

Safe Disposal of Waste Literature Review

Executive Summary

Version 1.0

13 March 2025

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This literature review informs the 'safe disposal of waste' content in the National Infection Prevention and Control Manual (NIPCM) ([sections 1.4 'Personal Protective Equipment'](#) and [1.9 'Safe Disposal of Waste \(including sharps\)'](#) in Chapter 1) and the Care Home Infection Prevention and Control Manual (CHIPCM) ([sections 4 'Personal Protective Equipment'](#) and [section 9 'Safe Disposal of Waste \(including sharps\)'](#)). Updates have been made to the glossary relevant to this literature review.

There are three documents to note:

1. **Literature review** which provides a comprehensive systematic review of the evidence.
2. **Considered judgement forms** which outline the evidence base and expert opinion used to develop the recommendations and good practice points for each literature review research question. Also detailed are the benefits, potential harms, feasibility of implementation, value judgements, intentional vagueness, and exceptions associated with the recommendations and good practice points.
3. **Evidence tables** which detail all the included studies and provide an assessment of the evidence for each research question of the literature review.

Scope

Research Questions

There are 12 research questions (RQs) in this literature review. Two new RQs were added in this update, relating to placement of waste receptacles and management of non-hazardous waste (RQ 5 and 8 respectively). Other research questions were altered and some research questions were amalgamated to clearly capture the stages of waste disposal:

- Legislative requirements are described in RQ1 and throughout the review, where applicable.

- RQs 2 and 3 cover categorisation and segregation of waste in health and care settings.
- RQs 4 and 5 cover requirements for waste receptacles and their placement.
- RQs 6 to 8 cover filling and sealing waste receptacles, and requirements for handling special (hazardous) waste and non-hazardous waste.
- RQs 9 to 12 cover labelling and tagging, transportation of waste, storage of waste and management of waste spills.

Change to practice

There is no significant change to practice expected as a result of this literature review update. It is understood that recommendations (R) and good practice points (GPP) developed are reflective of current practice.

Changes to Recommendations and Good Practice Points

Although new recommendations and good practice points have been developed, these are reflective of current practice and the evidence base, including the most recent version of [NHSScotland Waste Management Guidance Scottish Health Technical Note \(SHTN\) 03-01](#). Examples include GPPs on placement of waste receptacles (GPP5.1), not compressing waste bags (GPP7.1) and sharps spills management (GPP12.5).

SHTN 03-01 is signposted for a comprehensive list of waste streams ([GPP2.1](#)), with those most frequently used in health and care settings described in the NIPCM. It should be noted that this review update has moved away from describing ‘main categories’ of waste and focuses on segregation by waste stream as per legislation, aligning with the evidence including SHTN 03-01 (see literature review sections 3.1.2 and 3.1.3). As such, recommendations and GPPs regarding waste segregation and management align with this terminology.

In line with changes to guidance on liquid waste disposal, including SHTN 03-01, a new recommendation and GPP have been added ([R7.1](#) and [GPP7.4](#)).

GPPs regarding transportation of waste in health and care settings now make clear where they are relevant to transportation of waste from intermediate to bulk storage, where applicable ([GPP10.6](#), [GPP10.7](#), [GPP10.8](#), [GPP10.9](#) and [GPP10.10](#)).

Similarly, GPPs regarding waste storage distinguish between intermediate and bulk storage ([GPP11.3](#) and [GPP11.4](#)). Contingency planning is also addressed ([GPP11.2](#)).

Summary of Recommendations (R) and Good Practice Points (GPP)

Research Question 1: Are there any legislative requirements for the handling and disposal of waste for infection prevention and control purposes?

R1.1 Legislation which governs the safe management and disposal of waste must be adhered to for waste disposal in Scottish health and care settings as detailed in Appendix 4 of the literature review.

Research Question 2: What are the categories of waste in health and care settings?

