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Appendices to the NHS Clinical Waste Strategy

Version 1, 31 January 2023

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Appendix A: NHS waste management review themes and findings

During 2019 and 2020, a thorough review of NHS clinical waste management was undertaken by the National NHS Estates and Facilities Team. A representative sample of 130 waste managers across secondary care were surveyed, with 113 responses (87%). Quantitative data analysis incorporating learning from the Covid-19 pandemic was completed, and site visits took place.

The review identified **3 key themes** to inform the priorities and actions of the NHS Clinical Waste Strategy:

- **Net Zero Carbon:** how improved clinical waste management processes can address the national NHS net zero carbon targets
- **Resilience:** how infrastructure, capacity and cost can be managed to improve the resilience of NHS clinical waste management processes.
- **Productivity:** how reduced volumes of waste produced, and improved compliance, culture and data management can improve productivity in clinical waste management.

This appendix (Appendix A) takes an in-depth look at the background and challenges of NHS waste management in relation to each of these 3 themes, detailing the review findings which have fed into them, and which inform the strategic priorities and areas of action in the NHS Clinical Waste Strategy.

Key Theme 1: Productivity

The first key review theme is about increasing productivity in clinical waste management. Improving cultures around data management, enhancing workforce skills, and increasing compliance will ensure that improvements are made in this area.

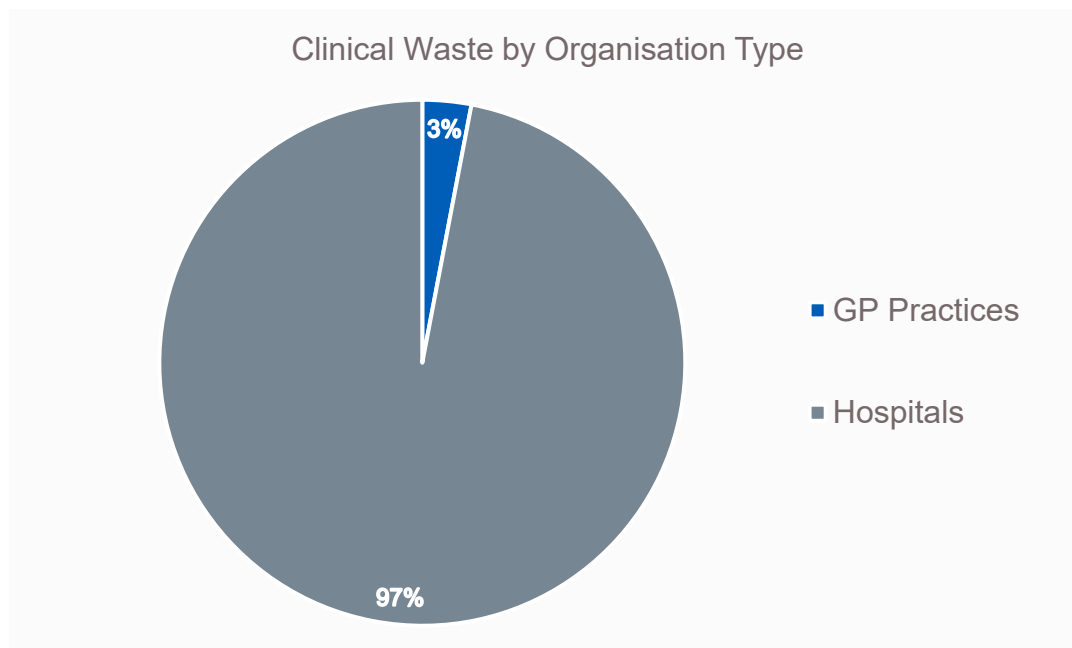
Review Findings – Data

Clinical waste is produced at a variety of different healthcare premises. In 2020, these comprised:

- 12,500+ community pharmacy sites
- 7,353 general practice (GP) sites
- 1,139 hospital trust sites
- 12,000+ dental practices
- Optometry practices, care homes, patient homes and prisons

Analysis carried out in 2019 showed that GP practices generated 7,500 tonnes of clinical waste, whilst hospitals generated 233,000 tonnes in 2018/19 (figure 1). Waste generated from dental practices, care homes, patient homes and prisons are not centrally reported and are therefore unknown.

Figure 1: Proportion of centrally reported clinical waste by organisation type



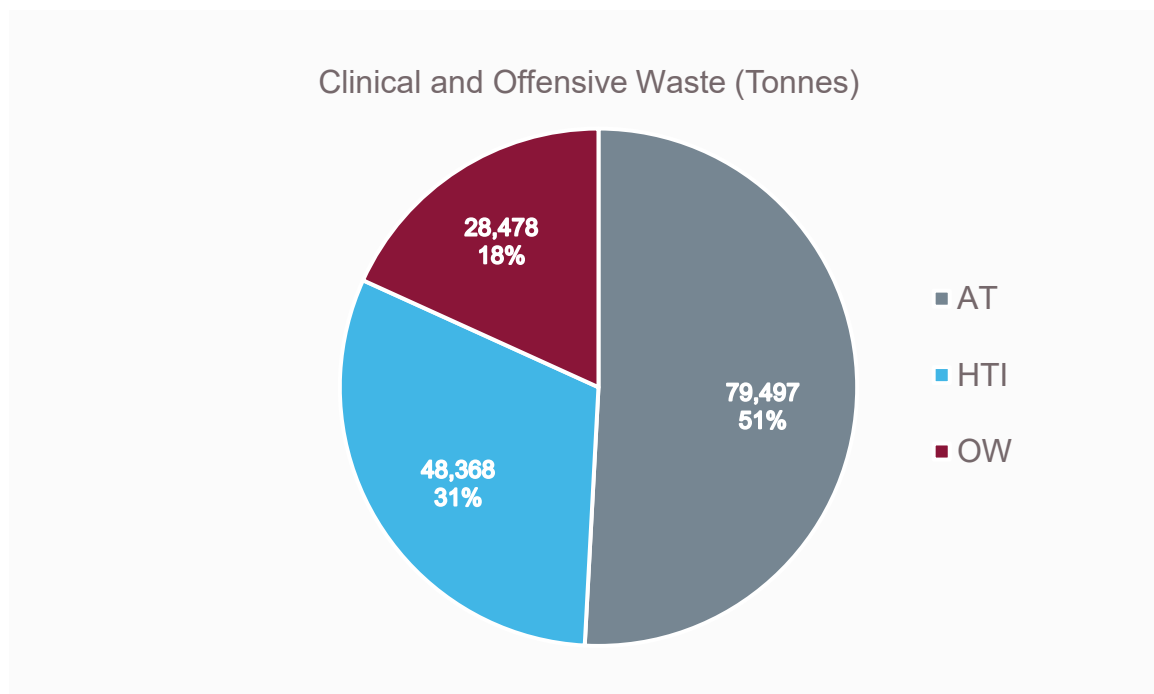
Since the financial year 1999/2000, hospitals have reported waste via the annual **Estates Returns Information Collection (ERIC)**. However, by the time it is published, the data received through this platform is typically several months out of date and often contains inaccuracies. Analysis of the 2019/20 ERIC return identified more than 100 apparent data reporting errors from trusts and foundation trusts across the country, with inaccuracies relating to both the volume and classification of waste generated, as well as cost information.

The need for, and effectiveness of, accurate real-time data on waste management was emphasised during the response to the Covid-19 pandemic in 2020/21, when collaboration between the NHS and its waste management suppliers enabled us to effectively forecast and plan for extreme changes in waste generation and treatment demand across the country.

The NHS Clinical Waste Strategy has been developed mostly using data collected from the FY2019/20. Data has been published since, however it has been used sparingly within the report due to the significant impacts of the Covid-19 pandemic on clinical waste management.

Figure 2 shows the total quantity of NHS secondary care waste sent for high temperature incineration (HTI), to an alternative treatment (AT) facility or classified as offensive waste (OW) in 2020/21.

Figure 2: Waste (tonnes) sent for HTI, AT and classed as OW from NHS secondary care in 2020/21. According to 2020/21 management data based on ERIC data.



Since its inception, the questions set within ERIC have evolved to capture increasing granularity and reflect the changing landscape of the NHS. However, this can make the comparison of information between datasets difficult.

Data inaccuracy presents a challenge to good analysis. A review of the ERIC waste data for 2019/20 shows that of the 1,261 entries from hospitals, 184 reported a zero return (14.5%). Similarly, in 2018/19 there were 1,145 entries, 171 of which reported no returns (15%). There are clear errors in some of the reported data, which are likely to relate to inconsistencies in the use of units (i.e., inserting values in kilograms where tonnes are necessary). The issues associated with these inconsistencies become evident when calculating the costs of waste per tonne recorded by trusts and foundation trusts, which, in 2020/21, ranged between £3.37 and £67,125 per tonne for clinical waste for HTI (table 2).

Table 1 shows a summary of all the waste generation data provided by ERIC over the period from 2018/19 to 2020/21. Reporting error is most evident in the figure for AT waste tonnage in 2020/21.

