prevent environmental pollution or harm to human health.

12.3 The regulatory instruments that are most commonly applied to healthcare waste management are Waste Management Licensing Regulations and pollution, prevention and control (PPC) permitting.

12.4 However, other legislation may also be applicable, and different aspects of a proposed operation may be regulated by different regulatory instruments. Regulatory controls often run in parallel with, and overlap, the planning process. Application for a permit or licence to operate a facility and an application for planning permission should not be considered in isolation.

Relationship with planning permission

12.5 Most waste management activities require planning permission to have been granted for the proposed development before a PPC permit or waste management licence can be issued.

12.6 Whether planning permission is granted for a development is determined by the local planning authority (in Northern Ireland by the Planning

Service) and will depend on a range of issues including: land use; a change of use (in a local or regional context); the effect on the local environment; and the likely impact on the amenities of residents living in the vicinity. Permission is then granted subject to conditions designed to ensure that the development does not have a detrimental effect on the locality.

Pollution prevention control (PPC) permits

12.7 Activities subject to control by permit under the Pollution Prevention and Control Regulations are listed in Chapter 5 of Schedule 1 to the Regulations, and include:

- disposal of waste by incineration;
- disposal of waste by landfill;
- disposal of waste other than by incineration or landfill;
- recovery of waste;
- the production of fuel from waste.

12.8 A PPC permit is required to operate facilities that have the capacity to store more than 10 tonnes of hazardous waste and/or have the capacity to treat more than 10 tonnes of hazardous waste per day.

12.9 Applications for a PPC permit should be made to the relevant regulatory authority. Information and guidance on applying for a PPC permit is available from the following websites:

- Defra (<http://www.defra.gov.uk/environment/ppc/ppc.htm>);
- EA (<http://www.environment-agency.gov.uk/business/444217/444663/298441>);
- EHS (<http://www.ehsni.gov.uk/environment/industrialPollution/ppc.shtml>);
- SEPA (<http://www.sepa.org.uk/ppc/permit/index.htm>).

The Waste Incineration Regulations

- 12.10 The Waste Incineration Regulations implement the provisions of Directive 2000/76/EC of the European Parliament and of the Council of 4 December 2000 on the incineration of waste.
- 12.11 All incineration facilities must operate in accordance with the requirements of the Regulations.

Waste management licences

- 12.12 The Waste Management Licensing Regulations provide a system of conditional authorisation with the objective of ensuring that the storage, treatment or disposal of waste does not cause pollution of the environment, harm to human health or serious detriment to local amenities.
- 12.13 A waste management licence is required for all activities that involve the storage, treatment or disposal of waste unless an exemption from licensing is provided or the required PPC permit is held. A licence is not generally required to store waste on the site of production; however, there are limits to the types of storage and waste quantities that may be stored without a licence. Licence details can be checked with the relevant regulatory authority. Information and guidance on applying for a waste management licence or exemption are available from the following websites:
- Defra (<http://www.defra.gov.uk/environment/waste/management/licence/index.htm>);
 - EA (http://www.environment-agency.gov.uk/subjects/waste/?lang=_e);
 - EHS (http://www.ehsni.gov.uk/environment/wasteManage/regulations_license.shtml);
 - SEPA (<http://www.sepa.org.uk/regulation/waste/index.htm>).

Healthcare-related exemptions

- 12.14 Exemptions from waste management licensing are set out in Schedule 3 to the Waste Management Licensing Regulations (Schedule 2 in the Northern Ireland Regulations). Paragraph 39 of Schedule 3, which covers the storage of waste at medical, nursing and veterinary practices, is currently being revised as part of a Defra review of exemptions for hazardous wastes in England and Wales. Other exemptions which may be used for healthcare wastes and which are not part of the review are detailed in [Table 11](#).

Note

See the Defra website for latest updates on exemptions in England and Wales (<http://www.defra.gov.uk>).

Small infectious-waste treatment plant (on-site)

- 12.15 There is no exemption for the small-scale treatment of healthcare waste. Any plant, irrespective of size, that treats hazardous infectious categories of waste is subject to stringent controls and requires authorisation to operate.

Laboratory autoclaves

- 12.16 For England and Wales, the on-site treatment by laboratory autoclave of containment levels 1–3 microbiological laboratory waste is presently identified as a low-risk activity for which it is not in the public interest to expect operators to obtain a waste management licence. See paragraphs 48–57 of the ‘Research and laboratory facilities’ sector guide (page 72), which includes guidance on the effective operation and validation of autoclaves used for this purpose. Those facilities handling containment level 4 should seek advice from their local Environment Agency office (for England and Wales).

Waste management licence and permit conditions

- 12.17 Conditions attached to a PPC permit or licence will impose controls on the development and operation of the facility which are designed to ensure that no significant pollution is caused, setting out clearly the standards to be achieved and imposing emission-limit values for pollutants. Failure to comply with these conditions is an offence, and may lead to the facility having its licence/permit revoked, and the operators being fined (up to £50,000) or even imprisoned.
- 12.18 Licence and permit conditions can be modified or varied, usually by amending conditions or changing the working plan. They can also be suspended or revoked, in part or whole.

Compliance monitoring

- 12.19 Both licences and permits are issued subject to conditions designed to ensure that the operation of the facility does not cause pollution or endanger health. The environmental regulatory authority will inspect a facility periodically to ensure that it

is being operated in accordance with these conditions. If the conditions are not producing the desired result, or if the operator needs to change its method of operation in some way, the conditions can be modified. If this does not produce the necessary result, the licence or permit can be revoked or suspended.

12.20 It is also the responsibility of the waste producer to only send waste for disposal that is appropriate to the terms and conditions of the waste disposal operator’s licence conditions.

12.21 The frequency of inspection, the nature and required detail of observations, and the length of time taken by an inspection will depend on:

- the type and size of licensed facility and whether it is subject to any requirement for more intensive inspection;
- persistent non-compliance with licence conditions; or
- concern over recent monitoring results.

Table 11 Exempt activities under the Waste Management Licensing Regulations

Schedule ¹ Para No	Activity exempt	Register with Agency	Hazardous waste included	Maximum quantity	Storage time	Comments
40	Off-site storage of non-liquid waste	No	No	50 m ³	3 months	Applies to off-site storage in areas not designed or adapted to receive waste. The storage must be incidental to the collection and transport of the waste. Although not requiring regulator consent, it does require the owner/occupier’s consent. Covers the secure transfer of non-hazardous waste from an ambulance to an A&E department so long as duty-of-care requirements are met and storage arrangements are considered suitable under the regulations.
41	On-site temporary storage of hazardous waste	No	Yes	80 m ³ in secure containers; 50 m ³ in a secure place; 23,000 L for liquid waste	12 months	Applies to waste awaiting collection on the site where it was produced. Covers the storage of waste produced on the premises of hospitals, care homes providing nursing care, general medical, dental and veterinary practices and ambulance stations. Note – in England and Wales, premises at which hazardous waste is produced may have to notify the Environment Agency that they are a hazardous waste producer (see paragraph 13.2).
22	Recovery of silver from printing or photographic waste	Yes	No	50,000 L per day	NA	Also permits the storage of printing or photographic waste awaiting processing. Potentially exempts the operation of silver reprocessing unit associated with X-ray activities so long as the associated materials (eg fixer/developer) are not hazardous waste.
11 ²	Preparatory treatment of certain types of waste	Yes	No	100–3000 tonnes per week depending on waste type	NA	Applies to activities performed with a view to the recovery or re-use of the waste. Includes activities such as baling, sorting and shredding of waste paper, cardboard, plastic and textiles and the sorting, crushing or washing of glass.

1 Schedule 2 in the corresponding Northern Ireland regulations.

2 Exemption 12 in the corresponding Northern Ireland regulations.

In general, activities relating to healthcare waste that are not encompassed by these exemptions will need a waste management licence or other form of permit.

13 Documentation

Registered waste carriers

A waste carrier is someone whose business or part of their business involves the transporting of controlled waste by road, rail, air, sea or inland waterways.

Waste carriers are required to register with the relevant environmental regulatory authority and comply with the duty of care. All registrations last for three years from the date of issue or renewal.

Registered carriers should be able to provide a certificate of registration on request.

Exemptions

The following carriers are exempt from registration under the Controlled Waste (Registration of Carriers and Seizure of Vehicles) Regulations:

- householders who carry only household waste, generated by them, in their own vehicle;
- waste producers carrying their own waste, except building or demolition waste (for example, people such as community nurses and others working in home healthcare);
- a person who transports only waste which comprises animal by-products collected and transported in accordance with Article 7(1) or 7(2) of the Carriage Regulations.

Transport documentation

13.1 The Carriage Regulations require that a completed transport document should accompany all loads of dangerous goods, with the exception of goods being transported under limited quantity exemptions. The format and content of the transport document are specified in ADR. In summary, the transport document should provide the following information:

- a. the UN number of the goods being carried;
- b. the proper shipping name, supplemented where applicable with the technical name;
- c. the label model number;
- d. the packing group;
- e. the number and description of the packages;
- f. the total quantity of each item;
- g. the name and address of the consignor;
- h. the name and address of the consignees.

A properly completed waste consignment note will contain this information (see also [paragraph 13.11](#)).

13.2 In addition to a transport document, those transporting dangerous goods above the load thresholds stated in ADR (or in bulk) are required to carry “instructions in writing” as a precaution against accident or emergency during carriage. These written instructions are commonly referred to as a TREMCARD. ADR provides further details.

Waste transfer note

13.3 A key element of the duty of care is keeping track of the waste. The holder of the waste is responsible for:

- taking adequate steps to ensure that the waste is managed safely and kept secure; and
- transferring it only to an authorised or exempt person.

13.4 When waste is transferred from one party to another, the person handing it on (the

"transferor") must complete a transfer note. The transferor and the recipient (the "transferee") sign the note; both of them take and keep a copy of it. An annual transfer note may be used to cover all the movements of regular transfer of the same non-hazardous waste between the same parties.

13.5 A transfer note must state:

- a. the quantity of waste transferred, by weight where possible;
- b. how it is packed;
- c. the type of receptacle;
- d. a description of the waste.

13.6 The description of the waste should include:

- a. the EWC code, as indicated elsewhere in this guidance;
- b. the type of premises or business from which the waste comes;
- c. the name of the substance or substances;
- d. the process that produced the waste;
- e. a chemical and physical analysis;
- f. special problems identified under 13.8 (i) to (xi) below.

13.7 The description must provide enough information to enable subsequent holders to avoid mismanaging the waste.

13.8 Special problems:

- (i) any special containment requirements;
- (ii) type of receptacle required and the material the receptacle is made of;
- (iii) can it be safely mixed with other waste or are there types of waste with which it should not be mixed?;
- (iv) can it be safely crushed and transferred from one vehicle to another?;
- (v) can it be safely incinerated or does it require specific minimum temperatures or combustion times?;
- (vi) can it be disposed of safely to landfill with other waste?;
- (vii) is it likely to change physical state during storage or transport?;
- (viii) any information, advice or instructions about the handling, recovery or disposal

of the waste by the waste regulators or suppliers etc;

- (ix) details of problems previously encountered with the waste;
- (x) changes to the description since the previous load;
- (xi) anything unusual about the waste that may pose a problem.

13.9 It is best practice to label drums and receptacles with the description of the waste.

13.10 Copies of transfer notes should be retained by all parties for a minimum of two years.

Dual transfer/transport notes

13.11 The information contained on a waste transfer note is very similar to the information required for the transport note. It is common practice to combine these notes; this can be done by providing an adequate description of the waste and any hazardous characteristics using both waste and carriage terminology.

Premises registration/notification⁶

13.12 In England and Wales, the Hazardous Waste Regulations require that most premises producing hazardous waste be notified to the Environment Agency. A few types of premises are exempt from the requirement to notify if they produce less than 200 kg of hazardous waste in any period of 12 months (hazardous waste also includes televisions, computer equipment and monitors, fluorescent tubes and refrigerators). These premises are listed in the Regulations and include premises used by dental, veterinary and medical practices, and hospitals and nursing homes. Guidance on the use of the notification reference and requirements for exempt premises can be found on the Environment Agency website (<http://www.environment-agency.gov.uk/subjects/waste>).

Note

This exemption only covers premises notification. All other legislative requirements including consignment notes for each collection of hazardous waste continue to apply to waste coming from these premises.

⁶ Premises registration/notification does not apply in Scotland or Northern Ireland

- 13.13 Many premises are in shared occupation under a variety of arrangements. Where premises are shared, each occupant retains their own responsibility for waste under duty-of-care. However, practical arrangements for the handling and management of waste are illustrated by the following example:

Where an acute hospital site is occupied by an acute trust, a mental health trust, a primary care trust and an ambulance trust, the shared waste storage area is considered storage at the site of production and is therefore exempt from the requirements of a waste management licence.

Within the shared waste storage area, waste may be segregated by type rather than by producer.

Each trust is considered to be separate, individual premises for the purposes of producer notification under the Hazardous Waste Regulations and for the completion of consignment notes.

Where the acute trust manages the waste produced on the same site by other parties, these parties have a duty-of-care to provide sufficient information about their waste to the acute trust to enable the accurate completion of consignment/transfer notes and determine the appropriate means of disposal.

Consignment notes

- 13.14 Consignment notes are a required process when transporting hazardous waste. They are available from the respective environmental regulatory authorities, that is, EA, SEPA or EHS (for which a charge will be made).
- 13.15 It is advisable that the completion of consignment notes is discussed with the waste disposal contractor (the form of a consignment note is illustrated in the Hazardous Waste Regulations for England and Wales, the Hazardous Waste Regulations for Northern Ireland and the Special Waste Regulations for Scotland).

14 Accidents and incidents

14.1 Employers at all points in the waste chain need written procedures for dealing with accidents or incidents including spillages. These procedures should form part of the waste management policy and should include:

- immediate first-aid measures. In the case of sharps injuries, procedures need also to cover arrangements for suitable medical advice and counselling;
- immediate reporting to a responsible designated person;
- recording of the accident/incident;
- investigation of the incident and implementation of remedial action. Initial investigation should preferably take place before any damaged receptacle is removed;
- retention, if possible, of the item and information about its source to help identify possible infection risks;
- attendance of any injured person at an accident and emergency department or occupational health department as soon as possible;
- involvement of the risk manager;
- involvement of the waste manager;
- involvement of the infection control team.

14.2 All incidents involving spillages, damaged packaging, inappropriate segregation or any incident involving sharps need to be reported to the line manager or other suitable individual, and be investigated by them. The investigation of these accidents and incidents needs to establish the cause and what action needs to be taken to prevent a recurrence.

14.3 The analysis and investigation of incidents involving healthcare waste, whether reportable or not, helps identify causes, trends, the level of compliance with current legislation, the effectiveness of the precautions in place, and problem areas for which satisfactory precautions

have yet to be provided. Information relating to both the financial cost and staffing required to deal with incidents is also relevant, as it allows managers to assess the total cost of incidents and accidents.

- 14.4 The depth of each investigation will vary depending on the nature of the incident. To be worthwhile, however, any investigation needs to consider carefully the underlying causes. Action after an accident will not be effective if it addresses only the superficial and obvious causes and misses more significant issues.
- 14.5 The active and reactive monitoring of healthcare waste procedures is most effective as part of an overall system of health and safety monitoring, with information passing up the line management chain to senior management.

Note

Any accident during the transport of a Class 6.2 Category A substance must be reported to the Dangerous Goods Division of the Department for Transport.

Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR)

- 14.6 The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR) require certain accidents, work-related ill-health and dangerous occurrences (such as an incident that results in, or could have resulted in, the release of a biological agent that could cause severe human disease) to be reported to the appropriate enforcing authority. For most healthcare premises, this is the HSE (<http://www.riddor.gov.uk>).
- 14.7 Severe human disease includes diseases caused by hazard group (HG) 3 and 4 agents as well as some (HG) 2 agents (for example *Neisseria meningitidis*).

- 14.8 Social security legislation requires an accident book or something similar to be kept and accessible to staff.
- 14.9 Effective health and safety management systems ensure the internal reporting, recording and investigation of a wider range of accidents and incidents than those which are legally reportable.

Spillages

- 14.10 Employers need clear written procedures for dealing with spillages which:
- specify the reporting and investigation procedures;
 - specify the use of a safe system of work for clearing up the healthcare waste;
 - set out appropriate requirements for decontamination;
 - specify the protective clothing to be worn.
- 14.11 The ready availability of appropriate spillage kits helps ensure the correct action in the event of a spillage. Such kits are particularly useful at storage, waste treatment and waste disposal sites, and should be carried on all vehicles carrying healthcare waste.
- 14.12 Spillage kits may contain, for example:
- disposable gloves;
 - a disposable apron;
 - an infectious waste sack/medicinal waste receptacle;
 - paper towels;
 - disposable cloths;
 - disinfectant recommended, for example, by the local control of infection policy;
 - a means of collecting sharps.
- 14.13 Employers need to provide appropriate equipment for collecting spilled waste and placing it in new receptacles. Sharps must not be picked up by hand. Spilled waste and any absorbent materials need to be placed in an infectious waste receptacle for disposal.

Disinfectants

- 14.14 The use of suitable disinfectants should be detailed in the healthcare waste policy, which should be managed and monitored by the infection control committee. The policy should clearly identify which products are to be used, where they are to be used and for what purpose.
- 14.15 The policy should also provide guidance on the relevant level of dilution required and the contact time required for the disinfectant to be safe and effective.
- 14.16 Suitable inert absorbent materials may be used to deal with liquid spillages after disinfectant material has been applied.
- 14.17 Guidance on the use of disinfectants should be sought from suitably qualified personnel, for example the infection control team. They should be consulted after a spillage containing or suspected to contain unusual infective agents, for example variant CJD.
- 14.18 The use of disinfectants themselves may present a health risk, particularly in confined spaces, and consideration should be given to the general provisions of the COSHH Regulations. Accordingly, only staff who have the necessary training and experience should carry out the application of disinfectants.

