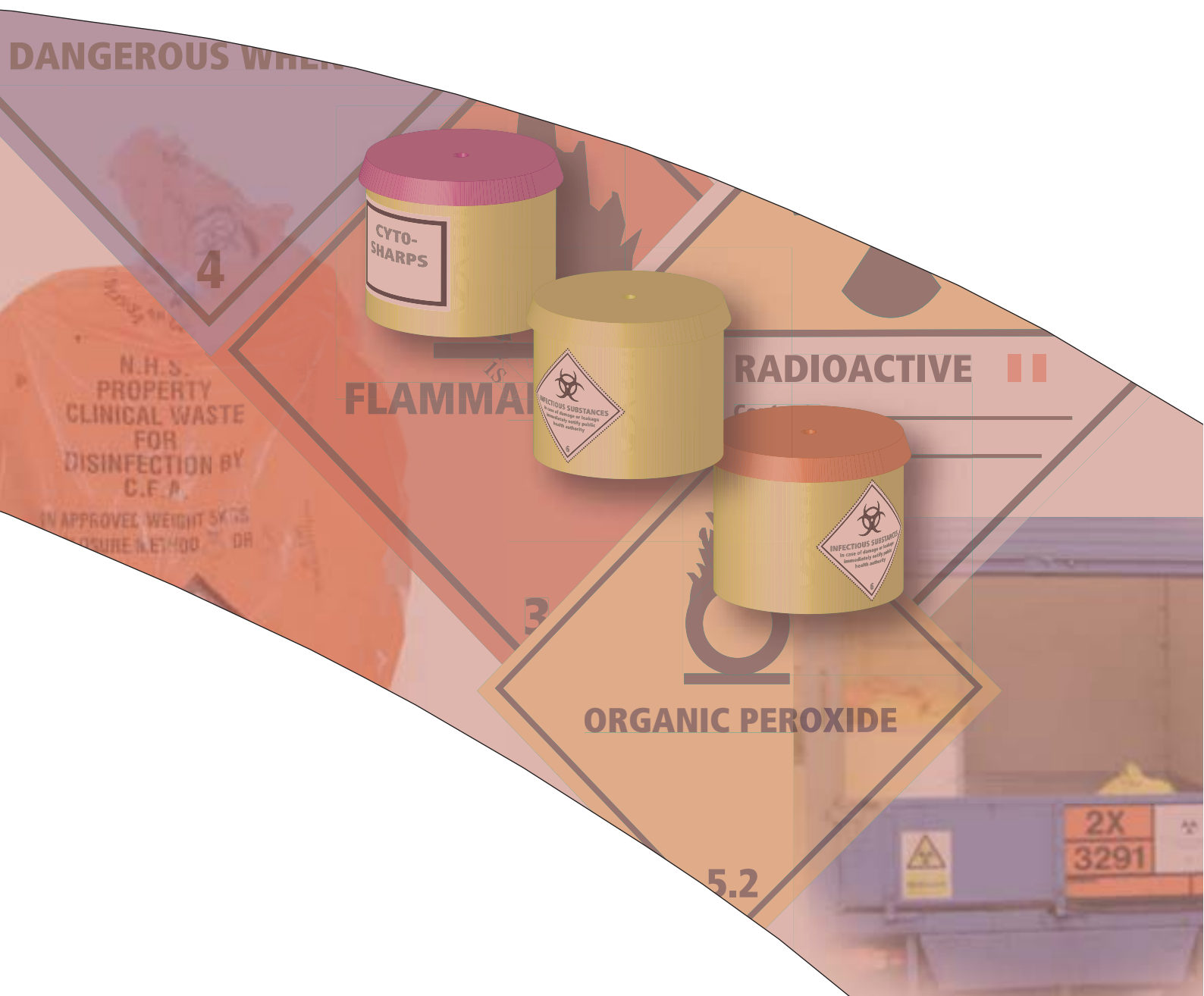


# Environment and sustainability

## Health Technical Memorandum

### 07-01: Safe management of healthcare waste



# Health Technical Memorandum 07-01: Safe management of healthcare waste

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# Preface

## About Health Technical Memoranda

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.

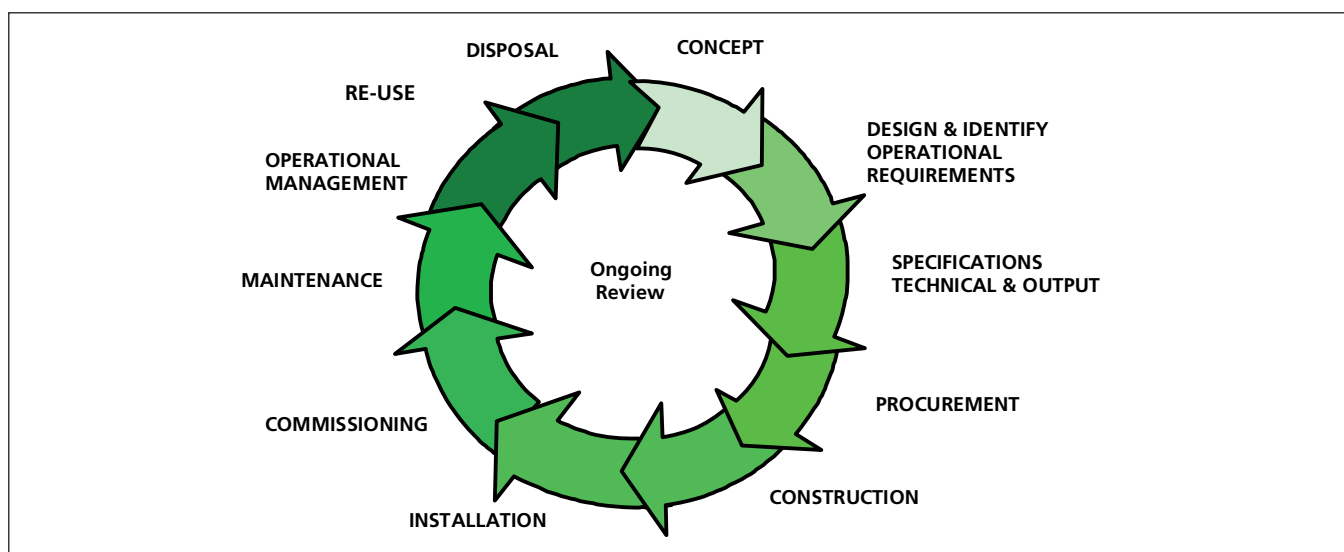
The focus of Health Technical Memorandum guidance remains on healthcare-specific elements of standards, policies and up-to-date established best practice. They are applicable to new and existing sites, and are for use at various stages during the whole building lifecycle.

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, technology and sustainability;
- provides a structured reference for healthcare engineering.

Figure 1 Healthcare building life-cycle



Healthcare providers have a duty of care to ensure that appropriate governance arrangements are in place and are managed effectively. The 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

## Structure of the Health Technical Memorandum suite

The series 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 represents:

Electrical Services – Electrical safety guidance for low voltage systems

In a similar way Health Technical Memorandum 07-02 represents:

Environment and Sustainability – EnCO<sub>2</sub>de.

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 production of this guidance.

Figure 2 Engineering guidance



# Executive summary

This guidance was produced and updated in partnership with DH, Defra and the Department for Transport and with the full support and cooperation of the Regulators (Environment Agency and the Health and Safety Executive) and the devolved administrations.

It provides an update to Health Technical Memorandum 07-01 first published in 2006. The key areas of change include:

- updates to legislation, specifically for environmental permitting and transport/carriage regulations;
- a focus on the waste hierarchy through procurement practices, and the elimination, minimisation, recycling and recovery of waste;
- a drive to address the carbon impact related to waste through resource efficiency, transport impacts and disposal arrangements;
- the integration of new sector guides on GPs and dental practices as well as incorporating Health

Technical Memorandum 07-06: 'Disposal of pharmaceutical waste in community pharmacies' as a sector guide (see the '[Community pharmacies' sector guide](#));

- a focus on practical advice and examples for classifying waste, in particular the infectious and offensive waste streams, including case studies to highlight best practice;
- a review of the terminology used for healthcare, clinical and non-clinical wastes.

This edition supersedes previous editions.

Apart from the direct environmental benefits achieved by the compliant management of healthcare waste, this guidance presents opportunities for introducing cost savings, safer working practices and reducing carbon emissions related to managing waste.

# Acknowledgements

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

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# 1 Introduction, scope and applicability

1.1 The management of healthcare waste is an essential part of ensuring that healthcare activities do not pose a risk or potential risk of infection and are securely managed. This UK-wide guidance provides a framework for best practice waste management in order to help healthcare organisations, and other healthcare waste producers, meet legislative requirements as well as identify opportunities to improve waste minimisation and reduce the associated environmental and carbon impacts of managing waste.

1.2 This Health Technical Memorandum covers a range of waste streams produced directly from healthcare activities and does not cover in detail waste streams that are similar to other sectors (for example municipal waste management). The list of these waste streams is detailed in [Chapter 3](#), 'Legislation and healthcare waste'. A number of sector guides are included for specific healthcare organisations in addition to the main guidance with further information.

## Who should use this Health Technical Memorandum?

1.3 This guidance provides practical advice for all those involved in the management of healthcare waste, and is applicable to all who come into contact with or manage healthcare waste (waste producers, waste contractors and regulators), providing a basis of common understanding for all parties including the public, all staff and third parties. This includes healthcare practices or those activities producing similar waste, as listed below:

- NHS trusts and NHS foundation trusts (including acute trusts, mental health trusts, primary care trusts and ambulance trusts);
- veterinary practices;
- dental practices;
- opticians;
- podiatrists;
- general practices;
- pharmacies;
- residential homes with and without nursing care;
- research facilities;
- private and independent healthcare organisations;
- other non-health practices producing healthcare-type waste (for example tattooists, body piercers);
- practices offering complementary and alternative treatments;
- voluntary organisations.

1.4 Some of the above have access to parallel sector-specific waste guidance (for example the British Veterinary Association's).

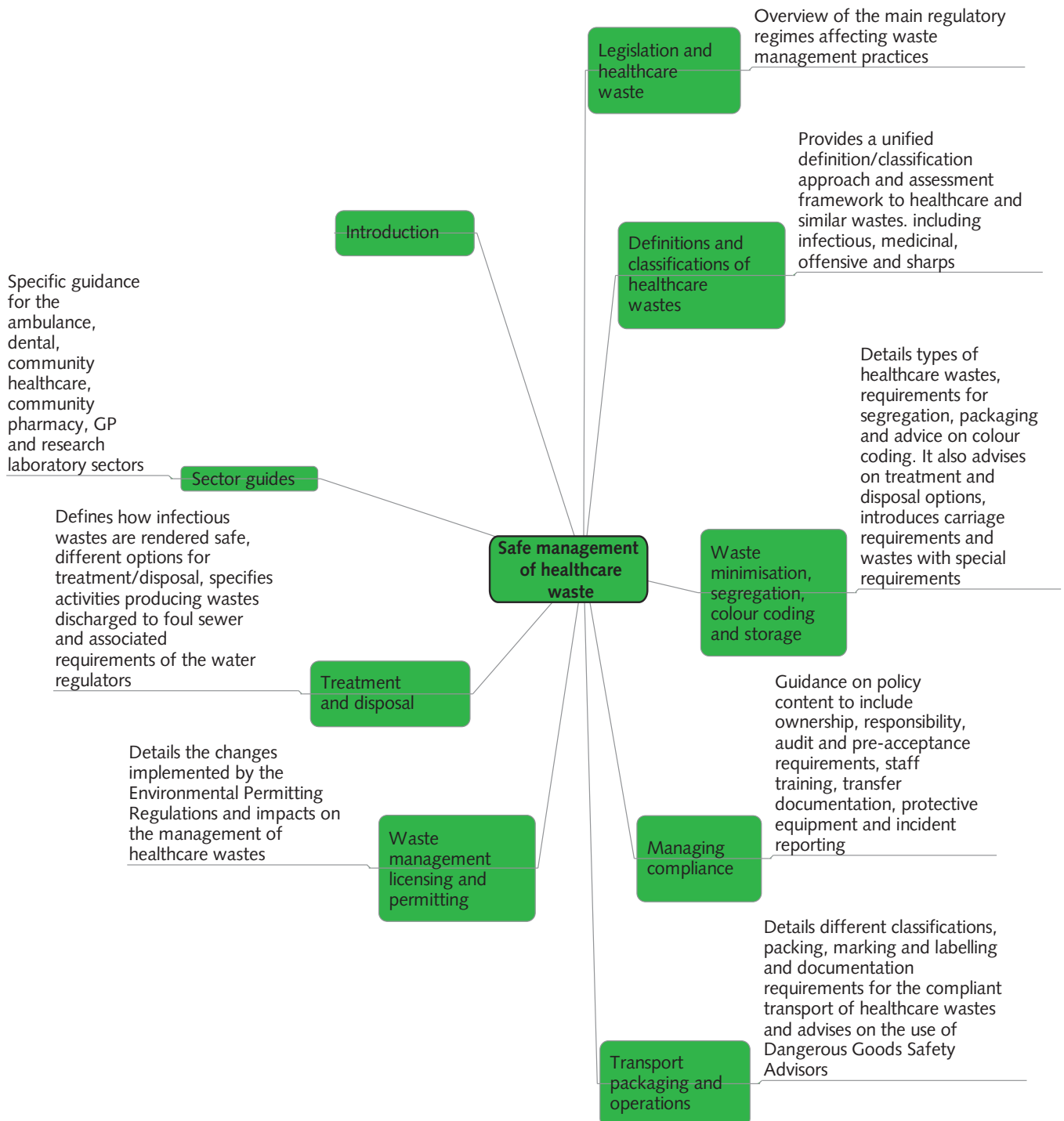
1.5 The table on [page 2](#) provides an overview for example roles and the most relevant chapters. This list is suggestive and will be dependent on local arrangements.



Who should use this manual?	Which chapters are most relevant?
Directors/senior management	Chapter 3, 'Legislation and healthcare waste' and Chapter 6, 'Managing compliance'
Waste managers/transport manager	All chapters
FM and estate managers	All chapters
Environmental/sustainability managers	All chapters
Procurements/purchasing	Chapter 3, 'Legislation and healthcare waste', Chapter 4, 'Healthcare waste definitions and classifications', Chapter 5, 'Waste minimisation, segregation, colour-coding and storage', possible sector guides
Housekeepers and porters	Chapter 4, 'Healthcare waste definitions and classifications', Chapter 5, 'Waste minimisation, segregation, colour-coding and storage', Chapter 6, 'Managing compliance', Chapter 7, 'Transport packaging and operations', possible sector guides
Cleaning staff	Chapter 4, 'Healthcare waste definitions and classifications', Chapter 5, 'Waste minimisation, segregation, colour-coding and storage', possible sector guides
Nursing staff and doctors and support teams	Chapter 3, 'Legislation and healthcare waste', Chapter 4, 'Healthcare waste definitions and classifications', Chapter 5, 'Waste minimisation, segregation, colour-coding and storage', Chapter 6, 'Managing compliance', possible sector guides
Infection prevention and control staff	Chapter 3, 'Legislation and healthcare waste', Chapter 4, 'Healthcare waste definitions and classifications', Chapter 5, 'Waste minimisation, segregation, colour-coding and storage', Chapter 6, 'Managing compliance', possible sector guides
Waste contractors and consultants	All chapters

## What is provided in the Health Technical Memorandum?

1.6 The diagram below provides a summary of the key sections of the guidance with a brief overview.



## Update to Health Technical Memorandum 07-01 (2006) and key changes

- 1.7 This 2013 edition of this Health Technical Memorandum provides an update to the guidance published in 2006. The key areas of change include:
- updates to legislation, specifically for environmental permitting and transport/carriage regulations;
  - a focus on the waste hierarchy through procurement practices, and the elimination, minimisation, recycling and recovery of waste;
  - a drive to address the carbon impact related to waste through resource efficiency, transport impacts and disposal arrangements;
  - the integration of new sector guides on GPs and dental practices as well as incorporating Health Technical Memorandum 07-06: 'Disposal of pharmaceutical waste in community pharmacies' as a sector guide (see the **'Community pharmacies' sector guide**);
  - a focus on practical advice and examples for classifying waste, in particular the infectious and offensive waste streams, including case studies to highlight best practice;
  - a review of the use of terminology used for healthcare, clinical and non-clinical wastes.
- 1.8 The need for robust waste management policies and procedures to support the safe and compliant processing of the variety of healthcare wastes addressed within this guidance is driven by a number of interrelated factors.
- 1.9 Apart from the direct environmental benefits achieved by the compliant management of healthcare waste, this Health Technical Memorandum presents opportunities for introducing cost savings, safer working practices and reducing carbon emissions related to managing waste.
- 1.10 Throughout the UK great efforts are being made to reduce waste and at the same time acknowledge the links between carbon, procurement and waste, for example England's plans for a zero waste economy, 'Government review of waste policy in England 2011'; Northern Ireland's aspirations 'Towards Resource Management: The Northern Ireland Waste Management Strategy 2006–2020';

Scotland's 'Zero waste plan: carbon metric guidance'; and Wales's 'Towards zero waste'.

## Guidance status and implementation

- 1.11 The guidance provided in this Health Technical Memorandum has been produced as UK-wide guidance. 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.
- 1.12 In preparing this guidance, additional advice and information has been provided by a broad cross-section of the healthcare waste profession including healthcare practitioners, infection control teams, waste producers, waste management and other contractors and manufacturers of equipment and supplies.
- 1.13 The advice in this Health Technical Memorandum and any recommended courses of action are not in themselves mandatory, but healthcare organisations or others choosing not to follow them are advised that alternative steps must be taken to comply with all relevant legislation. **Regulatory organisations seek to secure compliance with the law, and may refer to this Health Technical Memorandum as a combination of illustrating best practice and legal requirements.**

## Essential standards of quality and safety

- 1.14 Standards within the UK are well regulated and include a requirement relating to safety and suitability of premises. Failure to comply with standards will be acted upon by the appropriate regulator:
- England – Care Quality Commission;
  - Northern Ireland – Controls Assurance;
  - Scotland – Care Inspectorate;
  - Wales – Standards for Health Services.
- 1.15 This guidance helps to ensure that all healthcare organisations comply.
- 1.16 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 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.

**BAT:** Best Available Techniques.

**BOD:** Biological Oxygen Demand. A measure of the amount of organic pollution (that can be oxidised biologically) in a sample of water.

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

**CoTC:** Certificate of Technical Competence. Required by the designated competent person at a licensed waste facility in Northern Ireland and Scotland.

**CJD:** Creutzfeldt-Jakob disease.

**CL:** Containment Level.

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

**COSHH:** Control of Substances Hazardous to Health Regulations.

**CQC:** Care Quality Commission. The health and social care regulator for England. 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 for medicinal products with one or more of the hazardous properties toxic, carcinogenic, toxic for reproduction or mutagenic.

**DGSA:** Dangerous goods safety adviser.

**Defra:** Department for Environment, Food and Rural Affairs.

**DfT:** Department for Transport.

**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.

**ECP:** Emergency Care Practitioner.

**EWG:** European Waste Catalogue.

**FCP:** Forward Commitment Programme.

**GMO:** Genetically modified organism.

**GMM:** Genetically modified microorganism.

**GP:** General Practitioner.

**Hazardous waste:** Waste classified as hazardous waste by the Hazardous Waste Regulations and the List of Wastes Regulations. (The term “special waste” is used in Scotland.)

**Healthcare waste:** Relates to waste that is produced by healthcare activities, and of a type specifically associated with such activities.

**HG:** Hazard Group.

**HIV:** Human Immunodeficiency Virus.

**HMPS:** Her Majesty's Prison Service.

**HSAC:** Health Services 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.

**HTA:** Human Tissue Authority.

**IMDG:** International Maritime Dangerous Goods code.  
**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.

**IPPC:** Integrated Pollution Prevention Control.

**ISO:** Standards produced by the International Organization for Standardization.

**IT:** Information Technology.

**IV:** Intravenous.

**Licence:** refer to Waste Management Licence below.

**LoW:** List of Wastes Regulations.

**MCN:** Multiple Consignment Note.

**MDS:** Monitored Dosing System.

**MHRA:** Medicines and Healthcare products Regulatory Agency.

**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.

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

**MRSA:** Methicillin-resistant *Staphylococcus aureus*.

**NetRegs:** Only the primary Acts and main Regulations are cited in this Health Technical Memorandum. Most of these Acts and Regulations have been subjected to amendment subsequent to the date of first becoming law. For updates on amendments, current and new environmental legislation, visit Netregs.

**NIEA:** Northern Ireland Environment Agency. Regulator responsible for environmental regulation (including waste) in Northern Ireland.

**N.O.S:** Not otherwise specified.

**Offensive/hygiene waste:** Offensive/hygiene waste is waste that is non-infectious but may cause offence due to the presence of recognisable healthcare waste items, body fluids, or odour.

**OJEU:** Official Journal of the European Union.

**PAM:** Premises Assurance Model.

**PCT:** Primary Care Trust.

**Permit:** (Environmental Permit) Approval or consent issued by the Environment Agency (England and Wales) for a specified waste processing activity.

**Pharmaceutically active:** Pharmaceutically active medicines may be non-hazardous or hazardous depending upon properties and include, but are not limited to, cytotoxic and cytostatic medicinal wastes (hazardous waste). Examples of non-pharmaceutically-active products include saline and glucose.

**PPC:** Pollution Prevention and Control. This is a regime for controlling pollution from certain industrial activities in Northern Ireland and Scotland.

**PPE:** Personal Protective Equipment.

**RIDDOR:** Reporting of Injuries, Diseases and Dangerous Occurrences Regulations.

**RPA:** Radiation Protection Advisor. Person appointed in line with the Ionising Radiations Regulations to advise on the use and management of radioactive substances.

**SACGM:** Scientific Advisory Committee for Genetic Modification.

**SDS:** Safety data sheet(s).

**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.

**SHTN3:** Scottish Health Technical Note 3.

**SOP:** Standard Operating Procedure.

**SRM:** Specified Risk Material.

**STAATT:** State and Territorial Association on Alternative Treatment Technologies.

**TRANSEC:** Department for Transport Security and Contingencies team.

**TSE:** Transmissible Spongiform Encephalopathies.

**VOSA:** Vehicle Operator Services Agency.

**VTEC:** Verocytotoxin-producing *Escherichia coli*.

**Waste Management Licence:** Approval or consent issued by the Scottish Environment Protection Agency or

Northern Ireland Environment Agency for a specified waste management activity.

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

**WFD:** Waste Framework Directive.

**WM2:** Technical document produced by the Environment Agency, the Scottish Environment Protection Agency and the Northern Ireland Environment Agency to provide guidance on the assessment and classification of hazardous waste based on the Waste Directive definition of hazardous waste.



## 3 Legislation and healthcare waste

- 3.1 This chapter provides an overview of the main regulatory regimes affecting waste management practices within healthcare organisations. This covers health and safety, environmental, infection control and transport requirements.
- 3.2 England and Wales, Scotland and Northern Ireland have their own sets of laws and regulations which differ from each other. 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 Health Technical Memorandum, the date has been omitted.
- 3.3 The term “hazardous waste” is used in England, Wales and Northern Ireland to describe waste with hazardous characteristics in line with the List of Wastes (LoW) Regulations, which transpose the European Waste Catalogue (EWC) into domestic legislation and provide codes for all hazardous and non-hazardous wastes. 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 Waste Directive in Scotland.
- 3.4 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 (hereafter cited as the Carriage Regulations). Similar road transport legislation applies in Northern Ireland.
- b. controlled drugs;
- c. infection control;
- d. health and safety; and
- e. transport.
- 3.6 For each of these regimes, there are a number of assessments required. This section provides an overview of each of these regimes with clear steps and information on how to classify healthcare waste in line with legislation.
- 3.7 For waste management practices to comply with these requirements, appropriately authorised or permitted waste management services need to be procured. Figure 1 shows the relationship between regulatory requirements, procurement practice and effective waste management. The individual pillars of regulation dictate the requirements, while effective procurements take these into account and support waste management practices. Further information regarding procurement and waste contracts is provided in [paragraph 3.72, ‘Procurement regulations’](#).

### Overview of regulatory regimes

- 3.5 To effectively manage waste generated as a result of healthcare activities, those responsible for the management of the waste should understand and must comply with the requirements of the various regulatory regimes, which include:
- a. environment and waste;

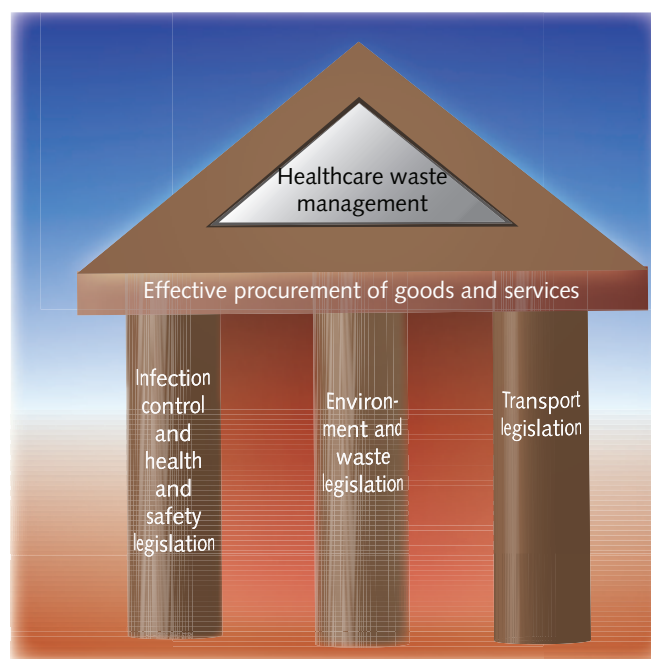


Figure 1 Key regulatory regimes for healthcare waste

## Environment and waste legislation

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

### Waste Framework Directive

- 3.9 The revised Waste Framework Directive (WFD) came into force on 12 December 2008.

#### Note

Defra will issue general guidance on the requirements of the Directive in due course. This section and the next, 'Duty of care and controlled waste' at paragraph 3.13, provide an overview of the existing Directive and key changes that may affect healthcare waste.

- 3.10 In England, Wales and Northern Ireland, the changes to the codes used to represent hazardous groups used in the Hazardous Waste Regulations and the Special Waste Regulations in Scotland, are as follows:
- a. New hazardous property "H13 Sensitising", defined as "substances and preparations which, if they are inhaled or if they penetrate the skin, are capable of eliciting a reaction of hypersensitisation such that on further exposure to the substance or preparation, characteristic adverse effects are produced".

#### Note

Category H13 is only applicable "as far as testing methods are available".

- b. The existing H13 hazardous property, renumbered H15, that is, waste capable by any means, after disposal, of yielding another substance (for example a leachate) which possesses any of the characteristics H1 to H14 (see [paragraph 3.28](#), 'Consignment notes' for a summary of the full list). This renumbering means that the hazardous property "ecotoxic" (now H14) has to be taken into account in the assessment of whether a waste displays the hazardous property H15.
- c. Article 18(2) of the WFD, which allows mixing of hazardous waste under a permit, requires the mixing operation to conform to best available techniques.

### Waste Regulations 2011

- 3.11 These regulations implement the revised EU Waste Framework Directive which sets requirements for the collection, transport, recovery and disposal of waste.
- 3.12 The Regulations require organisations to confirm that they have applied the waste management hierarchy when transferring waste, and include a declaration on their waste transfer note or consignment note.

### Duty of care and controlled waste

- 3.13 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).
- 3.14 Everyone who produces, imports, carries, keeps, treats or disposes of controlled waste is required to fully comply with the "duty of care".

#### Note

'Waste management: the duty of care – a code of practice' (statutory) is available on Defra's website.

There is also a summary guidance leaflet.

See also the Northern Ireland Environment Agency's website for the statutory code of practice.

Carrier registrations may be checked in Scotland on the SEPA website.

- 3.15 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. This is enforced through the "polluter pays" principle, making producers of waste responsible for its management and disposal.
- 3.16 A key element to the duty of care is the requirement for producers (other than



householders) to ensure that a written description, adequately describing the type and quantity of waste, is provided for transfer of the waste as it is moved from point of production to point of final disposal. Where an annual waste transfer note is used, as long as the initial note contains the details specified in Defra’s ‘Waste management: the duty of care – a code of practice’, the written description will only be required for the initial transfer.

- 3.17 Anyone wishing to carry controlled waste must be registered as a carrier of controlled wastes, as required by the Controlled Waste (Registration of Carriers and Seizure of Vehicles) Regulations. Waste-carrier registration can also be checked online at the Environment Agency website.
- 3.18 Waste can only be handed to such authorised persons as registered carriers, permit/licence holders or someone who is exempt from either being a registered carrier or operating under a permit/licence (see Chapter 6, ‘Managing compliance’ for examples of such exemptions).

Local authorities’ responsibilities

- 3.19 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.
- 3.20 Schedule 2 of the Controlled Waste Regulations identifies where a charge can be made for the collection of household waste. This includes clinical waste from a domestic property (see the ‘Community healthcare’ sector guide). These regulations must be read as a whole. Schedule 3, for example, identifies where clinical waste is “industrial” (not household) waste.

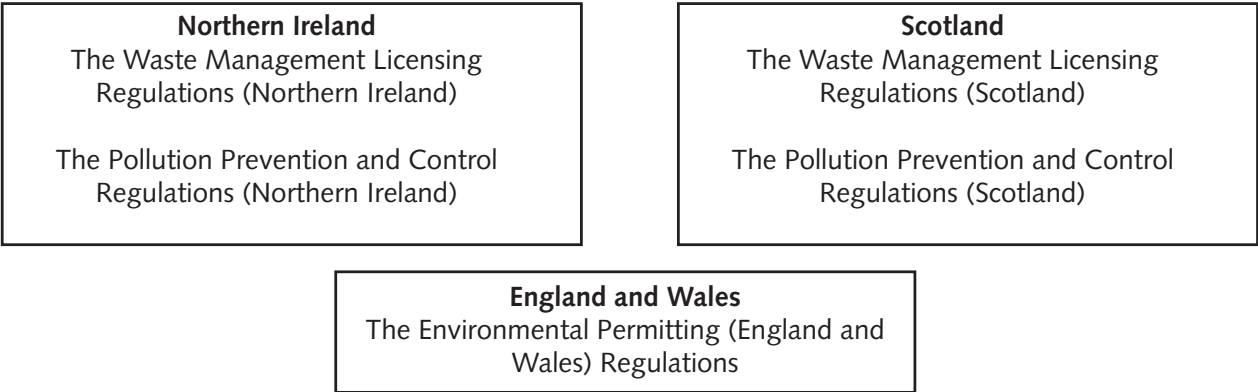
**Note**

At the time of writing, Defra is reviewing Schedule 2 of the Controlled Waste Regulations. The aim is to bring it into line with modern waste legislation, to further the wider sustainability aspirations of Defra and the Welsh Assembly Government and to improve the transparency and accountability of public funding. The Controlled Waste Regulations define clinical waste, hence its continued use within this document alongside infectious waste. The definitions will be kept under consideration as the review progresses.

Environmental permitting and waste management licensing

- 3.21 The statutory requirements for environmental permitting and waste management licensing can be represented as in the figure below.
- 3.22 Permits and licences are required for the storage, transfer, treatment and disposal of many different types of waste. Generally, a permit/licence is not required for the storage of waste on the site where it was produced, as this may be covered by an exemption to the regulations (further guidance is provided in Chapter 8, ‘Waste management licensing and permitting’).
- 3.23 Permitted clinical waste disposal sites in England and Wales are required to obtain pre-acceptance audits from producers of healthcare waste before they can accept the waste from that producer. Guidance on auditing is provided in Chapter 6, ‘Managing compliance’.
- 3.24 Environmental permits and waste management licences (and related exemptions) are regulated by:
  - the Environment Agency (EA) in England and Wales;

The Environmental Protection Act



- the Scottish Environment Protection Agency (SEPA) in Scotland; and
- the Northern Ireland Environment Agency (NIEA) in Northern Ireland.

### Note

An overview of responsibilities and requirements for the environmental permitting and waste management licensing regulations are provided in **Chapter 8, 'Waste management licensing and permitting'**.

### Hazardous waste (England, Wales and Northern Ireland) and special waste (Scotland)

- 3.25 The Hazardous Waste Regulations and the List of Wastes Regulations define and regulate the segregation and movement of hazardous waste from the point of production to the final point of disposal or recovery (similar regulations apply in Northern Ireland).
- 3.26 In England and Wales, the Hazardous Waste Regulations require that most premises producing hazardous waste be registered with the EA. Premises are exempt from the requirement to register if they produce less than 500 kg of hazardous waste in any period of 12 months. Guidance on registration can be found on the EA website. Premises registration does not apply in Scotland or Northern Ireland.

### Note

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

- 3.27 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:

Hospital complexes are often occupied by a number of different organisations that produce hazardous waste. These might for example include acute, primary care, mental health and ambulance trusts, private practices, shops and laboratories. Where these organisations have their own discrete units or areas, they are considered to be separate individual premises for the purposes of producer registration under the Hazardous Waste Regulations. Those that produce 500 kg or more of hazardous waste per year will need to register each of their premises. Those that produce less will remain exempt from registration. An acute hospital trust would not normally need to register more than once as its building, units and departments are likely to fall within a single continuous premises boundary. Other organisations with two or more separated areas (for example two shops) may find that more than one registration is required unless they are adjacent or adjoining.

Each producer can store its own waste on site, or waste can be stored in a shared storage area. As long as it meets the conditions, this storage can benefit from an exemption from an environmental permit for temporary storage at the premises of production. Waste in shared storage areas may be segregated by type rather than producer; however, it is important that clinical waste receptacles are labelled to identify the individual producer. If a producer stores and manages its own hazardous waste, it must complete its own consignment notes for each collection. If a producer transfers its waste to one on-site organisation (for example the acute hospital trust that manages the waste storage and collection), a single consignment note can be completed for a collection of waste. The other producers would need to be identified on part A5 of the consignment note. Each producer would need to ensure that it complies with its duty of care to provide the acute hospital trust with the information they need to complete the consignment note and manage the subsequent transport and disposal of the waste. This is best supported by a memorandum of understanding or partnership papers agreed between all the collaborating organisations.

### Consignment notes

- 3.28 Consignment notes are required when transporting hazardous waste. They are available from the respective environmental regulators (EA, SEPA or NIEA). They may also be supplied by the waste contractor.

- 3.29 The producer is legally responsible for ensuring the accuracy of a consignment note and in some instances it may be appropriate to seek advice from the waste contractor (the form of a consignment note is illustrated in the Hazardous Waste Regulations for England, Wales and Northern Ireland, and the Special Waste Regulations for Scotland).
- 3.30 In Northern Ireland and Scotland, producers (or consignors) of hazardous waste are not required to register with the regulatory authority (NIEA and SEPA, respectively). Instead, they are required to provide 72 hours' prior notification to the relevant regulator of their intention to move hazardous/special waste. Not every movement has to be notified (this is usually for the first movement in a succession, a "carrier's round" or a one-off movement). Specific guidance is available from NIEA and SEPA on the relevant procedures for Northern Ireland and Scotland. Carrier's rounds are discussed further at [paragraph 6.99, 'Consignment notes'](#).

### Note

Owing to the differences in the devolved administrations, the consigning of hazardous waste can vary from one country to another and waste produced in each country is required to be managed in line with the local regulations, regardless of its destination.

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.

Any cross-border consignments of waste (from one devolved region to another) should be made by the producer of the waste using both their "home" regulator's guidelines and the "destination" guidelines).

This does not apply to "cross-border" movements between Wales and England or vice versa.

Further guidance is available from the relevant regulator.

- 3.31 The Regulations do not provide comprehensive guidance on the classification of waste. The EA, SEPA and NIEA produced a joint guidance document on the interpretation, definition and classification of hazardous waste entitled 'WM2'. This document is based on supporting European Directives and test methods.

- 3.32 In the UK, WM2 uses a colour-coded European Waste Catalogue (EWC) to aid identification of hazardous wastes. Absolute hazardous entries are shown in red with an asterisk. Some wastes have the potential to be either hazardous or non-hazardous depending on whether they contain dangerous substances at, or above, certain thresholds. These are covered by mirror entries, consisting of two or more related entries including a hazardous entry (entries) shown in blue with an asterisk. They are subject to assessment in relation to the hazard groups identified in the Hazardous Waste Regulations. Non-hazardous entries are shown in black. Only non-hazardous entries that are not part of mirror entries do not require assessment. The hazard groups originate from the Waste Directive and are shown below:

- 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: Sensitising
- H14: Ecotoxic
- H15: Waste capable by any means, after disposal, of yielding another substance, for example a leachate, which possesses any of the characteristics H1 to H14. Including H14 for the first time.

### Note

See [paragraph 3.9, 'Waste Framework Directive'](#) regarding changes to the hazard groups based on the implementation of the revised WFD and subsequent regulations. The WM2 guidance changed in part to reflect changes to the hazard groups.

- 3.33 Appendix C of the WM2 guidance provides comprehensive guidance on the classification of waste in each of the hazard groups. The waste assessment framework provides further details on the WM2 guidance with respect to infectious, medicinal and amalgam healthcare waste.

### European Waste Catalogue (EWC)

- 3.34 The Environmental Permitting (England and Wales) Regulations, the Landfill Regulations (in Scotland and Northern Ireland), the Hazardous Waste Regulations and the List of Wastes Regulations (in England and Wales and Northern Ireland) require producers to adequately describe their waste using both a written description and the use of the appropriate EWC code(s) on both waste transfer and consignment notes.
- 3.35 The EWC is produced by the European Commission 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 Waste Directive 91/689/EEC.
- 3.36 The List of Wastes Regulations 2005 transposed the EWC into domestic legislation for England, Wales and Northern Ireland. In Scotland, the Special Waste Amendment (Scotland) Regulations 2004 transposed the EWC into Scottish legislation.
- 3.37 The EWC categorises waste into 20 chapters. Each chapter is defined by either the source of the waste or waste type. Within each chapter, each type of waste is described using a six-digit numerical code:
- the first two digits of the code relate to the EWC chapter;
  - the second two digits relate to any sub-grouping within the chapter; and
  - the final two digits are unique to the waste.
- 3.38 The EWC is hierarchical and some chapters and entries have precedence over others. The list should be used in accordance with the rules set out in appendix A of WM2. Chapter 18 of the EWC provides a list of codes specifically for the healthcare sector.

### Notes

1. 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”. Further guidance on the EWC is provided on the Environment Agency’s website.
2. In England, Wales and Northern Ireland, multiple EWC codes may be applied to a particular waste stream (for example infectious waste that is pharmaceutically contaminated). In Scotland, SEPA requires producers to allocate only one EWC code. This is the most onerous code in terms of the disposal process; that is, waste containing cytotoxic medicines and sharps should be classified as 18 01 08\* and the presence of sharps is established through the written description.

### Controlled drugs

- 3.39 Controlled drugs are subject to special legislative controls as they are potentially harmful. The Misuse of Drugs Regulations lists the medicines that are classified as controlled drugs. There are five schedules that dictate the level of control applied to each medicine – Schedule 1 having the most controls and Schedule 5 the fewest.
- 3.40 The regulations 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;
  - associated record-keeping requirements.
- 3.41 The Misuse of Drugs (Safe Custody) Regulations list additional requirements in terms of safe storage (for example lockable cupboards of sufficient strength).

### *Destruction/disposal*

- 3.42 Under the Misuse of Drugs 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).

**3.43** 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 to their local GPs.

**3.44** Healthcare 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's website (see 'Standard operating procedures' below).

## Note

In September 2008, the NHS published a document detailing its carbon emissions in a carbon footprinting report. The carbon associated with procurement specifically of pharmaceuticals accounted for 21% of the total carbon. This highlights the need to ensure stocks of drugs are tightly controlled to ensure wastage is kept to a minimum for economic as well as carbon management reasons.

## Standard operating procedures

**3.45** The Health Act requires 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.

**3.46** Links to associated legislation and guidance can be found on the controlled drugs section of the Department of Health's website.

## Producer responsibility

**3.47** The general requirements of the revised WFD further develop the principle of "extended producer responsibility", whereby producers, usually brand owners or suppliers, are required to take responsibility for the environmental impact of their products, especially when they become waste. This includes regulations governing:

- waste electrical and electronic equipment (WEEE);
- waste batteries;
- waste packaging; and
- end-of-life vehicles.

**3.48** The broad aim is to address the environmental impacts of the items and to encourage separate collection and subsequent treatment, reuse, recovery, recycling and environmentally-sound disposal.

**3.49** For redundant electronic items, healthcare 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 (see Health Technical Memorandum 07-05: 'The treatment, recovery, recycling and safe disposal of waste electrical and electronic equipment'. See also [paragraph 7.36, 'Batteries including those used for implants/medical devices'](#)).

**3.50** Further information and requirements for the management of WEEE are provided in Chapters 8 and 9 of the Department for Business Innovation and Skills' (BIS) guidance on the WEEE Regulations.

## Infection control

**3.51** Good infection prevention and control are essential to ensure that people who use health and social care services receive safe and effective care. Effective prevention and control of infection must be part of everyday practice and be applied consistently by everyone.

**3.52** Good management and organisational processes are crucial to make sure that high standards of infection prevention and control are set up and maintained.

**3.53** Key points to take account of (Note – whilst these are taken from the Health and Social Care Act 2008: Code of Practice, the general issues will be applicable throughout the UK):

- a. The risks from waste disposal should be properly controlled. In practice, in relation to waste, this involves:
  - (i) assessing risk;
  - (ii) developing appropriate policies;
  - (iii) putting arrangements in place to manage risks;
  - (iv) monitoring the way in which arrangements work; and
  - (v) being aware of legislative change.
- b. Precautions in connection with handling waste should include:
  - (i) training and information;
  - (ii) personal hygiene;
  - (iii) segregation of waste;
  - (iv) the use of appropriate personal protective equipment (PPE);
  - (v) immunisation;
  - (vi) appropriate procedures for handling such waste;
  - (vii) appropriate packaging and labelling;
  - (viii) suitable transport on-site and off-site;
  - (ix) clear procedures for dealing with accidents, incidents and spillages; and
  - (x) appropriate treatment and disposal of such waste.
- c. Systems should be in place to ensure that the risks to service-users from exposure to infections caused by waste present in the environment are properly managed, and that duties under environmental law are discharged. The most important of these are:
  - (i) duty of care in the management of waste;
  - (ii) duty to control polluting emissions to the air;
  - (iii) duty to control discharges to sewers; and
  - (iv) obligations of waste managers.

## Health and safety legislation

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.

- 3.54** Health and safety legislation is based on the assessment of risk. 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 that 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.
- 3.55** 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:
- '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.
- 3.56** (This guidance is aimed at those who may be inadvertently exposed to microorganisms rather than those deliberately working with them.)

## Management responsibilities

- 3.57** 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.

## Control of Substances Hazardous to Health (COSHH)

3.58 COSHH sets 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.

## Health and safety at work

3.59 The Management of Health and Safety at Work 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 of Health and Safety at Work 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

3.60 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.

3.61 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.

3.62 By incorporating health and safety requirements in healthcare waste policy, employers are able to provide staff with information relevant to their job or role (further details on waste policies are provided in [Chapter 6, 'Managing compliance'](#)). The policy can then be used as a basis for training and discussions, and this can in turn support a safer working environment through continuing engagement with all employees.

## Transport and carriage legislation

3.63 Transport and carriage legislation is based on the principles of hazard and risk assessment, and substances (including waste) are classified according to their primary hazard. These are classified as dangerous goods and are assigned to different classes depending on the predominant hazard. Dangerous goods are liquid or solid substances and articles containing them, which have been tested and assessed against internationally-agreed criteria. Further information on transport requirements is detailed in [Chapter 7, 'Transport packaging and operations'](#).

## Carriage Regulations

- 3.64 The carriage of dangerous goods is subject to regulatory control under the Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations (known as the Carriage Regulations), and these apply throughout the UK. 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.
- 3.65 In the UK, these regulations implement the requirements of the 'European agreement concerning the international carriage of dangerous goods by road' (commonly known as ADR). The Carriage Regulations make direct reference to ADR and RID. Both documents are revised every two years, and the updated versions are incorporated into the UK by the Carriage Regulations.
- 3.66 Other European and international regulations apply to the movement of dangerous goods by air, sea, and inland waterway. Producers should 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.
- 3.67 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 Chapter 7, 'Transport packaging and operations'.
- 3.68 Once goods have been classified into their appropriate class, this information is used to identify appropriate packaging, labelling and transport requirements. The packaging and labelling in relation to the Carriage Regulations is discussed in greater detail in [Chapter 7, 'Transport packaging and operations'](#).

### 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 advisor, equipment and emergency procedures;
- safe loading;
- vehicle specification and operation.

Further information on transport requirements is provided in Chapter 7, 'Transport packaging and operations'.

- 3.69 Duties are imposed on parties at all stages of the supply chain, including manufacturers, consignors, carriers and receivers. The Carriage Regulations may require healthcare organisations to appoint or contract a dangerous goods safety adviser (DGSA). The requirement regarding DGSAs is a duty on the employer and is in large part dependent on the type/quantity of dangerous goods transported (see 'Transport packaging and operations' for further details).
- 3.70 The HSE is the regulatory body responsible for enforcing transport legislation in Great Britain (the HSENI in Northern Ireland). Police officers and the Vehicle and Operator Services Agency (VOSA) (in England, Wales and Scotland only) carry out "on the road" enforcement under an agency agreement with the HSE.
- 3.71 Further information on the Carriage Regulations can be found on the Department for Transport's website and on HSE's website.

## Procurement regulations

### European procurement regulations

- 3.72 All publicly-funded organisations must ensure that all contracts established to collect and treat waste conform to the Public Contracts Regulations.

### Procurement guidance

- 3.73 Further information on the EC public procurement regulations and how to develop and competitively tender waste collection and disposal contracts is available from the following organisations:
- in England – Department of Health, NHS Procurement Policy Team;
  - in Northern Ireland – the Regional Supplies Service;
  - in Scotland – National Procurement;



- in Wales – Welsh Health Supplies (now NHS Wales Shared Services Partnership – Procurement Services).

## Note

When undertaking waste transport/disposal arrangements, it is advisable to consider the benefits of joining with other organisations for a consortia-type contract, which is likely to attract management, and financial benefits through economies of scale. This will have further advantages of attracting waste to energy solutions as part of the legal hierarchy of waste approach with double benefit of reducing waste and energy costs.

### Clinical Waste Consortium – a case study from NHS Wales

Welsh Health Supplies (now NHS Wales Shared Services Partnership – Procurement Services) established the All Wales Clinical Waste Consortium in the early 1990s to manage the collection and disposal service for clinical waste from NHS trusts in Wales. The Consortium approach was adopted in order to ensure that all hospitals were able to take advantage of a professionally procured and managed contract with a single service provider and that a single nationwide pricing structure was agreed, ensuring consistency of pricing irrespective of geographical location and size of facility.

Benefits of the consortium approach to clinical waste contract management have included improved commercial terms through the increase in economies of scale when negotiating as a consortium rather than as individual entities. This has resulted in a notable increase in value for money being achieved for NHS Wales. The consortium's inclusive approach has also provided a powerful forum for discussing contractual issues and sharing best practice between participating NHS organisations and engaging with the contractor to drive service level improvements through a partnership approach including positive support and collaboration with environmental regulators.

The Consortium model has provided NHS Wales with significant benefits over many years, and the approach still stands scrutiny with the increasing collaborative policy across the Welsh Assembly Government and wider Welsh public sector.

### Important information for vets

Animal by-products from healthcare (for example research facilities) have specific legislative requirements for disposal and treatment. They are defined as “entire bodies or parts of animals or products of animal origin not intended for human consumption, including ova, embryos and semen”. The Animal By-Products Regulations are designed to prevent animal by-products from presenting a risk to animal or public health through the transmission of disease. This aim is achieved by rules for:

- the collection, transport, storage, handling, processing and use or disposal of animal by-products; and
- the placing on the market, export and transit of animal by-products and certain products derived from them.

The regulations divide animal by-products into three categories:

- **Category 1** is the highest risk category and must be disposed of. It includes carcasses and materials infected or suspected of being infected by a transmissible spongiform encephalopathy (TSE), the carcasses of zoo and pet animals.
- **Category 2** is also high-risk material, and includes, for example, diseased animals, animals that die on farms and which do not contain “specified risk materials” (SRM) at the point of disposal, and animals which are not slaughtered for human consumption.
- **Category 3** is essentially material which is fit (but not intended) for human consumption. It includes parts of slaughtered animals, blood, raw milk, fish caught in the open sea, and shells.

The permitted disposal methods vary for each category. Further details are found in Defra's guidance notes and also on their website.

## 4 Healthcare waste definitions and classifications

4.1 This chapter provides the definitions and assessment framework for typical healthcare waste in line with the regulatory regimes outlined in the previous section. The unified assessment framework provides clear steps on how to classify waste with practical examples. It emphasises the need to undertake an assessment to classify a waste as infectious. This section does not address all packaging issues related to transport (see [Chapter 7, “Transport packaging and operations”](#)).

### Typical wastes produced by healthcare activities

4.2 [Figure 2](#) provides examples of some of the waste streams and their classifications that are applicable to the healthcare sector.

4.3 [Figure 3](#) provides equivalent examples for wastes similar to both healthcare waste and household waste which may be produced by non-healthcare activities.

4.4 This section does not consider the full range of non-healthcare-related waste items and streams that should not enter healthcare waste streams, which include:

- fluorescent tubes;
- batteries;
- cleaning chemicals;
- oils (hazardous and edible);
- grounds waste;
- domestic waste streams;
- paper, glass, cans, food;
- food waste;

- furniture;
- construction and demolition waste;
- asbestos;
- paints;
- waste electrical and electronic equipment (WEEE).

4.5 However, good practice would suggest that these wastes could be reduced through better, more informed procurement practices, contract management, and pursuing Voluntary Agreements with suppliers etc to explore opportunities for increasing recycling opportunities, reducing waste, and packaging waste at the outset.

### Note

For example, as part of the Greening Government ambition, Government has entered into a Responsibility Deal with the waste and resource management sector, and Government Departments are entering into Voluntary Agreements with the Hospitality and Food Service sector to reduce food waste, optimise packaging and increase recycling rates. Advice can be obtained from WRAP (Waste Resources Action Programme) and Defra with regard to the benefits of Anaerobic Digestion.

4.6 The EWC contains codes that apply to waste produced from healthcare and similar wastes from municipal sources. The codes applied to waste streams are defined by the individual items placed in a receptacle – they are never determined by the type of receptacle used. [Table 1](#) includes some of the codes that may apply individually or in groups to waste streams from medical practices.