Table 1: Reported waste tonnage data for all trusts and foundation trusts for financial years 2018/19, 2019/20 and 2020/21. Source: ERIC

Financial year	High temperature incineration (HTI)	Alternative treatment (AT)	Offensive waste (OW)	Clinical waste processed on-site
2018/19	74,363	122,648	36,753	556
2019/20	48,275	64,941	35,751	1,885
2020/21	88,475	793,095	51,164	284

Table 2: Reported range – waste cost per tonne 2020/2021. Source: ERIC

	HTI	AT	OW
Lowest	£3.37	£0.66	£1.14
Highest	£67,125	£1,748	£45,608

Table 2 shows the range in reported cost per tonne of the different waste types. Such a large range indicates issues and inconsistencies in the waste management data reporting process.

This is better demonstrated in the following radial charts (figures 4, 5, 6, 7 and 8) which, grouped by trust type (see key, figure 3), show all individual trust costs reported for HTI, AT and OW. There are clear outliers on each chart, representing data that has been incorrectly reported.

Figure 3: Key for radial charts (figures 9, 10, 11, 12 & 13)

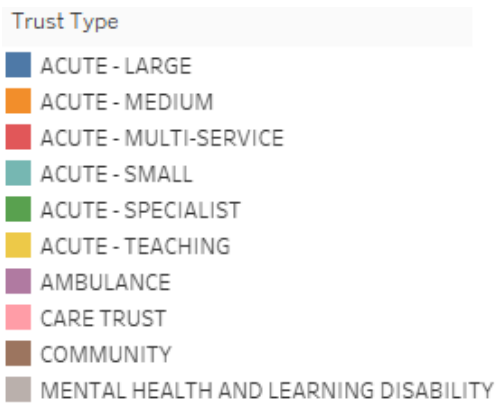


Figure 4: Reported cost (£) per tonne of clinical waste sent for alternative treatment (AT) Source: ERIC 2020/21

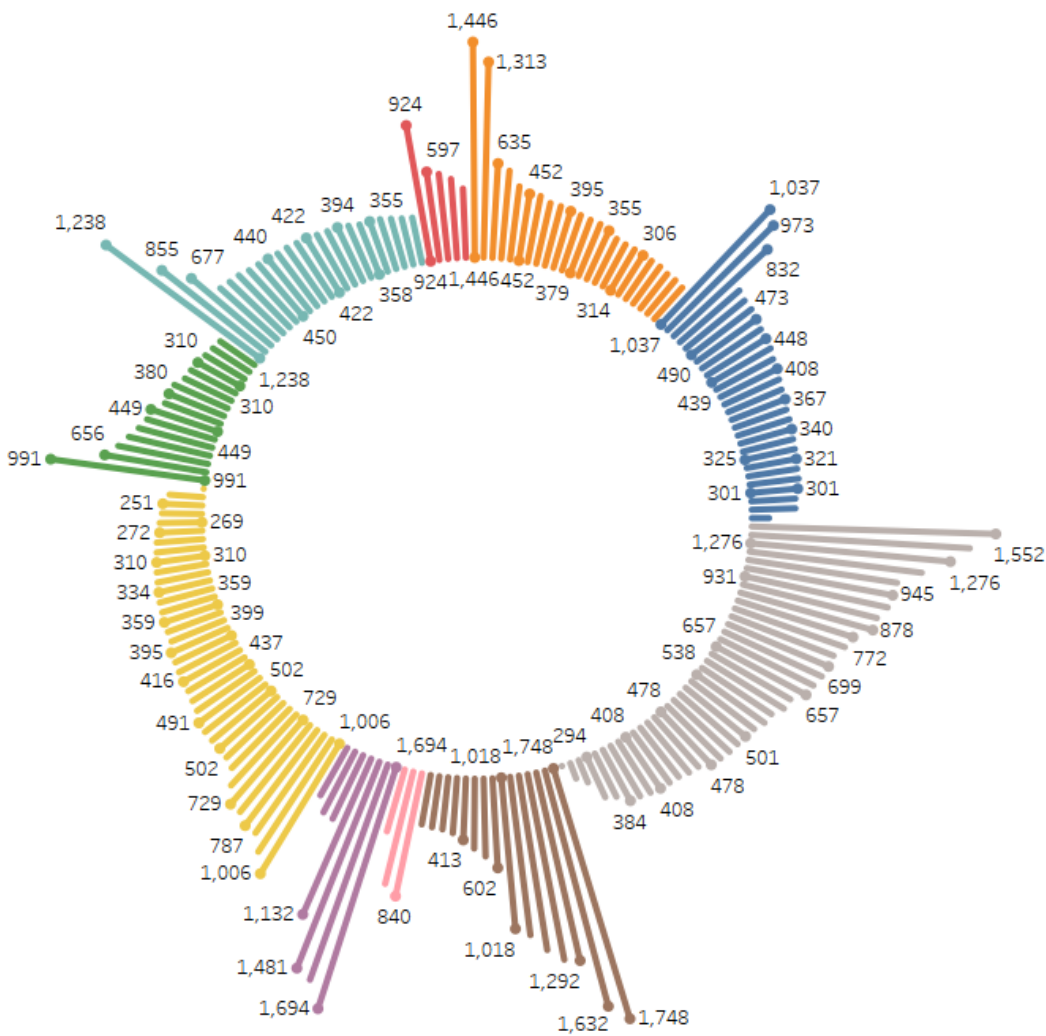


Figure 5: Reported cost (£) per tonne of clinical waste sent for high temperature incineration (HTI). Magnified excluding biggest outliers to better illustrate variation. Source: ERIC 2020/21

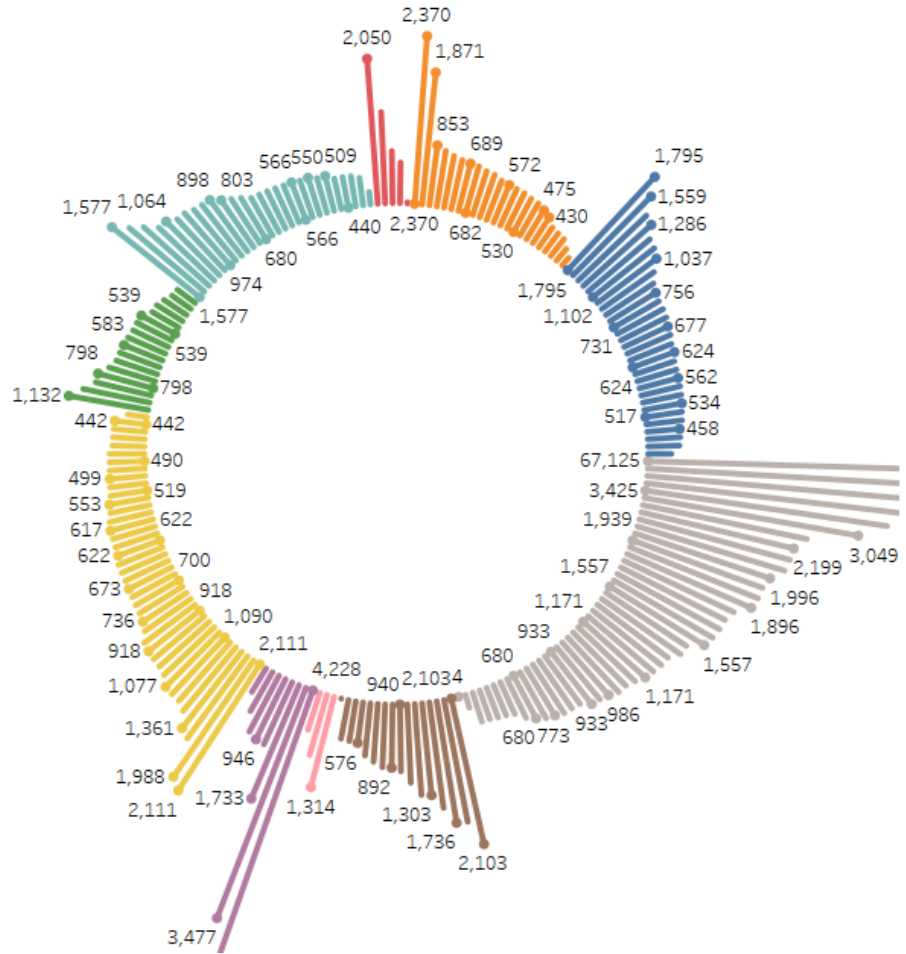


Figure 6: Reported cost (£) per tonne of clinical waste sent for high temperature incineration (HTI). Zoomed out to include biggest outliers. Source: ERIC 2020/21