Mercury

- 14.19 Employers who use mercury should carry out a risk assessment for dealing with mercury spillages and produce written procedures. A spillage kit including disposable plastic gloves, paper towels, a bulb aspirator for the collection of large drops of mercury, a vapour mask, a suitable receptacle fitted with a seal, and mercury-absorbent paste (equal parts of calcium hydroxide, flowers of sulphur, and water) needs to be available. In no circumstances should a vacuum cleaner or aspiration unit be used, as this will vent mercury vapour into the atmosphere.

15 Personal protection and hygiene

- 15.1 COSHH Regulations require that risks to health be eliminated, prevented or, where this is not reasonably practicable, reduced. Although the use of personal protective equipment should be considered as additional to other control measures, it is likely that even after all reasonably practicable precautions have been taken to reduce the exposure of staff who handle, transfer, transport, treat or dispose of healthcare waste, some personal protective equipment will still be required.
- 15.2 In such cases, employers must ensure that these items are provided, used and maintained. They must also make appropriate arrangements for storage and cleaning.
- 15.3 Under the law, employees must cooperate with employers to ensure that their legal duties are met.
- 15.4 Risk assessments might identify the need for personal protective equipment such as:
- suitable heavy-duty gloves when handling healthcare waste receptacles;
 - safety shoes or industrial wellington boots to protect the feet against the risk of receptacles being accidentally dropped. The soles of such shoes or boots may also need to provide protection against slippery floors and the spillage of sharps;
 - an industrial apron or leg protectors if receptacle handling creates a risk of bodily contact;
 - protective face visors, helmets and strong industrial gloves where incinerators or other machines are charged manually.

- 15.5 Emergency situations, such as spillages, should also be addressed in any risk assessments. This might include the need for protective equipment to prevent exposure via routes such as skin contact (for example disposable aprons and gloves) or inhalation (for example respiratory protection and/or face visors).

Basic hygiene

- 15.6 Basic personal hygiene is important in reducing the risk from handling healthcare waste. Employers need to ensure that washing facilities are conveniently located for people handling healthcare waste; this is particularly important at storage and incineration facilities.

Immunisation

- 15.7 Staff handling healthcare waste should be offered appropriate immunisation, including hepatitis B and tetanus. Staff must be informed of the benefits (for example protection against serious illness, protection against spreading illness) and drawbacks (for example reactions to the vaccine) of vaccination.
- 15.8 Where vaccination has been identified as a control measure required when working with healthcare waste, the employer must offer this free of charge.
- 15.9 Employers need to establish arrangements for dealing with staff who decline to accept the immunisation services that are offered and those who do not sero-convert (that is, do not produce/develop antibodies as a result of immunisation).

16 Training and competence

16.1 A policy for the safe management of healthcare waste cannot be effective unless it is applied carefully, consistently and universally. This requires that all healthcare staff should be aware of the policy/procedure and that the policy is implemented by trained and competent people.

Training

16.2 Training needs vary depending on the responsibilities and job function. Ideally, separate training programmes should be designed for, and targeted on, the following groups:

- infection control staff, healthcare managers and administrative staff responsible for implementing regulations on healthcare waste management;
- medical doctors;
- pharmacies;
- all nursing staff; and
- cleaners, porters, auxiliary staff and waste handlers.

16.3 Those delivering training should have experience in teaching and training and be familiar with the risks and practices of healthcare waste management. Smaller establishments generating healthcare waste may not have this range of expertise available to them, but should still have access to competent advice on hazardous waste issues.

Training procedures

16.4 Training procedures and information need to:

- be written in a way which can be understood by those who need to follow them, including those who may not have a good command of the English language;
- take account of different levels of training, knowledge and experience;
- be up to date;

- be available to all staff including part-time, shift, temporary, agency and contract staff;
- be available in all areas.

16.5 Managers need to ensure that procedures are followed by all staff. Staff at all levels who generate the waste need to recognise that they are personally responsible for complying with agreed local procedures.

16.6 The risk assessments required by the Management of Health and Safety at Work Regulations and COSHH should identify which staff are involved in the handling of healthcare waste.

16.7 Under Health and Safety at Work legislation, the Management of Health and Safety at Work Regulations and COSHH, they must receive information on:

- the risks to their health and safety, that is, the details of the substances hazardous to health to which they are likely to be exposed;
- the significant findings of the risk assessment;
- any precautions necessary;
- the results of any monitoring carried out; and
- the collective results of any relevant health surveillance.

Training records

16.8 A training record will readily enable line managers to identify members of staff who are not receiving the appropriate level of training, and where such training should be focused.

Induction training

16.9 Training needs vary depending on the job and on the individual. All staff involved in handling healthcare waste need training, information and instruction in:

- the risks associated with healthcare waste, its segregation, handling, storage and collection;

- personal hygiene;
- any procedures which apply to their particular type of work;
- procedures for dealing with spillages and accidents;
- emergency procedures; and
- the appropriate use of protective clothing.

16.10 Training for staff who collect, transfer, transport or handle healthcare waste needs to cover:

- checking that storage containers are sealed effectively before handling;
- ensuring that the origin of the waste is marked on the receptacle;
- handling sacks/receptacles correctly;
- using handles to move rigid receptacles;
- checking that the seal on any used waste storage receptacle is unbroken when movement is complete;
- special problems relating to sharps disposal;
- procedures in case of accidental spillage and how to report an incident;
- safe and appropriate cleaning and disinfection procedures.

Job-specific training

- 16.11** Some staff require more specific training. These include people who use protective equipment, disposal facility operators, drivers, community and laboratory staff.
- 16.12** Under the Environmental Protection Act (section 74) and the Waste and Contaminated Land (Northern Ireland) Order (Article 3), operators of waste management facilities require a certificate of competence from the Waste Management Industry Training and Advisory Board (WAMITAB).
- 16.13** Drivers of vehicles used to transport healthcare waste by road may need additional training under the Carriage Regulations (information on driver training requirements can be found on the Dangerous Goods Division website of the Department for Transport), and those responsible for the movement of the waste should have access to, or be, a trained dangerous goods safety adviser (DGSA).

16.14 In addition, transport regulations require that all those in the transport chain involved in the transport of dangerous goods receive appropriate training commensurate with their responsibilities. This would include loaders and packers. Information on general training requirements and DGSA's can be found on the Dangerous Goods Division website.

Delivery of training

- 16.15** Training can be delivered in a variety of ways depending on the audience. This may include workshops and formal seminars for senior staff and hands-on training in the workplace for smaller groups. The training can serve to educate staff and should include for each group:
- information on, and justification for, all aspects of healthcare waste policy;
 - information on the role and responsibilities of each healthcare staff member in implementing the policy; and
 - technical instructions, relevant for the target group, on the application of waste management practices.

Framework contract for the delivery of waste management training within the healthcare sector

- 16.16** NHS Purchasing and Supply Agency (NHS PASA) is developing a framework agreement for the delivery of waste management training within the UK. The aim is to ensure that a comprehensive package of training is available for access by the NHS. The training itself will address the recommendations outlined in this guidance document.
- 16.17** This procurement exercise is expected to be completed by December 2006. Further information can be obtained from the NHS Purchasing and Supply Agency (<http://www.pasa.dh.gov.uk>). When the contract award has been made, details can be accessed via NHS Ecat: http://www.pasa.nhs.uk/cat_default.asp. The contract reference is CM/FMM/06/4463.

Sector guides

Community nursing

- 1 Community nursing can take many forms and occurs in various environments. It includes healthcare workers (including emergency care practitioners (ECPs)) who provide care and support to:
- patients in their own homes;
 - residents of care homes (without nursing care);
 - householders who are self-medicating.

Note

This section does not apply to:

- general practitioners;
- healthcare centres;
- care homes with nursing care;
- dentists; or
- any other form of healthcare practice.

- 2 As a community practitioner, the following types of waste will be produced:
- infectious;
 - sharps;
 - offensive;
 - medicinal;
 - anatomical (for example placentas);
 - domestic.

Colour-coding

- 3 The colour of the waste receptacle will depend on how the waste should be treated and disposed of:
- **Orange** – boxes, sacks and orange-lidded sharps receptacles should be used for waste that can be treated to render it safe. In practice, the vast majority of “soft” infectious waste such as dressings, bandages and some plastic single-use instruments can be treated.

- **Yellow** – boxes, sacks and yellow-lidded sharps receptacles should contain waste that requires disposal by incineration only. A relatively small amount of waste produced in the community will be disposed of in yellow containers; examples of waste materials include anatomical waste (such as placentas) and sharps containing a quantity of medicinal product (for example undischarged sharps).
- **Yellow/purple** – boxes, sacks and purple-lidded sharps receptacles should be used for waste that is contaminated with cytotoxic and cytostatic medicinal products. In the community setting this will include sharps used for the administration of chemotherapy, antiviral and/or hormonal drugs.
- **Yellow/black** – used for recognisable healthcare waste that is neither infectious waste nor hazardous waste.
- **Black** – used for mixed domestic waste – it should never be used for recognisable healthcare waste.

Which type of packaging and what colour should you use?

Packaging

- 4 The type of packaging used will vary on the type of waste produced:
- if the waste is **liquid** or contains free liquids (for example a partially discharged syringe), it should only be placed in a package designed to take liquids, such as a plastic drum;
 - if the waste is **sharp** it should only be placed in a sharps receptacle (see [paragraphs 17–18](#));
 - **all other** waste may be packaged in flexible sacks (infectious waste bags).
- 5 It is not always practical for healthcare workers to carry lots of different types of packaging with them.

Therefore, healthcare workers must choose the most appropriate packages to meet their needs.

Colour

Orange sacks

- 6 The vast majority of “bagged” infectious waste produced in the community will be placed in the orange waste stream. Therefore, the use of orange sacks in the community is recommended.

Small rigid leak-proof yellow receptacles

- 7 Where anatomical or other waste that requires incineration is being generated, it will be appropriate for healthcare workers to carry yellow packaging. As most “incineration only” waste is either anatomical or sharps and/or contains lots of free liquid, the use of small rigid yellow boxes is recommended.
- 8 These should have purple lids if the waste is contaminated with cytotoxic/cytostatic medicines (see [paragraph 17](#) for appropriate colour-coding of sharps).

Infectious waste

- 9 Waste classified as infectious waste due to its known or potential risk of infection should be classified as hazardous infectious waste and should be packaged appropriately and sent for suitable treatment and disposal.
- 10 The Carriage Regulations differentiate between two types of infection risk:
 - **Category A infectious substances (UN 2814)** – the United Nations produces a list of infectious substances classified with Category A and includes Ebola fever, viral haemorrhagic fever, smallpox etc (see [Appendix B](#));
 - **Category B infectious substances (UN 3373)** – this classification includes all other waste classified as infectious waste (see [Appendix B](#)). Category B infectious waste substances consigned as waste will be to UN 3291.

Category A waste

In practice it is unlikely that Category A infectious waste will be encountered in the community setting. Category A substances are likely to cause life-threatening disease and, in general, are able to spread easily and therefore pose a risk to the local community

and healthcare workers. If you suspect that you have encountered a Category A infectious substance, you should inform the Health Protection Agency and the Department for Transport for additional advice regarding the movement of the waste.

The Carriage Regulations specify that Category A substances should only be packaged in specialist packages and boxes and, while the use of standard infectious waste packaging is suitable for containment on the site of production, the waste should not be moved until appropriately packaged.

Management of Category B infectious waste in the community

Assessing whether waste poses a risk of infection

- 11 Healthcare workers working in the community and in the household environment need to assess the waste they are producing for the hazardous properties it may contain, most notably “infectious”.
- 12 To accurately assess whether the waste generated is infectious, a risk assessment should be performed. This should be based on the professional assessment, clinical signs and symptoms, and any prior knowledge of the patient. The following risk assessment is to be used in conjunction with the waste assessment provided in [Appendix E](#). There are two parts to the risk assessment.

Part 1: wound assessment

- 13 The following criteria are based on the Delphi process of identifying wound infection in six different wound types (European Wound Management Association 2005).

Note

In Northern Ireland, Clinical Resource Efficiency Support Team (CREST) guidelines on wound management apply (http://www.crestni.org.uk/publications/wound_guidelines.html).

Signs and symptoms of infection	Probability of Wound being Infected
Is there presence of erythema/cellulitis?	High
Is there presence of pus/abscess?	High
Is the wound not healing as it should, or has healing been delayed?	Medium
Is the wound inflamed and has it changed appearance?	Medium
Is the wound producing a pungent smell?	High
Is the wound producing an increased purulent exudate?	Medium
Has the wound increased in pain?	High
Has there been an increase in skin temperature?	Medium /Low
Is the patient on antibiotics for an infection present in the wound?	High
Are you thinking of swabbing for infection?	Medium

Note: It must be recognised that this is not an exhaustive list of signs and symptoms of wound infection and that different types of wound will present differently. This tool is to assist in the basic assessment of all wounds in order to correctly categorise whether the waste produced contains an infectious fraction and therefore infectious waste. Further information and advice regarding assessment of wound infections should be sought from your local tissue viability specialist nurse.

- 14 If the wound assessment indicates that the wound is infected, all associated contaminated dressings etc should be classified as infectious waste and packaged for appropriate treatment and disposal. This will usually be in an orange sack.
- 15 If there are any other reasons why the waste may present a risk of infection, it should be classified as infectious waste and disposed of appropriately.

Part 2: non-infectious dressing assessment

- 16 Where the assessment above has identified that the dressing is not infectious, the following should be considered (noting that the type of dressings that are produced in the community by a healthcare worker can vary greatly):
1. any recognisable item of non-infectious healthcare waste cannot legally be disposed of in the black-bag waste stream and should therefore be disposed of in the offensive/hygiene waste stream;
 2. however, mixed domestic waste does contain small amounts of plasters, small dressings and incontinence products. Where the healthcare worker produces the same or similar items, these – with the following considerations – can be placed in the domestic refuse (with the householder’s permission). The following should be considered:
 - **the size of the dressing** – small dressings no larger than a dressing pad (that is, 130 mm × 220 mm) can be disposed of as domestic refuse;

- **the type of dressing** – specialised antimicrobial types of dressing should be disposed of as offensive/hygiene or medicinal waste as appropriate;
- **the quantity produced** – where a number of small dressings are produced regularly over a period of time, it may be appropriate to dispose of these as offensive/hygiene waste. If, however, the amount produced is relatively small and consistent with that likely to be found in the household waste stream, it may be discarded in the domestic refuse;
- **packaging** – where such waste is placed in the domestic refuse, the waste should be wrapped in a plastic sack. The wrapping should not be yellow or orange, as the waste is not deemed to be infectious – thin opaque plastic sacks such as sandwich bags and bin liners are appropriate.

Miscellaneous infectious waste

Sharps disposal

- 17 Sharps should be disposed of using the appropriate colour-coded sharps receptacle:
- **Orange-lidded sharps receptacles.** These should only be used for non-medicinally-contaminated sharps. The position with fully discharged sharps varies with country and regulator regime. Orange-lidded sharps boxes for this reason are currently not advisable for use in the community, as this would entail the use

of a second sharps box to achieve correct segregation.

- **Purple-lidded sharps receptacles.** Community practitioners are likely to administer a wide variety of medicinal products by injection. Some of these will be classified as cytotoxic and cytostatic; therefore, the associated sharps and liquid residues of the medicinal products should be placed in an appropriate yellow and purple leak-proof sharps box.
- **Yellow-lidded sharps receptacles.** If you have determined that none of the products used for injection is classified as cytotoxic or cytostatic, it is appropriate to use a yellow-lidded sharps box. If the syringe contains residual liquid medicines, this box would need to be leak-proof.

- 18 For reasons of practicality, community nurses may seek to use a single sharps receptacle. In this instance, it would need to be a yellow/purple leak-proof sharps receptacle.

Notes

- Sharps should never be discharged to allow disposal into a certain type of box.
- Boxes used for the disposal of sharps and liquid medicinal waste must be leak-proof.
- Sharps boxes should be collected when three-quarters full and must never exceed the permissible marked mass. If the sharps box is seldom used, it should be collected after a maximum of three months regardless of the filled capacity.
- Biological substances Category B (formally diagnostic specimens) are not considered to be waste unless discarded at laboratory facilities. Diagnostic specimens should be placed in specimen packs for transport (packaging instruction P650 and labelled UN 3373). The packaging used to transport the specimens does not require UN approval providing the containers meet the requirements of P650.

Self-medicating patients and sharps disposal

- 19 Where the householder is a self-medicating patient who uses injectables (for example a person with diabetes) with no healthcare worker involved in the administration, the GP or healthcare worker should prescribe the householder the appropriate container (for example a sharps box) and advise them of local disposal options.
- 20 The householder should be trained in how to use the sharps box before it has been prescribed, to ensure that they understand its use and ensure it is correctly sealed and labelled.
- 21 Once the sharps bin is three-quarters full, it should be sealed by the householder and taken back to the GP surgery or to the local pharmacy for disposal.

Note

It is no longer acceptable to advise self-medicating patients to dispose of their sharps and lancets into the household black-bag waste stream.

Patients with MRSA

- 22 Where a patient in the community has been diagnosed with MRSA and is being cared for by a healthcare worker, the healthcare waste generated is not necessarily infectious.
- 23 In assessing the risk of infection from waste produced by a patient with MRSA, the following should be considered:
- **Is the patient colonised with MRSA but not receiving specific treatment for MRSA?** If the answer is “yes”, the MRSA status of the patient does not effect the assessment of the waste. The healthcare worker should refer to the wound and dressing assessment given in [paragraphs 13–16](#).
 - **Is the patient colonised with MRSA and receiving treatment for MRSA?** If the answer is “yes”, an assessment of waste is required.
 - **Is the patient infected with MRSA and receiving treatment, and is the infection present in the waste generated?** If the answer is “yes”, the waste produced should be classified as infectious waste.