Table 1

EWC code	Description of code
<b>09</b>	<b>Wastes from the photographic industry</b>
<b>09 01</b>	<b>Wastes from the photographic industry</b>
09 01 01*	Water-based developer and activator solutions
09 01 02*	Water-based offset plate developer solutions
09 01 03*	Solvent-based developer solutions
09 01 04*	Fixer solutions
09 01 05*	Bleach solutions and bleach fixer solutions
09 01 06*	Wastes containing silver from on-site treatment of photographic waste
09 01 07	Photographic film and paper containing silver or silver compounds
09 01 08	Photographic film and paper free of silver or silver compounds
<b>18</b>	<b>Wastes from human and animal health care and/or related research (except kitchen and restaurant wastes not arising from immediate health care)</b>
<b>18 01</b>	<b>Waste from natal care, diagnosis, treatment or prevention of disease in humans</b>
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*	<b>Waste whose collection and disposal is subject to special requirements in order to prevent infection</b>
18 01 04	Waste whose collection and disposal is not subject to special requirements in order to prevent infection, e.g. dressings, plaster casts, linen, disposable clothing
18 01 06*	Chemicals consisting of or containing dangerous substances
18 01 07	Chemicals other than those listed in 18 01 06*

EWC code	Description of code
18 01 08*	<b>Cytotoxic and cytostatic medicines</b>
18 01 09	Medicines other than those mentioned in 18 01 08*
18 01 10*	Amalgam waste from dental care
<b>18 02</b>	<b>Waste from research, diagnosis, treatment or prevention of disease involving animals</b>
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 or containing dangerous substances
18 02 06	Chemicals other than those listed in 18 02 05*
18 02 07*	<b>Cytotoxic and cytostatic medicines</b>
18 02 08	Medicines other than those mentioned in 18 02 07*
<b>20</b>	<b>Municipal wastes (household waste and similar commercial, industrial and institutional wastes) including separately collected fractions</b>
<b>20 01</b>	<b>Separately collected fractions (except 15 01)</b>
20 01 31*	Cytotoxic and cytostatic medicines
20 01 32	Medicines other than those mentioned in 20 01 31*
20 01 99	Other fractions not otherwise specified (used for offensive waste)

\* Hazardous wastes can be:

- absolute hazardous entries (in which case they are always hazardous – highlighted red in the table) or
- mirror entries with an asterisk – highlighted blue in the table.

Non-hazardous waste (black in the table)

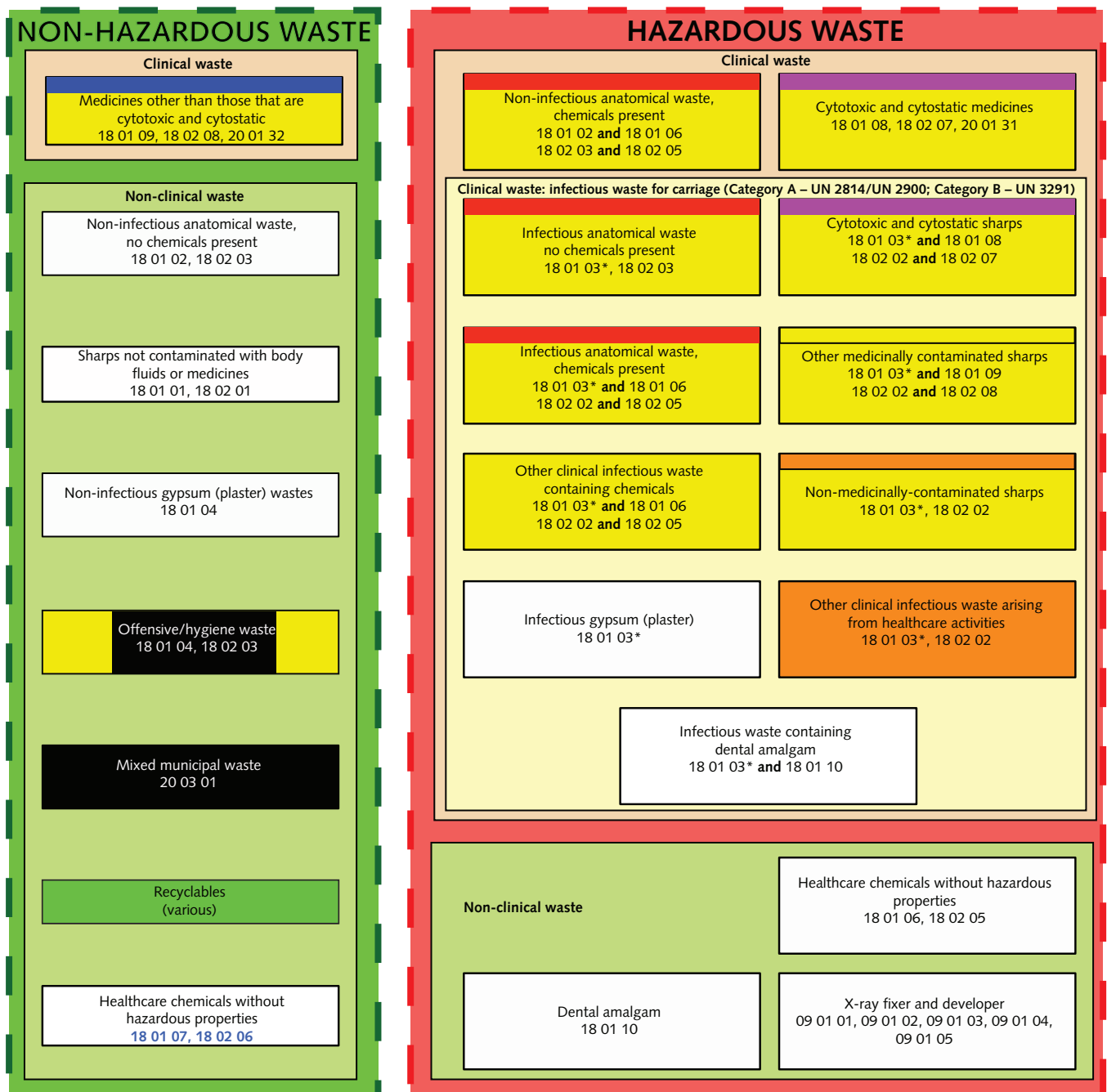


Figure 2 Healthcare waste: examples and breakdown of clinical and hazardous in line with regulatory definitions

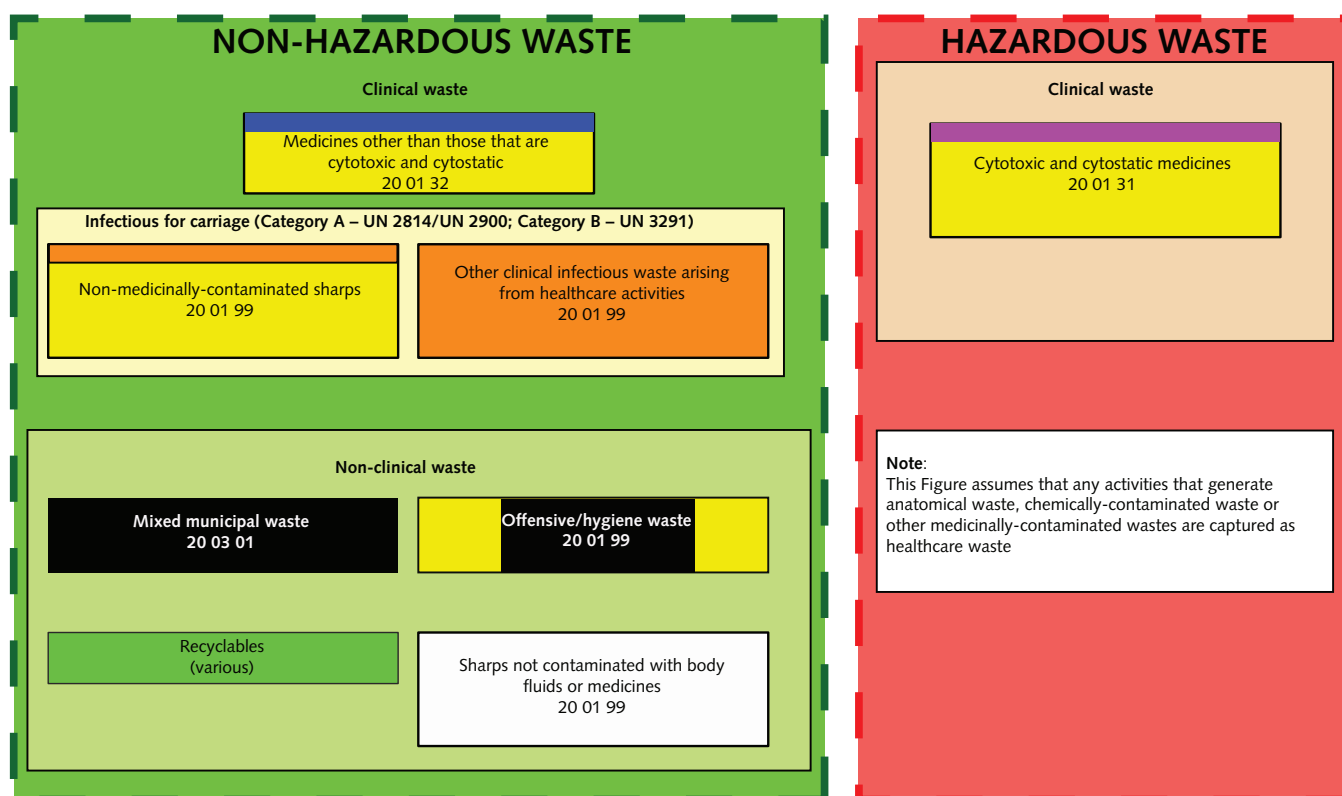


Figure 3 Municipal waste similar to both household waste and healthcare waste: examples and breakdown of clinical and hazardous in line with regulatory definitions

## Clinical and hazardous waste

### Note

This advice will be subject to change. The Controlled Waste Regulations 2012 replace and update the Controlled Waste Regulations 1992. They came into force on 6 April 2012. These 2012 Regulations give local authorities powers to charge for waste disposal from a wider range of non-domestic premises (that is, hospitals) than the 1992 Regulations allowed.

- 4.7 The definition of clinical waste is provided by the Controlled Waste Regulations (issued under the Environmental Protection Act) and in Northern Ireland by the Waste and Contaminated Land (Northern Ireland) Order.
- 4.8 Clinical waste is defined as:
- “... any waste which consists wholly or partly of human or animal tissue, blood or other body 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

- 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.”

4.9 Clinical waste can be divided into three broad groups of materials:

- any healthcare waste which poses a risk of infection (and therefore by definition possesses the hazardous property H9 Infectious);
- certain healthcare wastes which pose a chemical hazard (for example one of H1 to H8, H10 to H15);
- medicines and medicinally-contaminated waste containing a pharmaceutically-active agent.

4.10 An attempt has been made to demonstrate the relationship between the definition of clinical and hazardous waste as summarised in Figures 2 and 3 above. The key principle is that **clinical waste = hazardous waste** with only two possible exceptions:

- segregated non-cytotoxic and non-cytostatic medicines (that is, from human (18 01 09) or animal healthcare (18 02 08) and manufacturing, or separate fractions of out-patient-returned medicines (20 01 32));
  - clinical waste from municipal sources that are not in any way directly or indirectly associated with healthcare (for example needles and swabs from cosmetic body art or piercing, sharps drug litter and minor first aid or cosmetic procedures that do not involve or require a medical or paramedical practitioner legally recognised to treat patients) and that are similar to household waste. These are classified as non-hazardous solely because the only available EWC (20 01 99) is an absolute non-hazardous entry in the EWC.
- 4.11 Any clinical waste, other than these two exceptions, being moved as a non-hazardous waste would indicate that the waste has been incorrectly classified by the producer, holder or waste contractor.
- 4.12 Many infectious or non-infectious healthcare wastes contaminated with hazardous chemicals will be classified as a clinical waste. In isolation, a bottle of waste chemical would not fall under the definition of clinical waste, although it may still be hazardous.
- 4.15 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 [step 2](#) and [Figure 5](#));
  - **chemical properties** (see [step 3](#) and [Figure 6](#)); and
  - **infectious properties** (see [step 4](#) and [Figure 7](#)).
- 4.16 Where the healthcare waste has none of these properties, an assessment methodology is provided to determine whether it is **offensive/hygiene waste** (see [step 6](#) and [Figure 8](#)).
- 4.17 The overall assessment framework is presented in [Figure 4](#). Detailed assessment procedures for identifying medicinal, chemical, infectious, and offensive properties of healthcare waste are provided to give guidance on an appropriate classification of individual waste items when used as part of the framework. Each assessment considers the element, or type of waste, present in any waste receptacle (bag, box, bin) separately. Each may therefore be classified differently. Other healthcare waste streams and classifications outside this framework include **amalgam waste, implanted devices and radioactive waste**.
- 4.18 Staff segregating waste should be provided with appropriate training and clear instructions on waste segregation, specifically what items go in which container (further details are given in [Chapter 6](#), ‘[Managing compliance](#)’). Labelled, colour-coded waste receptacles should be supplied for each waste stream. The classification is determined by the contents of the container rather than the type of container. If more than one type of waste is placed in a container, the classification and description must reflect this (further details on the colour codes for healthcare waste are provided in [Chapter 5](#), ‘[Waste minimisation, segregation, colour-coding and storage](#)’).

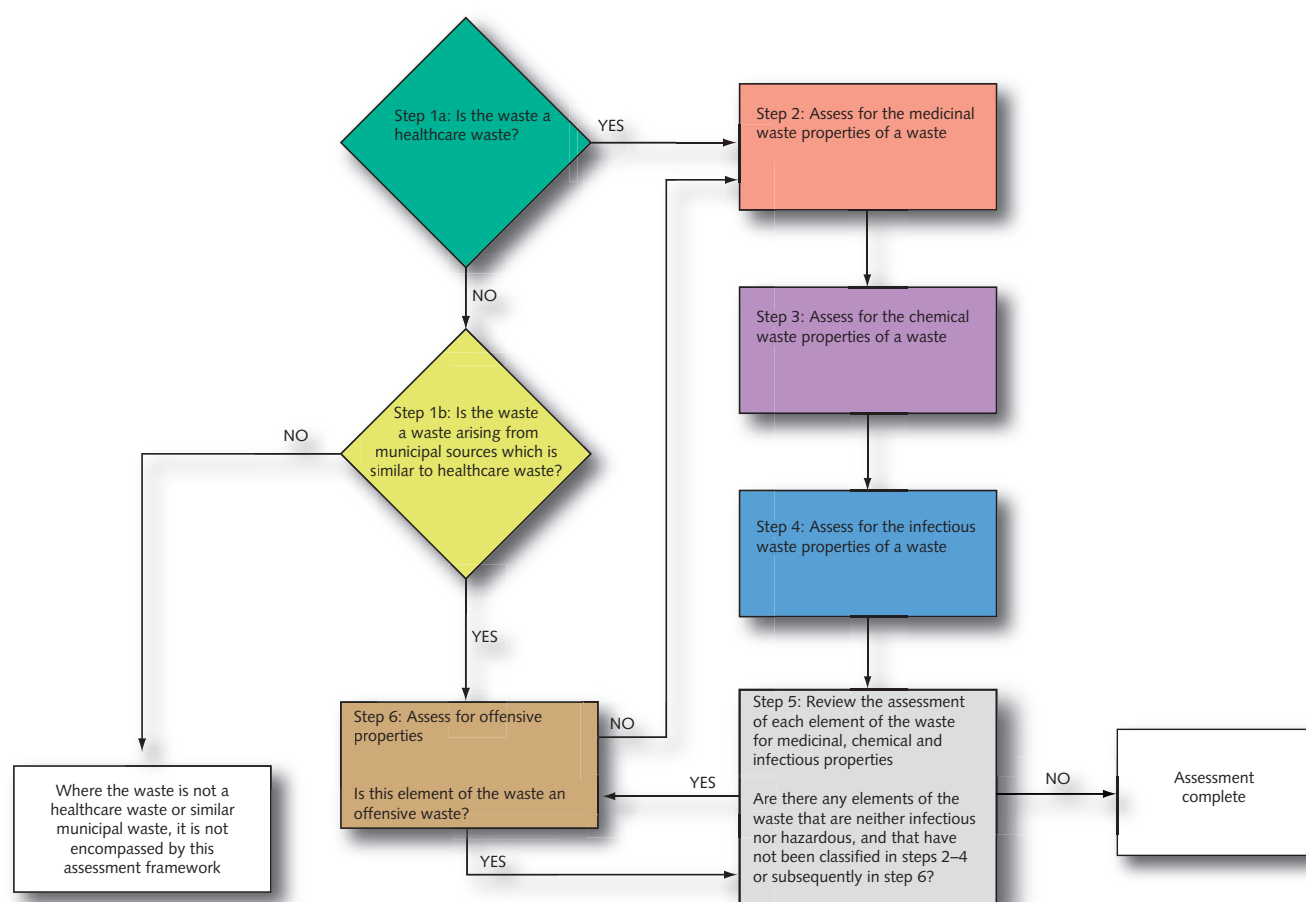
## Healthcare waste classification and assessment framework

- 4.13 The general principles behind a unified approach for classification of healthcare waste are provided in a waste assessment framework as detailed in [Figure 4](#). Compliance with the unified approach will ensure that producers comply with the regulatory requirements.
- 4.14 The assessment framework considers:
- the definition of an infectious 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.

### Note

At the time of writing, Controlled Waste Regulations are under review. Visit Defra’s website for updates.





**Note:**

This flowchart contains a logic trap between steps 5 and 6 to prevent misclassification of the waste. If stuck in this trap, then there are two likely causes:

- the item that is being classified should not be in the waste stream in question (e.g. items of municipal waste like flowers, newspapers etc) and is not catered for by the assessment due to the prohibition on mixing; or
- the classification in the previous steps has been misapplied.

Figure 4 Assessment framework for healthcare, and similar municipal wastes

## Step 1

### Step 1a: Is the waste a healthcare waste (or similar type)?

- 4.19 This step distinguishes between healthcare and non-healthcare waste, as these are (depending on type of waste) assessed differently due to the structure of the EWC.
- 4.20 Healthcare waste is listed in chapter 18 of the EWC and relates to waste that is both:
- produced by healthcare activities; and
  - of a type specifically associated with such activities.
- 4.21 Healthcare waste 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). Healthcare waste may include some similar wastes produced by other activities where those wastes are not considered to be municipal.

- 4.22 Figures 2 and 3 show the different types of healthcare waste classified according to whether they are hazardous or non-hazardous. These are for illustrative purposes only and are 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?

- 4.23 There are a few municipal non-healthcare waste streams that are similar in nature to healthcare waste and are considered within the assessment framework.

## Note

### Municipal waste: Chapter 20 of the EWC

This chapter is restricted to the use of

- wastes from households; and
- similar wastes from other sources

where suitable codes are provided.

As a general rule, therefore, the following wastes should not be classified under Chapter 20:

- waste produced as the result of a procedure that requires a medically qualified person to conduct it (for example some cosmetic procedures) or
- a waste item substantially different in type or quantity/size to that which would typically be produced by a domestic household in the absence of healthcare involvement, for example large dressings and bandages, and X-ray wastes.

4.24 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).

## Note

Waste produced by self-medicating patients (for example people with diabetes) and unused waste medicines are classified as healthcare waste.

## Step 2

### Step 2: Assessment of medicinal properties

4.25 This step assesses each element (components and contaminants) of the waste for medicinal properties. The assessment is supported by **Figure 5**. Each element is classified on the basis of its medicinal properties alone as:

- either a clinical or non-clinical waste; and
- either hazardous or non-hazardous waste.

4.26 An appropriate EWC code is then assigned.

4.27 The chemical, infectious and offensive properties of the waste must also be assessed.

### *Clinical or non-clinical waste*

4.28 The waste item will be classified as a clinical waste (with reference to the definition in the Controlled Waste Regulations) if it contains or is contaminated with a medicine containing either:

- a pharmaceutically-active substance (a substance able to affect biological systems); or
- a dangerous substance (for example a chemical) at sufficient concentration to generate a hazardous property.

### *Hazardous or non-hazardous waste*

4.29 The waste item will be classified as hazardous (with reference to the definition in the Waste Framework Directive) if it contains or is contaminated with a cytotoxic or cytostatic medicine. Other medicines are not hazardous waste.

4.30 EWC codes are assigned depending on the source of the waste and the presence of cytotoxic and cytostatic or other medicines as illustrated below:

- Human medicines are classified as 18 01 08\* (cytotoxic and cytostatic) or 18 01 09 (other).
- Animal medicines are classified as 18 02 07\* (cytotoxic and cytostatic) or 18 02 08 (other).
- Domestic and out-patient returns to pharmacy are classified as 20 01 31\* (cytotoxic and cytostatic) or 20 01 32 (other).
- Waste medicines from the manufacturing or supply chain are classified in Chapter 18 as human or animal medicines.

## Note

Controlled drugs are subject to special legislative controls, as they are potentially harmful. The Misuse of Drugs Regulations list the medicines that are classified as controlled drugs. There are currently five schedules that dictate the level of control applied to each medicine – Schedule 1 having the most controls and Schedule 5 the fewest.



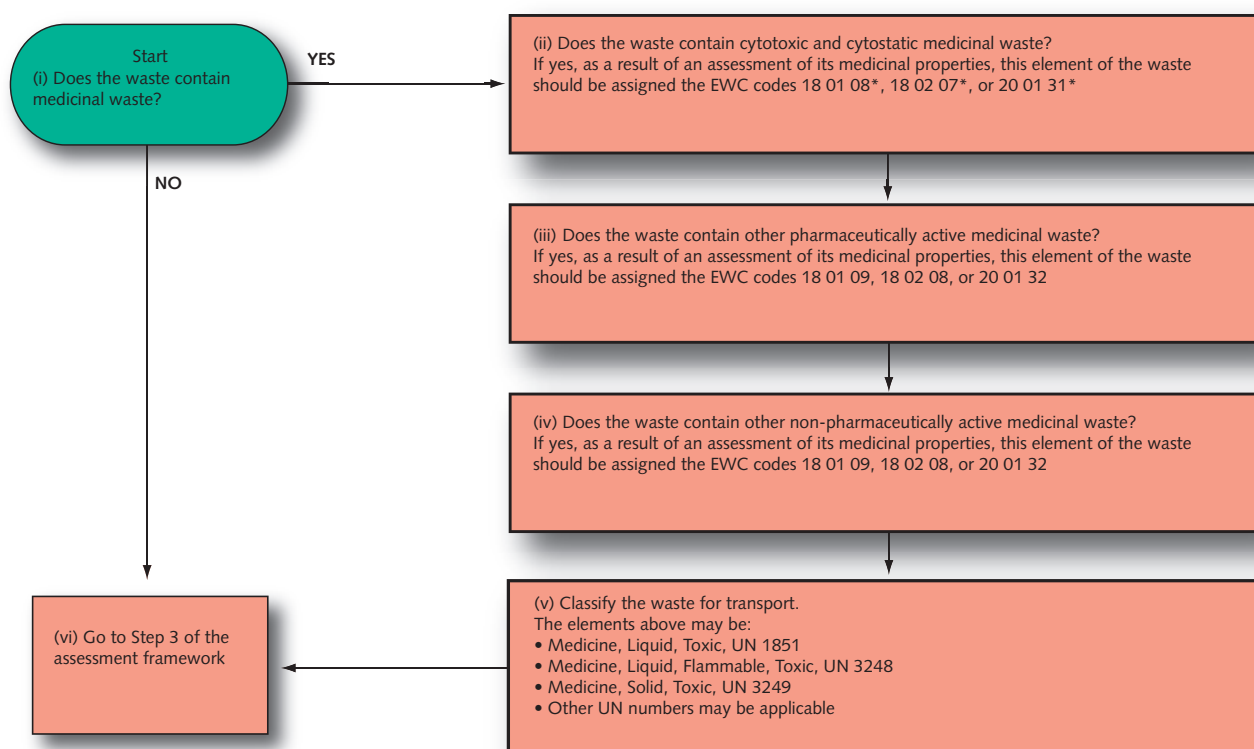


Figure 5 Assessment and classification of medicinal waste

### Step 2(i): Does the waste contain a medicinal waste?

4.31 Medicinal waste includes:

- expired, unused, spilt, and contaminated medicinal products, drugs, vaccines and sera that are no longer required and need to be disposed of appropriately;
- discarded items contaminated with medicinals, such as bottles or boxes with residues, gloves, masks, connecting tubing, syringe bodies and drug vials.

4.32 Where any of these materials are present in a waste, it contains medicinal waste.

4.33 There are three specific cases where further guidance is provided (see 'Note on specific cases requiring additional consideration' under [paragraph 4.47](#)). These are:

- secretions, excretions or other body fluids containing residual medicines;
- anatomical waste and carcasses containing residual medicines; and
- medicinal glassware, aerosols and other containers.

### Step 2(ii): Does the waste contain a cytotoxic and cytostatic medicinal waste?

4.34 A cytotoxic or cytostatic medicine is defined as any medicinal product that possesses any one, or more, of the following hazardous properties:

- H6: Toxic;
- H7: Carcinogenic;
- H10: Toxic for reproduction;
- H11: Mutagenic.

### Note

The definition of cytotoxic and cytostatic used in waste classification is much broader than the term "cytotoxic" as used in the British National Formulary (BNF). The BNF should not be used for waste classification. An example list of cytotoxic and cytostatic medicines for a hospital is provided in [Chapter 11, 'Clinical waste treatment and disposal overview'](#). This is provided to assist pharmacists, but is not presented, or intended to be used, as a comprehensive list, since this is highly dependent on what medicines are used in a particular healthcare setting.

- 4.35 Classification is determined by assessment of the medicinal products in the form supplied by the manufacturer or distributor and does not 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.
- 4.36 If waste contains or is contaminated with a cytotoxic and cytostatic medicine, that element is:
- a hazardous waste; and
  - a clinical waste.
- 4.37 That element should be assigned the EWC code (as appropriate):
- 18 01 08\* (human healthcare);
  - 18 02 07\* (animal healthcare); or
  - 20 01 31\* (municipal waste: separately collected fractions from patient returns).
- 4.38 The packaging colour for cytotoxic and cytostatic medicines is yellow and purple (see [Chapter 5, 'Waste minimisation, segregation, colour-coding and storage'](#)).
- 4.39 If the properties of a medicine cannot be determined, rather than have not been determined, that element should be classified as cytotoxic and cytostatic.

**Step 2(iii): Does the waste contain other pharmaceutically-active medicinal waste?**

- 4.40 Medicines that are neither cytotoxic nor cytostatic are most likely to contain a pharmaceutically-active substance and/or a concentration of dangerous substances that provides a hazardous property other than those associated with cytotoxic and cytostatic medicines. Where the waste contains a medicine of this type, it is:
- a hazardous waste; and
  - a clinical waste.
- 4.41 That element should be assigned the EWC code (as appropriate):
- 18 01 09 (human healthcare);
  - 18 02 08 (animal healthcare); or
  - 20 01 32 (municipal waste: separately collected fractions from patient returns).

**Step 2(iv): Does the waste contain other non-pharmaceutically-active medicines?**

- 4.42 This document recognises that there are a number of licensed medicinal products that are non-pharmaceutically active and possess no hazardous properties. Examples include sterile water, saline and sugar solutions. This medicinal element of the waste is:
- non-clinical waste; and
  - non-hazardous waste.
- 4.43 This is as a result of the assessment of its medicinal properties only. This element should be assigned the EWC code (as appropriate):
- 18 01 09 (human healthcare);
  - 18 02 08 (animal healthcare); or
  - 20 01 32 (municipal waste: separately collected fractions).
- 4.44 The packaging colour for medicines is set out in Chapter 5, 'Waste minimisation, segregation, colour-coding and storage'.
- 4.45 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 (subject to approval by the sewage undertaker) and the empty containers placed in the offensive/hygiene waste stream. Recycling options may be explored, but they must not be placed in the mixed municipal waste stream.
- 4.46 The landfill of liquids is prohibited under the Environmental Permitting (England and Wales) Regulations and Landfill Regulations in Scotland and Northern Ireland. Therefore, non-pharmaceutically-active liquids (for example intravenous saline bags) should not be placed in the offensive waste stream if they still contain free-flowing liquid.

## Note on mixed waste medicines, segregation and hazardous properties

In England and Wales, the mixing of cytotoxic and cytostatic medicines with other medicines is prohibited except in the case of domestic householders. In any event, if a package of medicines contains a mixture of cytotoxic and cytostatic medicines, all non-domestic holders (that is, healthcare organisations or pharmacies) have a legal duty to separate the material. The consignment note for the removal of mixed medicines must clearly identify the presence (EWC codes, descriptions and hazardous properties) of both wastes and list the components.

In Scotland and Northern Ireland, the mixing of cytotoxic and cytostatic medicines with other medicines is permitted as long as the description on the consignment note reads “cytotoxic and medicines” and the waste classification and description include both the 18 01 08\* code (cytotoxic/cytostatic) and 18 01 09 code (other medicines).

However, in all countries, a medicine must not be mixed with any other medicine (cytotoxic and cytostatic or otherwise), chemical or material that is chemically incompatible.

### Step 2(v): Classify the waste for transport

- 4.47 Medicinal waste should be classified for transport on the basis of its physical form and properties (more detailed information on this is provided in [Chapter 7, ‘Transport packaging and operations’](#)).

## Note on specific cases requiring additional consideration

*Contaminated material arising after administration of a medicine*

- Secretions, excretions or other body fluids containing cytotoxic and cytostatic medicines.
- 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, in some circumstances 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 the pharmacokinetics of a specific drug are likely to result in the presence of potentially dangerous quantities of an 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.

Any disposal to foul sewer should be in accordance with trade effluent consent.

### *Medicinal glassware, aerosols and other containers*

Containers (bottles, ampoules, vials etc) used for liquid medicines and powders are normally contaminated with residual quantities of those medicines. Inner packaging used for tablets may or may not be contaminated. If contaminated, containers should be classified and disposed of as waste medicines. Only if rinsed out, in accordance with a trade effluent consent, may they be disposed of as packaging (for example glassware for recycling). Uncontaminated outer packaging may also be recycled.

Medicines in aerosol formulation are not possible to clean out and should be classified as waste medicines (not aerosols). It is not acceptable to discharge liquid medicines to sewer (see [paragraph 9.18, ‘Discharge to sewer’](#)).

## Step 3

### Step 3: Assessment of chemical properties

## Note

This section is not provided for use in assessing laboratory chemicals and reagents. It is provided as an overview to support the assessment of other healthcare waste streams that may contain or be contaminated with waste chemicals. The following advice applies for waste chemicals:

- They should not be placed in clinical, offensive or municipal waste streams (in England and Wales such mixing is prohibited).
- They should be segregated and packaged according to transport classifications and chemical compatibilities.

- They should normally be classified as 18 01 06\* or 18 01 07 unless they are photochemicals (these are classified under sub-chapter 09 01).
- Hazardous properties should be assessed and classification codes assigned using the procedures set out in WM2.

Chemical containers, unless completely empty (that is, rinsed out), would normally be contaminated and classified as the chemical they contain (ignoring the weight of the container). It is not acceptable to discharge liquid medicines to sewer (see [paragraph 9.18, 'Discharge to sewer'](#)).

Used absorbents and spill-kits for chemical spills should be classified under chapter 15 of the EWC.

4.48 This step assesses each element (components and contaminants) of the waste for chemical properties. The assessment is supported by Figure 6. Each element is classified on the basis of its chemical properties alone as:

- either a clinical or non-clinical waste; and
- either hazardous or non-hazardous waste.

4.49 An appropriate EWC code is then assigned.

4.50 The medicinal, infectious and offensive properties of the waste must also be assessed.

#### *Clinical or non-clinical waste*

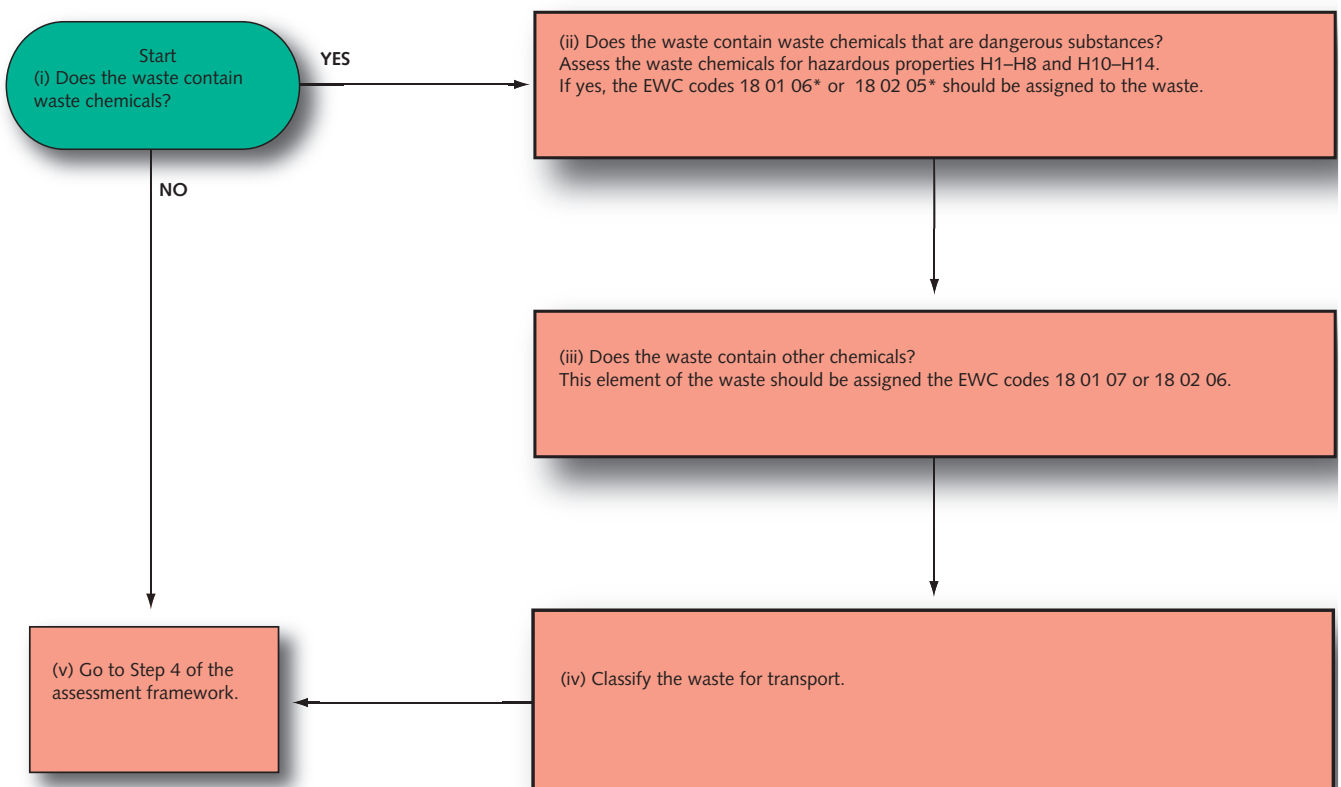
4.51 A waste chemical would not normally be a clinical waste. However, another healthcare waste will be a clinical waste (with reference to the definition in the Controlled Waste Regulations) if it contains or is contaminated with a dangerous substance at sufficient concentration (in the item) to generate a hazardous property.

4.52 If the chemical is not a dangerous substance or is not present in the waste or waste item in sufficient concentration to generate a hazardous property, it will not result in the waste being classified as clinical waste.

#### *Hazardous or non-hazardous waste*

4.53 The waste will be classified as hazardous (with reference to the definition in the Hazardous Waste Regulations) if it contains or is contaminated with a dangerous substance at sufficient concentration to generate a hazardous property.

Figure 6 Assessment and classification of chemical waste



*EWC codes*

4.54 These are assigned dependent on the source and hazardous status of the waste item as indicated below:

- Human healthcare chemicals (except photochemicals) are classified as 18 01 06\* (hazardous) or 18 01 07 (non-hazardous).
- Animal healthcare chemicals (except photochemicals) are classified as 18 02 05\* (hazardous) or 18 02 06 (non-hazardous).
- Photochemicals (including X-ray) are classified in chapter 09 of the EWC.

**Step 3(i): Are chemicals present in the waste?**

4.55 Waste chemicals should never be placed in any clinical, offensive or mixed municipal waste stream. Examples of these include laboratory reagents, auto-analyser cartridges from laboratories and wards, photochemicals, hand gels, disinfectants, cleaning chemicals, and therapeutic chemicals and their contaminated packagings.

**Note**

Alcohol hand gels that do not contain siloxanes (which cause significant damage to plant and equipment used in the sewage treatment process) and whose safety data sheet (SDS) does not prohibit discharge to the sewer may be rinsed out and the packaging recycled or placed into the municipal waste stream.

4.56 Where these chemicals are present in the waste, changes to segregation should be implemented to prevent this occurring in future. The waste containing them must, in addition to any other classification, be classified with the chemical code(s), and appropriate measures must be taken to describe, package, transport and dispose of the waste at a suitably authorised facility. These are not considered further in this assessment.

4.57 In some instances, clinical waste items may be produced that contain or are contaminated with chemicals. Examples might include:

- anatomical or pathology specimens or samples preserved in chemicals (for example formaldehyde or alcohol);
- sample vials or diagnostic kits containing chemicals;

- sharps or other clinical waste items contaminated with therapeutic or laboratory chemicals;
- materials used to clean up biological spills that are contaminated with chemical disinfectants.

4.58 These items are considered further in this assessment.

4.59 Where such items are present, the chemicals (even if only present in small quantities) should be identified in the waste description and composition (a requirement of the consignment note), and the chemical hazardous properties of the item assessed using WM2, as in step 3(ii).

**Step 3(ii): Are chemicals containing dangerous substances present in the waste?**

4.60 The first step is to identify the chemicals present and whether they are dangerous substances (for example, have they been assigned a chemical risk phrase by Table 3.2 of the classification labelling and packaging regulations (CLP) or associated European databases, or if not by these on a Safety Data Sheet).

4.61 If the chemical(s) present include one or more dangerous substances, the properties and concentrations have to be considered for the relevant hazardous properties using the assessment procedures set out in appendix C of WM2. Where the waste item is a container (for example a sample vial or specimen pot), the weight of the container is normally excluded from the assessment.

4.62 If the item possesses a chemical hazardous property, the waste is a clinical and hazardous waste and should be assigned the 18 01 06\* EWC code (or 18 02 05\* for animal healthcare) as a result of this part of the assessment. The chemicals and hazardous properties must be identified in part B of the consignment note.

4.63 If the item does not possess a chemical hazardous property, the waste is not a clinical waste nor a hazardous waste and should be assigned the 18 01 07 EWC code (or 18 02 06 for animal healthcare) as a result of this part of the assessment. If the waste is a hazardous waste due to other components, the chemicals must still be identified in part B of the consignment note.



**Step 3(iii): Are other chemicals present in the waste?**

4.64 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. 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 3(iv): Classification for transport**

4.65 The classification of chemicals for transport is beyond the scope of this guidance. **Chapter 7, 'Transport packaging and operations'** contains general advice on transport matters.

**Step 4****Step 4: Assessment of infectious properties**

4.66 This step provides the assessment for each element (components and contaminants) of the waste for infectious properties. The assessment is supported by a flowchart (see **Figure 7**). Each element is classified on the basis of its infectious properties alone:

- as clinical **and** hazardous **and** dangerous for carriage (typically UN 3291); or
- as non-clinical **and** non-hazardous **and** not dangerous for carriage; and
- the appropriate EWC code(s) is/are also indicated.

4.67 This assessment considers:

- the legal definition of clinical waste (the Controlled Waste Regulations);
- appendix C9 of WM2 on the hazardous property "infectious" (H9);
- the definition of infectious substances given in ADR.

*Clinical or non-clinical waste*

4.68 The waste will be classified as a clinical waste (with reference to the definition in the Controlled Waste Regulations) if it may cause infection to any person

or animal coming into contact with it (that is, if it presents any risk of infection).

*Hazardous or non-hazardous waste*

4.69 Healthcare waste will **always** be classified as hazardous (with reference to the definition in the Hazardous Waste Regulations) if it is:

- a clinical waste as indicated elsewhere in step 4 (see 'Key points' below);
- dangerous for carriage under UN 3291 or other infectious substance UN number.

**Key points:**

A clinical waste that is considered infectious for carriage purposes (for example, UN 3291) **must** possess the hazardous property H9: Infectious;

The **only** healthcare wastes that can be both clinical and non-hazardous waste are non-cytotoxic and non-cytostatic medicines.

*EWC codes*

4.70 These are assigned to infectious waste dependent on the source of the waste, as illustrated below:

- Infectious waste from human healthcare is classified as 18 01 03\*.
- Infectious waste from animal healthcare is classified as 18 02 02\*.
- Non-healthcare-related infectious waste from municipal sources is classified as 20 01 99.

**Note: Segregation of infectious and non-infectious waste**

1. In Scotland and Northern Ireland, segregation of infectious and non-infectious waste is best practice.

In England and Wales, mixing is prohibited.

Therefore, producers must segregate infectious waste from other wastes, and the sub-types of infectious waste indicated in this document must be segregated from each other. Where offensive waste segregation is not implemented in treatment areas (rather than sanitary facilities), the resultant waste stream will contain mixed offensive and infectious waste. This waste must be classified and described as such.

Producers are reminded of their statutory duty to use a suitably authorised disposal facility and are advised that alternative treatment plants are not normally permitted for this mixed waste. Producers who have

not implemented offensive waste segregation in treatment areas (rather than sanitary facilities), and who are using non-incineration technologies for disposal, are advised to review both their segregation procedures and the disposal site's authorisation.

The cost implications and carbon impact of managing the mixed waste should also be considered. If non-infectious waste is mixed with infectious waste and treated as such, it is being treated unnecessarily, requiring energy during this process. Energy efficiency is normally taken into account when waste disposal permits are issued.

2. 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 Health Technical Memorandum.

#### Step 4(i): Is the waste a culture or enrichment, or pathogen or its toxin?

- 4.71 All cultures, enrichments or diagnostic samples (discarded) known or suspected to contain viable microbial pathogens or their toxins render the waste "H9: Infectious". This element of the waste is:
- clinical waste; and
  - hazardous waste.
- 4.72 The EWC codes 18 01 03\* or 18 02 02\* should be assigned.
- 4.73 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"). See the '[Research and laboratory facilities](#)' sector guide for further information.

The following is an excerpt from WM2, which may assist in undertaking the assessment specified in steps (ii)–(iv) of [Figure 7](#) and Steps 4(ii)–4(iv).

"*Special requirements*" (and H9 infectious) apply to healthcare wastes where any of the following apply.

- (i) the source person or animal is known or suspected to have a disease/infection caused by a microorganism or its toxin **and** the waste is likely to contain the viable infectious agent or toxin.

- (ii) the waste is, or is contaminated with, a culture or an enrichment of a microorganism or its toxin that may cause disease in man or other living animals.
- (iii) the healthcare waste "*may cause infection to any person (or other living organism) coming into contact with it*". (Note this step refers to the definition of a clinical waste.)

This should be determined by clinical assessment of each item and source patient, as follows:

Clinical assessment should be carried out by a healthcare professional who is familiar with the type of waste generated, the current medical condition and, where feasible, the past medical history of the patient.

It is unlikely that it will always be practical or possible to identify specific pathogens or toxins within the waste when a patient first presents symptoms, as definitive laboratory identification requires time to undertake. The procedure for determining whether a waste is considered hazardous by H9 must therefore, where this is the case, assume that the disease causing agent has not been confirmed, and should be based on clinical assessment of whether an unidentified infection of any type is suspected or known. Laboratory identification is not required to assess the waste for H9.

All pathogens and microbial toxins should be included in the assessment. H9 does not consider the severity of the disease.

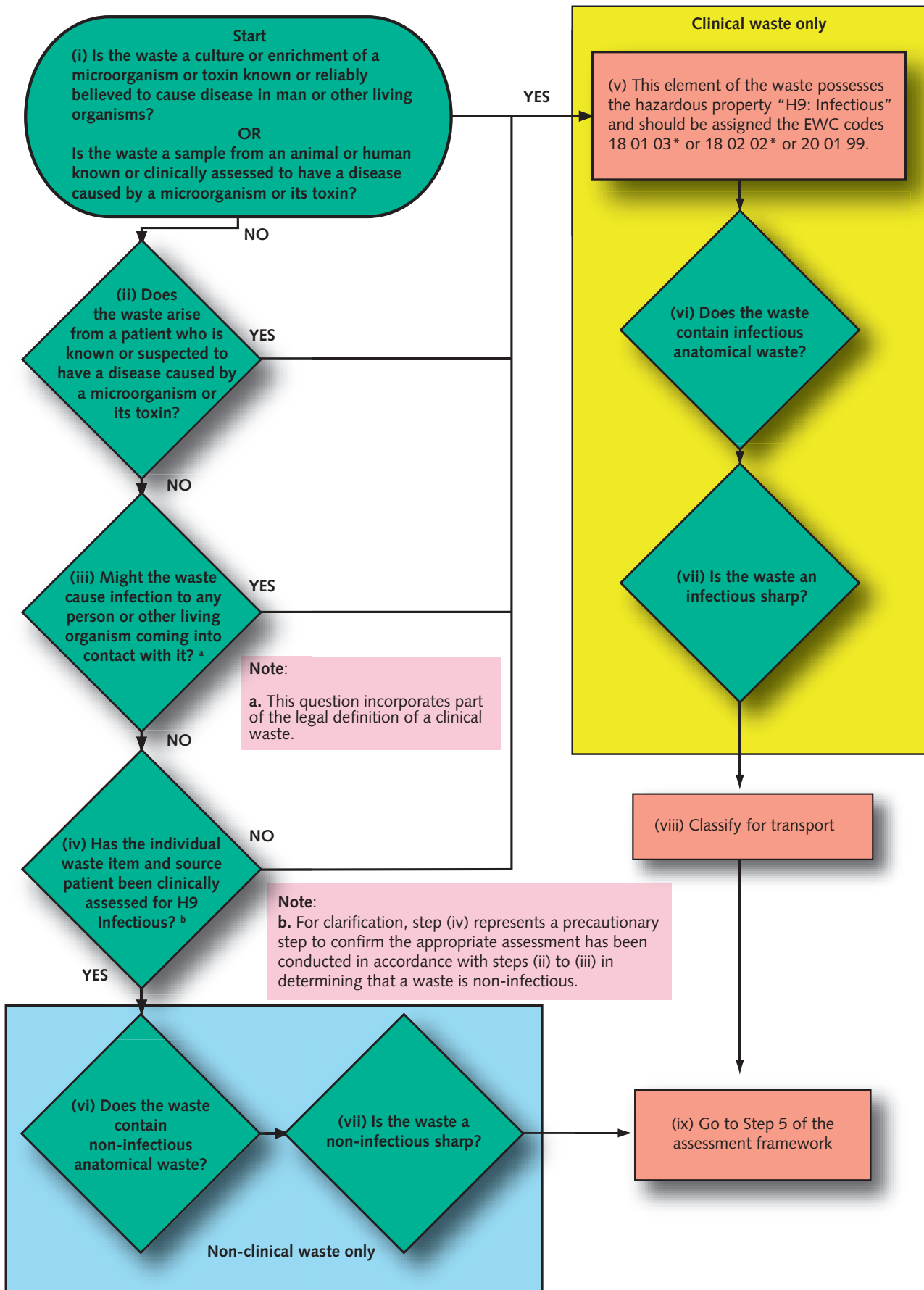
Note that any underlying or secondary infections, previously diagnosed by a healthcare worker, may also generate waste that is subject to assessment for special requirements.

#### Step 4(ii): Does the waste arise from a patient who is known or suspected to have a disease/infection caused by a microorganism or its toxin?

- 4.74 The term "known or suspected" relates to diagnosis and treatment rather than laboratory identification. Therefore, where a patient presents with symptoms that may have several causes, one of which is an infectious agent, an infection is "suspected". 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. The assessment of the waste does not require the identification of a pathogen; the fact



Figure 7 Assessment and classification of infectious waste



that the symptoms may be caused by a pathogen of any type is sufficient.

- 4.75 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 included. 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”.

### Note

The previous two paragraphs refer to the assessment for a hazardous waste based on the presence or suspected presence of infection based on appendix C9 of WM2 on hazardous property “H9: Infectious”.

- 4.76 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 (the subsequent steps in the assessment framework must be followed before that can be considered). Table 2 is provided to illustrate some examples relevant to this step.

### Step 4(iii): May the waste cause infection to any person, or other living organism, coming into contact with it?

- 4.77 Essentially, is there any other reason why the waste may cause an infection and therefore be considered a clinical waste? The waste producer, through patient and item-specific risk assessment, may identify reasons other than those outlined above why the waste is infectious (for example, waste from emergency treatment where there is insufficient knowledge of the source patient's condition to conclude the material is non-infectious). In these circumstances, the producer has identified that the waste possesses a property

**Table 2 Examples of the application of step (ii) of Figure 7 (infectious)**

<b>(ii) Does the waste arise from a patient who is known or suspected to have a disease caused by a microorganism or its toxin?</b>	
<b>Yes</b>	<b>No</b>
<p>Examples of where waste from a specific patient with a specific disease caused by a microorganism or its toxin is likely to generate infectious waste. For example:</p> <ul style="list-style-type: none"> <li>waste from infectious disease cases;</li> <li>waste from wound infections;</li> <li>hygiene products from patients with urinary tract infections;</li> <li>waste from patients with diarrhoea or vomiting caused by infectious agents or toxins (for example noroviruses and <i>Clostridium difficile</i>);</li> <li>blood-contaminated dressings from a patient with HIV, hepatitis B or other infection that may be present in the blood;</li> <li>respiratory materials from patients with open pulmonary tuberculosis, influenza or other respiratory infections;</li> <li>waste contaminated with body fluids from patients with known or suspected microbial diseases, likely to be contained in the body fluids.</li> </ul>	<p>The individual patient is not suffering from an ailment or displaying any symptoms that might be caused by a microorganism or its toxin.</p> <p>The waste is not contaminated with any material from a patient.</p> <p>The waste is from patients known to be colonised with microorganisms (including multi-resistant organisms) but no infection is present.</p> <p><b>Note: Users need to proceed to steps (iii) and (iv) for further consideration before concluding “non-infectious”.</b></p>

### Notes:

Any waste classified as Category A or B wastes for transport will be deemed infectious.

Waste from single rooms used for isolation of infection may be classified as infectious where risk assessment indicates that this is appropriate.

that renders it clinical waste and that a reduction in the number of microbes is required.

