

quantities of waste can pose a health and safety risk to staff.

This could be achieved by storing larger quantities of packaged waste material before it is removed from site, where space and permitting arrangements allow. Alternatively, vehicle space can be fully utilised by arranging a transport route which has multiple healthcare collection points.

5.124 For bulk transport of healthcare waste, a DGSA must be consulted.

Transport of offensive wastes

5.125 By definition, offensive wastes are not classified as dangerous goods, and therefore transport and packaging of such wastes need not comply with the requirements of ADR.

5.126 Unlike dangerous goods, offensive waste can be transported in non-UN-approved packaging; for instance, offensive waste bags can be disposed of in plastic carts which do not have to be yellow in colour.

5.127 Offensive waste and pharmaceutical/ medicinal waste should not be moved in bins marked and labelled as Class 6.2, UN 3291. The marks/labels should be removed or covered.

5.128 Waste carts which store offensive waste bags only need to be cleaned when a visual inspection after tipping has identified the cart as unclean or malodorous, for example there is evidence of leaks, spillage or contaminated contents.

5.129 Offensive wastes may be compacted prior to transport, unless prohibited in the environmental permit, which increases vehicle efficiency by maximising load capacity. If site storage capacity allows,

offensive wastes should be stored in larger quantities before transport for treatment, recovery or disposal is arranged.

Transport on the road

5.130 Dangerous goods in limited quantities as described in Table 15 are not subject to all provisions of the Carriage Regulations and do not count towards load thresholds.

UN 1851, 3248 and 3249 are usually transported in limited quantities.

5.131 ADR allocates transport categories which are linked to packaged dangerous load thresholds over which the full provisions of ADR apply, including the requirement to appoint a DGSA. For healthcare waste, these thresholds are indicated in Table 16.

Table 16 Load thresholds

Transport category	Substance	Quantity
0	Category A substances (UN 2814/2900/3549)	0
2	Clinical waste (UN 3291)	333 kg/L
1	Medicines/chemical wastes PG I	20 kg/L
2	Medicines/chemical wastes PG II (UN1851/3248/3249/cytotoxic drugs)	333 kg/L
3	Medicines/chemical wastes PG III (UN1851/3248/3249/cytotoxic drugs)	1000 kg/L

Note: consult ADR for full details

5.132 Below these thresholds the following apply:

- one 2 kg fire extinguisher must be carried on the vehicle
- general awareness training of all involved in the transport operation must be provided.

Above the threshold, the following applies:

- 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 one of 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.

5.133 Where small quantities of clinical waste (UN 3291) are carried in M1 vehicles, private cars and car-derived vans for example (as happens in community nursing for example), there is no need to carry a 2 kg fire extinguisher.

5.134 Bags of waste up to 15 kg must not be placed directly into any vehicle, including a car (derogation 17 of ADR). They must be placed in a rigid, secure and leak-proof outer packaging duly approved for the purpose. Community practitioners must be trained on the transportation of waste, as specified in ADR Chapter 3.

Documentation

5.135 Authorisations must be acquired from the Department for Transport for the transport of dangerous goods in packaging which is not UN-approved. These are only approved in extenuating circumstances.

For wastes consigned in limited quantities or moved by a healthcare worker from a private home, 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. Documentation is likely to be needed to comply with the Hazardous/Special Waste Regulations, the requirements of which are detailed in paragraphs 6.84–6.142.

5.136 The Department for Transport may impose specific conditions on any approved authorisations to mitigate the risk of spillage and contamination during transport.

Example circumstances which may require authorisation are:

- use of a bulk haulage vehicle without BK2 type approval to clear waste backlogs during an emergency event
- use of non-UN-approved packaging when there is a supply shortage

Carriage on ships in UK waters

5.137 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.

5.138 Dangerous goods for a sea passage must be declared on a dangerous goods note to the shipping line and be accompanied by an SW28 Competent Authority Approval for each load. The documents described in the compliance section of Chapter 6 meet the requirements of the IMDG code, provided the transport information is included. This will apply to shipments from Northern Ireland, the Isle of

Wight, the Scottish Isles and other locations outside of the UK mainland.

On-site transport

5.139 On roads to which the public do not have access, dedicated trucks, trolleys, tugs or wheeled containers may be needed to transport waste receptacles to storage areas; they should not be used for any other purpose, in order to prevent contamination.

Service roads need to be designed and constructed so that they:

- are easy to clean and drain
- contain any leakage from damaged receptacles or containers
- permit easy loading and unloading of containers
- do not offer harbourage for insects or vermin
- do not allow particles of waste to become trapped on edges or crevices.

5.140 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. The effluent water from washing infectious waste containers must be captured. This can be difficult on-site if there is not a purpose-built cleaning space. For this reason, washing of infectious carts is often performed by a specialist contractor. The healthcare waste procedures need to specify the method and frequency of steam cleaning or disinfection.

5.141 Internal vehicles (or equipment) 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.

5.142 Road derogation 11 of ADR states that Class 2 to 6, 8 or 9 materials can be transported between one part of a private premises and another part of the premises within the immediate vicinity, even when separated by road, without having to meet the Carriage Regulation requirements.

For example, when dangerous goods are transported between two separate buildings at the same hospital, but they are separated by a road, the Carriage Regulations in this instance would not apply.

Treatment, recovery and disposal

5.143 This section focuses on the established techniques that are used to render safe clinical waste.

5.144 All treatment and disposal facilities, regardless of size or type of technology used, are required to “render safe” clinical 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

“Rendered safe” is an accepted method or process that has been applied which:

- a) 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
- b) destroys anatomical waste such that it is no longer generally recognisable

- c) renders all clinical waste (including any equipment and sharps) unusable and unrecognisable as clinical waste
- d) destroys the component chemicals of chemical or medicinal and medicinally contaminated waste.

5.145 Alternative treatment plants, except those treating anatomical, medicinal or chemical wastes, should demonstrate the two criteria (a) and (c) detailed above in order to demonstrate that the waste is rendered safe. These criteria apply to:

- a. all non-incineration technologies that are used to treat clinical/healthcare waste
- b. each individual device regardless of load capacity and permitting status
- c. existing operational devices, as well as devices being newly installed.

5.146 The additional criteria (b) and (d) will apply if anatomical, chemical or medicinal wastes are treated.

5.147 Where these have not been met, the waste is not considered to have been rendered safe. This is applicable if it is intended that the material is to be subsequently sent to landfill, in which case further treatment would be required.

5.148 A detailed explanation of the “rendered safe” criteria is provided in Table 17.

Treatment, waste management and disposal systems

5.149 Treatment and waste management systems for healthcare waste can take several different forms:

- hazardous waste or clinical waste incineration
- conventional/hybrid EfW incineration
- non-burn/low-temperature alternative treatment
- other emerging technologies
- landfill.

Table 17 Summary of rendered safe criteria

Criteria	Summary
A: reduction in pathogen numbers	Microbial inactivation is a critical element of the “rendering safe” of certain types of healthcare waste. There are three critical aspects: <ul style="list-style-type: none"> • 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.
B: destruction of anatomical waste	Treatment of anatomical waste requires that the waste be rendered unrecognisable in suitable permitted facilities, which at this time means incineration. Sensitive anatomical wastes may be taken for burial if requested.
C: unusable and unrecognisable	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. Note that confidential material may need to be processed separately to meet British Standards for secure disposal, and so should be segregated from clinical waste streams, and managed/treated/disposed of separately.
D: the rendering safe of pharmaceuticals and chemicals within the waste	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 Controlled Drugs (Supervision of Management and Use) Regulations 2013 and paragraphs 6.16–6.32.

5.150 Whilst not strictly considered treatment, landfill disposal for offensive EWC 18 01 04 wastes remains a disposal option for some healthcare wastes specified in the offensive waste section. This should only be used as a last resort, with preference given to incineration with energy recovery, such as conventional EfW, as per the waste hierarchy discussed in paragraphs 3.2 –3.19.

5.151 While there are a large number of systems available to treat healthcare waste, they 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
- staffing requirements
- the volume of the waste to be treated
- initial and continuing operating costs
- support capabilities of the supplier.

5.152 Treatment, recovery and disposal methods need to be reliable and capable of consistently achieving the required standard of treatment. For guidance on what is required to comply with an environmental permit for the treatment of healthcare waste, see the Environment Agency's (2021b) guidance 'Waste storage, segregation and handling appropriate measures – Healthcare waste: appropriate measures for permitted facilities', and paragraphs 6.108–6.117.

5.153 The types of waste which can be accepted by different treatment facilities will be determined by their permit. Some permits may not allow laboratory wastes or other waste streams to be accepted.

Treatment options to render safe

5.154 A summary of treatment methods to render safe clinical waste is included in Table 18.

5.155 The list below is not exhaustive, and not all techniques may be in use or common in the UK at time of reading. New technologies are continuously evolving and being adopted. For more complete guidance, see the United Nations Environment Programme's 'Compendium of Technologies for Treatment/Destruction of Healthcare Waste' (2012) and the WHO's 'Overview of technologies for the treatment of infectious and sharp waste from health care facilities (2019).

Discharge to sewer

5.156 Discharges of some waste streams to sewer may require the prior agreement of the statutory responsible bodies. Water UK's 'National guidance for healthcare waste water discharges' (2014) provides additional information on specific waste streams. Disposing of any waste to the sewer may present a substantially greater risk of damage to the sewerage undertakers' assets than domestic sewage, and healthcare organisations should first seek advice from the sewerage undertaker.

5.157 Some examples of typical sewer discharges are:

- body fluids, such as blood and similar potentially infectious substances, for example from suction canisters or wound drains
- photo-chemicals (X-ray): these are suitable for recycling, which means that 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
- 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

Table 18 Treatment methods to render safe

Treatment	Description
Chemical disinfection	Chemical process with disinfectant such as chlorine or sodium hypochlorite (bleach). Treatment uses oxidising properties to sterilize wastes prior to permanent disposal. This process may require additional pre-treatment such as grinding.
Steam autoclaving	Steam autoclaving is the most common method of medical waste treatment. It involves utilising closed chambers that apply heat and pressure over a period of time to reach sterilization. This process is done in batches, and generally is not utilised for materials that can combust or melt at low temperatures. Treated material still requires further disposal, typically done through non-hazardous landfilling.
Auger	An auger uses heated oil or steam to sterilize waste which is moved through a screw-shaped chamber. The oil or steam does not come into contact with the waste, and may be heated electrically or with a burner.
Gamma irradiation	Utilises cobalt, which gives out gamma radiation, to sterilize waste. This method is generally considered high-cost due to the cobalt use. Not suitable for pathological waste. In the UK, this technology is typically used to treat equipment prior to use, rather than waste.
Microwave irradiation	Steam-based process where steam is generated by microwave energy (2450 MHz at a wavelength of 12.24 cm) from water contained in the waste. This treatment is an emerging technology but is rapidly becoming widely utilised. The treatment consists of a chamber where the waste is heated up to 121°C. Waste is considered non-hazardous once treated. Suitable to treat biohazardous, infectious, sharps and sludge. The process is generally considered faster than autoclave treatment.
Radio frequency irradiation	These systems apply low-frequency radio waves to inactivate microbes contained within the waste. These waves heat the waste from the inside of the materials to their external surfaces.
Frictional treatment	This emerging treatment is based on using friction generated by rotor blades and heaters to achieve required sterilization temperatures. Waste is typically shredded and heated up to 135–150°C for several minutes. Vapours flow through heat exchangers and filters before being released. This is an emerging technology which is not yet well established in the UK.
Hazardous or clinical waste (HCW) incineration	Dual chamber incinerators burn waste in the primary combustion chamber above 850°C. Multiple oil or gas burners maintain the temperature in the primary chamber. Vapours produced in the primary chamber are directed into a secondary chamber which has more burners to bring the temperature to above the 1100°C required to treat HCW. Flue gas treatment is recommended to reduce air pollution and may be required by the relevant national legislation. Incineration can reduce the waste quantity by up to 80% and is unsuitable for inert wastes.

- radioactive waste from nuclear medicine diagnostic studies and treatments with low concentrations of radioactivity with short half-lives: water-miscible waste may be disposed of in sewers within permitted levels from the relevant competent authority.

5.158 Seek advice from the sewerage undertaker before disposing of material to the sewage network. Medicines, cytotoxic and cytostatic waste should not be disposed of in sewers.

Incineration

5.159 Incineration must be performed in compliance with the Environment Agency's

(2015) guidance on the Permitting Regulations and in line with the conclusions of the European Commission's 'Best Available Techniques (BAT) Reference Document for Waste Incineration' (2019).

SCOTLAND:

Facilities in Scotland should refer to The Waste (Scotland) Regulations 2012, and [SEPA guidance for instruction on incinerating waste](#).

NORTHERN IRELAND:

Facilities in Northern Ireland should refer to The Waste Incineration Regulations (Northern Ireland) 2003.

Conventional energy from waste treatment

5.160 Clinical waste can sometimes be incinerated alongside other waste streams, for instance municipal or industrial waste streams in conventional energy from waste (EfW) facilities. This is only suitable where there are existing local municipal incinerators that have the appropriate permit to accept clinical waste. These sites may be publicly or privately operated.

5.161 EfW facilities operate by incinerating the material, producing gas and ash. Many EfW facilities do not have a secondary high-temperature chamber, and thus generally do not burn at high enough temperatures to render cytotoxic or prion-contaminated waste fully safe. Once incinerated, ash is collected for aggregate production or disposal, and exhaust gases are cleaned through physical and chemical systems.

5.162 Offensive waste is increasingly accepted for treatment at EfW facilities and is a good way of moving the waste stream up the waste hierarchy and away from landfill disposal, which in turn generates energy.

5.163 Other permitted recovery options may also be suitable. If there are permitted recycling facilities available which can accept offensive waste, this should be given preference over EfW or other recovery options.

5.164 Waste must be correctly segregated to help ensure that it is sent to the most appropriate form of treatment. More information on classification and segregation is included in paragraphs 5.24–5.61 and on offensive waste in paragraphs 5.224–5.237, regarding how to correctly identify and segregate each waste type.

On-site vs off-site treatment considerations

5.165 On-site treatment refers to the treatment of waste at the same healthcare facility at which it is generated, and may include autoclaving in purpose-built autoclave facilities before waste is transported off-site. Check whether there are regulatory position statements (RPSs) covering the relevant treatment method. This may include the compaction and baling of non-clinical wastes.

Managers of on-site 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.

5.166 Adopting on-site treatment can help healthcare organisations to reduce reliance on third-party capacity.

5.167 On-site treatment may also allow healthcare organisations to have more control over their own waste management systems, and supports the proximity principle set out in paragraphs 3.20–3.29.

5.168 Dependent on the assessment of quantities of waste and specific treatment, on-site facilities may support net zero carbon by reducing emissions associated with haulage. It can also help healthcare organisations take more control of direct emissions from treatment.

5.169 When assessing options for on-site treatment, facility managers should assess:

- the quantity and type of waste produced
- the layout of the facility and the amount of space available

- local constraints, for example planning permission, environmentally sensitive receptors.

5.170 In exceptional circumstances, for example an autoclave malfunction, waste that is normally autoclaved, such as 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.

5.171 All on-site treatment facilities are likely to require an environmental permit or a valid exemption from the regulator as detailed in paragraphs 6.84–6.142. This includes facilities that only treat waste produced on site.

5.172 Off-site treatment refers to the treatment of wastes at an authorised facility separate from the site at which they were produced. This may include off-site incinerators or alternative treatment facilities. These facilities are typically operated by private contractors in the UK.

5.173 When assessing off-site treatment and management facilities, the following factors should be considered:

- the cost of sending waste to this facility compared with the cost of on-site treatment
- the operator's track record
- whether on-site treatment is feasible on site, based on floorspace, layout, permitting, local constraints, cost and other relevant factors
- what alternative arrangements are possible, and whether these can be adopted in the event of an emergency.

Radioactive waste

5.174 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. Radioactive materials and waste should only be handled by trained professionals.

5.175 This section covers the management of two main types of radioactive waste: low-level radioactive waste; and solid radioactive waste produced from healthcare activity where routinely used, disposable solid items become contaminated with small amounts of radioactivity. It does not cover the management and disposal of aqueous radioactive waste or spent sealed sources.

5.176 The difference between the two types of radioactive waste is:

- low level radioactive waste is shorter half-life waste that can be subjected to decay in storage on the premises until it is essentially non-active, and then disposed of within the usual waste stream for that type of waste
- solid radioactive waste is waste that cannot be subject to decay in storage on site and will need to be transported off-site to a suitably licensed disposal facility in full compliance with the transport regulations.

Radioactive healthcare wastes

5.177 Common radioactive healthcare wastes may include:

- syringes and needles used to prepare and administer diagnostic and therapeutic radiopharmaceuticals
- PPE used by staff handling such material
- other disposable equipment used in nuclear medicine procedures.

5.178 Some radioactive wastes may be referred to as low-level radioactive waste (LLW) or very low-level radioactive waste (VLLW).