Disposable instruments

- 24 Disposable instruments are now commonly being used in the community by a number of healthcare professionals. Disposable instruments can take the form of either plastic or metal instruments.
- 25 Contaminated plastic disposable instruments – where there is no risk of sharps – can be safely disposed of as infectious waste and put into the orange-bag waste stream.

- 26 Metal disposable instruments – where there is no risk of sharps and they are deemed to be infectious – should be put into a rigid yellow container marked “for incineration only”.
- 27 Where the instruments are deemed to be non-infectious, they should be sent for disposal as offensive/hygiene waste – and in the case of metal instruments, metal reclamation and recovery where available.

Note

Disposable instruments cannot legally be disposed of in the domestic refuse.

Stoma/catheter bags

- 28 If a healthcare worker is involved in the care of a stoma site, the waste from a stoma patient can be disposed of in the black-bag waste stream.
- 29 If used in bulk, this becomes offensive/hygiene waste for disposal in black/yellow striped bags for deep landfill. However, if the person develops any type of gastrointestinal infection or the site becomes infected, the bag must be disposed of as infectious waste into the orange-bag waste stream.
- 30 If the householder is self-medicating with no healthcare worker involved, they are able to dispose of their own waste in to the black-bag waste stream.

Wound vacuum drains

- 31 These should be treated as infectious waste and disposed of in the orange-bag waste stream. They should never be placed in the domestic refuse.

Maggots

- 32 All maggots used for wound management should be secured in an airtight rigid yellow container and marked as UN 3291.

Offensive/hygiene waste from healthcare

- 33 Many items classified as healthcare waste produced in the community by a healthcare worker are unlikely to be classified as infectious waste and should be segregated and managed as offensive/hygiene waste. This requires item- and patient-specific assessment. Examples include:
- non-infectious dressings – (see [paragraph 16](#));

- non-infectious disposable instruments – (see [paragraph 30](#));
- non-infectious stoma bags;
- non-infectious catheter bags;
- non-infectious incontinence pads.

- 34 This waste should be segregated at source and packaged and treated as offensive/hygiene waste. In principle, this waste should not be placed in the domestic refuse; however, exceptions to this have been noted above.

Note

Healthcare waste must be assessed to determine whether the waste is infectious (see [paragraphs 11–15](#)). For example, if a patient is undergoing treatment for a known or suspected gastrointestinal or urinary tract infection, and the waste is likely to contain pathogens, it should be considered infectious and placed in an orange receptacle.

Transporting the waste

- 35 Where waste is generated by a healthcare worker in the community, the healthcare worker is responsible for ensuring that the waste is managed correctly; this is part of their duty-of-care (see [paragraphs 2.5–2.8](#)).
- 36 Where the waste is generated in other premises, such as in care homes and private households, the healthcare worker must ensure that arrangements are in place to ensure that the waste is packaged and labelled correctly and transported for appropriate treatment and disposal. Local options may vary, but in general the healthcare worker has two options.

Option 1

- 37 The healthcare worker producing the waste can transport the infectious waste from the home environment back to base where waste collection and disposal arrangements are in place. Where healthcare workers are transporting waste in their own vehicles, they should ensure that they are transporting the waste in secure rigid packaging, for example boxes or drums (following packaging instruction P621). They should also have received appropriate training either in-house or contracted-out, which addresses the transporting of waste safely.

Option 2

- 38 The healthcare worker producing the waste can leave it in the home for collection by an appropriate organisation, either a waste contractor or the local authority or healthcare provider.
- 39 The healthcare worker has responsibility for the waste while it is being stored awaiting collection, and for arranging that collection. While awaiting collection from the householder's home, the waste should be stored in a suitable place to which children, pets, pests etc do not have access. It is not appropriate to leave the waste unsupervised on the pavement awaiting collection.
- 40 Waste should be packaged and labelled appropriately and adequate instruction should be given.
- 41 The party collecting the waste should be provided with the information required under duty-of-care requirements (see [paragraphs 2.5–2.8](#)).
- 42 A completed consignment note should accompany the movement of the waste, as infectious waste is classified as hazardous waste.

Note

A consignment note is not required for the movement of hazardous waste from domestic premises.

Research and laboratory facilities

- 1 In conjunction with the Hazardous Waste Regulations and the Carriage Regulations, this sector guide emphasises duties under the Control of Substances Hazardous to Health Regulations (COSHH) and the Genetically Modified Organisms (Contained Use) Regulations (GMO(CU)) as they relate to biological agents.
- 2 A number of additional HSE publications provide relevant guidance on management of health and safety within research and laboratory facilities, and expand on the points mentioned in this section; hence they should be read in conjunction with this sector guide. They are:
 - ‘Safe working and the prevention of infection in clinical laboratories and similar facilities’ (HSAC);
 - ‘Biological agents: managing the risks in laboratories and healthcare premises’ (ACDP);
 - ‘The management, design and operation of containment laboratories’ (ACDP);
 - ‘Scientific Advisory Committee for Genetic Modification compendium of guidance’ (SACGM).
- teaching laboratories (for example medical schools);
- clinical laboratories (for example clinical microbiology departments);
- forensic laboratories (for example pathology and post-mortem);
- veterinary laboratories (for example diagnostic or research institutes); and
- environmental laboratories (for example food and water testing).
- 6 Work in these facilities falls into two main types:
 - a. where the work involves the intentional propagation or concentration of pathogens or GMMs (for example work with infected cell cultures, infected animals, or large-scale propagation of pathogens);
 - b. where the work involves materials (for example clinical specimens) that may contain pathogens (for example diagnostic work such as pathology, microbiology, haematology or serology) and may involve limited culture stage (for example preliminary isolation of bacteria).

Brief description of the sector activities

- 3 This sector guide covers research and laboratory facilities that undertake work with infectious substances (that is, those known or reasonably expected to contain pathogens or genetically modified microorganisms (GMMs)).
- 4 While this guidance focuses on waste generated in healthcare premises, it is also pertinent and applicable to healthcare waste from other occupational settings.
- 5 For the most part, the research and laboratory facilities most likely to generate infectious waste include:
 - research laboratories (for example universities);
- 7 To ensure that exposure of laboratory workers (in accordance with duties under COSHH) or laboratory workers and the environment (in accordance with duties under GMO(CU)) to pathogens, GMMs or specimens is prevented or else adequately controlled, such work is undertaken at an appropriate containment level (CL).
- 8 Risk assessment is pivotal in matching the laboratory containment and control measures required for a particular type of activity. To inform the risk assessment, pathogens have been categorised into hazard groups (HG) by the Advisory Committee on Dangerous Pathogens (ACDP) as detailed in the ‘Approved list of biological agents’. Classification of GMMs is based on the outcome of the risk assessment for the genetic modification activity they are part of.

Note

The principles of prevention and control of exposure and the specific containment measures for CL2, CL3 and CL4 can be found in Regulation 7 and Schedule 3 (Part II) of COSHH, and are expanded on in ACDP's 'The management, design and operation of containment laboratories'; 'Biological agents: the principles, design and operation of containment level 4 facilities'; and 'Biological agents: managing the risks in laboratories and healthcare premises'.

For GMMs, the regulatory requirements are explained in HSE's 'A guide to the Genetically Modified Organisms (Contained Use) Regulations'.

Further guidance on GM activity classification, containment levels (CL2 to CL4) and control measures can be found in Scientific Advisory Committee for Genetic Modification (SACGM) newsletters, guidance notes (on amendments to these regulations) and the 'SACGM compendium of guidance' (available from <http://www.hse.gov.uk/biosafety>).

Waste classification and segregation

Chapter 4 of this guidance explains the basis for classification of different types of healthcare waste using the six-digit numbers in line with the European Waste Catalogue (EWC), the Hazardous Waste Regulations and the Carriage Regulations.

Chapter 5 of the guidance explains the unified approach to this classification.

- 9 **Table 12** (at the end of this sector guide) summarises the classification, packaging and disposal for some of the most common hazardous waste emanating from laboratories. Infectious substances are classified for transport as Category A or Category B:
 - Category A – an infectious substance which is transported in a form that, when exposure to it occurs, is capable of causing permanent disability, life-threatening or fatal disease in humans or animals;
 - Category B – an infectious substance which does not meet the criteria for inclusion in Category A.
 - 10 This classification means that the infectious component of laboratory waste is considered as either Category A or Category B, which determines the requirements for colour-coded segregation, packaging, transport, treatment and disposal.
- ### Microbiological cultures
- 11 The definition of cultures in ADR is the following:

“Cultures (laboratory stocks) are the result of a process by which pathogens are intentionally propagated. This definition does not include human or animal patient specimens as defined in this paragraph.”
 - 12 Cultures will include HG2, HG3 or HG4 pathogens as well as Class 2, Class 3 or Class 4 GMMs, whether in liquid (for example broth) or solid form (for example agar plate), or whether initiated from a laboratory stock or patient specimen.
 - 13 Cultures are associated with high concentrations of microorganisms and a consequent increased risk of infection. This is particularly pertinent when the cultures are treated as waste, since – unlike culture samples, which will be used for further investigative purposes in an appropriate laboratory environment – waste cultures are intended for disposal and discard.
 - 14 For organisms on the Category A indicative list found in **Appendix B** of this guidance (such as HG4 pathogens, many HG3 pathogens and some HG2 pathogens – for example *Clostridium botulinum*, poliovirus), the cultures must be classified as Category A waste. However, the indicative list provides examples and is not exhaustive; hence, there may be other microorganisms not on the indicative list that should be classified as Category A. The key consideration is whether they are:

“in a form that, when exposure to it occurs, is capable of causing permanent disability, life-threatening or fatal disease in humans or animals”.
 - 15 If this were the case, the waste would not be considered suitable for classification into transport Category B, but would be transported and inactivated as per any Category A substance.
 - 16 While the majority of HG2 organisms are not on this indicative list, it is important to consider the Category A criteria given above (that is, form of the cultures – for example their concentration, routes of transmission of the organism, host range, survivability in the environment, the quantity of cultures in any one consignment) before classifying HG2 organisms as Category B waste.

- 17 Whether classified as Category A or B, this guidance recommends as best practice that all cultures of pathogens (that is, HG2 to HG4 pathogens or Class 2 to Class 4 GMMs) be inactivated on-site prior to final disposal because of the increased risk of exposure associated with the higher concentration of biological agents therein.
- 18 GMO(CU) Regulations specify where waste containing GMMs should be inactivated for Class 3 (within the laboratory suite) and Class 4 (within the laboratory) activities.
- 19 While there is no specific requirement in COSHH to inactivate HG3 or HG4 cultures on-site, there is a requirement to achieve complete compliance with the general provisions. In particular, Regulations 7(3) and 7(4) place a duty on employers to apply control measures (including safe handling, storage and transport of biological agents, and such waste, at the workplace) consistent with the risk assessment, which reduce to a minimum the number of employees (and others) who may be exposed and the level/duration of exposure. Based on this requirement, where the risk assessment identifies a significant risk of exposure (to the community) during transport and disposal of waste (that is, of exposure to some HG2, and most HG3 and HG4 pathogens), on-site inactivation before final disposal would be required in order to comply with COSHH.

Clinical specimens

- 20 Clinical specimens are defined for transport as the following:
- “Patient specimens are human or animal materials, collected directly from humans or animals, including but not limited to, excreta, secreta, blood and its components, tissue and tissue fluid, swabs, and bodily parts, being carried for purposes such as research, diagnosis, investigational activities, disease treatment and prevention.”*
- 21 When clinical specimens are discarded, they will form part of the laboratory waste stream and need to be managed appropriately. The infectivity associated with this waste type is highly variable and needs to be considered as part of a risk assessment (as indicated in [Figure 3](#)).
- 22 The risk assessment may be informed by the following:
- specimens or cultures that are subsequently confirmed to be negative for the test organism
- may need to be assessed for the presence of pathogens other than the test organism in the specimen or culture;
- specimens which contain or are likely to contain infectious organisms not found on the Category A indicative list or are not considered to present a significant risk to the community (that is, HG2 pathogens, Class 2 GMMs (some exceptions)) may be considered as Category B substances depending on the quantities involved (that is, numbers and volume consigned);
 - specimens which contain or are likely to contain infectious organisms found on the Category A indicative list (unless those pathogens are listed as “culture only”, in which case only cultures need be sent in a Category A manner) or are considered to present a significant risk to the community (for example most HG3 and HG4 pathogens, Class 3 and 4 GMMs) must be assigned to Category A.
- 23 In the laboratory sector, this means that the bulk of specimens resulting from diagnostic investigations within clinical laboratories (for example haematology, cytogenetics, serology) will have a low probability of containing pathogens.
- 24 However, clinical specimens used for microbiological testing are more likely to contain pathogens, and segregation into the two categories will need to be considered as part of the risk assessment as indicated above.
- 25 To inform the risk assessment, this guidance recommends that positive specimens from CL3 and CL4 be classified as Category A waste and those from CL2 be classified as Category B waste.

Environmental samples

- 26 A similar risk assessment needs to be made for environmental samples (non-human/animal-derived).
- 27 Where there is minimal or low probability of infectious substances being present (for example food screening samples, water, soil etc), waste specimens should be treated as non-infectious waste and in some cases Category B waste. However, where the environmental samples are from an outbreak scenario (for example Ebola virus), the samples should be treated as waste potentially containing Category A substances until the sample’s test result is negative.

Autoclaved laboratory waste

- 28 Waste from laboratories (particularly clinical microbiology) that has been autoclaved on-site is no longer considered to be infectious or hazardous. However, such waste has traditionally been subject to further treatment, rather than being sent directly to landfill, because of the public sensitivity associated with clinical laboratory waste. For example, autoclaved infectious waste will usually follow the waste stream for materials potentially containing Category B substances.
- 29 For the purposes of classification, waste inactivated on-site should be considered as offensive rather than infectious waste, therefore ensuring that the waste will be subject to deep landfill.

Waste packaging and labelling

- 30 For the laboratory sector, waste known to contain, or potentially containing, Category A substances will be coded yellow, and the ultimate destination of this waste (if not treated on-site) will be incineration. Infectious waste classified as Category B will be colour-coded orange and may be rendered safe by alternative means.

Packaging of infectious waste

- 31 Where the infectious waste is to be transported off-site, it needs to be packaged in a manner that meets the requirements of the ADR packaging specification for that particular category of waste, using appropriate packaging for Class 6.2 substances, which are certified and marked accordingly.
- 32 The yellow waste stream (that is, waste known to contain or potentially containing Category A infectious substances – either UN 2814 or 2900) should be packed in accordance with the relevant parts of packing instruction P620 (for example three-part packaging).
- 33 The orange waste stream potentially containing Category B substances (UN 3291) is most likely to require packing instruction P621 (for example wheeled bins).

Note

Further information on these packing instructions can be found in the Department for Transport's 'Transport of infectious substances' and in ACDP's 'Biological agents: managing the risks in laboratories and healthcare premises'.

- 34 The packaging used should be of good quality and be strong enough to withstand the shocks and loadings normally encountered during carriage, including movement between vehicles and buildings.
- 35 It should be sealed/closed to prevent any loss of contents that might be caused under normal conditions of carriage by vibration or by changes in temperature, humidity or pressure.

Labelling of infectious waste

- 36 Waste receptacles containing infectious substances should be marked on the external surface with:
- the appropriate warning label;
 - a unique identifier (that is, to origin of generation);
 - the proper shipping name (for example "Infectious substance, affecting humans"); and
 - the appropriate UN number (for example, for "Infectious substance, affecting humans", this would be UN 2814).

Waste storage and transport

- 37 Where there is a need to inactivate the waste on-site (for example pathogen cultures, Category A waste), the waste should be stored within the containment laboratory (to which access is restricted to authorised users) and only transported to the autoclave when the autoclave is available for immediate use.
- 38 This waste should not be stored in communal areas for any extended period unless appropriate security and safety controls are in place.
- 39 In the laboratory sector, transport of the waste may include:
- internal movement from the laboratory to the autoclave facility or a collection point/dedicated storage area; or
 - external transport using an authorised contractor from the premises to the waste treatment/disposal facility.

On-site transport

- 40 Category A waste emanating from CL4 laboratories should be inactivated within the laboratory.
- 41 Category A waste emanating from CL3 laboratories should be inactivated within the laboratory suite

(that is, without leaving the containment area and passing through communal areas).

- 42 Where it is necessary to transport such waste to a remote autoclave, it must be delivered as safely as possible.
- 43 Where transport of infectious waste to a remote autoclave involves movement via communal corridors, the waste should be contained within two layers of containment – the secondary containment being robust and leak-proof with a lid that can be secured while in transit and transported, where appropriate, using a trolley system. The exterior of the receptacle should be surface-decontaminated prior to leaving the containment laboratory.
- 44 Arrangements need to be made to coordinate the transport of the waste from the containment laboratory to ensure that waste is autoclaved immediately and is not stored in the autoclave room.

Off-site transport

- 45 Where it is necessary to transport the waste off-site for inactivation by incineration or for rendering safe by alternative methods, a licensed and reputable contractor should be used.
- 46 The contractor needs to be provided with sufficient information to allow them to deal with any spillages of material from bags or receptacles of waste safely and effectively.
- 47 The contractor needs to comply with the provision of ADR and demonstrate that the method of inactivation is effective and validated (further information is given in **Chapters 10 and 11**).