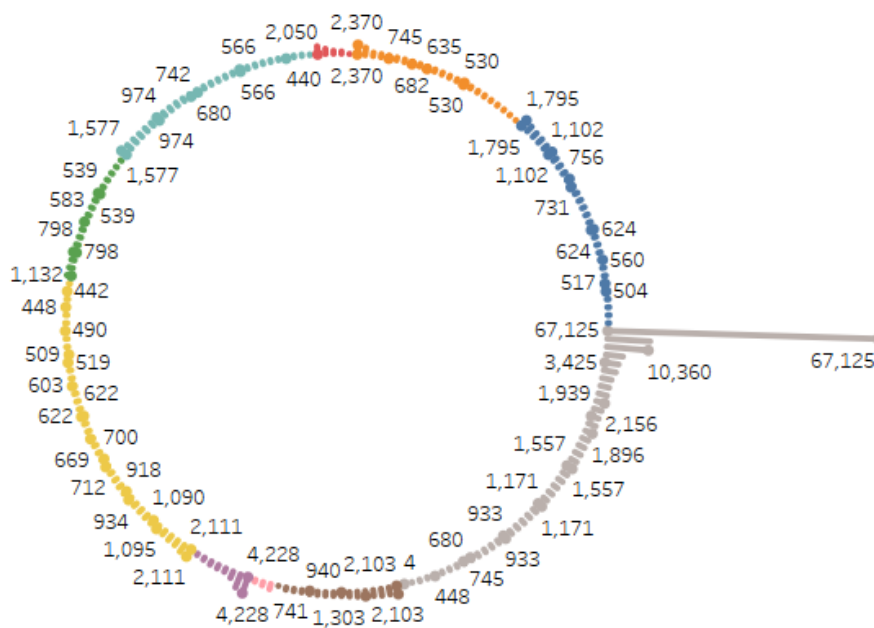


Figure 7: Reported cost (£) per tonne offensive waste (OW). Magnified excluding biggest outliers to better illustrate variation. Source: ERIC 2020/21

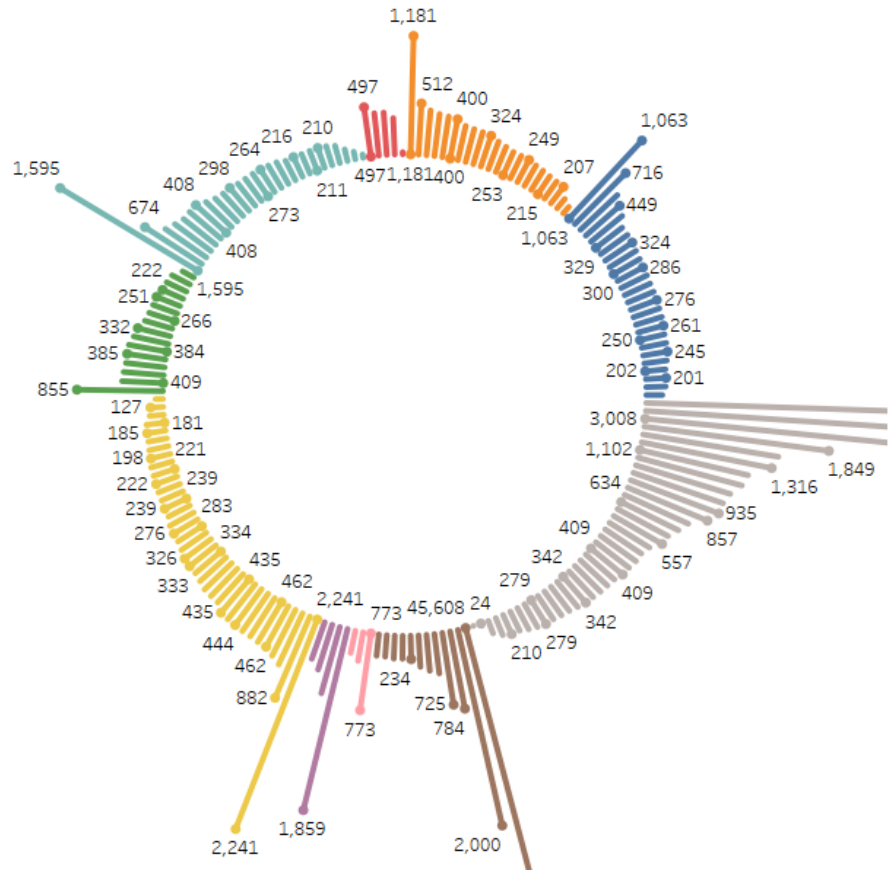
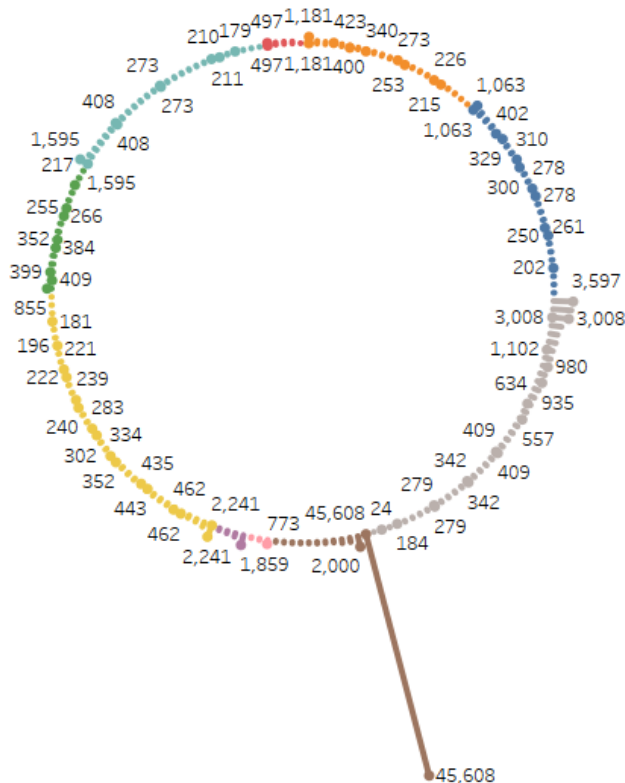


Figure 8: Reported cost (£) per tonne offensive waste (OW). Zoomed out to include biggest outliers. Source: ERIC 2020/21



Despite a willingness to share data, information, and learnings, the maturity, format, robustness, and capture of waste data across NHS organisations is fragmented and inconsistent. A baseline dataset that includes errors or inaccuracies impairs our ability to measure the effectiveness of how we manage waste, including its environmental impact, and limits the analysis that can be used to inform future improvements and steer strategic decisions.

The above findings demonstrate the importance of improving the quality of the baseline of waste-related data submitted to ERIC through more regular and rigorous checking. This is reflected in the key activities and measure of success for the DATA strategic priority in the NHS Clinical Waste Strategy (section 4.1).

Review Findings – Workforce

Every NHS patient and every member of the NHS workforce is likely to create clinical and offensive waste. As such, it is vital that our entire workforce understands its role in supporting the effective management of waste. The 2020 Waste Manager Survey showed that 38% of NHS trusts and foundation trusts include waste management training in their staff induction processes. This means that nearly two thirds of the NHS workforce enter the workplace without basic learning about the types of waste that might be generated and what to do with them. Tackling this training deficit will help to empower our workforce and provide members with the knowledge to make practical and appropriate waste management decisions. Generating awareness and engaging our workforce during the roll-out of the revised “HTM 07-01 Safe and Sustainable Waste Management for Health and Social Care” will be key in helping to achieve this.

Such a need for this universal understanding of waste management was highlighted during the Covid-19 pandemic response in 2020/21, where the sharp increase in waste produced meant that the effective segregation of clinical waste types by all NHS employees was essential to ensuring that national waste treatment capacity was not overwhelmed.

In NHS trusts and foundation trusts, appointed waste managers are responsible for overseeing waste management practices, whilst primary care services typically do not have appointed waste managers. A detailed outline of the different roles for waste management activity in all NHS organisations can be found in Appendix C. There is a need for the roles and responsibilities around waste management to be more consistently defined across all NHS providers and to ensure that each provider has a dedicated resource overseeing its waste-related activities.

Review Findings – Compliance

Clinical waste is categorised according to its hazardous properties and associated treatment and disposal requirements. Sending each type of clinical waste to the most appropriate form of treatment is critical. This can only be achieved through effective classification and segregation at the site of waste production. HTM 07-01 ‘Safe and Sustainable Waste Management for Health and Social Care’ provides

guidance on the correct approach to the classification and segregation of waste, detailing the measures providers should take to comply with the latest legislation. This guidance should be applied throughout the NHS, irrespective of the size or scale of an organisation or site.

Table 3 shows the current (2020/21) fates and volumes of clinical and offensive waste in NHS hospitals by treatment method used. Alongside, it shows the volumes of waste that *could* be sent for each treatment method if effective classification and segregation were implemented. This is based on waste management observation and audit, which indicate that up to 60% of clinical waste can be classed OW, with 20% of clinical waste segregated for AT and 20% for HTI.

Table 3: Fate of NHS hospitals clinical and offensive waste. Source: ERIC 2019/20

Category	Actual annual volume generated	Annual volume if segregated in accordance with target	Actual segregation	Target segregation
HTI	48,368	31,269	31%	20%
AT	79,497	31,269	51%	20%
OW	28,478	93,806	18%	60%

According to the figures in table 3, by segregating our waste in line with this strategy, we would reduce our HTI requirements by 35%, our AT infrastructure requirements by 61% and increase our OW demand by 229%.