- 4.78 In reaching that conclusion, the producer has assessed the waste in a manner that would also result in this assessment framework assigning the hazardous property “H9: Infectious” to the waste (the definition of clinical waste is used in the assessment of “H9: Infectious” by WM2).
- 4.79 This step provides the healthcare worker with the ability to apply a precautionary approach to contaminated items; that is, if they are uncertain, they may classify it as infectious. This would not, however, extend to uncontaminated items.
- 4.80 Where the patient is not known or suspected to have a disease caused by a microorganism (under step (ii) above), clinical judgement can be used in the assessment. The healthcare professional should

apply their professional judgement to the knowledge of the source patient in question and the item of waste produced. If they believe that the item in question from that patient presents no risk of infection, then it is not clinical waste (as a result of a risk of infection). The same decision can reasonably be applied elsewhere if circumstances repeat, giving limited scope to applying the specific decision more widely to similar groups of patients/items. So, for example, it may be decided that incontinence wastes contaminated with urine and faeces from a patient in an elderly care ward are not infectious because the patient is not known or suspected to have an infection that would result in the pathogen being present in those excretions. This approach could then reasonably be applied to other patients in same unit. Table 3 is provided to illustrate some examples relevant to this step.

**Table 3 Examples of the application of step (iii) of Figure 7 (infectious)**

(iii) Might the waste cause infection to any person or other living organism coming into contact with it? (Note: this question incorporates part of the legal definition of a clinical waste)	
Yes	No
<p>Any healthcare waste contaminated with blood, pus, wound exudates and similar substances is regarded as presenting a risk of infection.</p> <p>This would not apply if both of the following were true:</p> <ul style="list-style-type: none"> <li>it was known that the individual source patient <b>does not</b> (eg as a result of pathology tests or clinical assessment) have an infection that might result in pathogens contaminating the waste; <b>and</b></li> <li>no other risk of infection was identified (such that the material is not considered a clinical waste).</li> </ul>	<p>This will include urine-, sputum-, vomit- and faecally-contaminated materials (including urine bags, incontinence pads, single-use bowls, nappies, PPE) where the answer to question (ii) was “no” after appropriate item- and patient-specific assessment.</p> <p>Sufficient information (eg from pathology tests or clinical assessment) is known about a specific item contaminated with blood from a particular patient to classify an individual item as non-infectious. Examples of this might include:</p> <ul style="list-style-type: none"> <li>blood transfusion items;</li> <li>maternity, sanitary and placental waste where pathology tests have confirmed or clinical assessment has assessed that no infection is present and no other risk of infection exists;</li> <li>dressings contaminated with blood where there is sufficient knowledge of the patient for the assessment to conclude ‘not infectious’ (eg it is known that no blood-borne viruses or other infectious agents are present);</li> <li>faecally-contaminated pads, nappies or similar items where pathology tests or clinical assessment indicate no gastro-intestinal infection.</li> </ul> <p><b>Note: If the answer to this question is “no”, the material is being declared as:</b></p> <ul style="list-style-type: none"> <li><b>not a clinical waste; and</b></li> <li><b>not infectious for carriage (eg UN 3291); and</b></li> <li><b>suitable for landfill without further treatment.</b></li> </ul> <p><b>Users need to proceed to step (iv) for further consideration before concluding “non-infectious”.</b></p>

**Further advice on infectious healthcare waste classification**

The results that determine whether a waste is classified as infectious or non-infectious would be expected to be the same regardless of the healthcare setting (whether in the acute hospital or in a community environment).

If an item is contaminated, for example with a body fluid, it may be classified as either infectious or non-infectious based on step 4 of the assessment framework. If it is uncontaminated, it should not be classed as infectious. Examples of contaminated items are swabs, bandages, incontinence pads, protective clothing (soiled gloves, aprons). Uncontaminated items may include protective clothing (uncontaminated gloves, aprons, for example, used when serving food) and outer dressings not contaminated with body fluids.

If the assessment has been implemented correctly, the majority of both uncontaminated materials and materials soiled with lower-risk contaminants (such as urine, faeces, vomit and sputum) would be classified as non-infectious and therefore non-clinical waste. The assessment would, however, also be expected to classify a minority of this contaminated material as infectious and therefore clinical waste. A healthcare organisation classifying all of their waste materials under only one of these categories is almost certainly assessing the waste incorrectly.

Conversely, the assessment would be expected to class the majority of higher-risk contaminants (for example blood, pus, wound exudates etc) as presenting a risk of infection and therefore as infectious and clinical waste. In some circumstances, the practitioner may have sufficient knowledge to classify waste from an individual patient as non-infectious as a result of item- and patient-specific assessment. It is expected that a practice may have sufficient knowledge to classify a minority of such material as non-infectious. A healthcare organisation classifying the majority of the materials as non-infectious is almost certainly assessing the waste incorrectly.

**Step 4(iv): Has the individual waste item and source patient been clinically assessed for “H9: Infectious”?**

- 4.81 Municipal producers or holders are not expected to have the expertise or patient knowledge to

undertake this assessment. In these circumstances, all waste contaminated with blood, pus, wound exudates and similar substances should be regarded as infectious. This does not extend to uncontaminated items or those containing or contaminated with faeces, urine, vomit or sputum, as these can be considered under the offensive assessment.

- 4.82 Healthcare producers are expected to undertake such assessments to discharge their legal obligations. Generic assessment of a waste stream does not meet the assessment requirements set out in WM2. If such assessment has not been conducted, the waste is classified as mixed infectious and non-infectious waste. Both EWC codes 18 01 03\* and 18 01 04, or 18 02 03 and 18 02 02\*, should be assigned, and the waste consigned as hazardous waste.

**Note**

This is not suggesting that such mixing is allowed; it simply identifies how the law requires such material to be managed once mixing has occurred.

- 4.83 In certain circumstances, assessment of the patient and item will not be practical for the healthcare worker: for example ambulance staff in emergency environments; dentists, dental therapists or dental hygienists without access to the patient’s full medical history. In these circumstances, all waste contaminated with blood, pus, wound exudates and similar substances should be regarded as infectious. In a dental setting, for example, saliva may be considered potentially infectious due to the presence of traces of blood. This does not extend to uncontaminated items. These activities would still be expected to generate a healthcare offensive waste stream. **Table 4** is provided to illustrate some examples relevant to this step.

**Table 4 Examples of the application of step (iv) of Figure 7 (infectious)**

<b>(iv) Has the individual waste item and source patient been clinically assessed for “H9: Infectious”?:</b>	
<b>Yes</b>	<b>No</b>
<b>Healthcare</b>	<b>Healthcare</b>
Blood transfusion bags.	Waste produced by ambulance staff engaged in emergency activities.
Placental and sanitary waste from a maternity unit where patients are screened for infections.	Domestic diabetic sharps received by community pharmacies.
Items not contaminated with secretions, excretions etc.	
<b>Municipal</b>	<b>Municipal</b>
Not applicable.	Sharps from substance abuse collected by local authorities.
	Sharps from body art.

**Step 4(v): This element of the waste possesses the hazardous property “H9: Infectious” and should be assigned the EWC codes 18 01 03\* or 18 02 02\* or 20 01 99**

4.84 At this stage, it has been decided that an element of the waste is infectious. It is assigned an EWC code dependent on source activity:

- human healthcare is 18 01 03\*;
- animal healthcare is 18 02 02\*.

4.85 These are both **clinical** and **hazardous** waste.

4.86 Where the waste arises from municipal activities that have no relation to provision or receipt of healthcare, the 20 01 99 code can be used. This is a clinical but non-hazardous waste. This applies to wastes such as sharps from body art and substance abuse, but not to diabetic sharps from domestic premises (which are healthcare).

**Step 4(vi): Does the waste contain an infectious or non-infectious anatomical waste?**

4.87 For the purpose of this Health Technical Memorandum, the definition of anatomical waste includes body parts or other recognisable anatomical items that may be offensive to those who come into contact with such items. These include:

- all human and animal tissue, as this is considered anatomical waste (being part of a body or organ), with the exception of very small unidentifiable pieces of skin or flesh incidentally

removed from treatment of wounds or during very minor surgery (for example mole removal, nail clippings etc);

- pieces of waste bone/tissue from maxillofacial surgery.

4.88 Further guidance is provided by the Human Tissue Authority’s ‘Code of Practice 5: disposal of human tissue’.

4.89 The two primary criteria for classification of anatomical waste are:

- Is it infectious waste?
- Is it, or has it, been preserved in chemicals (for example formaldehyde or alcohol)?

4.90 Where the anatomical waste has been, or is, preserved in chemicals, this will also need to be included in the waste classification and description. The assignment of EWC codes relating to the chemical content is dealt with in step 3 of the assessment framework.

#### *Infectious and mixed anatomical waste*

4.91 Healthcare waste producers who produce anatomical waste are likely to produce some that is infectious and some that is not. As this does not normally affect disposal requirements, this guidance does not recommend the item-specific assessment and segregation of anatomical waste into infectious and non-infectious.

4.92 Anatomical waste produced as a result of the proposed segregation will include some that possesses the hazardous property “H9: Infectious” and both clinical and hazardous waste. The appropriate EWC codes (see Table 5) would therefore be:

- both 18 01 03\* and 18 01 02 (human healthcare); or
- both 18 02 02\* and 18 02 03 (animal healthcare).

#### *Non-infectious anatomical waste*

4.93 Waste producers can implement item-specific assessment and segregation to divide their anatomical waste into infectious and non-infectious. UN 3291-labelled containers should not be used. In certain circumstances, human or animal tissue waste will arise where there is sufficient knowledge to classify it as non-infectious. An example might be placentas from maternity units,



where screening of mothers allows the small number of potentially infectious placentas to be segregated and classified separately.

- 4.94 The non-infectious element of the waste is non-clinical and non-hazardous waste after assessment of infectivity. The EWC code is dependent on the source of the waste:
- 18 01 02 if it arises from human healthcare;
  - 18 02 03 if it arises from animal healthcare.

#### *Segregation, packaging and labelling*

- 4.95 Anatomical waste must be segregated from other infectious waste streams and placed in very clearly labelled (as “anatomical”) rigid receptacles capable of containing bone, blood and other tissue fluids (see **Chapter 5, ‘Waste minimisation, segregation, colour-coding and storage’**). Waste documentation should specifically highlight the presence of this waste. Anatomical waste should not be disposed of in clinical waste bags due to the significant risk of it being confused with other waste types.
- 4.96 Where the tissue is not infectious, packaging may be defined by any chemical preservatives present. In any event, UN 3291 receptacles should not be used for non-infectious waste.
- 4.97 Further information on disposal arrangements and classification is provided in Chapter 5, ‘Waste minimisation, segregation, colour-coding and storage’.

**Table 5 EWC coding for anatomical waste**

EWC Code	Description of waste
<b>18 01</b>	<b>Waste from natal care, diagnosis, treatment or prevention of disease in humans</b>
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 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

#### **Step 4(vii): Is the waste an infectious or non-infectious sharp**

##### **What is a sharp?**

Sharps are items (or parts of items) of healthcare waste that could cause cuts or puncture wounds, including needles, the needle part of a syringe, scalpel and other blades, broken glass ampoules and the patient end of an infusion set.

Sharps waste does not include:

- syringe bodies (other than the needle) and the residual medicine they contain;
- medicinal waste in the form of bottles, vials, ampoules, opened ampoules;
- tubes or tablets etc, swabs or other soft infectious waste or anatomical waste;
- broken crockery/glassware from non-healthcare items (for example a coffee jar).

#### *Infectious sharps*

- 4.98 Sharps waste produced as a result of the proposed segregation will possess the hazardous property “H9: Infectious”. In some circumstances certain sharps that are not contaminated with body fluids may not be infectious. The main disposal and segregation consideration for sharps waste is medicinal contamination. Therefore this guidance does not recommend the item-specific assessment and segregation of the small proportion of sharps waste that is demonstrably non-infectious (see ‘Non-infectious sharps’ below).
- 4.99 This element of the waste is therefore clinical waste and possesses the hazardous property “H9: Infectious”. 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; and
  - 20 01 99 if it arises from non-healthcare activities (for example drug litter, body piercing and tattooists).
- 4.100 The classification of the medicinal element of medically-contaminated syringes is addressed in step 2 and the appropriate medicinal EWC codes will have been assigned. Producers should implement the segregation of:

- cytotoxic and cytostatic contaminated sharps (for example both 18 01 03\* **and** 18 01 08\* or 18 02 02\* **and** 18 02 07\*) from
- other medicinally contaminated sharps (for example both 18 01 03\* **and** 18 01 09 or 18 02 02\* **and** 18 02 08) from
- non-medicinally contaminated sharps (for example 18 01 03\* or 18 02 02\*).

### *Non-infectious sharps*

- 4.101 Producers may implement item-specific assessment and segregation of the small proportion of (non-infectious) sharps that are not contaminated with either medicines or body fluids, where this affects disposal options. These would be the only circumstances where the use of the single 18 01 01 and 18 02 01 codes would be appropriate (see [Chapter 5, 'Waste minimisation, segregation, colour-coding and storage'](#) on disposal options for sharps waste).
- 4.102 In using these codes, a producer is legally certifying that the waste is not a clinical waste, as it poses no risk of infection. As a result of the assessment of their infectious properties:
- they are not clinical waste;
  - they are not hazardous waste;
  - they are not dangerous for carriage (for example UN 3291);
  - the EWC codes 18 01 01 (human healthcare), 18 02 01 (animal healthcare) or 20 01 99 (municipal) are assigned as appropriate.
- 4.103 Sharps contaminated with body fluids (for example blood) should be classified as infectious. To consider classifying any such items as non-infectious, sufficient information about the individual source patient should be known to conclude that there is no risk of infection and that the waste is not clinical waste. For example, if policy or practice (including those of waste contractors) includes any prophylaxis as a result of needle-stick injuries with these items, a risk of infection has clearly been identified and consequently this material must be classified as infectious. If any of this material is classified as non-infectious, the assessment should be supported by robust written procedures and records, as it could be challenged by the regulator.
- 4.104 Sharps from non-healthcare municipal sources (for example application of tattoos or substance abuse)

possess the hazardous property “H9: Infectious” and are clinical waste because there will be insufficient knowledge to assess the waste for infectivity (see step iv). They cannot be considered under this step.

- 4.105 This waste must be packaged and labelled in receptacles that clearly identify the presence of sharps (see Chapter 5, ‘Waste minimisation, segregation, colour-coding and storage’). The waste must not be packaged or labelled in UN 3291 receptacles.

### **Note**

Guidance on sharps used by self-medicating patients can be found in the ‘[Community healthcare](#)’ sector guide.

### **Step 4(viii): Classification for transport**

- 4.106 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 that 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 that does not meet the criteria for inclusion in Category A.
- 4.107 Waste that 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 [Chapter 12, 'Carriage information: Category A pathogen list'](#)).
- 4.108 With the exception of certain laboratory wastes, 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 (see [Chapter 7, 'Transport packaging and operations'](#) for the classifications used for infectious waste in the Carriage Regulations).
- 4.109 Where the waste is not assigned the hazardous property “H9: Infectious”, it must not be described or labelled as a clinical waste with infectious properties (for example UN 3291) for carriage. If the waste is clinical waste for other



reasons (specifically the presence of medicines or chemicals), these should be considered to determine the appropriate transport requirements that apply.

## Note

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.

Where a waste contains multiple elements with different classifications, the waste is mixed and each element must be described and classified separately.

## Step 5

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

- 4.110 Steps 2–4 provide an assessment of each element of the waste for the three properties that define hazardous and clinical waste status. Step 5 reviews these results.
- 4.111 Where an element of the waste is identified as a clinical and/or hazardous waste due to any one or more of these properties, this classification applies.
- 4.112 Where a waste arises with multiple elements of different classifications, the waste is deemed mixed, and each element must be described and classified separately.
- 4.113 If the waste contains any elements that steps 2–4 have indicated, it:
- is not clinical waste;
  - is not hazardous waste;
  - has not been assigned EWC codes by steps 2–4.
- 4.114 These elements can be assessed for offensive properties. If found to be offensive, these elements must also be classified and described accurately.

## Step 6

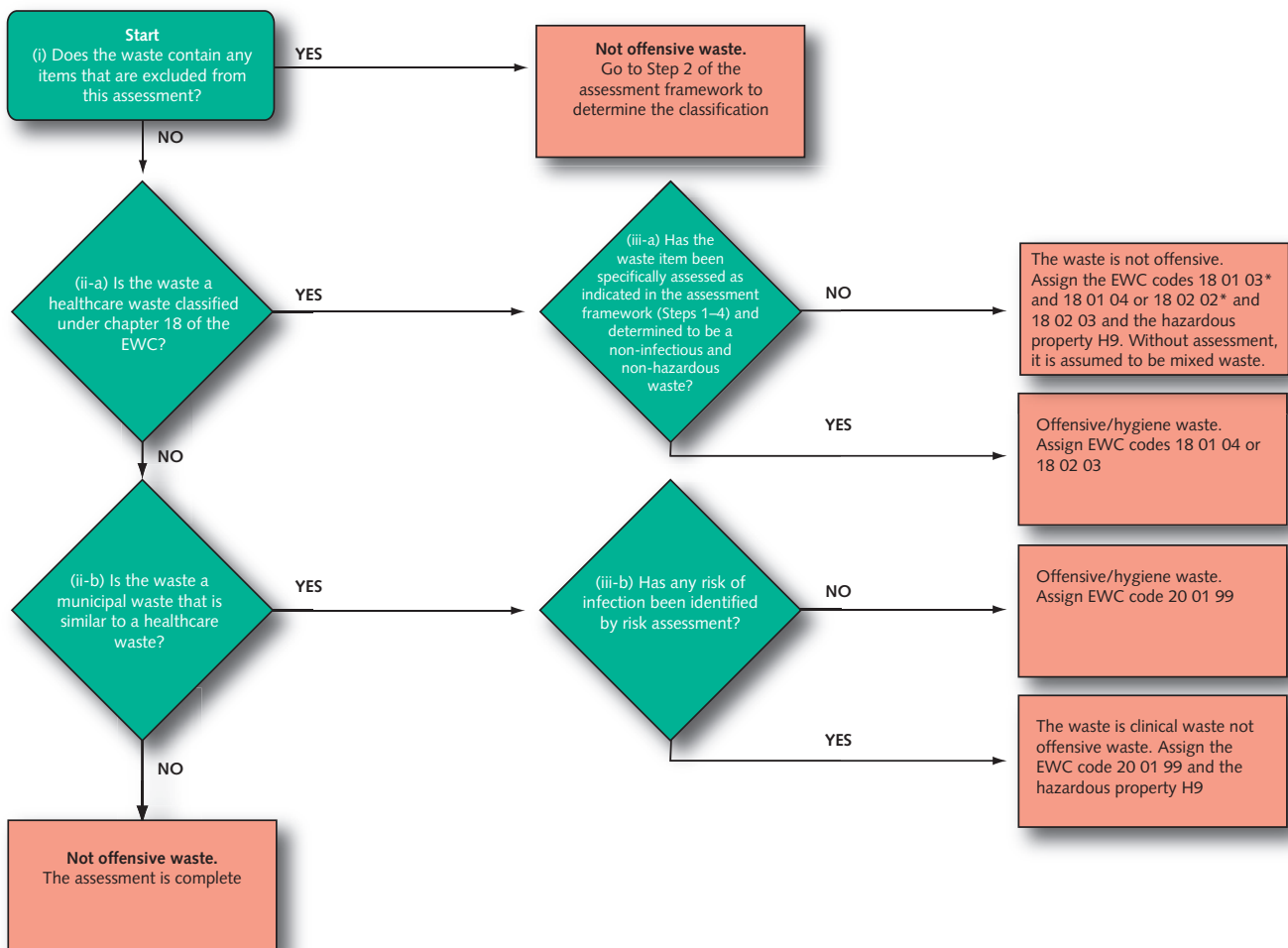
### Step 6: Assessment of offensive/hygiene properties

## Note

Figure 8 and step 6 explain how nappies, incontinence pads and similar items are not always clinical/infectious waste and can often be classed as offensive. Incontinence pads are not generally regarded as infectious waste unless patients have a urinary tract infection. Classifying pads and nappies correctly and separating them out is probably the biggest saving that can be made in waste management. This is possibly one of the biggest opportunities to reduce wasted energy used in unnecessary treatment of non-infectious wastes and potentially introduce significant cost savings.

- 4.115 This step provides a suitable assessment for offensive/hygiene waste. The following assessment is supported by a flowchart (see Figure 8). 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.
- 4.116 Offensive/hygiene waste includes waste previously described as human hygiene waste and sanpro waste. Potentially offensive/hygiene waste may include (see also Tables 3 and 4):
- incontinence and other waste produced from human hygiene;
  - sanitary waste;
  - disposable medical/veterinary items and equipment that do not pose a risk of infection, including PPE (that is, items that are not clinical waste);
  - animal faeces and soiled animal bedding.
- 4.117 Offensive/hygiene waste is assessed very differently depending on source:
- Waste items from healthcare activities must be assessed for steps 2 (medicinal), 3 (chemical)

Figure 8 Assessment and classification of offensive waste



and 4 (infectious) to confirm that they are not clinical waste before offensive properties can be considered.

- In contrast, waste items from municipal sources are assessed for offensive properties, with steps 2–4 being considered only where directed by this assessment.

**4.118** At the end of this assessment, waste items classified as offensive/hygiene waste are classified as non-hazardous, and non-clinical waste under the following EWC codes:

- 18 01 04 (human healthcare);
- 18 02 03 (animal healthcare); or
- 20 01 99 (municipal).

**4.119** Offensive/hygiene waste is not infectious; therefore, for transport purposes, it is not classified as dangerous goods.

#### Step 6(i): Does the waste contain any items that are excluded from this assessment?

**4.120** The offensive/hygiene waste stream should not include any of the following:

- sharps;
- human/animal body parts, organs or blood products;
- pet carcasses;
- waste chemicals;
- medicinal waste that consists of pharmaceutically-active substances;
- any waste item already classified in steps 2–4.

**4.121** If any of the above items are present, that element of the waste cannot be offensive/hygiene waste. For assessment of such items (unless already classified by those steps), steps 2–5 of the assessment framework need to be followed.

4.122 Any items of non-hazardous domestic-type waste found in any waste stream should be coded 20 03 01. These include handtowels from washing and drying of hands in wards, newspapers, flowers, food and drink etc, but exclude batteries, which should be coded separately (as should other hazardous wastes).

4.123 The following items are also excluded from the assessment and dealt with under 'Specific waste types'. Step 4 of the assessment framework may apply in some cases:

- dental amalgam;
- gypsum (plaster).

### Summary of advice for non-healthcare waste producers

#### *Sharps*

Syringes and needles are sharps arising from:

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

This waste is not considered to arise from healthcare and so is classified in the EWC as a separately-collected municipal fraction (20 01 99). Items of substance abuse are typically treated as clinical waste due to the risk of infection, and possess the hazardous property H9. For duty-of-care purposes, any potentially 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*

Soft waste includes swabs, small dressings and cotton wool contaminated with body fluids arising from:

- cosmetic piercing; and
- other body art.

It also includes hygiene waste from boarding kennels, dog faeces collection bins and catteries.

This waste should be segregated, for duty-of-care purposes, as offensive/hygiene waste where it is generated in large quantities (that is, in excess of 7 kg would be a reasonable indicator). 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 (that is, less than 7 kg is usually a

reasonable indicator) should it be disposed of in the black-bag stream with other waste.

Offices, childcare facilities, public conveniences, schools and shops would not normally be considered to be clinical waste producers. Appropriate risk assessments and procedures should be in place to identify those circumstances (for example an outbreak of gastroenteritis) where this may not be the case.

### Step 6(ii)a: Is the waste a healthcare waste classified under chapter 18 of the EWC?

4.124 The purpose of this step (a) is to differentiate the assessment requirements for healthcare waste from those of similar wastes arising from municipal sources. Healthcare wastes are classified under chapter 18 of the EWC and are required to be subjected to rigorous assessment through steps 2–4 of the assessment framework to determine whether they are:

- clinical waste;
- hazardous waste; or
- dangerous for carriage.

4.125 Waste arising from healthcare provision in the community, even if self-administered by the patient, is a healthcare waste and not a municipal waste. Healthcare waste will also include any waste produced by activities that require a medically-qualified practitioner (for example some cosmetic procedures).

### Step 6(ii)b: Is the waste a municipal waste that is similar to a healthcare waste?

4.126 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 householders and non-healthcare workers are likely to have a limited knowledge of this area.

4.127 Domestic premises produce a range of minor first-aid and self-care items that do not involve recourse to a healthcare practitioner. These are assumed to be non-infectious unless a healthcare practitioner indicates otherwise. Therefore, soiled waste such as nappies, sanitary products, small dressings and plasters are not considered to be infectious unless a healthcare practitioner gives the domestic householder advice to the contrary.

4.128 Waste similar to waste from households, 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, minor dressings and plasters are not considered to be infectious unless a specific risk is identified (eg an outbreak of diarrhoea at a day care nursery) or a healthcare practitioner gives specific advice to the contrary. Where a healthcare worker becomes involved in provision of treatment or care, the waste will normally become healthcare waste.

**4.129** Waste from first-aid and other non-healthcare sources covers a wide range of activities. However, for classification as municipal waste, the item must either be produced by a domestic householder or be similar to that from a domestic household. Therefore, the following wastes should not be classified under chapter 20 of the EWC, the codes for such wastes from medical practices should be used instead:

- waste items produced as the result of a procedure that requires a medically-qualified person to conduct it (for example some cosmetic procedures); or
- waste items substantially different in type or quantity/size to that which would typically be produced by a domestic household without healthcare involvement (for example large dressings, bandages and X-ray wastes).

**4.130** Waste contaminated with non-infectious body fluids is capable of causing offence and therefore requires appropriate packaging to alert those in the waste management chain of the contents. This is offensive/hygiene waste.

#### Step 6(iii)a and b: Assessment for offensive properties and risk of infection

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

#### For healthcare waste

#### Step 6(iii)a: Has the waste item been specifically assessed as indicated in the assessment framework (steps 1–4) and determined to be a non-infectious and non-hazardous waste?

**4.132** Wastes arising from animal or human healthcare (including those produced in domestic households and other community sources) must first be assessed using steps 2–4 of this assessment

framework to determine whether they can be considered for offensive properties.

- 4.133** Only if the waste item and patient have been specifically assessed and the waste 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.
- 4.134** 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. The EWC codes 18 01 04 or 18 02 03 should be assigned.
- 4.135** If the healthcare organisation has not implemented segregation of offensive hygiene waste, or if assessment has not been conducted, the waste has not been segregated appropriately and is therefore classified as mixed infectious and non-infectious waste. The EWC codes 18 01 03\* and 18 01 04, or 18 02 03 and 18 02 02\*, should be assigned and the waste should be consigned as hazardous waste.

#### Note

This is not recommending that the wastes be mixed; it identifies how the law requires producers to manage such waste after it has been mixed.

**4.136** **The disposal of offensive healthcare waste (18 01 04/18 02 03) by a healthcare professional in the mixed municipal waste (20 03 01) bag may constitute an offence under duty of care.**

**4.137** Only where the healthcare worker is working away from the practice, in the community, is limited provision made for placement of certain offensive waste items similar to those produced by the householder in mixed municipal waste. See [paragraph 19, 'Part 2: non-infectious dressings'](#) in the 'Community healthcare' sector guide for clarification on small quantities potentially acceptable for inclusion.

#### For wastes other than healthcare waste

#### Step 6(iii)b: Has any risk of infection been identified by risk assessment?

#### Domestic premises

**4.138** Waste (other than those identified above) from domestic premises is assumed to present no risk of

infection unless an indication to the contrary is provided by a healthcare professional.

- 4.139 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. The ‘Community healthcare’ sector guide provides further information.

#### Municipal premises other than domestic

- 4.140 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).
- 4.141 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.
- 4.142 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.
- 4.143 Waste contaminated with non-infectious body fluids is capable of causing offence and therefore requires appropriate packaging to alert those in the waste management chain of the contents. Such types of waste should 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

Care homes that provide nursing or medical care and animal quarantine facilities are considered to produce healthcare waste and are assessed as such under step 6(i).

#### EWC classification, waste description and packaging

- 4.144 The EWC code assigned to the offensive/hygiene waste depends on the source activity (see Table 6). 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 or municipal incineration”.
- 4.145 The disposal of offensive healthcare waste (18 01 04/18 02 03) by a healthcare professional in the black bag waste stream may cause a number of problems or offences to be committed. The following checks should be made for duty of care if this occurs:
- the waste must be transferred to the carrier, and by the carrier to the end disposer, as mixed offensive healthcare waste and mixed municipal waste (coded both 18 01 04 and 20 03 01);
  - the mixed waste is managed by the contractor in accordance with the HSE guidance on managing offensive/hygiene waste;
  - if destined for landfill, the pre-treatment requirements for landfill of healthcare waste are met for the 18 01 04 material, which is not covered by the pre-treatment criteria applied to the mixed municipal waste element; and
  - if destined for landfill, the mixed waste is managed at the landfill as a difficult waste.

Table 6 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, e.g. dressings, linen, faecally-contaminated items where assessed to be non-infectious, single use clothing (see Table 2)	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 (see Table 2)	Yellow/black or For small quantities only – black bag



## Specific waste types

4.146 Please see below for information on specific types of waste.

### Amalgam waste

4.147 See the '[Dental practices](#)' sector guide and Defra's guidance on dental amalgam.

### Medical devices

4.148 A medical device is 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

4.149 Where implanted medical devices have been in contact with body fluids and have been assessed to be infectious, they should be disinfected or the infectious part removed. Only if this is not possible should the whole be classified and treated as infectious waste.

4.150 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 – H9: Infectious and potentially H6 toxic, H7 carcinogenic, H8 corrosive, H10 toxic for reproduction, H11 mutagenic, H13 sensitising, and H14 ecotoxic arising from cadmium, nickel and potassium hydroxides).

4.151 The waste description should accurately describe the waste.

### Disinfected/unused medical devices

4.152 Where it is feasible to disinfect medical devices, these disinfected medical devices should be classified as non-infectious healthcare waste. The description given to the waste must adequately describe the waste and any hazardous characteristics (even if the waste is not classed as hazardous waste). See also Health Technical Memorandum 01-01: 'Decontamination of reusable medical devices in acute care' or the local infection control team.

### Note

Further guidance on alternative treatments is provided in [Chapter 9, 'Treatment and disposal'](#). Some large implants may not be suitable for treatment at certain alternative treatment facilities due to their size (for example, hip implants may not be suitable and may damage the facility). It may be possible that these devices are disinfected on site and, therefore, possible options for decontamination may be provided. Batteries may also be disinfected and sent for recycling. It may be possible to trial this in units that deal with a large number of implants, such as radiological intervention suite/theatres.

4.153 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 (potentially H6 toxic, H7 carcinogenic, H8 corrosive, H10 toxic for reproduction, H11 mutagenic, H13 sensitising, and H14 ecotoxic arising from cadmium, nickel and potassium hydroxides)". The waste description should accurately describe the waste. Other classifications within sub-chapter 16 02 may apply to disinfected electrical devices. A device may also have sharp cut-off leads from extraction and therefore should

be classified as a sharp and disposed of appropriately.

## Implants

- 4.154 Special care should be taken when removing 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.
- 4.155 Such implants should be deactivated, removed with consent, decontaminated, and disposed of in a safe manner in the hazardous waste stream.

### 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.

- 4.156 Protocols for the removal of implants should be determined locally. Local cardiac units, manufacturers/suppliers and funeral directors should be consulted. Helpful guidance has been 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 (MHRA) in its circular MDA SN 2008/068).
- 4.157 Disposal may include return to the manufacturer or cardiac unit to access stored data (see also [Chapter 5, 'Waste minimisation, segregation, colour-coding and storage'](#)). The receiving authority needs to be aware of duty-of-care implications. Reference to decontamination procedures and appropriate protocols for returning equipment should be provided by the receiving authority.

## Radioactive waste

- 4.158 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.

- 4.159 Radioactive waste generated from healthcare includes radionuclides used in therapeutic and diagnostic medicine. This waste is considered to be low-level radioactive waste and is subdivided into three categories:

- long half-life:  $^3\text{H}$ ,  $^{14}\text{C}$ ;
- radioiodines:  $^{123}\text{I}$ ,  $^{125}\text{I}$ ,  $^{131}\text{I}$  (any mixed waste containing radioiodine will be in this category);
- other Beta/Gamma emitters:  $^{89}\text{Sr}$ ,  $^{35}\text{S}$ ,  $^{32}\text{P}$ ,  $^{51}\text{Cr}$ ,  $^{201}\text{Tl}$ ,  $^{111}\text{In}$ ,  $^{67}\text{Ga}$ ,  $^{99\text{m}}\text{Tc}$ ,  $^{57}\text{Co}$ ,  $^{75}\text{Se}$ ,  $^{65}\text{Zn}$ ,  $^{59}\text{Fe}$ ,  $^{22}\text{Na}$ ,  $^{24}\text{Na}$ ,  $^{45}\text{Ca}$ .

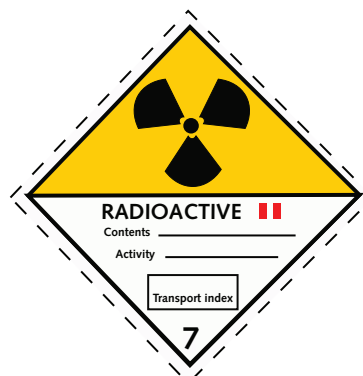
- 4.160 The EA, SEPA and NIEA regulate the storage and use of radioactive material in hospitals. Radioactive waste is regulated in accordance with the Environmental Permitting Regulations in England and Wales and the Radioactive Substances Act in Scotland and Northern Ireland.

- 4.161 If radioactive waste is exempt from the requirements of the Environmental Permitting Regulations or the Radioactive Substances Act because it is below the threshold, but has one or more hazardous properties, this waste will be a hazardous waste where classified as such in the EWC (that is, the radioactivity is not the hazard identified).

### Note

For information on the EWC description requirements for radioactive waste in Scotland, the local SEPA office should be contacted.

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





- 4.163 The Ionising Radiations Regulations specify that a radiation protection adviser (RPA) needs to be consulted and 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 (see [Chapter 7, 'Transport packaging and operations'](#)).

### Domestic (municipal) waste

- 4.164 For the purposes of this document, domestic waste means mixed municipal waste from healthcare and related sources that is the same as, or similar to, black-bag domestic waste from domestic households. Healthcare premises must not place any hazardous waste in this waste stream. The waste should therefore be non-hazardous and suitable for disposal by landfill (where pre-treatment requirements are met), municipal incineration with or without energy recovery, alternative municipal treatment processes, or via recycling streams.
- 4.165 This waste is classified as municipal waste in line with chapter 20 of the EWC. For example:
- 20 03 01 mixed municipal;
  - 20 01 25 edible oil and fat.
- 4.166 Healthcare organisations are also prohibited from mixing domestic-type waste in the clinical waste stream. The placement of clinical waste bags should be designed to remove (or at least minimise) patient and visitor access to them. Where a domestic-type waste does enter the clinical waste stream, producers are reminded of their duty of care. The mixed waste should be classified and described using the 20 03 01 EWC code and “mixed municipal waste” description in addition to the appropriate description for the clinical wastes present. This mixed waste should be disposed of at a suitably authorised facility.

### Blood transfusion bags

- 4.167 Blood transfusion bags would normally be regarded as a non-infectious waste. They are classified under the EWC as 18 01 02 waste; however, as this is shared with anatomical waste,

the waste description should make it very clear that this material is blood bags.

- 4.168 As a non-infectious waste, blood bags must not be placed in the clinical waste stream, as mixing is prohibited. As a liquid waste, they are prohibited from landfill and must not be placed in the offensive waste stream if that is landfilled. For small quantities, the contents of the transfusion bag should be discharged to foul sewer before the empty bag is disposed of in the offensive waste stream. The “empty” bag can be coded as 18 01 04 (human healthcare) or 18 02 03 (animal healthcare).

### Gypsum and plaster casts

- 4.169 Gypsum-rich wastes are likely to be produced as:
- plaster casts and related materials in accident and emergency departments, fracture clinics, and perhaps veterinary surgeries;
  - plaster models in dental practices and similar units in hospitals. They may also be produced by chiropodists/podiatrists.
- 4.170 Gypsum (calcium sulphate) will generate hydrogen sulphide gas from microbial action if it enters a normal mixed landfill. The two main disposal options for such wastes are:
- a. gypsum recycling; or
  - b. landfill in a separate cell of a landfill that has been set aside for such waste.
- 4.171 The vast majority of plaster casts and models are not infectious and must not be placed in the clinical waste stream. Gypsum plaster casts should not be placed in the offensive waste stream either. These should be segregated as a specific 18 01 04 gypsum waste stream.
- 4.172 Where a producer can demonstrate that they have segregated and separately disposed of most of the gypsum in this manner, the presence of a small number of genuinely infectious plaster items may also need to be segregated for separate disposal. In any event, it should be ensured that this material does not end up directly or indirectly in landfill.

## 5 Waste minimisation, segregation, colour-coding and storage

- 5.1 This chapter provides information on the segregation, colour coding and storage of different waste streams. It also provides advice on avoiding producing waste in the first place.
- 5.2 The legal requirements for transporting and packaging the waste when removed from site, in particular where a DGSA is required (this applies to most hospitals), is covered in [Chapter 7](#), 'Transport packaging and operations'.

### Note

Whilst every effort has been made to advise and describe the receptacles and packaging required, there may be instances where the item to be disposed of does not conform to the generic guidance. In these instances it would be appropriate to seek advice from your receptacle/packaging suppliers; waste disposal hauliers and contractors; and the appropriate Regulator(s).

### Waste minimisation

- 5.3 Although much of this guide is on managing waste once it has been produced, the best financial and environmental option is not to produce waste in the first place. This is because whether waste goes for recovery, recycling or disposal, it is still a product that the organisation has usually bought, handled and is then having to pay for disposal of. Avoiding producing the waste at all reduces both buying costs and disposal costs.
- 5.4 Waste policies should include a programme to critically review the volume and types of waste that are produced, and to identify and implement practical steps to reduce waste volumes.
- 5.5 Identifying where wastes are produced across a site is a first priority. This can take a systematic approach, for example mapping waste arisings, clearly asking why each waste stream is produced and identifying the underlying reasons for each. Areas of focus should cover waste arisings from hospital activities and waste generated by patients.

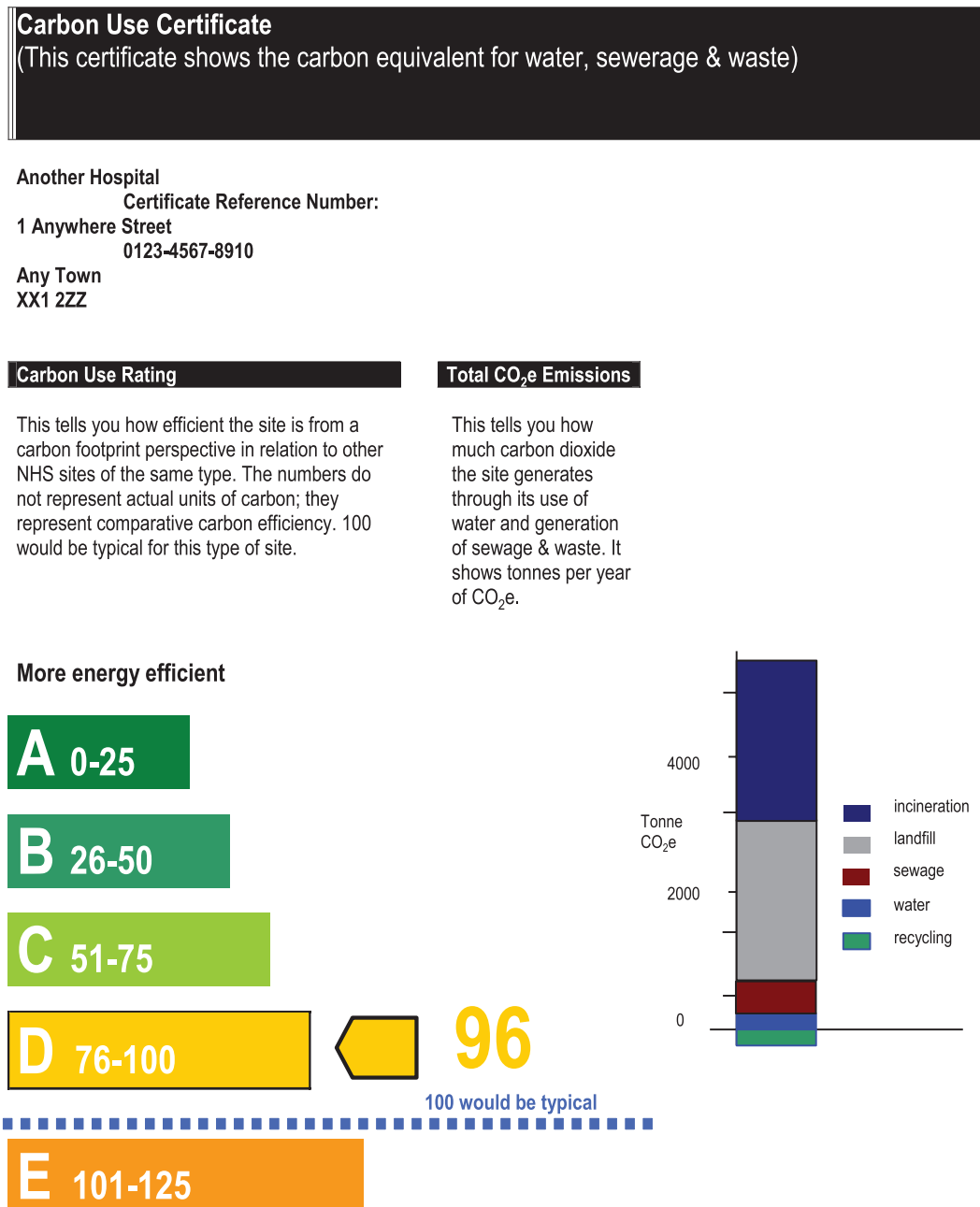
It should also cover wastes generated during normal operation and also non-routine circumstances.

- 5.6 Identifying the root causes for the generation of waste will require clear appraisal and open questioning. Root causes may also lie in decisions made elsewhere in the organisation, often at the procurement stage. For example, out-of-date products going to waste may be because of poor stock control in a department, or from theatre sets where often only one item is needed and then the whole tray has to be discarded because it is no longer sterile. It may also be because the procurement team bought too much of a product. This, in turn, may be because another department asked the procurement team to buy that volume in the first place.
- 5.7 When choices are made between products at the procurement stage, the environmental consequences need to be considered. It may be cheaper to buy a particular product, but savings could be lost simply because more waste is produced or it is harder to recycle/dispose of.
- 5.8 Finally, waste policies should have a clear and time-bound aim to reduce total waste arisings – regardless of where these wastes are eventually disposed of. This aim should be supported by practical delivery programmes and should address the root causes identified at review stage.

### Waste-derived carbon impact

- 5.9 A carbon indicator was developed to assist trusts in continuing to identify their wider carbon footprint. It was based upon the format that is now commonly recognised for indicating the energy efficiency of buildings and equipment such as white goods. [Figure 9](#) is an example produced by the Department of Health, issued in December 2009, and derived from Estates Returns Information Collection (ERIC) data. It can be used and updated locally by trusts.

Figure 9 NHS carbon use certificate



## Importance of waste segregation

**5.10** 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 colour-coded waste segregation guides (see **Figures 10 and 11**) represent best practice in Scotland and Northern Ireland and ensure compliance with current regulations. In

England and Wales, the prohibition on mixing means that the segregation of the different categories of waste presented in **Figure 11** is required to meet legal requirements (although the colour code remains best practice).

**5.11** The segregation of the different waste streams presented is necessary for the following reasons:

- In England and Wales, **mixing is prohibited** by law – the different categories of waste presented in **Figure 11** must be segregated. It represents

best practice in Scotland and Northern Ireland and ensures compliance with current regulations.

- **Health and safety:** reducing the risk of exposure and injury (for example needle-stick) for all staff handling these waste streams.
- **Environmental:** potential for waste minimisation, recycling, and decrease in waste previously incorrectly classified as infectious.
- **Financial:** potential reduction of hazardous waste through correct classification of offensive waste streams.
- **Carbon:** unnecessarily treating non-hazardous waste as hazardous can waste energy and associated carbon.
- **Duty of care:** the producer is legally required to classify and describe their waste. This is much simpler to comply with if the waste is not a mixture of several types. Failing to describe the mixed waste correctly often leads to its unauthorised disposal.

5.12 Different wastes have different disposal options; segregating the waste allows better management of the material (the legal requirement to segregate waste cannot be avoided – choosing to incinerate everything is not an option). To dispose of mixed waste legally can be very expensive and problematical.

5.13 In some circumstances, additional segregation of the waste into further categories may also be required (for example chemically-incompatible chemicals or medicines).

## Note

In addition, segregation is important to ensure that patient-identifiable data is correctly disposed of (that is, made unreadable). See [Chapter 8, 'Waste management licensing and permitting'](#).

## Case Study: Queen Margaret Hospital, Dunfermline

A case study at Queen Margaret Hospital in Dunfermline on how to reduce, reuse and recycle in renal units found just over £18,000 in cost savings. Improved segregation at source meant that more material went into the domestic waste stream for recycling rather than into the clinical waste stream.

Furthermore, the number of saline bags used was reduced, and expensive wash bowls that were disposed of after one use are now being washed out for reuse. Plastic canisters holding fluid for the dialysis process are now being recycled, diverting 20,000 canisters from landfill each year.

The use of saline and giving sets was reduced by stopping the unnecessary practice of hanging a bag for emergencies in favour of using the dialysis machine to produce the fluid needed for emergencies and reinfusion. This saved not only the carbon embodied in their manufacture, but also the emissions associated with their disposal. A bag of normal saline was costing the dialysis unit £0.52p, while a single giving set was costing £0.35p. During the course of the 10,764 treatments provided per year, the use of online substitution fluid saves £9364 (minus the small but less quantifiable cost of producing the exact fluid volumes online) in procurement costs alone.

Over the annual 10,764 treatments provided by the unit using Fresenius 5008 machines, this would result in a reduction in clinical waste of 21,528 kg – or 21.5 tonnes. As a relatively large producer of clinical waste, the Queen Margaret Hospital was charged at £323 per tonne of clinical waste, leading to an annual saving of £69,445.

## Colour-coding

5.14 The colour-coded segregation system outlined in this section identifies and segregates waste on the basis of waste classification and suitability of treatment/disposal options in line with classifications in [Chapter 4, 'Healthcare waste definitions and classifications'](#).

5.15 The use of this colour-coding system is not mandatory and is not specified in regulations. However, in England and Wales segregation of the waste categories set out in [Figure 11](#) is a minimum requirement arising from the legal prohibition of mixing, with additional segregation necessary in specific circumstances.









5.16 Producers should adopt this colour-coded system to aid the identification and segregation of their waste. By adopting the best practice system, standardisation can be achieved across the UK. This aids staff training (recognising the movement of staff between trusts), and helps waste contractors and the packaging industry.

- 5.17 This national colour-coded system should be adopted 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 in agreement with their suppliers/manufacturers.
- 5.18 Training to implement the new system and communicate the classification and storage is fundamental to successful implementation of the revised colour coding system. Further information on training is provided in [Chapter 6, 'Managing compliance'](#).
- 5.19 Although the use of the colour-code system is not a legal requirement, any alternative that is used should not conflict with those given here. Specifically, a colour provided here should not be used for different healthcare wastes, as this can result in confusion and mismanagement of the waste.
- 5.20 Reference is made to the minimum required standard of waste treatment/disposal. However, waste may be sent to alternative treatment/disposal methods that operate to an equivalent or higher standard. Any disposal facility should hold the appropriate permit suitable for the waste to be treated and with sufficient capacity (see [Chapter 9, 'Treatment and disposal'](#)).
- 5.21 The following healthcare waste types are included in this segregation guide:
- infectious waste;
  - anatomical waste;
  - medicinal waste;
  - cytotoxic and cytostatic waste;
  - sharps contaminated with cytotoxic/cytostatic products;
  - sharps contaminated with other medicinal waste products;
  - sharps which are potentially infectious;
  - offensive/hygiene waste;
  - domestic waste;
  - amalgam waste;
  - chemical waste (including laboratory, X-ray and photochemicals);
  - radioactive waste;
  - large equipment and mattresses;
  - implanted/infectious medical devices.
- 5.22 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.

## Container labelling

- 5.23 Each container must be labelled in accordance with the details of the legal requirements for transporting and packaging the waste (covered in [Chapter 7, 'Transport packaging and operations'](#)).
- 5.24 The container labels should clearly identify the waste type(s) present within. The purpose of this is to ensure that wastes such as anatomical wastes and medicines are not moved in anonymous yellow bins that may lead to their subsequent mismanagement.
- 5.25 In addition, the container should be tagged or labelled in a manner that identifies the individual producer. This is likely to be required by disposal sites. In the case of larger producers, best practice would be to include departmental identifiers.
- 5.26 It is not sufficient to label bulk containers, as waste is often removed from these carts during subsequent waste management in the waste chain, and bad practice can result in different waste types being placed in the same carts.
- 5.27 [Figure 11](#) identifies the different waste streams, EWC codes, classification, packaging and packaging colour required for each waste stream. It assumes that the packaging meets the requirements of the Carriage Regulations (UN-approved) where appropriate. ([Chapter 7, 'Transport packaging and operations'](#) provides guidance on compliant packaging.)

Figure 10 Colour coding key to segregation system


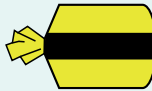
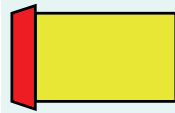
Colour	Description
 Yellow	<b>Waste which requires disposal by incineration</b> Indicative treatment/disposal required is <b>incineration</b> in a suitably permitted or licensed facility.
 Orange	<b>Waste which may be “treated”</b> Indicative treatment/disposal required is to be “rendered safe” in a suitably permitted or licensed facility, <b>usually alternative treatment plants (ATPs). However this waste may also be disposed of by incineration.</b>
 Purple	<b>Cytotoxic and cytostatic waste</b> Indicative treatment/disposal required is <b>incineration</b> in a suitably permitted or licensed facility.
 Yellow/black	<b>Offensive/hygiene waste*</b> Indicative treatment/disposal required is <b>landfill</b> or municipal <b>incineration/energy from waste</b> at a suitably permitted or licensed facility.
 Red	<b>Anatomical waste for incineration<sup>1</sup></b> Indicative treatment/disposal required is <b>incineration</b> in a suitably permitted facility.
 Black	<b>Domestic (municipal) waste</b> Minimum treatment/disposal required is <b>landfill</b> , municipal <b>incineration/energy from waste</b> or other municipal <b>waste treatment process</b> at a suitably permitted or licensed facility. Recyclable components should be removed through segregation. Clear/opaque receptacles may also be used for domestic waste.
 Blue	<b>Medicinal waste for incineration<sup>1</sup></b> Indicative treatment/disposal required is <b>incineration</b> in a suitably permitted facility.
 white	<b>Amalgam waste</b> For <b>recovery</b>

\* 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.