5.179 Radioactive waste generated from healthcare includes radionuclides used in therapeutic and diagnostic medicine. This waste is considered to be LLW and typically falls into one of three categories:

- long half-life
- radioiodines
- other beta/gamma emitters.

5.180 Further guidance and information on thresholds is available in the Department for Business, Energy & Industrial Strategy's 'Scope of and exemptions from the radioactive substances legislation in England, Wales and Northern Ireland: Guidance document (2018).

Legislative background and key staff

5.181 Facilities handling radioactive material must comply with the Environmental Permitting Regulations as set out in Table 5 – 'Summary of waste and environmental legislation' in Chapter 4.

5.182 To comply with legislation, a radioactive waste adviser (RWA) must be appointed to advise on the application of best available techniques for the accumulation, management and disposal of radioactive waste.

5.183 The RWAs will work with environmental regulators including the Environment Agency, SEPA, NIEA and NRW to ensure that radioactive wastes generated, stored and disposed do not exceed permitted levels.

5.184 Transport of radioactive materials must comply with the Carriage of Dangerous Goods regulations as described in paragraphs 5.78–5.142.

5.185 If an organisation is regularly involved in the transport of radioactive materials, a DGSA must be appointed who has specialist knowledge of Class 7 transport.

5.186 The Ionising Radiations Regulations set out the responsibilities of employers for the radiation safety of staff and for minimising the risk of harm when they are exposed to ionising radiation, including the requirement to ensure that doses are as low as reasonably practicable.

5.187 Employers must notify the HSE of their intention to work with ionising radiation at least 28 days prior to the commencement of work. Any site wishing to use radioactive materials must be permitted to hold, accumulate and dispose of radioactive materials.

NORTHERN IRELAND:

The Ionising Radiations Regulations and its amendments apply in England, Wales, and Scotland. For Northern Ireland, see the Ionising Radiations Regulations (Northern Ireland) (2017).

5.188 The 2018 Ionising Radiation (Medical Exposure) (Amendment) Regulations (IR(ME)R) set out the basic safety standards for the radiation safety of patients, to ensure that their exposures are justified and optimised.

5.189 Any healthcare organisation exposing patients to ionising radiation must appoint a suitably qualified and experienced medical physics expert (MPE). MPEs will be involved in the day-to-day use of radioactive materials and are important for compliance with IR(ME)R and all of the relevant regulations.

5.190 Any employer working with ionising radiation must consult with a suitable radiation protection adviser (RPA) to advise on compliance. The role of an RPA is advisory, and it is the responsibility of the

healthcare organisation to ensure compliance. The RPA should work with healthcare staff and a DGSA to ensure the safe management of radioactive materials, including waste. Further details are set out in paragraphs 5.78–5.142.

Specialist advisers appointed by healthcare organisations and key personnel from all areas producing radioactive wastes should be engaged in the development of a site-specific radioactive waste management plan and identify the best options to minimise the generation of radioactive waste in order to minimise the impact of discharges on people and the environment.

5.191 An RWA will also advise on the application of best available techniques (BAT) and best practicable means (BPM), which is a requirement of any permit/authorisation for the accumulation, disposal, or management of radioactive waste, the main aim of which is to identify the best options to minimise the generation of radioactive waste and thus to minimise the radiological impact of discharges on people and the environment.

5.192 Facilities where radioactive materials are used, including waste storage areas, should be designed specifically for the purpose and should help minimise waste generation and the risk of contamination.

5.193 Detailed systems of work should be in place to manage the use of radioactive materials, and where this occurs in several departments or areas within a facility, there should be central oversight of the overall use of radioactive materials in the organisation.

5.194 All radioactive supplies should be closely managed and controlled throughout their lifecycle with detailed records at all stages (ordering, storage before use, use, accumulation/storage and disposal of waste)

to allow demonstration of compliance with relevant environmental permits.

5.195 All containers of radioactive waste must be clearly labelled as radioactive – marked with the word “Radioactive”, with the ionising radiation symbol (trefoil) with a label indicating the radionuclides in the container, and the area/facility of origin.

5.196 Radioactive wastes should be stored separately from other waste streams, in secure, locked locations, which meet the requirements of any relevant environmental permits/authorisations. Records of radioactive waste generation, storage, removal and disposal should be kept, allowing demonstration of permit compliance.

5.197 Radioactive material and radioactive waste must not be moved to other departments or premises unless it is allowed under the conditions of the facility permit.

Accumulation and decay storage of low-level radioactive waste

5.198 Standard sharps bins or bags appropriate to the characteristics of the waste being collected should be used. Once sealed:

- these should be labelled with tape bearing the trefoil symbol and the word “Radioactive”
- a reference number and a description of the contents, including the radionuclide, amount of radioactivity and date should also be recorded in a suitable database
- after logging, the waste should be stored in a dedicated, appropriately shielded and secure radioactive waste store
- following a suitable period of storage until decayed, any radioactive symbols

must be removed before disposal of the waste via standard waste streams.

5.199 Decay stored waste should be monitored before final disposal via the standard waste stream, with suitable records generated.

5.200 Different radionuclides should generally be accumulated in separate bins and segregated according to their half-life.

Off-site disposal of solid radioactive waste

5.201 Two disposal methods are possible for solid radioactive waste:

- return to supplier where possible, for instance generators and spent fuel sources
- solid waste containing long-lived radionuclides may need disposal off-site to a suitably permitted/ authorised radioactive waste disposal site.

Transport of solid radioactive waste

5.202 Suitable containers for transport of radioactive materials must be used, and all instructions for their use must be followed. These may require certification by the appropriate competent authority depending on the amounts of radioactivity to be transported.

5.203 Radioactive waste should only be prepared for consignment under the transport and carriage regulations by suitably trained staff, as set out in paragraphs 5.78–5.142.

5.204 Radioactive waste is classified as Class 7, and the hazard warning labels required will vary dependent on the radionuclide and amount of radioactivity present. Staff will need appropriate specialised radiation detection equipment to assess the status of the package before shipment.

5.205 Only suitably experienced couriers should transport radioactive materials, and radioactive packages should only be released to appropriately trained drivers.

5.206 Responsibilities for the package during transportation, including emergency arrangements, should be agreed between the consigner and courier before transportation.

Dental waste

5.207 This section deals with waste streams and considerations which are likely to be specific to dentistry. Information on other waste streams is included in paragraphs 5.24–5.61 and further information on dental waste is provided in the British Dental Association's 'BDA advice: Healthcare waste' (2016).

5.208 Dental practices must comply with the same key legislation as hospitals, GP practices and all other healthcare facilities. This guidance sets out how to classify, store and handle the wastes generated by dental facilities.

5.209 Dental practices will produce a wide range of both hazardous and non-hazardous wastes and are likely to produce waste streams not found at other healthcare facilities, specifically including:

- non-infectious dental amalgam
- infectious waste containing dental amalgam
- alginate/gypsum moulds.

Key considerations

5.210 When deciding whether a saliva-contaminated item is an infectious or offensive waste, a risk assessment should be performed based on the patient and the circumstances.

5.211 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; however, this should be for just broken or jagged teeth, with whole non-infectious teeth treated as offensive waste.

5.212 Dental practitioners must ensure that all waste is treated appropriately, and that teeth containing amalgam are disposed of as dental amalgam waste. Specialised containers known as tooth pots, crown pots and bridge pots may be used to store extracted amalgam-contaminated teeth, crowns and bridges. For further information see paragraphs 5.217–5.222 on dental amalgam.

5.213 Dental practices can minimise their waste footprint through sustainable procurement as described in paragraphs 2.25–2.30. Practices should evaluate each waste type they produce for hazards and consider whether they must be treated as clinical waste.

A University of Plymouth study found that a dental practice could save an estimated 0.55 tonnes of CO₂ equivalent (a 16% reduction) by treating the single-use plastic wrapping from sterile equipment as recyclable instead of clinical waste (Richardson et al., 2016).

Gypsum

5.214 Gypsum is often used in dentistry to make moulds and study models. Gypsum should not come into direct contact with patients. Instead, alginate is used to mould the patient's mouth, and the gypsum mould is made using this alginate mould. It is therefore very unlikely that gypsum waste will be infectious.

5.215 Gypsum should be treated as its own waste stream and should not be mixed with any other wastes. Gypsum can emit hydrogen sulphide, which is a toxic odorous gas if it comes into contact with biodegrading material like organic waste. Sending items with a gypsum component to non-hazardous landfill is prohibited.

5.216 Gypsum may be sent to a hazardous waste landfill, provided the landfill has a dedicated area for its management, or sent to a permitted facility for recovery, which is the preferred option.

Dental amalgam

5.217 Dental amalgam is a mixture of metals, consisting of liquid mercury and powdered alloy containing silver, tin and copper. It is considered hazardous waste due to its high mercury content of up to 50%:

- in liquid form it has limited absorption through skin
- in vapour form it is extremely toxic, absorbed through lungs, which damages the immune system and is dangerous to unborn children.

5.218 Due to its unique characteristics, dental amalgam should be treated as its own waste stream, with separate bins for infectious and non-infectious amalgam.

5.219 Amalgam waste may be packed in accordance with the SDS provided by the manufacturer, but the package should be marked with UN 2025. For further guidance on SDSs, see paragraphs 2.40–2.52.

5.220 Dental amalgam bins must be sealable and made from puncture-resistant rigid material and must contain a mercury suppressant. Bins must be clearly marked as dental amalgam and should feature the hazard symbols relevant to mercury (toxic, long-term health hazard and environmental hazard).

5.221 If transporting dental amalgam waste, a container certified for transporting mercury may need to be used as set out in paragraphs 5.78–5.142.

5.222 Substances containing mercury are regulated by the Control of Substances Hazardous to Health (COSHH) Regulations (2004).

Offensive waste

5.223 Offensive waste is waste that:

- is not clinical waste
- is not infectious, but may contain body fluids, secretions or excretions
- is non-hazardous
- falls within waste codes 18 01 04 if from healthcare, 18 02 03 if from research, diagnosis or treatment involving animals, or 20 01 99 if from municipal sources.

5.224 Most offensive waste is considered “offensive” due to its potentially unpleasant odour and appearance. Some materials classified as “offensive” may not be readily unpleasant, for instance used PPE (see Figure 16 for examples of offensive waste).

5.225 Offensive wastes may be generated both within healthcare facilities and in the wider community.

Offensive waste is non-hazardous. If an item is known to be infectious, contaminated with chemicals/medicines, is radioactive, or is sharp, it is not offensive waste.

5.226 Before disposing of an item in the infectious waste stream, consider whether the item is hazardous, or in fact just unpleasant. The over-classification of offensive waste as infectious waste can lead

to more expensive waste management handling and treatment of such wastes.

Offensive wastes which are commonly over-classified as hazardous or infectious include:

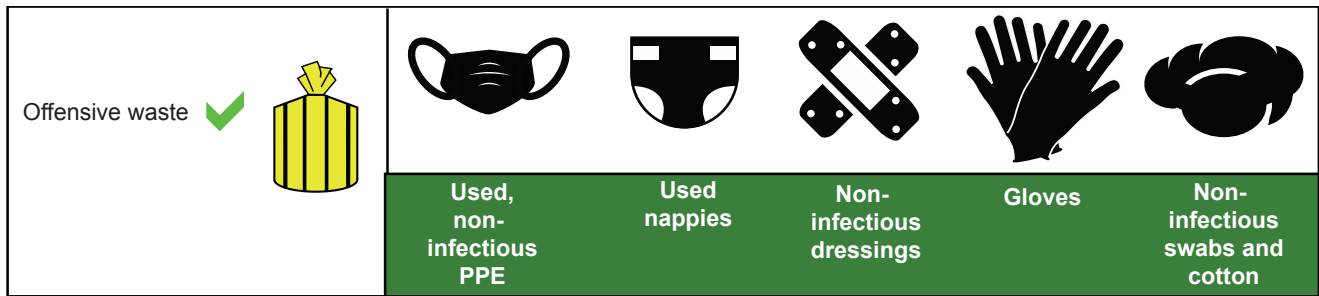
- PPE – only clinical if contaminated with infectious fluids, chemicals or radiation and
- single-use gowns and other items that touch patients – as with PPE, offensive unless hazardous.

5.227 Correctly classifying and segregating offensive waste is vital to achieving targets as set out in the NHS Clinical Waste Strategy.

Offensive wastes generated by healthcare facilities will fall into one of two categories:

- healthcare offensive wastes which would not be generated outside of a healthcare facility:
 - single-use instruments (tongue depressors, specula)
 - used gowns
 - used PPE which has not been contaminated with bodily fluids
 - dressings from non-infectious patients
- household and municipal offensive wastes which could be generated outside a healthcare setting:
 - nappies and adult continence products, colostomy bags, catheters
 - used personal hygiene products
 - non-infectious dressings.

Figure 16 Examples of offensive waste



5.228 Offensive waste should only be placed in a yellow and black-striped (“tiger”) bag.

5.229 Sharps are not considered offensive waste as they could pierce the bag, and so sharps must always go in a sharps bin.

5.230 If there is no good reason to believe the item is hazardous – ie infectious, chemically/pharmaceutically/cytotoxically contaminated or radioactive – do not dispose of it to a yellow, orange or purple bin/bag or other container for hazardous waste.

5.231 As they are non-hazardous, offensive wastes do not need to be autoclaved or pre-treated before being sent for disposal or recovery. Laboratory wastes which have been autoclaved are however considered offensive waste, as long as they do not contain chemicals.

5.232 It is typically acceptable to dispose of liquid offensive wastes such as urine, liquid faeces and vomit to the sewer.

Landfilling liquids is prohibited under the Environmental Permitting (England and Wales) Regulations (2019), the Landfill (Scotland) Regulations (2003) and the Landfill Regulations (Northern Ireland) (2003). 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. These should instead be emptied

to foul sewer. For further details see paragraph 5.36.

Handling offensive waste

5.233 By definition, offensive waste is not hazardous. However, hand washing and ensuring that clothing and PPE are clean after handling it are recommended.

Disposal or recovery of offensive waste

5.234 Offensive waste is suitable for conventional EfW, provided that the site at which it is intended to be treated is licensed and permitted to do so. Currently, no technologies exist to recycle offensive waste, so recovering energy from it using incineration is the best available method under the Waste Hierarchy. Doing so will also help the NHS achieve its landfill diversion targets. Offensive waste must be correctly classified and segregated to help support this.

5.235 Most non-hazardous landfills will accept offensive waste for disposal; however, this should be used as a last resort. When offensive waste is sent to conventional EfW it be could considered by the regulator as “recovery” if the facility achieves the required level of efficiency, known as R1 value (which is 0.6 for facilities operating before 1 January 2009 and 0.65 for facilities operating after 31 December 2008). The use of modern EfW facilities with the higher R1 value is therefore encouraged.

5.236 Offensive waste may be shredded and further processed into refuse-derived fuel, in order to make it more suitable for EfW processes, or suitable as a fuel for other purposes.

6.0 Management approach

6.1 The purpose of this chapter is to provide an overview of the approach to the management of healthcare waste. It is not intended to be a prescriptive guide but is intended to set out the key principles associated with key management functions.

In-house services

6.2 All healthcare organisations should have a waste management policy or plan, herein called a waste management policy, in place. An electronic copy should be openly available on the organisation's intranet.

6.3 A waste management policy is intended to set out a simple and pragmatic approach to be implemented by organisations in all circumstances, including when waste management services, including management or treatment, are delivered in-house.

6.4 The waste management policy should clearly identify the date of commencement and include a review date, being no more than two years after commencement.

6.5 The waste management policy should list all the organisation's facilities that generate healthcare waste, including any site at which healthcare is consistently delivered by registered practitioners, as well as those that generate hazardous wastes.

6.6 Organisation-specific waste management guidance or training material should be included within the waste

management policy and should be consistent with this guidance.

Checklist for a waste management policy or plan

- definitions for the various waste types
- employer's and employee's responsibilities
- education and training requirements and materials
- waste management strategy
 - waste avoidance, reuse and recycling (and associated targets)
 - waste handling, storage and transport arrangements
 - waste treatment and management routes
- continuous improvement and audit requirements
- occupational health and safety measures
- purchasing and green procurement may also be referenced.

Governance arrangements

6.7 A healthcare waste policy requires waste producers and staff involved in the management of waste to accept their responsibilities 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.

6.8 Effective and active waste management must be part of everyday practice and be applied consistently across healthcare sites. Good waste management and organisational processes are crucial to prevent the mixing of waste types, ensuring proper waste segregation, correct consignment and proper treatment/disposal. See Figure 17 for key waste manager measures.

6.9 Effective governance is crucial in ensuring that waste is managed in a safe and sustainable manner. Larger healthcare organisations should establish an internal steering group that has oversight of all waste management activities and processes, to ensure governance procedures are fully implemented. Waste management may also be governed through existing groups, such as IPC, H&S, etc., provided the necessary level of oversight is provided.

6.10 The steering group (or other waste management governance body) should include arrangements for ensuring that this HTM is properly implemented, and should establish monitoring tools to identify gaps or weaknesses in compliance. This steering group would strive to improve compliance in managing waste and recommend improvement actions.