Maintaining robust records and audit trails of all waste movements is key to identifying and monitoring whether clinical waste is being sent for the most appropriate treatment. After ensuring as a minimum that waste is segregated correctly, this includes:

- Ensuring that pre-acceptance audits are complete and up to date
- Checking that waste consignment and transfer documentation is correctly completed
- Checking that all parties involved in clinical waste movements are licensed and authorised
- Conducting duty of care audits of the full waste value chain (from production through to treatment or disposal)

These actions, along with improved awareness of compliance requirements across the workforce, specifically amongst those with direct responsibility for waste management, are essential to complying with waste management legislation and to ensuring that waste movements can be accurately tracked and reported.



Key Theme 2: Resilience

The second key theme to come out of the national review of clinical waste management is the need to increase the resilience of clinical waste management in the NHS. This was identified as important following the approximately 300% increase in clinical waste tonnages produced during the Covid-19 pandemic, which resulted in major pressure across the healthcare system.

Review Findings – Commercial

According to ERIC in 2019/20, NHS trusts and foundation trusts collectively reported a spend of £135m on overall waste management (a 17% increase on the previous year), of which £67.6m was spent managing clinical waste (16% increase). In 2018/19, it was estimated that managing clinical waste for General Practices and community pharmacies cost around £21m.

The existing clinical waste handling and processing market is highly concentrated, with the four largest waste management providers responsible for handling over 85% of total NHS clinical waste tonnage (figures 14 and 15). There is scope for greater transparency around the contracting arrangements between the organisations producing waste and those managing it, especially with respect to types of contracts used, expected service standards, and prices paid per tonne of waste.

Greater transparency would support NHS England to have a better understanding of current capacity, and contract type and length for managing waste amongst NHS providers. A small number of clinical waste management providers, a limited

network of processing infrastructure, and a high demand for waste treatment has resulted in increases in NHS waste treatment costs. The total reported cost by hospitals for HTI increased by 9% from £27.4m to £29.8m between 2018/19 and 2019/20, whilst the reported cost of AT increased by 20% from £22.7m to £27.2m (table 4).

Based on current levels of segregation and should we not take action to reduce waste volumes, we estimate that the total cost of managing clinical waste and OW will increase significantly, potentially up to three times current costs by 2029/2030.

Table 4: Costs of clinical and offensive waste management in NHS trusts and NHS foundation trusts. Source: ERIC 2018/19 and 2019/20

Category	Total Cost (2018/19) (£)	Total Cost (2019/20) (£)	Change (%)	Average Cost per Tonne (2019/20) (£)
HTI	27,370,587	29,796,371	9%	617
AT	22,674,599	27,178,101	20%	419
OW	8,332,092	10,663,320	28%	298
Total	58,377,267	67,637,792	17% (Av.)	454 (Av.)

Improved segregation would significantly reduce the average price per tonne of clinical waste managed in the NHS due to the lower costs associated with the treatment of OW: The approximate average price per tonne of waste for HTI in 2019/20 was £617, in comparison to £419 for AT and £298 for OW treatment. However, it should be noted that there is significant regional variation in the average reported price (via ERIC) paid by trusts and foundation trusts for clinical waste treatment, which is a consequence of the varied geographic distribution of waste management infrastructure and associated competition, alongside inconsistencies in data reporting.

There has been a reduction in new entrants of waste management suppliers to the market due to a variety of factors including high levels of regulation and capital investment required to build new plants. There is a necessity to adopt a more strategic, longer-term approach to support widening the pool of service providers in the market.

Figure 9: Waste management market share by tonnage of clinical and offensive waste produced in hospitals. Source: NHS England waste manager survey, 2020.

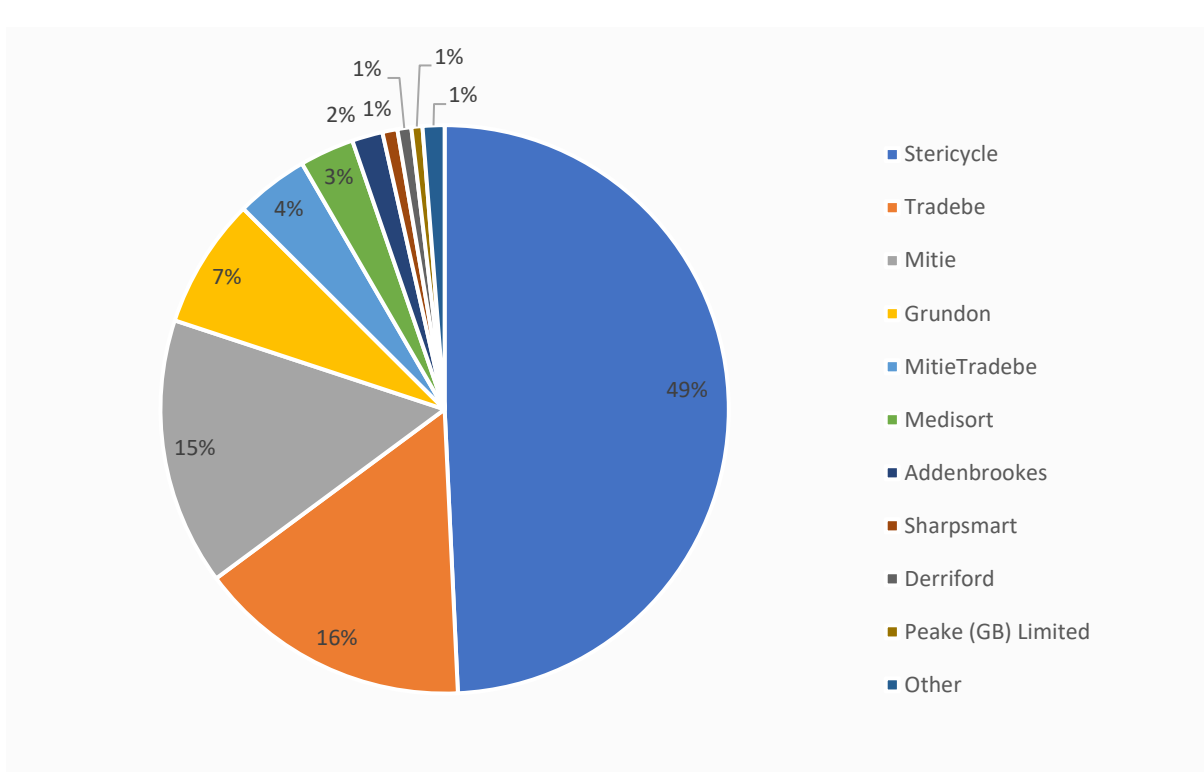
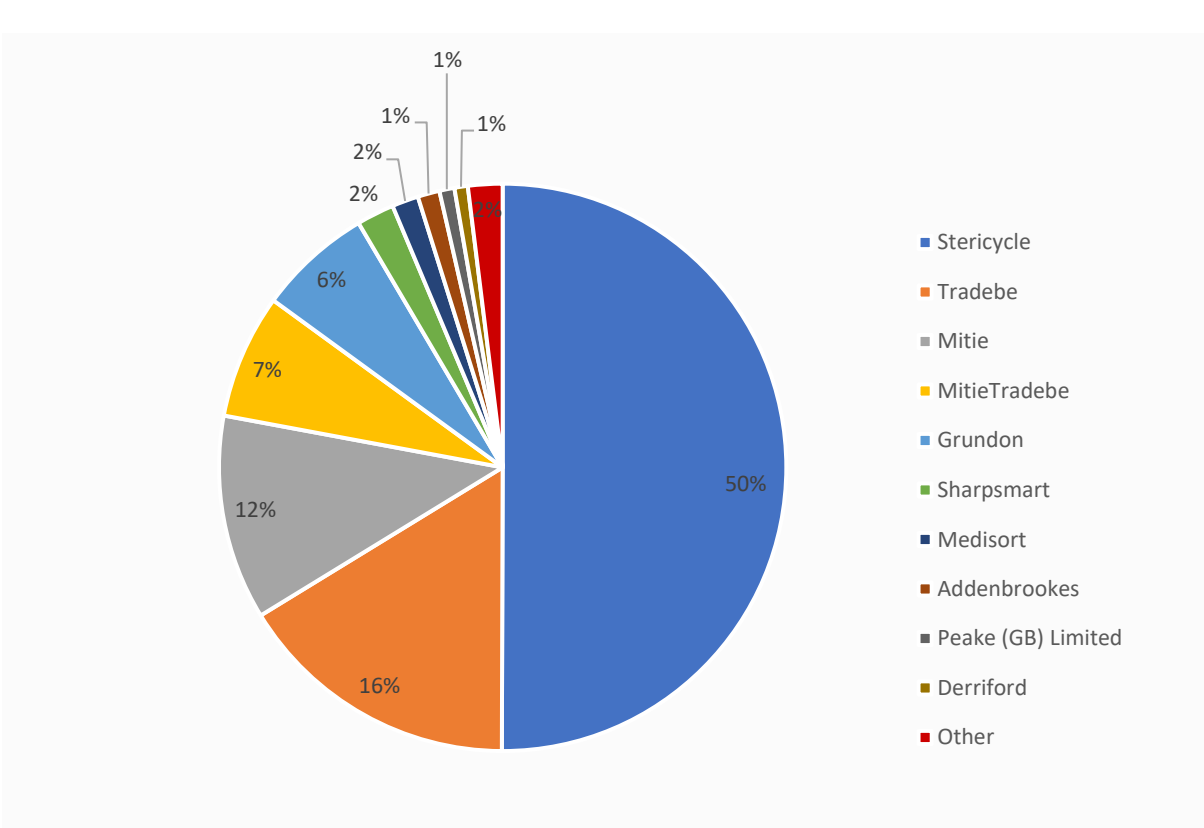


Figure 10: Waste management market share by value of clinical and offensive waste produced in hospitals. Source: NHS England waste manager survey, 2020.