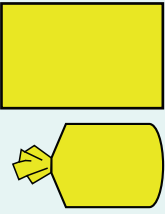
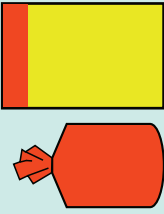
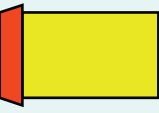
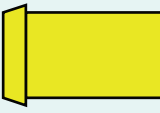
1. The colours “red” and “blue” are new to the colour-coding system in this edition. Care should be taken when ordering red containers to ensure that they can be clearly differentiated from orange. The colour-coding could be agreed as part of a contract specification.


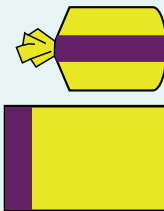
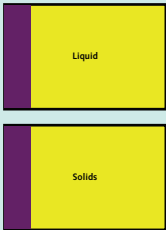
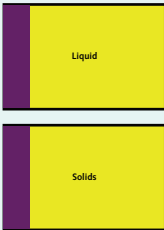





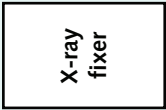

Figure 11 Waste segregation chart

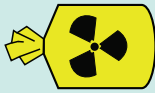
Waste type	Waste receptacle	EWC code(s) <sup>1</sup>	Example description <sup>2,4</sup>	Example hazardous properties <sup>2,4</sup>	Primary transport class & UN number	Waste management requirements <sup>4</sup>	Additional comments
Domestic type waste	 Black bag	20 03 01	Mixed municipal waste	None	N/A	Landfill Municipal incineration Energy from waste Other authorised disposal or recovery	Medical practices must not place any hazardous waste in this waste stream. Recycling options should be considered.
Offensive (healthcare)		18 01 04 or 18 02 03	Offensive waste from human/animal healthcare	None	N/A	Landfill Municipal incineration Energy from waste Other authorised disposal or recovery	This is restricted to offensive wastes from healthcare and related activities (including autoclaved wastes from laboratories)
Offensive (municipal)	Yellow and black striped bag	20 01 99	Offensive waste, municipal				This includes municipal hygiene wastes from medical practices
Anatomical waste (chemically preserved)		18 01 06* and 18 01 03* and/or 18 01 02 or 18 02 05* and 18 02 02* and/or 18 02 03	Clinical waste, human/animal anatomical, chemical preserved, for incineration only	H3A or B, H4, H5, H7, H9	Class 6.2 UN 3291	Clinical waste incineration	<b>Note:</b> If the waste is not classified as infectious (18 01 03* or 18 02 02*) then: <ul style="list-style-type: none"> <li>tissue preserved in chemicals remains clinical waste and the transport requirements may be determined by the chemical preservatives, and</li> <li>where not preserved in chemicals, tissue would not normally be clinical waste</li> </ul>
Anatomical waste (not chemically preserved)	Red-lidded, rigid yellow container	18 01 03* and/or 18 01 02 or 18 02 02* and/or 18 02 03	Clinical waste, human/animal anatomical, not chemically preserved, for incineration only	H9			



Waste type	Waste receptacle	EWC code(s) <sup>1</sup>	Example description <sup>2,4</sup>	Example hazardous properties <sup>2,4</sup>	Primary transport class & UN number	Waste management requirements <sup>4</sup>	Additional comments
Infectious waste contaminated with chemicals		18 01 03* and 18 01 06* and/or 18 01 07 or 18 02 02* and 18 02 05 and/or 18 02 06*	Clinical waste, infectious, containing chemicals from human/animal healthcare, for incineration only	H9, various	Class 6.2 UN 3291	Clinical waste incineration	<b>Note:</b> Waste chemicals must not be placed in this waste stream. It is for infectious materials containing or contaminated with chemicals (eg sample vials and used diagnostic kits)
Infectious waste (not containing chemicals or medicinal contamination)	 Orange bag or Orange-lidded, rigid yellow container	18 01 03* or 18 02 02*	Clinical waste, infectious, from human/animal healthcare, suitable for alternative treatment	H9	Class 6.2 UN 3291	Alternative treatment or clinical waste incineration	This assumes healthcare offensive and domestic wastes are also segregated separately
Sharps, non-medically contaminated	 Orange-lidded, yellow sharps box	18 01 03* or 18 02 02*  20 01 99	Clinical waste, sharps, infectious, non-medically-contaminated, suitable for alternative treatment  Clinical waste, sharps, infectious, non-medically-contaminated, from non-healthcare activities suitable for alternative treatment	H9	Class 6.2 UN 3291	Alternative treatment or clinical waste incineration	For producers and disposal sites in England and Wales, sharps that are not contaminated with medicinal products only  For producers in Northern Ireland and Scotland whose waste is disposed of in those countries, both sharps that are not contaminated with medicinal products, and fully discharged medicinally-contaminated sharps (other than cytotoxic and cytostatic)
Sharps, medically-contaminated, other than cytotoxic and cytostatic		18 01 03* and 18 01 09 or 18 02 02* and 18 02 08	Clinical waste, mixed sharps and pharmaceutical waste (not cytotoxic and cytostatic), infectious, for incineration only	H9, various <sup>3</sup>	Class 6.2 UN 3291	Clinical waste incineration	<b>Note:</b> This may include associated vials, bottles and ampoules of medicine

Waste type	Waste receptacle	EWC code(s) <sup>1</sup>	Example description <sup>2,4</sup>	Example hazardous properties <sup>2,4</sup>	Primary transport class & UN number	Waste management requirements <sup>4</sup>	Additional comments
Sharps, contaminated with cytotoxic and cytostatic medicines	 Purple-lidded, yellow sharps box	18 01 03* and 18 01 08* or 18 02 02* and 18 02 07*	Clinical waste, mixed sharps and cytotoxic and cytostatic waste, infectious, for incineration only	H6, H7, H9, H10, H11, etc <sup>3</sup>	Class 6.2 UN 3291	Clinical waste incineration	<b>Note:</b> This may include associated vials, bottles and ampoules of cytotoxic and cytostatic medicines
Other infectious waste contaminated with cytotoxic and cytostatic medicines	 Purple-lidded, rigid yellow container and sack		Clinical waste, cytotoxic and cytostatic waste, infectious, for incineration only				
Cytotoxic and cytostatic medicines (in original packaging)	 Two purple-lidded, rigid yellow containers (one for solid, one for liquid)	18 01 08* or 18 02 07* and/or 20 01 31*	Clinical waste, cytotoxic and cytostatic medicines from animal/human healthcare for incineration only	H6, H7, H10, H11, etc <sup>3</sup> H6 H7 H10 H11	Class 6.1 UN 1851 UN 3248 and/or 3249 <sup>5</sup>	Clinical waste incineration	20 01 31* is for separately collected municipal fractions (ie out-patient returns to pharmacies)
Cytotoxic and cytostatic medicines (not in original packaging)	 Two purple-lidded, rigid yellow containers (one for solid, one for liquid)				Class 6.1 UN 1851 UN 3248 and/or 3249 <sup>5</sup>		

Waste type	Waste receptacle	EW/C code(s) <sup>1</sup>	Example description <sup>2,4</sup>	Example hazardous properties <sup>2,4</sup>	Primary transport class & UN number	Waste management requirements <sup>4</sup>	Additional comments
Other medicines (in original packaging)	 <p>Two blue-lidded, rigid yellow containers (one for solid, one for liquid)</p>	18 01 09 or 18 02 08 and/or 20 01 32	Clinical waste, medicines (not cytotoxic and cytostatic) from animal/human healthcare, for incineration only	Various <sup>3</sup>	Limited quantity (or if in original packagings for patient use, exempt) – see ‘Waste medicines (including amalgam waste)’	Clinical waste incineration	20 01 32 is for separately collected municipal fractions (ie out-patient returns to pharmacies)
Other medicines (not in original packaging)	 <p>Two blue-lidded, rigid yellow containers (one for solid, one for liquid)</p>						
Dental amalgam	 <p>Leak-proof rigid container with Hg suppressant</p>	18 01 10*	Dental amalgam and mercury including spent and out-of-date capsules, excess mixed amalgam and contents of amalgam separators	H6, H9	Limited quantity	Recovery	Where teeth containing amalgam are present, H9: Infectious may also apply
Photographic (X-ray) wastes		09 01 04*	X-ray fixer	Various (see SDS)	Various (see SDS)	Recovery or treatment	
		09 01 01*	X-ray developer (water based)	Various (see SDS)	Various (see SDS)	Recovery or treatment	

Waste type	Waste receptacle	EWC code(s) <sup>1</sup>	Example description <sup>2,4</sup>	Example hazardous properties <sup>2,4</sup>	Primary transport class & UN number	Waste management requirements <sup>4</sup>	Additional comments
Photographic (X-ray) wastes (contd)	<div>Lead foil</div>	15 01 04	Lead foil	None	N/A	Recovery	
	<div>X-ray film</div>	09 01 07	X-ray film containing silver	None	N/A	Recovery	
Gypsum and plaster-cast wastes	<div>Gypsum</div>	18 01 04 or 18 02 03	Non-infectious gypsum and plaster waste from healthcare	None	N/A	Gypsum recovery or specialist landfill in separate gypsum cell	See supporting text under ‘ <b>Gypsum and plaster casts</b> ’ for advice on the small proportion of this material that may be infectious and clinical waste
Radioactive waste	<div></div>	18 01 03* or 18 02 02* if infectious	Healthcare waste contaminated with radioactive material	Radioactive H9 if infectious	UN number will depend upon isotope. Radioactivity takes precedence for transport class when above the lower threshold	Incineration in hazardous waste incineration facility subject to Radioactive Substances Act (RSA)	

#### Notes:

The information in this table should be used where the assessment framework in ‘**Healthcare waste definitions and classifications**’ has identified that it is applicable to the waste in question.

For non-infectious sharps that are not contaminated with either medicines or body fluids (ie 18 02 01 and 18 01 01), see ‘Non-infectious sharps’ under ‘**Step 4**’.

1. An “and” indicates that more than one code is needed for this waste stream. An “or” means that the most appropriate code of the two codes joined by the “or” should be selected.

2. The hazardous properties and descriptions given here are examples only. The producer or holder of the waste should not use these without first ensuring they are accurate and appropriate for their waste. Where human/animal healthcare is indicated, the appropriate entry should be selected.

3. A cytotoxic and cytostatic medicine must possess one or more of the hazardous properties H6, H7, H10 or H11. In addition, they may possess a range of other hazardous properties. Other medicines may also possess hazardous properties, for example H3B Flammable, H4 Irritant, H5 Harmful, or H14 Ecotoxic. All relevant hazardous properties should be described and incompatible substances separated.

4. The waste must be disposed of, or recovered, at a suitably authorised facility.

5. The three entries are generic and will not be appropriate for all cytotoxic and cytostatic medicines. Some waste medicines will have to be classified in accordance with the provisions of ADR. In most cases a safety data sheet (SDS) for the medicines should show the appropriate transport classification. If this is not available, advice from a DGSA should be sought.

## Infectious waste: yellow stream

5.28 The yellow infectious waste stream is used for waste that is infectious but which has an additional characteristic that means that it must be incinerated in a suitably licensed or permitted facility. The known examples are:

- anatomical waste;
- chemically contaminated samples and diagnostic kits;
- medicinally-contaminated infectious waste; and
- Category A pathogens.

5.29 Anatomical waste is explained under paragraph 5.35, 'Anatomical waste – red-lidded receptacles'.

5.30 Laboratories and other areas of medical practices may produce samples or diagnostic wastes that are infectious and also contaminated with chemicals. Similarly, infectious items contaminated with non-cytotoxic and non-cytostatic medicinal waste may arise in some treatment areas.

### Note

Waste chemicals and medicines should not be mixed in the clinical waste stream. Incineration is required to destroy these chemicals and pharmaceuticals.

5.31 Infectious waste known or suspected to be contaminated with pathogens classified in Category A in the Carriage Regulations should be treated on-site prior to removal to a disposal facility; on-site treatment may include autoclaving in purpose-built autoclave facilities before being transported (examples of Category A pathogens can be found at paragraph 7.17, 'Category A clinical waste' and Chapter 12, 'Carriage information: Category A pathogen list').

5.32 In exceptional circumstances (for example an autoclave malfunction), waste that is normally autoclaved (that is, microbiological cultures and other infectious waste classified as Category A infectious substances in ADR) should be packaged for carriage and transferred to an incinerator as soon as possible. In such instances, the waste should be placed in appropriate UN-approved packages for this type of waste (these may differ from other yellow containers used). It must not be allowed to accumulate for any period of time (no more than 24 hours recommended). Healthcare organisations should seek the advice of the person responsible for security at the organisation to

develop a security plan to ensure these wastes are subject to strict procedures.

5.33 Where the waste is stored for any period (that is, up to 24 hours), it should be stored securely and access should be restricted to authorised and trained personnel (see the 'Research and laboratory facilities' sector guide). Where disposal or treatment on-site is not possible, an authorisation to move the waste will need to be obtained from the Vehicle Certification Agency (see paragraph 7.17, 'Category A clinical waste').

5.34 Wherever possible, Category A infectious substances (including waste) should be treated on-site (using an autoclave or equivalent) before being transported for disposal as offensive/hygiene waste (that is, non-hazardous waste).

## Anatomical waste – red-lidded receptacles

5.35 Anatomical waste, which includes recognisable body parts and placenta, requires disposal by incineration in a suitably licensed or permitted facility. The waste should be transferred in yellow UN-approved rigid containers with red lids and clearly labelled. For further information on the classification of anatomical waste, see Chapter 4, 'Healthcare waste definitions and classifications'.

### Note

Care should be taken when ordering red lids to ensure they can be clearly differentiated from orange; moreover, the necessary clear labelling will ensure wastes are segregated in a compliant manner. The colour coding of the lids could be agreed as part of a contract specification with manufacturers.

## Teeth

5.36 As the disposal of teeth from dental premises is unlikely to cause offence, dental practitioners may treat this as non-anatomical infectious waste. It is common practice for non-amalgam teeth and spicules to be placed in the yellow-lidded sharps receptacle. Dental practitioners must ensure that all waste is treated appropriately, and teeth containing amalgam (see paragraph 5.57, 'Amalgam – white containers') should be segregated and sent for appropriate recovery/disposal (see the Defra website and the 'Dental practices' sector guide).

*Foetal remains*

- 5.37 Disposal of foetal remains should be in accordance with available guidance:
- The Royal College of Nursing has published 'Sensitive disposal of all foetal remains, guidance for nurses and midwives'.
  - The Human Tissue Authority provides information on disposal following pregnancy loss.
  - The Human Tissue Authority also has a Code of Practice on removal, storage and disposal of human organs and tissues.
- 5.38 The key issue is about open and sensitive communication with the mother (or parents) and for bereavement managers (or other relevant staff) to be aware of the issues and make arrangements that meet the wishes of the parents in the most sensitive manner possible. Different options such as burial, cremation or incineration are provided. This will involve close liaison with the families involved.

**Note**

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'.

**Infectious waste: orange stream**

- 5.39 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 (see [Chapter 8, 'Waste management licensing and permitting'](#)). This waste stream must not contain chemicals, amalgam, medicines or anatomical wastes. The orange clinical waste stream should not contain waste that is non-infectious (for example domestic, offensive, medicinal) or that has additional characteristics that require incineration (medicinal, chemical, anatomical).
- 5.40 Orange-stream infectious waste is waste known or suspected to contain pathogens classified in Category B as specified in the Carriage Regulations. For further guidance of the definition of this stream, see [Chapter 4, 'Healthcare waste definitions and classifications'](#) and the waste assessment. Orange-stream infectious waste is hazardous waste and is subject to the controls of the Hazardous/Special Waste Regulations (unless used for EWC 20 01 99 municipal waste).

**Infectious liquid waste: yellow or orange receptacles**

- 5.41 Infectious liquid waste (for example blood from theatres) 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; producers should seek guidance from their waste management contractor regarding this.
- 5.42 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. Producers should seek guidance from their waste contractor regarding the most appropriate disposal route for this waste and should use appropriate colour-coded receptacles. See [Chapter 7, 'Transport packaging and operations'](#) for guidance on packaging and receptacles for transporting waste.

**Note**

Under the Environmental Permitting (England and Wales) Regulations and Landfill Regulations in Scotland and Northern Ireland, it is prohibited to send infectious waste direct to landfill for disposal.

**Medicinal products – blue-lidded receptacle**

- 5.43 The packaging for waste medicines is set out in [Chapter 7, 'Transport packaging and operations'](#).

**Cytotoxic/cytostatic waste – yellow with purple stripe or purple stream**

- 5.44 Purple-stream waste is waste consisting of, or contaminated with, cytotoxic and/or cytostatic products; it 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. Purple stream waste is hazardous waste and is subject to the controls of the Hazardous/Special Waste Regulations.



## Notes

1. 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-approved packages for disposal by incineration. If cytotoxic/ cytostatic medicinal residues are present, the receptacle should be labelled as such.
2. Under the Environmental Permitting (England and Wales) Regulations and Landfill Regulations in Scotland and Northern Ireland, liquid waste cannot be sent for disposal to a landfill site.

## Sharps waste – receptacles with yellow, purple and orange lids

5.45 Sharps are segregated and disposed of on the basis of their medicinal contamination. The lid colour of the receptacle or whole receptacle is based on this contamination and how the waste should be treated and disposed of (see Table 7):

- **Purple lid:** sharps that are contaminated with cytotoxic and cytostatic medicines should be segregated and disposed of at a suitably authorised incinerator. Purple-lidded sharps receptacles should be used for this waste stream.
- **Yellow lid:** sharps that are contaminated with (that is, used in the administration of) non-cytotoxic and non-cytostatic medicines should be segregated and disposed of at a suitably authorised incinerator. Yellow-lidded sharps receptacles should be used for this waste stream (see paragraph 5.46, 'Fully discharged syringes').
- **Orange lid:** sharps that are not contaminated with medicines should be segregated and can either be sent for incineration or disinfected by alternative treatment at a suitably authorised facility. Orange-lidded sharps receptacles should be used for this waste stream.

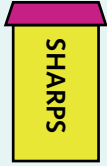
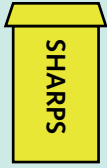
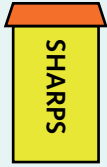
### Fully discharged syringes

5.46 Producers located in Scotland and Northern Ireland, where the disposal site authorisation in that country permits, may also use the orange-lidded sharps receptacle for fully discharged medically-contaminated (other than cytotoxic and cytostatic) sharps. The waste documentation must make it clear that fully discharged medically-contaminated sharps are present. This reduces the likelihood of the waste being disposed of at an unauthorised facility. 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.

- 5.47 For producers or disposal sites located in England and Wales, fully discharged medically-contaminated (other than cytotoxic and cytostatic) sharps should be placed in a yellow-lidded sharps receptacle and incinerated as medically-contaminated sharps.
- 5.48 It is not acceptable practice to take any action to intentionally discharge syringes or items containing residual medicines in order to dispose of them in the orange-lidded sharps receptacle (as "fully discharged" in Scotland or Northern Ireland). If the syringe is partially discharged and contaminated with residual medicines, it should be disposed of in the yellow-lidded sharps receptacle.
- 5.49 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.

Table 7 Disposal options for sharps waste

Sharps receptacle colour	Disposal option	Contents
<b>Yellow with a purple lid</b> 	Incineration	Sharps including those contaminated with cytotoxic and cytostatic medicines
<b>Yellow with a yellow lid</b> 	Incineration	Partially discharged sharps including those contaminated with medicines other than those that are cytotoxic and cytostatic
<b>Yellow with an orange lid</b> 	Incineration or alternative treatment	<b>For England and Wales:</b> sharps not contaminated with medicinal products; <b>for Scotland and Northern Ireland:</b> either fully discharged or those not used for administering medicine

**Note**

Partially discharged syringes etc should be disposed of in a UN-approved sharps receptacle. In particular, medication should be returned to the pharmacy and/or deposited in a suitable, approved, labelled receptacle for disposal. The waste documentation should accurately reflect the receptacle contents and identify the presence of waste medicines, where present.

**Offensive/hygiene waste – yellow/black bags**

- 5.50 Offensive/hygiene waste may be recycled, incinerated (utilising energy from waste facilities where possible) or landfilled in suitably permitted/licensed facilities.

**Note**

Before being sent for disposal to a landfill site, robust source segregation is necessary to meet pre-treatment requirements. For healthcare offensive waste this is met by implementing the segregation system presented here in full. Verification for healthcare producers' pre-acceptance audit is also 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 (usually black bags)**

- 5.51 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. Waste should also meet pre-treatment requirements for the site in line with the Environmental Permitting (England and Wales) Regulations and Landfill Regulations in Scotland and Northern Ireland.
- 5.52 Domestic waste is usually placed in a black bag for disposal or further treatment (through a material recycling facility for extraction of materials for reuse or recycling). Use of clear bags for domestic waste has been advantageous for some trusts since staff can visually inspect contents. Domestic waste separately collected at source for recycling should be readily distinguished from the above domestic waste for disposal or further treatment. Once again, this could be agreed within a contract specification.

- 5.53 Unlike domestic householders, healthcare organisations are prohibited from placing any hazardous wastes (including some deodorants, batteries etc) in the black-bag waste stream.

**Specialist arrangements for segregation****Chemical waste: fixer and developer**

- 5.54 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 (SDS) for product information. As mixing is prohibited, hazardous waste fixer or developer should not be mixed.
- 5.55 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 treated or incinerated at suitably licensed or permitted facilities.
- 5.56 If the material is recycled or processed on the site of production, the premises may be subject to environmental permitting controls and may require a trade effluent consent.

**Note**

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

**Amalgam – white containers**

- 5.57 Amalgam waste consists of amalgam in any form and includes all other materials contaminated with amalgam. Amalgam waste should be placed in rigid white receptacles with a mercury suppressant. Amalgam waste should be sent to suitably licensed or permitted waste management facilities where the waste undergoes a mercury recovery process prior to final disposal (see also Defra's 'Guidance for dentists on waste dental amalgam').

**Radioactive waste**

- 5.58 Radioactive healthcare waste is waste contaminated with low-level radioisotopes. This waste requires disposal in suitably licensed facilities, normally by incineration. Appropriate packaging is required for radioactive waste in line with transport requirements.

## Large equipment and mattresses

- 5.59 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.
- 5.60 If no hazardous properties remain (for example contaminated mattresses with the pervious cover intact), once the item has been disinfected under specialist arrangements, the item may be disposed of as domestic waste. The disposal of heavily soiled or infectious mattresses should be made through the waste contractor.
- 5.61 Where disinfection is not practicable, producers should contact their waste management contractor to establish the best-practice packaging and treatment/disposal options. Disposal of electronic equipment will need to be in accordance with the Waste Electrical and Electronic Equipment Regulations and, if hazardous, the Hazardous/Special Waste Regulations.

## Implanted devices

- 5.62 Implanted devices are defined in [Chapter 3, 'Legislation and healthcare waste'](#). Producers should contact their waste contractor to establish the best-practice disposal route for implanted devices. The producer should also contact the manufacturer of the device to establish whether the device may be disinfected and whether a “take-back” scheme exists for this waste.

### Note

Soiled surgical instruments may be sent for cleaning and sterilization prior to reuse away from the hospital/clinic and are not classified as waste. However, they will be subject to the Carriage Regulations (for further guidance see [paragraph 7.22, 'Soiled surgical instruments'](#)).

## Successful waste segregation

- 5.63 For segregation systems to work effectively, it is important that staff be provided with the necessary training, support and equipment, including appropriate colour-coded and labelled waste receptacles. The location and positioning of waste receptacles is critical to success in meeting the requirements of work practice.

## Case study – University College London with MITIE

**University College London with MITIE (waste outsourcing partner) “lead the way” through demonstrating best practice in laboratory healthcare and clinical waste management**

**Winner of the CIWM Environmental Excellence Awards 2011 – Innovative Practice in Waste Management and Resource Recovery Award**

- 5.64 The award focused on excellence in any aspect of innovative practice related to waste management or resource recovery. The award recognised the success of the approach and the environmental and financial outcome of the process.
- 5.65 University College London (UCL) is London’s leading multidisciplinary university, with 8000 staff and 22,000 students. UCL generates approximately 250 tonnes of healthcare and clinical waste produced per annum by the university in their 23 teaching and research laboratories. These types of waste were particularly challenging, as they resemble the waste produced in hospitals and clinics, but are different, as the process that generates the waste can be complex.
- 5.66 Therefore, at a time of tightening budgets, the revolutionary new approach pioneered through this partnership significantly reduced the cost of waste management, whilst reducing environmental impacts.

### Background

- 5.67 Traditionally UCL has not segregated the waste based on composition, but has operated a precautionary approach to waste arisings in their research facilities. Although an element of the waste was not clinical, the entire 250 tonnes of waste was sent for high temperature incineration. This is not in line with legislative requirements, best practice, environmental or resource management, and is not necessarily the best disposal option for their waste.

### A new approach

- 5.68 In 2008 an on-site waste expert was appointed to design and implement the new approach with the UCL Facilities Management team. The process began with a comprehensive waste review in June 2009, using the ‘Safe management of healthcare waste’ Health Technical Memorandum, followed by a programme of ambitious initiatives in 2010 and 2011.

5.69 The new approach aimed at:

- a. understanding the different waste streams produced by the laboratories
- b. diverting as much waste as possible from high temperature incineration by:
  - (i) pro-actively segregating and re-classifying clinical waste as offensive waste when possible, and
  - (ii) implementing more sustainable disposal routes for recyclable laboratory wastes
- c. re-designing the collection of waste
- d. ensuring success by implementing a comprehensive stakeholder engagement programme.

5.70 During the initial waste review it became apparent that laboratory waste was not segregated, based on the belief from the waste producers that it was “safe” and uncomplicated (1 single bin for all waste). The audit process revealed that about a fifth of the waste was either not hazardous, due to the autoclaving process for infectious waste (de-activation process through sterilization of the waste), or composed of un-contaminated packaging (for example glass containers, heavy plastics or cardboard). With the right risk management and segregation process, these types of waste could be diverted from high-temperature incineration.

5.71 Offensive waste is classified as non-hazardous waste, which can be processed at a fraction of the cost. The most ambitious part of the project was to demonstrate to the waste producers the suitability of some of the clinical waste for re-classification as offensive waste once it had been rendered safe through a validated autoclave cycle.

5.72 The reclassification of autoclaved clinical waste from hazardous waste to non-hazardous offensive and hygiene waste enabled an 18% diversion from high-temperature incineration.

**5.73 This generated a cost saving of over 5% per year.**

5.74 The project did not stop at reclassification, as further environmental benefits were identified and worked through with the waste contractor to permit disposal through an Energy from Waste plant permitted to accept offensive waste types.

5.75 Additionally, a laboratory recycling scheme was introduced, targeting non-contaminated packaging for segregation from the hazardous and offensive waste streams. The pilot scheme utilised existing

equipment as recycling bins in laboratories and enabled an additional 5% of the laboratories’ waste to be diverted from high-temperature incineration.

**5.76 This generated a cost saving of over 2.5% per year.**

5.77 This saving has been reinvested in additional equipment to further enhance the recycling scheme.

5.78 In tandem with the reclassification of the waste, waste collection costs were considered. Due to the congestion charging in London and high fuel charges, the collection of the waste was a major part of the ultimate disposal cost of the waste.

5.79 The waste collection schedule was redesigned and a driver information pack produced. This optimised the waste collection process, thus reducing the number of transport journeys by half, eliminating 28 tonnes of CO<sub>2</sub> being emitted to the atmosphere.

**5.80 This generated a transport cost saving of over 18% per year.**

5.81 Instrumental to the success of the project was the development and implementation of a comprehensive stakeholder engagement programme. This ensured acceptance and a process to manage behaviour change in the long term. Stakeholders at every level within the organisation were targeted: waste producers, cleaners, procurement personnel, FM team members and the waste vehicle drivers.

5.82 This programme included:

- the amendment of an intranet-based waste portal
- waste producer training
- the rollout of a communication campaign
- the creation of a waste producer special interest group (“Laboratory Waste Special Interest Group”) to ensure a constant flow of information to all users of the services
- the publication of a waste packaging product catalogue in collaboration with UCL’s procurement department. This has enabled UCL waste producers to purchase pre-approved waste packing products, such as bags and bins, for their laboratory wastes
- finally, the publication of a bespoke report regarding the performance of the new waste management systems. The new report provides



improved visibility of all waste matters and enables UCL to identify areas for improvement as necessary. This means that the programme has gone full circle: it originated with UCL making a fresh environmental commitment and the results are now fed into their environmental management system.

5.83 Altogether, this innovative approach has enabled UCL to improve its sustainability record by revolutionising the management of clinical waste; has moved waste up the waste hierarchy by increasing recycling and moving waste from incineration to waste to energy; and has significantly reduced CO<sub>2</sub> emissions. All of these benefits have been achieved whilst showing a reduction in waste disposal costs.

5.84 **Over the 3 year contract period:**

- **13% reduction in overall costs;**
- **Savings in excess of £100K;**
- **24% decrease in carbon footprint.**

5.85 UCL said: “I’m delighted that UCL and MITIE have won this award. It’s a fitting reward for the progress that has been made in the last three years and demonstrates to the waste industry that by engaging with the University’s community, real environmental benefits and cost savings can be achieved. It also recognises innovation within the hazardous sector of the waste industry which I believe is very overlooked. ... Hopefully it will encourage other universities to look at their laboratory waste and to do the same.”

### Implementing waste segregation systems

5.86 Staff are likely to adapt 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.

5.87 The following issues should be considered in the design and supply of receptacles for waste segregation:

- waste should be placed in waste receptacles, or other appropriate receptacles, as close to the point of production as possible;
- clinical waste receptacles should not be placed by wash-hand basins in patient bays or in other visitor-accessible areas;

- receptacles/bags should be replaced when three-quarters full;
- receptacles should be securely sealed. Plastic tie closures should be used for healthcare waste bags;
- labelling of bags to indicate their origin (for example by coding on the bag itself, by suitable permanent marker before use, by a label showing clearly the name of the hospital and the department, pre-coded plastic ties or by pre-printed self-adhesive labels or tape);
- collections should be at an appropriate frequency (see paragraph 5.92, ‘Storage and frequency of collection’).

5.88 Background information, training and regular communication should be provided to staff for them to fully understand why waste segregation is required. The systems and procedures used for segregating waste need to be monitored and evaluated on a regular basis (see [Chapter 6](#), ‘Managing compliance’).

### Waste receptacles

5.89 The healthcare organisation is responsible for providing appropriate waste receptacles that are legally compliant and for providing adequate space for the amount of waste produced.

5.90 At the point of production, receptacles such as pedal bins for bagged waste and sharps receptacles are required. Specification for packaging and sharps receptacles is provided in Chapter 6, ‘Managing compliance’.

5.91 Specification for bins regarding fire retardancy are provided in ‘Firecode: Health Technical Memorandum 05-03 Part F’ (specifically under ‘Management’).

### Storage and frequency of collection

5.92 Where waste accumulates in small quantities daily, the interval between collections should be as short as reasonably practicable. With regard to infectious and offensive/hygiene waste, excluding sharps, the collection period should ensure that odours from the waste do not cause nuisance. This should be in line with statutory nuisance requirements and any waste management licence/permit requirements.

5.93 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.

- 5.94 Arrangements should be made to routinely transport waste from ward level, treatment room or department to a storage area pending collection by a waste contractor (see [Chapter 7, 'Transport packaging and operations'](#) for on-site transport).
- 5.95 If waste is permitted to accumulate, producers should seek guidance from the appropriate environmental regulator regarding the need for an environmental permit or exemption (see [Chapter 8, 'Waste management licensing and permitting'](#)).
- 5.96 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.

### Note

Care is required when storing waste and arranging the collection of waste to ensure it is secure and that duty-of-care requirements are fulfilled.

In certain cases, local authorities and businesses have similar colours for waste receptacles for other waste streams (for example orange for recycling); therefore it is essential the waste is secure and transferred to the appropriate party for collection and treatment.

Laundry that poses an infectious hazard is transported in red bags. These can look similar to orange bags used for healthcare waste. Therefore clear labelling, instruction and secure separate storage are required.

### *Storage at the point of production*

- 5.97 Storage areas at the point of production (that is, patients' rooms) 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. Different waste streams in the same store should be clearly separated, such that a leak from one waste category cannot contaminate the contents or packaging of another.

### Note

Different waste streams (for example infectious bags with offensive bags) should not be mixed when in storage. If the waste is the same, such as yellow-lidded sharps receptacles with a yellow bag, this may be stored together – that is, same type of waste and same EWC code (caution should be observed if these are stored together to ensure that rigid containers do not damage or split bags). It may be possible to compartmentalise an area as long there are discrete areas labelled clearly for each type of waste. If colours of bags are similar (for example orange infectious waste and red laundry bags), extra care is required for segregation.

### *Bulk storage*

- 5.98 Bulk storage areas may be situated within healthcare premises or at a licensed or permitted transfer or treatment/disposal facility. 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, anatomical 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 to a sewer (with discharge consent).

### *Size of bulk storage areas*

- 5.99** 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*

- 5.100** Storing waste must not create odour sufficient to pose a statutory nuisance. Refrigerated storage may be required in hot weather (fitted with a device for opening from inside as a precaution against people being trapped).

### *Licences and permits*

- 5.101** An environmental permit, waste management licence or exemption may be required for the bulk storage of waste, even at the site of production (see [Chapter 8, 'Waste management licensing and permitting'](#) for further information on permitting, licences and exemptions). Waste brought into healthcare premises from other healthcare sources (for example other premises within a trust) may also require a suitable authorisation.

### *Waste contracts and contingency planning*

- 5.102** Contingency planning is key for successful waste management at all times. Problems with waste disposal contracts or waste disposal arrangements can and do happen. Waste is required to be removed from site on a regular basis and it is essential plans are implemented for managing waste following unforeseen circumstances. This may range from scenarios whereby the waste disposal contractor is not able to provide the service, extreme weather events such as flooding, episodes of pandemic flu or acts of terrorism. Further guidance is provided in Health Technical Memorandum 00 – 'Policies and principles of healthcare engineering' and Health Building Note 00-07 – 'Resilience planning for the healthcare estate'.
- 5.103** Contingency planning is required to ensure the security of waste and management for non-typical waste such as Category A waste streams. Policies and procedures are required for managing, packaging, handling and transportation of this waste.

### **Procurement and management of waste contracts**

The rapid changes in the way waste streams are viewed and the increasing drive for ever more sustainable waste management will mean not only new forms of contract and procurement specifications, but new and innovative solutions from the supply chain.

DH is working with BIS to promote the adoption of Forward Commitment Procurement (FCP) as a way of delivering step-change improvements to the NHS.

The FCP procedure is a practical procurement tool that can help to deliver cost-effective solutions to meet a particular requirement or societal need. Key features of FCP are the identification of unmet needs and requirements in outcome terms, early supplier engagement and pro-innovation procurement approaches, such as the use of outcome-based specifications, whole-life cycle costing, procurement of a whole-life and/or fully-managed service and use of the "competitive dialogue" procedure.

### *Case study: FCP project*

#### **Her Majesty's Prison Service – Zero Waste Mattress**

- 5.104 The problem:** HMPS was buying around 60,000 foam mattresses and pillows and disposing of around 60,000 annually. The majority were sent to landfill with the remainder classed as clinical or hazardous waste, incurring high disposal costs. In short, the situation was costly and environmentally unsustainable and out of step with HMPS sustainable development policies.

*"It was estimated that the volume of HMPS mattresses and pillows annually disposed of to landfill equated to 35 double-decker buses"* – HMPS Procurement Team

- 5.105 The solution:** The situation required a radical rethink. Working closely with the Government's environmental innovation advisory group FCP Team, HMPS identified a requirement for a zero-waste prison mattress system and used FCP to find a solution. This led to consultation with mattress suppliers and a radical shift in the procurement approach.
- 5.106** In March 2009, HMPS signed a supplier contract for a zero-waste mattress and pillow solution. Innovative new covers extended the life of the mattresses and mean that there will be little need for clinical waste disposal; instead, they will be recycled into useful products.

- 5.107 **The outcomes:** Estimated cost savings of £5 million; zero waste to landfill; minimisation of clinical waste; improved environmental and also community benefits.

*“The response of the supply chain has been excellent and has confirmed the value of the FCP approach. The outcomes have exceeded all expectations from both a sustainability and financial savings perspective”* – Head of Procurement Compliance, Ministry of Justice

### Learning

- 5.108 Why was a zero-waste solution not available before? Above all, because HMPS had failed to ask for it. The FCP approach led HMPS to look at the whole life-cycle of the mattress, establish what they really needed, consult with the supply chain and create a competitive environment. Instead of beginning their procurement six months before the end of a contract, it began two years ahead, giving potential suppliers time to respond innovatively.

## 6 Managing compliance

6.1 This chapter is concerned with management responsibility for ensuring compliance and how to establish control systems to achieve this objective. The chapter is structured as follows:

- **waste policy** – the importance of having a policy to specify responsibilities, objectives and detailed procedures to govern the safe management of healthcare waste;
- **auditing** – once the policy and procedures are in place, this section stresses the importance of regular structured compliance checks to ensure the specified systems and procedures are being fully observed;
- **training** – if the policy is to be truly effective, the communication of its key drivers and objectives will require focused training initiatives to educate and empower staff to comply with its requirements;
- **documentation control** – the importance of fully comprehending waste transfer documentation and managing its associated record-keeping requirements; and
- **incident management** – the policy should specify measures for dealing with incidents such as accidents or spillages and thereafter reporting both internally and externally, where this is a statutory requirement.

### Healthcare waste policy

#### Climate change and waste

The Climate Change Act 2008 introduced legally binding targets to cut emissions of greenhouse gases by at least 80% by 2050 from a 1990 base year. The Act also introduced powers to ask public-sector organisations to report on the work they are doing to adapt to climate change. Waste is now a high priority as it has a significant carbon footprint. It includes the emissions during production of the products that then go to waste; transport of the products and also transport related to waste disposal; and the treatment

and disposal arrangements such as alternative non-burn technologies, incineration and methane from landfill. This demonstrates the importance of reusing, recovering and recycling products as much as possible and this should be reflected in the policy objectives.

- 6.2 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 identifies who is responsible for the waste and provides clearly written instructions on how it should be managed.
- 6.3 The policy should clearly identify the legal obligations set out in waste, health and safety, and transport legislation. This policy should set the framework for operational procedures, waste management and responsibilities in order to achieve the policy objectives.
- 6.4 As a minimum, a healthcare waste policy should contain:
  - a clear statement, outlining the aims and rationale of the policy, signed off at board level to demonstrate high-level commitment;
  - legal and statutory obligations including transport;
  - current waste management contract and arrangements, referring to contingency in the event of service failure;
  - an outline of who has waste management responsibilities and the lines of accountability, with particular attention to the community healthcare sector due to the variety of activities and settings where waste is produced;
  - the provision of information, instruction and training on safe transportation, specification for use of correct containers and bags, managing spillages, cleaning containers and disposal procedures;
  - arrangements for implementing the policy;

- processes for identifying improvement programmes and monitoring progress (this should be in line with the trust's targets against baseline figures – that is, number of waste/disposal routes, waste contract or legal requirements);
- details about staff training, induction training, updates appropriate to specific staff groups – all this will include bank and student nurses and how their training needs will be met; and
- sources of further information and guidance (for example a healthcare organisation's waste guidance). Some producers provide contact details for helpdesk facilities.

- 6.5 The policy should take into consideration all aspects of waste management and should identify the roles and responsibilities of those involved in the waste management chain from “cradle to grave” (that is, transport, final treatment/ disposal, not necessarily the first point of transfer, which could be a waste transfer facility). This should take into consideration procurement and waste-contractor requirements, and take into account the waste hierarchy regarding waste elimination and minimisation, as discussed in ‘Waste minimisation, segregation, colour-coding and storage’.
- 6.6 The policy should clearly state how all parties involved in waste management should communicate with each other, ensuring compliance throughout the waste management chain. The policy should specify who is responsible for each activity to include compliance as well as operational aspects. The responsibilities of departmental managers and others need to be clear, and the waste management arrangements need to be properly monitored and regularly audited.
- 6.7 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.
- 6.8 The organisation should have access to a designated competent waste manager to coordinate and manage all healthcare waste and other waste management activities. This could be a shared post (for example through a waste consortium arrangement).

## Waste audit

- 6.9 Waste audits are an essential tool in assessing the composition of a waste stream for the purposes of

duty of care, for adherence to producer pre-acceptance audits for clinical waste in England and Wales, and for monitoring waste segregation and minimisation schemes. It is important to note the following: **the approach and actual audit will need to be appropriate for organisation and function, such as a hospital or dental surgery.**

- 6.10 Clinical waste treatment permits in England and Wales require producer audit information for the pre-acceptance procedures specified in the EA's guidance on the management of clinical waste ('How to comply with your environmental permit: additional guidance for clinical waste (EPR 5.07)'). For Scotland and Northern Ireland, this is considered best practice.
- 6.11 Audits provide useful information on the composition and quantity of waste produced. This information can be used to develop and influence waste management policies and procedures, and identify appropriate reuse or recycling options or opportunities to minimise waste by amending purchasing policies.
- 6.12 Audits play a vital role in demonstrating compliance with regulatory standards. Waste producers are required, in line with the duty of care and pre-acceptance audits for England and Wales, to ensure that waste is effectively segregated to ensure that it is treated and disposed of appropriately. A waste management contractor may breach their permit requirements and be forced to discontinue service if the pre-acceptance audits are not complete. The EA may also be concerned in relation to full compliance if source segregation of wastes of different classifications is not evident and supported by audit documentation.
- 6.13 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. Any non-conformances found during the audit should be detailed in the audit report, and remedial action should be recommended to prevent reoccurrence by focusing on the root-cause issues.

## Audit scope and procedure

- 6.14 Waste audits need to be carried out by a nominated person who is responsible for waste management, although this can be conducted with an experienced waste audit contractor or consultant.

In this case, the designated waste manager should be in attendance to understand the issues and recommendations from the audit. A team approach is advocated to cover all relevant aspects (for example control of infection).

- 6.15** Audits should only be undertaken by those members of staff who are trained in the audit procedure and who are fully aware of the risk and hazards posed by the audit protocol. The audit protocol should be referenced in the waste management policy. 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;
  - any inherent risks and the control measures required (for example PPE required).
- 6.16** In practice, internal departmental audits carried out regularly by trained waste champions within a department, supported and coordinated by a competent waste manager, are often the best approach.
- 6.17** The first time a waste audit is produced, and for purposes of the permitting 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 (see the two paragraphs below) to ensure continued compliance and also to ensure that the waste audit remains up-to-date and pertinent to current operational practices, which can change over time. Although there are waste audit tools available, each waste producer should produce their own waste audit based on individual needs and circumstances.
- 6.18** Audits should address (as a minimum) the effective segregation, packaging and labelling of the following waste types:
- anatomical waste, other animal or human tissues, and blood products (including chemical preservatives);
  - medicines and medicinally-contaminated waste (including, for example, cytotoxic and cytostatic

medicines, and medicated and non-medicated intravenous bags);

- chemicals and chemically-contaminated waste (including, for example, hand gels, autoanalyser cartridges and diagnostic kits);
- microbiological cultures and related laboratory wastes to which additional controls may apply;
- mercury and amalgam;
- sharps (medicinally-contaminated, non-medicinally-contaminated, and cytotoxic- and cytostatic-contaminated);
- clinical waste;
- healthcare offensive wastes in patients' accommodation and treatment areas;
- municipal offensive wastes in public and patients' toilets, and baby-changing areas;
- domestic wastes (ensuring no hazardous wastes are present).

**6.19** Different issues associated with compliance include:

- classification;
- segregation;
- packaging;
- waste description;
- paperwork completion and retention;
- storage;
- movement/transport;
- health and safety; and
- final disposal.

## Frequency of audits

- 6.20** In line with the requirement for pre-acceptance audits in England and Wales (which is best practice for Scotland and Northern Ireland), audits are required by the producer prior to the delivery of the first batch of waste to a permitted facility and then at the following minimum frequencies:
- every 12 months for each medical practice that produces five tonnes or more of clinical waste in any calendar year;
  - every two years for each veterinary practice, dental practice and laboratory that produces less than five tonnes of clinical waste in any calendar year;



- every five years for other healthcare producers of clinical waste.

- 6.21 As a minimum, audits should be carried out before developing or updating waste management procedures and at routine intervals to monitor compliance with waste segregation schemes.
- 6.22 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.

### Audit techniques

- 6.23 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. An audit protocol containing four audit tools is provided in Table 8. 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 (even when waste is produced off-site, for example in the community setting).

### Observation and recording of practice

- 6.24 Audits should involve a review of staff waste management practices and, in particular, the

effectiveness of segregation procedures. The audit entails the observation, recording and classification of each waste item as it is placed into a receptacle. A thorough examination of the medicines, equipment, reagents etc in the units, cupboards and stores is a very useful way to determine what they will be discarding, although which container they will be discarded in will then need to be determined by questioning of staff.

- 6.25 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 per annum as a minimum.

### Observation of waste receptacles

- 6.26 Observation of the waste receptacles serves two purposes. First, it provides a mechanism of spot-checks intended to underpin the observation and recording of practice. In-use receptacles are visually inspected without removing the waste. For example, the contents of a sharps receptacle can be viewed from the aperture or opening of the receptacle. Second, it enables the auditor to point items out to staff and either ask questions or seek clarification from those who have produced it. This applies to all waste types, including hazardous waste, and should be carried out, at minimum, once per quarter.

**Table 8 Example waste audit protocol**

Type of audit	Application				
	Sharps receptacles	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	(Y)	N	Y	(Y)
(Y) = Where it can be practicably achievable with an appropriate risk assessment					



## Detailed examination of waste

- 6.27 Detailed waste analysis is used to determine the nature and composition of waste materials. It involves the manual sorting of waste to determine the effectiveness of segregation procedures.
- 6.28 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 and the use of PPE should be considered as additional to other control measures, when necessary, to adequately control exposure.

## Staff questionnaire

- 6.29 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. They can be written or verbal. The main use of this tool is to identify issues for, and to establish, staff awareness (for example to determine how an item is classified and how it is disposed of on that unit).

## Notes

1. With regard to the effectiveness of segregation practice or waste composition, questionnaires alone do not provide sufficient information for use in completing waste documentation or in demonstrating compliance.
2. An example producer audit in line with pre-acceptance audit is provided in the EA's 'How to comply with your environmental permit: additional guidance for clinical waste (EPR 5.07)'.

## Approach to waste-producer audit

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 samples as well as any action plans resulting, including:
  - 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 and 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);
- security and limited access to authorised personnel;
- 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

- Based on Section 34 Environmental Protection Act (Section 5 of the Waste and Contaminated Land (Northern Ireland) Order).
- Best practice under the Environmental Protection (Duty of Care) Regulations.
- Based on disposal arrangements for all waste streams.
- Audits should be undertaken on an annual basis unless circumstances dictate a more regular frequency.

- Peace of mind for waste producer.
- Follows 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 registration, permits and exemptions.
- Confirmation with the regulatory bodies.
- Checking transfer and consignment notes.

### Waste audit trails

- 6.30 Under environmental legislation, waste producers have a cradle-to-grave responsibility for the control, management, transport and disposal of their waste. Waste producers should undertake a waste audit trail, at least every year. This to ensure that waste is being transported in accordance with the Carriage Regulations and disposed of at appropriately permitted facilities in accordance with duty-of-care requirements and local waste management procedures.
- 6.31 This will entail checking the route of the waste from being collected and leaving the site through to final disposal (for example where infectious waste is rendered safe). For residual waste arising from this treatment (for example ash from incineration), an audit of related paperwork and permit details is sufficient to fulfil duty of care obligations. Audit trails may be undertaken more frequently if circumstances require.

### Use of contractors

- 6.32 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 [Chapter 3, ‘Legislation and healthcare waste’](#));
  - 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.

### 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 recover costs through 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.

### Note

In addition to the waste audits, DH has issued “a Universal version of the NHS Premises Assurance Model (PAM)”. The model is intended for use by NHS providers to ensure the quality, safety and also increasing efficiency and effectiveness of NHS premises, including waste.

### Training

- 6.33 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/procedures and that the policy is implemented by trained and competent people.
- 6.34 Training assists with performance improvement and may focus on any areas of concern from the audits and any specific knowledge gaps. It is important to raise awareness with staff as soon as possible and this ensures that audit results are followed up with relevant work areas.
- 6.35 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.

6.36 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

6.37 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;
- use pictures or photos which will assist with any language barriers;
- 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.

6.38 Examples of training posters and information for a sample of healthcare organisations are provided below.

6.39 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.

6.40 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.

6.41 Under the Health and Safety at Work etc Act, 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.

### Examples of training posters and information



## Training records

- 6.42 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

- 6.43 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
  - appropriate use of protective clothing.
- 6.44 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 bags/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;
  - understanding of marks and labels; and
  - safe and appropriate cleaning and disinfection procedures.

## Job-specific training

- 6.45 Some staff require more specific training. These include people who use protective equipment, disposal facility operators, drivers, and community and laboratory staff.

- 6.46 Operators of waste management facilities must demonstrate the necessary technical competence for the relevant permitted activities. In England and Wales, this has recently changed and is now assessed on the basis of either an employee's individual competence or an employee's individual competence coupled with corporate competence.
- 6.47 Further information and the details of the approved schemes can be found on the Environment Agency website.
- 6.48 In Scotland and Northern Ireland, the system for certificates of technical competence (COTC) remains unchanged at time of publication.
- 6.49 Drivers of vehicles used to transport healthcare waste by road may need additional training under the Carriage Regulations, and those responsible for the movement of the waste should have access to, or be, a trained DGSA.
- 6.50 In addition, transport/carriage 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 DGSAs can be found on the Department for Transport's website.

## Delivery of training

- 6.51 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

- 6.52 Buying Solutions (formerly NHS PASA) has developed 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 addresses the recommendations outlined in their guidance document.