6.11 Typical roles and responsibilities for the robust management and oversight of waste management are illustrated in Table 19, with further details contained in the NHS Clinical Waste Strategy.

Data recording, monitoring and reporting

6.12 Very few healthcare organisations have a dedicated waste data analyst who is trained to collate and accurately report waste data. This includes ERIC returns from NHS Trusts and NHS Foundation Trusts.

Figure 17 Key waste manager measures

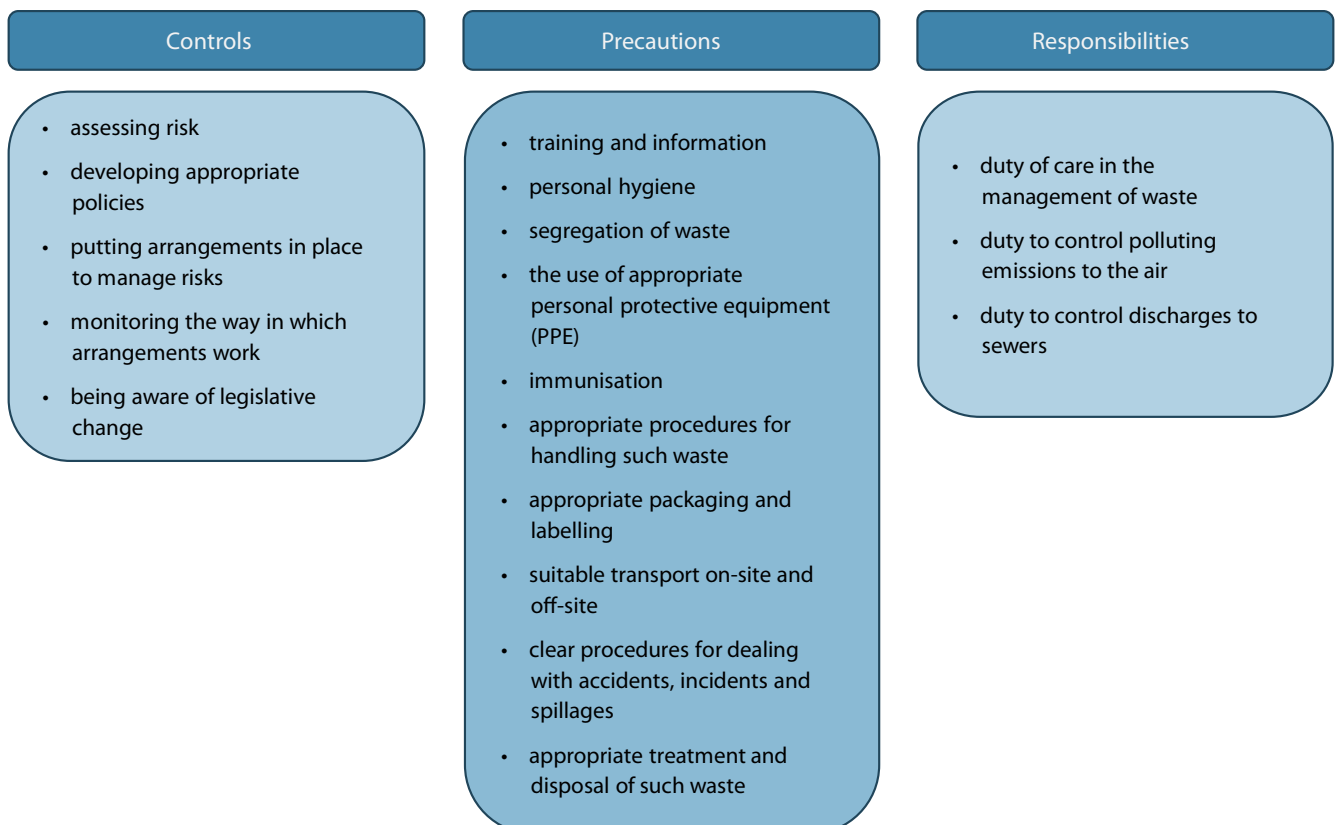


Table 19 Typical roles and responsibilities

Role	Location	Responsibilities
Organisation Chairperson	Hospitals Healthcare facilities	Ensure governance procedures required in HTM 07-01 are established across the health organisation to avoid non-compliance leading to enforcement actions by the regulator. Provide capital resources to implement HTM 07-01 across the healthcare organisations.
Estate and Facilities Director	Hospitals Healthcare facilities	Ensure the safe and compliant management of waste. Direct and support the establishment and management of on-site waste infrastructure and services.
Waste Manager	Hospitals Healthcare facilities	Develop and implement waste policies and organisation-specific guidance in line with current legislation; be accountable for implementation of HTM 07-01. Promote and provide the structure and resources to allow the effective segregation of clinical waste. Collate and report all accurate waste data as required in ERIC and ensure compliance with duty of care responsibilities.
Steering Group	Corporate	Develop tools to monitor implementation of HTM 07-01. Recommend actions with timeline for implementation where gaps are identified from a compliance perspective.
Dangerous Goods Safety Advisor	Hospitals Healthcare facilities	Externally sourced third-party or internal staff to advise and undertake duty of care audits in accordance with current waste legislation.
Nurses, Doctors, Dentists, Optometrists, and other practitioners and clinicians	Hospitals Healthcare facilities	Compliant segregation of waste at source. Implementation of waste hierarchy.
Consultants	Hospitals Healthcare facilities	Segregate waste at source and assist in the development of strategies for sustainable purchasing.
Procurement Managers	Hospitals Healthcare facilities	Deliver the safe and sustainable selection of health products and waste services. Implement sustainable procurement initiatives.
GP Provider (contract holder)	Primary Care	Account for compliance in relation to the wastes generated at their premises.
Identified Accountable Individual	Primary Care	Promote the effective segregation of healthcare waste and individual responsibilities for waste management. Work with Waste Managers and regions to appoint managing agents and develop re-procurement approaches for primary care.
General Practice Clinical staff	Primary Care	Responsible for the safe disposal and segregation of clinical waste.
General Practice Non-Clinical staff	Primary Care	Where needed, support the movement of healthcare waste containers and coordination with waste contractors.
Pharmacists	Primary Care	Compliant segregation of waste at source. Implementation of waste hierarchy.
Pharmacy staff	Primary Care	Segregate waste at source, and liaise with clinical waste contractors for collection (and commissioners as required).
Radioactive Waste Adviser	Hospitals Healthcare facilities	Advise on the disposal and management of radioactive waste.

6.13 Waste data supports compliance requirements and addresses responsibility under duty of care requirements. Without any built-in validation checks and regular audits of waste data, pro-active data-led decision-making and risk management is impacted.

6.14 It is important that all data is recorded in a consistent and accurate manner, meeting the data quality standard that will be developed by NHSE following implementation of the NHS Clinical Waste Strategy.

6.15 Clear guidelines and definitions should be provided wherever data is entered. The data provided will be utilised to estimate the carbon emissions from waste management, allowing the implementation of actions that will help the NHS to meet its net zero waste targets.

6.16 Table 20 summarises the types of data that should collated and, where applicable, requested from the contractor.

Community healthcare

6.17 Community healthcare can take many forms and occurs in various environments. It includes activities undertaken by all healthcare staff who provide services outside of hospitals or healthcare facilities to:

- patients in their own homes
- residents of care homes without nursing care
- householders who are self-medicating and self-caring.

6.18 Healthcare staff working in the community are responsible for the waste produced as a result of their activities and should otherwise comply with the duty of care requirements set out in paragraphs 6.87–6.92.

6.19 All healthcare organisations have a legal duty to ensure that wastes produced by the actions of healthcare staff in the community, for example in a patient's home, and classified as hazardous due to an inherent risk of infection, cytostatic/

Table 20 Key waste data capture requirements

Types of data	Justification	Frequency of reporting	Monitoring responsibility
Incineration	Most expensive treatment option and misclassification increases carbon emission significantly	Monthly	Healthcare organisations and Waste Manager
Alternative treatment	Less carbon intensive	Monthly	Healthcare organisations and Waste Manager
Offensive waste	Large volumes generated	Monthly	Healthcare organisations and Waste Manager
Confidential waste	Compliance with the General Data Protection Regulation (transposed into UK law by the Data Protection Act 2018)	Monthly	Waste Manager
Non-clinical waste to landfill	Landfilling cost increase year on year and landfill diversion reduces carbon emission	Monthly	Waste Manager
Non-clinical waste recycled including food	Resource conservation	Monthly	Waste Manager
WEEE	The volume of waste is expected to grow exponentially	Monthly	Waste Manager
Radioactive waste	To monitor generation levels To monitor compliance with environmental permits	Monthly	Medical physicist/RWA
Landfill diversion	To demonstrate progress made	Monthly	Healthcare organisations

cytotoxic, sharp or other hazards, are not placed into the domestic waste stream for disposal.

Community practitioners should:

- formally adopt a method of risk-assessing waste with a demonstrable audit trail of decisions
- make provision for the appropriate segregation and packaging of the different waste streams, set out in paragraphs 5.24–5.61
- implement an uncomplicated method for undertaking or arranging safe and legal collection and disposal of the waste whilst minimising cost to the organisation, as detailed in paragraphs 5.78–5.142.

6.20 Community practitioners carrying waste are required to receive ADR awareness training.

6.21 Community healthcare may involve limited quantities of anatomical waste, for instance from home births or other sources. This should be managed in accordance with the guidance set out in Chapter 5.

6.22 Further guidance on the sensitive handling of pregnancy remains is available in the Human Tissue Authority's 'Guidance on the sensitive handling of pregnancy remains' (2021).

Healthcare worker intervention

6.23 When patients are treated at home by a community nurse or healthcare professional, any waste produced as a result is considered as healthcare waste. If the waste is non-hazardous, and is appropriately bagged and sealed, it is acceptable for the waste to be disposed of with household waste. This is usually the case with non-infectious dressings, personal hygiene products, nappies and incontinence

pads when they originate from a healthy population.

6.24 There are, however, exceptions to this restriction:

- mixed domestic waste can contain small numbers of plasters, dressings and incontinence products. Where similar wastes are produced as a result of treatment, these can be double-bagged and placed in the domestic waste dustbin with the householder's permission
- where the quantity produced is less than 7 kg per collection period.

6.25 If the waste is classified as hazardous, the staff handling it should either:

- remove that waste from the home and store it in approved containers. Healthcare workers conducting home visits should carry suitable containers as part of their equipment if there is potential for the removal of hazardous waste
- check that a suitable area for waste storage is available in the home, where it will not harm residents, and is not accessible to pests and pets; inform the patient of the relevant risks and obtain their informed consent; and arrange for the waste to be removed by the local authority or an appropriate contractor.

6.26 When assessing whether the healthcare waste should be classed as infectious or not, consideration must be given to the medical history of the patient, where available, and any clinical signs and symptoms indicating a potential infectious risk. The assessment for infectious properties of the waste must be made at the time the waste is generated.

6.27 Classification may need to be reviewed and changed as additional information about the patient becomes available; for

example if a patient's condition changes to the extent they demonstrate symptoms of being infectious, the waste may need to be reclassified.

6.28 Table 21 provides a generic assessment that may be used to aid classification of the waste.

6.29 Staff should not use a patient's own sharps container for sharps waste, and should carry a UN-approved sharps container to remove any sharps generated during home treatment.

6.30 Where the householder is a self-medicating patient who uses injectables with no healthcare staff involved in the administration, the GP or healthcare staff should prescribe the householder a sharps bin relevant to the medication being administered and:

- provide training in the safe use of the bin
- show how to correctly seal and label the bin as detailed in paragraphs 5.78–5.142

- advise on local waste management options.



6.31 Non-infectious body fluids should not be disposed of in either the offensive waste stream or the domestic waste stream where the likely destination is landfill.

6.32 Any liquid waste classified as offensive following a risk assessment may be disposed of either:

- into the foul sewer at the premises
- by being absorbed onto a cloth or solidified with absorbent or gelling granules before being placed into the bin. There should be no free-flowing liquid present.

6.33 Hazardous liquids should be placed into sealed, leakproof containers and removed from the patient's home for disposal; this is detailed in paragraphs 5.62–5.77.

Table 21 Generic assessment – likelihood of infection

Containment	Proposed general classification	Examples	Exceptions
Urine, faeces, vomit and sputum	Offensive  (where risk assessment has indicated that no infection is present, and no other risk of infection exists)	Urine bags, incontinence pads, single-use bowls, nappies, non-infectious PPE (gloves, masks, etc).	Gastrointestinal and other infections that are readily transmissible in the community setting, such as verocytotoxigenic <i>Escherichia coli</i> (VTEC), campylobacter, salmonella, chickenpox/shingles Hepatitis B and C, HIV – only if blood is present
Blood, pus and wound exudates	Known 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

Primary care

6.34 Primary care services including GP, community pharmacy, dentistry and optician services provide the first point of contact in the healthcare system. They are responsible for delivering healthcare and health improvements to their local area. They may also not produce the same waste streams in the same quantities as other larger or more specialised healthcare facilities.

6.35 All producers of primary care waste, their employees and service providers have a duty of care to ensure all the waste is being managed in a compliant manner, which is detailed in Chapter 4.

6.36 All clinical waste generated in primary care settings should be classified and segregated in accordance with the provisions set out in paragraphs 5.24–5.61.

6.37 Table 22 illustrates good practice for primary care-related waste arisings.

6.38 All waste bags and sharps containers should adhere to packing and storage requirements described in paragraphs 5.78–5.142.

6.39 Many of the measures laid out in Appendix 2 can be applied to primary care organisations.

Ambulance services

6.40 Emergency care practitioners (ECPs), first responders, rapid response vehicles or paramedics should follow the guidance on community healthcare in paragraphs 6.16–6.32 in relation to classifying, transporting and disposing of waste from community sources.

6.41 Owing to the lack of prior knowledge of patients' medical history, the ability to classify healthcare waste as non-infectious for emergency care services is more challenging than in most other settings.

6.42 The assessment and subsequent processing of the waste must thereafter comply with legal requirements to segregate hazardous from non-hazardous waste, whilst ensuring the EWC number (paragraphs 5.62–5.77) assigned to the waste reflects those permitted for receipt by the waste treatment contractor.

6.43 All staff should undertake waste awareness training.

Waste receptacles and storage

6.44 When infectious waste is being transported in vehicles prior to treatment, the waste should be appropriately packed in safe and secure conditions as summarised in paragraphs 5.78–5.142.

Table 22 Best practice examples for primary care

Waste receptacle	Best practice
Waste bins	<ul style="list-style-type: none"> Positioned where they are easily accessible to staff Lidded and operated with a foot-pedal if in clinical areas and toilets Blue bins should be used for vials and other medicines Domestic/recycling bins accessible to staff and patients Food waste bins where practical (in staff kitchen areas, or wherever food is prepared and stored)
Waste bags	<ul style="list-style-type: none"> No more than two-thirds full so the bag can be tied securely "Swan necked" (neck of bag twisted, bent in half, and fastened) Securely tied using a plastic tie or secure knot
Sharps container	<ul style="list-style-type: none"> Purple-lidded: cytotoxic and cytostatic medicinally contaminated sharps Yellow-lidded: other medicinally contaminated sharps Orange-lidded: non-medicinally contaminated sharps Reusable sharps containers should be used if feasible

6.45 When dealing with anatomical waste resulting from an amputation, a medical assessment for potential reattachment should be undertaken before classifying body parts as waste. Packaging for body parts and limbs should be strong enough to resist protrusion of bones.

6.46 Waste streams including sharps should be clearly identifiable and labelled in accordance with the waste classification and any specific requirements, depending upon the waste management route; for example, waste dropped off at an ambulance service site or other healthcare organisation should be labelled by the specific NHS ambulance organisation. Waste from ambulances should not be dropped at GP practices and should not be dropped at any site which does not have an agreement to receive such waste.

6.47 The maximum weight of dangerous goods which can be transported in ambulance vehicles is 15 kg when carried without a fire extinguisher on board, as set out in the summary of load thresholds (see Table 16).

6.48 The ambulance service, due to its varying patient care activities, has a number of options available when disposing of waste, as summarised in Table 23.

Contract management

6.49 The healthcare waste management sector is heavily reliant on the use of third-party contractors to deliver services. This can include internal facilities management, waste collection and transport, and waste treatment and management functions. There may be separate contracts for each component of the system as well as separate contracts for each healthcare waste type, with specific arrangements in place for clinical waste. Alternatively, there may be integrated contracts where “total” waste management services are provided.

6.50 In each case it is essential that a robust approach is taken to the procurement, mobilisation and monitoring of waste contracts, to ensure that best value and high standards are achieved whilst being in compliance with regulatory requirements.