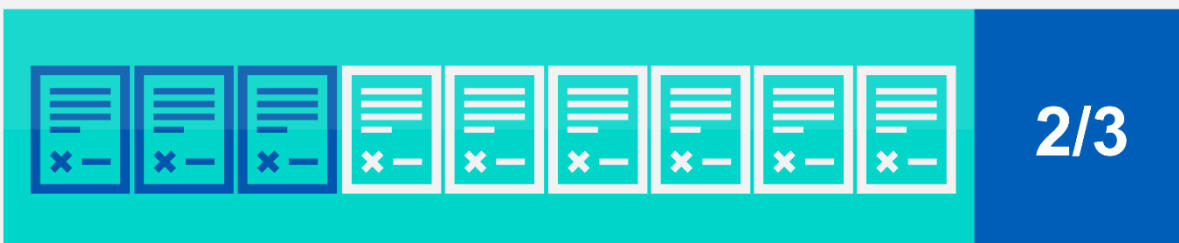


Approaches to the outsourcing of waste management services in the NHS are inconsistent, with waste contracts procured and monitored on a fragmented basis. The proximity of sites to waste management infrastructure is also a factor relating to variation. Overall, this lack of standardisation leads to inefficiencies.

These findings demonstrate that there is an opportunity in the NHS to introduce greater consistency into the outsourcing of clinical waste services, and a framework of standards that service providers are expected to achieve. Increasing the visibility of outsourcing arrangements to the national Estates team, standardising the approach to clinical waste contracting, and clearly defining the monitoring and contract management arrangements for their governance will help to deliver a commercial model for NHS waste management that improves consistency, enhances standards, and achieves better value. In doing the above, we can work towards establishing longer-term strategic relationships with the suppliers in the market who prioritise better value and service quality.



74% of existing waste managers do not have **formal contract management training**



Approximately two thirds of existing general practice and community pharmacy clinical waste management contracts were **not commissioned via the most recent procurement programme**

Review Findings – Infrastructure

The infrastructure used in clinical waste management is critical to the safe and effective processing of the circa 150,000 tonnes of clinical waste generated every year by the NHS.¹

Review findings showed that: some older clinical waste management infrastructure is not performing to permitted limits; many service contracts do not include lifecycle

¹ Source: ERIC

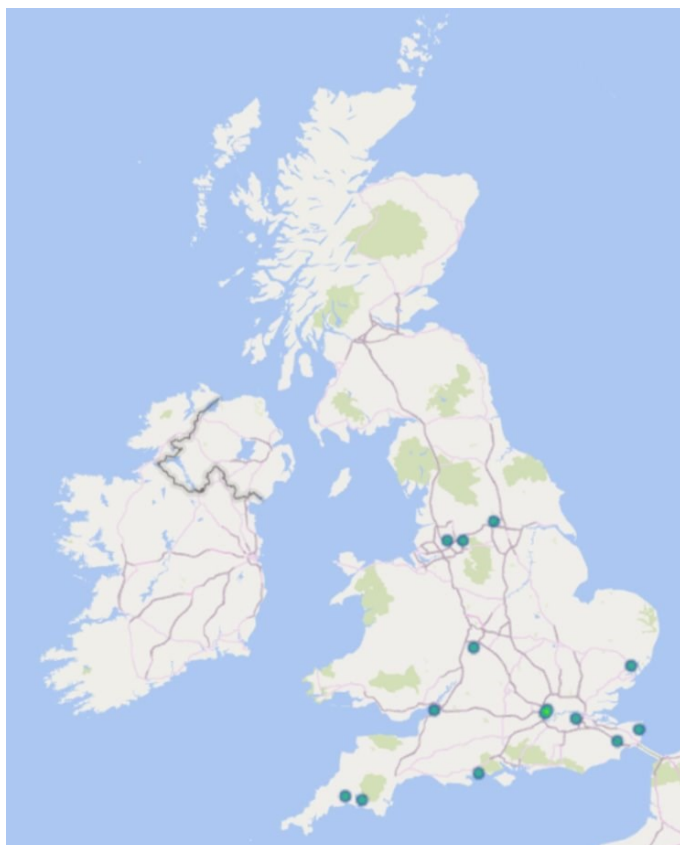
maintenance, leaving some waste processing facilities requiring costly refurbishment work to remain in operation; and the network of infrastructure is not well aligned with local NHS needs, resulting in long transits which increase cost and carbon emissions.

Clinical Waste Incineration (High Temperature Incineration)

Many existing clinical waste incinerators were built in the 1990s. Increased requirements to segregate and treat waste differently (affecting waste mix) and stricter emissions controls over time have made the plant more difficult to operate and more susceptible to shutdowns and breakdowns. Replacing these incinerators will be very costly and extremely difficult due to public opinion with regard to incinerators. Trusts have reported that unplanned shutdowns of external waste management facilities due to maintenance issues can leave them with no alternatives for processing waste, due to the stretched capacity across the system.

Furthermore, NHS providers in different regions may be receiving different levels of service due to their proximity to full or nearly at-capacity treatment facilities (see figure 11). The regions of England that appear to have insufficient clinical waste capacity include the South, the East of England, and the North East & Yorkshire. It is possible that the South and East of England regions could take advantage of spare capacity within London, however the North East & Yorkshire region is particularly under-served, having only one facility based in Leeds, a significant distance from hospitals and other healthcare sites located to the north of the region.

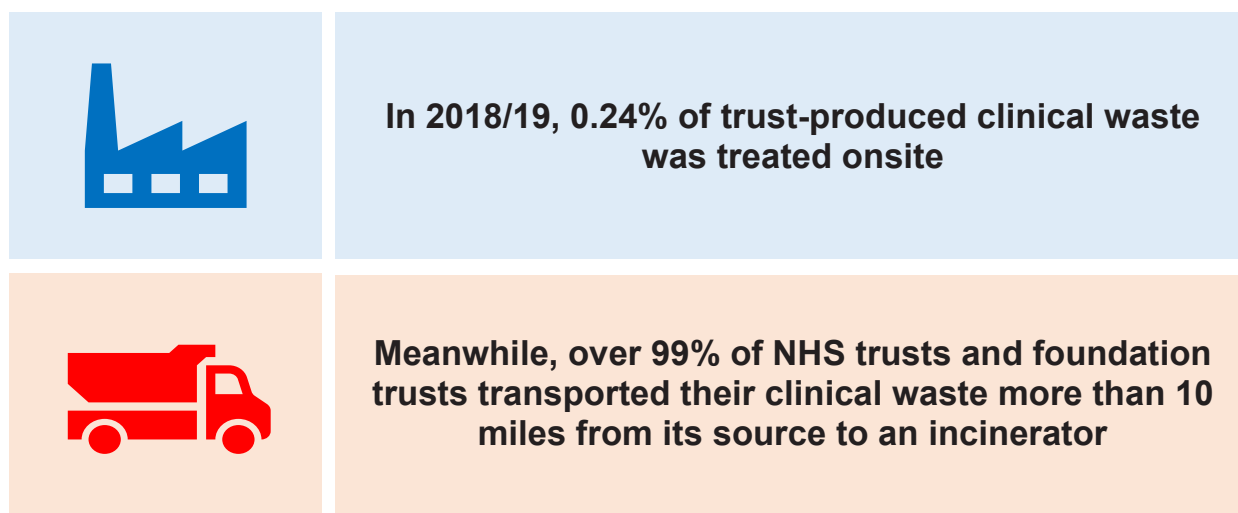
Figure 11: Locations of clinical waste incinerators in England (2019)



Alternative Treatment

Based on historical data, the North West and London regions appear to have a scarcity of AT capacity. However, London NHS trusts and foundation trusts are likely to be using spare capacity within the South East and East of England regions.

Full detail on regional capacity data for both HTI and AT waste treatment facilities in England is included Appendix B: Regional capacity. Each clinical waste facility for either HTI or AT in England is identified, and an assessment of the capacity gaps for each commissioning region, comparing permitted capacity with quantity of waste sent for either treatment type in 2018/19 and 2019/20, is included.



Offensive Waste

According to HTM 07-01, offensive/hygiene waste is waste that is non-infectious but may cause offence due to the presence of recognisable healthcare waste items, body fluids, or odour. OW can be treated or disposed of in a similar manner to municipal waste, which may include conventional Energy from Waste (EfW) treatment.

Infrastructure Contracts

The model under which waste treatment infrastructure is provided in England does not meet the current or future waste management needs of the NHS. Review findings indicate that there is little or no incentive for existing facilities to be upgraded to meet the NHS' needs, as the contracts under which treatment arrangements are procured do not adequately incentivise investment (being typically short in duration), and feature either limited or no required service standards or penalties for unavailability.