#### *Case study – Implementation of the offensive waste stream at Gloucestershire Hospitals NHS Foundation Trust*

- 6.53 Gloucestershire Hospitals NHS Foundation Trust formed a waste management group in light of the then forthcoming Health Technical Memorandum 07-01 in September 2006 to manage the waste. “The group was to decide the waste policy, a timescale for implementation, the communications strategy and training methods. Members included the board director responsible for facilities, staff from infection control, procurement, support services (covering domestics and porters), risk, communications, and lead nurses.” [Jen Goode, Environment Manager.]
- 6.54 The implementation of the offensive/hygiene waste stream was a key part of the new waste management segregation scheme. This was a well-publicised and carefully coordinated project, which saw the whole trust change to the new scheme for waste segregation on “SORT IT OUT” day in February 2007.
- 6.55 Every ward and department has a waste management coordinator who attended a training session and was then tasked to cascade the training

down to their staff, and advise how many bins and of what size and colour were required. Each completed a schedule of their requirements that detailed the precise location of each bin.

- 6.56 Success – “We’re often recommended as ‘the place to visit’ by the Environment Agency so hopefully we are an example of good practice.” [Jen Goode] “There have been a few staff who have had issues over use of ‘tiger’ [yellow/black] bags; however, tigers have been fully accepted by maternity and paediatrics – maternity have one orange bin in their dirty utility and another in the side room (for barrier nursing if needed); everywhere else is tiger.”

#### *Case study – Keep It Simple, Segregate (KISS)*

##### **Royal Berkshire NHS Foundation Trust has introduced the “Kiss it better” campaign**

*“Working together to turn our ideas into actions and actions into sustainable improvement”*

- 6.57 The Trust has used the basis of a new waste contract to manage resources and disposal costs, provide infrastructure to support legal compliance and introduce beneficial innovations; and to train and assist staff.
- 6.58 The challenge facing the trust has been to balance the responsibilities of meeting the requirements of the waste hierarchy (waste prevention; reuse; recycling; other recovery, with disposal being the final option), given the complexity of waste regulations, with the simplicity of transmitting such a relevant waste awareness message to all staff groups.
- 6.59 The Royal Berkshire Hospitals Foundation Trust currently pays £370 to dispose of 1 tonne of clinical waste, but only £70 for 1 tonne of non-clinical waste. At this time, the trust is producing 480 tonnes of clinical waste a year but a large amount (estimated 40%) of this is not actually clinical waste. Items such as packaging, dead flowers, hand towels and newspapers are going into the clinical bins. It costs the Trust £177,600 a year to dispose of its clinical waste but, by the careful monitoring of what rubbish goes where, this could be reduced to £106,560 a year, a potential saving of £71,040. Further reductions in disposal costs can also be made by further segregation of non-clinical waste streams such as cardboard and paper.



Paper towels tiger bin

### Current solution

- 6.60 Aim:** To ensure that all staff exploit all opportunities to segregate and dispose of clinical and non-clinical waste correctly and in the most cost-effective and environmentally-friendly way possible.
- 6.61 Objectives:** To educate all NHS staff to manage waste more effectively, by:
- becoming waste aware
  - understanding and complying to legislation
  - correctly identifying, securing, and segregating clinical waste to avoid risks to staff, patients and the environment
  - not including domestic waste with clinical waste to avoid incurring additional costs of unnecessary disposal
  - reducing the amount of waste going to landfill
  - maximising the benefits of recycling
  - disposing of electrical components correctly.
- 6.62** The innovator, who is a Facilities Manager for the Trust, decided to be proactive in tackling this issue and put together a short VCD and information pack outlining staff responsibilities in line with the Environmental Protection Act, and the importance of segregating different waste streams.
- 6.63** To assist with the massive task of re-educating staff to dispose of waste correctly, the innovator has also introduced the Waste Watcher Champions, whose role is to:
- be a point of contact in a ward or department on all waste related matters
  - encourage and inform their colleagues on waste-related issues in their work area
  - help provide information to the Trust on waste issues in their work area
  - assist in the Implementation of any waste minimisation initiatives within their work area
  - receive information on waste issues.
- 6.64** The VCD has now been introduced into the Trust Induction Training day to highlight to new staff the importance of waste management.

### Evaluation/audit

- 6.65** The VCD was evaluated using staff to trial it and feed back the results by completing a questionnaire.

It was received well, and staff felt that it was appropriate and easy to watch and put forward the salient points regarding waste management.

### Benefits

- 6.66** Benefits are described in context to that of the NHS Best Practice Guidelines document '10 High Impact Changes for service Improvement and Delivery'.

### Service delivery

- 6.67 Legal Responsibility** – The NHS as a waste producer has a legal, as well as a moral, duty to dispose of its waste properly and in accordance with the “duty of care” requirements imposed under the Environmental Protection Act 1990 (section 34) and the Environmental Protection (Duty of Care) Regulations 1991, as well as the ‘Safe management of healthcare waste’ Health Technical Memorandum.

### National priority area(s)

*Waste Electrical and Electronic Equipment Regulations*

*The Health and Safety at Work etc Act , as set out in section 7*

*The COSHH Regulations*

*Care Quality Commission Standards*

### Clinical outcomes

- 6.68 Cost savings/efficiencies** – the money saved from reducing the cost of disposing of clinical waste and ensuring that the Trust does not incur fines from inappropriate segregation, can be spent on improving patient care.
- 6.69 Reduced risk of infection** – the adoption of safe working practices ensures that there is less chance of cross-contamination and needle-stick injuries if waste is disposed of correctly and transported appropriately.

### Patient experience

- 6.70 Increased patient experience** – patients will feel safer if they visibly see staff disposing of clinical and non-clinical waste correctly and in a professional manner.
- 6.71 Cleaner environment** – if waste is collected and disposed of correctly, it will not accumulate in corridors, wards or places that are accessible to the general public.



### Benefits for staff

- 6.72 **Motivated staff** – the Waste Management VCD will empower NHS staff with the knowledge and skills to fully understand the differences between different types of waste, the importance of segregation and the costs incurred by failure to follow the correct procedures.

### National priority area(s)

- 6.73 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
  - The Environmental Protection (Duty of Care) Regulations.

### Funding

- 6.74 The innovator made the original VCD himself, and filmed his own team collecting waste, plus showed housekeeping staff correctly segregating and securing waste. He then edited the film at home and recruited the help of outside companies to promote better recycling methods for the Trust. The VCDs were donated by the Bracknell Company.

### Considerations of risk

- 6.75 **Clinical risk:** The clinical risks of not segregating and disposing of waste correctly can result in higher incidents of needle-stick injuries and the spread of infection.
- 6.76 **Ethical risk:** It does not have any significant ethical risks, and it will highlight that waste management and environmental practice matter. This innovation encourages health professionals to work collaboratively to improve standards and reduce costs, whilst acknowledging environmental issues, and training staff to be active in good waste management within the Trust.
- 6.77 **Financial risk:** The costs involved in running this education programme are relatively low, and these are more than compensated for by the cost savings in relation to reducing the amount of clinical waste and from preventing the Trust being fined for inappropriate segregation.

### Endorsements and awards

- 6.78 The innovator has just received the Chairman’s award for his innovation, had BBC news coverage,

and had articles published in local press and national journals, and has been invited to give a presentation on his innovation.

### Future developments/transferability

- 6.79 **Further development within Royal Berkshire Hospitals Foundation Trust:** The innovator is currently working on developing the waste management VCD and information pack into an e-learning training programme that will be accessible to all staff.
- 6.80 **Wider dissemination:** NISE is currently working with the innovator on the development and commercialisation of the Waste Management VCDs to market to other NHS organisations. It is currently being re-filmed by a private company to give a more polished presentation and to make it generic so that any other Trust can use it.

### Specification for personal protective equipment (PPE)

- 6.81 COSHH requires that risks to health be eliminated, prevented or, where this is not reasonably practicable, reduced. Although the use of PPE 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 PPE will still be required. In such cases, employers must ensure that these items are provided, used and maintained. They must also make appropriate arrangements for storage and cleaning, whilst employees must cooperate with employers to ensure that their legal duties are met.
- 6.82 Risk assessments might identify the need for PPE, 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 additional protection against slippery floors and 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.

- 6.83 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 single-use aprons and gloves) or inhalation (for example respiratory protection and/or face visors).
- 6.84 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

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

## Waste collection 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 regulator 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.

Details on carrier registration can be found through the following links to each UK environmental regulator:

- [www.environment-agency.gov.uk/business/sectors/wastecarriers.aspx](http://www.environment-agency.gov.uk/business/sectors/wastecarriers.aspx) (for England and Wales)
- [www.ni-environment.gov.uk/waste-home/authorisation/regulations\\_carrier.htm](http://www.ni-environment.gov.uk/waste-home/authorisation/regulations_carrier.htm) (for Northern Ireland); and

- [www.sepa.org.uk/waste/waste\\_regulation/waste\\_carriers\\_and\\_brokers.aspx](http://www.sepa.org.uk/waste/waste_regulation/waste_carriers_and_brokers.aspx) (for Scotland).

### 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.

### Note

At time of writing, Defra has consulted on changes to the duty of care and waste registration regime to ensure that policy objectives of ensuring waste is safely and legally transferred are met. Following a European Court of Justice judgement requiring registration of all those that normally and regularly transport waste, the Defra consultation proposed a two-tier system with existing registered waste carriers moving into an upper tier, requiring periodic reregistration, and most other businesses (including those carrying their own waste) being brought into a lower tier requiring one-off registration. The duty of care Code of Practice and guidance relating to registration will be updated to reflect any changes made.

### Transport documentation

- 6.87 Where a transport document is required, the minimum contents are specified in ADR as follows:
- a. the UN number of the goods being carried preceded by the letters “UN”;
  - b. the proper shipping name, supplemented where applicable with the technical name;
  - c. the class number(s);
  - d. the packing group, where assigned;
  - 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;
- j. the tunnel restriction code for the substance(s) being carried.

**6.88** A properly completed waste consignment note will contain this information (see [paragraph 6.99](#), ‘**Consignment notes**’) and is acceptable for transport purposes).

### Note

Transport documents are not required for dangerous goods in limited quantities, and certain loads do not require transport documents in Great Britain. There are no limited quantities for clinical waste; therefore, a transport document will be needed.

**6.89** The transport document is the responsibility of the consignor. The carrier may have to supply the driver with other documentation.

### Waste transfer note

**6.90** 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.

**6.91** 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.

**6.92** 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.

**6.93** The description of the waste should include:

- a. the EWC code(s), 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, as identified in the second paragraph below.

**6.94** The description must provide enough information to identify the specific sub-type of clinical waste (as a minimum to the categories set out in [Figure 11](#) to enable subsequent holders to avoid mismanaging the waste. Drums and receptacles should be labelled with the description of the waste in addition to any labels required for the carriage of dangerous goods.

**6.95** The description should always contain any information that might affect the handling of the waste (special problems). This should include:

- a. any special containment requirements;
- b. type of receptacle required and the material the receptacle is made of;
- c. whether it can be safely mixed with other wastes or whether there are types of waste with which it should not be mixed;
- d. whether it can be safely crushed and transferred from one vehicle to another;
- e. whether it can be safely incinerated or whether it requires specific minimum temperatures or combustion times;
- f. whether it can be disposed of safely to landfill with other waste;
- g. whether it is likely to change physical state during storage or transport;
- h. any information, advice or instructions about the handling, recovery or disposal of the waste by the waste regulators or suppliers etc;
- j. details of problems previously encountered with the waste;
- k. changes to the description since the previous load;
- m. anything unusual about the waste that may pose a problem.

**6.96** There is no compulsory format for the transfer note, but an example form, if required, is provided

in Annex C of Defra's 'Waste management duty of care code of practice'.

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

### Dual transfer/transport notes

- 6.98 The information contained on a waste transfer note is very similar to the information required for the transport document. 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.

### Consignment notes

- 6.99 Consignment notes are a required process when transporting hazardous waste. They are available from the respective UK environmental regulator.
- 6.100 The completion and accuracy of the waste classification, description and composition of the waste on the consignment note is the sole legal responsibility of the waste producer. Although the completion of consignment notes should be discussed with waste disposal contractors, they are unlikely to know what waste has been disposed of in the waste receptacles (the form of a consignment note is illustrated in the Hazardous Waste Regulations for England, Wales and Northern Ireland, and the Special Waste Regulations for Scotland).
- 6.101 Carriers can choose to run multiple collection rounds. These are collections of small amounts of hazardous waste from more than one facility, which are collected on the same vehicle and delivered to the same consignee. The following points must be observed when running a multiple collection round in England and Wales:
- Each collection from every site must have a different consignment note with a unique code and a common round number indicating this is part of a multiple note.
  - The carrier must collect waste from at least two different premises.
  - Waste must **not be** collected from outside England and Wales.
  - The waste must be delivered to the same consignee.

- Waste should be delivered to the consignee as quickly as possible, without any unnecessary delays.
- If different types of waste are collected on the same vehicle, they must not be mixed, except in line with mixing rules (see the Defra website).
- The types of waste collected should not be allowed to react with one another. Materials that could potentially react with each other should either not be collected together or be kept apart from one another on the vehicle.
- Waste cannot be transferred to another carrier before it is delivered to the consignee.

- 6.102 For Scotland and Northern Ireland, there are two classifications of carrier's rounds for special/hazardous wastes:

- 24-hour carrier's round; and
- extended carrier's round.

- 6.103 Although cross-border movement is allowed under carrier's rounds and extended carrier's rounds in as much as the round can be completed outside of Scotland or Northern Ireland, cross-border collection is strictly prohibited.

- 6.104 For further details:

- in Scotland visit [www.sepa.org.uk/waste/waste\\_regulation/special\\_waste.aspx](http://www.sepa.org.uk/waste/waste_regulation/special_waste.aspx) and
- in Northern Ireland visit [www.doeni.gov.uk/nia/index/publications.htm?act=l&typ=i&alph=a](http://www.doeni.gov.uk/nia/index/publications.htm?act=l&typ=i&alph=a)

- 6.105 Waste producers must keep completed hazardous/special waste consignment notes for a minimum of 3 years from the date of waste collection. Examples of sample consignment notes are provided in the sector guides within this document.

## Accidents and incidents

- 6.106 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.

**6.107** 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.

**6.108** The analysis and investigation of incidents involving healthcare waste, whether reportable or not (see above), 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 the staffing required to deal with incidents is also relevant, as it allows managers to assess the total cost of incidents and accidents.

**6.109** 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.

**6.110** 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 and Category B substance (under certain circumstances – see ADR 1.8.5) must be reported to the dangerous goods division of the Department for Transport.

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

**6.111** 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. The loss of dangerous goods during transport is included.

**6.112** Severe human disease include diseases caused by hazard group HG3 and HG4 agents as well as some HG2 agents (for example *Neisseria meningitidis*).

**6.113** The Social Security (Claims and Payments) Regulations require an accident book or similar to be kept and accessible to staff. 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

**6.114** 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.

**6.115** The ready availability of appropriate spillage kits helps to 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.



6.116 Spillage kits may contain, for example:

- single-use gloves;
- single-use aprons;
- an appropriate infectious waste receptacle/ medicinal waste receptacle;
- paper towels;
- absorbent materials;
- single-use cloths;
- disinfectant recommended, for example, by the local control of infection policy;
- a means of collecting sharps.

6.117 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 where relevant.

### Disinfectants

6.118 The use of suitable disinfectants should be detailed in the healthcare waste policy, which should be managed and monitored by the infection control team. The policy should clearly identify which products are to be used, where they are to be used and for what purpose. 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.

6.119 Suitable inert absorbent materials may be used to deal with liquid spillages after disinfectant material has been applied. 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 Creutzfeldt-Jakob disease (vCJD).

6.120 The use of disinfectants themselves may present a health risk, particularly in confined spaces, and consideration should be given to the general provisions of COSHH. Accordingly, only staff that have the necessary training and experience should carry out the application of disinfectants.

### Mercury

6.121 Employers who use mercury should carry out a risk assessment for dealing with mercury spillages and produce written procedures. A spillage kit including single-use gloves (of a type that does not allow mercury to pass through), paper towels, a bulb aspirator for the collection of large drops of mercury, a vapour mask (or appropriate and specific filters for reusable masks), 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. A vacuum cleaner or aspiration unit should not be used, as this will vent mercury vapour into the atmosphere.



## 7 Transport packaging and operations

- 7.1 Hospitals, clinics, surgeries, pharmacies etc are responsible for requiring dangerous goods to be transported off-site. These bodies are the consignor and it is their duty to comply with the transport/carriage regulations listed in **Chapter 3, 'Legislation and healthcare waste'**.

### Transport: packaging, marking, labelling and documentation

- 7.2 The Carriage Regulations specify the requirements for:
- classification and identification;
  - packaging;
  - marking;
  - labelling;
  - documentation.
- 7.3 The duty for all these functions rests in the first instance with the consignor.

#### Note

The term “Carriage Regulations” is used to refer to the Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations; however, in some of the references cited in this section, the same regulations are referred to as “CDG Regulations”.

- 7.4 In addition, all personnel involved in the transport of dangerous goods must have appropriate training. For certain quantities of dangerous goods, such training and approval is mandatory. For other personnel, training can be job-related and developed on site. In relation to the above requirements, the consignor must ensure that training is undertaken.
- 7.5 The Carriage Regulations use criteria that are different from other legislative systems. Classification for healthcare waste management is addressed in **Chapter 4, 'Healthcare waste**

**definitions and classifications'** and **Chapter 5, 'Waste minimisation, segregation, colour-coding and storage'**.

- 7.6 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. **Table 9** gives examples of healthcare waste and other dangerous goods likely to be encountered in the waste stream.
- 7.7 Dangerous goods can be transported in three ways:
- packaging (boxes, drums etc);
  - bulk loose material in skips, containers and vehicles;
  - tanks.
- 7.8 This chapter considers only packaging and bulk transport with regards to healthcare waste, primarily clinical waste and waste medicine. Healthcare organisations will often use other dangerous goods (for example gases, cleaning materials) and are not dealt with in this guide (see **paragraph 7.43, 'Other chemicals'**).

#### Note

Further guidance on the transport of dangerous goods can be found at the following websites:

1. The HSE's 'Carriage of dangerous goods manual' provides guidance on all aspects of road transport ([www.hse.gov.uk/cdg/manual/index.htm](http://www.hse.gov.uk/cdg/manual/index.htm)).
2. The Vehicle Certification Agency's (VCA) website provides guidance on a range of packaging issues ([www.dft.gov.uk/vca/](http://www.dft.gov.uk/vca/)).
3. The Department for Transport's website provides guidance and copies of authorisations ([www.dft.gov.uk/pgr/freight/dgt1](http://www.dft.gov.uk/pgr/freight/dgt1)).

## Transport of packaged goods

7.9 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. Table 9 shows the most common packing provisions for healthcare waste.

7.10 All packaging including UN-approved packaging or packaging for limited quantities used for dangerous goods must be fit for purpose and capable of safely containing the goods (that is, leak-proof) when used in transport, whether they are carrying liquids or solids.

**Table 9 Packing provisions for healthcare waste**

Dangerous goods (UN number)	Proper shipping name	Packing instruction	Packaging examples
<b>Category A</b> • UN 2814 • UN 2900	Infectious substance, affecting humans Infectious substance, affecting animals	P620 P620	Three-part packaging
<b>Category B (UN 3291)<sup>a</sup></b>	Clinical waste, unspecified N.O.S (not otherwise specified)	P621 (see Table 10) LP621 IBC620	Rigid packagings or wheeled bins
<b>Medicinal waste<sup>b</sup></b> • UN 1851 • UN 3248	Medicine, liquid, toxic N.O.S Medicine, liquid, flammable, toxic N.O.S	P001	Boxes, drums
• UN 3249	Medicine, solid, toxic N.O.S	P002	
<b>Dental amalgam (UN 2025)</b>	Mercury compound, solid, N.O.S	Limited quantity	Boxes, drums
<b>Aerosols (UN 1950)</b>	Aerosols	Limited quantity	Box

**Notes:**

- UN 3373 “Biological Substance, Category B” should never be used for waste consignments.
- The three entries are generic and will not be appropriate for all medicines (e.g. cytotoxics and cytostatic). Some waste medicines will have to be classified in accordance with the provisions of ADR. In most cases, a safety data sheet (SDS) for the medicine should show the appropriate transport classification. If this is not available, advice from a DGSA may be sought.

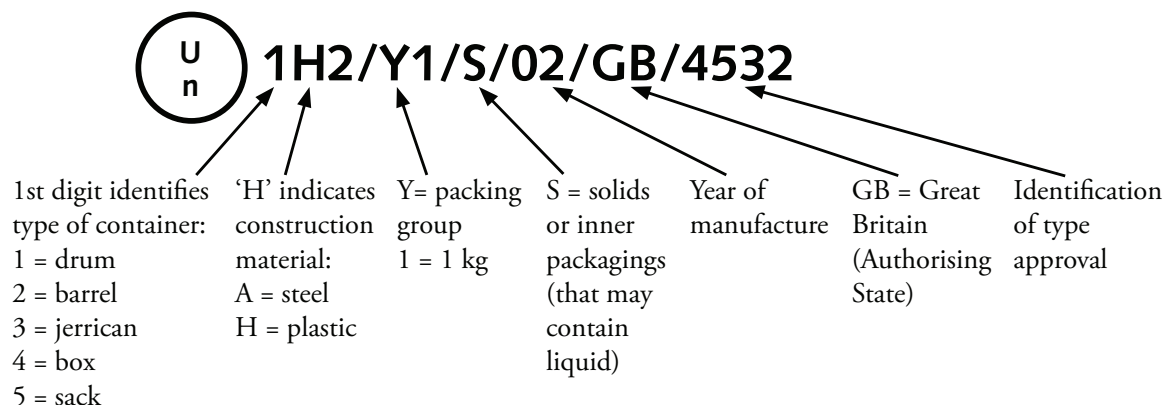
**Table 10 Packing instruction**

P621	PACKING INSTRUCTION	P621
This instruction applies to UN 3291		
The following packagings are authorised provided the general provisions of 4.1.1 except 4.1.1.15 and 4.1.3 are met:		
(1) Rigid, leak-proof packagings meeting the requirements of Chapter 6.1 for solids, at the packing group II performance level, provided there is sufficient absorbent material to absorb the entire amount of liquid present and the packaging is capable of retaining liquids;		
(2) For packages containing larger quantities of liquid, rigid packagings meeting the requirements of Chapter 6.1 at the packing group II performance level for liquids.		
Additional requirement:		
Packagings intended to contain sharp objects such as broken glass and needles shall be resistant to puncture and retain liquids under the performance test conditions in Chapter 6.1.		

**Note:** Paragraph and chapter references in this table are to sections in ADR

**Source:** ADR (2011)

7.11 Where a packing instruction is indicated in [Table 9](#), only packaging that has been UN-tested and approved (unless otherwise specified) must be used. Such packaging can be identified by the UN mark applied to the package. An example of a mark is shown below.



7.12 If the letter “S” appears in the UN mark, as shown above, the packaging may only be used for solids or inner packagings (for example bottles that may contain liquids) and not free liquids. Most sharps receptacles are type-approved for solids only and must not be used for the disposal of liquids. However, it is recognised in the testing of these packagings that there may be small amounts of liquid residue from syringes, vials etc and that the packaging must retain these quantities, usually by some absorbent material (see [paragraph 7.27](#), ‘Waste medicines (including amalgam waste)’). An example of an orange labelled bag is provided below.

## Limited quantities

7.13 ADR specifies that some dangerous goods in small quantities need not be packaged in UN-type-approved packaging. 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; advice should therefore be sought from a DGSA if using these provisions (see paragraph 7.68, ‘Documentation’ and paragraph 7.69, ‘Dangerous goods safety adviser (DGSA)’). There is no limited quantity provision for clinical waste (UN 3291).



## Specific packaging issues

7.14 Healthcare waste defined as dangerous goods is subject to packing requirements in accordance with the Carriage Regulations. The following subsections address most of the common problems.

### Clinical waste (UN 3291)

7.15 Most clinical waste will be transported as UN 3291 and it is subject to the packing requirements of P621 (see Table 10) or LP621 of ADR. The former addresses boxes and drums whilst the latter is for large packagings such as wheelie bins.

7.16 Whilst in transport, clinical waste must be carried in a rigid outer packaging unless transported in bulk (see [paragraph 7.57](#), ‘Bulk transport’). Therefore community nurses collecting small

amounts of clinical waste in their vehicles should ensure they use a rigid, secure and leak-proof receptacle, in which bags can be placed.

### Category A clinical waste

- 7.17 Occasionally a patient produces waste which meets Category A criteria (for example 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 in otherwise healthy humans or animals). Indicative examples of substances that meet these criteria are given in **Chapter 12, 'Carriage information: Category A pathogen list'**.
- 7.18 Wherever possible, the waste should be treated on site to render it safe for transport as non-dangerous goods. Where this action is not possible, the hospital/clinic will have to make an application for an authorisation (see the next paragraph). Generally, the shipment will have to be classified as UN 2814 or UN 2900 and packaged in accordance with P620.
- 7.19 However, as suitable packaging for Category A waste is generally not available, the waste producer should double-wrap the waste and then place it inside a metal or plastic drum and seek an authorisation. In the first instance, the application should be made to the VCA's dangerous goods office. The application should describe the packaging to be used and method of transport, with planned dates for disposal.
- 7.20 Contact the VCA via email: [dgenquiries@vca.gov.uk](mailto:dgenquiries@vca.gov.uk)
- 7.21 Category A clinical waste is defined for security purposes as "high consequence dangerous goods". This means that aspects of security have to be taken into account. Should it be necessary to move Category A waste, there is a need to appoint a DGSA who in the first instance should advise.

### Soiled surgical instruments

- 7.22 Where healthcare organisations are obliged to carry used medical devices or equipment by road to a centralised sterile services facility, a recent "multilateral agreement" now exempts these from the terms of ADR, providing the following conditions are met:
- They are packed in packagings designed and constructed in such a way that, under normal conditions of carriage, they cannot break, be

punctured or leak their contents, and the packagings are designed to meet the construction requirements listed in 6.1.4 or 6.6.4 of ADR.

- The packagings meet the general packaging provisions of 4.1.1.1 and 4.1.1.2 of ADR and are capable of retaining the medical devices when dropped from a height of 1.2 metres.
  - The packagings are marked "USED MEDICAL DEVICE" or "USED MEDICAL EQUIPMENT". When using overpacks, if the mark is not visible, they need to be marked.
- 7.23 This agreement does not apply to:
- clinical waste (UN 3291);
  - medical devices or equipment contaminated with, or containing, infectious substances in Category A (UN 2814 or UN 2900); and
  - medical devices or equipment contaminated with or containing other dangerous goods that meet the definition of another hazard class.
- 7.24 It is extremely unlikely that surgical instruments contaminated with pathogens of Category A will need to be transported off-site. If this is necessary, a special authorisation will be required from the VCA (see paragraph 7.19).

### Note

In 2011, this provision will be amended and simplified.

### Used linen

- 7.25 Most used linen being transported to off-site laundries will not normally be assessed as dangerous for transport.
- 7.26 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 (see **paragraph 7.9, 'Transport of packaged goods'**). Special bags are available for contaminated mattresses.



## Waste medicines (including amalgam waste)

7.27 For the purpose of transport/carriage regulations, medicinal waste will come in two types – solids (pills and powders) and liquids (ampoule contents etc). Medicines unopened in original retail packaging (for example date-expired medicines) are exempt from the Carriage Regulations.

7.28 Practice in the past has been to place UN-packaged medicinal liquids and solids into the same drums/ sharps receptacle, 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, oxidising or toxic gases;
- (c) the formation of corrosive substances; or
- (d) the formation of unstable substances.”

7.29 Therefore, waste medicines should, as far as possible, be disposed of in their original packagings (receptacles).

7.30 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 7.9, ‘Transport of packaged goods’](#)).

7.31 A similar procedure can be adopted for liquids, provided measures are taken to minimise the likelihood of breakage of the primary packaging (such as cushioning/ absorbent material).

7.32 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.

7.33 Amalgam waste may be packed in the same way as waste medicines above but the package should be marked with UN 2025 (see [Chapter 4, ‘Healthcare waste definitions and classifications’](#)).

## Sharps packaging

7.34 Sharps receptacles are tested for solids. They are not approved for the carriage of liquids. However, 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 receptacle are acceptable for transport.

7.35 However, the pouring of liquid from partially-used vials of liquid or the discharging of syringes into sharps receptacles is not in compliance with the regulations and is not permitted.

## Batteries including those used for implants/ medical devices

7.36 Batteries can contain chemicals such as lead, mercury or cadmium. If they are disposed of to landfill, the chemicals they contain may leak into the ground. This can pollute the soil and water and potentially harm human health. Recycling diverts batteries from landfill, helping recover thousands of tonnes of metals, including valuable metals such as nickel, cobalt and silver, and saving on CO<sub>2</sub> emissions by reducing the need to mine new materials.

7.37 Although hospitals are not required by law to collect and recycle all their waste portable batteries, effective segregation, collection and disposal would be considered best practice. Where hospitals provide recycling bins for batteries, they will be required to comply with the requirements of the Hazardous Waste Regulations and the Carriage Regulations, which establish special rules for packaging. Note that under Duty of Care and Hazardous Waste Regulations mixing prohibition, nickel cadmium and lead acid batteries would need to be segregated and recycled/disposed of appropriately.

7.38 When arranging the collection of waste batteries, hospitals can:

- a. liaise with a battery compliance scheme, which may be interested in collecting the batteries (although they are under no obligation to do so);
- b. contact their local council to see whether there is an amenity site or facility nearby that they can use;
- c. talk to a waste management company licensed to collect batteries; or

- d. contact their supplier of batteries to discuss collection.

7.39 For further information on recycling batteries, including the battery compliance schemes and how to comply with the Hazardous Waste Regulations and the Carriage Regulations, visit Defra's website.

## Radioactive material

7.40 For excepted radioactive material, packagings must be rigid and leak-proof and:

- be compatible with the contents;
- have absorbent material to soak any leakage inside the package;
- have no hollow surfaces on the outside which could collect water; and
- be large enough to contain all labels and markings.

7.41 If packaging is purchased "off the shelf", all instructions for use must be followed.

7.42 Conventional bags used for clinical waste are not suitable if the waste is contaminated with radioactive material.

## Other chemicals

7.43 Hospitals and other healthcare organisations use a large range of chemicals (hand gels, aerosols, industrial gases, cleaning materials etc) that may be subject to the transport/carriage regulations. This guidance does not address these in detail. It addresses waste that comes from the direct treatment of patients. Managers will have to consider these other chemicals in complying with their duties under the regulations.

## Cleaning receptacles

7.44 Transport/carriage 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.

7.45 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.

7.46 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 in the contract provisions.

## Examples of typical rigid packagings

7.47 Examples of sharps receptacles (Note: please ensure your supplier/contractor complies with all legal requirements (for example UN) for marking and labelling):







7.49 Large packaging (“wheelie bins”) should be used with the waste contained in a UN-certified plastic bag which in turn is placed in the bin. Typical UN marking will start:

- for plastic, 50H/Y/mm yy
- for steel, 50A/Y/mm yy

(mm yy = month and year of manufacture).

## Marking and labelling of packagings

7.50 Marking is the application of the UN number and where necessary the proper shipping name onto the package.

7.51 Labelling is the application of the label (commonly referred to as the hazard warning diamond) appropriate to the class of dangerous goods. The labels must be 100 mm × 100 mm except when the size of the package so requires; the dimensions may be reduced provided that they remain clearly visible.

7.52 **Table 11** 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, with the appropriate hazard warning diamond for the primary hazard. A full list of the hazard warning diamonds can be found in ADR.



7.48 Example of other boxes with firmly closing lids – typical UN marking begins 4H2/Y.

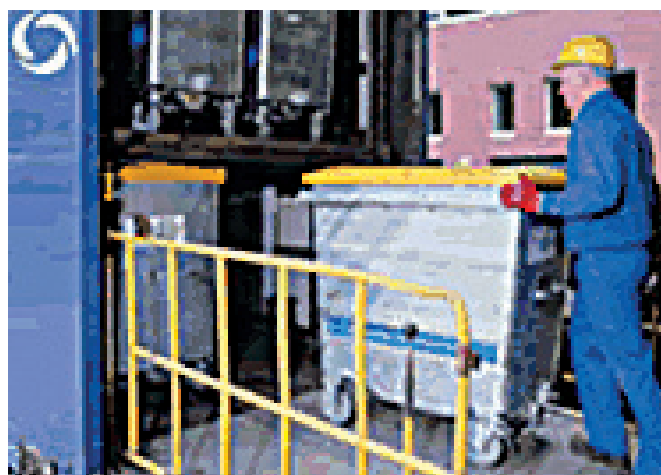


Table 11









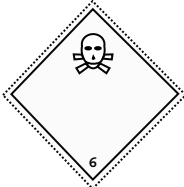


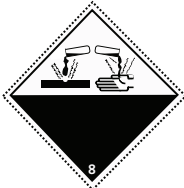
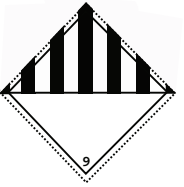
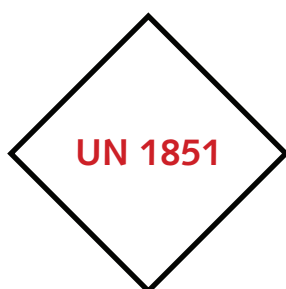
UN classification		Examples of material from healthcare premises	Hazard warning diamonds
Class 1	Explosives		
Class 2	Gases	Oxygen (UN 1072); CO <sub>2</sub> (UN 1013); LPG (UN 1978); Nitrous oxide (UN 1070); Aerosols (UN 1950)	
Class 3	Flammable liquids	Fuel (UN 1202, UN 1203); Alcohol Adhesives, paints	
Class 4.1	Flammable solids	This class provides raw materials for some drugs and medicines	
Class 4.2	Spontaneously combustible		
Class 4.3	Dangerous when wet		
Class 5.1	Oxidiser	Disinfectants and laundry chemicals	
Class 5.2	Organic peroxide		

Table 11

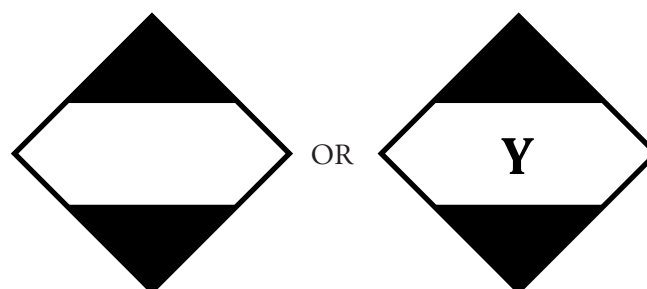
UN classification		Examples of material from healthcare premises	Hazard warning diamonds
Class 6.1	Toxic	Poisons, some disinfectants and drugs	
Class 6.2	Infectious substances including pathogens	UN 3291 infectious waste UN 2814, UN 2900 Category A substances UN 3373 Category B substances	
Class 7	Radioactive	Radiotherapy isotopes	
Class 8	Corrosives	Bleaches, cleaning materials	
Class 9	Miscellaneous	Laundry additives and some drugs	

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

7.53 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.



7.54 From 2011 for dangerous goods in limited quantities, the only mark required is as follows:



7.55 **Note** the figure on the left should be used for land transport. Some packages may have the mark on the right indicating that they are permissible in land transport but also meet additional air transport requirements, although the mark alone does not indicate that air shipments will be permitted.

7.56 When the limited quantities mark is used, there is no requirement for the UN number to appear on the package.

### Note

There is a transitional period up to 2015, and therefore any of the marks above may be seen on packages during this period.

## Bulk transport

7.57 Bulk transport of UN 3291 is permitted for healthcare waste. The load thresholds (see [paragraph 7.62, 'Transport on the road'](#)) 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 bags), the full provisions apply immediately regardless of load or vehicle size.

### Note

Further guidance on the carriage of bulk can be found at the HSE website.

7.58 In ADR, carriage in bulk is permitted:

- a. in accordance with the conditions of special provision VV11; or
- b. in an approved "BK2" container. "Container" includes the load compartment of a van or lorry.

7.59 ADR VV11 states:

"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."

7.60 VV11 bulk conditions are likely to be the most common form of bulk transport of clinical waste within the UK at the present time. The HSE has issued additional guidance on the meaning and application of this text, in particular the phrase "specially equipped vehicles". Accordingly, HSE guidance is that VV11 is satisfied if the conditions

set out below for BK2 containers are met (except for paragraph (c), although it is strongly recommended that bags to this standard are used).

7.61 The conditions for a BK2 container are as follows (extract from ADR):

### Wastes of Class 6.2 (UN 3291)

- (a) *(Reserved);*
- (b) *Closed bulk containers and their openings shall be leak-proof by design. These bulk containers shall have non porous interior surfaces and shall be free from cracks or other features which could damage packagings inside, impede disinfection or permit inadvertent release;*
- (c) *Wastes of UN No. 3291 shall be contained within the closed bulk container in UN type tested and approved sealed leak-proof plastics bags tested for solids of packing group II and marked in accordance with 6.1.3.1. Such plastics bags shall be capable of passing the tests for tear and impact resistance according to ISO 7765-1:1988 "Plastics film and sheeting – Determination of impact resistance by the free-falling dart method – Part 1: Staircase methods" and ISO 6383-2:1983 "Plastics – Film and sheeting – Determination of tear resistance. Part 2: Elmendorf method". Each bag shall have an impact resistance of at least 165 g and a tear resistance of at least 480 g in both parallel and perpendicular planes with respect to the length of the bag. The maximum net mass of each plastics bag shall be 30 kg;*
- (d) *Single articles exceeding 30 kg such as soiled mattresses may be carried without the need for a plastics bag when authorized by the competent authority;*
- (e) *Wastes of UN No. 3291 which contain liquids shall only be carried in plastics bags containing sufficient absorbent material to absorb the entire amount of liquid without it spilling in the bulk container;*
- (f) *Wastes of UN No. 3291 containing sharp objects shall only be carried in UN type tested and approved rigid packagings meeting the provisions of packing instructions P621, IBC620 or LP621;*
- (g) *Rigid packagings specified in packing instructions P621, IBC620 or LP621 may also be used. They shall be properly secured to prevent damage during normal conditions of carriage. Wastes carried in rigid packagings and plastics bags together in the same closed bulk container shall be adequately segregated from each other, e.g. by suitable rigid barriers or dividers, mesh nets or otherwise securing, such that*

*they prevent damage to the packagings during normal conditions of carriage;*

*(h) Wastes of UN No. 3291 in plastics bags shall not be compressed in a closed bulk container in such a way that bags may be rendered no longer leak-proof;*

*(i) The closed bulk container shall be inspected for leakage or spillage after each journey. If any wastes of UN No. 3291 have leaked or been spilled in the closed bulk container, it shall not be re-used until after it has been thoroughly cleaned and, if necessary, disinfected or decontaminated with an appropriate agent. No other goods shall be carried together with UN No. 3291 other than medical or veterinary wastes. Any such other wastes carried in the same closed bulk container shall be inspected for possible contamination.*

## Transport on the road

7.62 Transport of healthcare waste classified as dangerous in accordance with the Carriage Regulations 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 7.9, 'Transport of packaged goods'](#)) are exempt from other provisions of the Carriage Regulations.

7.63 ADR specifies transport categories to determine the load thresholds over which the full provisions of ADR apply. For healthcare waste, these thresholds are indicated below:

Transport category	Substance	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)	333kg/L
3	Medicines/chemical wastes PG III (UN 1851/3248/3249)	1000 kg/L

(Consult ADR for full details)

7.64 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.

See the paragraph 7.67 and the [“Community healthcare” sector guide](#) for waste arising in the community setting.

7.65 Dangerous goods in limited quantities as described above are not subject to any of the provisions.

7.66 Above the threshold, the following apply:

- additional vehicle equipment, fire extinguishers and PPE must be provided;
- vehicles must be marked with orange plates if the goods are packaged, and if in bulk they must be fitted with plates described in Schedule 1 to the Carriage Regulations;
- formal ADR-approved driver training must be provided;
- additional operational provisions as specified in ADR must be incorporated;
- a DGSA must be appointed (see [paragraph 7.69, 'Dangerous goods safety adviser \(DGSA\)'](#)).

7.67 Where small quantities of clinical waste (UN 3291) are carried in M1 vehicles (that is, private cars and car-derived vans), as happens in community nursing for example, there is no need to carry a 2 kg fire extinguisher. Bags of waste must not be placed directly into any vehicle, including a car. They must be placed in a rigid, secure and leak-proof outer packaging duly approved for the purpose.

## Documentation

7.68 For dangerous goods consigned in limited quantities, transport documentation is not required. In other cases, although waste contractors may be willing to assist with compilation of the appropriate documentation, the legal duty remains with the consignor (see [Chapter 6, 'Managing compliance'](#)). Documentation is likely to be needed to comply with the Hazardous/Special Waste Regulations.



## Dangerous goods safety adviser (DGSA)

- 7.69 Under certain circumstances, the Carriage Regulations require healthcare managers to appoint a 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.
- 7.70 DGSAs will be required when the quantity of healthcare waste classified as dangerous in transport exceeds certain thresholds in ADR (as summarised in the [table under 'Transport on the road'](#)). Any radioactive material subject to the Ionising Radiations Regulations requires a DGSA.
- 7.71 Larger healthcare organisations (for example hospitals) may need to appoint a DGSA, while small clinics and surgeries will probably not. Organisations whose main or secondary activities are not the carriage or loading/unloading of dangerous goods – but which move such goods only occasionally – need not appoint a DGSA.
- 7.72 DGSAs do not need to be employees of the healthcare organisation. Third-party consultants may be appointed. The number of DGSAs to be appointed is not prescribed other than there should be enough to ensure that their functions and duties can be carried out effectively.
- 7.73 The DGSA monitors and advises on dangerous goods carriage compliance and ensures that relevant incidents/accidents are properly investigated and reported. They must also prepare for the duty-holder an annual report on dangerous goods transport activities.
- 7.74 It is important that all those involved in the movement of healthcare waste are aware of the person providing DGSA support. The name and contact number(s) of the DGSA(s) should be listed in the site's waste management policy (see [Chapter 6, 'Managing compliance'](#)).
- 7.75 Those healthcare sites that do not need to appoint a DGSA 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, some of them may be able/prepared to assist with advice to their own customers.

7.76 Table 12 provides general guidance on the need to appoint a DGSA.

**Table 12 Appointment of DGSAs for the transport of clinical waste<sup>1</sup>**

Method of carriage	Medical premises (hospitals, clinics etc)	Waste carrier
<b>In bulk (see pictures under typical package problems)</b>	Yes	Yes
In packages		
<333 kg per load	No	No
>333 kg per load	Yes	Yes

1 This table only relates to clinical waste (UN 3291). Many medical sites move other dangerous goods (e.g. radioactive materials, industrial gases etc). These dangerous goods must be taken into account in any final decision regarding the need for a DGSA.

The carrier must aggregate all the loads he/she collects.

### Note

Most waste medicines will either be exempt from the Carriage Regulations or they will be shipped as dangerous goods in limited quantities.

### 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.

## Carriage on ships in UK waters

7.77 When transporting dangerous goods including 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.

7.78 Dangerous goods for a sea passage must be declared on a dangerous goods note to the shipping line. The documents described in **Chapter 6, 'Managing compliance'** on documentation meet the requirements of the IMDG code, provided the transport information is included. This will apply to shipments from Northern Ireland.

## On-site transport

7.79 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.

7.80 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.

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

For further information on typical package problems and regulatory requirements, visit the HSE's website.

## 8 Waste management licensing and permitting

- 8.1 This chapter provides information for waste producers on waste permitting/ licensing exemptions relevant to their activities. It also provides a brief overview of the regulations governing permitting/licensing, principally to inform and support waste managers in this element of their duty-of-care audits.
- 8.2 EU policy on waste management requires member states to 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.
- 8.3 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 landfill, to incineration – require some form of authorisation under legislation which aims to prevent environmental pollution or harm to human health, for example:
- the Environmental Permitting Regulations in England and Wales; or
  - the Waste Management Licensing Regulations, or the Pollution, Prevention and Control (PPC) Regulations in Northern Ireland and Scotland.
- 8.4 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 to operate a waste processing facility and an application for planning permission should not be considered in isolation.

### Environmental Permitting Regulations (England and Wales)

- 8.5 The Environmental Permitting Regulations were introduced to provide a streamlined system of authorisation with the objective of ensuring that for the management of waste, its storage, treatment or disposal does not cause pollution of the environment, harm to human health or serious detriment to local amenities. For waste-management-related activity in England and Wales, this combines the previous waste management licensing and pollution prevention control regimes.
- 8.6 A waste operation carried out at an installation or a mobile plant undertaking a waste operation will require an environmental permit unless it is an exempt activity (see paragraph 8.7, ‘Exemptions from environmental permitting’ and [paragraph 8.12, ‘Healthcare-related exemptions’](#)).

#### Note

The EA for England and Wales has produced a sector guidance note for operators of waste treatment facilities specifying requirements to ensure compliance with environmental permits (‘How to comply with your environmental permit: additional guidance for clinical waste (EPR 5.07)’). The guidance applies to facilities that are specifically permitted to accept clinical waste. It also covers the integrated pollution prevention and control (IPPC) Directive, best available techniques (BAT) and operational aspects of compliance, including the need for waste producers to undertake pre-acceptance audits to demonstrate compliant classification and segregation of waste. BAT also includes consideration for energy efficiency (for example, the treatment of non-infectious waste may not comply with the permit and may unnecessarily increase energy consumption).

### Exemptions from environmental permitting

- 8.7 The WFD requires establishments and undertakings carrying out the disposal or recovery

of waste to obtain a permit from the competent authority. It provides details of certain waste disposal or recovery operations that may be exempt from the need to hold a permit, but these only relate to the disposal of waste at the place of its production or the recovery of waste. It also specifies that although recovery and disposal includes storage pending a recovery or disposal operation, it excludes temporary storage pending collection on the site where it is produced (that is, some activities may not require a permit or an exemption). These activities are covered by exemptions referred to as non-WFD exemptions and do not require registration with the EA. However, the regulations do specify certain conditions for these to apply; for example, see paragraph 8.12, 'Healthcare-related exemptions' for the receipt and storage of unwanted pharmaceuticals prior to collection for disposal.

**8.8** The Environmental Permitting Regulations provide details on certain activities where a permit is not required, and these exemptions are listed and specified on the basis of whether the activity is based on use, treatment, disposal or storage of waste. Each exempt waste operation is then defined in a standard format with a heading which generally describes the nature of the operation, as follows:

- a description of the operation covered by the exemption;
- the EWC codes and a description of the waste types permitted under the exemption, with the quantities of different wastes allowed; and
- the specific conditions relating to that exempt waste operation including quantity limits and storage requirements.

**8.9** All exempt waste operations (except non-WFD exemptions) must be registered with the relevant exemption registration authority, usually the EA (using the electronic registration form where appropriate). An electronic notification form can be found on the EA's website.

**8.10** The registration for each exemption must be renewed every three years. If an establishment or undertaking registers more than one exemption for a location, the subsequent registration(s) is/are only valid until the date of renewal for the first registration.

**8.11** Further detailed guidance on exemptions from environmental permits can be found on the EA website.

## Healthcare-related exemptions

**8.12** Examples of specific healthcare-waste-related exemptions from permitting in England and Wales are as follows:

- Temporary storage at the place of production (for example a hospital storing its own waste at the hospital where it was produced) is now considered a non-WFD exemption. It must be stored:
  - (i) in a secure place; and
  - (ii) for no longer than 12 months.
- Temporary storage of waste at a place controlled by the producer (that is, not necessarily the place of production). This operation must not be undertaken in the course of providing a waste management service to another person:
  - (i) it must be stored in a secure place;
  - (ii) it must be stored for no longer than three months;
  - (iii) it must not be mixed with other types of wastes;
  - (iv) for non-liquids, the total storage volume must not exceed 50 m<sup>3</sup>;
  - (v) for liquid wastes, the total volume must not exceed 1000 L and be stored in a container with secondary containment.
  - (vi) Examples include:
    - midwives returning clinical waste from home births to the maternity unit, and other similar care in the home;
    - estates, facilities or IT staff who undertake maintenance or repair activities at a number of trust premises returning waste to a central point (for example their base) for collection (see note below);
    - an acute hospital pharmacy supplying medicines to, and collection waste medicines from, other medical practices in the same trust (see [note below](#)).
- Temporary storage of waste at a collection point in a secure container, where:
  - (i) wastes of different types must not be mixed;
  - (ii) for WEEE, the total quantity of waste stored at any one time must not exceed 30 m<sup>3</sup>;

- (iii) for non-hazardous wastes (not WEEE in this case) to be recovered elsewhere, the storage limit is 50 m<sup>3</sup>; and
- (iv) for any other wastes, the storage limit is 5 m<sup>3</sup>.
- (v) Examples include:
  - a community or acute pharmacy receiving returned medicines or sharps from domestic premises;
  - a community or acute pharmacy receiving waste medicines or sharps from other medical practices or nursing homes that are not part of the same organisation, for example where they supply medicinal products and also collect the waste medicines (see note below);
  - a hospital receiving waste from ambulances.

8.13 These are known as non-WFD exemptions and do not require registration with the environmental regulator. For further information, see the Environment Agency website. Details of exemptions for denaturing controlled drugs are provided in the “Community pharmacies” sector guide.

### Note

The hazardous waste regulations apply in full to movements of hazardous waste between non-domestic premises. The movement of hazardous waste from one pharmacy or medical practice to another pharmacy or medical practice acting as the temporary storage point must be accompanied by a hazardous waste consignment note. In addition, the pharmacy or medical practice from whose premises the waste is to be moved is a hazardous waste consignee with duties to send returns to both the environmental regulator and the producer, in addition to specific record and inventory requirements.

These requirements apply equally to movements of hazardous waste within an organisation and between organisations.

8.14 These exemptions now include ancillary treatments, meaning that some treatment operations can be carried out to make the waste easier to store and collect for its recovery or disposal elsewhere. Any ancillary treatment carried out must

not result in a change in the characteristics of the waste. The treatment carried out must be purely to help with the transport or collection of different wastes. The following are examples of some of the treatments that can be considered ancillary to the collection of waste:

- compaction of paper and cardboard in order to increase the amount of waste that can be stored within a container;
- shredding confidential papers for security purposes;
- crushing or compacting large items to allow easier loading;
- separating recyclables such as paper, card, plastic and glass from mixed wastes into separate storage containers.

### Notes

1. If an on-site compactor is used to process the general waste stream, an exemption from permitting/licensing is no longer needed.
2. See Defra’s website for latest updates on exemptions in England and Wales.