Table 23 Ambulance service waste transfer/management options

Service providers	Management option	Key considerations
Emergency response including emergency ambulance and air ambulance	Transfer the waste to the hospitals Return waste to ambulance station for collection	The hospital is not required to provide this service; it is, however, considered best practice. First responders generating waste on-site should hand the waste to the attending emergency ambulance to consider the appropriate waste management method. Where the ambulance organisation drops its waste off at a hospital, this is classed as waste transfer. Therefore, duty of care applies, see paragraphs 4.1–4.44 on key legislation and paragraphs 6.86–6.91 on compliance. This activity is usually covered under a Non Waste Framework Directive exemption (NWF3), which does not require registration with the regulator.
ECPs, first responders, and rapid-response vehicles working in Community Healthcare	Seek approvals from local authority	Follow the guidance in community healthcare paragraphs 6.16–6.32, in particular for infectious and offensive waste streams.
Ambulance transport services – patient transfer	Hospitals	It is less likely that any infectious waste will be produced. Where non-clinical waste is generated and has been risk-assessed, this can be safely disposed of in the black-bag waste or recycling streams at the hospital, depending upon arrangements.

6.51 It is therefore essential that procuring managers and waste managers are aware of the types of contractual mechanism and monitoring requirements needed to do this effectively, from the point of procurement through to contract expiry, as set out in Figure 18.

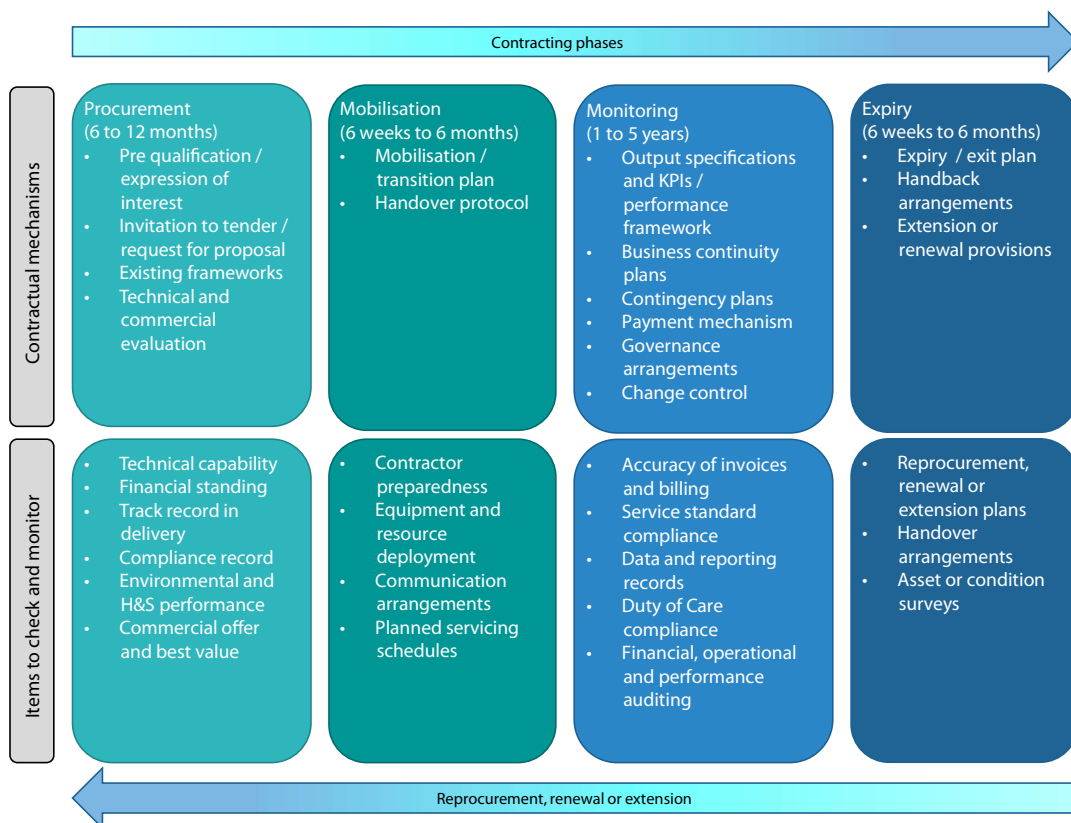
6.52 Waste management service contracts typically last for between one to five years, and often include extension and/or renewal provisions. Procuring managers should give careful consideration to the proposed contract duration; longer contracts typically achieve better value as they provide more opportunity for the contractor to realise a return on investment in new equipment or infrastructure. However, it is important that the commercial provisions in such contracts appropriately allocate pricing risk between the contractor and the healthcare organisations, especially in respect of clinical waste treatment, where the market can be particularly volatile.

6.53 Procuring managers should liaise with their organisation’s waste/facilities manager to plan for the award of new service contracts in advance of the procurement exercise; this should be 12 months or more in the case of major or long-term contracts, as the level of complexity and duration of the procurement phase will be subject to the scale and type of services being procured.

6.54 It is important that adequate time is allowed for any new contractor to mobilise its services, as there will be lead-in times associated with the provision of new equipment and resources, for instance containers and vehicles. Net zero carbon targets should be factored into all waste contracts.

6.55 All new tenders for NHS contracts from 1 April 2022 must include the net zero (paragraphs 2.10– 2.21) and social value (paragraphs 2.50–2.52) considerations. This can provide a mechanism to define,

Figure 18 Principles in preparing for and managing waste contracts



measure and manage net zero and social value outcomes as part of the contract, and ensure that benefits are realised. See [‘Applying net zero and social value in the procurement of NHS goods and services’](#) on the GreenerNHS website. Additional resources are available to NHS staff via the [NHS Central Commercial Function Hub](#) on the FutureNHS website.

6.56 Waste management contracts should include provisions and flexibility to mobilise waste contractors to support disasters and/or emergency scenarios on an ad-hoc basis, where excessive volumes of waste may be generated.

The National Audit Office (NAO) has produced a Good practice contract management framework (2016) for managing a broad range of contracts. It is particularly relevant for contracts where services are delivered over a long period of time where customers need to ensure that service levels and value for money are maintained over the duration of the contract.

6.57 Waste managers should ensure that there is a detailed understanding of the service standards, KPIs, performance frameworks and technical and operational requirements set out in the contract and should establish robust monitoring arrangements and procedures to ensure that the contractor delivers services in accordance with such provisions.

6.58 Standards that encourage the most cost-effective, carbon- and resource-efficient means of transport and treatment are encouraged, provided that compliance with regulatory requirements is maintained.

6.59 Table 24 provides a summary of key contractual functions, how they should be monitored and who should typically be responsible for monitoring them. It is not intended to be an exhaustive list of all contract management functions.

Managing risk

6.60 Risk management is an essential component in safe and sustainable waste management.

6.61 Given the complexities associated with managing different types of healthcare waste, there is a wide range of risks that could materialise if effective control measures are not in place. Figure 19 highlights how different types of operational failure can culminate in significant service or regulatory risk.

Other examples of risks include:

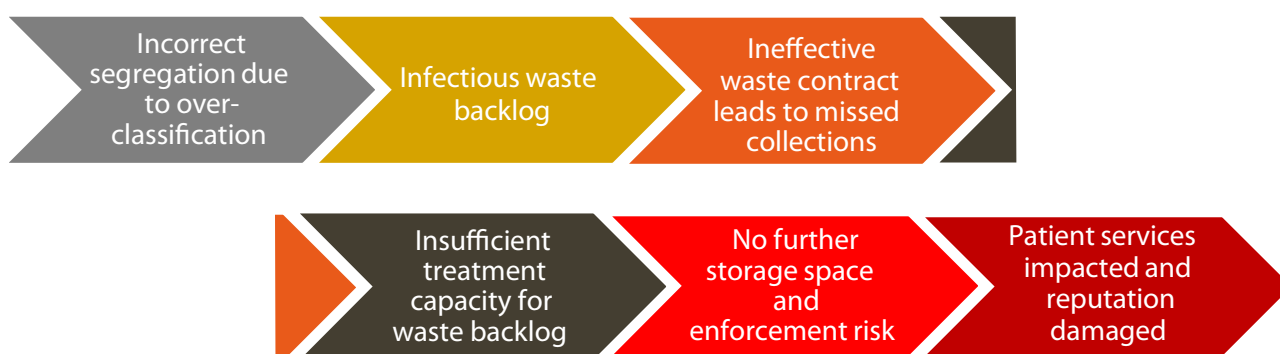
- **commercial** – arrangements not put in place to extend, renew or procure new waste management services, resulting in waste not being collected
- **training and education** – inadequate measures in place to ensure that the workforce understand the requirements for safe and sustainable management of healthcare waste, leading to non-compliance and inaccurate segregation
- **financial** – insufficient funds available for the management of waste services or funds needing to be diverted from other areas (equipment, staff, facilities, etc.)
- **compliance** – waste duty of care requirements are not fully complied with, leading to a regulatory action and/or enforcement
- **environmental** – pollution or emissions to the local environment caused by ineffective or non-compliant waste management practices.

6.62 Estates and Facilities Management teams should ensure that an operational

Table 24 Example of key contract monitoring functions

Contractual function	Monitoring aspects	Typical monitoring tools	Monitoring responsibility
Service levels (typically set out in a schedule)	<ul style="list-style-type: none"> • Collections schedules • Information reporting • Use of appropriate sub-contractors • Condition and quality of equipment • Risk assessments and method statements • Duty of care compliance. 	<ul style="list-style-type: none"> • KPIs to establish the required level of service (for example no more than 1% missed collections, 98% of transfer notes/consignment notes correctly completed) • Service reports (typically monthly) on number of collections, type, date, weight including transfer/consignment note evidence. 	Waste manager
Implementation/mobilisation plan	<ul style="list-style-type: none"> • Schedules of bin and equipment deliveries to organisation sites • Arrangements for the handling of any backlog or transitional waste • Supply chain arrangements • Net zero and social value considerations • Site-specific issues and logistics. 	<ul style="list-style-type: none"> • Bin and equipment delivery and installation programme • List of sites to be serviced • Programme for first collection of waste • List of proposed waste transport, treatment and disposal suppliers (along with associated duty of care pack). 	Procuring manager/waste manager
Payment mechanism	<ul style="list-style-type: none"> • Cost of service per waste type (for example fee per collection or per tonne of waste collected) • Performance incentives (additional payments) and/or penalties (deductions). 	<ul style="list-style-type: none"> • Invoice reconciliation and checking of supporting evidence. 	Finance manager/waste manager
Business continuity plans (BCPs)	<ul style="list-style-type: none"> • Interaction with organisation and/or NHS BCPs • List of potential service failure scenarios and mitigation measures • Arrangements for returning to normal service. 	<ul style="list-style-type: none"> • Service levels in the event BCP enacted • Risk register • Contractor procedures, processes and responsibilities. 	Waste manager
Expiry plans	<ul style="list-style-type: none"> • Arrangements for handover to a new contractor • Provision of transitional assistance services • Provision of relevant data and information. 	<ul style="list-style-type: none"> • Programme for the handover of equipment or resources where applicable • Programme for the final collection of wastes • Provision of asset register • Details of incumbent contractor working arrangements over the prior 12-month period. 	Procuring manager/waste manager

Figure 19 Example of operational failure escalation



risk register is in place for the management of healthcare waste.

6.63 The potential risks included in the risk register should be reviewed and updated regularly, but no less than once a year, and immediately after any major change to the way in which services are delivered, for example a change in waste service contractor.

6.64 If the consequence of a risk materialising is deemed to be “significant”, inclusion within the wider organisational risk register should be considered for escalation to management board level.

6.65 Monitoring the risk register to establish whether the likelihood of risks has changed should occur monthly and should be undertaken by waste managers or those appointed as being responsible for waste management.

6.66 Where risks have materialised, they should be recorded in an issues log that identifies the specific mitigation measures that will be implemented to respond to and de-escalate the issue. A lessons-learned process should be undertaken to reflect on

how the organisation can improve its management of risk moving forward.

6.67 An example of the headings that would typically be included within a standard risk register is set out in Table 25.

6.68 When developing a risk register, waste managers may need to seek input from the following stakeholders, especially where the implementation of mitigation measures would require their involvement:

- waste service contractors
- facilities management contractors
- procurement specialists
- regulators and/or other government bodies (Defra, EA, HSE, DfT, etc.)
- NHS England.

Training

6.69 The healthcare waste management policy must be implemented by a trained and competent individual.

6.70 The safe and sustainable management of healthcare waste cannot be effective unless it is applied carefully, consistently

Table 25 Example risk register format

Risk ID	Category	Description	Probability level	Impact level	Risk	Control Measures	Owner	Post control measure risk
R1	Operational	Significant backlog of waste stored at healthcare premises due to waste not being collected, leading to impacts on patient services and potential compliance issues	L	H	M	Ensure waste collection contracts feature robust service levels, KPIs, financial incentives and penalties, enforcing such standards when required	XX	L
R2	Commercial	Arrangements not put in place to extend, renew or procure new waste management services, resulting in waste not being collected	L	H	M	Commence procurement or renewal process 12 months prior to contract expiry. Ensure adequate handover and mobilisation period in place	XX	L

and universally by all within the healthcare organisation. This requires that all healthcare staff should be aware of the healthcare organisation's procedures and guidance.

6.71 Training is a requirement of Chapter 1.3 of ADR, even for community healthcare practitioners who are exempt from other ADR requirements, and for staff handling small quantities of waste.

6.72 One of the strategic priorities outlined in the NHS Clinical Waste Strategy is to upskill the existing workforce to ensure all employees understand their role in supporting effective waste management.

6.73 Healthcare organisations must ensure that waste management training is delivered to all staff involved in the handling and management of waste. A clear and coherent programme should be established to support training for new staff, refresher training and training for new and emerging issues.

6.74 Training needs vary depending on the responsibilities and job function. Certain staff will require more specific training. These include people who regularly use disposable PPE or handle waste using PPE, waste management facility operators, drivers, and community and laboratory staff.

6.75 Ideally, separate training programmes should be designed for, and targeted towards, the job roles identified in Table 26, all of whom have a role to play in sustainable waste management.

6.76 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.

Healthcare organisations which use agency and bank staff ("floating" staff who move between facilities on an ad-hoc basis) should prepare guidance which sets out the training and handling requirements specific to the facility. Organisations which regularly share bank staff should consider cooperating, and aligning their waste management training programmes, to improve transferability. Such guidance should be consistent with this HTM.

6.77 Operators of waste management facilities must also demonstrate the necessary technical competence for the relevant permitted activities. In England and Wales, this is now assessed on the basis of either an employee's individual competence (Certificate of Technical Competence (CoTC)) or an employee's individual competence coupled with corporate competence (demonstrated through an environmental management system (EMS) or quality management system (QMS)).

6.78 Further guidance and information on legal, financial and professional requirements for operators and managers, including extra duties for waste activity operators, can be found on the Environment Agency's website (EA, 2019a).

SCOTLAND AND NORTHERN IRELAND:

In Scotland and Northern Ireland, the system for certificates of technical competence (CoTC) is used.

In Scotland, other methods of proving technical competence are also available. See SEPA guidance (SEPA, 2021) regarding provision and assessment of technically competent management at licensed waste management facilities.

Table 26 Summary of key competencies for job role

Job function/responsibilities	Specific training topics	General training topics
Medical doctors/dentists/ advanced clinical practitioners/radiographers	<ul style="list-style-type: none"> • Use of protective equipment • Waste segregation. 	<ul style="list-style-type: none"> • 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 • Appropriate use of protective clothing • Duty of care requirements.
Pharmacists	<ul style="list-style-type: none"> • Disposal of medicines • Ensuring that the origin of the waste is marked on the container. 	
Nursing staff Healthcare assistants	<ul style="list-style-type: none"> • Waste segregation • Use of protective equipment. 	
Drivers transporting healthcare waste, including ambulance staff	<ul style="list-style-type: none"> • The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations (as amended) • Access to a qualified DGSA • Understanding of marks and labels • Knowledge of acceptable load thresholds. 	
Waste handlers	<ul style="list-style-type: none"> • Understanding of marks and labels • Handling bags/containers correctly • Procedures in case of accidental spillage and how to report an incident. 	
Waste managers	<ul style="list-style-type: none"> • Understand legislative requirements • Waste hierarchy • Permit compliance and waste exemptions • Waste reporting • Access to a qualified DGSA • Consignment/waste transfer note • Pre-acceptance audit requirements • Waste policies and procedures • Net zero carbon and carbon literacy • The 5 R's of sustainable procurement • Cabinet Office Social Value Model including health specific net zero and social value guidance • NHS Net Zero Plan and Net Zero Supplier Roadmap • Sustainable procurement and carbon literacy. 	
Cleaners, porters, auxiliary staff	<ul style="list-style-type: none"> • Safe and appropriate cleaning and disinfection procedures • Understanding of marks and labels • COSHH• Local training if working in areas using radioactivity. 	
Infection prevention and control staff, healthcare managers and administrative staff responsible for implementing regulations on healthcare waste management	<ul style="list-style-type: none"> • Use of protective equipment • Access to a qualified DGSA • COSHH • Understanding of marks and labels. 	
Finance managers	<ul style="list-style-type: none"> • Sustainable procurement (5 R's) • NHS Net Zero Plan • Sustainable procurement. 	
Procurement managers	<ul style="list-style-type: none"> • Understanding of producer responsibility • Circular economy principles • Sustainable procurement (5 R's) • NHS Net Zero Plan 	

Procedures

6.79 Where healthcare organisations have developed their own training materials, they should:

- be written in a way which can be understood by those who need to follow them, including those with English as a second 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.