The prospect of shifting away from the NHS' current reliance on merchant third-party infrastructure for waste treatment offers benefits such as increased onsite

processing capacity and self-sufficiency. The development of onsite treatment facilities would help to improve the geographic distribution of processing capacity across the country. It would also reduce the need for waste to be transported long distances, helping us to achieve our net zero carbon commitments by removing an estimated 2,000,000 road miles from transport. As such, onsite waste treatment should be a key consideration when developing plans for new hospitals. This is addressed by the NHS Clinical Waste Strategy strategic priority for INFRASTRUCTURE, section 4.5.

Resilience

The combined impact of the issues with infrastructure and capacity described in this section contributed to the increased pressure placed on the UK's clinical waste processing capacity during the Covid-19 pandemic. This has further highlighted the need for improved resilience within the system regarding waste management and treatment infrastructure.

Key Theme 3: Net Zero Carbon

Review Findings – Sustainability

Overview: Delivering a Net Zero NHS

In 2020, the NHS declared its intention to achieve net zero carbon by 2040 for its core emissions: the first healthcare provider in the world to do so. This is detailed in the [Delivering a Net Zero National Health Service report](#), which set the following targets:

- **For the emissions we control directly (the NHS Carbon Footprint), net zero by 2040, with an ambition to reach an 80% reduction by 2028 to 2032.**
- **For the emissions we can influence (our NHS Carbon Footprint Plus), net zero by 2045, with an ambition to reach an 80% reduction by 2036 to 2039.**

As such, reducing carbon emissions and environmental impacts resulting from waste and waste management has become a key focus of the NHS' Clinical Waste Strategy.

Figure 12 breaks down the components of the NHS Carbon Footprint and Carbon Footprint Plus together. It shows that water and waste account for approximately 5% of the overall NHS Carbon Footprint. Waste management processes in the NHS account for about 2.5% of its overall carbon footprint. Figure 13 breaks down CO₂e emissions produced from NHS waste by type of waste.

Figure 12: Components of the NHS Carbon Footprint

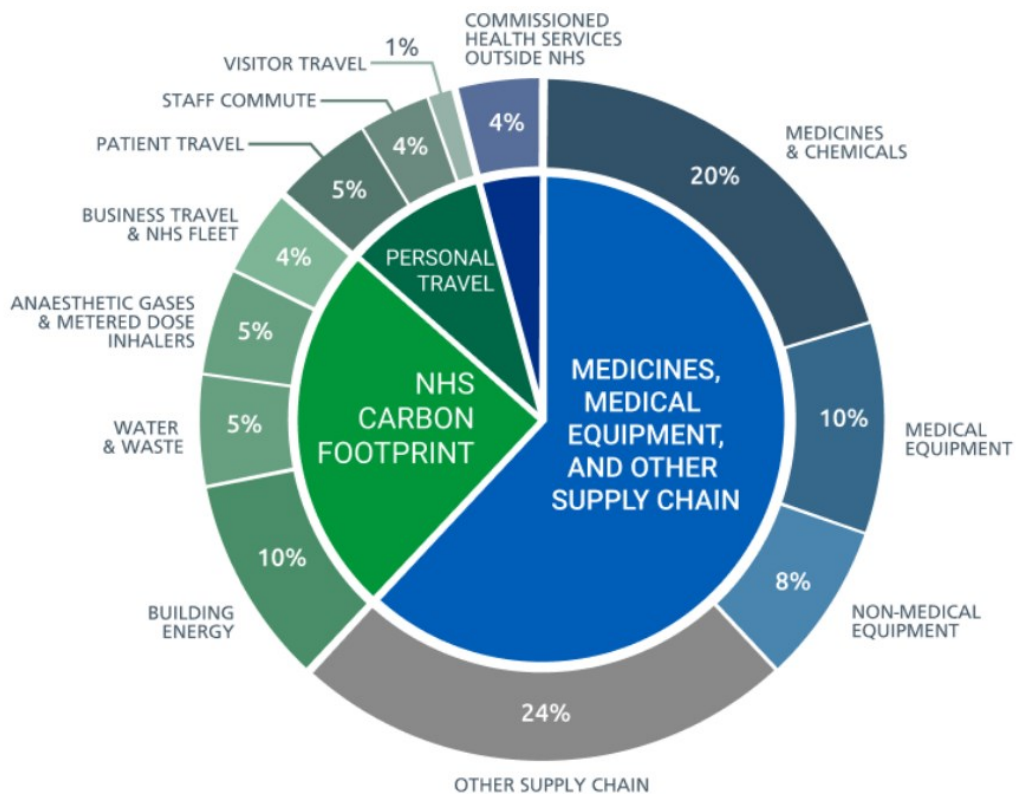
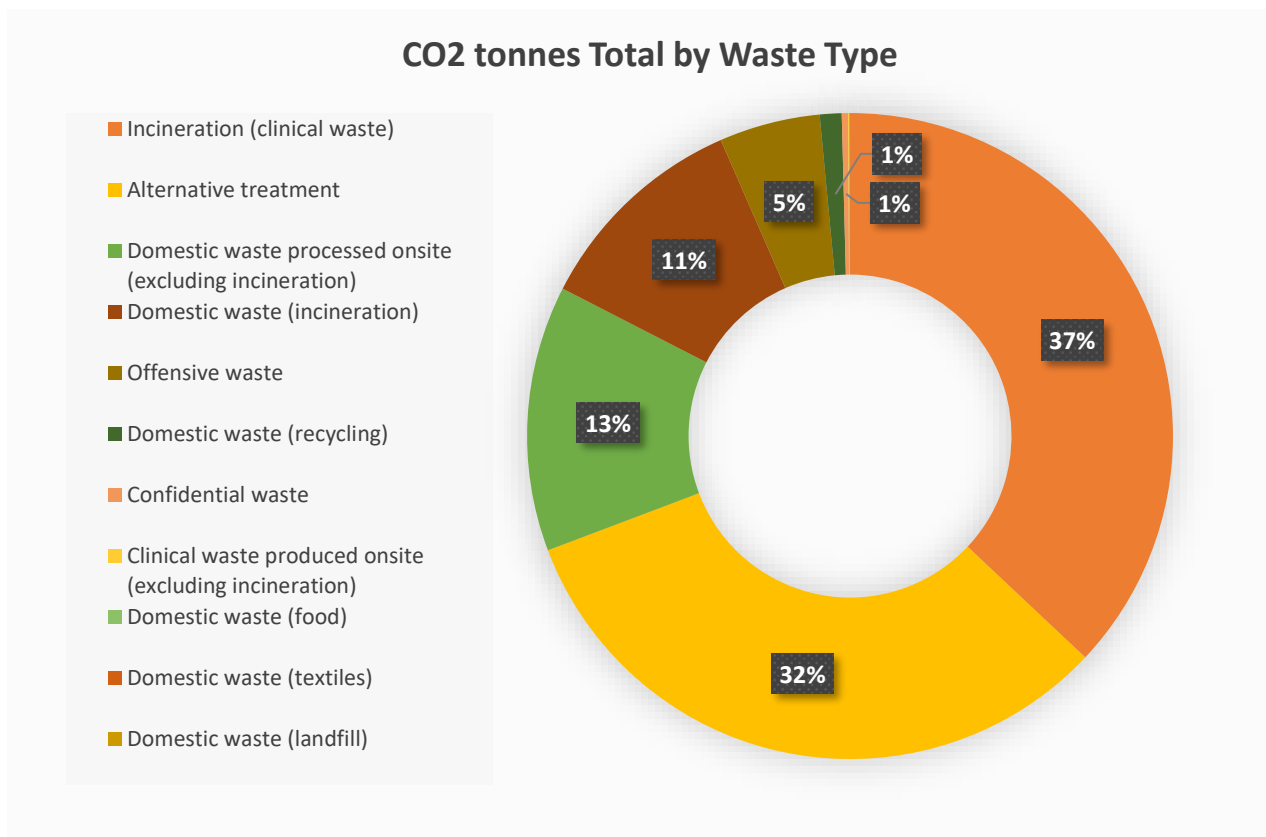


Figure 13: Tonnes of CO₂ produced annually from NHS waste by type (source: ERIC 2019/20)



NHS trusts and foundation trusts currently produce approximately 377,000 tonnes of waste every year, which in turn outputs 140,000 tonnes of CO₂e.² To deliver the NHS' net zero carbon targets, we must reduce these outputs significantly. The nature and scale of this challenge is such that NHS trusts should be seeking to achieve a 50% reduction in carbon outputs by 2025 en route to achieving an 80% reduction by 2028-32.

The need for a significant shift in mindset around waste management in the NHS is clear if we are to achieve the carbon reductions laid out in the **Delivering a Net Zero National Health Service** report.

First, we need to not only measure tonnes of waste but also tonnes of CO₂e and produce ambitious plans for reducing waste emissions. When making decisions about waste management, prioritising activities such as waste avoidance and waste reuse as per the Waste Hierarchy (figure 2 in the NHS Clinical Waste Strategy), offers the greatest possible route to significant reductions in waste and CO₂e tonnage in the NHS.