Waste treatment and disposal

- 48 For Category A waste (yellow), on-site autoclaving or incineration are the most appropriate means of waste inactivation due to the significant risks to the community in terms of human and animal health. For Class 3 and 4 GMMs, there is a specific requirement in GMO(CU) to inactivate the waste within the laboratory suite (Class 3) and within the laboratory (Class 4).
- 49 For pathogens that present a significant risk to the community, for the employer to legally comply with the requirements of COSHH (see **paragraph 19**), they should inactivate the waste on-site.

- 50 While Category B waste (orange) can be rendered safe by alternative means, many of the alternative methods require a pretreatment step involving maceration of the waste, prior to inactivation, to ensure that the inactivation stage achieves the required degree of kill to render the waste safe.
- 51 The maceration step may not only generate significant aerosols but may require staff access to deal with any blockages. This may significantly increase the risk of exposure of staff. With this in mind – and based on the requirements of COSHH to prevent or else adequately control exposure to biological agents – where the following conditions are met and applied in an appropriate manner, it is considered that waste producers (that is, laboratories) will be implementing adequate measures to control the risk of infection:
- the transport requirements for Category B waste are met;
 - the method of inactivation achieves the performance necessary to render the waste safe;
 - the procedures and protocols operated by waste contractors do not increase the likelihood of exposure to biological agents;
 - adequate controls are in place to prevent exposure to infectious waste during pretreatment processes such as maceration (for example enclosed process, means of sterilizing contents in situ, inward airflow).
- 52 To comply with COSHH and GMO(CU) Regulations, on-site inactivation of waste prior to final disposal can be summarised as follows:
- waste containing Class 3 and Class 4 GMM cultures (for example agar plates, liquid cultures, slopes) or contaminated material (Category A) – **required to achieve compliance**;
 - waste containing most HG3 and HG4 pathogen cultures (for example agar plates, liquid cultures, slopes) or positive specimens that are assessed as presenting a significant risk to the community (Category A) – **required to achieve compliance**;
 - waste consisting of Class 2 GMMs or many HG2 pathogen cultures (for example agar plates, liquid cultures, slopes) or positive specimens (Category B) – **recommended means of achieving effective control**.

- 53 The autoclave cycle used for inactivation of waste on-site should be appropriately validated to ensure that it reaches the appropriate core (rather than chamber) temperature and pressure for the appropriate length of time, for the worst-case challenge load (that is, considering largest volumes, least conductive materials, types of receptacle etc). STAATT Level IV criteria (that is, *Bacillus stearothermophilus* spores at a 6 Log₁₀ reduction or greater) should be achieved for such loads.
- 54 It is recommended that autoclave performance be checked annually using independent thermocouple tests and the performance monitored using biological, chemical or thermal indicators on a regular basis.
- 55 Appropriate records of validation, calibration and monitoring should be kept.

Note

Further guidance on the standards to which autoclaves for sterilization should conform can be found in:

- BS 2646:1990–1993;
- BS EN 12347:1998; and
- Health Technical Memorandum 2010 (parts 1–6) – ‘Sterilization’ (soon to be replaced and superseded by HTM 01-01 – ‘Decontamination of reusable medical devices’ and HTM 01-02 – ‘Pathology laboratories’).⁷

- 56 Where on-site autoclaving is not possible (for example where the autoclave has broken down), in exceptional circumstances, the waste may be transported off-site for disposal by incineration or other effective heat treatment, provided there are adequate contingency plans in place, which involve arrangements with the waste contractor for its safe collection, transport and disposal.
- 57 Where secondary receptacles (for example wheeled bins) are returned to the consignor, or sent elsewhere, they should be thoroughly disinfected or sterilized, and any label or marking indicating that it had contained an infectious substance should be removed or obliterated.

General provisions

- 58 Regardless of the laboratory setting, the producers of waste have a duty of care to ensure that they take all reasonable measures to ensure waste is dealt with appropriately, from source of production to the point of disposal.
- 59 In line with existing guidance, each laboratory should have a strictly administered policy that includes waste management and which is supported by local standard operating procedures (SOPs) specifying the arrangements for the handling and disposal of laboratory waste.
- 60 Staff should receive appropriate instruction and training on all relevant aspects of health and safety within the laboratory including the waste management arrangements such as appropriate classification and segregation of the waste, as well as the SOPs for its safe storage, carriage, treatment and disposal. Training should also be provided on the steps to take when things go wrong (for example leakage or spillage of hazardous waste), and these arrangements should be tested periodically.
- 61 The waste management procedures within the laboratory or facility should be checked as part of an active monitoring programme (for example inspections, horizontal audits) to evaluate their effectiveness and reliability. Any actions identified should be completed in a timely fashion and reviewed by the laboratory management.
- 62 Staff working in laboratories need to ensure that contaminated waste is discarded appropriately in suitable receptacles (for example disposable tips into disinfectant pots or dry discard jars). These receptacles should:
 - not be overfilled (that is, no greater than two-thirds full);
 - be labelled appropriately;
 - be removed from the laboratory expediently.
- 63 If the laboratory is shared by more than one organisation, all parties should be aware of the arrangements for waste management and should ensure that these arrangements are abided by.

⁷ In Scotland, reference should be made to SHTM 01-01 and SHTM 01-02

Table 12 Classification, packaging and disposal for examples of laboratory-derived hazardous waste

Waste type	Examples	EWC code	Hazardous waste	UN number	Packaging	Minimum treatment/disposal
Microbiological cultures (indicative list, Class 3 and Class 4 GMMs, most HG3 and HG4 pathogens) (Category A)	Liquid and solid cultures (including agar plates), biological agent stocks	18 01 03* 18 02 02*	Y	Class 6.2, UN 2814/ UN 2900	Yellow ¹ P620 (three-part packaging)	Treatment on-site (contingency arrangements – incineration)
Microbiological cultures (not on indicative list or criteria for Category A (for example Class 2 GMMs, many HG2 pathogens) (Category B)	Liquid and solid cultures (including agar plates); biological agent stocks	18 01 03* 18 02 02*	Y	Class 6.2, UN 3291	Orange ¹ P621 (yellow bags and wheelie bins)	Recommended on-site treatment: render safe at licensed/permitted treatment facility
Anatomical waste may be infectious (Category A)	Limbs, organs, biopsies, tissue samples	18 01 03* 18 02 02*	Y	Class 6.2, UN 2814/ UN 2900	Yellow P620 (three-part packaging)	Hazardous waste incineration
Sharps not contaminated with cyto-medicinal products	Needles; scalpel blades; contaminated broken glass	18 01 03*	Y	Class 6.2, UN 3291	Yellow or orange P621 (sharps bin)	Render safe at licensed/permitted treatment facility
Laboratory equipment (Category B)	HEPA filters from CL3 and CL4 laboratories, safety cabinets – assuming they are fumigated prior to being removed	18 01 03* 18 02 02*	Y	Class 6.2, UN 3291	Orange P621 (yellow bags and wheelie bins)	Render safe at licensed/permitted treatment facility
Potentially infectious waste (Category B waste)	Discarded clinical specimens; consumables (for example gloves, pipette tips)	18 01 03* 18 02 02*	Y	Class 6.2, UN 3291	Orange P621 (yellow bags and wheelie bins)	Render safe at licensed/permitted treatment facility
Treated laboratory waste ² (non-infectious)	On-site autoclaved material (for example cultures and discarded positive clinical specimens)	18 01 04 18 02 03	N	N/A	Offensive/hygiene waste – yellow/black	Deep landfill
Environmental samples (not associated with outbreak)	Discarded food and water samples; consumables etc	18 01 04	N	N/A	Offensive/hygiene waste – yellow/black	Deep landfill
Offensive/hygiene waste	Human hygiene waste, animal bedding, excreta	18 01 04 20 01 99	N	N/A	Offensive/hygiene waste – yellow/black	Deep landfill
Domestic waste	General refuse	20 03 01	N	N/A	Black	Landfill

Notes:

1. The hazardous waste classification, UN number and packaging refers to non-inactivated waste. Following on-site treatment, the waste is considered to be non-hazardous and should be treated as “offensive/hygiene waste” and packaged/disposed of appropriately.
2. Once autoclaved, the waste is considered to be non-infectious; however, due to public sensitivity around such waste, it may be subject to further treatment rather than going directly to surface landfill.

Ambulance services

- 1 The role of the ambulance service has in recent times expanded to incorporate new and diverse ways of approaching care in the community.
- 2 The ambulance service, as producers of infectious waste, falls within the requirements of The Hazardous Waste Regulations and therefore needs to ensure that waste is disposed of at appropriately licensed waste disposal facilities.

Major incidents

- 3 In the event of a large-scale incident such as a multiple vehicle accident or where there are large quantities of body fluids, the waste produced on-site should be classified as infectious waste and disposed of in the orange-bag waste stream.
- 4 Where there is pooling of blood on the roadside, this can be sluiced with water and allowed to run off to sewer.
- 5 If there is an incident involving pooling of blood from a Category A type patient, the blood should be contained, treated and disposed of as appropriate. This will involve decontaminating the area and the blood before it is released.
- 6 In the unlikely event that the ambulance is used for transporting persons with a Category A infection, specific advice should be sought from the Department for Transport and the Health Protection Agency.

Limbs and body parts

- 7 Limbs, body parts and tissue retrieved from an accident site should accompany the patient to hospital. The limbs and tissue should be contained in a yellow bag, appropriately and clearly labelled to distinguish it from other infectious waste.
- 8 Limbs, body parts and tissues that are clinically assessed to be beyond re-attachment or use should be contained in a yellow bag marked for incineration only, and sealed with a plastic tie/tag that identifies the ambulance sector and area.

Laryngoscope blades

- 9 Disposable laryngoscope blades should not be placed in sharps receptacles nor mixed with other sharps.
- 10 Plastic laryngoscope blades can be disposed of in an orange receptacle and are safe to go for either alternative treatment or incineration.
- 11 Metal laryngoscope blades can be sent either:
 - for reclamation – if non-infectious; or
 - for incineration and placed in a yellow receptacle marked “surgical instruments for incineration only” – if contaminated.

Sharps receptacles

- 12 Sharps receptacles used during the course of ambulance/patient transport services should be correctly assembled, labelled, dated and signed as appropriate.
- 13 The sharps receptacle should be disposed of after three months of use, regardless of whether it is three-quarters full, and must never exceed the permissible marked mass.
- 14 All sharps boxes should be disposed of at suitably authorised waste disposal facilities.

Gloves

- 15 Gloves that are heavily contaminated with blood and body fluids should be considered as infectious waste and disposed of in the orange-bag waste stream.
- 16 Gloves that have no visible contamination can be disposed of as household waste into the black-bag waste stream.

Emergency care practitioners (ECPs)

- 17 ECPs should follow the “Community nursing” sector guide in relation to the categorising and disposing of waste.

Disposal options

- 18 The ambulance service should have a waste disposal contract with a registered and licensed waste contractor to safely collect, transport and dispose of its waste appropriately. The ambulance service, due to its varying patient-care activities, has a number of options available when disposing of waste.

Option 1

- 19 Emergency ambulances, including air ambulances, can dispose of waste at the hospital where they are transporting the patient for care and treatment.
- 20 First responders generating waste on-site should ensure they hand the waste to the attending emergency ambulance for disposal at the hospital.

Option 2

- 21 ECPs, if generating infectious waste in a patient's home, should follow the disposal options and general guidance given in the "Community nursing" sector guide.

Option 3

- 22 Other types of ambulance service that may generate small quantities of waste can either dispose of the waste at the attending hospital or take it back to base for collection and disposal.

Option 4

- 23 For services such as patient transport services and volunteer car services, it is less likely that any infectious waste will be produced. Where waste such as vomit etc is generated, this can safely be disposed of in the black-bag waste stream and deposited for disposal at the nearest hospital or returned to base.
- 24 If infectious waste is generated, it should be disposed of in the orange-bag waste stream and either disposed of at the hospital or taken back to base.

Note

Where any infectious waste is being transported in vehicles prior to disposal, the waste should be appropriately packaged in safe and secure conditions. Refer to the "Community nursing" sector guide for further information.

Appendix A – European Waste Catalogue







European Waste Catalogue Chapters




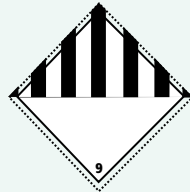
Chapter Number	Production sector/Origin of Waste
Chapter 1	Waste from exploration, mining and quarrying, physical and chemical treatment of minerals
Chapter 2	Waste from agriculture, horticulture. Aquaculture, forestry, hunting and fishing, food preparation and processing
Chapter 3	Waste from wood processing and the production of panels and furniture, pulp, paper and cardboard
Chapter 4	Waste from the leather, fur and textile industries
Chapter 5	Waste from petroleum refining, natural gas purification and pyrolytic treatment of coal
Chapter 6	Waste from inorganic chemical processes
Chapter 7	Waste from organic chemical processes
Chapter 8	Waste from the manufacture, formulation, supply and use of coatings (paints, varnishes and vitreous enamels), adhesives, sealants and printing inks
Chapter 9	Waste from the photographic industry
Chapter 10	Waste from thermal processes
Chapter 11	Waste from chemical surface treatment and coating of metals and other materials, non-ferrous hydrometallurgy
Chapter 12	Waste from shaping and physical and mechanical surface treatment of metals and plastics
Chapter 13	Oil and liquid-fuel waste
Chapter 14	Waste organic solvents, refrigerants and propellants
Chapter 15	Waste packaging, absorbents, wiping cloths, filter materials and protective clothing not otherwise specified
Chapter 16	End of life vehicles from different means of transport and vehicle maintenance
Chapter 17	Construction and demolition waste
Chapter 18	Waste from human or animal healthcare and/or related research
Chapter 19	Waste from waste management facilities, off-site waste water treatment plants and the preparation of water intended for human consumption and water for industrial use
Chapter 20	Municipal waste (household waste and other similar commercial, industrial and institutional waste (including separately collected fractions)

Appendix B – Carriage information

The table below shows the nine classes of dangerous goods. Some additional examples below are given of dangerous goods in each class which may be generated

from healthcare, and the appropriate hazard warning diamond for the primary hazard is also shown. A full list of the hazard warning diamonds can be found in ADR.

UN hazard classification	Examples material from healthcare premises	Hazard warning diamond(s)
Class 1 Explosives		
Class 2 Gases	Oxygen (UN 1072); CO ₂ (UN 1013); LPG (UN 1978); Nitrous oxide (UN 1070); Nitrogen (1066)	 (red diamond used for flammable gases)
Class 3 Flammable liquids	Fuel for generators (UN 1202, UN 1203); Paints (UN 1263); Adhesives (UN 1133)	
Class 4 Flammable solids and other flammables including water reactive substances		
Class 5 Oxidisers	Laundry chemicals and strong detergents	
Class 6 Toxic substances (poisonous by absorption, ingestion or inhalation) Class 6.1	Some medicines	

UN hazard classification		Examples material from healthcare premises	Hazard warning diamond(s)
Class 6	Infectious substances (substances known or reasonably expected to contain infectious pathogens) Class 6.2	Laboratory cultures Infectious waste	
Class 7	Radioactive	Radiotherapy isotopes	
Class 8	Corrosive substances	Strong bleaches and Chemical descalers	
Class 9	Miscellaneous	Laundry additives	

Note: this is not a comprehensive list of UN numbers or Class hazard warning diamonds

The table below shows the ADR 2005 Category A pathogen list. ADR 2007 defines Category A as:

“An infectious substance which is carried in a form that, when exposure to it occurs, is capable of causing permanent disability, life threatening or fatal disease to humans or animals”.