6.80 Healthcare organisations should ensure that procedures are followed by all staff involved in waste handling activities. Staff at all levels who generate the waste need to recognise that they are personally responsible for complying with agreed local procedures.

6.81 The risk assessments required by the Management of Health and Safety at Work Regulations and COSHH regulations should identify which staff are involved in the handling of healthcare waste. Employees should 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 collective results of any relevant health surveillance.

Records

6.82 Full records of all training should be kept, as this will enable managers to identify members of staff who are not receiving the appropriate level of training, and where such training should be focused. In certain cases, training records are also required to demonstrate technical competence, regulatory compliance and continued professional development (CPD).

6.83 All mandatory training should be included as part of the induction programme for new starters. All employees should be retrained in procedures and topics annually or following amendments to the existing process.

NHS Shared Business Services 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.

Compliance

6.84 Site-based waste management activities must comply with the relevant key legislation identified in paragraphs 4.1–4.44.

6.85 Effective compliance prevents breaches in legislation, and ensures that controls are in place to limit impact to the environment, human health and demand for resources.

6.86 For healthcare waste management, the main topics that govern effective compliance comprise:

- duty of care
- waste auditing
- environmental permitting and licensing requirements
- health and safety.

Duty of care

6.87 Everyone who produces, imports, keeps, stores, transports, treats or disposes of waste must take all reasonable steps to ensure that waste is managed properly from the point of production to the point of final disposal.

6.88 Producers of waste must follow Defra's statutory guidance 'Waste duty of care: code of practice' (Defra, 2018). The guidance provides details on waste producers' legal requirements and further resources including key documents for waste classification, examples and guidance for waste transfer notes and consignment notes, and other related legislation.

6.89 A checklist of practical measures to follow are provided in Appendix A1.2 of this document, and this is supplementary to Defra's duty of care guidance.

Ensure that wastes are handled by authorised persons; keep records of waste produced and check the legally required paperwork is completed and accurate.

6.90 Describe waste using:

- a written description
- use of the appropriate EWC code(s) which are set out in paragraphs 5.24–5.77 for classification, segregation, colour coding and storage, with further information on how to classify different types of waste available from the Environment Agency's website
- quantities on both waste transfer (for non-hazardous waste only) and hazardous waste consignment notes.

6.91 Time-limited permissions, such as waste carrier licences, should be monitored to ensure renewals are applied for and granted before the expiry.

BETWEEN JURISDICTIONS:

Any consignments of waste crossing an administrative border, for example 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.

WALES:

A register of hazardous waste generation is required and should contain quarterly producer returns provided by waste management contractors, and records of consignment notes.

6.92 Contractors and waste management site operator competency and track records should be assessed before signing a contract, as part of duty of care. Ongoing performance should be tracked, with clear performance standards laid out in the contract.

Compliance with carriage of dangerous goods

6.93 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 organisation's waste management policy. Further information on transport and packaging is included in paragraphs 5.78–5.142.

Waste auditing

6.94 Waste audits are an essential tool for:

- assessing the composition of a waste stream for the purposes of duty of care

- demonstrating compliance with regulatory standards
- informing the development of waste management policies and procedures so that they are better aligned to key waste management principles such as the circular economy
- monitoring progress towards waste hierarchy targets and
- monitoring the progress of the implementation of strategies and policies including the NHS Clinical Waste Strategy.

6.95 Audits required for compliance purposes are:

- “waste pre-acceptance audits”, undertaken by waste producers to provide to waste operators and
- “waste acceptance audits”, undertaken by waste facility operators in accordance with waste acceptance procedures.

6.96 It is good practice to either tailor pre-acceptance audits or undertake additional audits for the purpose of monitoring progress against organisational waste policies and targets.

6.97 Duty of care audits provide detailed assessment of the performance of internal management against policy, including waste composition. Such audits provide evidence to support pre-acceptance audits, covering training, policy assessment and waste containment/handling measures.

Audit scope and procedure

6.98 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.

6.99 Audits should only be undertaken by those who are trained in the audit procedure and who are fully aware of the risk and hazards posed. The type and effectiveness of the audit undertaken depends on the nature of the waste stream and the purpose of the audit. To audit the entire waste stream, more than one audit method may be required.

6.100 A detailed method statement should be produced for each audit, with key considerations shown in Figure 20.

6.101 It is good practice for waste audits to address the elements shown in Table 27 for

Figure 20 Waste audit method statement considerations

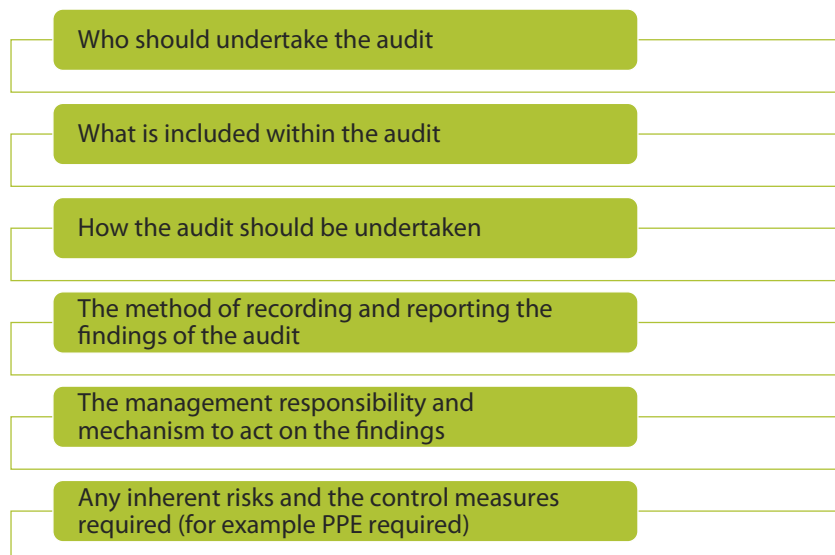


Table 27 Waste audit elements

Information to collect during theory phase of audit	Information to collect during practice phase of audit
<p>Record the segregation, packaging and labelling of:</p> <ul style="list-style-type: none"> • infectious waste • anatomical waste • cytotoxic and cytostatic waste • offensive waste • domestic waste • medicinal or pharmaceutical waste • dental amalgam and gypsum (separate) • radioactive wastes • recycling 	<p>Review compliance and performance against set targets for:</p> <ul style="list-style-type: none"> • classification • segregation • packaging • waste description • paperwork completion and retention • storage • recycling • movement/transport • health and safety • final disposal • review bin provisions across the site • net zero and social value
<p>Record the provisions of bins/waste receptacles:</p> <ul style="list-style-type: none"> • location • type • quantity • capacity 	<p>Prepare action plan</p> <p>Record actions for improvements, with prioritisation to compliance and health and safety:</p> <ul style="list-style-type: none"> • set a target date • assign responsibility • if identified bin provisions need to be improved, consult Chapter 5 and arrange for improvements to be made as soon as practicable.

the applicable healthcare waste types at the healthcare organisation site.

6.102 Audits should be conducted in two phases:

1. Desk-based (what do the policies, procedures and training specify for waste segregation, packaging, labelling, etc.)
2. Practice (inspection of waste in containers in use throughout the facility).

Pre-acceptance waste audits

6.103 Permitted waste treatment and disposal sites in England and Wales must obtain pre-acceptance audits from producers of waste before they can accept the waste and are required by the producer at the frequencies demonstrated in Figure 21.

6.104 Waste pre-acceptance audits are the assessment of the characteristics of a waste to ensure that the disposal or recovery

method for the waste is compliant and appropriate.

6.105 The Chartered Institution of Wastes Management (CIWM) provides established guidance (2014) on waste pre-acceptance audits and managing healthcare waste which should be followed by any person responsible for carrying out a pre-acceptance audit.

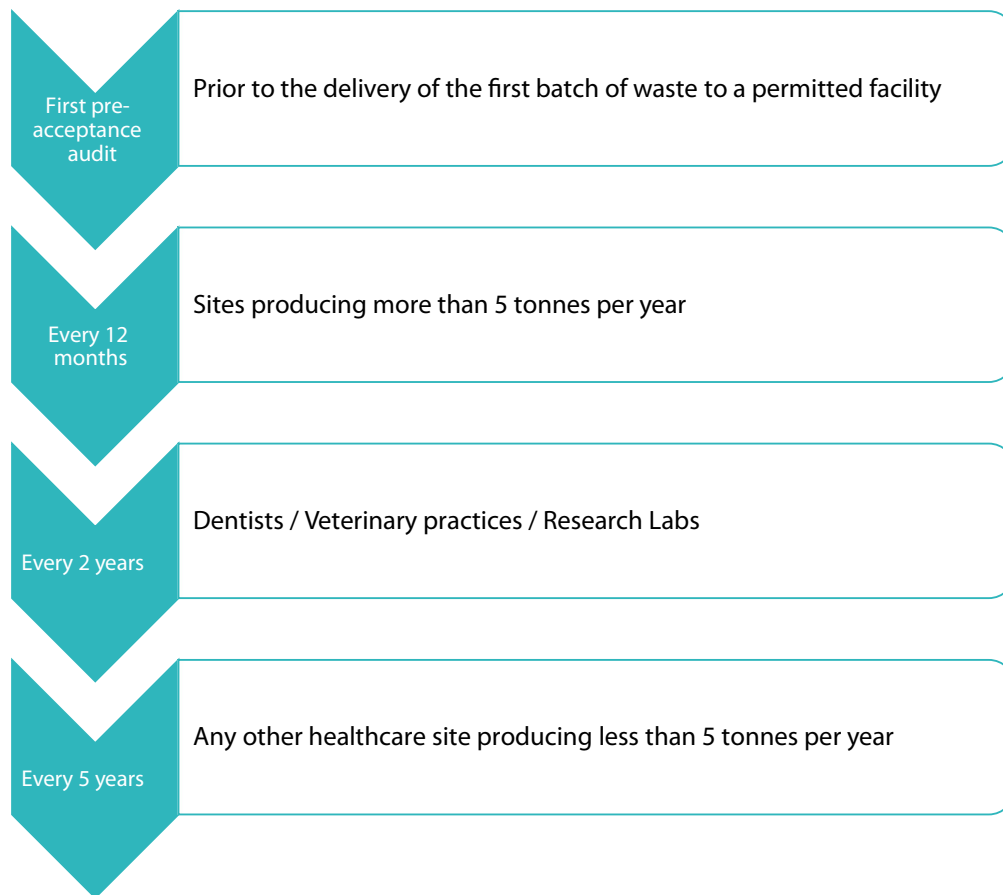
6.106 If feasible, non-compulsory waste audits should be carried out before implementing or updating waste management procedures, and at routine intervals afterwards, in order to monitor compliance with waste segregation schemes.

6.107 After changes are made to waste management policies, audits can be used to monitor and encourage compliance.

Permitting and licensing

6.108 Any waste operation or installation will require an environmental permit unless it is an exempt activity.

Figure 21 Pre-acceptance audit frequencies



6.109 Healthcare organisations should ensure healthcare wastes are sent to waste management facilities that are permitted to accept and treat/dispose of the waste intended for them.

6.110 Operators of such sites must follow the Environment Agency’s technical guidance, which may form part of the operational techniques within a permit: ‘How to comply with your environmental permit: additional guidance for clinical waste (EPR 5.07)’ (Environment Agency, 2011a) and ‘Waste storage, segregation and handling appropriate measures – Healthcare waste: appropriate measures for permitted facilities’ (Environment Agency, 2021b).

6.111 The key aspects of the technical guidance are summarised in Figure 22.

6.112 Operators using environmental permits must also comply with an EMS, which is required to outline the procedures

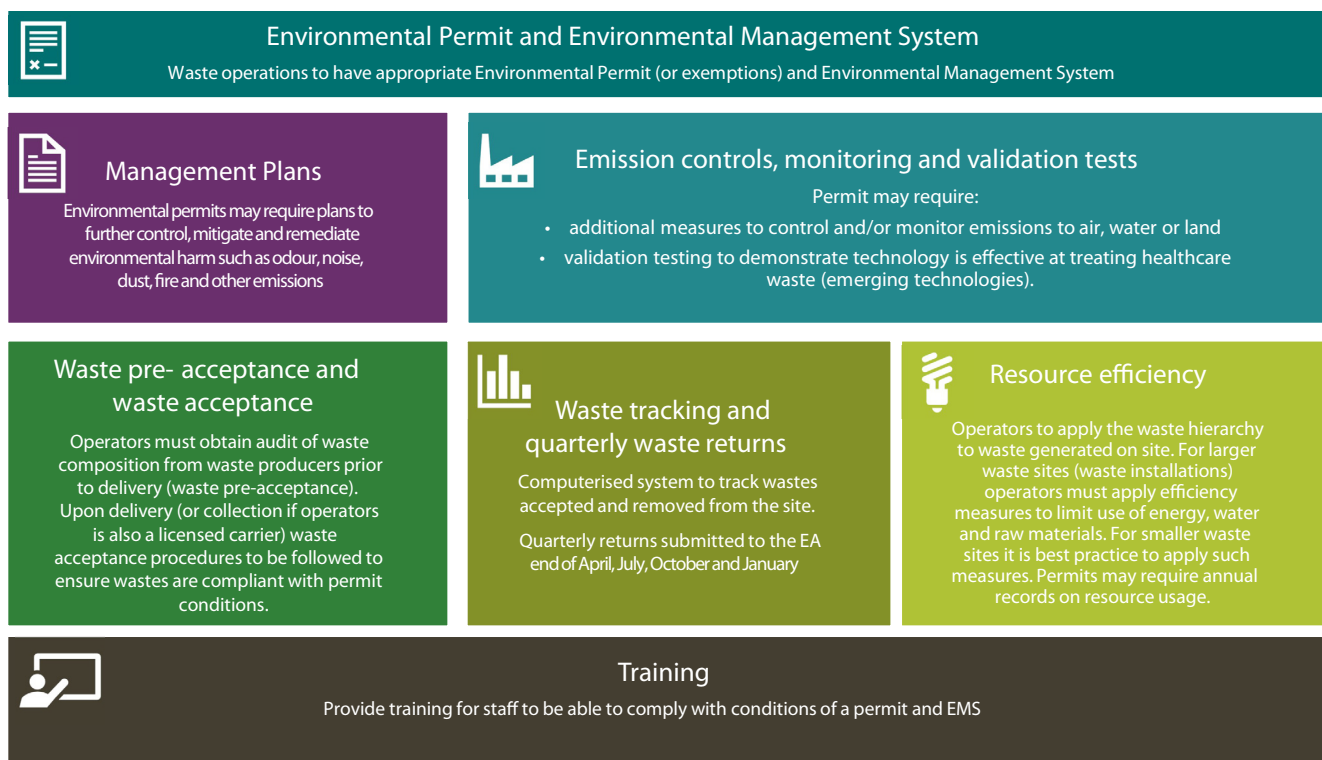
for minimising the risk of pollution to land, air and water from the activities covered by a permit.

6.113 The regulatory authority – Environment Agency, NRW, SEPA or NIEA – will attend permitted sites to review compliance. In general, the frequency is dependent on the environmental risk the site poses.

6.114 For permitted sites in England, following such visits the operators are provided with a Compliance Assessment Report (CAR), which will provide comments on the inspection and will state if any aspects of the permit have been breached. If any breaches were identified, a compliance score will be applied to indicate the severity of the breach.

6.115 The regulator may allow for changes to the operation of a waste activity prior to or without a variation to a permit. Local

Figure 22 Summary of environmental permitting compliance requirements



enforcement positions (LEPs) are at the discretion of the regulator where changes to operation are deemed justified for the short term. LEPs state the additional measures an operator must comply with.

6.116 The regulator may require an operator to apply for a variation or revert to original permit conditions once an LEP has expired.

6.117 Healthcare facilities that do not require an environmental permit must ensure that any other relevant licences, registrations and permissions are in place. The waste manager is responsible for checking and securing the following, if required:

- waste exemptions and/or operations under a regulatory position statement (RPS) can be viewed on the EA website
- obtaining a waste carrier licence from the Environment Agency if carrying waste off the premises

- hazardous waste registration with the NRW (for sites in Wales only) if producing more than 500 kg of hazardous waste in any period of 12 months (see box after paragraph 4.22).

WALES:

Hospital complexes are often occupied by a number of different organisations that produce hazardous waste. In Wales, 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.

Health and safety

6.118 Health and safety legislation requires employers to protect the health, safety and welfare of their employees, clients, visitors and the general public. Healthcare organisations should review their own and

their waste contractor's approach to health and safety as part of their responsibility.