### Case study on the compaction of offensive healthcare waste

- 8.15 While it is standard practice to compact non-hazardous waste materials from the municipal, commercial and industrial sectors, the compaction of offensive healthcare waste has traditionally been avoided. This is due to the potential exposure to foul odours or body fluids arising from the rupturing of the compressed bags, as well as non-statutory guidance relating to the storage of offensive wastes.
- 8.16 Collecting, storing and transporting offensive wastes in wheeled bins is not very cost-effective. Substantial space is required to store the lightweight offensive-waste bags. This then limits the number of bags that can be transported and disposed of per consignment from the site of production, meaning that overall processing costs can be similar or sometimes higher than those for managing hazardous infectious healthcare wastes.
- 8.17 One UK hospital decided to investigate the possibility of safe and compliant compaction of such wastes using a bespoke mobile compaction unit. Following extensive research, the hospital



identified a supplier who could provide a mobile compaction unit that uses an adapted compactor ram and a leakproof charge box, ideally suited to wastes that require additional containment. It works at low hydraulic pressure so that the offensive waste bags are less prone to rupture and liquids are not mobilised during compaction.



*Mobile compaction unit*

- 8.18 The Trust's actual cost saving over year one was £88,000 owing to waste reclassification and associated transportation and disposal efficiencies.
- 8.19 The average net weight per consignment is in the region of 3.5 tonnes and the unit is exchanged twice per week – significantly less than the original wheeled-bin collection regime.
- 8.20 Regular cleaning of the charge box is not necessary because of the way the ram system is designed. In addition, the container that the waste is compacted into is fully sealed to ensure that the unit remains leak and odour-proof. (It should be noted there is a requirement for a proactive maintenance regime to be implemented to maintain the integrity of the seals.)
- 8.21 The use of the mobile waste compactor has resulted in the following process and financial savings:
  - a. Significant cost savings associated with the reduced haulage frequency of offensive wastes.
  - b. Reduced transportation from site resulting in carbon savings.
  - c. A significant reduction in the space required to store offensive waste on-site.
- d. Full containment of offensive wastes within sealed containers.
- e. Both the waste contractor and landfill operator are supportive of the process as it speeds up collection and disposal and eliminates health and safety risks associated with manually moving wheeled bins and hand-balling the offensive waste bags.

## Small clinical waste treatment plant (on the producer's premises)

- 8.22 There is no allowance in the WFD for member states to provide an exemption for the operation of a small-scale clinical waste treatment plant at a healthcare facility. Any plant, irrespective of size, that treats infectious categories of waste is subject to stringent controls and requires a permit to operate. In England and Wales, this plant is not allowed to operate without a permit under a low risk or modern regulation position.

## Laboratory autoclaves

- 8.23 For England and Wales, the on-site treatment by laboratory autoclave of containment levels 1–3 microbiological laboratory waste is presently identified in a regulatory position statement as an activity for which the Environment Agency would not normally pursue an application for a permit, and would not normally take enforcement action unless it has caused, or is likely to cause, pollution or harm to health.
- 8.24 For further information, visit the EA's website.
- 8.25 See also the 'Waste treatment and disposal' section of the "Research and laboratory facilities" sector guide, which includes guidance on the effective operation and validation of autoclaves used for this purpose.
- 8.26 Those facilities handling containment level 4 should seek advice from their local EA office (for England and Wales).

## Waste management licences (Northern Ireland and Scotland)

- 8.27 Activities subject to control by the Waste Management Licensing Regulations for Northern Ireland and Scotland include:
  - storage of waste (other than that generated by the waste producer);

- reuse, recycling or treatment of waste either at a fixed premises or via a mobile processing facility;
- operating a landfill site; or
- operating other disposal sites.

**8.28** There are some exemptions from the need to hold a waste management licence, depending on the following criteria:

- types of waste processed;
- type of activities undertaken to process waste; and
- length of time waste is being stored.

**8.29** These exemptions can be either simple or complex and usually require registration with the environmental regulator. Even if a waste-processing activity is carried out under one of these exemptions, it is still subject to statutory controls to prevent environmental pollution and harm to human health.

**8.30** For the management of healthcare wastes, the most common examples of activities subject to exemptions from the need to obtain a waste management licence can be found in paragraphs 28 and 39 of the Waste Management Licensing (Scotland) Regulations.

**8.31** In Northern Ireland, paragraph 39 allows the secure storage at a pharmacy (pending their disposal there or elsewhere) of waste medicines which have been returned to the pharmacy from households or individuals. It also allows the secure storage at the premises of a medical, nursing or veterinary practice of waste produced in carrying out that practice. The total quantity of returned

waste medicines at the pharmacy must not exceed 5 m<sup>3</sup> at any one time, and the total quantity of waste stored at the premises of a medical, nursing, or veterinary practice must not at any time exceed 5 m<sup>3</sup> (see the Waste Management Licensing Regulations (Northern Ireland) 2003).

**8.32** There are specific limitations placed on activities using these exemptions.

For more detailed information on waste management licensing or related exemptions, visit the regulator websites for Northern Ireland or Scotland.

## Pollution prevention and control (PPC) permits (Northern Ireland and Scotland)

**8.33** Activities subject to control by permit under the PPC 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.

**8.34** 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.

**8.35** Information and guidance on applying for a PPC permit is available from the NIEA and SEPA websites.

## 9 Treatment and disposal

- 9.1 This chapter focuses on the rendering safe of healthcare waste and specifies the established techniques to achieve this.
- 9.2 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. They will also be subject to detailed control by the relevant environmental regulator.

### Rendered safe

- 9.3 “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 at which no additional precautions are needed to protect workers or the public against infection from the waste;
  - destroys anatomical waste such that it is no longer generally recognisable;
  - renders all clinical waste (including any equipment and sharps) unusable and unrecognisable as clinical waste;
  - destroys the component chemicals of chemical or medicinal and medicinally-contaminated waste.

(For laboratory autoclaves, see the “[Research and laboratory facilities](#)” sector guide.)

- 9.4 Alternative treatment plants (treating waste other than anatomical waste, medicines and chemicals) should demonstrate the two criteria (a) and (c) detailed above 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 devices being newly installed.

- 9.5 The additional criteria (b) and (d) will apply if such wastes are treated.
- 9.6 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

- 9.7 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);
  - 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.
- 9.8 STAATT Level III: inactivation of vegetative bacteria, fungi, lipophilic/hydrophilic viruses, parasites and mycobacteria at a 6 log<sub>10</sub> reduction or greater; and inactivation of *Geobacillus stearothermophilus* or *Bacillus atrophaeus* spores at a 4 log<sub>10</sub> inactivation or greater.

### Criterion B: destruction of anatomical waste

- 9.9 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**

9.10 This criterion applies to both non-incineration and incineration technologies. The treatment or incineration must ensure that there is no recognisable clinical waste remaining. This reduces the likelihood of the waste causing offence and removes data confidentiality concerns from any display labels/identification of patient details on items such as specimen containers. How this is achieved may depend on the technology; however, alternative treatment plants normally macerate the waste prior to, during or after the disinfection process.

**Note**

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

**Criterion D: The rendering safe of pharmaceuticals and chemicals within the waste**

9.11 All pharmaceutically active substances, both hazardous and non-hazardous, present in the medicinally-contaminated waste and any waste chemicals should be destroyed during disposal at a suitably authorised facility. For further information on management of controlled drugs, see the Department of Health's website and the "Community pharmacies" sector guide.

**Treatment and disposal systems**

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

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

9.13 Whilst not strictly considered treatment, landfill disposal for offensive EWC 18 01 04 wastes remains a disposal option for some healthcare wastes specified in Chapter 5, 'Waste minimisation, segregation, colour-coding and storage'.

9.14 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 type of waste to be treated (see Chapter 5, 'Waste minimisation, segregation, colour-coding and storage');
- the volume of the waste to be treated;
- support capabilities of the supplier;
- staffing requirements; and
- initial and continuing operating costs.

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

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

9.17 All treatment and disposal facilities that accept waste on-site for treatment or disposal require an environmental or PPC permit or a valid exemption from the permitting or licensing regime (discussed in more detail in Chapter 8, 'Waste management licensing and permitting'). For an overview of specific high temperature and non-burn/low temperature alternative technologies, see Chapter 11, 'Clinical waste treatment and disposal overview'.

**Discharge to sewer**

9.18 Any discharge to sewer, other than domestic sewage, must have the prior agreement of the statutory responsible bodies. Anybody intending to dispose any waste to sewer that may present a substantially greater risk of damage to the sewerage undertakers' assets than domestic sewage should first seek advice from the sewerage undertaker.

9.19 Some examples of typical discharges are:

- body fluids – blood and similar potentially infectious substances (for example from suction canisters or wound drains) – the approval of the sewerage undertaker should be sought;
- 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 – the approval of the sewerage undertaker should be sought;



- the discharge of shredded material – 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.
- 9.20 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.
- 9.21 Water UK on behalf of its member water companies has produced a guidance document for the treatment of waste water arising from healthcare activities, aimed primarily at acute hospital trusts.
- 9.22 Although not an all-inclusive list, the following represents an overview of typical areas of activity in healthcare facilities where discharge to sewer occurs:
- in-patient accommodation within hospitals – typical arisings include urine/faeces/vomit, macerated single-use items, disinfectant chemicals from cleaning and spillage response;
  - kitchen and catering facilities – main arisings are food waste via sink macerators, usually contributing significant oil/grease content to the effluent. This may also contain disinfectant cleaning chemicals;
  - laboratories including pathology – potential for a variety of chemical residues, either from direct flushing/rinsing of glassware or wash effluent from industrial washer/dryer machines;
  - radiology departments – potential for a variety of photochemical contaminants in effluent;
  - centralised sterile services departments – contributes significant quantities of detergents and sterilization chemical residues.
- 9.23 Waste producers should first seek advice from their sewerage undertaker before disposing of medicines to the foul sewer, particularly waste arising from the use of cytotoxic or cytostatic medicines.

## Specific treatment/disposal requirements

### TSE-infected waste

- 9.24 Waste known or suspected to be contaminated with TSE agents, including CJD, must be disposed of by

high-temperature incineration in suitable authorised facilities.

- 9.25 Additional guidance on the management of TSE-contaminated waste is given in the Department of Health's 'Transmissible spongiform encephalopathy: Safe working and the prevention of infection'.

### Cytotoxic and cytostatic waste

- 9.26 Waste contaminated with cytotoxic and/or cytostatic substances should be disposed of in suitable authorised facilities, normally incineration facilities.
- 9.27 Sharps receptacles 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)

- 9.28 Waste contaminated with genetically modified microorganisms (GMMs) must be inactivated by a validated means.
- 9.29 "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"*.
- 9.30 This implies that the degree of inactivation required will vary depending on the nature of the GMMs being used.
- 9.31 There are a number of commercial treatments/disposal facilities currently used for infectious waste that are able to effectively inactivate genetically modified organisms (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.

**9.32** Waste containing GMMs which is collected for treatment/disposal by contractors before it has been inactivated is subject to the requirements of the Genetically Modified Organisms (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.

**9.33** Where the waste has been inactivated, 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.

## Mercury

**9.34** Elemental liquid mercury can be present in redundant-measuring devices (for example sphygmomanometers). These will be classified as hazardous waste and their disposal subject to specific control; that is, it should be ensured that the waste contractor transfers the waste to an authorised permitted treatment facility to recover the mercury and prevent release to the environment (mercury is a persistent pollutant and does not break down in the environment). For this reason, care should also be taken to ensure the mercury is contained prior to and during both collection and transportation.

## Amalgam

**9.35** The Hazardous Waste Regulations require that dental amalgam waste is kept separate from other waste and consigned to an appropriate waste management facility. In addition, 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.

## 10 Sector guides

**Note:** these Guides provide general information addressing sector aspects. Readers will need to refer back to the main document for more specific detailed advice.

# Ambulance services

## Scope and target audience

- 1 The role of the ambulance service and emergency care has expanded to incorporate new and diverse ways of approaching care in the community (for example the introduction of emergency care practitioners (ECPs) and rapid response teams).
- 2 The ambulance service, as a producer of healthcare waste and specifically infectious waste, is required to comply with waste regulations including the Hazardous Waste Regulations (Special Waste Regulations in Scotland) and therefore needs to ensure that waste is segregated, described, classified and disposed of appropriately.
- 3 This sector guide is aimed at ambulance trusts including paramedics, ECPs, first responders and ambulance transport services.
- 4 In addition there may be circumstances whereby the ECPs, first responders, rapid response vehicles or paramedics should follow the '[Community healthcare](#)' sector guide in relation to the categorising and disposing of waste.
- 5 contractor. For example, uncontaminated packaging may be placed in the municipal waste stream, or uncontaminated PPE in the offensive waste stream.
- 7 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 (see [paragraphs 7.17 'Category A clinical waste'](#), [7.22 'Soiled surgical instruments'](#) and [7.25 'Used linen'](#)).
- 8 During major incidents, pooling of blood may occur on the roadside. Although this can be sluiced with water and allowed to run off to sewer, it is not the responsibility of the ambulance crew and should be managed by the Highways Agency or local highway authority as appropriate.
- 9 If there is an incident involving the pooling of blood or body fluid from a Category A patient, it should be contained, treated and disposed of as appropriate. This will involve decontaminating the pooled-blood area before it is released; however, once again this is not the responsibility of the ambulance crew.

## Waste risk assessment

- 5 Classification of waste produced by emergency care and treatment requires a clear risk assessment. Users of this sector guide should therefore refer to the waste assessment framework in [Chapter 4, 'Healthcare waste definitions and classifications'](#) to ensure the correct classification is applied. This will then influence subsequent decisions on segregation, storage and treatment thereafter.
- 6 Owing to the lack of prior knowledge of patients' medical history (from patient records and screening), the ability to classify healthcare waste as non-infectious for emergency care services is more challenging than in some other settings, where this information is more readily available. However, the assessment and subsequent processing of the waste must thereafter comply with legal requirements to segregate hazardous from non-hazardous waste (England and Wales), whilst ensuring the EWC number assigned to the waste reflects those permitted for receipt by the waste treatment

## Example waste streams

- 10 [Table 13](#) provides examples of typical waste arising from activities in the ambulance sector. Ambulance trusts can and should implement the following:
  - yellow-lidded sharps receptacles;
  - orange waste receptacles for infectious waste;
  - black or clear waste receptacles for domestic waste;
  - yellow/black waste receptacles for offensive waste.

### Note

Owing to limitations of space and the various types of ambulance transportation, the specific size of the bins or bags and the type will vary (see [paragraph 14, 'Waste receptacles and storage'](#)).

**Table 13 Examples of typical waste arising in the ambulance sector**

Activity/cause	Waste type	Classification	Justification	Disposal route
Injections	Contaminated sharps/ syringe bodies with medicinal residues	Yellow-lidded sharps receptacles EWC: both 18 01 09 and <b>18 01 03*</b>	Potentially contaminated with medicinal (non-cyto) products	Incineration
Treating patients (this may include a range of activities)	Medicines and medicated intravenous bags (non-cyto)	Yellow-lidded receptacle, clearly labelled <sup>1</sup> EWC: 18 01 09	Medicinal products require segregation	Incineration
Items/equipment/ instruments for treating patients	Contaminated packaging/gloves/ aprons/other PPE/ dressings/airways/ suction liners etc/plastic and metal laryngoscope blades <sup>2</sup>	Infectious waste in orange waste receptacles EWC: <b>18 01 03*</b>	Risk assessment required; however, as they are in contact with patients and are contaminated with body fluids, it is unlikely that they will be classified as non-infectious i.e. no patients records or screening	Alternative treatment or incineration <sup>3</sup>
Items/equipment/ instruments for treating patients/passenger transport services	Uncontaminated aprons/other PPE etc/non-medicated intravenous bags/ non-infectious urine/ faeces/vomit and their containers <sup>4</sup>	Offensive/hygiene disposed of in yellow/ black bags EWC: 18 01 04	Risk assessment to determine no possible contamination and non-infectious	Non-hazardous municipal incineration/ energy from waste or landfill – only if there are no liquids for this last option <sup>5</sup>
Packaging as a result of treating a patient  or  other municipal wastes	Contaminated packaging – plastic and cardboard  or  if uncontaminated – packaging and municipal wastes	Infectious after use, disposed of in an orange bag EWC: <b>18 01 03*</b>  or  if non-infectious EWC: 20 03 01	Used packaging, whilst carrying out patient treatments in the vehicle, will in most circumstances not be infectious/clinical waste	Alternative treatment or incineration if contaminated infectious  or  non-hazardous municipal incineration/ energy from waste, materials recycling facilities or landfill.

**Notes:**

1. Liquids may be placed only in containers which are leak-proof and designed for liquids
2. If metal, specific arrangements for disposal may be required
3. The waste producer needs to liaise with the waste contractor/appropriate party for disposal – see **paragraph 19, 'Disposal options'**
4. Bone injection guns would not normally be contaminated or infectious following correct use
5. Liquids (eg intravenous bags with fluids) are banned from landfill, and only limited quantities for disposal at municipal incineration or energy from waste may be permitted. The ban also applies to liquids such as body fluids (eg urine, vomit). Small quantities may be absorbed on to paper towels to clear a spillage and these items then subjected to infectious/offensive assessment

- 11 Staff whose uniforms are contaminated with infectious materials or infectious waste should refer to infection control and laundry procedures. Unless discarded, the uniforms are not normally designated as waste.

## Limbs and body parts

- 12 Limbs, body parts and tissue retrieved from an accident site should accompany the patient to hospital. If the body part can be reattached, it is not classified as waste; therefore, this guidance does not apply. The limbs and tissue should be managed in line with clinical assessment for preservation:
- contained in a bag or container;
  - sealed; and
  - the patient's identification marked on the receptacle.
- 13 Limbs, body parts and tissues that are clinically assessed to be beyond reattachment or use are classified as waste and should be contained in an appropriate container (suitable for containing any protruding bone) marked for incineration only, and be sealed with a plastic tie/tag that identifies the ambulance sector and area (see [Chapter 5, 'Waste minimisation, segregation, colour-coding and storage'](#)).

## Waste receptacles and storage

- 14 Where any infectious waste is being transported in vehicles prior to disposal, the waste should be appropriately packaged in safe and secure conditions. All waste receptacles including bags and containers should be in accordance with the specifications detailed in Chapter 5, 'Waste minimisation, segregation, colour-coding and storage'. For packaging used for body parts or limbs, the packaging needs to be strong enough to resist the protrusion of bones.
- 15 Waste streams should be clearly identifiable and labelled in accordance with the waste classification and any specific requirements, depending on the disposal route. For example, waste dropped off at a hospital should be labelled by the specific ambulance trust.
- 16 Sharps receptacles used during the course of ambulance/patient transport services should be correctly assembled, labelled, dated and signed as appropriate.

- 17 The sharps receptacle should be disposed of when it is filled to the fill line indicated on the container and should never exceed the permissible marked mass.
- 18 All sharps receptacles should be transferred in compliance with the duty of care regulations and finally disposed of at suitably authorised waste disposal facilities either by the hospital where it is dropped off or by the ambulance trust.

### Note

Agreement on the standard format of waste receptacles required in ambulances has yet to be agreed (at time of writing). However, minimum requirements include:

- yellow-lidded sharps receptacle;
- orange bag for soft infectious items;
- black or clear bag for non-hazardous municipal items (for example packaging and general detritus); and
- yellow/black bag for non-infectious/offensive items (for example uncontaminated PPE).

## Disposal options

- 19 The ambulance service, due to its varying patient-care activities, has a number of options available when disposing of waste.

### Option 1 – emergency response

- 20 Emergency ambulances, including air ambulances, can transfer their waste to the hospital where they are transporting the patient for care and treatment, but only if the hospital has agreed to provide that service.

### Note

The hospital is not required to provide this service; it is, however, considered best practice.

- 21 First responders generating waste on-site should ensure they hand the waste to the attending emergency ambulance for disposal.
- 22 Other types of ambulance service that may generate small quantities of waste should either dispose of the waste at the attending hospital or take it back to base for collection and disposal.



- 23 Where the ambulance trust drops its waste off at a hospital, this is classed as waste transfer. Therefore, duty of care applies and the trust should:
- ensure that the appropriate agreements are in place to enable it to transfer its waste to the hospital;
  - comply with the requirements of duty of care, and in particular ensure that its waste is transferred with a detailed waste description and classification to enable the hospital to dispose of it appropriately;
  - ensure that the waste is correctly packaged and labelled in a manner that identifies the ambulance trust as the producer;
  - use a designated waste container(s) (for example a wheeled cart) for the storage of this waste at the hospital;
  - liaise with hospitals to confirm arrangements for disposal (for example it should ensure that the destination disposal facilities are suitably authorised and the waste descriptions and classifications on the paperwork leaving the hospital are accurate).

### Note

A hazardous waste consignment note is not required for the transfer of the hazardous waste from the ambulance to the ambulance station or hospital. A duty of care transfer note is, however, required, although there are mechanisms to enable this to be done on an annual basis.

- 24 The hospital can accept the waste from the ambulance trust under a non-registerable exemption from an environmental permit for temporary storage at a collection point, only where a series of specific conditions are met. These include:
- The ambulance trust must not pay the hospital.
  - The waste should not include flammable substances with a flash-point of less than 21°C.
  - Different waste types must not be mixed.
  - The waste must be stored in a secure container(s).

- The waste can only be stored temporarily (for example for less than three months).
- The total quantity of waste stored under this exemption cannot exceed 5 m<sup>3</sup> of hazardous waste (the hospital will typically have a number of other sources of imported waste that contribute to this total in addition to the ambulance trust).

### Note

If the hospital receives payment for this service, the storage is not exempt and an environmental permit is required.

- 25 For waste that is disposed of through the ambulance station, 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.

### Option 2 – waste in the community

- 26 ECPs, first responders, and rapid-response vehicles etc should follow the disposal options and guidance provided in the “**Community healthcare**” sector guide, in particular for infectious and offensive waste streams.
- 27 For clinical waste produced in the community setting, ambulance trusts should liaise with the appropriate authority (that is, the PCT or local authority) to obtain information on disposal arrangements.

### Option 3 – ambulance transport services

- 28 For services such as patient transport services, it is less likely that any infectious waste will be produced. Where domestic-type waste is generated and has been risk-assessed, this can safely be disposed of in the black-bag waste or recycling streams and deposited for disposal at the nearest hospital or returned to base, depending on arrangements.
- 29 If infectious waste is generated, it should be disposed of in the orange-bag waste stream and either disposed of at the hospital with their prior knowledge and agreement or taken back to base.

# Research and laboratory facilities

- 1 In conjunction with the Hazardous Waste Regulations and the Carriage Regulations, this sector guide emphasises duties under COSHH and the Genetically Modified Organisms (Contained Use) Regulations 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’ (Health Services Advisory Committee (HSAC));
  - ‘Biological agents: managing the risks in laboratories and healthcare premises’ (the Advisory Committee on Dangerous Pathogens (ACDP));
  - ‘The management, design and operation of microbiological containment laboratories’ (ACDP);
  - ‘Scientific Advisory Committee for Genetic Modification compendium of guidance’ (SACGM).
- 3 The rules for the transport of waste specimens that are classified as dangerous for transport from laboratories are set out in the Carriage Regulations, which require the application of ADR (see [Chapter 3, ‘Legislation and healthcare waste’](#)).
- 6 For the most part, the research and laboratory facilities most likely to generate infectious waste include:
  - research laboratories (for example universities);
  - 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).
- 7 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).
- 8 To ensure that exposure of laboratory workers (in accordance with duties under COSHH) or laboratory workers and the environment to pathogens (in accordance with duties under the Genetically Modified Organisms (Contained Use) Regulations), GMMs or specimens is prevented or else adequately controlled, such work is undertaken at an appropriate containment level (CL).
- 9 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

## Brief description of the sector activities

- 4 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 GMMs).
- 5 While this guidance focuses on waste generated in healthcare premises, it is also pertinent and applicable to healthcare waste from other occupational settings.

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 (CL1 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'.

- Category B – an infectious substance which does not meet the criteria for inclusion in Category A.

- 11 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

- 12 The definition of cultures in ADR, for transport, 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."

- 13 Cultures will include HG2, HG3 or HG4 pathogens as well as Class 1, 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 specimens.
- 14 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.

## Waste classification and segregation

## Note

Chapter 4, 'Healthcare waste definitions and classifications' explains the basis for classification of different types of healthcare waste using the six-digit numbers in line with the EWC.

- 10 **Table 14** summarises the classification, packaging and disposal for some of the most common hazardous waste emanating from laboratories. The table shows the waste classification alongside the transport classification. For transport, infectious substances must be classified 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;

- 15 For organisms on the Category A indicative list found in **Chapter 12, 'Carriage information: Category A pathogen list'** (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".
- 16 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.

- 17 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.
- 18 Whether classified as Category A or B, all cultures of pathogens (that is, HG2 to HG4 pathogens or Class 2 to Class 4 GMMs) should be inactivated on-site prior to final disposal because of the increased risk of exposure associated with the higher concentration of biological agents therein.
- 19 The Genetically Modified Organisms (Contained Use) Regulations specify where waste containing GMMs should be inactivated for Class 3 (within the laboratory suite) and Class 4 (within the laboratory) activities. Where CL1 and CL2 GM waste is being sent off-site for treatment, a derogation is required by the HSE, which is the competent authority.
- 20 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

- 21 Clinical specimens should have been sent to the laboratory as Category A or Category B and therefore should be disposed of as waste in the same manner unless they have been neutralised to make them non-dangerous.
- 22 Clinical specimens are defined for transport thus:  
“Patient specimens are human or animal materials, collected directly from humans or animals, including but not limited to, excreta, secret, 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.”
- 23 It is therefore strongly recommended that unless it is known, or reasonably believed, to contain infectious substances of Category A, all human or animal material **should be** regarded as UN 3373.
- 24 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 4](#)). 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.
- 25 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.
- 26 To inform the risk assessment, positive specimens from CL3 and CL4 should be classified as Category A waste and those from CL2 be classified as Category B waste.

### Environmental samples

- 27 A similar risk assessment needs to be made for environmental samples (non-human/animal-derived).
- 28 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

- 29 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.

- 30 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

- 31 Chapter 7, 'Transport packaging and operations' provides detailed information for transport packaging and operations including the requirements for Category A wastes.

### Packaging of infectious waste for transport

- 32 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. Where the substances are Category B, they may be disposed of in the same way as clinical waste (see paragraph 7.15, 'Clinical waste (UN 3291)').
- 33 For Category A substances, the procedures set out in paragraph 7.17, 'Category A clinical waste' should be followed; they must be packaged in accordance with P620. For Category B substances, they must be packaged in accordance with P650 (not covered in this Health Technical Memorandum, see ADR P650).

### Marking and labelling of infectious waste

- 34 Category B infectious wastes should be marked and labelled in accordance with the Carriage Regulations. For further details, see paragraphs 7.43, 'Other chemicals', 7.44 'Cleaning receptacles' and 7.50 'Marking and labelling of packagings'.

## Waste storage and transport

- 35 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.

- 36 This waste should not be stored in communal areas for any extended period unless appropriate security and safety controls are in place.

- 37 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

- 38 Category A waste emanating from CL4 laboratories should be inactivated within the laboratory.
- 39 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).
- 40 Where such waste needs to be transported to a remote autoclave, it must be delivered as safely as possible.
- 41 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.
- 42 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

- 43 Where the waste needs to be transported off-site for inactivation by incineration or for rendering safe by alternative methods, a licensed and reputable contractor should be used.
- 44 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.



## Waste treatment and disposal

- 45 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 the Genetically Modified Organisms (Contained Use) Regulations to inactivate the waste within the laboratory suite (Class 3) and within the laboratory (Class 4).
- 46 With regard to pathogens that present a significant risk to the community, for employers to legally comply with the requirements of COSHH (see [paragraph 20](#)), they should inactivate the waste on-site.
- 47 While Category B waste (orange) can be rendered safe by alternative means, many of the alternative methods require a pre-treatment 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.
- 48 The maceration step may not only generate significant aerosols but also 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, 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 pre-treatment processes such as maceration (for example enclosed process, means of sterilizing contents in-situ, inward airflow).
- 49 To comply with COSHH and the Genetically Modified Organisms (Contained Use) 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**.
- 50 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 Log<sub>10</sub> reduction or greater) should be achieved for such loads.
- 51 Autoclave performance should be checked annually using independent thermocouple tests and the performance should be monitored using biological, chemical or thermal indicators on a regular basis.
- 52 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’).

- 53 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. This requires an authorisation for Category A waste and requires adequate security plans to be in place (see

Chapter 7, 'Transport packaging and operations').

The duty for movement lies with the consignor (waste producer) but will involve arrangements with the waste contractor for its safe collection, transport and disposal.

- 54 Where secondary receptacles (for example wheeled bins) are returned to the consignor, or sent elsewhere, they should be thoroughly disinfected or sterilized; any label or marking indicating that it had contained an infectious substance should be removed or obliterated.
- 55 Subject to appropriate process controls, some waste residues can be managed as trade waste. Many might be considered for recycling. These wastes might not require formal shredding if the treatment process renders them effectively unrecognisable and unlikely to cause offence.

## General provisions

- 56 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.
- 57 In line with existing guidance, each laboratory should have a strictly administered policy that includes waste management and which is supported by local SOPs specifying the arrangements for the handling and disposal of laboratory waste.
- 58 Staff should receive appropriate instruction and training on all relevant aspects of health and safety within the laboratory including:
  - waste management arrangements such as appropriate classification and segregation of the waste; and
  - the SOPs for its safe storage, carriage, treatment and disposal.

- 59 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.
- 60 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 laboratory management.
- 61 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.
- 62 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.

## Transport security

- 63 Where a laboratory is involved in testing and transporting infectious Category A substances, the laboratory must meet the security requirements of Chapter 1.10 of ADR. The Department for Transport security and contingencies team (TRANSEC) has provided guidance on this. Details can be obtained from their website.

Table 14 Classification, packaging and disposal for examples of laboratory-derived hazardous waste

Waste type	Examples	EWG 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 <sup>1</sup> 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 <sup>1</sup> P621/PP621 (yellow bags and wheeled bins)	Recommended on-site treatment: render safe at licensed/permitted treatment facility
Anatomical waste may be infectious (Category A) <b>Chemical</b> codes if chemically preserved	Limbs, organs, biopsies, tissue samples	18 01 03* & 18 01 06* 18 02 02* & 18 02 05*	Y	Class 6.2, UN 2814/UN 2900	Yellow P620 (three-part packaging)	Hazardous waste incineration
Sharps not contaminated with medicines or chemicals	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
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 wheeled bins)	Render safe at licensed/permitted treatment facility
Treated laboratory waste <sup>2</sup> (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.

# Community healthcare

## Scope and target audience

- 1 Community healthcare can take many forms and occurs in various environments. It includes activities undertaken by all healthcare workers who provide services outside of the hospital to:
  - patients in their own homes;
  - residents of care homes (without nursing care);
  - householders who are self-medicating and self-caring.

### Note

“Patients in their own homes” includes those living in assisted living premises where there is on-site monitoring of residents’ activities to help to ensure their health, safety and well-being. Where there is provision of healthcare services by NHS and non-NHS healthcare providers (for example group homes), this sector guide applies.

- 2 Community healthcare workers, as producers of healthcare waste and specifically infectious waste, are required to comply with waste regulations including the Hazardous Waste Regulations (Special Waste Regulations in Scotland) and therefore need to ensure that waste is segregated, described, classified and disposed of appropriately.
- 3 A rational approach to assessment of infectious waste is applied using a risk-assessment approach. Both infectious and offensive waste streams require management in community settings. Using this rational approach will reduce unnecessary costs and introduce potential carbon savings associated with the unnecessary treatment of non-infectious waste.

### Note

Other community healthcare workers not listed above should refer to the main guidance and sector guides where applicable. This section does not apply to:

- general practices;

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

## Waste risk assessment

### Infectious waste

- 4 Waste is classified as infectious waste where:
  - it arises from a patient known or suspected to have an infection, whether or not the causal agent is known, and where the waste may contain the pathogen; or
  - where an infection is not known or suspected, but a potential risk of infection is considered to exist.
- 5 This assessment must be done on a patient-specific basis. This should be classified as hazardous infectious waste and should be packaged appropriately and sent for suitable treatment and disposal (see [Table 15](#)).
- 6 The Carriage Regulations (see [Chapter 4](#), ‘[Healthcare waste definitions and classifications](#)’) 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 viral haemorrhagic fevers;
  - **Category B infectious substances (UN 3373):** this classification includes all other waste classified as infectious waste and these are the most common types of infectious waste. Category B infectious waste substances consigned as waste will be to UN 3291.

## Management of Category A infectious waste in the community

- 7 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 it is suspected that a Category A infectious substance has been encountered, the Health Protection Agency and the Department for Transport should be informed for additional advice and authorisations regarding the movement of the waste.
- 8 The Carriage Regulations specify that Category A substances should only be packaged in specialist packages and boxes – for further details see [Chapter 7, 'Transport packaging and operations'](#) for transport requirements.

## Management of Category B infectious waste in the community

- 9 See [paragraph 42, 'Transporting offensive or infectious waste from patients' homes'](#) for collection arrangement options.

### Assessing whether waste poses a risk of infection

- 10 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”.
- 11 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 initial generic risk assessment is to be used in conjunction with the waste assessment provided in ‘Healthcare waste definitions and classifications’.
- 12 The usual contaminants associated with typical items of healthcare waste are blood and body fluids incorporating urine, vomit, sputum, faeces, pus and wound exudates. These general categories should be used to subcategorise the waste as either:

- infectious – waste from any known or suspected infection, and from any other cases where a risk of infection has been identified; or
- contaminated with body fluids more suited to the offensive classification (that is, lower risk wastes).

- 13 The waste, the risk posed by the waste and the waste classification will always be classified the same regardless of the healthcare setting (for example whether in the acute hospital or the community environment).
- 14 Examples of contaminated items are swabs/wipes, bandages, bed pads, equipment, protective clothing (gloves, aprons), single-use items. [Table 15](#) provides a matrix for classifying offensive and infectious waste in the community. This should be referred to in line with [Chapter 4, 'Healthcare waste definitions and classifications'](#).

### Note on patients colonised with microorganisms that staff traditionally manage with protective equipment such as gloves and aprons (for example MRSA, glycopeptide-resistant enterococci (GRE) or colonisation with other multi-resistant bacteria)

Where a patient in the community has been found to be carrying a multi-resistant organism and is being cared for by a healthcare worker, the healthcare waste generated is not necessarily infectious.

In assessing the risk of infection from waste produced by such a patient, the following should be considered:

Is the patient colonised but not receiving specific treatment for infection with this microorganism (for example MRSA)?

If the answer is “yes”, the status of the patient does not affect the assessment of the waste. The healthcare worker should refer to the wound and dressing assessment given in [part 1](#) and [part 2](#) in this sector guide.

Is the patient colonised and receiving treatment for an infection (for example, MRSA)?

If the answer is “yes”, an assessment of waste is required.

Is the patient infected with MRSA and receiving treatment, and is the microorganism present in the waste generated?

If the answer is “yes”, the waste produced should be classified as infectious waste.



Table 15 Risk assessment approach to waste segregation based on likelihood of infection being present

Contaminant	Proposed general classification	Examples	Exception to this rule
Urine, faeces, vomit and sputum	Offensive (where risk assessment had indicated that no infection is present, and no other risk of infection exist)	Urine bags, incontinence pads, single-use bowls, nappies, PPE	Gastrointestinal and other infections that are readily transmissible in the community setting (e.g. verocytotoxin-producing <i>Escherichia coli</i> (VTEC), campylobacter, salmonella, chickenpox/shingles) <sup>1</sup>  Hepatitis B and C, HIV – only if blood is present <sup>1</sup>
Blood, pus and wound exudates	Infectious unless assessment indicates no infection present. If no infection, and no other risk of infection, then offensive	Dressings from wounds, wound drains, delivery packs	Blood transfusion items  Dressings contaminated with blood/wound exudates assessed not to be infectious.  Maternity sanitary waste where screening or knowledge has confirmed that no infection is present and no other risk of infection exists

**Notes:**

All Category A and B species, and therefore downstream waste items, will be deemed infectious/hazardous under waste regulations irrespective of the contaminant matrix.

- 1 Potential hazards from the use of cytotoxic and cytostatic medicines may also be relevant in some instances and with some drugs. This would also prevent the waste being considered offensive

- 15 Following the generic assessment, there are two further parts to the risk assessment.

**Part 1: wound assessment**

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

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
Is the wound to be swabbed for infection?	Medium

**Note:**

It should 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 the local tissue viability specialist nurse.

- 17 If the wound assessment indicates that the wound is infected, all associated contaminated dressings etc should be classified as infectious waste to comply with the definitions of infectious waste given in Appendix C9 of WM2.
- 18 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. If the waste is infectious, this will need to be packaged for appropriate treatment and disposal. This will usually be in an orange bag.

### Part 2: non-infectious dressings

- 19 Where either 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):
- Contaminated dressings from a wound assessed by the healthcare worker as non-infectious can be treated as non-hazardous and should be contained and disposed of in the offensive/hygiene stream.
  - 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.
  - Mixed domestic waste does contain small numbers of plasters, small dressings and incontinence products. Where the healthcare worker produces the same or similar items, these – with the following considerations – can be double-bagged and placed in the domestic waste (with the householder's permission). The following should be considered:
    - type of healthcare waste – if it looks like a healthcare waste, and is not obviously a normal constituent of domestic waste, then it should not go in the black bag;
    - 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 (for example that bought from a local pharmacy or supermarket by the householder), it may be discarded in the domestic waste;
    - packaging – where such waste is placed in the domestic refuse, the waste should be wrapped in a plastic bag. The wrapping should not be yellow or orange, as the waste is not deemed to be infectious – thin opaque plastic bags such as sandwich bags and bin liners are appropriate.

### Offensive/hygiene waste arising from healthcare

- 20 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 are provided in [Table 15](#) under 'Management of Category B infectious waste in the community'.
- 21 This waste should be segregated at source and packaged and treated as offensive/hygiene waste. In principle, this should not be placed in the domestic waste; however, exceptions to this have been noted above in paragraph 19 and below at [paragraph 35, 'Stoma/catheter bags'](#).

### Notes

- Any offensive waste arising from a patient being treated with cytostatic or cytotoxic drugs should be sent for incineration in yellow bags with purple stripes (yellow bags are also acceptable), as traces of these medicines may appear in contaminated items. The incineration of such wastes will ensure complete destruction. Alternative arrangements may be made following expert advice on the behaviour of the particular pharmaceutical which indicates that the medicine or dangerous breakdown products will not be present in the waste item in question.
- Any liquid waste classified as offensive following a risk assessment will most likely be disposed of at the premises via the foul sewer. Liquid wastes are banned from landfill; therefore, non-infectious body fluids (for example urine/vomit), although classified as offensive, should not be disposed of in the offensive yellow/black waste stream if this is being sent to landfill. They can, however, be absorbed onto a cloth (for example kitchen towel) or solidified with absorbent or gelling granules, for example, and placed in the offensive bag whilst ensuring there is no free-flowing liquid present.

## Example waste streams

- 22 Examples are provided in [Table 16](#) for typical waste arising from activities in the community sector. Healthcare workers will produce the following waste types and require the following colour for segregation:
- yellow- or purple-lidded sharps receptacle;
  - orange bags for infectious waste;
  - black/clear bags for domestic waste;
  - yellow/black bags for offensive waste;
  - red-lidded container for anatomical waste (for example placentas).
- 23 The colour of the waste receptacle will depend on how the waste should be treated and disposed of as detailed in [Table 16](#) (further details on classification are provided in this sector guide).

### Notes

1. Sharps receptacles must be UN-type-tested and approved, tested and certified to BS 7320 (see 'Transport packaging and operations').
2. Sharps receptacles should be collected when filled to the fill line and should never exceed the permissible marked mass. If the sharps receptacle is seldom used, it should be collected after a maximum of three months, regardless of the filled capacity.

### Self-medicating patients and sharps disposal

- 24 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 a sharps receptacle relevant to the medication being administered and advise them of local disposal options.
- 25 The householder should be trained in how to use the sharps receptacle before it has been prescribed, to ensure that they understand its use and ensure it is correctly sealed and labelled.
- 26 Once the sharps receptacle is filled to the "fill line", it should be sealed by the householder and taken back either to the GP surgery or to the local pharmacy for disposal, or arrangements for collections should be made with the PCT or local authority. For self-medicating housebound patients, the GP or healthcare worker responsible for prescribing treatment should advise on collection arrangements.
- 27 Local authorities have specific duties in relation to healthcare waste as detailed in [paragraph 3.19](#), 'Local authorities' responsibilities'. Authorities have a duty to collect household waste including healthcare waste from domestic properties. Under the Controlled Waste Regulations, the authority may charge for the collection of specific waste streams, which includes clinical waste (that is, healthcare waste from a householder's sharps receptacle).

### 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.

### Case Study: Partnership Working and Benefits for all

- 28 Contaminated needles and sharps produced in the community can cause problems for Local Authorities and PCTs unless a robust storage and collection system is in place. Diabetics and other sharps users have in some instances in the past been advised to place sharps in a plastic bottle for disposal; however, this presents a potential risk to council staff during collection. In addition to this, it was felt there was a general lack of awareness of how to dispose of clinical waste by residents and holidaymakers, especially needles and sharps.
- 29 Cornwall NHS Trust brokered a joint agreement with Cornwall County Council, NHS trusts, infection control and the Environment Agency to implement a new initiative to provide sharps receptacles through GPs to diabetic and renal patients. To support the initiative, they produced a pamphlet on the safe disposal of clinical waste to cater for all users of the scheme.
- 30 Key benefits are:
- raised awareness across Cornwall of safe management of sharps
  - improved safety systems for waste operatives collecting municipal solid waste (MSW) and clinical waste
  - synchronised response to request collection
  - financial control across "Cornwall Plc" by sharing cost.

Table 16 Typical waste streams (see also ‘Transporting offensive or infectious waste from patients’ homes’)

Activity/cause	Waste type	Classification and colour coding	Justification	Disposal route
Healthcare visits of, for example, post-operative wounds that are infected	Vast majority of soft infectious waste such as dressings, bandages and some plastic single-use instruments can be treated	Waste from an infection or is infectious is disposed of in orange bags EWC: 18 01 03*	The vast majority of “bagged” infectious waste produced in the community will be placed in the orange waste stream. Therefore, the use of orange bags in the community is recommended	Alternative treatment to render it safe
Healthcare visits of, for example, post-operative wounds that are not infected	Non-infectious dressings, single-use instruments, stoma bags, catheter bags, incontinence pads <sup>1</sup>	Waste classified as offensive/hygiene waste disposed of in yellow/black bags EWC: 18 01 04	Used for recognisable healthcare waste that is neither infectious waste nor hazardous waste and is classified as non-hazardous offensive waste.	Municipal incineration/energy from waste/landfill
Midwifery and delivery (e.g. anatomical waste such as placentas) <sup>2</sup>	Anatomical waste such as placentas	Placed in an appropriate red-lidded container EWC: 18 01 03*	A relatively small amount of waste produced in the community	Disposal by incineration only
Medicinal injections – for the administration of chemotherapy, antiviral and/or hormonal drugs	Associated sharps and liquid residues of the medicinal products that are cytotoxic /cytostatic	Placed in an appropriate purple-lidded leak-proof sharps receptacle EWC: 18 01 03* 18 01 08	Sharps contaminated with cytotoxic/cytostatic medicinal products	Disposal by incineration only
Medicinal injections with non-cyto drugs	Associated sharps and medicinal products that are determined to be non-cyto	Yellow-lidded sharps receptacle. If the syringe contains residual liquid medicines, this container needs to be leak-proof EWC: 18 01 03*	Likely to be medicinally-contaminated sharps in the community	Incineration
Packaging as a result of treating a patient Or other municipal wastes i.e. mixed domestic waste	Uncontaminated mixed waste e.g. cardboard, plastic <sup>3</sup>	If not contaminated and non-infectious EWC: 20 03 01 Domestic disposed of in black/clear bags	Used packaging, whilst carrying out patient treatments in the home will in most circumstances not be infectious/clinical waste	Non-hazardous municipal incineration/energy from waste or landfill/material recycling facilities/reuse

**Notes:**

1. There are exemptions to this (see [paragraph 19](#)).
2. Where anatomical, placenta 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 free liquid, the use of small rigid leak-proof yellow containers is recommended.
3. Not applicable to recognisable healthcare waste (e.g. plastic equipment); however, there are exemptions to this (see [paragraph 19](#))

Community nurses should use the sharps receptacle appropriate to the waste they generate, e.g. a yellow leak-proof sharps receptacle with a purple lid for cytotoxic or cytostatic waste. **Orange-lidded sharps receptacles are generally not advisable for use in the community in England and Wales, unless the community nurse can ensure they are not used for medicinally contaminated sharps. In Scotland and Northern Ireland, orange-lidded sharps receptacles may be used for both medicinally uncontaminated or fully discharged syringes.**

For all waste streams including healthcare waste, checks must be undertaken to ensure the site where the waste is taken is permitted or licensed to accept the waste stream.





### Clinical Waste and Sharps in the Home

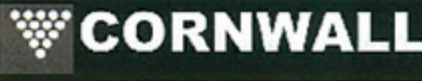
This information leaflet has been specially prepared for people who generate clinical waste in a domestic situation:

**Residents**  
**Visitors**  
**Tourists**

To arrange collection / disposal of clinical waste or sharps contact One Cornwall on: 0300 1234 141  
Fax: 01872 323181

## Working in Partnership



# CLINICAL WASTE AND SHARPS IN THE HOME

### Other Useful Contacts

Cornwall & Isles of Scilly PCT (Primary Care Trust)  
0845 170 8000

Health Protection Agency  
St Austell (01726) 627881

Cornwall Partnership Trust  
Waste Manager Bodmin (01208) 251300

Environment Agency  
Bodmin 08708 506 506

Cornwall Council  
Waste Disposal Authority  
0300 1234 141

## Note

At the time of writing, Defra is reviewing Schedule 2 of the Controlled Waste Regulations, with a view to establishing a simpler and more equitable system.

### Single-use instruments

- 31 Single-use instruments are now commonly being used in the community by a number of healthcare professionals (for example chiropodists). Single-use instruments can take the form of plastic, wood or metal instruments.
- 32 Contaminated single-use plastic or wood instruments – where there is no risk of sharps and they are deemed to be infectious – can be safely disposed of as infectious waste in the orange-bag waste stream.
- 33 Single-use metal instruments – where there is no risk of sharps and they are deemed to be infectious – should be put into a rigid yellow container clearly marked either for decontamination or for incineration. This will vary depending on the arrangement with the waste contractor and facilities

available. Large metal instruments, if placed in the alternative treatment process, may damage the equipment at the facility.

- 34 Where the instruments are deemed to be non-infectious, they should be sent for disposal as offensive/hygiene waste. In the case of metal instruments, they should be sent for metal reclamation and recovery where available.

## Note

Single-use instruments cannot legally be disposed of in the black-bag waste stream.

### Stoma/catheter bags

- 35 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 (see paragraph 19, 'Management of Category B infectious waste in the community' (Part 2)).
- 36 If used in bulk (that is, large quantities of waste as a result of the healthcare worker or by the individual), this becomes offensive/hygiene waste



for disposal in yellow/ black bags for landfill or municipal incineration.

- 37 However, if the person develops any type of gastrointestinal infection or the site becomes infected, the bag needs to be disposed of as infectious waste into the orange-bag waste stream (see Table 16 above)).
- 38 If the householder is self-medicating with no healthcare worker involved, they are able to dispose of their own waste into the black-bag waste stream.

### Note

Waste arising as a result of treatment undertaken by the healthcare worker does not constitute mixed municipal waste. It should therefore not be deposited in the household black-bag stream for collection as EWC 20 03 01 mixed municipal waste. By placing such waste in the householder's black bag, the classification of this waste will need to change to incorporate the presence of healthcare waste. Also the duty of care arrangements and permit requirements of the receiving waste management facility will change – this may now include waste classified as offensive EWC 18 01 04. For exemptions to this, please see 'Management of Category B infectious waste in the community' (Part 2).

There are certain healthcare waste streams, even when produced by the householder, that should not be placed in the black-bag domestic waste stream. For example, wound vacuum drains should be treated as infectious waste and disposed of in the orange-bag waste stream. The householder should have the relevant procedures explained and training given at the time of prescription.

### Maggots

- 39 All maggots used for wound management should be secured in a rigid yellow container or double-bagged in yellow bags and marked as UN 3291.

### Waste packaging and receptacles

- 40 The type of packaging used will vary on the type of waste produced – see Table 16 for further details:
- If the waste is **liquid** or contains free liquids (for example a partially-discharged syringe body), it should only be placed in a package designed to take liquids, such as a rigid leak-proof plastic drum, or one with absorbing gels/ materials.
  - If the waste is a **sharp**, it should only be placed in a sharps receptacle.
  - **All other** waste may be packaged in flexible bags (infectious or offensive waste bags).
- 41 It is not always practical for healthcare workers to carry many different types of packaging with them. Therefore, healthcare workers should be supplied with the most appropriate packages to meet their needs. Where possible, the type of packaging required should be determined prior to in-situ treatment based on the pre-visit assessment and patients' records.
- 42 Where waste is generated by a healthcare worker for people in their own homes, the healthcare worker is responsible for ensuring that the waste is managed correctly; this is part of their duty-of-care (see paragraph 3.13, 'Duty of care and controlled waste').
- 43 Managers need to 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 community healthcare organisation has two options.

### Transporting offensive or infectious waste from patients' homes

#### Option 1 – collection from the premises/ householder

- 44 Only if the householder consents to the storage of the waste can the healthcare worker producing the waste leave it in the home for later collection by an appropriate organisation (for example a waste contractor acting on behalf of the local authority or healthcare provider). If the householder declines to give consent, the healthcare worker cannot legally leave the waste. This problem should be discussed with the householder and the manager of the healthcare worker in order to explore all options of convenient and safe resolution.
- 45 Healthcare organisations and their employees have 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.**

- 46 Waste should be packaged and labelled appropriately, and adequate instruction should be given in relation to safe pre-collection storage. The householder should be provided with the correct containers/packaging to ensure correct disposal.
- 47 The party collecting the waste should be provided with the information required under duty-of-care requirements (see [Chapter 3, 'Legislation and healthcare waste'](#) on duty of care responsibilities and [Chapter 8, 'Waste management licensing and permitting'](#) for non-WFD exemptions).
- 48 A consignment note is not required for the movement of hazardous waste from domestic premises. However, a consignment note should be completed and accompany the movement of the waste if not from domestic premises, as infectious waste is classified as hazardous waste.

### Note

The collection of healthcare waste requires good communication between all parties including the patient, healthcare worker, healthcare organisation, local authority and other non-healthcare parties involved in the collection (for example waste contractors). The collection times and arrangements need to be clear to all parties to ensure the safe disposal of healthcare waste.

In certain regions, there may be issues with similar colours used for other waste streams. For example, orange bags are used for recycling by some local authorities. In these situations it is even more important for good communication, consultation with healthcare workers and their safety representatives, and collaborative working between all parties to take place.