Waste management contracts should incorporate vigorous and deliverable CO₂e reduction strategies which include – but are not limited to – reducing waste and waste miles, increasing onsite waste treatment, and eliminating landfilled waste. Meanwhile, waste managers will need to work closely across all NHS departments and with procurement colleagues to eliminate/reduce single-use items and packaging, whilst increasing reuse.

Environmental and Social Impacts of Waste, and Key Principles in Sustainable Waste Management

Sustainable waste management is key not only in achieving the NHS' carbon reduction targets, but also in helping to ensure that the negative environmental and social impacts of waste are minimised as much as reasonably practicable, whilst positive impacts are enhanced. Interventions relating to this are described in **Figure 14**.

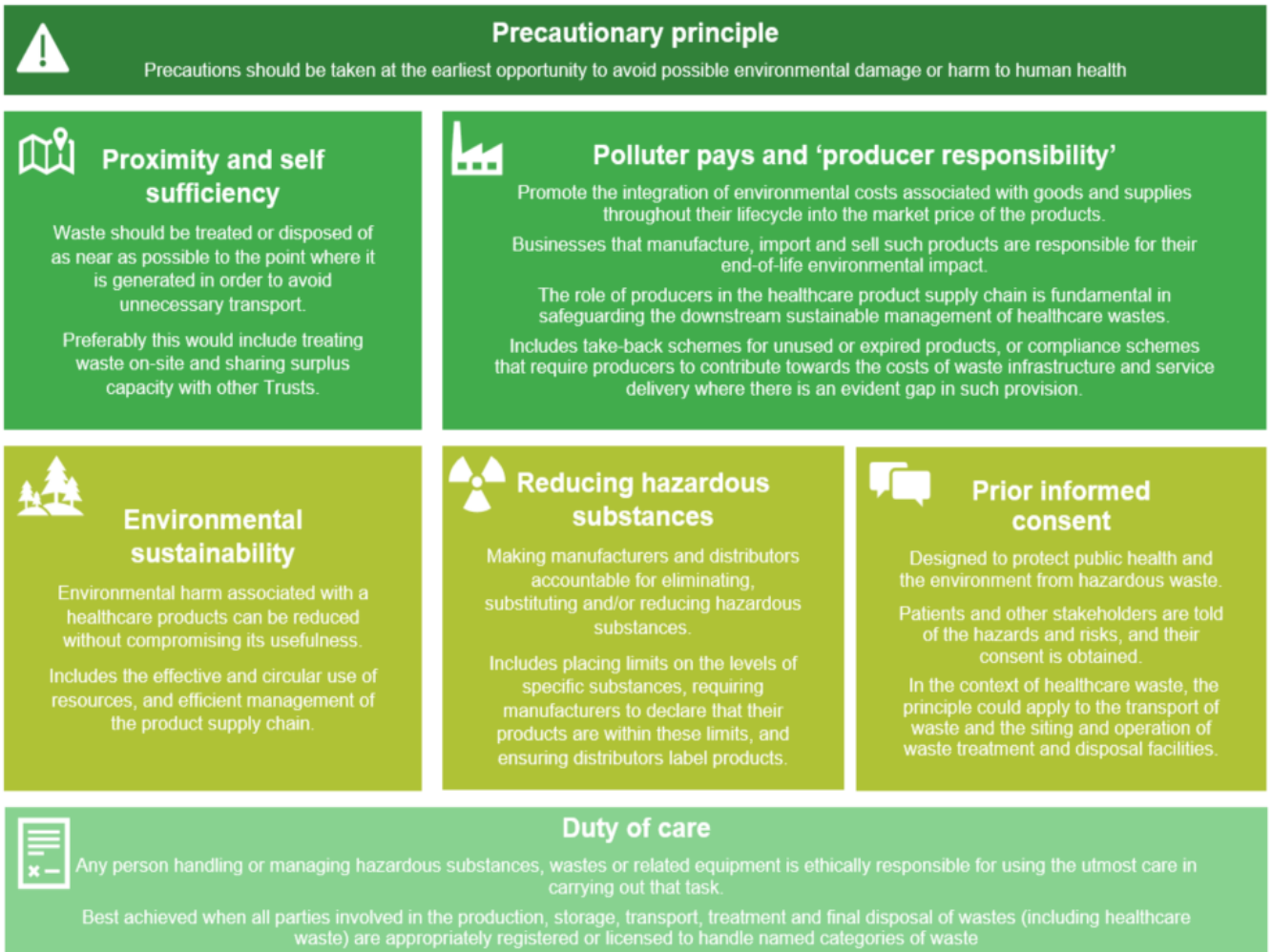
² Based on ERIC data 2020/21

Figure 149: The importance of sustainable waste management



Figure 15 summarises the key principles for the NHS associated with the implementation of well-defined and sustainable waste management practices. These form the foundation of short, medium, and long-term decision-making, and should be used as the basis upon which policy, targets and aspirations are set when it comes to sustainable waste management. The ensuing subheadings further recap each principle and how it interacts with the NHS Clinical Waste Strategy.

Figure 1510: Key principles in sustainable waste management for the NHS



Precautionary principle

This principle involves taking precautions now to avoid possible environmental damage or harm to human health in the future.

By addressing the strategic priorities and adopting the actions set out in the NHS Clinical Waste Strategy, we are placing the NHS in the best possible position to prevent potential environmental damage or harm to human health in the future.

Proximity and self-sufficiency

The proximity principle means that waste should be treated or disposed of as near as possible to the point at which it arises. The principle aims to avoid the adverse environmental impacts of unnecessary waste transport.

The application of this principle will vary according to type of waste, location-specific parameters, community issues, waste volumes, the potential environmental

impacts of waste treatment methods, and mode of transport. There must also be a balance between the proximity principle and economies of scale. In certain cases, economies of scale may mean that some specialist treatment, recovery, or disposal operations are located far from the point at which waste arises.

The NHS Clinical Waste Strategy aims to address the infrastructure and treatment capacity gap so that long term plans can be developed to create a more resilient network. It advocates for investment in onsite treatment capability and for the sharing of surplus capacity between NHS providers, where available, with the aim of reducing clinical waste mileage and movements and their associated carbon footprint. (NHS Clinical Waste Strategy, 4.5 INFRASTRUCTURE)

Polluter pays and ‘producer responsibility’

Producer responsibility is designed to integrate the environmental costs associated with goods throughout their lifecycles into the market price of products. It is about making sure that organisations which manufacture, import, and sell such products are responsible for their end-of-life environmental impact. For example, producer responsibility laws have been developed to cover packaging, electrical and electronic equipment (EEE), and batteries with the intention of:

- Minimising the waste arising from these products and promoting their re-use
- Ensuring the waste products are treated and meet recovery and recycling targets for the waste materials
- Designing products by reducing material use and enhancing reusability and recyclability

The NHS Clinical Waste Strategy encourages sustainable procurement so that we engage with suppliers (and purchase products) who minimise environmental harm, promote resource efficiency, and support correct application of the Waste Hierarchy. (NHS Clinical Waste Strategy, 4.6 SUSTAINABILITY)

Duty of care

Waste “duty of care” means that anyone who produces, imports, keeps, stores, transports, treats, or disposes of waste must take all reasonable steps to ensure that it is managed properly from “cradle to grave”. This places a legal responsibility on all organisations that handle waste. This is an important overriding principle and, when effectively applied, can be used to govern waste regulation by ensuring that appropriate licensing and permitting controls are in place to avoid unnecessary harm to the environment.

The Clinical Waste Strategy advocates full compliance with duty of care requirements, supporting an improvement in workforce awareness and adherence. (NHS Clinical Waste Strategy, 4.2 WORKFORCE; 4.4 COMMERCIALS)

Reduction of hazardous substances

Mechanisms can be introduced making manufacturers and distributors more accountable for the levels of hazardous substances contained in healthcare products. This can include placing limits on permitted levels of specific hazardous substances in products whilst maintaining clinical effectiveness; requiring manufacturers to declare that their products are within these limits or to address the reasons they are not; and ensuring that distributors label products to this effect.

The NHS Clinical Waste Strategy aims to reduce hazardous waste in the supply chain, requiring health product suppliers to sign up to improved standards, including in product manufacture and distribution. (NHS Clinical Waste Strategy, 4.3 COMPLIANCE)

Environmental sustainability and carbon impact

Environmental sustainability can be demonstrated when demands placed on the environment can be met without reducing its capacity to allow people to live well, now and in the future. This includes dramatically reducing carbon emissions which contribute to climate change.

The NHS' commitment to net zero carbon emissions has two major target dates:

- *2040 for the NHS Carbon Footprint (emissions we control directly)*
- *2045 for the NHS Carbon Footprint Plus (emissions we can influence)*

Efforts to minimise the use of incineration to treat clinical waste will be essential to meeting these targets, with AT and OW treatment methods likely to produce considerably less carbon emissions than HTI. (NHS Clinical Waste Strategy, 4.3 COMPLIANCE)

The Waste Hierarchy

Sustainable waste management means using resources more efficiently, reducing volumes of waste produced and, where waste is generated, dealing with it in a way that is environmentally sustainable in the long-term. This is of specific significance for clinical waste management considering the given environmental and health risks associated with managing potentially hazardous substances and infectious wastes. Waste management activity within the NHS should therefore be driven by and assessed against compliance with the Waste Hierarchy (NHS Clinical Waste Strategy, figure 3).