Healthcare organisations should:

- have an appointed health and safety representative or advisor and/or employee representative
- have a health and safety policy and management system
- maintain a health and safety record of the site, such as capturing information on all accidents and incidents
- observe general health and safety compliance.

Risk assessments

6.119 As a minimum, a health and safety risk assessment must address the following:

- hazards – what could cause injury or illness
- risk – how likely is it that a hazard will occur, such as someone being harmed, and the consequence of the hazard arising, such as how serious the injury will be
- action – what actions will be taken to eliminate the hazard, or if not possible, to mitigate or control the risk.

Where using contractors:

- request a risk assessment for the carriage of dangerous goods
- request a copy of the H&S policy, and updated copies following annual reviews
- request and review the PPE policy used by the waste contractor, and

check the extent to which the policy is complied with

- check their ability to keep records of observations of H&S and to provide feedback to waste contractors, especially regarding breaches.

6.120 Healthcare employers must comply with the COSHH regulations, including undertaking COSHH risk assessments for the use of hazardous substances. Such risk assessment must address the hazards, risks and controls for the wastes generated from the use of hazardous substances.

6.121 All staff involved in activities relating to the handling of healthcare waste must be made aware of the hazards, risks and control measures. The staff should read and understand the risk assessment, and the risk assessment must be regularly reviewed following any accident/incident to ensure it remains effective and compliant.

6.122 Further information is available from the HSE, in particular Approved Code of Practice L5 (HSE, 2013) regarding compliance with COSHH.

Staff protection: PPE provision and vaccinations

6.123 Healthcare employers must ensure staff that handle healthcare waste have sufficient and correct PPE. This should be addressed in a PPE policy, risk assessments and method statements.

6.124 Healthcare organisations should ensure waste contractors also have the adequate provisions for PPE for their staff.

6.125 PPE must be maintained and kept in good condition, and replacement PPE should be made available.

6.126 Appropriate numbers and locations of collection points, either as waste

containers or safe collections for PPE that can be reused after sanitisation, should be made available, particularly in areas where PPE is used. PPE use should be based on a local risk assessment, carried out by the Health and Safety department of the relevant healthcare organisation.

6.127 Further guidance and information on personal protective equipment at work can be found on the HSE website.

6.128 Employers must review the vaccination needs of staff, which includes an assessment of the risk from exposure to pathogens and disease. Staff who handle infectious waste, including waste management staff, therefore must also be considered in any immunisation programme, in particular for blood-borne viruses.

6.129 Hepatitis B vaccinations should be offered to staff who may come into contact with infectious waste, and in line with DHSC Green Book chapter 12, 'Immunisation of healthcare and laboratory staff' (UK Health Security Agency, 2020).

6.130 HIV post-exposure prophylaxis should also be made available to staff who have been exposed; further guidance is provided by the UK Chief Medical Officers' Expert Advisory Group on AIDS (EAGA) 'Guidance on HIV post-exposure prophylaxis' (DHSC, 2015).

6.131 Vaccination should never be regarded as a substitute for good practice, although it does provide additional protection.

6.132 Guidance on assessing the risk to healthcare workers of exposure to blood-borne viruses, and action to be taken after possible infection, are provided on [the HSE website](#).

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

The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations concerns incidents that contributed to work-related:

- specific injuries outlined by RIDDOR
- over-seven-day injuries
- injuries to non-workers
- reportable occupational diseases, including carpal tunnel syndrome, exposure to biological agents
- fatalities
- reportable dangerous occurrences, including collapses, overturning and failure of lifting equipment, explosions or fires causing disruption to workers for more than 24 hours.

6.133 Healthcare facilities and waste contractors must keep records of injuries, diseases and dangerous occurrences included within the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (2013) (RIDDOR).

6.134 The HSE must be informed of all reportable incidents either online or over the phone.

6.135 Records of incidents should be used as a management tool to inform risk assessment and help develop improved measures to prevent potential risks.

6.136 If an incident involves a contractor, healthcare organisations should request a copy of the contractor's incident reporting procedure and details of reported incidents, accidents and RIDDOR occurrences for the previous three years to identify trends.

6.137 Further information on RIDDOR in relation to health and social care can be found on the HSE website.

Investigations

6.138 All health and safety incidents should be investigated and be compliant with health and safety legislation (see Table 7).

6.139 Investigations are used to establish the causes of the incident, review existing risk controls and identify action needed if required, such as improved measures if found not to be adequate.

6.140 It is a legal requirement for all sharps injuries to be investigated under the Health and Safety (Sharp Instruments in Healthcare) Regulations (2013).

6.141 Any investigation must be based on sufficient information, notably:

- who was injured
- where the incident occurred
- what type of waste, sharp or other item caused the injury.

6.142 Any lesson learned following an investigation should be applied across the organisation, rather than just within a location or department only.

Emergency preparedness

6.143 Evidence has indicated that healthcare organisations which are well prepared for unplanned events and emergencies are less likely to suffer serious service disruption or be exposed to excessive costs.

6.144 Developing a comprehensive risk register as defined in paragraphs 6.59–6.67 is helpful in preparing for unforeseen events. A comprehensive risk register will assist in the production of a well-considered and robust business continuity plan.

6.145 However, there are certain scenarios in which excessive volumes of healthcare waste might be produced, to the extent that existing management systems would be unable to cope. These could include an unforeseen waste contractor failure, or a major event that places long-term pressure on the NHS, such as a pandemic.

Business continuity planning

6.146 NHS England have produced a [website containing EPRR guidance](#). This should be referred to for more detailed guidance and information.

6.147 There are a number of events which may cause operational disruption. These include local, regional and national issues, supplier failures, and issues which cause significant and unexpected increases in waste generation.

6.148 Developing a clear and well-communicated business continuity plan (BCP) is a good way of understanding the measures that might need to be implemented in such scenarios.

6.149 Where response to a national issue is required, it is likely that Emergency Preparedness and Resilience Response (EPRR) protocols will be enacted, along with a single point of contact (SPoC) and national logistics cell.

6.150 Daily updates would typically be requested from affected health organisations and the supply chain so that the “live” situation is fully understood. It is likely that other stakeholders will also need to be engaged or consulted with, which may include NHS England, DHSC, EA, Defra, DfT and/or the HSE. Issues may be escalated to the NHS England region, in accordance with the NHS England EPRR Framework, and the relevant healthcare organisation’s incident response plan.

The NHS Clinical Waste Strategy will help NHS organisations to appropriately assess and understand the risk to operations from failures associated with clinical waste management services, and to provide strategies for proportionate corrective action to be taken to minimise the impact of such failure. It is intended to provide a clear framework that triggers a set of proportionate actions and escalations, to allow organisations to respond quickly and effectively to disruption.

6.151 The scale of response to a business disruption event is determined by the extent to which the issue is local, regional or national, as summarised in Table 28.

6.152 The NHS Clinical Waste Strategy provides further detail on the specific technical and operational measures that should be included in an organisational BCP, including advice on specific storage and handling arrangements for certain clinical waste types.

Table 28 Disruption event description and key actions

Scale of event	Defined as	Examples of disruption event	Key actions
Local	Issues that affect a single health organisation, GP practice, or other body. Local issues are generally the result of isolated supply chain failures.	Service provider has missed less than three (3) consecutive collections and/or the frequency of scheduled collections is reduced. Treatment facility offline or unavailable for an undefined period.	<ul style="list-style-type: none"> • Manage through service contract • Notify local resilience team and IPC leads • Activate organisational BCP • Implement regular communications with service contractors • Conduct frequent waste backlog audits • Gather and record data
Regional	Service failures across one or more sites in an NHS region that have lasted for more than three (3) contiguous scheduled collections or intermittent collections lasting for more than one (1) week affecting more than one (1) organisation in a region. These impacts can affect all types of site and include primary and secondary care, mental health facilities and ambulance sites.	Multiple treatment facility failures in any NHS region. Regional service provider failures, for instance vehicle/driver/container shortfalls. Shortfall in clinical waste treatment capacity due to unexpected increases in waste generation. Regional severe weather events, such as snowfall or flooding.	<ul style="list-style-type: none"> • Escalate to National Logistics Cell function or others • Activate organisational BCP • Regional communications with service providers • Monitor corrective actions • Activate waste backlog storage contingency
National	Issues that cross more than two (2) adjoining or more than three (3) unconnected NHS regions. Will vary in severity and can be triggered by a variety of activities.	Critical supplier failure, for example where services were disrupted prior to an organisation going into administration. Major compliance issues caused by the stockpiling of waste on supplier sites. National surge in demand for clinical waste treatment. Organisations failing to correctly segregate their waste in line with HTM 07-01.	<ul style="list-style-type: none"> • Review whether a National Capacity Coordinator is required and take action if necessary • National Logistics Cell (or others) commence daily data gathering from NHS and service sectors • Activate waste backlog storage contingency • Assess market capacity • Seek regulatory relief where applicable and necessary, such as RPSs/carriage of dangerous goods authorisations

Principles in pandemic waste management

6.153 The response to the COVID-19 pandemic has demonstrated the need for healthcare organisations to be able to quickly adapt their waste management arrangements, in response to rapid increases in waste volumes and temporary changes in the way in which healthcare waste is managed.

During the COVID-19 pandemic the NHS produced a waste management standard operating procedure (SOP) to help ensure that the collective response to the delivery of waste management was consistent across all organisations. In the event of a pandemic or major incident, the NHS website should be checked to identify whether an SOP has been produced, and organisations should fully comply with the SOP where this is the case.

6.154 It is also important to consider the impact on non-clinical wastes, with specific consideration given to ways in which packaging and PPE waste can be minimised and cross-contamination avoided.

6.155 Healthcare organisations should check for any research carried out specific to the disease or infection, to determine the extent to which waste could serve as a vector for the disease, as this will likely have a significant impact on the way in which waste services are provided, and potential control measures. This should also include checking for any pandemic-specific waste management guidance that may be issued by the NHS centrally or by any regulator.

6.156 There are a number of key principles that should be considered in any response, as summarised in Figure 23.

6.157 When responding to an incident, it is essential that there is regular and accurate

Figure 23 Key principles in BCP response

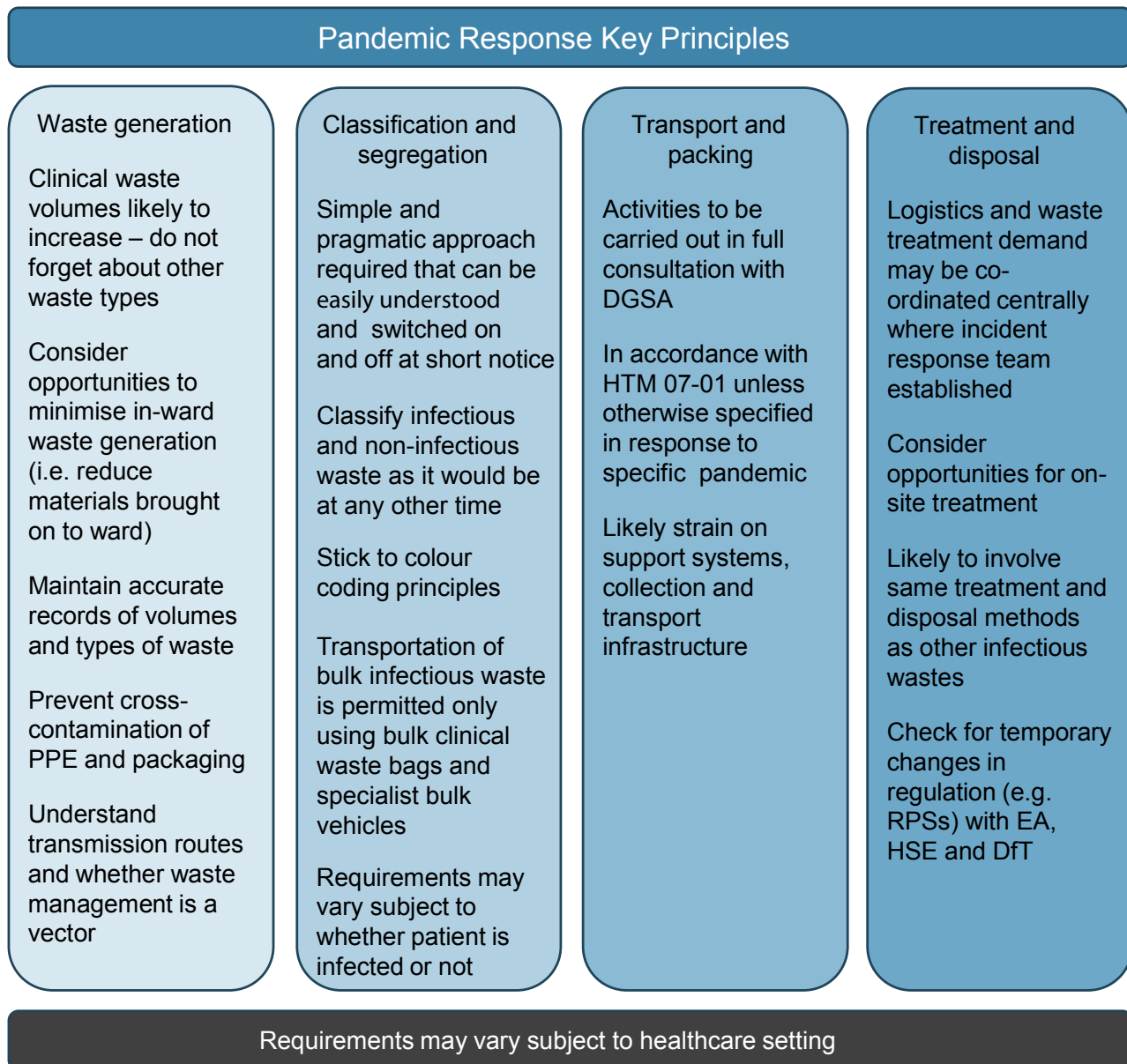


reporting of data so that situational responses can be based on well-informed and reliable information.

6.158 In such a scenario, ensure that waste volumes and movements are documented on a daily basis if feasible. This proved to be

effective in the response to the COVID-19 pandemic, when the daily central reporting of waste volumes helped to manage network capacity by mapping and coordinating infectious waste treatment capacity against demand (see Figure 24).

Figure 24 Key principles in waste management response to pandemic



Appendix 1 – Technical

Note that the pathogen list below is indicative, not exhaustive.

A1.1: Category A pathogen list

UN number and name	Microorganism
UN 2814 Infectious substance affecting humans	<ul style="list-style-type: none"> • <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) ^a • Nipah virus • Omsk haemorrhagic fever virus • Poliovirus (cultures only) • Rabies virus (cultures only) • <i>Rickettsia prowazekii</i> (cultures only) • <i>Rickettsia rickettsii</i> (cultures only) • Rift Valley fever virus (cultures only) • Russian spring-summer encephalitis virus (cultures only) • Sabia virus • <i>Shigella dysenteriae</i> type 1 (cultures only) ^a • Tick-borne encephalitis virus (cultures only) • Variola virus • Venezuelan equine encephalitis virus (cultures only) • West Nile virus (cultures only) • Yellow fever virus (cultures only) • <i>Yersinia pestis</i> (cultures only)

UN number and name	Microorganism
UN 2900 Infectious substance affecting animals only	<ul style="list-style-type: none"> • 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)
^a Nevertheless, when the cultures are intended for diagnostic or clinical purposes, they may be classified as infectious substances of Category B (carriage on road only)	

A1.2: Duty of care checklist

Duty of care checklist
Responsibilities for waste pending collection
Containers clearly labelled and secure
Limiting access to waste and their storage areas (from unauthorised personnel and pests)
Vehicles for collection are covered and secured
Wastes accurately described on Waste Transfer Notes/Hazardous Waste Consignment Note
Collate documents
Environmental permits and waste exemptions (Check EA Public Register and request copies from contractors)
Waste carrier and/or broker registrations (Check EA Public Register)
Records of enforcement action (Check EA Public Register and HSE website)
Business documents for organisations involved in the waste supply chain: ISO accredited management systems (in particular ISO 14001 Environmental Management Systems, ISO 9001 quality management systems and ISO 45001 health and safety management systems) Insurance provision. Waste contractors, as a minimum, are to hold public liability insurance and employer's liability insurance
Hazardous Waste Consignment Notes (retained for two years minimum)
Waste Transfer Notes (retained for two years minimum)
Quarterly Returns (from waste treatment and/or disposal operators)
Pre-acceptance audits
Training records
Risk assessments (health organisation and the waste contractor)
Compliance with Carriage of Dangerous Goods
Appointed Dangerous Goods Safety Adviser (DGSA)
Vehicles or packages supplied or used by a waste contractor are compliant with the relevant legislation
Correct use of UN number and class hazard label
Ensure drivers have all required authorisations and documentation in place and records maintained <ul style="list-style-type: none"> • Authorisation document issued by Department of Transport for waste collected in bags or in non-UN-approved clinical waste packages • Dangerous Goods Declaration • Instructions in writing
Recovery or final disposal
Check the permit allows for the waste types to be accepted
Check the waste activity on the permit matches the expectations of how the waste is reused, recycled, recovered or disposed
Site visit to learn and observe how healthcare waste is handled, treated/disposed of (Optional, it is best practice to audit sites where possible)

A1.3: WM3 hazards

Hazard
C1: Explosive (HP 1)
C2: Oxidizing (HP 2)
C3: Flammable (HP 3)
C4: Irritant (HP 4)
C5: Specific Target Organ Toxicity/Aspiration Toxicity (HP 5)
C6: Acute Toxicity (HP 6)
C7: Carcinogenic (HP 7)
C8: Corrosive (HP 8)
C9: Infectious (HP 9)
C10: Toxic for Reproduction (HP 10)
C11: Mutagenic (HP 11)
C12: Produces toxic gases in contact with water, air or acid (HP 12)
C13: Sensitising (HP 13)
C14: Ecotoxic (HP 14)
C15: Capable of exhibiting a hazardous property listed above not directly displayed by the original waste (HP15)
C16: Persistent Organic Pollutants

Appendix 2 – Non-clinical waste and resource management principles

The management of non-clinical waste is vital to achieving the strategic objectives, goals and targets laid out in Chapter 2. Non-clinical wastes may possess hazardous properties, and must be handled, stored, treated and disposed of in accordance with the relevant guidance set out in Chapters 4

and 5. EWC codes for the classification of non-clinical wastes, and hazards associated with non-clinical waste streams, can be found in Technical Guidance WM3 (Environment Agency, 2021a).