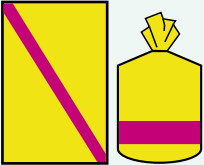

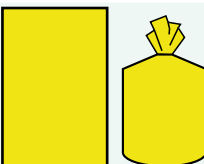
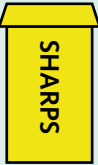
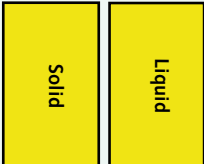
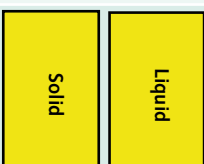
INDICATIVE EXAMPLES OF INFECTIOUS SUBSTANCES INCLUDED IN CATEGORY A IN ANY FORM UNLESS OTHERWISE INDICATED (2.2.62.1.4.1)

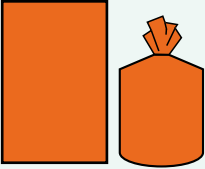
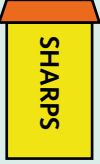



UN Number and name	Microorganism
UN No. 2814 Infectious substances affecting humans	<i>Bacillus anthracis</i> (cultures only) <i>Brucella abortus</i> (cultures only) <i>Brucella melitensis</i> (cultures only) <i>Brucella suis</i> (cultures only) <i>Burkholderia mallei</i> – <i>Pseudomonas mallei</i> – Glanders (cultures only) <i>Burkholderia pseudomallei</i> – <i>Pseudomonas pseudomallei</i> (cultures only) <i>Chlamydia psittaci</i> – avian strains (cultures only) <i>Clostridium botulinum</i> (cultures only) <i>Coccidioides immitis</i> (cultures only) <i>Coxiella burnetii</i> (cultures only) Crimean-Congo haemorrhagic fever virus Dengue virus (cultures only) Eastern equine encephalitis virus (cultures only)

UN Number and name	Microorganism
UN No. 2814 Infectious substances affecting humans <i>(continued)</i>	<i>Escherichia coli</i> , verotoxigenic (cultures only) ^a Ebola virus Flexal virus <i>Francisella tularensis</i> (cultures only) Guanarito virus Hantaan virus Hantavirus causing haemorrhagic fever with renal syndrome Hendra virus Hepatitis B virus (cultures only) Herpes B virus (cultures only) Human immunodeficiency virus (cultures only) Highly pathogenic avian influenza virus (cultures only) Japanese Encephalitis virus (cultures only) Junin virus Kyasanur Forest disease virus Lassa virus Machupo virus Marburg virus Monkeypox virus <i>Mycobacterium tuberculosis</i> (cultures only) ^a Nipah virus Omsk haemorrhagic fever virus Poliovirus (cultures only) Rabies virus (cultures only) <i>Rickettsia prowazekii</i> (cultures only) <i>Rickettsia rickettsii</i> (cultures only) Rift Valley fever virus (cultures only) Russian spring-summer encephalitis virus (cultures only) Sabia virus <i>Shigella dysenteriae</i> type 1 (cultures only) ^a Tick-borne encephalitis virus (cultures only) Variola virus Venezuelan equine encephalitis virus (cultures only) West Nile virus (cultures only) Yellow fever virus (cultures only) <i>Yersinia pestis</i> (cultures only)
UN No. 2900 Infectious substances affecting animals only	African swine fever virus (cultures only) Avian paramyxovirus Type 1 – Velogenic Newcastle disease virus (cultures only) Bluetongue virus Classical swine fever virus (cultures only) Foot and mouth disease virus (cultures only) Lumpy skin disease virus (cultures only) <i>Mycoplasma mycoides</i> – Contagious bovine pleuropneumonia (cultures only) Peste des petits ruminants virus (cultures only) Rinderpest virus (cultures only) Sheep-pox virus (cultures only) Goatpox virus (cultures only) Swine vesicular disease virus (cultures only) Vesicular stomatitis virus (cultures only)

^a Nevertheless, when the cultures are intended for diagnostic or clinical purposes, they may be classified as infectious substances of Category B

Appendix C – Waste segregation chart

Waste receptacle	Waste types	EWC code(s)	Hazardous properties	Primary transport class	UN number(s)	Minimum treatment/ disposal required
	Healthcare waste contaminated with radioactive material	18 01 03* if waste is infectious	H9 if waste is infectious Radioactive	Class 6.2 (Infectious) + Class 7 (Radioactive)	UN 3291 + UN Number will depend on isotope*	Incineration in hazardous waste incineration facility subject to the Radioactive Substances Act (RSA)
	Infectious waste contaminated with cytotoxic and/or cytostatic medicinal products	18 01 03 18 01 08	H6 H7 H9 H10 H11	Class 6.2	UN 3291	Hazardous waste incineration
	Sharps contaminated with cytotoxic and cytostatic medicinal products	18 01 03* 18 01 08*	H6 H7 H9 H10 H11	Class 6.2	UN 3291	Hazardous waste incineration
	Infectious and other waste requiring incineration including anatomical waste, diagnostic specimens, reagent or test vials, and kits containing chemicals	18 01 02 18 01 03*	H9	Class 6.2	UN 3291	Hazardous waste incineration
	Partially discharged sharps not contaminated with cyto products	18 01 01 18 01 03*	H9	Class 6.2	UN 3291	Hazardous waste incineration
	Medicines in original packaging	18 01 09	H6 H7 H10 H11	Class 6.1	UN 3248 UN 1851 UN 3249	Hazardous waste incineration
	Medicines NOT in original packaging	18 01 09	H6 H7 H10 H11	Class 6.1	UN 3248 UN 1851 UN 3249	Hazardous waste incineration

Waste receptacle	Waste types	EWC code(s)	Hazardous properties	Primary transport class	UN number(s)	Minimum treatment/disposal required
	Infectious waste, potentially infectious waste and autoclaved laboratory waste	18 01 03*	H9	Class 6.2	UN 3291	Licensed/permitted treatment facility
	(i) Sharps not contaminated with medicinal products ² Or (ii) Fully discharged sharps contaminated with medicinal products other than cytotoxic and cytostatic medicines	18 01 01 18 01 03	H9	Class 6.2	UN 3291	Suitably authorised incineration or alternative treatment facility
	Offensive/hygiene waste	18 01 04 or 20 01 99 ¹	N/A	N/A	N/A	Deep landfill
 Black bag or clear bag is acceptable	Domestic waste	20 03 01	N/A	N/A	N/A	Landfill
	Amalgam waste	18 01 10	H6	Class 6.1	UN 2025s	Recovery

Notes:

* Seek guidance from DGSA

1. Human hygiene waste from non-healthcare sources

Appendix D – Waste audit procedure

Audit – the purpose

- 1 Waste auditing is a legal requirement and is not just best practice. The approach and actual audit will need to be appropriate for organisation and function, such as hospital, dental surgery, and veterinary practice.
- 2 Waste audits need to be carried out by an experienced competent waste manager, although this can be conducted with an experienced waste audit contractor or consultant.
- 3 A team approach is advocated to cover all relevant aspects (for example control of infection).
- 4 The first time a waste audit is produced, and for purposes of the IPPC requirements, the audit should be thorough and intensive in its approach, including a diagram or description identifying/ listing main waste storage locations. It will be necessary to undertake periodic waste audit checks to ensure continued compliance and also that the waste audit remains up-to-date and pertinent to current operational practices, which can change over time.
- 5 Although there are waste audit tools available, it is recommended that each waste producer produces their own waste audit based on individual needs and circumstances.
- 6 Waste audits are inspected by the regulatory authorities to:
 - demonstrate compliance with regulatory standards;
 - assess the composition of the waste streams;
 - monitor waste segregation, handling, transport and disposal arrangements;
 - identify the type and quantity of waste produced;
 - develop and influence waste management policies and procedures;

- identify minimisation/re-use/recycling options (by linking to purchasing policies);
- identify risk;
- save money;
- highlight good and bad practice;
- look at whole process “cradle to grave”;
- compare with others;
- identify areas for investment;
- improve infrastructure.

Regulatory compliance

- 7 Different issues associated with compliance include:
 - segregation;
 - packaging;
 - waste description;
 - paperwork completion and retention;
 - storage;
 - movement/transport;
 - health and safety;
 - final disposal.

Approach to waste-producer audit

(This list is not exhaustive.)

1. Produce a detailed report, signed and dated, clearly identifying results and realistic recommendations/action plans against a set timescale.
2. Sign and date periodic audit reports and list locations of representative sample as well as any action plans resulting.
 - Legislative compliance.

- Evidence of paperwork properly and fully completed.
- Site visits.
- Staff interviews.
- Bin audits.
- Packaging.
- Site infrastructure.
- Organisational structure.
- Waste types – all waste streams.
- Include product chemicals, laboratory smalls, medicinal waste – can include product data sheets or extrapolation of this information.
- Waste analysis (visual across a cross-section of areas – note any inappropriate content).
- Waste quantities.
- Handling.
- Storage (cleanliness, security, capacity, segregation).
- Accidents/incidents.
- Health and safety issues.
- Recycling, reuse, recovery.
- Prevention/minimisation.
- Training needs analysis.
- Procurement issues.
- Key department visits.
- Movement and transport.
- Monitoring, audit and review.
- Communicate and publicise waste audit reports as part of wider training and awareness requirements.

Duty of care issues

- Based on Section 34 Environmental Protection Act 1990 (section 5 of the Waste and Contaminated Land (Northern Ireland) Order).
- Best practice under the Duty of Care Regulations.

- Based on disposal arrangements for all waste streams.
- Undertaken on an annual basis unless circumstances dictate a more regular frequency.
- Peace of mind for waste producer.
- Follows through process from “cradle to grave” or site of waste production through transport to actual and final disposal site.
- Confirms waste is going where it should be going.
- Includes site visits both of waste producer and of waste disposal contractor.
- Inspection of permits/licences etc.
- Confirmation with the regulatory bodies.
- Checking transfer and consignment notes.

Waste audits – the benefits

- Demonstrates compliance.
- Looks at the bigger picture.
- Implementation of recommendations will result in improvements.
- Identifies no-cost/low-cost opportunities to improve.
- Can cover costs with improved practices and more effective segregation.
- Communicating waste audit reports improves staff awareness and encourages involvement and ownership.
- Obtain evidence – take photographs for impact whether good or bad.
- Action lists with timescales stimulates compliance.
- Feedback at all levels encourages active participation and involvement.

Appendix E – Waste assessment

Introduction

- 1 This Appendix provides the assessment procedures for the medicinal, chemical, infectious and offensive properties of healthcare waste.
- 2 These procedures are designed to produce an appropriate classification of individual waste items when used as part of the overall assessment framework (see [Chapter 5](#)).
- 3 Each assessment considers the element, or type of waste, present in any waste receptacle (bag, box, bin) separately. Each may therefore be classified differently.

Assessment of medicinal properties

- 4 This section provides the definition and assessment of medicinal waste. The following assessment is supported by a flowchart ([Figure E1](#)).
- 5 Packaging colours are recommended for this material.

Step 1: Does the waste contain a medicinal waste?

- 6 Medicinal waste includes:
 1. expired, unused, spilt, and contaminated medicinal products, drugs, vaccines and sera that are no longer required and need to be disposed of appropriately;
 2. discarded items with contaminated medicinals such as bottles or boxes with residues, gloves, masks, connecting tubing, syringe bodies and drug vials.
- 7 Where any of these materials are present in a waste, it contains medicinal waste.
- 8 There are two specific cases dealing with wastes arising from patients after administration of medicines (see the “Specific cases requiring additional consideration” sub-section in the “Supporting notes” that follow this assessment). These are:

1. secretions, excretions or other body fluids containing residual medicines;
2. anatomical waste and carcasses containing residual medicines.

Step 2: Does the waste contain a cytotoxic and cytostatic medicinal waste?

- 9 A cytotoxic and cytostatic medicine is defined as medicinal product possessing any one, or more, of the following hazardous properties:
 - H6: Toxic;
 - H7: Carcinogenic;
 - H10: Toxic for reproduction;
 - H11: Mutagenic.
- 10 This classification is determined solely by assessment of the medicinal products in the form supplied by the manufacturer or distributor, and does not therefore consider the effects of any subsequent dilution that may occur during routine use. Further guidance on the assessment of these hazardous properties may be obtained from WM2.
- 11 The cytotoxic and cytostatic element of the waste is a:
 - hazardous waste; and
 - clinical waste.
- 12 It should be assigned the EWC code 18 01 08* (human healthcare), 18 02 07* (animal healthcare), or 20 01 31* (municipal separately collected fractions) as appropriate.
- 13 The packaging colour for cytotoxic and cytostatic medicines is yellow and purple.
- 14 If the properties of a medicine cannot be determined, rather than have not been determined, it should be classified as cytotoxic and cytostatic.

Note

The definition of cytotoxic and cytostatic in waste classification is much broader than the term “cytotoxic” used in the clinical setting as set out in Chapter 8.1 of the British National Formulary (BNF).

Step 3: Does the waste contain other pharmaceutically active medicinal waste?

- 15 Medicinal waste is considered to be clinical waste where the medicinal waste includes pharmaceutically active components, as these have the potential to interact with biological systems to produce an effect. This includes those medicines that are pharmaceutically active but are assigned no chemical risk phrases.
- 16 Where the waste contains medicinal waste of this type, it is a non-hazardous waste and clinical waste as a result of the assessment of its medicinal properties only.
- 17 It should be assigned the EWC code 18 01 09 (human healthcare), 18 02 08 (animal healthcare), or 20 01 32 (municipal separately collected fractions) as appropriate.

Step 4: Does the waste contain other non-pharmaceutically active medicines?

- 18 This document recognises that there are a number of licensed medicinal products that:
 - are not pharmaceutically active; and
 - possess no hazardous properties.
- 19 Examples include saline and sugar solutions.
- 20 This medicinal element of the waste is:
 - non-clinical waste; and
 - non-hazardous waste.
- 21 This is as a result of the assessment of its medicinal properties only.
- 22 It should be assigned the EWC code 18 01 09 (human healthcare), 18 02 08 (animal healthcare), or 20 01 32 (municipal separately collected fractions) as appropriate.
- 23 Where non-pharmaceutically active intravenous fluids occur in small quantities and present no other hazard (for example infectious due to contamination with body fluids or the addition of pharmaceutically active substances), these can:

- either be placed in the medicinal waste stream; or
- be discharged to foul sewer and the empty containers placed in the offensive/hygiene waste stream.

- 24 The landfill of liquids is likely to be prohibited in the near future, so non-pharmaceutically active liquids (for example saline IV bags) should not be placed in the offensive waste stream.

Note on mixed waste medicines

Where a package of waste medicines contains a mixture of cytotoxic and cytostatic and other medicines:

- the packaging for “cytotoxic and medicines” should be used;
- the waste classification and description should include both components;
- the mixed waste is hazardous waste and clinical waste.

Step 5: Classify the waste for transport

- 25 Medicinal waste should be classified for transport on the basis of its physical form and properties. Common classifications include:
 - Medicine, Liquid, Toxic, UN 1851;
 - Medicine, Liquid, Flammable, Toxic, UN 3248;
 - Medicine, Solid, Toxic, UN 3249.
- 26 However, certain medicines may possess properties that require other classifications. Further information is provided in Chapter 4 and Table 7.
- 27 Products containing alcohol or flammable-propellant gases (for example aerosols) may be classified as Class 3 (flammable liquids) or Class 2 (flammable gases).

Step 6: Go to Step 3 of the assessment framework in **Chapter 5** to complete waste classification for chemical and infectious properties

Supporting notes

European Waste Catalogue

Medicinal waste is listed in both Chapter 18 (healthcare waste) and Chapter 20 (municipal waste) of the EWC. The EWC differentiates between cytotoxic and cytostatic medicines and all other medicines. Only cytotoxic and cytostatic medicines are classified as hazardous waste.

The EWC divides the codes into three groups:

(1) Medicinal wastes arising from human healthcare

- 18 01 08* cytotoxic and cytostatic medicines
- 18 01 09 medicines other than 18 01 08*

These codes should be used for waste medicines arising from pharmaceutical manufacture and both acute and community healthcare.

(2) Medicinal wastes arising from animal healthcare

- 18 02 07* cytotoxic and cytostatic medicines
- 18 02 08 medicines other than 18 02 07*

These codes should be used for waste medicines arising from pharmaceutical manufacture and animal healthcare.

(3) Separately collected municipal fractions

- 20 01 31* cytotoxic and cytostatic medicines
- 20 01 32 medicines other than 20 01 32

These codes should be used for separately collected fractions of medicines returned by patients to pharmacies or other healthcare premises.

Hazardous properties

Guidance should be sought from the manufacturers of medicinal products with regard to their hazard characteristics.

Material safety data sheets may assist local pharmacy practices in identifying hazardous properties. However, manufacturers of products should be encouraged to provide this information.

Medicinal waste classified as non-hazardous may possess hazardous properties. Such wastes should be assessed and the hazardous properties identified for duty of care. Common examples include

- H3B: Flammable
- H4: Irritant
- H5: Harmful

- H14: Ecotoxic

Part B of a consignment note for hazardous waste requires a description of the waste, its components and hazardous properties.

To complete this note, the waste producer, or holder, will need to obtain information on the hazardous properties of each of their waste medicines present in the waste.

Specific cases requiring additional consideration

1. Secretions, excretions or other body fluids containing cytotoxic and cytostatic medicines.
2. Anatomical waste and carcasses containing residual medicines.

The definition of medicinal waste does not normally include anatomical waste, carcasses, secretions, excretions or other body fluids containing residual quantities of medicine as a result of therapeutic administration to the patient.

However, the presence of such substances may prove hazardous to those coming into contact with the waste or may affect disposal options.

Where cytotoxic and cytostatic drugs are involved, and where the pharmacokinetics of a specific drug are likely to result in the presence of the unmetabolised drug in the waste:

- the waste description should specifically identify the presence of such substances;
- the EWC code for cytotoxic and cytostatic drugs (18 01 08* or 18 02 07*) should be assigned to the waste;
- the waste is clinical waste and hazardous waste.

Infectious medicinal waste

A waste item classified as medicinal waste, for example arising from the use of cytotoxic and cytostatic medicines, may also be contaminated with body fluids and assessed as infectious waste.

In this case, the waste item should be classified as a cytotoxic and cytostatic waste (18 01 08* or 18 02 07*) and the additional hazardous property “H9: Infectious” assigned.

This would not apply to a container of waste items where one item was cytotoxic and cytostatic waste and another was infectious waste – in this case each would be coded separately.

Assessment of chemical properties

28 This section provides the definition and assessment of chemical waste. The assessment is supported by a flowchart (see Figure E2).

29 This assessment assumes that the removal and segregation of laboratory chemicals has occurred and that they are not present.