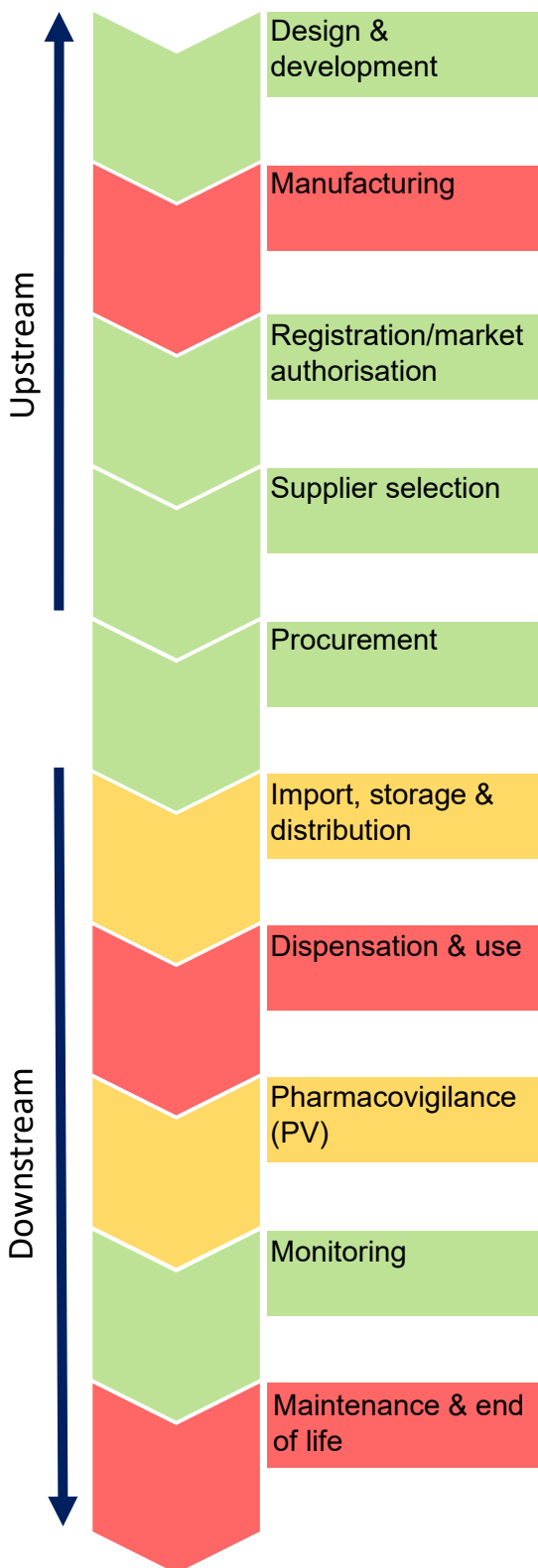
The Hierarchy provides an order of priority when making waste management decisions. Key considerations to have when following it include:

- Assessment of how the waste in question is currently managed and whether initiatives can be established to prevent it from being produced in the first place, or to prepare it for reuse (e.g., by washing, sterilising, or cleaning)
- Whether any, or any more, of the waste material could be recycled

- Understanding how resources can be extracted from the waste, such as energy or products
- Treating or disposing of any remaining waste in a safe manner that is compliant with legislation

There are clear opportunities to reduce the overall amount of waste generated by the NHS, and to increase levels of recycling and re-circulation. Interventions in the health product supply chain will be critical in achieving this. For example, packaging (which often features high quantities of single use plastic) is thought to account for between 20-30% of clinical waste and OW. Effective health product procurement is key to minimising both the volumes and types of waste generated in the NHS, with decisions on supplier and health product selection influencing downstream waste management outcomes.

Figure 16: Health product supply chain



HTM07-01 “Safe and Sustainable Waste Management for Health and Social Care” provides guidance about the practical steps that can be taken, and examples of the methods that can be used to comply with the Waste Hierarchy priorities (for example, internal repair and reuse of equipment).

Additionally, the **Delivering a Net Zero National Health Service** report further details our ambition to reduce the use of single use plastics and seeks to explore new innovative methods for processing and treating waste.

Appendix B: Regional capacity

The following tables identify the clinical waste treatment plants currently in use and their operating capacities in the 7 regions of England.

Table 5: North West region clinical waste treatment plants and operating capacity

Operator	Treatment	Operating	Site	Max Operating per Annum (tpa)
SRCL	HTI	Yes	Bolton	5,840
SRCL	HTI	Yes	Oldham	7,300
Veolia	HTI	Yes	Ellesmere Port	6,800
SRCL	AT	Yes	Knowsley	10,950

Table 6: North East and Yorkshire region clinical waste treatment plants and operating capacity

Operator	Treatment	Operating	Site	Max Operating per Annum (tpa)
SRCL	HTI	Yes	Knostrop	16,060
Sharpsmart	AT	Yes	Normanton 1	10,050

Table 7: Midlands region clinical waste treatments plants and operating capacity

Operator	Treatment	Operating	Site	Max Operating per Annum (tpa)
Tradebe Healthcare	HTI	Yes	Redditch	10,000
Veolia	HTI	Yes	Tyseley	4,600
Cliniwaste	AT	Yes	Nottingham	18,250
SRCL	AT	Yes	Telford	17,520

Table 8: East of England region clinical waste treatment plants and operating capacity

Operator	Treatment	Operating	Site	Max Operating per Annum (tpa)
SRCL	HTI	Yes	Ipswich	8,760
Addenbrookes	HTI	Yes	Addenbrookes 1	2,000
Addenbrookes	HTI	Yes	Addenbrookes 2	2,000
Novus	AT	Yes	Novus Environmental	8,500

Table 9: South East region clinical waste treatment plants and operating capacity

Operator	Treatment	Operating	Site	Max Operating per Annum (tpa)
SRCL	HTI	Yes	Ashford	8,760
Wastecare	HTI	Yes	East Kent	5,200
Tradebe Healthcare	HTI	Yes	Fawley	4,353
Tradebe Healthcare	AT	Yes	Rochester	24,000
Medisort	AT	Yes	Littlehampton	8,000
SRCL	AT	Yes	Larkfield	16,060
Tradebe Healthcare	AT	Yes	Rochester	24,000
Medisort	AT	Yes	Littlehampton	8,000
Albus	AT	Yes	Dartford	5,840

Table 10: South West region clinical waste treatment plants and operating capacity

Operator	Treatment	Operating	Site	Max Operating per Annum (tpa)
Clinipower	HTI	Yes	Avonmouth	3,650
SRCL	HTI	Yes	Avonmouth	5,475
SRCL	HTI	Yes	Bournemouth	8,395
DWMS	HTI	Yes	Plymouth	3,650
Clinipower	AT	Yes	Avonmouth	5,475
Tradebe Healthcare	AT	Yes	Swindon	8,000

Table 11: London region clinical waste treatment plants and operating capacity

Operator	Treatment	Operating	Site	Max Operating per Annum (tpa)
SRCL	HTI	Yes	Sidcup	8,395
Grundon	HTI	Yes	Colnbrook	6,800
Sharpsmart	AT	Yes	Rainham	6,570
Grundon	AT	Yes	Knowl Hill	10,000

Appendix C: NHS roles and waste management responsibilities

Table 12: NHS typical roles and associated responsibility for waste management (source: HTM 07-01).

Position/Group		Role in waste management
Organisation Chairperson	Hospitals Healthcare Facilities	<p>Ensure the governance procedures required in HTM 07-01 are established across the health organisation to avoid non-compliance leading to enforcement actions by the regulator.</p> <p>Provide capital resources to implement HTM 07-01 across the healthcare organisations.</p>
Estates and Facilities Director	Hospitals Healthcare Facilities	<p>Ensure the safe and compliant management of waste.</p> <p>Direct and support the establishment and management of on-site waste infrastructure and services.</p>
Waste Manager	Hospitals Healthcare Facilities	<p>Develop and implement waste policies and organisation-specific guidance in line with current legislation; be accountable for implementation of HTM 07-01.</p> <p>Promote and provide the structure and resources to allow the effective segregation of clinical waste.</p> <p>Collate and report all accurate waste data as required in ERIC and ensure compliance with duty of care responsibilities.</p>
Steering Group	Corporate	<p>Develop tools to monitor implementation of HTM 07-01.</p> <p>Recommend actions with timeline for implementation where gaps are identified from a compliance perspective.</p>
Dangerous Goods Safety Advisor	Hospitals Healthcare Facilities	Externally sourced third-party 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	<p>Compliant segregation of waste at source.</p> <p>Implementation of waste hierarchy.</p>
Consultants	Hospitals Healthcare Facilities	Segregate waste at source and assist in the development of strategies for sustainable purchasing
Procurement Managers	Hospitals Healthcare Facilities	<p>Deliver the safe and sustainable selection of products and waste services.</p> <p>Implement sustainable procurement initiatives.</p>

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 Advisor	Hospitals Healthcare Facilities	Advise on the disposal and management of radioactive waste.