Waste type	Description	Waste prevention, resource efficiency and circular economy implementation	Waste segregation, storage, handling and collection	Recovery, treatment and disposal	Case studies
Non-hazardous residual waste	<p>General waste of the type produced by households. Often consists of food scraps (where not processed as a separate waste stream), non-recyclable plastics, packaging, non-infectious textiles, and small amounts of inorganic materials, such as stone.</p> <p>Represents waste that is left once all other efforts have been made to prevent, reuse, recycle or recover materials.</p>	<ul style="list-style-type: none"> Switching from single-use items (such as paper cups) to reusable equivalents (glass or ceramic cups) Waste and recycling bins should be placed strategically and paired wherever possible. Bins should be placed in locations where they are likely to be needed and should ideally be placed so that one is always in view Provide recycled plastic cups for use with vending machines and/or encourage staff to use reusable mugs. 	<p>Recyclables and residual general wastes can be stored in the same room but should be stored in separate designated bins.</p> <p>It is recommended that residual waste is stored in black bins, although clear/opaque receptacles may also be used.</p> <p>Hazardous wastes (including some deodorants, batteries etc.) and clinical wastes should never be placed in the black-bag residual waste stream.</p>	<p>A waste contractor may be appointed to collect and dispose of residual waste. Typically, residual waste may be incinerated, landfilled or sent to a materials recovery facility (MRF) to have any recyclable content recovered from it.</p>	<p>The Newcastle upon Tyne Hospitals NHS Foundation Trust switched to reusable canteen cutlery, bowls, straws and side plates in 2017, saving £80,000 annually, and diverting from landfill:</p> <ul style="list-style-type: none"> 513,600 disposable polypropylene bowls 490,800 disposable polypropylene lids for bowls 312,000 polystyrene bowls 371,000 plastic spoons 216,000 plastic knives

Waste type	Description	Waste prevention, resource efficiency and circular economy implementation	Waste segregation, storage, handling and collection	Recovery, treatment and disposal	Case studies
Organic waste	Organic waste, such as food waste from kitchens, green landscaping waste from grounds maintenance and floral displays	<ul style="list-style-type: none"> Ensuring a robust system for measuring food waste from different sources (kitchen waste, plate waste, unserved meals), so that prevention interventions can be identified Sending back reusable items to suppliers where possible (such as cooking oil) Utilising “just in time” procurement for goods and examining sales patterns, to avoid over-purchasing (leading to food products unnecessarily being thrown away) Utilising digital meal ordering systems in hospitals, enabling healthcare and catering teams to adapt food provision to patient needs, manage allergies and diets, and minimise waste Considering the possibility of entering a “back-of-store” surplus food partnership with a local charity so that any surplus food waste generated could be put to good use. If it is not possible for this waste to be redistributed to people, then consideration could be given for its use as an ingredient in animal feed Selecting plant landscaping that requires low maintenance and produces less waste Working with in-house catering staff or contractors to identify opportunities (and contractual incentives) to reduce food waste through: <ul style="list-style-type: none"> control of ordering for working lunches active management of the quantities cooked in canteens control of stock ordering menus that make use of “leftovers”. 	<p>Should be collected separately at source (kitchen and cafeteria) and kept separate.</p> <p>Under the Environment Act, this stream should be collected separately (not mixed) with other streams.</p> <p>The nature of the waste, in particular food waste, may give rise to problems with vermin. General operational practices will reduce the potential for vermin infestations, and other controls in place to prevent problems include:</p> <ul style="list-style-type: none"> waste should not be stored on site for extended periods, with at least daily removal of food waste recommended the area around the food waste storage should be cleaned after every removal and at frequent intervals throughout the day the floor of the loading areas should be regularly cleaned throughout the day and at the end of every working day. the food waste storage bins should be cleaned regularly any waste spillage should be cleared up, as soon as practically possible. <p>Collection of green wastes would have to be coordinated to ensure that wastes are removed from the site after services are completed.</p>	<p>Macerators are disposal units that allow food waste to be flushed down existing drains, leaving food preparation and bin areas clean and free from hygiene problems. This option allows for a reduced reliance on waste collection but does not allow for any recovery opportunities, so is not preferred under the waste hierarchy, and is not permitted in Northern Ireland.</p> <p>Organic waste may be sent to a composting or anaerobic digestion (AD) facility for energy and/or fertiliser generation. Organic waste may also be treated on-site through several methods. For instance, organic waste may be treated on-site with de-watering technologies, which remove excess water and so the weight of organic wastes, before onward treatment and further recovery at an AD site for example. Organic waste may also be subject to on-site aerobic digestion, where a bio-enzymatic formula turns food waste into grey water, and via filters enters the drainage system. This option allows for a reduced reliance on waste collection, but depends on local water governance arrangements; and any further recovery opportunities, including EFW or fertiliser production, would depend on the units used and/or the Trust’s water treatment facility.</p> <p>In-Vessel Composting (IVC) can be used to treat wastes that have biosecurity or odour issues and facilitate pathogen destruction, such as food wastes. For IVC to operate successfully, structural material is needed to be added to the process; this is normally green waste or wood chip. A permit is required to use composted material off-site, and this should be factored into decision-making (does the facility have grounds in which to use the compost, or is getting a permit feasible?)</p> <p>Green waste is typically treated as a segregated waste stream through windrow composting or AD but can also be managed using IVC that utilises this as a bulking agent.</p> <p>Organic waste is generally not suitable for incineration because the moisture content is too high.</p>	<p>In 2014, Cardiff and Vale University Health Board introduced separate collections of food waste for anaerobic digestion. This diverts an estimated 0.52 kg of food waste from landfill per bed per week and helps to generate renewable bio-energy.</p> <p>In 2013 Somerset Partnership NHS Trust Foundation introduced separate food collection, and designated food waste bins. The tonnage collected by the contractor indicates that, alongside a new dry recycling scheme, the food waste scheme has contributed to an overall recycling rate of between 75% and 88% between November 2013 and January 2014.</p>

Waste type	Description	Waste prevention, resource efficiency and circular economy implementation	Waste segregation, storage, handling and collection	Recovery, treatment and disposal	Case studies
Recyclable waste	Items such as non-infectious / non-chemically contaminated glass, including bottles, jars, glassware, and non-contaminated vials; plastics, such as PET and HDPE bottles, food containers, bottles, and cups; polystyrene packaging, and metals such as aluminium, and ferrous drink cans, food tin cans, other metal containers such as empty paint containers	<ul style="list-style-type: none"> Waste and recycling bins should be placed strategically and paired wherever possible. Bins should be placed in locations where they are likely to be needed and should ideally be placed so that one is always in view. Sending back reusable items to suppliers where possible Utilising 'just in time' procurement for goods and examining sales patterns, to avoid over-purchasing (leading to food products unnecessarily being thrown away) 	<p>It is recommended that dry recyclables are separated at source and collected separately.</p> <p>Bins for recyclable waste should be clustered, clearly marked, and present in areas of high waste generation and high footfall (waiting rooms, reception, corridors, cafeterias etc).</p> <p>Some recyclables (plastics, ferrous and non-ferrous cans etc) can be processed on-site via baling and compaction, which can be done with machines (typically when dealing with large quantities of recyclables). These are used to bind together the separated material streams and provide compaction. Baling reduces transport volume. Compaction achieved through baling is advantageous for hospitals, as it reduces the storage space required. However, baling/compaction should only be used if the receiving facilities requirements can accommodate the material in this form.</p>	<p>The preferred option is for this waste stream to be collected by the local government authority or waste contractor for recycling at a permitted and licensed facility.</p> <p>Mixed recyclables can be sorted and separated at MRFs. Source segregated materials can be sent directly to re-processors for recycling, provided there is little contamination.</p>	<p>East Sussex Healthcare NHS Trust, in partnership with Veolia conducted a waste audit of their key sites and introduced bespoke recycling points within the hospitals as well as introducing recycling at ward-level (in staff and common rooms).</p> <p>Recycling has increased by 30% and delivered a 20% decrease in general waste.</p>

Waste type	Description	Waste prevention, resource efficiency and circular economy implementation	Waste segregation, storage, handling and collection	Recovery, treatment and disposal	Case studies
Recyclable waste (contd)	Non-contaminated paper and cardboard waste (packaging waste, office paper, newspapers, magazines etc). Recyclable in most areas.	<ul style="list-style-type: none"> • Reducing the amount of packaging used to ship or transport products; for instance, switching from cartonless bottles or using multi-month packs • Ensuring a returns policy is in place with suppliers for unsold and damaged goods • Storing and reusing cardboard shipping boxes • Training staff on how to properly handle packaging and avoid contamination in order to allow for reuse, in addition to ensuring that incoming packaging is segregated for recycling • Bulk buying items such as office supplies to reduce the amount of packaging • Avoiding colour printing whenever possible • Setting double-sided printing as the default option for photocopiers and staff computers, and raising awareness of this with staff to discourage single-sided printing • Using single spacing and narrower margins for less important documents • Reusing out-of-date headed paper and wasted printouts as scrap/notebooks • “Unsubscribing” from senders of junk mail 	<p>Should be kept separate from non-recyclable wastes to avoid cross-contamination.</p> <p>Paper and card can be processed via bailing and compaction to reduce storage space requirements, provided the receiving facility's requirements can accommodate the material in this form.</p> <p>Bales would need to be stored in a suitably fire-rated area. They are typically transported with a forklift truck, which would be required to manoeuvre the bales from the central waste storage area to the loading dock for removal off-site.</p>	<p>In many places collected by a local government authority or waste contractor for recycling at a permitted and licensed facility.</p> <p>Stationery and office paper may be returned to the supplier if unused or undamaged.</p>	

Waste type	Description	Waste prevention, resource efficiency and circular economy implementation	Waste segregation, storage, handling and collection	Recovery, treatment and disposal	Case studies
Waste Electronic and Electrical Equipment (WEEE)	<ul style="list-style-type: none"> IT equipment (computers, monitors, printers, keyboards etc) Specialist equipment (coagulators, centrifuges, audiometry equipment, dialysis equipment, cardiology equipment, microscopes, autoclaves, mobile digital X-ray equipment, oscilloscopes etc) Bulky equipment (refrigerators, freezers, biosafety cabinets, televisions, washing machines, fans, microwaves, cookers etc) Implanted devices (pacemakers) Lighting equipment (fluorescent tubes/bulbs) All other electronics, and electrical equipment (radios, speakers, monitoring and control equipment such as thermostats, smoke detectors and heating regulators etc) 	<ul style="list-style-type: none"> Sending back reusable items to suppliers where possible Ensuring a returns policy is in place with suppliers for unsold and damaged goods Investing, where possible, in high-quality equipment that is durable and repairable Switching from analogue to digital X-ray systems to eliminate the stream of hazardous fixer, developer, and film Considering renting equipment that is used only occasionally rather than having to store, maintain and calibrate it in the workplace Not allowing obsolete equipment to take up space and collect dust. The sooner it is recycled, the quicker that valuable resources will be available for reuse, thus avoiding the processing of more virgin materials Allocating space in the central waste storage area for bulky items prior to collection/reuse. 	<p>WEEE should be stored in a safe, secure area.</p> <p>Care should be taken to ensure that equipment that may be capable of repair and reuse is not further damaged in storage.</p> <p>Compliance schemes and waste management companies that collect WEEE may require that it be separated in a certain way.</p> <p>Waste storage areas for WEEE will require appropriate firefighting methods as water will not be typically used in such environments.</p>	<p>Electronics can be hazardous to the environment and should be returned to the manufacturer for disposal / recycling where possible (as in the case of certain medical / laboratory electronics) or handed off to a designated government agency or specialist contractor.</p> <p>WEEE should be sent to specialist WEEE recyclers to ensure environmentally friendly and safe disposal. Simpler / non-laboratory WEEE can be repaired and / or donated (for instance in the case of outdated IT equipment).</p> <p>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.</p> <p>IT equipment can often be repaired, or have components replaced.</p> <p>Specialist WEEE equipment should, if possible, be returned to the manufacturer for refurbishment, or specialist deconstruction and recycling.</p> <p>Simple microscopes should be safe to sell from scrap/ local recycling.</p> <p>Producers should contact their waste contractor to establish the best-practice disposal route for implanted devices.</p>	<p>Whittington Health NHS trust, in partnership with CRT group dispose of around 350 PCs, laptops, and mobile phones per year.</p> <p>These devices have their hard drives removed, cleared, and shredded (to ensure no sensitive data is retained) before being refurbished and donated to charities including homeless shelters, and education projects. This initiative has saved the trust approximately £3-5 per device in disposal costs, totalling around £1400 per year.</p>

Waste type	Description	Waste prevention, resource efficiency and circular economy implementation	Waste segregation, storage, handling and collection	Recovery, treatment and disposal	Case studies
Waste Electronic and Electrical Equipment (WEEE) (contd)	Batteries	<ul style="list-style-type: none"> Developing a procurement policy which explicitly precludes purchasing products that contain toxic materials such as mercury, PVC, or glutaraldehyde; and setting progressive targets for those which cannot yet be eliminated. Sending back reusable items to suppliers where possible. Ordering only from suppliers who provide rapid delivery of small orders and who accept the return of unopened stock Provide separate storage receptacles in waste storage rooms for batteries 	<p>Batteries should be segregated and collected separately. The waste receptacle should be clearly labelled with the type of waste and the name of the major chemicals, with any necessary hazard labels attached to corrosive, flammable, explosive or toxic chemicals.</p> <p>The liquid contents of batteries should never be mixed or disposed of down the drain but should be stored in strong leak-proof containers.</p> <p>Where Healthcare facilities 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.</p>	<p>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. The preferred option for disposing of batteries would be to return these to the supplier or send them to a specialist recycling facility to recover metals, including valuable metals such as nickel, cobalt, and silver.</p> <p>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.</p>	NHS Scotland advocates the use of rechargeable batteries wherever possible, as they estimate that the energy required to manufacture a single-use battery is approximately 50 times greater than the energy the battery will give out in its lifetime.
Gypsum and plaster casts	<p>Gypsum-rich wastes are likely to be produced from:</p> <ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> Limited opportunities given healthcare need. 	<p>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.</p> <p>These should be segregated as a specific 18 01 04 gypsum waste stream.</p>	<p>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.</p> <p>The two main disposal options for non-contaminated gypsum wastes are:</p> <ul style="list-style-type: none"> gypsum recycling hazardous waste landfill <p>Procedures should be put in place 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.</p>	