Figure E1 Assessment and classification of medicinal waste

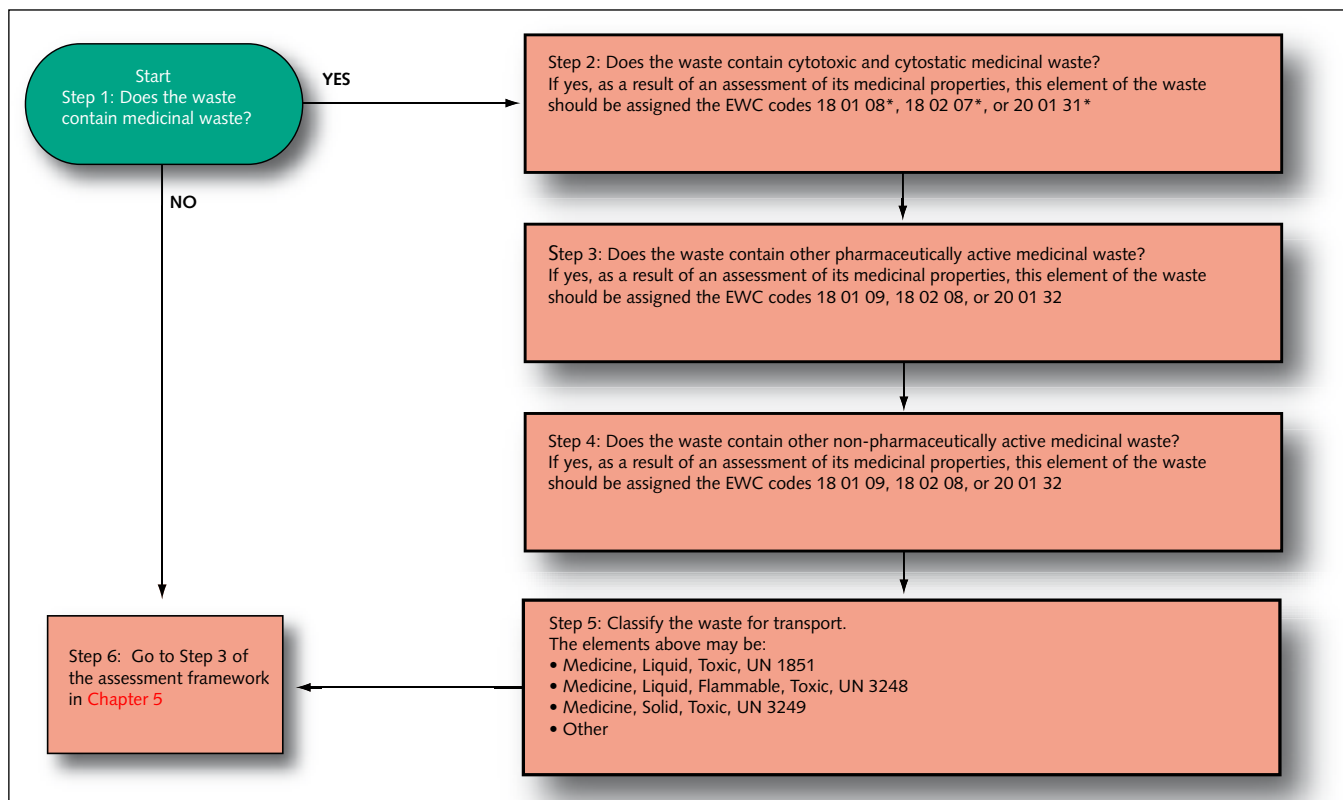
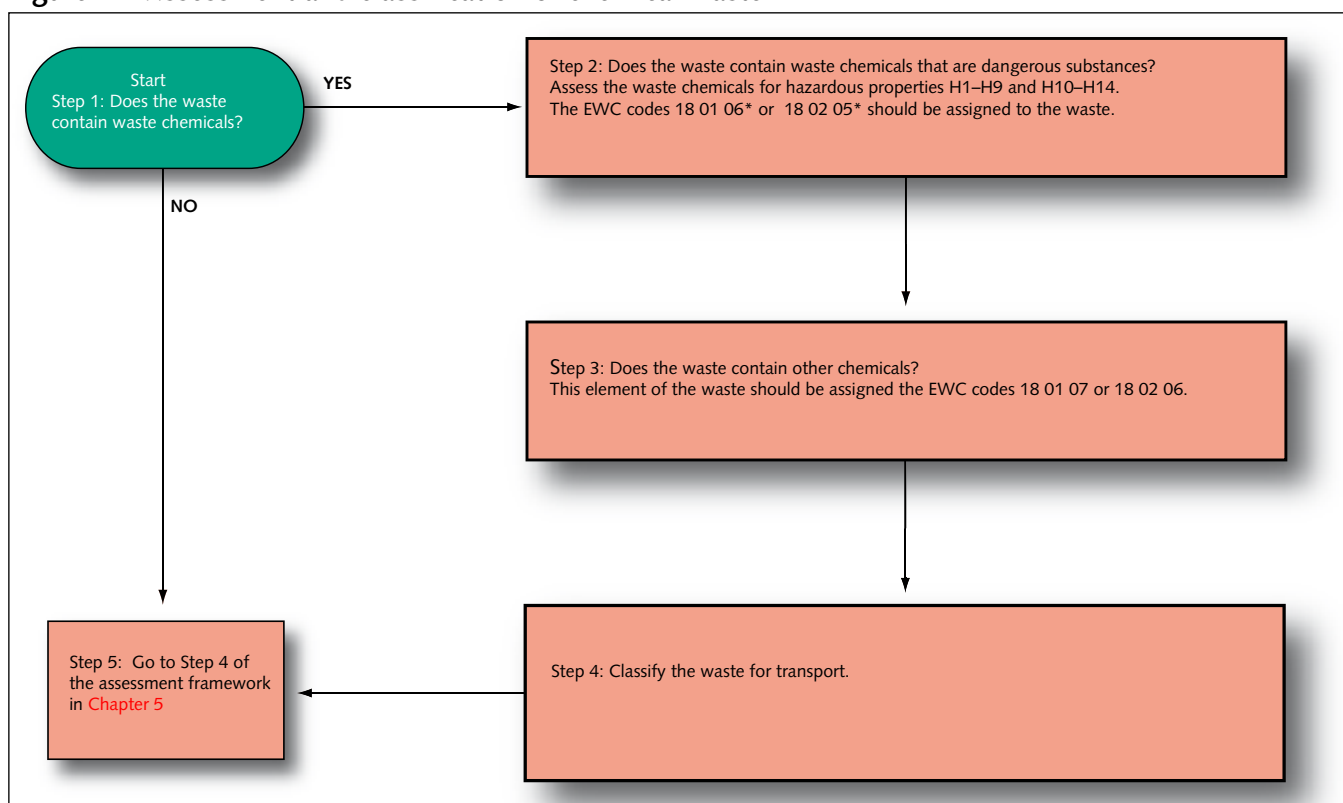


Figure E2 Assessment and classification of chemical waste



- 30 However, healthcare waste from certain activities, particularly from sample analysis in laboratory areas, often contains small quantities of chemicals. Waste legislation requires that these are identified, classified and assessed for hazardous properties.
- 31 Laboratory chemicals should never be placed in the offensive/hygiene waste stream.
- 32 No packaging colour or type is recommended for this material. This assessment is intended to address the presence of chemicals wherever they occur in the healthcare waste streams.
- 36 A full explanation of the assessment of hazardous chemical properties is beyond the scope of this guidance. Reference should be made to WM2.
- 37 In most circumstances the chemical is assessed in isolation. The weight of the waste as whole, and that of the container holding the chemical, is excluded from the assessment.
- 38 Where a chemical with a hazardous property is present, this element of the waste is (a) a clinical waste and (b) a hazardous waste as a result of the assessment of its chemical properties only. Assessment of other properties, or elements, of the waste cannot remove or alter this status.

Step 1: Are chemicals present in the waste?

- 33 Chemicals entering the healthcare waste stream may come from a variety of sources:
- those arising from laboratory or diagnostic areas or procedures in both hospitals and small practices. Smaller amounts of chemical may enter the clinical waste stream as part of diagnostic vials, reagent kits or specimens (for example samples preserved in formaldehyde, or reagent bottles from analytical equipment);
 - therapeutic chemicals used directly for treatment or disinfection;
 - disinfectants, cleaning agents and hand-washing materials;
 - residual metabolites from medicines in excretions, secretions or body fluids from patients undergoing treatment. The metabolites are considered under this part of the assessment framework; the residual medicines are assessed under medicinal properties.

Step 2: Are chemicals containing dangerous substances present in the waste?

- 34 The term “dangerous substance” is defined in the European Council Directive on Dangerous Substances, which is transposed into UK law by the Chemicals (Hazard Information and Packaging for Supply) Regulations. This forms the basis for the assessment of the hazardous properties for the purpose of waste legislation.
- 35 Where chemicals are present in the waste, even in small quantities, their presence must be described and their hazardous properties assessed.

- 39 The EWC codes 18 01 06* (human healthcare) or 18 02 05* (animal healthcare) should be assigned to this element of the waste.

Step 3: Are other chemicals present in the waste?

- 40 Where the chemicals present in the waste do not possess hazardous properties, this element of the waste is:
- not clinical waste; and
 - not a hazardous waste
- as a result of the assessment of its chemical properties only. Assessment of other properties, or elements of the waste, can alter this status.
- 41 The presence of the chemical must be described on the accompanying paperwork. The EWC codes 18 01 07 (human healthcare) or 18 02 06 (animal healthcare) should be used.

Step 4: Classification for transport

- 42 The classification of chemicals for transport is beyond the scope of this guidance. Chapter 4 contains general advice on transport matters.

Step 5: Go to Step 4 of the assessment framework in **Chapter 5** to complete waste classification for infectious properties

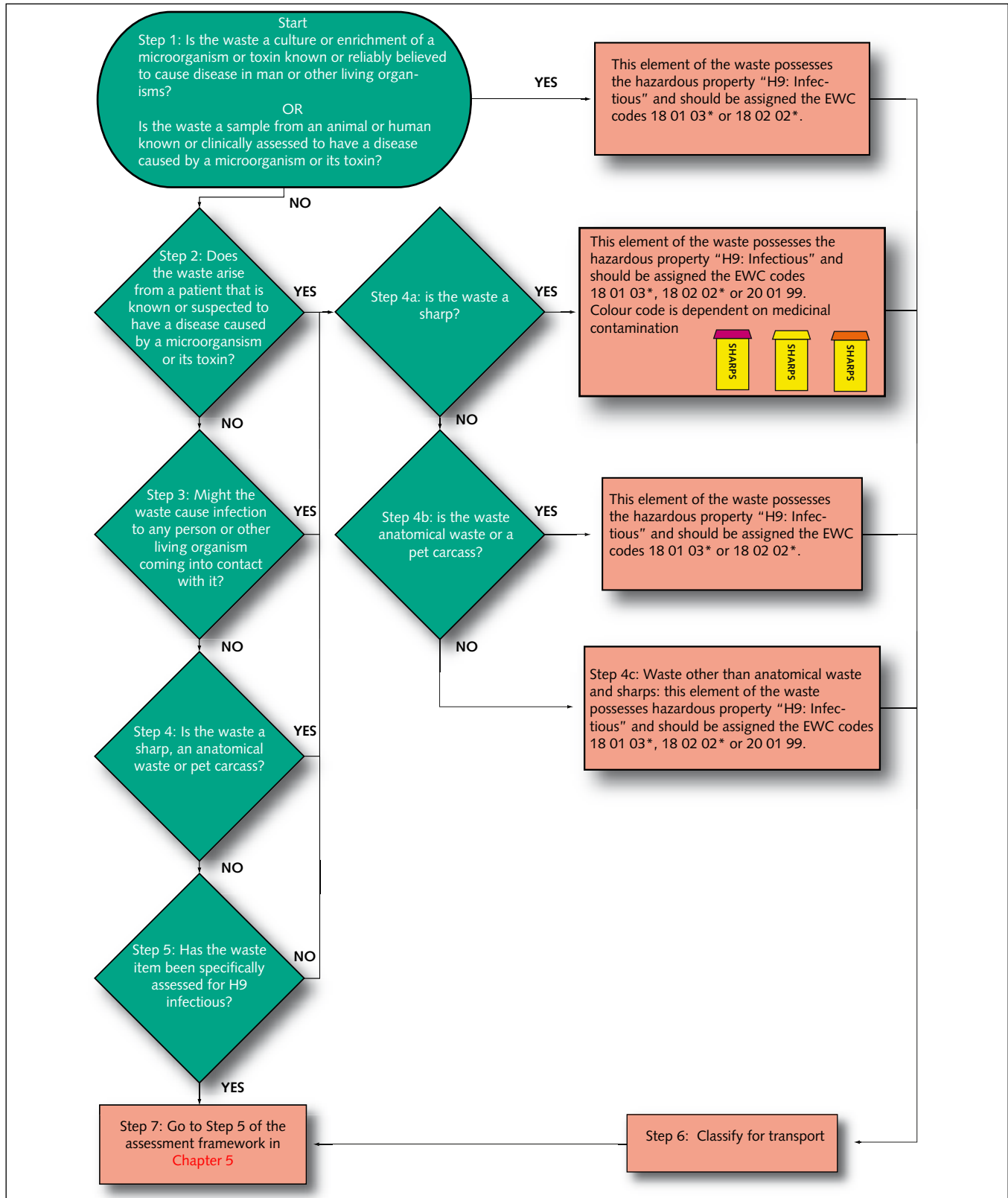
Assessment of infectious properties

43 This section provides the definition and assessment procedure for infectious waste. The assessment is supported by a flowchart (see Figure E3).

44 The following have been considered in the development of this unified assessment:

- the legal definition of clinical waste (Controlled Waste Regulations);

Figure E3 Assessment and classification of infectious waste



- WM2, which provides guidance on the definition and classification of hazardous waste;
- the definition of infectious substances given in ADR.

Step 1: Is the waste a culture or enrichment, or pathogen or its toxin?

- 45 All cultures, enrichments or diagnostic samples (discarded) known or suspected to contain viable microbial pathogens or their toxins render the waste “H9: Infectious”.
- 46 This element of the waste is:
- clinical waste; and
 - hazardous waste.
- 47 The EWC codes 18 01 03* or 18 02 02* should be assigned.
- 48 Where a toxin is present, the assessment should also consider both the concentration and the chemical properties of the toxin to determine whether the waste also possesses hazardous chemical properties (for example “H5: Harmful” or “H6: Toxic”).
- 49 See the [sector guide on ‘Research and laboratory facilities’](#) for further information.

Step 2: Does the waste arise from a patient who is known or suspected to have a disease/infection caused by a microorganism or its toxin?

- 50 The term “known or suspected” relates to diagnosis and treatment rather than laboratory identification. Thus where a patient presents with symptoms that may have several causes, one of which is an infectious agent, an infection is “suspected”.
- 51 Once a diagnosis has been made, or a laboratory result obtained, this may become “known”. Both are considered to represent “H9: Infectious” under this assessment.
- 52 The assessment of the waste does not require the identification of a pathogen; the fact that the symptoms may be caused by a pathogen of any type is sufficient.
- 53 The assessment does not consider the severity of disease or transmission potential of the pathogen at this stage. All pathogens of man or other living organisms are captured.
- 54 Where the waste (at the time of production) contains the viable pathogen associated with the

disease in any quantity, the waste possesses the hazardous property “H9: Infectious”.

- 55 Where (i) healthcare premises have patient-specific assessment procedures in place and it is possible to assess the individual patient, and (ii) it can be confirmed that there is no risk of infection, certain waste from that patient may be considered to be potentially offensive/hygiene waste.
- 56 This also requires that the assessment for medicinal and chemical properties does not classify the waste as clinical waste, and that the subsequent steps in the assessment framework are followed.
- 57 [Table E1](#) is provided to illustrate some examples relevant to this step.

Step 3: May the waste cause infection to any person, or other living organism, coming into contact with it?

- 58 Essentially, is there any other reason why the waste may cause an infection and therefore be considered a clinical waste?
- 59 The waste producer, through item-specific risk assessment, may identify reasons other than those outlined above why the waste is infectious.
- 60 Key indicators of this would be the producer identifying that the waste:
- is a clinical waste; and/or
 - should be subjected to a process that is intended to reduce the number of microorganisms.
- 61 In these circumstances, the producer has identified that the waste possesses a property that renders it clinical waste and that a reduction in the number of microbes is required.
- 62 In reaching that conclusion, the producer assessed the waste in a manner that would result in this assessment framework assigning the hazardous property “H9: Infectious” to the waste.

Step 4: Is the waste a sharp, an anatomical waste or a pet carcass?

Step 4a: Is the waste a sharp?

- 63 The main disposal and segregation consideration for sharps waste is medicinal contamination. This guidance does not therefore recommend the item-specific assessment and segregation of sharps waste on the basis of infectivity.

Table E1 Examples of the application of step 2 of Figure E3 (infectious)

Source	Infectious – hazardous property H9	Non-infectious
General principles	Any healthcare waste described as infectious (UN 3291, UN 2814, UN 2900) for transport purposes. Healthcare waste that has not been subject to specific assessment and segregation protocols to remove waste subject to special requirements. The specifically segregated “H9: Infectious” fraction	Healthcare waste where the “H9: Infectious” fraction has been removed following item- and/or patient-specific assessment and segregation
Healthcare premises (hospitals, veterinary practices, dentists, nursing homes, healthcare in the community)	(i) Healthcare waste arising from a patient clinically assessed or known to have a disease caused by a microorganism or its toxin, where the causal pathogen or toxin is present in the waste. For example: <ul style="list-style-type: none"> • waste from infectious disease cases; • waste from wound infections and other healthcare-associated infections; • hygiene products from patients with urinary tract infections; • waste from patients with diarrhoea and vomiting caused by infectious agents or toxins (for example noroviruses and <i>Clostridium difficile</i>); • blood-contaminated dressings from a patient with HIV, hepatitis B, rubella, measles, mumps, influenza or other infection that may be present in the blood; • respiratory materials from patients with pulmonary tuberculosis, influenza, respiratory syncytial virus (RSV) or other respiratory infections; • contaminated waste from provision of general healthcare to patients with known or suspected underlying or secondary microbial diseases. (ii) Healthcare waste that may cause infection to any person (or other living organism) coming into contact with it.	Healthcare waste where the “H9: Infectious” fraction has been removed following item- and/or patient-specific assessment and segregation

Note: This table has been adapted from WM2. The term “special requirements” has been replaced by the equivalent term “H9: Infectious” for ease of use, and transport elements have been added




- 64 Sharps waste produced as a result of the proposed segregation will contain a mixture of infectious and non-infectious waste.
- 65 Such waste is therefore likely to contain an element with the hazardous property “H9: Infectious”.
- 66 This element of the waste is therefore clinical waste and possesses the hazardous property “H9: Infectious”.
- 67 The EWC code is dependent on the source of the waste:
- 18 01 03* if it arises from human healthcare;
 - 18 02 02* if it arises from animal healthcare;
 - 20 01 99 if it arises from non-healthcare activities (for example drug litter, body piercing and tattooists).