### Option 2 – healthcare worker transports waste

- 49 The healthcare worker producing the waste can transport the infectious or offensive 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 suitable UN-approved rigid packaging, for example containers or drums (see [Chapter 7, 'Transport packaging and operations'](#)).
- 50 The community healthcare organisation has responsibility for providing suitable equipment. In instances where the healthcare worker is expected to transport the waste and is not travelling by car (such as by bicycle or public transport), the healthcare organisation should make appropriate arrangements for suitable containers for the collection of waste in these circumstances. Local procedures should be in place for management of the waste from cradle to grave for community healthcare waste (including transport and compliance with the Carriage Regulations). This should be detailed in the organisation's waste policy. The healthcare worker should also have received appropriate training, either in-house or contracted-out, which addresses the safe transportation of waste. This is the responsibility of the organisation and should be reviewed as part of the auditing programme. For waste training, policy, and auditing see [Chapter 6, 'Managing compliance'](#).
- 51 Normally, the carriage of any quantity of clinical waste requires the carrier (healthcare worker) to fit a 2 kg fire extinguisher irrespective of the quantity of waste. The Department for Transport has issued an authorisation to exempt community nurses from this requirement (see [paragraph 7.67](#)).

# Community pharmacies

- 1 This guide is intended to provide community pharmacies with a summary guide to the key requirements for waste management. This section does not address the greater complexity of larger pharmacies, for example those found in an acute hospital, to which the guidance published by the NHS Pharmaceutical Quality Assurance Committee is applicable.
- 2 Guidance is provided on:
  - the responsibilities of the pharmacy;
  - waste segregation, labelling and classification;
  - waste transfer and documentation;
  - waste records and returns;
  - waste audits and duty of care.
- 3 This guide is intended to provide community pharmacies with a summary guide to the key requirements for waste management. This section does not address the greater complexity of larger pharmacies, for example those found in an acute hospital, to which the guidance published by the NHS Pharmaceutical Quality Assurance Committee is applicable.
- 4 Guidance is provided on:
  - the responsibilities of the pharmacy;
  - waste segregation, labelling and classification;
  - waste transfer and documentation;
  - waste records and returns;
  - waste audits and duty of care.
- 5 In addition, the pharmacy should ensure that:
  - each of its premises is registered as a hazardous waste producer (unless exempt from registration – see [Chapter 6, 'Managing compliance'](#)); and
  - it keeps a register of the necessary records and returns in the appropriate location (normally on the pharmacy's premises).
- 6 The pharmacy manager should also ensure that staff are trained and aware of the waste procedures.
- 7 The waste management contractor should be willing to advise on fulfilling the requirements for the above responsibilities. However:
  - **it remains the legal responsibility of the pharmacy**, not the waste contractor, to ensure full compliance; and
  - the waste contractor will have less knowledge than the pharmacy about what is in the waste.

## Responsibilities of the pharmacy

- 3 The pharmacy has a statutory duty of care. This applies to everyone in the waste management chain from producer to disposer. It requires that the waste be managed and that all reasonable measures are taken to ensure that the waste is dealt with appropriately from the point of production to the point of final disposal.

### Note

Pharmacies' responsibilities do not end when they hand their waste to their waste collector.

- 4 The pharmacy is solely responsible for ensuring that waste is:
  - correctly segregated;
  - appropriately labelled;
  - packaged appropriately for transport;
  - stored safely and in a secure place away from areas of public access within the premises;
  - described accurately and fully on the accompanying documentation when removed;
- 5 transferred to an authorised person for transport to an authorised waste site.
- 6 In addition, the pharmacy should ensure that:
  - each of its premises is registered as a hazardous waste producer (unless exempt from registration – see [Chapter 6, 'Managing compliance'](#)); and
  - it keeps a register of the necessary records and returns in the appropriate location (normally on the pharmacy's premises).
- 7 The pharmacy manager should also ensure that staff are trained and aware of the waste procedures.
- 8 The waste management contractor should be willing to advise on fulfilling the requirements for the above responsibilities. However:
  - **it remains the legal responsibility of the pharmacy**, not the waste contractor, to ensure full compliance; and
  - the waste contractor will have less knowledge than the pharmacy about what is in the waste.

## Waste segregation, packaging, classification and labelling

- 8 Waste segregation is driven by a number of factors including:
  - the technical capabilities and permits of the waste disposal facilities;
  - packaging requirements for safely transporting certain materials;
  - health and safety;
  - the Hazardous Waste Regulations (Special Waste Regulations in Scotland), which prohibit the mixing of waste categories.
- 9 The segregation system below is designed to implement these requirements:
  - cytotoxic and cytostatic waste;
  - other medicines;

- medically contaminated sharps;
  - non-medically contaminated sharps;
  - clinical waste (orange bag);
  - offensive waste (yellow/black bag);
  - domestic/trade waste (black or other appropriate bag);
  - waste chemicals.
- 10 Pharmacies produce a range of hazardous and non-hazardous wastes. **Figure 11** outlines some key waste streams, including an explanation of each stream, what waste containers should be used, what can be placed in these containers, how waste should be classified and described on waste documentation. Specific advice is provided below on certain wastes.

## Classification of waste medicines

- 11 Waste medicines are classified both:
- by chemical properties; and
  - by source.
- 12 The BNF is not used for waste classification. Classification by chemical properties divides medicines into:
- cytotoxic and cytostatic (hazardous clinical waste); and
  - other (non-hazardous clinical waste).
- 13 Cytotoxic and cytostatic medicines are clinical hazardous waste and include any medicine that has one or more of the hazardous properties toxic (H6), carcinogenic (H7), mutagenic (H11) and toxic for reproduction (H10). This is a wide definition capturing many hormone-based preparations, antimicrobial substances such as chloramphenicol, as well as cancer-treating agents.
- 14 All community pharmacies are likely to routinely produce waste medicines of this type. The medicines in use in the pharmacy should be reviewed to identify their properties and whether they are cytotoxic and cytostatic (an indicative list is provided in **Chapter 13, 'Example list of cytotoxic and cytostatic drugs'**).
- 15 Other waste medicines that are not cytotoxic and cytostatic are normally clinical waste, but are not hazardous waste. However, they may possess a range of hazardous properties that need to be provided to the waste contractor for duty of care

purposes and may require segregation to keep chemically-incompatible substances apart. Known examples from a community pharmacy include medicines that are flammable, harmful, irritant, oxidising or ecotoxic.

- 16 These wastes need to be properly identified not only so that the waste contractor knows what he/she is handling, but also so that those wastes that might interact if mixed can be kept separate until collected by the waste contractor. Medicines are also classified by source activity, for example:
- human healthcare;
  - animal healthcare;
  - municipal fractions.
- 17 Medicines produced by pharmacies and returned to pharmacies from non-domestic producers (for example general practices, dentists, care homes providing nursing care etc) will normally be classified as from human healthcare. However, many community pharmacies supply veterinary medicines for pets. These will be classified as from animal healthcare. Waste medicines returned from households, including residential care homes, are classified as separately-collected domestic fractions. This is illustrated in Table 17.

**Table 17 Classification of waste medicines from community pharmacies**

Source	Cytotoxic and cytostatic	Other medicines
Human medicines (including non-domestic returns)	18 01 08*	18 01 09
Animal medicines	18 02 07*	18 02 08
Domestic returns	20 01 31*	20 01 32

## Segregation, sorting and unpacking of medicines

- 18 The Hazardous Waste Regulations and Special Waste Regulations:
- a. require that pharmacies do not mix a hazardous waste with other categories of hazardous waste or with a non-hazardous waste; and
  - b. place a duty on a pharmacy that received mixed waste to separate it, provided it is safe and practical to do so.
- 19 Categories are defined by a number of criteria including type of waste, disposal requirements,

incompatible reagents and the ability to recycle or recover the waste or elements of it.

- 20 Pharmacies must therefore segregate their waste medicines into:
  - cytotoxic and cytostatic medicines; and
  - other medicines.
- 21 They must also ensure that:
  - chemically-incompatible agents are not placed in the same container; and
  - the waste is appropriately packaged and labelled for transport (see [paragraph 59, 'Incompatible substances'](#)).
- 22 For reporting and documentary controls, pharmacies will also need to be able to accurately quantify each of the following subgroups, even if these are not fully segregated:
  - cytotoxic and cytostatic – from human healthcare;
  - cytotoxic and cytostatic – from animal healthcare;
  - cytotoxic and cytostatic – **domestic** household patient returns;
  - other medicine – from human healthcare;
  - other medicine – from animal healthcare;
  - other medicines – **domestic** household patient returns.
- 23 For medicines in aerosol form:
  - advice should be sought from the waste contractor; and
  - if not segregated, their presence should be specifically identified on the accompanying waste documentation.
- 24 Medicines should not be removed from the final inner layer of packaging, for example blister strips. This significantly reduces the potential for reactions.
- 25 Single-use monitored dosing systems (MDS) should be disposed of intact without removing the medicines unless they contain controlled drugs. Waste medicines can be removed from reusable MDS where the MDS is suitable for reuse and precautions are taken to avoid contamination of the new medicines supplied.

## Note

Domestic households are not subject to the prohibition on mixing. Therefore, they may on occasion return mixed waste medicines to the pharmacy. All reasonable steps should be taken to segregate the medicines; however, in exceptional instances, there can be health and safety implications associated with staff putting their hands into a container of returned medicines. Where possible, the contents of the bag should be either examined through the opening or emptied temporarily onto a tray (which will contain the waste and avoid spillage onto other surfaces). This may be necessary to identify if controlled drugs are present. Identifying individual loose tablets is often impracticable and is not required.

- 26 Pharmacies should ensure that they have a robust SOP (standard operating procedure) in place to deal with the receipt of unwanted medicines from households, demonstrating all reasonable steps are taken to ensure waste is segregated and stored where practicable and appropriate.
- 27 Because all pharmacies will expect to receive hazardous as well as non-hazardous waste, the pharmacy must have separate waste containers for hazardous waste and for non-hazardous waste (although they may be of different sizes and collected at different frequencies of collection). Where it is not practical to identify the contents of a returned bag of unwanted medicines as entirely non-hazardous, then under the above principle, the bag of waste must all be consigned under hazardous waste controls as mixed hazardous and non-hazardous waste medicines, to comply with the hazardous waste and duty of care regulations. The description on the consignment note would be “mixed hazardous and non-hazardous waste medicines” and include the relevant EWC codes for each.
- 28 The preliminary sorting and storage of waste for the purposes of transport to waste treatment facility is an activity considered to be a non-Waste Framework Directive exemption; that is, no permit or registered exemption is required (see [paragraph 8.12, 'Healthcare related exemptions'](#)). However, this exemption that allows the pharmacy to store returned medicines without an environmental permit or registered exemption does not allow the storage of mixed waste as described above.



## Controlled drugs

- 29 Pharmacies should ensure that they comply with the following legislation applicable to controlled drugs:
  - the Misuse of Drugs Regulations
  - the Misuse of Drugs (Safe Custody) Regulations
  - the Controlled Drugs (Supervision of Management and Use) Regulations.
- 30 These set out requirements for the storage of controlled drugs (for example an authorised witness is required for denaturing) and the role of accountable officers for certain NHS trusts and independent healthcare bodies.
- 31 Pharmacies will produce controlled-drugs waste and may receive controlled drugs returned from other producers:
  - Controlled drugs returned from patients should be denatured as soon as possible to avoid the danger of their being mixed with pharmacy stock and to reduce the risk of holding unnecessary quantities of controlled drugs.
  - Controlled drugs returned from domestic premises must be stored in compliance with the Misuse of Drugs (Safe Custody) Regulations and need to be stored in a controlled drugs cabinet until they are denatured (see also [paragraph 63, 'Storage of waste'](#)).
- 32 Controlled drugs produced on the pharmacy's premises may be denatured under an exemption from an environmental permit or licence (T28). This exemption must be registered with the environmental regulator.
- 33 Controlled drugs returned to the pharmacy may be denatured without an environmental permit. The EA has issued a regulatory position statement indicating that they will not normally require one.
- 34 Denaturing should be undertaken using a method consistent with the guidance from the Royal Pharmaceutical Society of Great Britain (RPSGB).
- 35 Denatured controlled drugs should be disposed of as waste medicines of the appropriate type. Further guidance on destruction of controlled drugs may be available from the Royal Pharmaceutical Society to its members.
- 36 Further guidance on donations of drugs to charities may be available from the Royal Pharmaceutical Society to its members.

## Glass/plastic medicinal containers

- 37 Waste medicines should not be discharged to foul sewer, so contaminated containers or their contents should not be rinsed out. Contaminated bottles, vials and ampoules should be disposed of as waste medicines.
- 38 Non-pharmaceutically-active medicines are the exception. Liquids (including sugar and salt solutions), sterile water, and nutritional supplements can be disposed of to foul sewer; if there is any doubt, advice from the sewerage undertaker should be sought. The containers can be rinsed and recycled.

## Sharps

- 39 Sharps are items that could cause cuts or puncture wounds, including needles, broken glass medicine containers, broken ampoules, scalpel and other blades, and the sharp part of infusion sets. Sharps do not include medicine containers (bottles, vials, ampoules etc) or the medicinally-contaminated syringe barrel (as opposed to the needle).
- 40 Pharmacies may produce or receive sharps including:
  - returns from domestic householders with diabetes and from other self-administering patients;
  - needle exchange;
  - diagnostic procedures.
- 41 Sharps are segregated on the basis of medicinal contamination (as this affects disposal requirements) into:
  - contaminated cytotoxic and cytostatic sharps;
  - other medicinally-contaminated sharps; and
  - non-medicinally-contaminated.
- 42 Sharps receptacles from self-medicating persons with diabetes (and other patients injecting medication under prescription) would normally contain sharps contaminated with insulin and perhaps the insulin containers. These are medicinally contaminated and should be in a yellow-lidded sharps receptacle. These are typically classified as 18 01 03\* and 18 01 09, and labelled as "clinical waste, mixed medicinally contaminated sharps and pharmaceutical waste (not cytotoxic and cytostatic) for incineration only".

- 43 Sharps from blood tests, either from non-medicating persons with diabetes or diagnostic tests in the pharmacy, are not normally contaminated with medicines. These can be placed in an orange-lidded sharps receptacle. These are typically classified as 18 01 03\* and labelled as “clinical waste, non-medicinally contaminated sharps suitable for alternative treatment”.
- 44 Sharps from pharmacy needle-exchange programmes are likely to be produced by healthcare activities. They are likely to be contaminated with chemicals or medicines and should be placed in a yellow-lidded sharps receptacle. These are typically healthcare waste and should be classified as 18 01 03\* and 18 01 09.
- 45 Where an unused pre-filled syringe set is returned to a pharmacy with a needle, it should be treated as a sharp and should be classified as 18 01 01 and 18 01 09 if the medicine is non-hazardous.
- feminine hygiene wastes from staff or public toilets; and
  - some waste from diagnostic tests.
- 49 Feminine hygiene wastes from toilets should be placed in a yellow/black receptacle and classified as 20 01 99.
- 50 Body-fluid-contaminated waste from diagnostic tests should be classified as infectious healthcare waste unless the pharmacy can demonstrate that it can conduct effective screening assessments to identify the proportion that is non-infectious offensive waste. If it can, it will have a proportion that is infectious waste and a proportion that is offensive waste. A pharmacy would normally generate both infectious and offensive waste.

### Note

For health and safety reasons:

- needles should not normally be removed from syringes; and
- a second action should not be taken to discharge syringes.

## Other healthcare wastes

- 46 Pharmacies may produce small amounts of other healthcare wastes, for example contaminated PPE, swabs, plasters, and tissues from diagnostic tests. If the material is not contaminated with pharmaceuticals or chemicals, it can be discarded in an orange waste receptacle and typically classified as 18 01 03\*, described as “healthcare waste, infectious, suitable for alternative treatment”.
- 47 PPE and other items used in the handling of pharmaceuticals that have become contaminated should not be classified as infectious waste. A clinical waste receptacle (approved and labelled for infectious waste) is not an appropriate container. These materials should be placed in the pharmaceutical waste stream.
- 51 Pharmacies may employ a range of chemicals including disinfectants, hand gels and oxidising agents. They may also stock a range of chemical substances and preparations in their retail areas.
- 52 Guidance on the disposal of waste chemicals from retail and pharmacy is not provided here other than to note that the pharmacy is prohibited from mixing by the Hazardous Waste Regulations (see paragraph 59, ‘Incompatible substances’). No hazardous waste items may be placed in the domestic or trade waste streams.
- 53 Alcohol hand gels that do not contain siloxanes (which cause significant damage to plant and equipment used in the sewage treatment process) and whose SDS does not prohibit discharge to the sewer may be rinsed out and the packaging recycled or placed into the domestic waste stream (see Chapter 4, ‘Healthcare waste definitions and classifications’, Chapter 5, ‘Waste minimisation, segregation, colour-coding and storage’ and Chapter 7, ‘Transport packaging and operations’).

## Domestic and trade waste

- 54 Black bags or other suitable containers should be used for non-hazardous wastes other than medicines.
- 55 Pharmacies should seek to recycle:
- cardboard;
  - glassware that has not been used in medicine containers; and
  - other suitable items.

## Offensive wastes

- 48 Community pharmacies may produce offensive waste streams including:

- 56 Electrical wastes, including batteries and fluorescent tubes, should not be placed in these containers.
- 57 As pharmacies are prohibited from mixing waste, no hazardous wastes can be placed in the domestic or trade waste streams. In addition to the wastes already mentioned, many of the products in the retail areas of pharmacies would be hazardous waste if discarded. Typical examples include some disinfectants, hand gels, aerosols, cosmetic products (for example alcohol-based perfumes), batteries and many others. A proportion of waste retail stock will therefore be hazardous waste.
- 58 Pharmacies that provide photographic services should also note that photographic chemicals (fixers and developers) are also hazardous waste.

## Incompatible substances

- 59 Some waste medicines and chemicals, under certain conditions, may react to produce fire and flammable or toxic gases. For this reason, medicines should not be removed from bottles/blister packs in order to provide some form of barrier to such reactions.
- 60 In addition, specific incompatible materials should be segregated in separate waste containers or stored securely for the waste contractor with identification of the type of product to reduce the risk further, remembering that bottles can leak and glass can break during transit. This is a known problem with pharmacy wastes where there are concerns over flammable or oxidising substances (for example permanganates and peroxides).
- 61 Pharmacies should ensure that they are aware of the hazardous properties of the chemicals and medicines that they stock and that they have identified the potential incompatibilities.
- 62 The pharmacy is required to identify these hazardous properties on the waste consignment and transfer notes.

## Storage of waste

- 63 There are three specific storage issues to consider:
- the pharmacy's own waste;
  - returns from domestic householders;
  - returns from medical practices and other non-domestic sources.

- 64 These are exempt from the requirement for an environmental permit and do not need to be registered.
- 65 The pharmacy may store their own waste under an exemption from an environmental permit for temporary storage of waste at the premises of production where the following conditions are met:
- storage is in a secure place;
  - storage is at the premises of production;
  - storage is for no longer than 12 months.
- 66 The pharmacy may also store waste, including medicines and sharps, returned directly from domestic households by the householder or healthcare worker under an exemption for a temporary collection point where the following conditions are met:
- The storage is:
    - (i) in a secure container;
    - (ii) at a collection point;
    - (iii) does not include wastes containing asbestos or with a flashpoint of less than 21°C.
  - Mixed wastes are not stored.
  - Wastes are not stored for longer than three months.
  - Waste quantities do not exceed 5 m<sup>3</sup> of hazardous waste or 50 m<sup>3</sup> of non-hazardous waste.
- 67 This exemption from an environmental permit also permits storage of waste returned from medical practices and other non-domestic sources (including general practices, dentists, veterinarians, care homes providing nursing care, schools, prisons etc). However, where this is the case, the following still apply:
- Hazardous waste medicines and mixed medicines of unknown composition must be consigned from these premises to the pharmacy using a hazardous waste consignment note.
  - The pharmacy receiving hazardous waste is a consignee and must keep a register and a site inventory, and must send consignee returns to the producer and consignee returns to the environmental regulator. Each consignment received is subject to a charge.
  - Hazardous waste controls apply to all movements of hazardous waste between non-

domestic premises, even if they are part of the same company or organisation.

- Non-hazardous medicines must be transferred to the pharmacy under duty of care controls, including a waste transfer note.

### Note

The authority to accept these wastes does not in itself place a duty on the pharmacy to do so. If it does decide to do so, these wastes cannot be received through the PCT-funded service, and the pharmacy would have to make its own arrangements for disposal.

## Transport/carriage regulations

- 68 The pharmacy will usually be considered the consignor under the Carriage Regulations and must ensure that the requirements of the Carriage Regulations are met.
- 69 For waste medicines, the following guidelines may be used:
- Medicines unopened in original retail packaging (for example date-expired medicines) are exempt from the Carriage Regulations.
  - Partially-opened packagings, miscellaneous blister packs etc should be packaged in accordance with [paragraph 7.27](#), 'Waste medicines (including amalgam waste)'. These will normally be limited quantities and may be marked accordingly (see under [Table 11](#)), having been identified in accordance with [paragraph 3.39](#).
  - Sharps receptacles should comply with the guidance given in [paragraph 7.34](#), 'Sharps packaging' (limited quantity provisions do not apply to sharps).
  - Waste aerosols are subject to the Carriage Regulations.
  - Other waste chemicals must be classified according to their hazard. It is likely that most can be moved under the limited quantity provisions except radioactive material.
- 70 Where a transport document is required, primarily for sharps, the standard waste note may be used, provided the transport information is included (for transport, limited quantities do not require a transport document).

## Waste transfer and documentation

- 71 As the producer of the waste, the pharmacy bears the legal responsibility of ensuring that waste documentation is complete and accurate. There are two different types of documentation required for waste transfers:
- **consignment notes** that are used for hazardous wastes;
  - **waste transfer notes** that are used for non-hazardous wastes.
- 72 A consignment note is used to track the movements and ensure the safe disposal of hazardous wastes. It also ensures that the information accompanying the waste is sufficient to enable its safe disposal. A new consignment note must be completed for each individual collection of hazardous waste. Each note will consist of producer, carrier and consignee copies.

### Who completes the consignment note and when?

- 73 Before the waste is removed from the pharmacy:
- part A contains details of the pharmacy and the destination of the waste. The pharmacy is responsible for completion of this section;
  - part B contains details about the waste, its properties and its packaging. The pharmacy is responsible for completion of this section;
  - all three copies should be then provided to the waste carrier;
  - part C contains details of the waste carrier, the driver, the vehicle and a declaration that the carrier has verified key information in parts A and B. This must be completed by the carrier;
  - the paperwork is then passed back to the producer. Only after section C is completed can the pharmacy complete part D to verify sections A to C (as this includes a record of the number plate of the vehicle onto which the waste was loaded);
  - once parts A to D are complete, the carrier may remove the waste.
- 74 On arrival at the destination (consignee) site, the consignee completes part E to verify what they have received.

### Key points

- The law places the sole responsibility for completion of parts A, B and D of the note on the pharmacy.
- The consignment note system requires the pharmacy to certify the carrier and vehicle details during collection. Unsupervised out-of-hours collection is not allowed.
- A list of cytotoxic and cytostatic medicines used by the pharmacy and their hazardous properties must be attached as a continuation sheet to the consignment note and accompany the waste.

Further guidance on this is provided by:

- the EA (for England and Wales);
- SEPA (for Scotland);
- the NIEA (for Northern Ireland).

### Carrier round collections

- 75 Waste carriers may collect hazardous waste from a number of small producers in the same journey, referred to as a carrier round.
- 76 Each collection within a round will need its own standard consignment note with unique consignment note number. The carrier round will have a unique number that is common to all the collections in that round.

### Waste transfer notes

- 77 Waste transfer notes can only be used for the collection of non-hazardous wastes from the pharmacy. These cannot be used for clinical wastes other than segregated non-hazardous medicines and sharps from needle exchange.
- 78 The pharmacy completes a waste transfer note. The legal responsibility for describing the waste rests with the pharmacy.
- 79 If a contractor collects the same waste at regular intervals over a period no longer than 12 months, a season ticket can be used. Therefore, a new note would not be required on each occasion.

### Registrations, records and returns

- 80 All pharmacies that produce 500 kg or more of hazardous waste in any 12-month period need to register their premises annually as a hazardous waste producer. If the pharmacy produces less than

500 kg in any 12-month period, it is exempt. This information is used to track hazardous wastes and ensure that they are safely managed.

- 81 The 500 kg includes all of the pharmacy's hazardous wastes including electrical waste and those from retail parts of the pharmacy.

### Note

Where a registered community pharmacy operates within a health centre or a hospital, this is classed as separate premises in its own right and may need its own registration.

### How to register as a hazardous waste producer

- 82 There are three ways to register as a hazardous waste producer:
- online via the environmental regulator's website;
  - by phone at the environmental regulator's customer contact centre;
  - by post.
- 83 When the premises are registered, the pharmacy will be given a hazardous waste producer registration number called a premises code. This code must be used on all consignment notes where hazardous waste is removed from those premises. Registration is only valid for 12 months, so must be renewed annually.

### Hazardous waste – records and returns

- 84 Pharmacies are required to keep a register that contains their hazardous waste records. This requirement is usually met by keeping copies of both:
- standard or multiple consignment notes (including those collected as part of a carrier round); and
  - consignee returns to the producer or holder.
- 85 Where relevant, the register should also contain records of any rejected loads or carrier schedules. Guidance on consignment notes and their completion is provided in a series of guides to the Hazardous Waste Regulations.

### Consignee returns to the waste producer or holder

- 86 Each consignee (the destination site where the carrier takes the waste) is required to send to the pharmacy a return each quarter. This return is a



record of what has happened to the waste and must be placed in the waste producer's register. These returns must be present to ensure the register is legally complete; therefore, if the return is not received within a reasonable period of time, the pharmacy should contact the consignee and request that a copy is sent by return.

- 87 Where the waste is taken to a transfer station before being sent elsewhere for disposal, the pharmacy should also request copies of the associated completed paperwork for that onward movement, which confirms that it was received at the final destination. If it is unclear as to whether a transfer station is the initial destination for the waste, the waste contractor should be consulted.

### Where should the register be kept?

- 88 Where the register is kept depends on the number of pharmacy branches and whether these are each registered as hazardous waste producers or not.
- Registered premises – if a pharmacy is registered, the register for any hazardous waste that is removed from that pharmacy must always be kept on that pharmacy's premises.
  - Exempt premises – if a pharmacy branch is exempt from registration as a hazardous waste producer, the register for any hazardous waste that is removed from that pharmacy should be kept at the pharmacy or principal place of business. This may be another pharmacy if the pharmacy is one of several in a company. If a pharmacy wishes to keep the register anywhere else, this must be agreed in writing with the environmental regulator.

### How long should the register be kept?

- 89 The register must be kept for at least three years, commencing from the date the waste was removed from the pharmacy's premises by a waste carrier.

### Non-hazardous waste records

- 90 Waste transfer notes should be kept for a minimum of two years. Where season tickets are used, a record should also be kept of the times when each of the regular collections is made using the note.

### The pharmacy as a consignee

- 91 Where the pharmacy receives waste medicines returned from non-domestic premises, they are likely to be a hazardous waste consignee with

responsibilities for keeping a site inventory, and for making consignee returns to the producer and quarterly returns to the environmental regulator. Further advice on this can be found on the environmental regulator's website.

## Waste audit and duty of care audit checks

- 92 Waste segregation and procedures should be audited periodically for three reasons:
- a. It enables the pharmacy to accurately describe and classify its waste to complete its waste documentation and discharge its duty of care.
  - b. The waste disposer may be required by their permit to obtain an audit from the pharmacy before they can accept the waste (a **pre-acceptance audit**).
  - c. This enables the pharmacy to monitor its waste practices, identify any problems and as a result enables it to fix them.
- 93 Examples of specific issues to identify in an audit of each area of the practice are the presence of the following in any waste stream:
- cytotoxic and cytostatic medicines;
  - medicines (for example tablets, creams, vials, ampoules, intravenous bags etc) and medicinally-contaminated wastes (for example syringe barrels, tubing, etc);
  - sharps (including whether they are medicinally contaminated or not);
  - chemicals (disinfectants, reagents, diagnostic kits, resins etc);
  - chemically-incompatible substances;
  - body-fluid-contaminated material that is infectious (swabs, PPE etc);
  - healthcare items that are not contaminated with body fluids or other potentially infectious materials (for example PPE) (offensive wastes);
  - feminine hygiene wastes/nappy bins from toilets;
  - municipal-type wastes (newspapers, magazines, food and drink containers, sterile equipment and other packaging etc).
- 94 The following should also be considered:
- what waste containers are used for these wastes;

# briefing



## Clinical Waste Pre-acceptance Producer Update – October 2010

**This note replaces and updates the information contained in our November 2009 briefing note.**

### **Who does this briefing note apply to ?**

This note is aimed at producers of healthcare and related wastes whose waste is accepted at:

- clinical waste incinerators,
- any form of non-incineration treatment,
- IPPC transfer,
- any other waste facility for onward transfer to one of the above.

This includes waste from any of the following producers:

- Hospitals,
- Veterinary practices,
- Dental practices,
- General practices and health centres,
- Community pharmacies,
- Ambulance Trusts,
- Care Homes that provide medical or nursing care,
- Research laboratories that produce clinical waste,
- Any other medical practices,
- Pharmaceutical manufacture and supply.

This does **not** apply to similar wastes from:

- domestic premises (including both healthcare and non-healthcare wastes),
- care homes that do not provide medical or nursing care, and,
- non-medical producers of clinical waste (for example tattooists, body piercing, minor first aid and wastes arising from substance abuse (drug litter) and other minor non-medical procedures in the hair and beauty industry).

### **What is waste pre-acceptance ?**

Facilities authorised to incinerate or treat clinical wastes are required to assess and have operational access to additional detailed information on the composition of a waste from the producer before they receive it. This information forms part of their 'pre-acceptance' checks. This requirement is not unique to the healthcare sector and is designed to ensure that the waste is properly treated without harm to human health or the environment.

This was previously implemented for clinical waste treatment plants under our S5.06 Appendix 6 guidance issued in 2007. This will be replaced by our new guidance (EPR 5.07) due for re-issue shortly. This new guidance will apply to pre-acceptance checks at;

- clinical waste incinerators and IPPC transfer stations (under existing permit conditions), and
- extend such checks to non-IPPC treatment plants (in some cases the permits may need to be varied to include this).

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**What is required ?**

For clinical waste, data including details of the process producing the waste; quantity of waste produced; individual constituents of the waste stream; and, hazards associated with the waste are required for each part of the producer premises. The provision of this information will need to be repeated periodically so you should consider how you will maintain these checks in the medium term. These types of pre-acceptance checks are regarded as current best practice.

Further information on the detailed requirements can be obtained from the environment Agency website or by contacting your waste contractor.

**Timescales for pre-acceptance compliance****Hospitals, Research Laboratories and Dental and Veterinary Practices**

Operators of alternative treatment facilities must have already implemented pre-acceptance for these producers. Many of the permits were issued as early as 2006 with conditions which required improvement in the way operators deal with pre-acceptance of waste. For wastes from hospitals and research laboratories this was required by October 2009; For dentists and vets, by April 2010. These dates have now passed so pre-acceptance is expected at such sites. We are currently reviewing compliance of sites against these conditions.

Timescales for implementation at clinical waste incinerators, and IPPC transfer stations to align with the subsequent checks for alternative treatment are set out in Table 1.

Non-IPPC clinical waste treatment plants, were not previously required to undertake pre-acceptance, should implement pre-acceptance by the dates set out in Table 1.

**Other producers**

We had originally proposed undertaking compliance checks at alternative treatment sites for other producers from 1<sup>st</sup> October 2010. However the implementation of pre-acceptance to incinerators has resulted in a review of the dates to enable consistent implementation.

All clinical waste incinerators alternative treatment facilities and IPPC transfer stations should implement pre-acceptance by the new timetable as set out in Table 1 to this document.

**Do we have to do it ?**

If your waste is sent to an alternative treatment plant or clinical waste incinerator for disposal (even if via a Waste Transfer Station) you must provide your waste contractor with pre-acceptance information.

In addition, as producers of waste, you have a legal 'Duty of Care' to take all reasonable steps to keep waste safe. The Duty of Care applies to everyone involved in handling the waste, from the person who produces it, to the person who finally disposes of it, or recovers it. If you give waste to someone else, you must be sure they are authorised to take it. i.e. a registered waste carrier or a permitted site, and can transport, recycle or dispose of it safely. Under the Duty of Care you must provide the person who takes your waste with information that includes, the quantity of waste, EWC code, how it is packed, and the substances in the waste.

Therefore, providing the information required to the waste contractor as part of the pre-acceptance checks will enable them to decide whether the plant can safely dispose of the waste and will help you to meet your Duty of Care obligations. We therefore recommend that you provide this information when requested by your waste contractor.

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**What happens if I don't do it ?**

If you do not provide the information and therefore breach the Duty of Care, we could take enforcement action against you. In addition, the operator of the clinical waste alternative treatment plant, clinical waste incinerator or IPPC transfer stations may no longer be able to accept your waste into their site and your waste contractor may be unable to collect your waste.

**Who can undertake the collection of the pre-acceptance data (the pre-acceptance audit) ?**

There are a number of options.

- You may undertake the audit and collect the data yourself, however you need to ensure that you understand what is required before doing so and that it will be sufficient to enable a decision to be made whether waste can be accepted at a site in accordance its environmental permit.
- You may employ a third party to collect the data on your behalf, or
- Your waste contractor may offer this as a service, or assist you with guidance or audit tools for which they may charge. They are not obliged to provide this service.

**What should I do if I need further advice ?**

If you need further advice on the information requested by the clinical waste treatment site or incinerator, or you believe that you may struggle to provide this information in the timescales indicated in Table 1, you should contact the waste contractor who has requested the information.

**Version 6  
October 2010**

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**Table1: Timetable for the implement pre-acceptance procedures**

Waste Producer	Audit Date	Subsequent Audits
Large Producers (> 5 tonnes of clinical waste per annum)		
All healthcare waste producers <sup>(2)</sup>	1 <sup>st</sup> November 2011 <sup>(1)</sup>	An audit must be completed and submitted every 12 months to the waste contractor
Higher Risk Producers (< 5 tonnes of clinical waste per annum) other than those above		
Dentists <sup>(2)</sup>	1 <sup>st</sup> March 2012 <sup>(1)</sup>	An audit must be completed and submitted every 2 years to the waste contractor
Vets		
Research Laboratories <sup>(2)</sup>		
Lower Risk Producers (< 5 tonnes of clinical waste per annum) other than those above		
Other medical practices, including general practices, engaged in medical consultation and treatment in the field of general and specialised medicine by general practitioners and medical specialists and surgeons. (SIC 2003 85.12) <sup>(2)</sup>	1 July 2011	An audit must be completed and submitted every 5 years to the waste contractor
Other healthcare premises, not involving hospitals or practising medical doctors, involving para-medical practitioners legally recognised to treat patients (SIC 2003 85.14) <sup>(2,3)</sup>	1 July 2012	
Community Pharmacies	1 July 2013	
Care Homes providing nursing or medical care	1 July 2013	
Any healthcare waste producers not wholly or partially encompassed by the above. (see exclusions)	1 July 2013	
Exclusions from pre-acceptance		
The following are excluded from pre-acceptance (i) Healthcare waste from domestic premises (ii) Clinical waste from non-healthcare related activities correctly classified under chapter 20 of the EWC in that it is waste from commercial, industrial or institutional sources that is similar to household waste.		
Explanatory Notes		
<p>1 Alternative technology sites subject to pre-acceptance under S5.06 Appendix 6 were required to complete pre-acceptance checks for these producers prior to these dates. These dates therefore represent the dates for the first audits for clinical waste incinerators and IPPC transfer stations, and for the second audits for alternative treatment plants. Subsequent audits should be repeated and resubmitted at the frequency indicated in the table</p> <p>2 Where a premises is occupied by more than one producer or practice either;</p> <ul style="list-style-type: none"><li>- The appropriate dates/intervals for each individual producer/practice type can be used, or</li><li>- The highest category (large, higher risk, lower risk) interval for any of the individual producers/practices can be applied to all, or</li><li>- If all the occupiers are classed as lower risk, and one practice/producer manages the waste for another (as consignor) then the date/interval for the consignor can be used.</li></ul> <p>3 This may include a range of premises whose activities are not wholly or partially captured by other categories, for example ambulance stations, physiotherapy, optometry, hydrotherapy, medical massage, occupational therapy, speech therapy, chiropody, homeopathy, chiropractic, acupuncture and the like. This SIC code would not normally include these producers where their principle activity is retail sales (and which then become subject to the 1 July 2013 date).</p>		

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- how they are labelled;
- whether the contents are accurately described and classified on waste documentation.

95 Undertaking such audits will enable the pharmacy to demonstrate that it has discharged its duty of care in describing and packaging its waste.

## Waste carriers

96 The waste contractor who collects the waste must be a registered waste carrier. This should be checked by, for example, comparing the carrier registration number on part C of the consignment note to the information held on the environmental regulator's electronic public register. The pharmacy must supervise collections of hazardous waste to enable it to certify the carrier and vehicle details in part D of the note.

### Note

If the pharmacy provides a waste collection service from domestic households or other premises, for example when delivering new medication, they will need to be registered waste carriers.

## Waste disposal

97 Waste from small premises is frequently taken to a waste transfer station where it is combined with other wastes and sent for final disposal. If the waste is being taken to a waste transfer station, copies of the documentation used for onward movement of the waste to its final destination should be requested.

98 There are two main disposal options for clinical waste:

- alternative treatments – which disinfect the waste and are normally authorised only for infectious wastes (for example bagged clinical wastes);

- clinical waste incinerators – which ensure complete destruction of medicines and chemicals as well as inactivation of microorganisms.

## Discharge to foul sewer

99 Discharges to foul sewer should be in accordance with a trade effluent consent from the sewerage undertaker.

100 Waste medicines should not be discharged to foul sewer. Non-pharmaceutically-active liquids including sugar and salt solutions, sterile water and nutritional supplements can be disposed of to foul sewer.

101 See also [paragraph 9.18, 'Discharge to sewer'](#).

Guidance on this has been provided by Water UK on behalf of the sewerage undertakers.

## Export of medicines and donations to charity

102 Where waste medicines from a pharmacy are collected or sent to a charity for reuse overseas:

- the guidance from the Royal Pharmaceutical Society of Great Britain (RPSGB) on such donations, which follows the World Health Organisation line, should be followed;
- cytotoxic and cytostatic waste medicines must be consigned from the practice to the charity, which must send the pharmacy (and the regulator) consignee returns;
- other waste medicines must be transferred using a duty-of-care waste transfer note;
- the charity must hold an environmental permit for sorting of waste medicines; and
- a registered waste carrier is normally required to transport the material.

# General practices and health centres

- 1 This guide is intended to provide general practices with a summary guide to the key requirements for waste management. Although also applicable to health centres, care must be taken as these may provide a wider range of services and produce more complex wastes. Health centres that provide dental services should also read the “**Dental practices**” **sector guide**.
- 2 Guidance is provided on:
  - the responsibilities of the general practice;
  - waste segregation, labelling and classification;
  - waste transfer and documentation;
  - waste records and returns;
  - waste audits and duty of care.
- 3 Further information can be found within the main body of this guidance.
- 4 waste escaping and to prevent the public getting access to it – this could be a fenced, locked compound);
  - described accurately and fully on the accompanying documentation when removed;
  - transferred to an authorised person for transport to an authorised waste site.
- 6 In addition the general practice should ensure that:
  - each of its premises is registered as a hazardous waste producer (unless exempt from registration – see **Chapter 6, ‘Managing compliance’**); and
  - it keeps a register of the necessary records and returns in the appropriate location (normally the practice’s premises).
- 7 The practice manager should also ensure that staff are trained and aware of the waste procedures.
- 8 The waste management contractor should be willing to advise on fulfilling the requirements for the above responsibilities. However:
  - **it remains the legal responsibility of the practice**, not the waste contractor, to ensure full compliance; and
  - the waste contractor will have less knowledge than the practice about what is in the waste.

## Responsibilities of the general practice

- 4 General medical practices have a statutory duty of care. This applies to everyone in the waste management chain from producer to disposer. It requires the practice to manage the waste 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.

### Key point:

The general practice’s responsibilities do not end when it hands its waste to a waste collector.

- 5 The practice is solely responsible for ensuring that waste is:
  - correctly segregated;
  - appropriately labelled;
  - packaged appropriately for transport;
  - stored safely and in a secure place away from areas of public access within the premises (that is, taking all reasonable precautions to prevent
- 9 Waste segregation is driven by a number of factors including:
  - the technical capabilities and permits of the waste disposal facilities;
  - packaging requirements for safely transporting certain materials;
  - health and safety;
  - the Hazardous Waste Regulations (Special Waste Regulations in Scotland), which prohibit the mixing of waste categories.

## Waste segregation, packaging, classification and labelling

- 10 The segregation system below is designed to implement these requirements. If not all of the streams indicated are implemented, it is unlikely that the segregation system meets the legal requirements. Specifically, the following waste segregation should be implemented:
- cytotoxic and cytostatic waste (unless it has been confirmed that none of these are used in the practice);
  - other medicines;
  - medicinally-contaminated sharps;
  - non-medicinally-contaminated sharps;
  - clinical waste (orange bag);
  - clinical waste (yellow bag);
  - offensive waste (yellow/black bag);
  - domestic waste (black/clear or other appropriate bag);
  - waste chemicals;
  - human tissue;
  - gypsum;
  - other wastes.

### Cytotoxic and cytostatic medicines

- 11 General practices often use a small number of cytotoxic and cytostatic medicines such as hormone- (for example contraceptive) or oxytocin-based agents. Health centres are likely to use more. These are a wide range of medicines in common usage and include any medicine that is toxic, mutagenic, carcinogenic or toxic for reproduction regardless of how it is used. The practice should:
- review the medicines in use in the practice to identify those that are cytotoxic and cytostatic (an indicative list is provided in [Chapter 13](#), 'Example list of cytotoxic and cytostatic drugs'); and
  - place wastes arising from this in purple-lidded cytotoxic and cytostatic waste containers.
- 12 A list of cytotoxic and cytostatic medicines used by the practice and their properties should be attached as a continuation sheet to the consignment note and accompany the waste.

### Other medicines

- 13 Health centres and general practices will employ a range of other medicines including painkillers, eye drops and vaccines:
- Medicines should be placed in a clearly-labelled waste medicines container.
  - Vials or ampoules that have been used to charge syringes should be disposed of in the yellow-lidded sharps receptacle along with the syringe. It must, however, be ensured that the waste description and classification identifies their presence.
  - Controlled drugs must be denatured and placed with other waste medicines.
  - Medicated (for example antibiotic) intravenous bags should be disposed of as waste medicines.
  - Non-medicated (for example saline) intravenous bags should be discharged to foul sewer and the empty bags placed in the offensive/ hygiene waste receptacle.
  - For medicines in aerosol form (betadine iodine, cryogenic sprays, asthma medication etc), they must be segregated from other medicines or, where this is not done, their presence must be identified on the accompanying waste documentation.

### Sharps receptacles

- 14 The medicinal contamination of sharps determines their disposal option. Cytotoxic and cytostatic contaminated sharps are dealt with above.
- Other medicinally-contaminated sharps (for example from the administration of vaccines) should be placed in a yellow-lidded sharps receptacle. The waste description and classification should identify the presence of waste medicines.
  - Non-medicinally-contaminated sharps (for example podiatry instruments, sharps from taking blood samples, and acupuncture) should be placed in an orange-lidded sharps receptacle. The waste description should identify the absence of waste medicines.

## Note

Pharmaceutical/medicinal wastes should never be placed in the domestic waste stream for disposal. Neither is it acceptable practice to take any action to intentionally discharge syringes or items containing residual medicines in order to dispose of them in the orange-lidded sharps receptacle. If the syringe is partially discharged and contaminated with residual medicines, it should be disposed of in the yellow-lidded sharps receptacle.

## Chemicals

- 15 The practice may use a range of chemicals including disinfectants, hand gels, iodine, air-fresheners, diagnostic kits, eye stains, possible photochemicals etc. A detailed explanation of the requirements for disposal of chemical waste is beyond the scope of this sector guide. There are, however, a number of key points to note:
    - Hazardous chemicals (including photochemicals) should not be disposed of to foul sewer or surface drains.
    - Empty chemical containers are likely to contain sufficient residue to remain hazardous chemical waste unless rinsed. Rinsing may only be undertaken after consideration of the hazards present and agreement with the local water authority. Alcohol hand gels that do not contain siloxanes (which cause significant damage to plant and equipment used in the sewage treatment process) and whose safety data sheet (SDS) does not prohibit discharge to the sewer may be rinsed out and the packaging recycled or placed into the domestic waste stream.
    - Chemicals should not be disposed of in the clinical waste stream. This may cause chemical releases and worker exposure issues during subsequent handling and disposal. Such mixing is prohibited.
    - Placement of hazardous chemicals in the domestic waste stream is also prohibited.
    - Some chemicals may react to produce fire or toxic gases. These incompatible chemicals should be disposed of and stored separately. Flammable, corrosive and oxidising chemicals are of particular concern in healthcare.
    - Aerosols may also need to be segregated for specialist disposal or recovery.
  - 16 Further guidance on the storage of chemicals is available from the Health & Safety Executive.
- ### Orange clinical waste bags
- 17 Orange bags should be used for soft clinical wastes. They are used to indicate that the waste is suitable for disinfection processes such as autoclaves, rather than requiring incineration.
  - 18 The following must not be placed in the orange bag:
    - medically- or chemically-contaminated wastes;
    - domestic-type wastes, including hand towels;
    - offensive wastes.
  - 19 Examples of waste that can be placed in this waste stream include:
    - contaminated PPE (gloves, aprons etc);
    - contaminated dressings;
    - very small pieces of tissue;
    - syringe bodies contaminated with body fluids, but not medicines.
  - 20 Dressings can contain a range of additives including metal salts (zinc, silver etc), organic materials (such as alginate, paraffin or honey), or medicines (for example ibuprofen). Some metals may be chemically hazardous (for example zinc oxide is an ecotoxic chemical). As a general principle:
    - any contaminated dressing that does not contain an active pharmaceutical agent can be discarded in the orange bag;
    - however, any contaminated dressing that contains an active pharmaceutical (for example ibuprofen) should be discarded in a yellow clinical waste bag or container.
- ### Yellow clinical waste receptacles/bags
- 21 Yellow waste receptacles/bags should only be used for waste items that (a) are infectious clinical waste and (b) have an additional second characteristic (for example, chemical or pharmaceutical) that makes incineration the sole disposal option. For example:
    - anatomical wastes and tissue samples preserved in hazardous chemicals;

- medicines, medicinally-contaminated syringes, medicated dressings etc;
  - diagnostic kits contaminated with potentially infectious body fluids and chemical reagents (this does not include sticks from dip tests).
- 22 The waste classification and description would need to clearly identify the second property and that the waste requires incineration.
- 23 As for orange clinical waste bags, domestic and offensive type wastes must not be placed in this waste stream.

### Offensive/hygiene waste

- 24 General practices will generate two different offensive hygiene waste streams. They should segregate:
- domestic-type offensive hygiene wastes – feminine hygiene wastes from toilets, nappies from otherwise healthy children etc – into yellow/black bags as a 20 01 99 waste (unless the total quantity is less than 7 kg in a collection interval where it can be placed in the municipal black bag);
  - healthcare-type offensive hygiene wastes – used PPE that is not infectious, uncontaminated dressings, empty non-medicated intravenous bags, cardboard vomit/urine bowls (unless infection suspected) etc – into yellow/black bags as 18 01 04 waste.
- 25 Liquids (urine, liquid faeces, vomit) should not be placed in this waste stream and may need to be discarded to foul sewer before containers are discarded.

### Note

With regard to offensive waste, the practice has two legal obligations:

- mixing is prohibited, so offensive waste must be separated from the clinical waste stream; and
- producers are required to accurately classify and describe their waste; therefore, until the practice has separated this material from its bagged clinical waste, it must ensure that it is classified and described as mixed clinical and offensive waste, and the 18 01 04 code must be assigned alongside 18 01 03\* on waste documentation.

### Black bags

- 26 Municipal waste containers should be used for any non-hazardous paper, magazines, newspapers, food and drink containers, paper towels from hand washing, uncontaminated paper rolls from couch covers etc. Recycling options should be considered where available. Packaging from instruments and items should also be placed in this waste stream.

### Human tissues

- 27 General practices and health centres may produce a small amount of human tissue:
- Very small pieces of unrecognisable tissue from minor procedures (for example wart or verruca removal, or wound cleansing) can be disposed of in the clinical waste bags stream.
  - Larger or recognisable pieces of tissue, for example placentas, must be segregated as anatomical waste into appropriately labelled containers.
  - If any waste specimens are stored in chemical preservatives (for example formaldehyde or methanol), they should be segregated from other wastes. The chemical must be included in the waste classification and description.

### Gypsum

- 28 Plaster casts can be produced by a range of healthcare procedures including dentistry, podiatry and fracture clinics. In most cases, these casts and related material are not infectious. These materials, if they enter a normal landfill with other waste including residues from clinical waste disposal, may produce hydrogen sulphide gas. For this reason it is prohibited from landfill. If any gypsum waste is produced:
- the practice should put in place procedures to identify and segregate the small proportion that is genuinely contaminated and poses a risk of infection – this may then be disposed of in the orange bag;
  - the major part of the material must be segregated into an appropriate container and sent either for gypsum recycling or for landfill in a specifically designed landfill – advice from a specialist contractor should be sought.



## Other wastes

- 29 General practices will produce many other wastes. Many of these are beyond the scope of this guidance and should not therefore be placed in the containers indicated above. Examples to consider include:
- waste electrical equipment (see Health Technical Memorandum 07-05);
  - batteries (including those from hearing aids, lead-acid batteries and domestic-type batteries);
  - lightbulbs and fluorescent tubes (including those from medical equipment).

## Waste labelling

- 30 All hazardous waste and medicinal waste containers should be individually and clearly labelled to identify:
- the nature of the waste present (including classification codes where possible); and
  - the details of the medical practice.
- 31 For clinical waste bags, it would typically be necessary to fasten a robust identification tag to the neck of the bag.

## Waste transfer and documentation

### Transport/carriage regulations

- 32 The practice will usually be considered the consignor under the Carriage Regulations, and it must ensure that the requirements of the Carriage Regulations are met.
- 33 For waste medicines, the following guidelines may be used:
- Medicines unopened in original retail packaging (for example date-expired medicines) are exempt from the Carriage Regulations.
  - Partially-opened packagings, miscellaneous blister packs etc should be packaged in accordance with the advice at [paragraph 7.27](#), 'Waste medicines (including amalgam waste)'. These will normally be limited quantities and may be marked accordingly, having been identified in accordance with [paragraph 3.41](#), 'Controlled drugs'.
  - Sharps receptacles should comply with the guidance given in [paragraph 7.34](#), 'Sharps

[packaging](#)' (limited quantity provisions do not apply to sharps).