Waste type	Description	Waste prevention, resource efficiency and circular economy implementation	Waste segregation, storage, handling and collection	Recovery, treatment and disposal	Case studies
Non-clinical chemicals	Heavy metals contained in medical devices, such as mercury in broken thermometers, aerosols, POPs, hand gels, cleaning materials, bleaches, varnishes etc	<ul style="list-style-type: none"> Developing a procurement policy which explicitly precludes purchasing products that contain toxic materials such as mercury, PVC, or glutaraldehyde; and setting progressive targets for those which cannot yet be eliminated. Sending back reusable items to suppliers where possible. Using minimum concentrations of chemicals where possible Centralised purchasing of hazardous chemicals Monitoring of chemical flows within the health facility from receipt as raw materials to disposal as hazardous wastes Ordering only from suppliers who provide rapid delivery of small orders and who accept the return of unopened stock Preventing the accumulation of significant quantities of outdated chemical products by: <ul style="list-style-type: none"> Regularly ordering smaller quantities of product rather than in bulk and all in one go Using the oldest batch of a product first Using all the contents of each container Checking the expiry date of all products at the time of delivery. Provide storage receptacles in waste storage rooms for unused discarded hazardous chemicals for example bleaches, varnishes, etc. 	<p>Hazardous chemical wastes of different composition should be stored separately to avoid unwanted chemical reactions.</p> <p>Waste storage areas for chemicals will require appropriate firefighting methods as water will not be typically used in such environments.</p> <p>Care should be taken to ensure that liquid chemical wastes are never disposed of down the drain.</p> <p>A liquid and chemical resistant sump should be provided in areas set aside for washing of bins containing chemical wastes.</p> <p>Chemical waste must be collected in strong leak-proof containers that resist reaction with the type of chemical it hosts, labelled accordingly, never mixed with other chemicals, and sent to specialized treatment facilities (if available).</p> <p>The characteristics of different chemicals should be carefully considered prior to storage and subsequent disposal, taking into account flammability, corrosivity and explosivity. A separate zone should be allocated in the central waste storage area for storage of chemical waste, with further separation recommended depending on the hazard class. The central waste storage area should be equipped with adequate lighting and ventilation, spillage kits, PPE and first aid equipment.</p> <p>The chemical waste storage zone in the central waste storage area should be built with materials that are able to withstand explosion or leakage. Liquid and solid chemical wastes should be segregated. For storage of liquid chemicals, it is recommended that a chemical-proof sump is incorporated into the storage system. If this is not possible, then catch-containers should be placed under the storage containers to collect any leaked liquids. Packaging used for the storage and off-site transport of chemical waste should be appropriately labelled, indicating the hazardous class, date and point of generation, where possible.</p> <p>Alcohol hand gels that do not contain siloxanes (which cause significant damage to plant and equipment used in the sewage treatment process) and which is not prohibited to be discharged to the sewer may be rinsed out and the packaging recycled or placed into the domestic waste stream.</p>	<p>Less hazardous chemical wastes may be diluted and disposed of using sewage/wastewater drains. Larger quantities and more hazardous chemical wastes will require more advanced treatment. Where possible, chemical wastes should be returned to the supplier, or passed on to a licensed contractor, or suitable government body for disposal.</p> <p>Large amounts of chemical waste should not be buried, because they may leak from their containers, overwhelm the natural attenuation process provided by the surrounding waste and soils, and contaminate water sources.</p>	

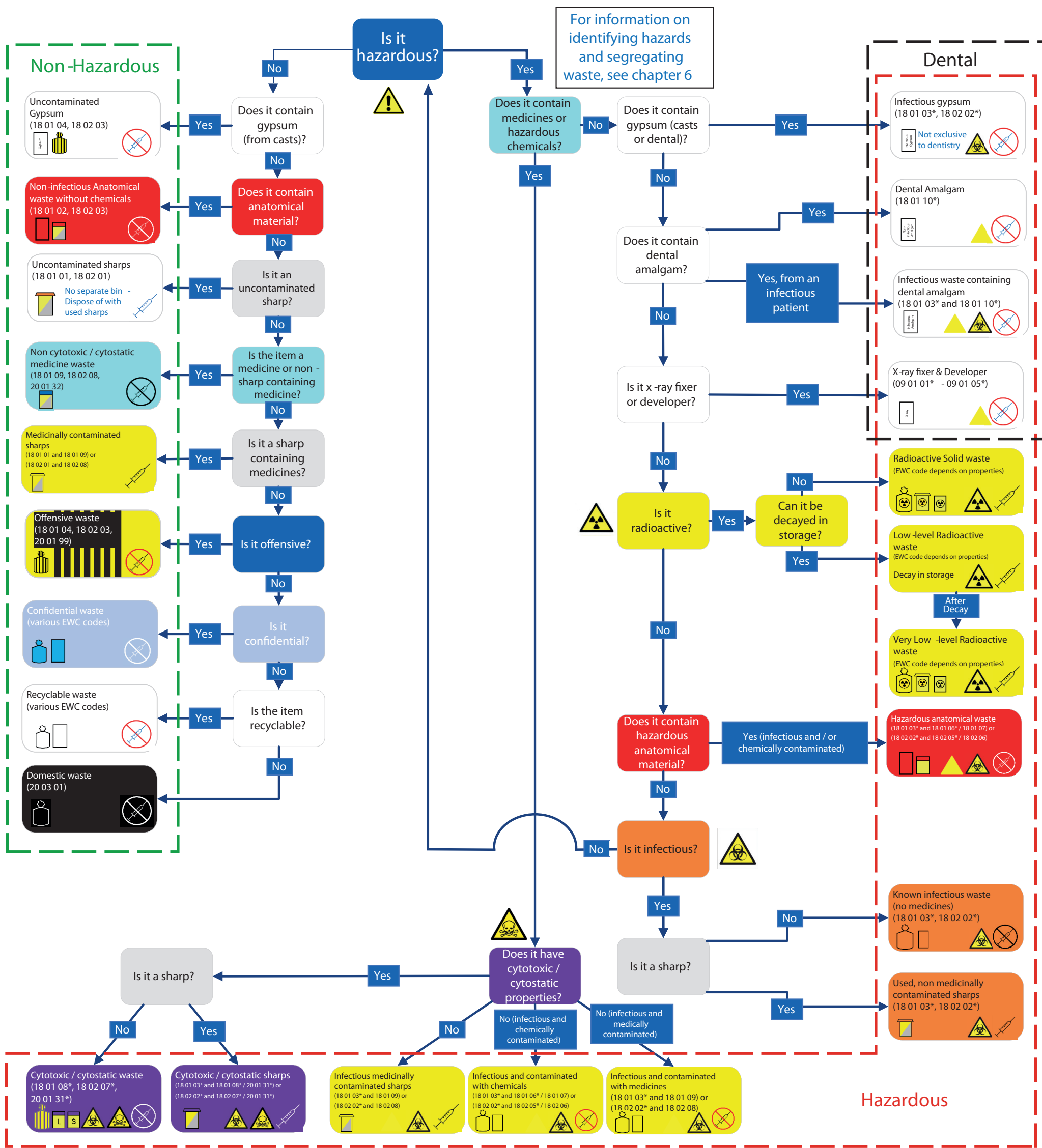
Waste type	Description	Waste prevention, resource efficiency and circular economy implementation	Waste segregation, storage, handling and collection	Recovery, treatment and disposal	Case studies
Disability aids/ walking aids	Disability aids/ walking aids	<ul style="list-style-type: none"> Ensuring a returns policy is in place for patients to return aids at the end of the patient's care needs. Implement an internal reuse scheme with in-house refurbishment or a reuse service contract with suppliers for returned aids. Forming relationships with charities/other organisations that may be able to accept donations of disability aids (charities, local schemes/organisations) When they have reached the end of their useful life, these items should be handled in accordance with the Waste Hierarchy Examine procurement and ordering practices to reduce overordering, and maximise return and reuse schemes. Examine the disability aids used in the organisation, and see if there is scope to refurbish/ make them suitable for use in accordance with the principles of Circular Economy 	<p>Aids should be stored in a designated weatherproof area away from hazardous materials and other wastes. These items do not need to be stored in a bin unless there is a reason to do so (for instance if a large quantity of devices is being organised).</p> <p>Returned aids should be segregated from refurbished devices to retain resources and value. It is suggested separate storage containers or areas for aids that have been returned (before sorting), cleaned and pending further assessment, suitable for repair or refurbishment, and requiring recovery/treatment/disposal.</p> <p>Refurbished aids should be stored in pairs.</p>	<p>Adequate space and equipment for refurbishment should be made available when disability aids/ walking aids are repaired or refurbished by NHS organisations. Such as workstations and storage of tools and equipment.</p> <p>The manufacturer of the device should be contacted to establish whether a "take-back" scheme exists for this equipment.</p> <p>Used disability aids could also be donated to local charities which may be accept the devices for reuse, refurbishment, or recycling.</p> <p>Many of the components are likely to be recyclable, with potential for income. Damaged aids should be delivered to a local recycling facility.</p>	Refer to the Walking Aids Reuse How-To Guide

Waste type	Description	Waste prevention, resource efficiency and circular economy implementation	Waste segregation, storage, handling and collection	Recovery, treatment and disposal	Case studies
Textiles	Non-infectious textiles (clothes, linen, and curtains etc)	<ul style="list-style-type: none"> Ensuring a returns policy is in place with suppliers for unsold and damaged goods Forming relationships with charities/other organisations that may have use for textiles. Clothes and textiles that are in good condition can be donated to registered charities and reuse organisations. When the bed linen is restocked daily, any unused linen should be placed where it can be used first, to ensure stock rotation. Excessive amounts of linen should not be taken into an isolation room/cohort area as any unused linen must be treated as contaminated and disposed of accordingly. Effective management of bed linen should ensure that there is minimal or no excess linen left on the ward each day. 	<p>Clean textiles must be:</p> <ul style="list-style-type: none"> Stored in a designated, clean, dust-free, closed cupboard to prevent airborne contamination, or on a dedicated fully enclosed mobile trolley. Stored off the floor. Segregated from used/soiled textiles. If there is exposure of clean textile to any infectious agent, then it must be disposed of as infected linen <p>Clean textiles must not be:</p> <ul style="list-style-type: none"> Stored in areas such as the sluice or in bathrooms. Decanted onto open trolleys unless for immediate use. 	<p>The manufacturer of unused textiles should be contacted to establish the possibility of implementing a take-back or bring-back scheme.</p> <p>Collection of such wastes by registered charity collection services should also be explored.</p> <p>Items that are not suitable to be passed onto someone else can be recycled and made into new items, for instance padding for chairs and car seats, cleaning cloths and industrial blankets.</p>	

Waste type	Description	Waste prevention, resource efficiency and circular economy implementation	Waste segregation, storage, handling and collection	Recovery, treatment and disposal	Case studies
Bulky waste	Items that are too large to be accepted by the regular waste collection (refurbishment waste, furniture, mattresses, bed frames, tables, chairs)	<ul style="list-style-type: none"> • May potentially be repairable or recyclable, depending on the nature of the item. • Sending back reusable items to suppliers where possible (wooden pallets, furniture, mattresses, chairs tables, bed frames etc). • Not allowing obsolete equipment to take up space and collect dust. The sooner it is recycled, the quicker that valuable resources will be available for reuse, thus avoiding the processing of more virgin materials. • Allocating space in the central waste storage area for bulky items prior to collection/reuse. 	<p>Bulky waste items are typically too large to be stored in bins, so should be kept uncontained in a secure area where possible.</p> <p>Needs to be stored until collection can be arranged. Materials such as wooden pallets should be properly stacked where possible to maximise the ability to reuse them and minimise safety hazards.</p>	<p>The disposal of heavily soiled or infectious mattresses should be made through the waste contractor.</p> <p>Most bulky items will be recyclable or feature component parts that are recyclable, for example timber, metal, cardboard, textiles.</p> <p>Non-recyclable items can be sent to conventional EfW facilities for energy recovery or to landfill.</p>	<p>Barts Health NHS Trust has partnered with Globechain and Premier Sustain to distribute bulky items which are no longer needed (furniture, fittings, etc) to local organisations which can use them.</p> <p>Globechain requires recipients to prepare case studies, so Barts Health NHS Trust can understand how these items are being used, and Premier Sustain creates monthly reports detailing the GHG reductions achieved through the programme.</p>

Waste type	Description	Waste prevention, resource efficiency and circular economy implementation	Waste segregation, storage, handling and collection	Recovery, treatment and disposal	Case studies
Depressurised containers	Depressurised gas cylinders or containers	<ul style="list-style-type: none"> • Sending back depressurised containers to suppliers where possible. 	<p>According to the British Compressed Gases Association's (BCGA) Code of Practice 44, "cylinders are never fully empty, unless a cylinder is new, de-valved, or following inspection and test where it has not yet been filled with a gas." Therefore, their storage is considered in-line with full gas cylinders as described in this Code of Practice. Gases with the same hazard category should be grouped together, with clear signage used to indicate this.</p> <p>It is recommended that depressurised containers are stored externally in secured compounds or cages. If this is not possible, then a dedicated internal storage room with appropriate signage should be allocated for this purpose.</p> <p>It is recommended that full gas containers are segregated from empty ones, using labelling to clearly indicate the 'cylinder status'. Empty cylinders should be treated with the same caution as full ones (by chaining or clamping them to prevent them from falling over. Small cylinders can be stored horizontally on metal racks.</p>	<p>BCGA's Code of Practice 18 states that empty gas containers should be returned to the supplier as soon as possible.</p> <p>Aerosol cans may be classified as non-hazardous if they are empty and can be sent to metal recyclers.</p>	

Appendix 3 – Waste segregation and classification diagram



Appendix 4 – List of case studies

- [The five R's of sustainability](#) – Various health organisations
- [Sustainable procurement](#) – East Staffordshire Care Commissioning Group
- [Sustainable procurement](#) – Hospitals Caterers Group & WRAP
- [Waste reduction](#) – Great Ormond Street Hospital NHS Foundation Trust
- [Waste reuse](#) – Mid-Essex Hospital Trust
- [Waste reprocessing](#) – Leeds Teaching Hospital
- [Renewable procurement](#) – Skåne region, Sweden
- [On site manufacturing](#) – Automedi, UK
- [Reuse, refurbishment, and re-purposing](#) – NHS Supply Chain
- [Maximise reduce reuse and recycle through correct segregation](#) – Various health organisations including Intensive Care Unit at St James's Hospital
- [Online reuse network](#) – St Mary's Hospital, Isle of Wight
- [Cost saving through disposal of sharps](#) – University Hospitals Coventry and Warwickshire NHS Trust
- [Recovery of heat and resources from healthcare waste](#) – London North West University Health organisation
- [Dental waste reduction](#) – University of Plymouth Health organisation
- [Non-clinical waste](#) – Newcastle upon Tyne Hospitals NHS Foundation Trust
- [Non-clinical waste](#) – Cardiff and Vale University Health Board
- [Non-clinical waste](#) – Somerset Partnership NHS Trust Foundation
- [Food waste recovery](#) – Somerset NHS Foundation Trust

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Useful websites

FutureNHS is a platform from the NHS, helping the health and social care sector connect and collaborate.

<https://future.nhs.uk/>

UK Research and Innovation is a non-departmental public body sponsored by the Department for Business, Energy and Industrial Strategy (BEIS).

<https://www.ukri.org/>

Warp It: a reuse network, their mission is to provide a place where organisations keep their equipment, assets and “stuff” circulating to reduce spend, waste and supply chain environmental impacts.

<https://www.warp-it.co.uk/>

Abbreviations used in this document

AD	Anaerobic digestion	EWC	European Waste Catalogue
BAT	Best Available Techniques	FHT	Frictional Heat Treatment
BBV	Blood borne viruses	FTE	Full-Time Equivalent
BCGA	British compressed gases association	GHG	Greenhouse gases
BCP	Business Continuity Plan	HBN	Health Building Note
BPM	Best Practicable Means	HCW	Health Care Waste
CAR	Compliance Assessment Report	HDPE	High-density polyethylene
CEAP	Circular Economy Action Plan	HP	Hazardous Property
CIWM	Chartered Institution of Wastes Management	HSE	Health and Safety Executive
COSHH	Control of Substances Hazardous to Health	HSENI	Health and Safety Executive Northern Ireland
CoTC	Certificate of technical competence	HTM	Health Technical Memorandum
CPD	Continued professional development	IBC	Intermediate Bulk Container
DDT	Dichlorodiphenyltrichloroethane	IMDG	International Maritime Dangerous Goods
Defra	Department for Environment, Food and Rural Affairs	IPC	Infection Prevention and Control
DfT	Department for Transport	IVC	In vessel composting
DGSA	Dangerous goods safety adviser	KPI	Key Performance Indicator
DHSC	Department of Health and Social Care	LEP	Local Enforcement Position
EA	Environment Agency	LoW	List of Waste
EAGA	Expert Advisory Group on Aids	MPE	Medical Physics Expert
ECP	Emergency Care Practitioners	MRF	Materials Recovery Facility
EfW	Energy from Waste	NAO	National Audit Office
EMS	Environmental Management System	NIEA	Northern Ireland Environment Agency
EoW	End of Waste	NRW	Natural Resources Wales
EPRR	Emergency Preparedness and Resilience Response	OEP	Office of Environmental Protection
ERIC	Estates Return Information Collection	PET	Polyethylene terephthalate
		POPs	Persistent Organic Pollutants
		PPE	Personal protective equipment
		PPN	Procurement Policy Note
		PVC	Polyvinyl chloride
		QMS	Quality Management System

RIDDOR	Reporting of Injuries, Diseases and Dangerous Occurrences Regulations
RPA	Radiation Protection Adviser
RPS	Regulatory position statement
RWA	Radioactive Waste Adviser
SDS	Safety Data Sheets
SEPA	Scottish Environment Protection Agency
SHTN	Scottish Health Technical Note
SOP	Standard Operating Procedure
SPoC	Single Point of Contact
STAATT	State and Territorial Association on Alternative Treatment Technologies
UKRI	UK Research and Innovation
VCA	Vehicle Certification Agency
WEEE	Waste Electrical and Electronic Equipment

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