Note

Guidance on sharps used by self-medicating patients can be found in the ‘Community nursing’ sector guide.

- 68 The classification of the medicinal contamination is addressed in [paragraphs 4–27](#).
- 69 Producers may find it of value to implement item-specific assessment and segregation where this affects disposal options. This would enable the use of the 18 01 01 and 18 02 01 codes for the assessed and segregated non-infectious fraction. Otherwise these codes should only be used for sharps that are not contaminated with body fluids (see [Table E2](#) on disposal options for sharps waste).

Table E2 Disposal options for sharps waste

Sharps box colour	Disposal option	Contents
Yellow with a purple lid 	Incineration	Sharps including those contaminated with cytotoxic and cytostatic medicines
Yellow with a yellow lid 	Incineration	Partially discharged sharps including those contaminated with medicines other than those that are cytotoxic and cytostatic
Yellow with an orange lid 	Incineration or alternative treatment	Fully discharged sharps that are not contaminated with cytotoxic and cytostatic medicines

Step 4b: Is the waste an anatomical waste?

- 70 This guidance does not recommend the item-specific assessment and segregation of anatomical waste.
- 71 Anatomical waste produced as a result of the proposed segregation is therefore likely to contain a mixture of infectious and non-infectious waste, and possess the hazardous property “H9: Infectious”.
- 72 This waste is therefore clinical waste and possesses the hazardous property “H9: Infectious”.
- 73 The EWC codes 18 01 03* or 18 02 02* should be assigned to the waste.
- 74 Producers may find it of value to implement item-specific assessment and segregation where this affects disposal options. For example, only pet carcasses that are not clinical waste may be sent for cremation or buried in either a domestic garden or pet cemetery.
- 75 The EWC codes 18 01 02 or 18 02 03 may apply where anatomical waste has been assessed to be non-clinical waste.

Step 4c: Waste other than anatomical waste and sharps

- 76 This element of the waste is infectious waste and possesses the hazardous property “H9: Infectious”.
- 77 The EWC code is dependent on the source of the waste:
- 18 01 03* if it arises from human healthcare;
 - 18 02 02* if it arises from animal healthcare;
 - 20 01 99 if it arises from non-healthcare activities (for example body piercing and tattooists).
- 78 Wastes of this type should be disposed of in the orange waste stream, as they are suitable for alternative treatment. This, however, assumes that medicinal, chemical, anatomical and sharps wastes have been separately identified and classified by the preceding text in this Appendix. Medical devices are also dealt with separately in this document.

Step 5: Classification for transport

- 79 Waste assigned the hazardous property “H9: Infectious” is classified into two sub-categories – Category A and Category B – for the purposes of transport.
- **Category A:** an infectious substance which is transported in a form that, when exposure to it occurs, is capable of causing permanent disability, life-threatening or fatal disease to humans or animals;
 - **Category B:** an infectious substance which does not meet the criteria for inclusion in Category A.
- 80 Waste which is known or suspected to be contaminated with pathogens presenting the most severe risk of infection is classified as a Category A waste (examples of Category A pathogens can be found in [Appendix B](#)).
- 81 With the exception of certain laboratory waste, very little Category A waste will be produced from healthcare premises within the UK. The vast majority of infectious waste produced from the healthcare sector will be classified as Category B.
- 82 [Table 6 in Chapter 4](#) shows the classifications used for infectious waste in the Carriage Regulations.

Step 6: Go to Step 5 of the assessment framework in [Chapter 5](#) to complete the waste classification process

Assessment of offensive/hygiene properties

- 83 This section provides the definition and assessment of offensive/hygiene waste. The following assessment is supported by a flowchart (Figure E4).
- 84 Offensive/hygiene waste is healthcare waste, or similar waste from municipal sources, which meets the following criteria:
- it is not clinical waste;
 - it is not dangerous for carriage;
 - the producer has identified, after segregation at source, that it is suitable for disposal at a non-hazardous landfill site without further treatment;
 - it may cause offence to those coming into contact with it.
- 85 Offensive/hygiene waste includes waste previously described as human hygiene waste and sanpro

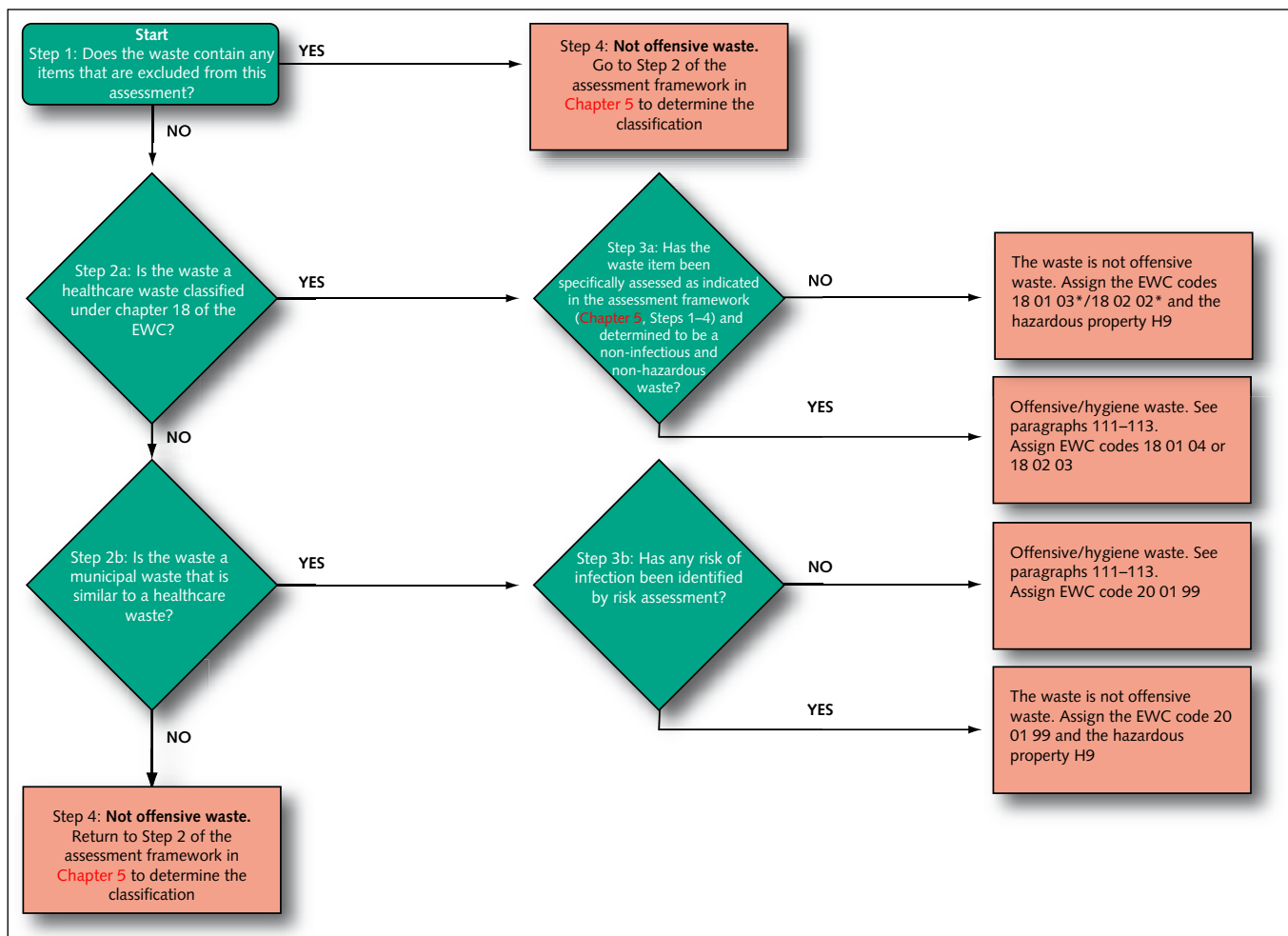
waste. Examples of potentially offensive/hygiene waste include:

- incontinence and other waste produced from human hygiene;
- sanitary waste;
- disposal medical/veterinary items and equipment which do not pose a risk of infection, including uncontaminated gowns, plaster casts etc (that is, items that are not clinical waste);
- animal faeces and soiled animal bedding.

Step 1: Does the waste contain any items that are excluded from this assessment?

- 86 The offensive/hygiene waste stream should not include any of the following:
- sharps;

Figure E4 Assessment and classification of offensive waste



- human/animal body parts, organs or blood products;
- pet carcasses;
- waste chemicals;
- medicinal waste that consists of pharmaceutically active substances;
- dental amalgam;
- wastes containing residual medicines excreted, secreted or otherwise present in any bodily fluid arising from a human/animal (see paragraphs 88–92).

87 If any of the above is present in any quantity, the waste is not offensive/hygiene waste. For assessment of such items, go to step 2 of the assessment framework in [Chapter 5](#).

Wastes containing residual medicines excreted, secreted or otherwise present in any bodily fluid arising from a human/animal

88 The treatment of patients with medicines may, in certain circumstances, result in faeces, vomit, urine or other excretions, secretions and bodily fluids containing dangerous substances arising from residual quantities of medicine, or metabolites of those medicines.

- 89 Where the residual quantities of medicine or metabolites:
- present a risk to anyone handling the material, or
 - are in sufficient quantity to present a chemical hazard,

this waste is not offensive/hygiene waste. Consideration should be given as to whether it is appropriate to discharge to foul sewer.

- 90 Potential problems may arise where treated sewage effluent enters the watercourse and:
- presents a risk to the environment; or
 - may contaminate water used for drinking water abstraction.
- 91 This is most likely to affect the wastes arising from use of cytotoxic and cytostatic medicines. However, this paragraph is not restricted to those.
- 92 Where the residual medicine or metabolite in the secretion, excretion or bodily fluid does not present handling risk or chemical hazard, it may be assessed further to determine if it is offensive/hygiene waste.

Step 2: Waste classification

93 The purpose of steps 2 and 3 is to differentiate the assessment requirements for healthcare waste from those of similar wastes arising from municipal sources.

Step 2a: Is the waste a healthcare waste classified under Chapter 18 of the EWC?

- 94 Healthcare wastes are classified under Chapter 18 of the EWC and are required to be subjected to rigorous assessment to determine if they are:
- clinical waste;
 - hazardous waste;
 - dangerous for carriage.

Step 2b: Is the waste a municipal waste that is similar to a healthcare waste?

- 95 Waste similar to that from animal or human healthcare, but arising from municipal activities, is not subject to the same degree of assessment, as domestic residents and non-healthcare workers are likely to have a limited knowledge of this area. The assessment framework in [Chapter 5](#) contains a simplified pathway for this purpose.
- 96 Waste arising from healthcare provision in the community, even if self-administered by the patient, is a healthcare waste and not a municipal waste.

Step 3: Assessment

97 The assessment is divided into two parts to differentiate healthcare wastes (including those produced in the domestic premises) from similar municipal wastes.

Step 3a: For healthcare waste

- 98 Waste arising from animal or human healthcare (including those produced in domestic premises and other community sources) must first be assessed using this Appendix and the assessment framework in [Chapter 5](#) to determine whether it can be considered for offensive properties.
- 99 Only if the waste item and patient have been specifically assessed and identified as potentially offensive can it be considered here. No further

assessment is required for this step, and the waste can be classified as offensive/hygiene waste.

- 100 If classified as offensive/hygiene waste, this fraction must be segregated from infectious waste. Staff segregating waste must be provided with clear instructions on the segregation process and should be provided with appropriate training.
- 101 Offensive/hygiene waste should be disposed of in yellow/black receptacles. The EWC codes 18 01 04 or 18 02 03 should be assigned.
- 102 If such an assessment has not been conducted, the waste has not been segregated appropriately and is therefore classified as hazardous infectious waste. The EWC codes 18 01 03* or 18 02 02* should be assigned and the waste disposed of in orange receptacles.
- 103 The disposal of offensive healthcare waste (18 01 04/18 02 03) by a healthcare professional in the black-bag waste stream as mixed municipal waste (20 03 01) may constitute an offence under duty of care.

Step 3b: For wastes other than healthcare waste

Domestic premises

- 104 Waste (other than those identified in [paragraph 86](#)) from domestic premises is assumed to present no risk of infection unless an indication to the contrary is provided by a healthcare professional.
- 105 Where there is a risk of infection, the waste is clinical waste and possesses the hazardous property “H9: Infectious”. The EWC code 20 01 99 should be assigned and the waste disposed of in orange receptacles.
- 106 The ‘[Community nursing](#)’ [sector guide](#) provides further information.

Municipal premises other than domestic

- 107 This section considers potentially offensive/hygiene waste from non-healthcare activities and premises (for example offices, shops, schools, childcare facilities, animal boarding kennels, dog faeces collection bins, body piercing facilities).

- 108 These wastes can normally be assumed under this step of the assessment to present no risk of infection unless an indication to the contrary is provided by a healthcare professional. However, those who have a duty of care for such waste should undertake appropriate assessment and segregation where any risk factors indicate that an element of the waste may be infectious.
- 109 Where there is a risk of infection, the waste is clinical waste and possesses the hazardous property “H9: Infectious”. The EWC code 20 01 99 should be assigned and the waste disposed of in orange receptacles.
- 110 Waste contaminated with non-infectious bodily fluids is capable of causing offence and therefore requires appropriate packaging to alert those in the waste management chain of the contents. It is recommended that such types of waste be classified as offensive/hygiene waste. This waste should be segregated where it is generated in quantity – one bag (7 kg or more) in any collection interval. Only quantities less than 7 kg may be placed in the black-bag waste stream.

Note

Health and social care homes and animal quarantine facilities are considered to produce healthcare waste (see [paragraphs 95–96](#)), but are excluded from this assessment.

EWC classification, waste description and packaging

- 111 The EWC code assigned to the offensive/hygiene waste depends on the source activity (see [Table E3](#)).
- 112 The written description of the waste should reflect its nature, origin and disposal requirements. For example, the following might be considered:
 “18 01 04, Offensive/hygiene waste from human healthcare suitable for non-hazardous landfill”.
- 113 The designated packaging colour for offensive/hygiene waste is yellow/black.

Table E3 EWC coding for offensive/hygiene waste

Source	EWC code	Code description	Packaging colour
Human healthcare	18 01 04	Waste whose collection and disposal is not subject to special requirements in order to prevent infection, eg dressings, plaster casts, linen, disposable clothing	Yellow/black
Animal healthcare	18 02 03	Waste whose collection and disposal is not subject to special requirements in order to prevent infection	Yellow/black
Municipal waste	20 01 99	Other fractions not otherwise specified Offensive/hygiene waste	Yellow/black or For small quantities only – black bag
		Other fractions not otherwise specified 'infectious waste'	Orange packaging (Note: yellow packaging is needed where the waste is of a type that requires incineration)

Summary of advice for non-healthcare waste producers

Sharps (see paragraphs 63–69)

Syringes and needles arising from:

- substance abuse;
- cosmetic piercings; and
- other body art

are typically clinical waste due to the risk of infection, and possess the hazardous property H9.

This waste is not considered to arise from healthcare and so is classified in the European Waste Catalogue as a non-hazardous separately collected municipal fraction of hygiene/offensive waste (20 01 99).

For duty-of-care purposes, the infectious clinical waste nature must be described, and the waste disposed of by incineration or alternative treatment.

The waste must be packaged in a sharps receptacle for both transport and health and safety purposes.

Soft waste (see paragraphs 107–113)

Swabs, small dressings and cotton wool contaminated with body fluids arising from:

- cosmetic piercings; and
- other body art;

and hygiene waste from:

- boarding kennels, dog faeces collection bins and catteries;
- offices, childcare facilities, public conveniences, schools and shops

would not normally be considered to be clinical waste. Appropriate risk assessments and procedures should be in place to identify those circumstances (for example an outbreak of gastrointestinal disease) where this may not be the case.

This waste should be segregated, for duty-of-care purposes, as offensive/hygiene waste (in yellow/black receptacles) where it is generated in any quantity. This enables subsequent holders of the waste to identify the nature of the material and adapt handling and disposal procedures accordingly.

Only where it is generated in small quantities should it be disposed on in the black-bag stream with other waste.

References

Acts and Regulations

Note

Only the primary Acts and main Regulations are cited here. Most of these Acts and Regulations have been subjected to amendment subsequent to the date of first becoming law. These amending Acts or Regulations are not included in this list.

Animal By-Products Regulations

- **The Animal By-Products Regulations 2005.** SI 2005 No 2347.
<http://www.opsi.gov.uk/si/si2005/20052347.htm>
- **The Animal By-Products (Scotland) Regulations 2003.** SSI 2003 No 411.
<http://www.opsi.gov.uk/legislation/scotland/ssi2003/20030411.htm>
- **The Animal By-Products Regulations (Northern Ireland) 2003.** SR 2003 No. 495.
<http://www.opsi.gov.uk/sr/sr2003/20030495.htm>

Carriage Regulations

- **The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2004.** SI 2004 No 568.
<http://www.opsi.gov.uk/si/si2004/20040568.htm>
- **The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations (Northern Ireland) 2006.** SR 2006 No 173.
<http://www.opsi.gov.uk/Sr/sr2006/20060173.htm>

The Chemicals (Hazard Information and Packaging for Supply) Regulations

- **The Chemicals (Hazard Information and Packaging for Supply) Regulations 2002.** SI 2002 No 1689.
<http://www.opsi.gov.uk/si/si2002/20021689.htm>
- **The Chemicals (Hazard Information and Packaging for Supply) Regulations (Northern**

Ireland) 2002. SR 2002 No 301.