- Amalgam waste is a dangerous substance (UN 2025) (see [paragraph 4.147](#), 'Amalgam waste'), but can be transported as a limited quantity.
  - Discarded aerosols are subject to the Carriage Regulations.
  - Other waste chemicals must be classified according to their hazard. Most can be moved under the limited quantity provisions (except radioactive material).
- 34 Where a transport document is required, primarily for the sharps, the standard waste note may be used provided the transport information is included (for transport, limited quantities do not require a transport document).

### Documentation

- 35 As the producer of the waste, the medical practice bears the legal responsibility of ensuring that waste documentation is complete and accurate. There are two different types of documentation required for waste transfers:
- **consignment notes** that are used for hazardous wastes;
  - **waste transfer notes** that are used for non-hazardous wastes.
- 36 A consignment note is used to track the movements and ensure the safe disposal of hazardous wastes. It also ensures that the information accompanying the waste is sufficient to enable its safe disposal. A new consignment note must be completed for each individual collection of hazardous waste. Each note will consist of producer, carrier and consignee copies (see [Figure 12](#)).

### Who completes the consignment note and when?

- 37 Before the waste is removed from the medical practice:
- part A contains details of the general practice and the destination of the waste. The practice is responsible for completion of this section;
  - part B contains details about the waste, its properties and its packaging. The practice is responsible for completion of this section;
  - all three copies should be then provided to the waste carrier;

Figure 12 Example hazardous waste consignment note

PART A Registration details						
1. Consignment note code: ABC123/AB001			3. Premises code: ABC123			
2. The waste described below is to be removed from (name, address, postcode, telephone, e-mail & fax): The General Practice, High Street, New Town, The Shire, XX12 3YY Tel 0123 456789, itsprobablyavirus@hotmail.com			4. The waste will be taken to (address and postcode): The Transfer Station, Low Street, Old Town, The Shire YY12 4XX			
5. The waste producer was (if different from 1) (name, address, postcode, telephone, e-mail & fax)						
PART B Description of waste						
1. The process giving rise to the waste(s) was: General practice healthcare. 2. SIC for the process giving rise to the waste: 85						
3. WASTE DETAILS (where more than one waste type is collected all of the information given below must be completed for each EWC identified).						
Description of waste	EWC code	Qty (kg)	The chemical/biological components of the waste, their concentrations	Physical form	Hazard code(s)	Container type, number & size
Cytotoxic and Cytostatic clinical waste: Mixed sharps and pharmaceutical waste for incineration only	18 01 08* 18 01 08		Sharps, syringe barrels, medicine vials and ampoules (cytotoxic and cytostatic); see attached list	mixed	H3, H6, H7, H9, H10, H11	2 × 14-litre purple-lidded sharps receptacle
Clinical waste: Mixed sharps and pharmaceutical waste for incineration only	18 01 03* 18 01 09	10 kg	Sharps, syringe barrels, medicine vials and ampoules (not cytotoxic and cytostatic)	mixed	H3, H4, H5, H9, H14	7 × 14-litre yellow-lidded sharps receptacle
Clinical waste: non-medicinally contaminated sharps for incineration only	18 01 03*	10 kg	Sharps contaminated with body fluids, podiatry instruments	mixed	H9	1 × 14-litre orange-lidded sharps receptacle
Clinical waste: infectious, suitable for alternative treatment	18 01 03*	20 kg	Dressings, PPE and swabs, not contaminated with chemicals or medicines. Contains ZnO dressings	mixed	H9, H14	27 orange bags
Clinical waste: infectious, containing chemicals and pharmaceuticals	18 01 03* 18 01 09 18 01 06*	20 kg	Medicated dressings, Formaldehyde preserved specimens	mixed	H9, H7	1 yellow bag
Clinical waste: anatomical for incineration only	18 01 03*		Placenta	mixed	H9	1 × 14-litre red-lidded bin
ADR information for each EWC identified above:						
EWC code			Description for Carriage	Special handling requirements		
18 01 03*			UN 3291 Clinical waste, unspecified, n.o.s, 6.2, II	No persons in handling chain to have direct contact. Waste to be disposed of at authorised site		
etc			etc	etc		

- part C contains details of the waste carrier, the driver, the vehicle and a declaration that the carrier has verified key information in parts A and B. This must be completed by the carrier;
- the paperwork is then passed back to the producer. Only after part C is completed can the practice complete part D to verify parts A to

C (as this includes a record of the number plate of the vehicle onto which the waste was loaded);

- once parts A to D are complete, the carrier may remove the waste.

38 On arrival at the destination (consignee) site, the consignee completes part E to verify what they have received.

PART C Carrier's certificate		PART D Consignor's/holder's certificate	
<p>(If more than one carrier is used, please attach a schedule for subsequent carriers. If a schedule of carriers is attached tick here) <input type="checkbox"/></p> <p><b>I certify that I today collected the consignment and that the details in A2, A4 and B3 are correct and have been advised of any specific handling requirements:</b></p> <p><b>1. Carrier driver name (please PRINT)</b> Tony Driver</p> <p><b>2. On behalf of</b> (name, address, postcode, telephone, e-mail &amp; fax) The Transfer Station, Low Street, Old Town, The Shire, YY12 4XX Tel: 0987 654321; email: transfer@hotmail.com</p> <p><b>3. Carrier's registration no/exemption reason:</b> ABC/012345</p> <p><b>4. Vehicle registration no:</b> AB07 FIL</p> <p><b>Signature</b> <b>T. Driver</b> <b>Time: 18.00 Date: 29/02/2010</b></p>		<p>I certify that the information in A, B and C above is correct, that the carrier is registered or exempt and was advised of the appropriate precautionary measures. All of the waste is packaged and labelled correctly and the carrier has been advised of any special handling requirements.</p> <p><b>1. Consignor/Holder name (please PRINT)</b> <b>Mr Sydney Note</b> <b>on behalf of</b> (name, address, postcode, telephone, e-mail and fax) The General Practice, High Street, New Town, The Shire, XX12 3YY Tel 0123 456789, itsprobablyavirus@hotmail.com</p> <p><b>Signature</b> <b>S. Note</b> <b>Time: 18.00 Date: 29/02/2010</b></p>	
PART E Consignee's Certificate (where more than one waste type is collected, all of the information given below must be completed for each EWC)			
Individual EWC code(s) received	Quantity of each EWC code received (kg)	EWC code accepted/rejected	Waste Management operation (R or D code)
<p>I received this waste at the address given in A4 on</p> <p>Vehicle registration no (or mode of transport if not by road):</p> <p>Where waste is rejected please provide details:</p> <p>I certify that the waste management licence/permit/authorised exemption no(s).</p> <div style="border: 1px solid black; height: 20px; width: 100%; margin-top: 5px;"></div> <p>authorises the management of the waste described in B at the address given at A4</p>		<p>Name: (please PRINT)</p> <p>On behalf of (name, address, postcode, tel, e-mail &amp; fax):</p> <p>Signature:</p> <p>Date:</p> <p>Time:</p>	

**Key points:**

- The law places the sole responsibility for completion of parts A, B and D of the note on the medical practice.
- The consignment note system requires the general practice to certify the carrier and vehicle details during collection. Unsupervised out-of-hours collection is not allowed.

Further guidance on this is provided by:

- the EA (for England and Wales);
- SEPA (for Scotland);
- the NIEA (for Northern Ireland).

**Carrier round collections**

- 39** Waste carriers may collect hazardous waste from a number of small producers in the same journey, referred to as a carrier round.

- 40 Each collection within a round will need its own standard consignment note with unique consignment note number. The carrier round will have a unique number that is common to all the collections in that round.

### Waste transfer notes

- 41 Waste transfer notes can only be used for the collection of non-hazardous wastes from the medical practice. These cannot be used for clinical wastes, other than segregated non-hazardous medicines.
- 42 The practice completes a waste transfer note. The legal responsibility for describing the waste rests with the practice.
- 43 If a contractor collects the same waste at regular intervals over a period no longer than 12 months, a season ticket can be used; therefore, a new note would not be required on each occasion.

## Registrations, records and returns

### Registration as a hazardous waste producer

- 44 All general practices that produce 500 kg or more of hazardous waste in any 12-month period need to register their premises annually as a hazardous waste producer. If the practice produces less than 500 kg in any 12-month period, it is exempt. This information is used to track hazardous wastes and ensure that they are safely managed.
- 45 The 500 kg includes all of the practice's hazardous wastes, not just the healthcare wastes. Although smaller practices may be exempt, many general practices and most health centres will need to register.
- 46 A health centre that includes more than one practice, each with its own designated area, should consider each area separately. A health centre occupied by a dental practice, a general practice and a PCT practice may need three separate registrations. Conversely, each may benefit individually from the 500 kg threshold for registration.

### How to register as a hazardous waste producer

- 47 There are four ways to register as a hazardous waste producer:
- online via the environmental regulator's website;

- by phone at the environmental regulator's customer contact centre;
- by post;
- by waste contractor on the practice's behalf.

- 48 When the premises are registered, the practice will be given a hazardous waste producer registration number (called a "premises code"). This code must be used on all consignment notes where hazardous waste is removed from those premises. Registration is only valid for 12 months and therefore must be renewed annually.

### Hazardous waste – records and returns

- 49 General practices are required to keep a register that contains their hazardous waste records. This requirement is usually met by keeping copies of both:
- standard or multiple consignment notes (including those collected as part of a carrier round); and
  - consignee returns to the producer or holder.
- 50 Where relevant, the register should also contain records of any rejected loads or carrier schedules. Guidance on consignment notes and their completion is provided in a series of guides to the Hazardous Waste Regulations.

### Consignee returns to the waste producer or holder

- 51 Each consignee (the destination site where the carrier takes the waste) is required to send to the general practice a return each quarter. This return is a record of what has happened to the waste, and it must be placed in the waste producer's register. These returns must be present to ensure the register is legally complete.
- 52 Where the waste is taken to a transfer station before being sent elsewhere for disposal, the general practice should also request copies of the associated completed paperwork for that onward movement, which confirms that it was received at the final destination.

### Where should the register be kept?

- 53 Where the register is kept depends on the number of practice branches and whether or not these are each registered as hazardous waste producers.
- Registered premises – if a practice is registered, the register for any hazardous waste that is

removed from that practice must always be kept at that premises, or a copy of the register if the registration is undertaken centrally.

- Exempt premises – if a practice branch is exempt from registration as a hazardous waste producer, the register for any hazardous waste that is removed from that practice should be kept at the principal place of business. This may be another practice if the practice is one of several in a company. If a practice wishes to keep the register anywhere else, this must be agreed in writing with the environmental regulator.

### How long should the register be kept?

- 54 The register must be kept for at least three years, commencing from the date the waste was removed from the practice's premises by a waste carrier.

### Non-hazardous waste records

- 55 Waste transfer notes should be kept for a minimum of two years. Where season tickets are used, a record should also be kept of the times when each of the regular collections were made using the note.

### Waste audit and duty of care audit checks

- 56 Waste segregation and procedures should be audited periodically for three reasons:
- a. this enables the practice to accurately describe and classify its waste to complete its waste documentation and discharge its duty of care;
  - b. the waste disposer may be required by their permit to obtain an audit from the practice before they can accept the waste (a **pre-acceptance audit**);
  - c. this enables the practice to monitor its waste practices, identify any problems and as a result enables it to fix them.
- 57 Examples of specific issues to identify, in an audit of each area of the practice, are the presence of:
- cytotoxic and cytostatic medicines;
  - medicines (for example tablets, creams, vials, ampoules, intravenous bags etc) and medicinally-contaminated wastes (for example syringe barrels, tubing etc);
  - sharps (including whether they are medicinally-contaminated);

- chemicals (disinfectants, reagents, diagnostic kits, resins etc);
- dental amalgam (capsules, excess amalgam, separator contents, teeth with fillings etc);
- body-fluid-contaminated material that is infectious (swabs, PPE etc);
- healthcare items that are not contaminated with body fluids or other potentially infectious materials (for example PPE);
- feminine hygiene wastes/nappy bins from toilets;
- municipal-type wastes (newspapers, magazines, food and drink containers, sterile equipment and other packaging etc).

- 58 The following should also be considered:

- what waste containers are used for these wastes;
- how they are labelled;
- whether the contents are accurately described and classified on waste documentation.

- 59 Undertaking such audits will enable the practice to demonstrate that it has discharged its duty of care in describing and packaging its waste.

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

- 60 Buying Solutions (formerly NHS PASA) has developed 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 addresses the recommendations outlined in this guidance.

### Waste storage

- 61 The medical practice may store its own waste on the premises where it was produced without requiring an environmental permit where specific conditions are met:
- the waste must be stored in a secure place; and
  - the waste must be stored for a period less than 12 months.
- 62 Waste types should be kept separate; for example, sharps receptacles and clinical waste bags should



not be placed together in a larger container (for example a wheeled cart).

## Waste carriers

63 The waste contractor who collects the waste must be a registered waste carrier. This should be checked by, for example, comparing the carrier registration number on part C of the consignment note to the information held on the environmental regulator's electronic public register. The practice must supervise collections of hazardous waste to enable it to certify the carrier and vehicle details in part D of the note.

## Waste disposal

- 64 Waste from small practices is frequently taken to a waste transfer station where it is combined with other wastes and sent for final disposal.
- 65 The practice should check whether its waste is being taken to a waste transfer station. If this is the case, it should ask for copies of the documentation used for the onward movement of its waste to its final destination.
- 66 There are two main disposal options for clinical waste:
- alternative treatments – which disinfect the waste and are normally authorised only for infectious wastes (for example bagged clinical wastes);
  - clinical waste incinerators – which ensure complete destruction of medicines and chemicals as well as inactivation of microorganisms.

## Discharge to foul sewer

- 67 Discharges to foul sewer should be in accordance with a trade effluent consent from the sewerage undertaker.
- 68 See also [paragraph 9.18, 'Discharge to sewer'](#).

Guidance on this has been provided by Water UK on behalf of the sewerage undertakers.

## Specific issues

### Staff working in the community

69 Practice staff working in the community may store:

- waste produced in the community by their staff and returned to the practice; and
- waste produced by patients in domestic households and returned to the practice by the householder or practice staff.

70 This does not require an environmental permit as long as the conditions set out in the relevant exemptions are met:

- the exemption allowing the temporary storage of waste at the place controlled by the waste producer;
- the exemption allowing the temporary storage of waste at a collection point.

71 These exemptions do not need to be registered.

### Movement of waste within a practice's premises

72 Where the health centre or practice's premises contain more than one practice, it is common for one organisation to manage the waste for the others. For example, a PCT may manage all the waste from a health centre containing a PCT's practice, a general practice and a dental practice. In this case, the other practices are transferring their waste to the PCT's practice. Duty of care controls apply to this "within premises" transfer. These practices are required to provide the PCT with information on their waste composition and waste properties to enable the PCT to complete the waste documentation and transfer the waste to the waste contractor.

### Movement of waste between practices

73 The removal of hazardous waste from a medical practice is subject to the full requirements of the Hazardous Waste Regulations. No exception is made for movements between practices, even if they belong to the same organisation. These requirements include:

- premises registration;
- consignment notes;
- records;
- consignee returns (receiving premises);
- producer returns (receiving premises).

74 Following on from the advice given immediately above, each practice should ensure that its waste is clearly labelled/tagged to identify them as the producer. Therefore, the PCT exemplified above

would need to identify each practice on the consignment note (for example, part A5). If the receiving practice is not part of the same organisation, it may require an environmental permit or relevant exemption to store the waste.

### **Return of medicines to pharmacies and charities**

75 Where medicines from a general practice (or health centre) are taken to a community, PCT or hospital pharmacy (for example where the pharmacy supplies medicines and collects unwanted material):

- cytotoxic and cytostatic medicines must be consigned from the practice to the pharmacy, which must send the practice (and the regulator) consignee returns;
- other medicines must be transferred using a duty of care waste transfer note;
- a registered waste carrier is normally required to transport the material;
- if the practice is charged for collection or disposal of the waste medicines by the pharmacy (or its parent organisation), the pharmacy must hold an environmental permit.

76 Where medicines from a general practice (or health centre) are collected or sent to a charity for reuse overseas:

- a registered waste carrier is normally required to transport the material;
- the guidance from the Royal Pharmaceutical Society of Great Britain (RPSGB) on such donations, which follows the World Health Organisation line, should be followed;
- cytotoxic and cytostatic waste medicines must be consigned from the practice to the charity, which must send the practice (and the regulator) consignee returns;
- other waste medicines must be transferred using a duty-of-care waste transfer note;
- the charity must hold an environmental permit for sorting of waste medicines; and
- a registered waste carrier is normally required to transport the material.

## Dental practices

- 1 This brief guide provides practical advice on waste management to dental practices. It is intended to be used as additional guidance to that specified in Health Technical Memorandum 01-05 – ‘Decontamination in primary care dental facilities’.
- 2 Following this advice should assist dental practices in meeting the key requirements of environmental legislation. The dental practice may need to seek further advice on specific aspects.

### What are the responsibilities of the dental practice?

- 3 The dental practice has a statutory duty of care. This applies to everyone in the waste management chain from producer to disposer. It requires the dental practice to prevent the escape of the waste 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.

#### Key point:

The dental practice’s responsibilities do not end when it hands its waste to a waste collector.

- 4 The dental practice is solely responsible for ensuring that waste is:
  - correctly segregated;
  - stored safely and securely on premises;
  - packaged appropriately for transport;
  - described accurately and fully on the accompanying documentation when removed;
  - transferred to an authorised person for transport to an authorised waste site;
  - appropriately registered for hazardous waste (see paragraph 40, ‘Why register as a hazardous waste producer?’), with necessary records and returns at premises.
- 5 The practice manager, whether in an independent practice or for dental corporate bodies, should also ensure that staff are trained and aware of the waste procedures.

### Waste segregation, packaging, classification and labelling

- 6 Waste segregation is driven by a number of factors including:
  - the technical capabilities and permits of the waste disposal facilities;
  - packaging requirements for safely transporting certain materials;
  - health and safety; and
  - the Hazardous Waste Regulations (Special Waste Regulations in Scotland), which legally prohibit the mixing of waste categories.
- 7 Dental practices will produce a wide range of both hazardous and non-hazardous wastes. Hazardous wastes will typically include:
  - bagged clinical wastes;
  - sharps;
  - amalgam wastes;
  - X-ray waste – photochemicals;
  - refrigerators, freezers, computers, monitors, fluorescent tubes and some batteries;
  - chemical disinfectants and reagents;
  - cytotoxic and cytostatic medicines in some circumstances.
- 8 Non-hazardous wastes will often include:
  - offensive wastes (for example PPE not contaminated with body fluids);
  - detergent wipes used for cleaning surgeries if uncontaminated with body fluids;
  - medicines (non-cytotoxic and non-cytostatic);
  - other electrical equipment and certain types of battery;

- office wastes – paper, cardboard, ink cartridges, clean glassware and plastics;
- X-ray film and lead foils;
- hygiene wastes from sanitary facilities;
- dental plaster casts;
- domestic-type (black bag) waste.

- 9 **Figure 13** outlines some key dental waste streams, including an explanation of each stream, what waste containers should be used, what can be placed in these containers, how waste should be classified and described, and advice on waste disposal.

### Note

Cytotoxic and cytostatic medicines are rarely used in dental practices. If they are used, see **Step 2(ii)** for guidance.

- 10 The dental practice will use **other medicines** including for example anaesthetics, antibiotics and painkillers.
- It is common practice for the medicinal containers used to charge syringes to be disposed of in the sharps receptacle along with the syringe. The dental practice must, however, ensure that the waste description and classification identifies this.
  - If the dental practice returns medicines to a local pharmacy, the same legal requirements apply as transferring them to a waste contractor. The dental practice must discharge its duty of care and in particular must use waste documentation and keep appropriate records. If the dental practice (or the pharmacy) is inspected by a regulator, it should expect to be asked to produce the required documents and records.

### Sharps receptacles

- 11 The medicinal contamination of sharps determines the disposal option. Practices are unlikely to have cytotoxic and cytostatic medicines. This guidance assumes their sharps are likely to be contaminated predominantly with local anaesthetics. Therefore, yellow-lidded sharps receptacles should be used. Other coloured lids should not be used; contractors who advise the use of orange-lidded boxes should be viewed with caution as this colour is specifically

associated with disposal options that are not appropriate for this waste.

### Note

Pharmaceutical/medicinal wastes should never be placed in the domestic waste stream for disposal. Neither is it acceptable practice to take any action to intentionally discharge syringes or items containing residual medicines in order to dispose of them in the orange-lidded sharps receptacle. If the syringe is partially discharged and contaminated with residual medicines, it should be disposed of in the yellow-lidded sharps receptacle.

### Orange clinical waste bags

- 12 Orange bags should be used for soft clinical (infectious) wastes and are used to indicate that the waste is suitable for alternative treatment processes such as autoclaves, rather than requiring incineration. Medicinally-, chemically- or amalgam-contaminated wastes must not be placed in the orange bag.

### Dental amalgam








- 13 All dental practices should have (an) amalgam separator(s) installed. These should be of an appropriate ISO standard and fitted in such a way that they capture any amalgam contained in wastewaters.

### Offensive/hygiene waste

- 14 The non-hazardous offensive waste stream should only be used for soft wastes from dentistry which are not contaminated with bodily fluids (for example, uncontaminated PPE and hygiene wastes from toilets).
- 15 Offensive/hygiene waste from dental care includes items such as saliva-contaminated swabs where no known infection risk is present, gowns, gloves, tissues etc but which are not contaminated with blood, medicines, chemicals or amalgam.
- 16 The dental practice is likely to use a range of chemicals and photochemicals including disinfectants, hand gels, resins, reagents and diagnostic kits. The practice's waste management contractor can advise on the safe disposal requirements for such materials.
- 17 A detailed explanation of the requirements for disposal of chemical waste is beyond the scope of

Figure 13 Waste segregation and classification table (dental)

## Waste segregation and classification table (see supporting text)

Container type	Example waste description	Contents	Classification and EWC codes	Disposal
Sharps receptacle (yellow lid) <sup>1</sup> 	Clinical waste: mixed sharps and pharmaceutical waste	<ul style="list-style-type: none"> <li>– Hypodermic needles, syringes and syringe barrels including those contaminated with medicines (not cytotoxic and cytostatic)</li> <li>– Used medicine vials</li> <li>– Other sharp instruments or items including teeth without amalgam fillings</li> </ul>	18 01 03* & 18 01 09 Hazardous	Incineration only
Soft clinical wastes (orange bag) 	Clinical waste: infectious	<p>Blood-contaminated dressings, disposable gowns, clinical gloves, PPE (contaminated disposable gowns and clinical gloves) and swabs, and other waste that may present a risk of infection (including saliva-contaminated items from known infectious patients or where medical history is not available)</p> <p><b>NO</b> medicinally, chemically or amalgam contaminated wastes</p>	18 01 03* Hazardous	Alternative treatment or incineration
Medicines (rigid leak-proof container) <sup>2</sup> 	Clinical waste: non-cytotoxic and cytostatic medicines	Non-cytotoxic and cytostatic medicines including used and out-of-date stock	18 01 09 Non-hazardous	Incineration only
Offensive or hygiene wastes 	Offensive/hygiene waste from dental care, for example saliva-contaminated items where no known infection risk is present	Gowns, gloves, tissues and other items from dental care which are not contaminated with blood, medicines, chemicals or amalgam	Non-hazardous 18 01 04	Landfill or municipal incineration/energy from waste
	Municipal offensive/hygiene	Hygiene waste from toilets only	Non-hazardous 20 01 99	
Amalgam waste 	Dental amalgam: infectious, clinical waste	Teeth with amalgam fillings	Hazardous 18 01 10*	Metal recovery
	Dental amalgam and mercury: non-infectious	Dental amalgam and mercury including spent and out-of-date capsules, excess mixed amalgam, and contents of amalgam separators		
Plaster cast waste 	Plaster cast waste	Gypsum or calcium sulphate study or working models	18 01 04	Gypsum recovery or landfill in a separate dedicated cell for gypsum
X-ray fixer (container type not specified)	Photographic fixer	Waste photographic fixer from X-ray (must be kept separate from developer)	Hazardous 09 01 04*	Recovery (various)
X-ray developer (container type not specified)	Photographic developer	Waste photographic developer from X-ray (must be kept separate from fixer)	Hazardous 09 01 01*	
X-ray film	X-ray film	Waste photographic film from X-ray	09 01 07	Silver recovery
Lead foils (container type not specified)	X-ray lead foils from dentistry	Lead foils from X-ray film packaging	Non-hazardous 15 01 04	Recovery (various)
Municipal waste 	Mixed municipal waste	Domestic type refuse: food packaging paper/magazines that cannot be recycled paper towels (no hazardous wastes)	Non-hazardous 20 03 01	Landfill or municipal incineration/energy from waste

## Note:

1. Use orange-lidded sharps bins: for sharps not contaminated with medicinal products (in England and Wales); either for fully discharged sharps or those not used for administering medicines (in Scotland and Northern Ireland).
2. The blue-lidded yellow container represents the new recommended national colour code for the segregation of non-hazardous waste medicines. This was previously a yellow-lidded container as specified in Health Technical Memorandum 01-05, and whilst adoption is recommended, it is not compulsory.



this sector guide. There is, however, a number of key points to note:

- Empty containers are likely to contain sufficient residue to remain hazardous chemical wastes unless rinsed. If these are to be rinsed and the water is discharged to the foul sewer via the sink, a trade effluent consent may be required. The dental practice should contact its local water company. Alcohol hand gels that do not contain siloxanes (which cause significant damage to plant and equipment used in the sewage treatment process) and whose safety data sheet (SDS) does not prohibit discharge to the sewer, may be rinsed out and the packaging recycled or placed into the domestic waste stream. If not rinsed, they should be treated as though they contained the product and treated accordingly. Again, the dental practice's waste management contractor will advise on the safe disposal requirements for such materials.
- Chemicals should not be disposed of in the clinical waste stream. This may cause chemical releases and worker exposure issues during subsequent handling and disposal.
- Hazardous chemicals (including photochemicals) should not be disposed of to foul sewer or surface drains.
- Some chemicals may react to produce fire or toxic gases. These incompatible chemicals should be disposed of and stored separately. Flammable, corrosive and oxidising chemicals are of particular concern in healthcare.

- 18 Further guidance on the storage of chemicals is available from the Health & Safety Executive.

## Teeth

- 19 As the disposal of teeth from dental premises is unlikely to cause offence, dental practitioners may treat this as non-anatomical infectious waste. It is common practice for non-amalgam teeth and spicules to be placed in the yellow-lidded sharps receptacle. Dental practitioners must ensure that all waste is treated appropriately, and teeth containing amalgam (see [paragraph 5.57, 'Amalgam – white containers'](#)) should be segregated and sent for appropriate recovery/disposal (see the Defra website).

## Note

Removed items, such as teeth, 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.

As responsible organisations, there is a general duty of care to ensure that items being returned to patients are clean/disinfected; to provide the patient with advice should they wish to discard it later; and, if appropriate, that they have some packaging/instructions to return it to the practice later if they change their mind. This might, for example, prevent certain items subsequently being discarded in the domestic refuse.

## Dental plaster made from gypsum

- 20 Plaster casts can be produced by a range of healthcare activities including dentistry. In most cases, these are used to make casts (often referred to as study or working models). These and related materials are not infectious. If this material is disposed of at a normal landfill, it may produce hydrogen sulphide gas. For this reason, it is prohibited from landfill.
- 21 If any such waste is produced:
- Procedures should be put in place to identify and segregate the small proportion that is genuinely contaminated and poses a risk of infection. This should then be disposed of in the orange bag.
  - The major part of the material must be segregated into an appropriate container and sent either for recycling as gypsum or for disposal in a specifically-designed landfill. If in doubt, advice should be sought from a specialist contractor.
- 22 See [paragraph 4.169, 'Gypsum and plaster casts'](#).

## Domestic waste

- 23 A number of domestic waste streams will be produced. This will include hand towels used for washing hands.

## Waste labelling

- 24 All hazardous waste and medicinal waste containers must be individually and clearly labelled to identify both:

- the nature of the waste present (including classification codes where possible); and
- the details of the dental practice.

## Note

More details on labelling requirements can be found in [Chapter 7, 'Transport packaging and operations'](#).

- 25 For orange bags, it would typically be necessary to fasten a robust identification tag to the neck of the bag.

## Waste transfer and documentation

- 26 As the producer of the waste, the dental practice bears the legal responsibility for ensuring the waste documentation is complete and accurate. Relying on the waste contractor to do this could leave the practice legally liable should any of the documentation be incorrect.
- 27 There are two different types of documentation required for waste transfers:
- **consignment notes**, which are used for hazardous wastes (special wastes in Scotland); and
  - **waste transfer notes**, which are used for non-hazardous wastes.

### What is a consignment note?

- 28 A consignment note is used to track the movements, and ensure the safe disposal, of hazardous wastes. It is also designed to ensure that the information accompanying the waste is sufficient to enable its safe disposal. A new consignment note must be completed for each individual collection of hazardous waste. Each note will consist of producer, carrier and consignee copies.
- 29 [Figure 14](#) provides a completed example of a standard consignment note for a number of dental waste streams. If the segregation advice in this guidance is followed, [Figure 14](#) may be used as a template. It should also be used to compare and contrast with any documents provided by the waste contractor.

### Who completes the consignment note, and when?

- 30 Before the waste is removed from the dental practice:

- part A contains details of the dental practice and the destination of the waste. This must be completed by the practice;
  - part B contains details about the waste, its properties and its packaging. This must be completed by the practice;
  - all three copies should be then provided to the waste carrier;
  - part C contains details of the waste carrier, the driver, the vehicle, and a declaration that the carrier has verified key information in parts A and B. This must be completed by the carrier;
  - the paperwork is then passed back to the producer. Only after part C is completed can the dental practice complete part D to verify parts A to C (as this includes a record of the number plate of the vehicle onto which the waste was loaded);
  - once parts A to D are complete, the carrier may remove the waste.
- 31 On arrival at the destination (consignee) site, the consignee completes part E to verify what they have received.
- 32 Further guidance on this is provided by:
- the EA (for England and Wales);
  - SEPA (for Scotland);
  - the NIEA (for Northern Ireland).

### Carrier round collections

- 33 Waste carriers may collect hazardous waste from a number of small producers in the same journey, referred to as a carrier round.
- 34 Each collection within a round will need its own standard consignment note with unique consignment note number. The carrier round will have a unique number that is common to all the collections in that round.

### Waste transfer notes

- 35 Waste transfer notes are used for the collection of non-hazardous wastes.
- 36 The dental practice completes a waste transfer note. The legal responsibility for describing the waste rests with the dental practice.
- 37 If a contractor collects the same waste at regular intervals over a period no longer than 12 months,

Figure 14 Example hazardous waste consignment note (dental)

PART A Registration Details						
1. Consignment note code: ABC123/AB001			3. Premises code: ABC123			
2. The waste described below is to be removed from (name, address, postcode, telephone, e-mail & fax): The Dental Practice, High Street, New Town, The Shire, XX12 3YY Tel 0123 456789, soretooth@hotmail.com			4. The waste will be taken to (address and postcode): The Transfer Station, Low Street, Old Town, The Shire YY12 4XX			
			5. The waste producer was (if different from 1) (name, address, postcode, telephone, e-mail & fax)			
PART B Description of waste						
1. The process giving rise to the waste(s) was: Dental healthcare. 2. SIC for the process giving rise to the waste: 85.						
3. WASTE DETAILS (where more than one waste type is collected all of the information given below must be completed for each EWC identified).						
Description of waste	EWC code	Qty (kg)	The chemical/biological components of the waste, their concentrations	Physical form	Hazard code(s)	Container type, number & size
Clinical waste: mixed sharps and pharmaceutical waste for incineration only	18 01 03* 18 01 09	10 kg	Sharps, syringe barrels, medicine vials and ampoules (not cytotoxic and cytostatic)	mixed	H3, H4, H5, H9, H14	2 × 14-litre yellow-lidded sharps receptacle
Clinical waste: infectious, suitable for alternative treatment	18 01 03*	20 kg	Dressings, PPE and swabs, not contaminated with chemicals or medicines	mixed	H9	4 orange bags
Dental amalgam: infectious, clinical waste, for recovery	18 01 10*	0.5 kg	Teeth with amalgam fillings (mercury)	solid	H6, H9, H14	1 amalgam pot 500 ml
Dental amalgam and mercury: non-infectious, for recovery	18 01 10*	0.5 kg	Dental amalgam and mercury – spent and out-of-date capsules, excess mixed amalgam, and contents of amalgam separators	mixed	H6, H14	1 amalgam pot 1 litre
X-ray fixer solution	09 01 01*	10 kg	Acetic acid 1–5% Silver 1–2%	liquid	H4	1 × 15-litre drum
X-ray developer solution	09 01 04*	10 kg	Hydroquinone 5–10% Diethylene Glycol 1–5% Sodium Carbonate 1–5%	liquid	H4, H7, H11	1 × 15-litre drum
ADR information for each EWC identified above:						
EWC code			Description for carriage	Special handling requirements		
18 01 03*			UN 3291 Clinical waste, unspecified, n.o.s 6.2 II	No persons in handling chain to have direct contact. Waste to be disposed of at authorised site		
etc			etc	etc		

a season ticket can be used and therefore a new note would not be required on each occasion.

### Waste from other practices and home visits

- 38 Dentists may bring back to their practice premises waste they have produced in domestic households during home visits. No waste documentation is required and there is an exemption from the

requirement for an environmental permit for temporary storage by the producer.

- 39 Dentists may also move waste between their practices under the same exemption from a permit. However, if hazardous waste (that is, clinical waste) is moved, the practice must use consignment notes, and the receiving practice will be a hazardous waste consignee with considerable legal obligations.

PART C Carrier's certificate		PART D Consignor's/holder's certificate	
<p>(If more than one carrier is used, please attach a schedule for subsequent carriers. If a schedule of carriers is attached tick here) <input type="checkbox"/></p> <p><b>I certify that I today collected the consignment and that the details in A2, A4 and B3 are correct &amp; have been advised of any specific handling requirements:</b></p> <p><b>1. Carrier driver name (please PRINT)</b> Tony Driver</p> <p><b>2. On behalf of</b> (name, address, postcode, telephone, e-mail &amp; fax) The Transfer Station, Low Street, Old Town, The Shire, YY12 4XX Tel: 0987 654321; email: transfer@hotmail.com</p> <p><b>3. Carrier's registration no/exemption reason:</b> ABC/012345</p> <p><b>4. Vehicle registration no:</b> AB07 FIL</p> <p><b>Signature</b> <b>T. Driver</b> <b>Time: 18.00 Date: 29/02/2010</b></p>		<p>I certify that the information in A, B and C above is correct, that the carrier is registered or exempt and was advised of the appropriate precautionary measures. All of the waste is packaged and labelled correctly and the carrier has been advised of any special handling requirements.</p> <p><b>1. Consignor/Holder name (please PRINT)</b>  <b>Mr David Bridge</b>  <b>on behalf of</b> (name, address, postcode, telephone, e-mail and fax) The Dental Practice, High Street, New Town, The Shire, XX12 3YY Tel 0123 456789, soretooth@hotmail.com</p> <p><b>Signature</b> <b>D. Bridge</b> <b>Time: 18.00 Date: 29/02/2010</b></p>	
PART E Consignee's Certificate (where more than one waste type is collected, all of the information given below must be completed for each EWC)			
Individual EWC code(s) received	Quantity of each EWC code received (kg)	EWC code accepted/rejected	Waste Management operation (R or D code)
<p>I received this waste at the address given in A4 on</p> <p>Vehicle registration no (or mode of transport if not by road):</p> <p>Where waste is rejected please provide details:</p> <p>I certify that the waste management licence/permit/authorised exemption no(s).</p> <div style="border: 1px solid black; height: 20px; width: 450px; margin-top: 5px;"></div> <p>authorises the management of the waste described in B at the address given at A4</p>		<p>Name: (please PRINT)</p> <p>On behalf of (name, address, postcode, tel, e-mail &amp; fax):</p> <p>Signature:</p> <p>Date:</p> <p>Time:</p>	

## Registrations, records and returns

### Why register as a hazardous waste producer?

- 40 All dental practices in England and Wales that produce 500 kg or more of hazardous waste in any 12-month period need to register their premises annually as required by the Hazardous Waste Regulations. If the practice produces less than 500 kg in any 12-month period, it is exempt. This does not exempt the practice from the consignment note procedure. This information is used to track hazardous wastes and ensure that they are safely managed.
- 41 The 500 kg includes all of the practice's hazardous wastes, not just the healthcare wastes. Therefore, although smaller practices may be exempt, many other dental practices may need to register.

### How to register as a hazardous waste producer

- 42 Dental practices can apply for registration from the environmental regulator:
- online via the environmental regulator's website;
  - by phone at the environmental regulator's customer contact centre;
  - by post.
- 43 When the premises are registered, a hazardous waste producer registration number (called a "premises code") will be given. This code must be used on all consignment notes where hazardous waste is removed from those premises. Registration is only valid for 12 months and therefore must be renewed annually.

### Waste storage

- 44 The dental practice may store its own waste at the practice premises where it was produced without requiring an environmental permit where specific conditions are met:
- the waste must be stored in a secure place; and
  - the waste must be stored for a period less than 12 months.

### Hazardous waste: records and returns

- 45 Dental practices are required to keep a register that contains their hazardous waste records. This requirement is usually met by keeping copies of both:

- standard consignment notes (including those collected as part of a carrier round); and
- consignee returns to the producer or holder.

- 46 Where relevant, the register should also contain records of any rejected loads or carrier schedules.

### Consignment notes

#### Standard movement

- 47 Waste producers must retain their copy of each consignment note before the waste is removed from their premises. This copy should be placed in the register.

#### Multiple consignments

- 48 The carrier is required to pass a copy of the multiple consignment note, including the relevant annex, to waste producers before they remove hazardous waste. These records should be placed in the register.
- 49 The register must contain information on the quantity, nature, origin, destination, frequency of collection, mode of transport of the waste removed and details of the waste carrier. If properly completed, consignment notes will meet these requirements.
- 50 Guidance on consignment notes and their completion is provided by the consignment notes series of guides to the Hazardous Waste Regulations.

### Consignee returns to the waste producer or holder

- 51 Each consignee (destination site) is required to send to the dental practice a return each quarter. This return is a record of what has happened to the waste and must be placed in the waste producer's register. These returns must be present to ensure the register is legally complete.
- 52 Where a waste contractor does not provide returns:
- the producer should formally request one in writing;
  - if this is unsuccessful, the waste producer should consider making alternative arrangements for their waste disposal until the contractor complies with the law, and should also pass their details to the environmental regulator.
- 53 The return may be provided in two ways:



- a form of the type provided in the Regulations which lists the individual waste movements, their nature, and what has happened to them;
- a copy of the consignee's copy of each consignment note, together with a description (or confirmation) of the method of disposal or recovery applied to the waste. The latter is required because the disposal or recovery part of a consignment note is completed on arrival at the destination site – that is, before disposal or recovery actually occurs.

- 54 These returns contain the information on the quantity, nature, origin, destination, frequency of collection, mode of transport, waste carrier and the disposal or recovery operation applied to the waste received, which are required by the Regulations.
- 55 Where the waste is taken to a transfer station before being sent elsewhere, copies of the associated completed paperwork for that onward movement should be requested, which will confirm that it was received at the final destination.

### Rejected loads and carrier schedules (where relevant)

#### *Rejected loads*

- 56 Consignees sometimes reject consignments of hazardous waste. When this happens, they must send an explanation. A new consignment note will be completed to move the waste elsewhere. A copy of this consignment note should be provided to the waste producer. A copy of any new consignment note and the consignee's explanation must be kept in the register.

#### *Carriers' schedules*

- 57 This document is needed where more than one carrier is involved in the transport of the waste. A copy of the schedule of carriers must be provided to waste producers before the waste is removed from their premises. This must be kept in the register.

### Where should the register be kept?

- 58 Where the register is kept depends on the number of practice branches and whether these are each registered as hazardous waste producers or not.
- Registered premises – if a practice is registered, the register for hazardous waste that is removed from that practice must always be kept on that practice's premises.

- Exempt premises – if a practice branch is exempt from registration as a hazardous waste producer, the register for hazardous waste that is removed from that practice should be kept at the principal place of business. This may be another practice if the practice is one of several in a company. If a practice wishes to keep the register anywhere else, this must be agreed in writing with the environmental regulator.

### How long should the register be kept?

- 59 The register must be kept for at least three years, commencing from date the waste was removed from the practice's premises by a waste carrier.

### Non-hazardous waste records

- 60 Waste transfer notes should be kept for a minimum of two years.
- 61 Where season tickets are used, a record should be kept of the times when each of the regular collections is made using the note.

## Waste audit and duty of care checks

### Waste audit

- 62 Waste segregation and procedures should be audited periodically for three reasons:
- a. This enables the dental practice to accurately describe and classify its waste to complete its waste documentation and discharge its duty of care.
  - b. The waste disposer may be required by their permit to obtain an audit from the dental practice before they can accept the waste (a **pre-acceptance audit**).
  - c. This enables the dental practice to monitor its waste practices, identify any problems and as a result enables it to fix them.
- 63 Examples of specific issues to identify in an audit of each area of the practice are the presence of the following in any waste stream:
- medicines (for example tablets, creams, vials, ampoules, intravenous bags etc) and medicinally-contaminated wastes (for example syringe barrels, tubing, etc);
  - sharps (including whether they are medicinally contaminated or not);

- chemicals (disinfectants, reagents, diagnostic kits, resins etc);
- dental amalgam (capsules, excess amalgam, separator contents, teeth with fillings etc);
- body-fluid-contaminated material that is infectious (swabs, PPE etc);
- healthcare items that are not contaminated with body fluids or other potentially infectious materials (for example PPE) (offensive wastes);
- feminine hygiene wastes/nappy bins from toilets;
- municipal-type wastes (newspapers, magazines, food and drink containers, sterile equipment and other packaging etc).

64 The following should also be considered:

- what waste containers are used for these wastes;
- how they are labelled;
- whether the contents are accurately described and classified on waste documentation.

65 The EA is introducing requirements for the end disposal sites to hold a detailed and recent waste composition audit of the producer practice before they can accept the waste.

66 The practice will expect to be asked to provide detailed information on its waste segregation procedures, their effectiveness and therefore the content of each waste stream determined by a number of means including staff questionnaires and direct observation of in-use waste container contents.

67 Undertaking such audits will enable the practice to demonstrate that it has discharged its duty of care in describing and packaging its waste. The British Dental Association has recently issued guidance on these pre-acceptance audits.

## Waste carriers

68 The waste contractor who collects the waste must be a registered waste carrier. This should be checked

by, for example, comparing the carrier registration number on part C of the consignment note to the information held on the environmental regulator's electronic public register. The dental practice must supervise collections of hazardous waste to enable it to certify the carrier and vehicle details in part D of the note.

## Waste disposal

69 Waste from small practices is frequently taken to a waste transfer station where it is combined with other wastes and sent for final disposal.

70 The practice should check whether its waste is being taken to a waste transfer station. If this is the case, it should ask for copies of the documentation used for onward movement of the waste to its final destination.

71 **Figure 13** identifies that certain clinical wastes need incineration, whilst others are suitable for alternative treatment. Diversion of waste can occur. Therefore, the following steps should be taken:

- Make sure the waste descriptions specify incineration where indicated in Figure 13, especially if the waste contractor advises otherwise.
- Ask for confirmation of whether the final disposal site was an incinerator or alternative treatment plant, and which facility the waste was taken to.
- Ask for a copy of the last environmental regulator's site inspection form for both the transfer station and the final destination site(s).

## Discharge to foul sewer

72 All dental practices should have an amalgam separator installed. These should be of an appropriate ISO standard and fitted in such a way that they capture any amalgam contained in waste waters (see Defra's guidance on dental amalgam). Spittoon waste can then be discharged to drain/foul sewer without the need for a trade effluent consent.

# 11 Clinical waste treatment and disposal overview

## High temperature processes

### Incineration

- 11.1 Healthcare waste incinerators are required to meet temperature and emission limits as set by the Waste Incineration Directive. Generally they have a primary combustion chamber operating at 800–1000°C and a secondary chamber that operates at a minimum temperature of 1100°C, with a retention time for the combustion gases of two seconds. The incinerator plant also includes gas-cleaning equipment to reduce emissions to air. This equipment deals with compounds such as hydrogen chloride and sulphur dioxide, which form as a result of chlorine and sulphur compounds present in the original waste material.

### Pyrolysis

- 11.2 Pyrolysis involves the high temperature (545–1000°C) heating of waste in the absence of oxygen to produce a synthesis gas. The synthesis gas produced by a pyrolysis system is mixed with air and combusted in a secondary chamber. For general wastes, the synthesis gas produced by pyrolysis can be cleaned and combusted in an engine, but this is avoided with clinical waste where security of destruction is paramount. As with incineration, the secondary combustion component must meet a temperature of 1100 degrees and retain the exhaust gases for two seconds. By heating the waste at the initial temperatures, these systems treat, destroy pathogens and reduce the volume of clinical waste.

### Plasma technology

- 11.3 In a plasma system, an electric current is discharged through an inert gas (for example argon) to produce a plasma with a temperature as high as 6000°C. Clinical waste is fed to the chamber where the plasma is present and is heated to temperatures between 1300 and 1700°C, destroying all pathogenic microbes and converting the waste into a glassy rock or slag, ferrous metal (if present) and a

synthesis gas. As in the pyrolysis process, the synthesis gas produced is often combusted in a secondary chamber, although the very high temperatures in the plasma chamber mean the gas can be fed to an engine generator as an alternative. The use of an engine generator can result in plasma systems exporting power to a hospital (if co-located) or to the electric grid.

### Gasification

- 11.4 The gasification process is similar to the pyrolysis process, except for the fact that small amounts of air are introduced to the primary treatment chamber. The air added does not support full combustion, but enough to release more energy from the waste in the primary chamber. It therefore raises the temperature in the primary chamber to a higher level (900–1100°C) and produces ash rather than char.

## Non-burn/low temperature alternative technologies

### Heat (thermal) disinfection systems

- 11.5 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.

### Autoclaves

- 11.6 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.

### Steam auger

- 11.7 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.

### Dry heat

- 11.8 Some waste treatment systems available for both large (for example hospitals) and small-quantity generators (for example GP/dental 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.

### Microwaves

- 11.9 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.

### Macrowaves

- 11.10 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

- 11.11 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 requirements 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) should not be rendered chemically hazardous due to the presence of residual disinfectant.

### Other chemical systems

- 11.12 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

- 11.13 Infectious waste is banned from landfill, although it can be pre-treated (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 that is sent to landfill must be pre-treated. Guidance on the pre-treatment requirements in England and Wales, Northern Ireland, and Scotland is available from the respective regulatory authorities (EA, NIEA and SEPA).

## 12 Carriage information: Category A pathogen list

12.1 The [table on page 165ff](#) shows the Carriage Regulations' Category A pathogen list. The Carriage Regulations define 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.” (See details of Category A substances in the ADR regulations.)



## 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
<b>UN 2814</b> 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)
	<i>Escherichia coli</i> , verotoxigenic (cultures only)
	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) <sup>a</sup>
	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) <sup>a</sup>
	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 Number and name	Microorganism
<b>UN 2900</b> Infectious substances affecting animals only	African swine fever virus (cultures only)
	Avian paramyxovirus Type 1 – Velogenic Newcastle disease virus (cultures only)
	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)

<sup>a</sup> Nevertheless, when the cultures are intended for diagnostic or clinical purposes, they may be classified as infectious substances of Category B.

## 13 Example list of cytotoxic and cytostatic drugs

- 13.1 This is an example list from an NHS hospital that has assessed the properties of medicines in its pharmacy. **The list for each practice will depend on the medicines they use and may include medicines not listed here.**
- 13.2 Some of these are dangerous goods and may need further restrictions for transportation.
- 13.3 All formulations of cytotoxic and cytostatic drugs must be disposed of in the designated cytotoxic/cytostatic waste receptacle (purple lids) or appropriate receptacles in line with transport/carriage regulations. The waste contractor should be consulted.
- 13.4 The drugs below are split into a new list of additional drugs that fall into the cytotoxic/cytostatic category and a list of cancer chemotherapy drugs, which have always been disposed of in this manner.
- 13.5 This list is not exhaustive and may not include all very new, unlicensed or trial medicines.

### New list of non-chemotherapy cytotoxic/cytostatic drugs

Product approved name
Anastrozole
Azathioprine
Bicalutamide
Chloramphenicol – classified as a category 2A carcinogen and as such will include eye drops with a concentration of 0.1% (the legal threshold in waste legislation)
Ciclosporin
Cidofovir
Coal tar containing products
Colchicine
Danazol
Diethylstilbestrol
Dinoprostone
Dithranol containing products
Dutasteride
Estradiol

Exemestane
Finasteride
Flutamide
Ganciclovir
Gonadotrophin, chorionic
Goserelin
Interferon containing products (including peginterferon)
Leflunomide
Letrozole
Leuprorelin acetate
Medroxyprogesterone
Megestrol
Menotropins
Mifepristone
Mycophenolate mofetil
Nafarelin
Oestrogen containing products
Oxytocin (including syntocinon and syntometrine)
Podophyllin
Progesterone containing products
Raloxifene
Ribavirin
Sirolimus
Streptozocin
Tacrolimus
Tamoxifen
Testosterone
Thalidomide
Toremifene
Trifluridine
Triptorelin
Valganciclovir
Zidovudine

**Cancer chemotherapy drugs**

<b>Product approved name</b>
Aldesleukin
Alemtuzumab
Amsacrine
Arsenic trioxide
Asparaginase
Bleomycin
Bortezomib
Busulphan
Capecitabine
Carboplatin
Carmustine
Cetuximab
Chlorambucil
Cisplatin
Cladribine
Cyclophosphamide
Cytarabine
Dacarbazine
Dactinomycin
Daunorubicin
Dasatinib
Docetaxel
Doxorubicin
Epirubicin
Estramustine
Etoposide
Fludarabine

Fluorouracil
Gemcitabine
Gemtuzumab
Hydroxycarbamide
Idarubicin
Ifosfamide
Imatinib mesylate
Irinotecan
Lomustine
Melphalan
Mercaptopurine
Methotrexate
Mitomycin
Mitotane
Mitoxantrone
Oxaliplatin
Paclitaxel
Pentamidine
Pentostatin
Procarbazine
Raltitrexed
Rituximab
Temozolomide
Thiotepa
Topotecan
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