<http://www.opsi.gov.uk/sr/sr2002/20020301.htm>

Controlled Waste Regulations

- **The Controlled Waste Regulations 1992.** SI 1992 No 588.
http://www.opsi.gov.uk/si/si1992/Uksi_19920588_en_1.htm
- **The Controlled Waste Regulations (Northern Ireland) 2002.** SR 2002 No 248.
<http://www.opsi.gov.uk/sr/sr2002/20020248.htm>

Controlled Waste (Registration of Carriers and Seizure of Vehicles) Regulations

- **The Controlled Waste (Registration of Carriers and Seizure of Vehicles) Regulations 1991.** SI 1991 No 1624.
http://www.opsi.gov.uk/si/si1991/Uksi_19911624_en_1.htm
- **The Controlled Waste (Registration of Carriers and Seizure of Vehicles) Regulations (Northern Ireland) 1999.** SR 1999 No 362.
<http://www.opsi.gov.uk/sr/sr1999/19990362.htm>

COSHH

- **Control of Substances Hazardous to Health Regulations (COSHH) 2002.** SI 2002 No 2677.
<http://www.opsi.gov.uk/si/si2002/20022677.htm>
- **Control of Substances Hazardous to Health Regulations (Northern Ireland) 2003.** SR 2003 No 34.
<http://www.opsi.gov.uk/sr/sr2003/20030034.htm>

Duty of Care Regulations

- **Environmental Protection (Duty of Care) Regulations 1991.** SI 1991 No 2839.
http://www.opsi.gov.uk/si/si1991/Uksi_19912839_en_1.htm
- **Controlled Waste (Duty of Care) Regulations (Northern Ireland) 2002.** SR 2002 No 271.
<http://www.opsi.gov.uk/sr/sr2002/20020271.htm>

Environmental Protection Act

- **The Environmental Protection Act 1990 (c. 43).**
http://www.opsi.gov.uk/acts/acts1990/Ukpga_19900043_en_1.htm

Genetically Modified Organisms (Contained Use) Regulations

- **The Genetically Modified Organisms (Contained Use) Regulations 2000.** SI 2000 No 2831.
<http://www.opsi.gov.uk/si/si2000/20002831.htm>
- **The Genetically Modified Organisms (Contained Use) Regulations (Northern Ireland) 2001.** SR 2001 No 295.
<http://www.opsi.gov.uk/sr/sr2001/20010295.htm>

Hazardous Waste Regulations

- **The Hazardous Waste (England and Wales) Regulations 2005.** SI 2005 No 894.
<http://www.opsi.gov.uk/si/si2005/20050894.htm>
- **Special Waste Amendment (Scotland) Regulations 2004.** SSI 2004 No 112.
<http://www.opsi.gov.uk/legislation/scotland/ssi2004/20040112.htm>
- **The Hazardous Waste Regulations (Northern Ireland) 2005.** SR 2005 No 300.
<http://www.opsi.gov.uk/sr/sr2005/20050300.htm>

Health and Safety at Work legislation

- **Health and Safety at Work etc Act 1974.** SI 1974 No 1439.
- **Health and Safety at Work (Northern Ireland) Order 1978.** No 1039 (NI 9).

Health and Safety (Consultation with Employees) Regulations

- **The Health and Safety (Consultation with Employees) Regulations 1996.** SI 1996 No 1513.
http://www.opsi.gov.uk/si/si1996/Uksi_19961513_en_1.htm
- **Health and Safety (Consultation with Employees) Regulations (Northern Ireland) 1996.** SR 1996 No 511.
http://www.opsi.gov.uk/sr/sr1996/Nisr_19960511_en_1.htm

Ionising Radiations Regulations

- **The Ionising Radiations Regulations 1999.** SI 1999 No 3232.
<http://www.opsi.gov.uk/si/si1999/19993232.htm>
- **The Ionising Radiations Regulations (Northern Ireland) 2000.** SR 2000 No 375.
<http://www.opsi.gov.uk/sr/sr2000/20000375.htm>

Landfill Regulations

- **The Landfill (England and Wales) Regulations 2002.** SI 2002 No 1559.
<http://www.opsi.gov.uk/SI/si2002/20021559.htm>
- **The Landfill (Scotland) Regulations 2003.** SSI 2003 No 235.
<http://www.opsi.gov.uk/legislation/scotland/ssi2003/20030235.htm>
- **The Landfill Regulations (Northern Ireland) 2003.** SR 2003 No 496.
<http://www.opsi.gov.uk/Sr/sr2003/20030496.htm>

List of Wastes Regulations

- **The List of Wastes (England) Regulations 2005.** SI 2005 No 895.
<http://www.opsi.gov.uk/si/si2005/20050895.htm>
- **The List of Wastes Regulations (Northern Ireland) 2005.** SR 2005 No 301.
<http://www.opsi.gov.uk/sr/sr2005/20050301.htm>
- **The List of Wastes (Wales) Regulations 2005.** WSI 2005 No 1820.
<http://www.opsi.gov.uk/legislation/wales/wsi2005/20051820e.htm>

Management of Health and Safety at Work Regulations

- **The Management of Health and Safety at Work Regulations 1999.** SI 1999 No 3242.
<http://www.opsi.gov.uk/si/si1999/19993242.htm>
- **The Management of Health and Safety at Work Regulations (Northern Ireland) 2000.** SR 2000 No 388.
<http://www.opsi.gov.uk/sr/sr2000/20000388.htm>

Medical Devices Regulations

- **The Medical Devices Regulations 2002.** SI 2002 No 618.
<http://www.opsi.gov.uk/SI/si2002/20020618.htm>

Misuse of Drugs Regulations

- **The Misuse of Drugs Regulations 2001.** SI 2001 No 3998.
<http://www.opsi.gov.uk/si/si2001/20013998.htm>
- **The Misuse of Drugs Regulations (Northern Ireland) 2002.** SR 2002 No 1.
<http://www.opsi.gov.uk/sr/sr2002/20020001.htm>

Personal Protective Equipment at Work Regulations

- **The Personal Protective Equipment at Work Regulations 1992.** SI 1992 No 2966.
http://www.opsi.gov.uk/si/si1992/Uksi_19922966_en_1.htm
- **The Personal Protective Equipment at Work Regulations (Northern Ireland) 1993.** SR 1993 No 20.
http://www.opsi.gov.uk/sr/sr1993/Nisr_19930020_en_1.htm

Pollution Prevention and Control Regulations

- **The Pollution Prevention and Control (England and Wales) Regulations 2000.** SI 2000 No 1973.
<http://www.opsi.gov.uk/si/si2000/20001973.htm>
- **The Pollution Prevention and Control (Scotland) Regulations 2000.** SSI 2000 No 323.
<http://www.opsi.gov.uk/legislation/scotland/ssi2000/20000323.htm>
- **The Pollution Prevention and Control Regulations (Northern Ireland) 2003.** SR 2003 No 46.
<http://www.opsi.gov.uk/sr/sr2003/20030046.htm>

Public Contracts Regulations

- **The Public Contracts Regulations 2006.** SI 2006 No 5.
<http://www.opsi.gov.uk/si/si2006/20060005.htm>
- **The Public Contracts (Scotland) Regulations 2006.** SSI 2006 No 1.
<http://www.opsi.gov.uk/legislation/scotland/ssi2006/20060001.htm>

Radioactive Material (Road Transport) Regulations

- **The Radioactive Material (Road Transport) Regulations 2002.** SI 2002 No 1093.
<http://www.opsi.gov.uk/si/si2002/20021093.htm>
- **The Radioactive Material (Road Transport) (Northern Ireland) Order 1992.** SR 1992 No 234.
http://www.opsi.gov.uk/si/si1992/Uksi_19920234_en_1.htm

Radioactive Substances Act

- **Radioactive Substances Act 1993 (c. 12).**
http://www.opsi.gov.uk/acts/acts1993/Ukpga_19930012_en_1.htm

RIDDOR

- **The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995.** SI 1995 No 3163.
http://www.opsi.gov.uk/si/si1995/Uksi_19953163_en_1.htm
- **Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (Northern Ireland) 1997.** SR 1997 No 455.
http://www.opsi.gov.uk/sr/sr1997/Nisr_19970455_en_1.htm

Safety Representatives and Safety Committees Regulations

- **The Safety Representatives and Safety Committees Regulations 1977.** SI 1977 No 500.
- **The Safety Representatives and Safety Committees Regulations (Northern Ireland) 1979.** SR 1979 No 437.

Waste and Contaminated Land Order

- **The Waste and Contaminated Land (Northern Ireland) Order 1997.** SR 1997 No 2778.
<http://www.opsi.gov.uk/si/si1997/19972778.htm>

Waste Incineration Regulations

- **The Waste Incineration (England and Wales) Regulations 2002.** SI 2002 No 2980.
<http://www.opsi.gov.uk/si/si2002/20022980.htm>
- **The Waste Incineration (Scotland) Regulations 2003.** SSI 2003 No 170.
<http://www.opsi.gov.uk/legislation/scotland/ssi2003/20030170.htm>
- **The Waste Incineration Regulations (Northern Ireland) 2003.** SR 2003 No 390.
<http://www.opsi.gov.uk/sr/sr2003/20030390.htm>

Waste Management Licensing Regulations

- **The Waste Management Licensing Regulations 1994.** SI 1994 No 1056.
http://www.opsi.gov.uk/si/si1994/Uksi_19941056_en_1.htm
- **The Waste Management Licensing Amendment (Scotland) Regulations 2003.** SSI 2003 No 171.
<http://www.opsi.gov.uk/legislation/scotland/ssi2003/20030171.htm>

- **The Waste Management Licensing Regulations (Northern Ireland) 2003.** SR 2003 No 493.
<http://www.opsi.gov.uk/sr/sr2003/20030493.htm>

European legislation

Council Directive of 15 July 1975 on waste (75/442/EEC). Official Journal L 194, 25.07.1975, pp 39–41.

Council Directive of 12 December 1991 on hazardous waste (91/689/EEC). Official Journal L 377, 31.12.1991, p 20.

Council Directive of 26 April 1999 on the landfill of waste (1999/31/EC). Official Journal L 182, 16.07.1999, pp 1–19.

Council Directive of the European Parliament and of the Council of 27 January 2003 on waste electrical and electronic equipment (WEEE) (2002/96/EC). Official Journal L 37, 13.02.2003, pp 24–38.

British Standards

BS 2646-1:1993. Autoclaves for sterilization in laboratories. Specification for design, construction, safety and performance. British Standards Institution, 1993.

BS 2646-2:1990. Autoclaves for sterilization in laboratories. Guide to planning and installation. British Standards Institution, 1990.

BS 2646-3:1993. Autoclaves for sterilization in laboratories. Guide to safe use and operation. British Standards Institution, 1993.

BS 2646-4:1991. Autoclaves for sterilization in laboratories. Guide to maintenance. British Standards Institution, 1991.

BS 2646-5:1993. Autoclaves for sterilization in laboratories. Methods of test for function and performance. British Standards Institution, 1993.

BS EN 12347:1998. Biotechnology. Performance criteria for steam sterilizers and autoclaves. British Standards Institution, 1998.

BS EN ISO 6383-1:2004. Plastics. Film and sheeting. Determination of tear resistance. Trouser tear method. British Standards Institution, 2004.

BS EN ISO 6383-2:2004. Plastics. Film and sheeting. Determination of tear resistance. Elmendorf method. British Standards Institution, 2004.

BS EN ISO 7765-1:2004. Plastics. Film and sheeting. Determination of impact resistance by the free-falling dart method. Staircase methods. British Standards Institution, 2004.

Department of Health guidance

Health Technical Memorandum 01-01 – Decontamination of reusable medical devices. The Stationery Office, 2006.

Independent healthcare: National Minimum Standards Regulations. The Stationery Office, 2002.
<http://www.dh.gov.uk>

Standards for better health. The Stationery Office, 2004.
<http://www.dh.gov.uk>

The removal, retention and use of human organs and tissue from postmortem examination. The Stationery Office, 2001.
<http://www.dh.gov.uk>

Transmissible spongiform encephalopathy: safe working and the prevention of infection. Advisory Committee on Dangerous Pathogens (ACDP)/ Spongiform Encephalopathy Advisory Committee (SEAC) Joint Working Group on TSEs, 1998.
<http://www.dh.gov.uk>

Health and Safety Executive guidance

A guide to the Genetically Modified Organisms (Contained Use) Regulations 2000 L29 (third edition). HSE Books, 2000.

Controlling the risks of infection at work from human remains. 2005.
<http://hse.gov.uk/pubns/web01.pdf>

Management of health and safety in the health service: information for directors and managers. HSE Books, 1994.

Safe working and the prevention of infection in clinical laboratories and similar facilities. HSE Books, 2003.

The Control of Substances Hazardous to Health Regulations 2002 (as amended). Approved Code of Practice and Guidance L5 (fifth edition). HSE Books, 2005.

Advisory Committee on Dangerous Pathogens (ACDP) guidance

Scientific Advisory Committee for Genetic Modification: Compendium of guidance. HSE Books, 2000.
<http://www.hse.gov.uk/biosafety/gmo/acgm/acgmcomp/index.htm>

Biological agents: managing the risks in laboratories and healthcare premises. HSE Books, 2005.

<http://www.hse.gov.uk/biosafety/biologagents.pdf>

Biological agents: the principles, design and operation of containment level 4 facilities. HSE Books, 2006.

<http://www.hse.gov.uk/pubns/web09.pdf>

Infections at work: controlling the risks. HSE Books, 2003.

<http://www.hse.gov.uk/pubns/infection.pdf>

The approved list of biological agents. HSE Books, 2004

<http://www.hse.gov.uk/pubns/misc208.pdf>

The management, design and operation of microbiological containment laboratories. HSE Books, 2001.

Department for Transport guidance

Transport of infectious substances (revision 2). 2006

http://www.dft.gov.uk/stellent/groups/dft_freight/documents/page/dft_freight_611600.pdf

Department for Environment, Food and Rural Affairs (Defra) guidance

Guidance for dentists on waste dental amalgam. 2005

<http://www.defra.gov.uk/environment/waste/special/pdf/amalgamguidance2005.pdf>

Waste management: the duty of care – a code of practice.

http://www.defra.gov.uk/environment/waste/management/doc/pdf/waste_man_duty_code.pdf

Scottish Executive Health Department guidance

SOHHD MEL(1992)4 – Scottish Office instruction on the sensitive disposal of foetuses and foetal tissue following termination of pregnancy.

SEHD HDL(2002)43 – Scottish Executive Health Department instructions and action plan on waste management in Scottish hospitals.

SOHHD MEL(1993)79 – Scottish Office instruction on the use of Iodising Regulations and Non-Iodising Regulations.

SEHD – Scottish infection manual guidance on core standards for the control of infection in hospitals, healthcare premises and the community interface.

Other guidance

Clinical Resource Efficiency Support Team (CREST). **Wound management guidelines.** 2004.

http://www.crestni.org.uk/publications/wound_guidelines.html

Economic Commission for Europe Inland Transport Committee (2005). **European agreement concerning the international carriage of dangerous goods by road (ADR).**

<http://www.unece.org/trans/danger/danger.htm>

European Wound Management Association. **Position paper. Identifying criteria for wound infection.** Medical Education Partnership, London, 2005.

http://www.ewma.org/pdf/fall05/pos_doc_eng.pdf

Health Facilities Scotland. **Scottish Hospital Technical Note 3 (SHTN 3): Management and disposal of clinical waste.** NHSScotland Property and Environment Forum, 2002.

Human Tissue Authority. **Code of Practice – The removal, storage and disposal of human organs and tissue.** 2006.

<http://www.hta.gov.uk>

Intergovernmental Organisation for International Carriage by Rail (OTIF) (2005). **Regulations concerning the international carriage of dangerous goods by rail (RID) 2005.**

<http://www.unece.org/trade/cotif/Welcome.html#TOC>

Joint Formulary Committee. **British National Formulary.** 51st edition. British Medical Association and Royal Pharmaceutical Society of Great Britain, London, 2005–2006.

Medicines and Healthcare products Regulatory Agency's (MHRA). **Safety Notice MDA SN 2002(35): Removal of implantable cardioverter defibrillators (ICDs).** 2002.

<http://www.mhra.gov.uk>

National Prescribing Centre. **A guide to good practice in the management of controlled drugs in primary care (England).** 2006.

http://www.npc.co.uk/background_for_cd.htm

Welsh Assembly Government (2005). **Healthcare standards for Wales.**

<http://www.wales.nhs.uk/sites3/home.cfm?OrgID=465>

WM2 hazardous waste: interpretation of the definition and classification of hazardous waste.

Environment Agency, Scottish Environment Protection Agency and the Environment and Heritage Service. 2005.

<http://publications.environment-agency.gov.uk/pdf/GEHO0603BIRB-e-e.pdf>

Websites

Further waste-specific guidance should be sought from the following websites:

- Department of Environment Food and Rural Affairs (Defra):
www.defra.gov.uk
- Environment Agency (EA):
www.environment-agency.gov.uk
- Health and Safety Executive (HSE):
www.hse.gov.uk
- Department of the Environment (NI):
www.doeni.gov.uk
- Environment Heritage Service (NI):
www.ehsni.gov.uk
- Health and Safety Executive (NI):
www.hseni.gov.uk
- Health Facilities Scotland (HFS):
www.hfs.scot.nhs.uk
- British Veterinary Association:
www.bva.co.uk

ISBN 0-11-322766-3



9 780113 227662