R2.1 Waste categorisation in health and care settings is determined by legislation. This legislation has been detailed and interpreted in Scottish Health Technical Note 03-01 (SHTN 03-01), which must be followed by NHSScotland health and care services.

GPP2.1 Waste generated from healthcare activities should undergo clinical assessment for risk of infection prior to disposal.

Research Question 3: How and when should waste be segregated in health and care settings?

R3.1 Healthcare waste should be segregated at source across all health and care settings in Scotland.

GPP3.1 The colour-coded segregation system described in SHTN 03-01 should be used to classify waste in Scottish health and care settings.

GPP3.2 Waste which has been improperly segregated at time of disposal should not be re-handled. The affected bag or container should be disposed of according to the most hazardous waste classification within it.

Research Question 4: Are there specific standards for different waste receptacles in health and care settings?

GPP4.1 Colour-coded receptacles should be obtained from National Services Scotland (NSS) National Procurement. In NHSScotland, clinical teams should undertake local risk assessment in relation to waste classification and volume of waste produced to determine waste receptacle suitability for that specific care area.

GPP4.2	Sack holders for healthcare waste should have a hands-free and/or foot pedal operated lid.
GPP4.3	Healthcare waste receptacles (including plastic waste bags and sharps containers) procured for use in Scottish health and care settings should be compliant with the relevant industry standards (BS EN ISO 23907-1:2019 and BS EN ISO 23907-2:2019 for sharps containers).
R4.1	Packaging for clinical and special (hazardous) waste being transported out with the health or care setting must comply with UN standards for the transportation of dangerous goods as described in SHTN 03-01.
R4.2	Clearly marked and secure containers for sharps disposal must be available for use in health and care settings where sharps are used.

Research Question 5: Where should waste receptacles be placed in health and care settings?

GPP5.1	All waste receptacles for use at the point of care in health and care settings should be placed as close to the point of waste production as possible. Local risk assessment should be undertaken to determine placement of all waste receptacles for use at the point of care in health and care settings.
R5.1	Sharps containers must be located close to areas where sharps are used.

Research Question 6: How should different waste bags/receptacles be filled and sealed in health and care settings?

GPP6.1	Healthcare waste bags should not be overfilled and should be securely sealed when filled to three-quarters capacity. Replacement waste bags should be made available.
GPP6.2	Sharps containers should not be overfilled and should be securely sealed when filled to the fill line or two thirds capacity. Replacement sharps containers should be made available.
GPP6.3	Healthcare waste bags should be securely sealed using a preferred technique (for example a swan neck) and a plastic tie or tape closure.
GPP6.4	Sharps containers should be sealed according to manufacturer's instructions.

R6.1 Healthcare waste being sealed for onward transportation offsite must comply with packaging requirements contained within transportation legislation as described in SHTN 03-01.

Research Question 7: How should special (hazardous) waste (including sharps, blood and body fluids) be handled in health and care settings?

GPP7.1 Waste bags should not be compressed.

GPP7.2 Clinical and infectious waste receptacles should not be re-opened once they are sealed.

GPP7.3 After handling waste in health and care settings, hand hygiene should be performed.

R7.1 Liquid waste must not be disposed of in landfill. Body fluids may be disposed of via the foul sewer (toilet or macerator). Where risk assessment determines disposal via foul sewer (including macerator) unsafe or impractical, liquid waste or solidified liquid waste should be placed in a rigid leak-resistant receptacle for disposal. Liquid waste should not be disposed of down a hand hygiene sink.

GPP7.4 Compliant paper-based macerator products containing liquid waste should be placed in the macerator in their entirety minimising the risk of splash and spray. Where liquid waste is being disposed of via the foul sewer and where compatible macerator products are not available for use, it should be poured slowly at a low level to minimise the risk of contamination via splash and spray. Suitable PPE should be worn based on the level of perceived risk or anticipated exposure. If contamination of the environment occurs, this should be managed as soon as is reasonably practicable as per local decontamination policy and in line with the NIPCM literature reviews on [Safe management of care equipment](#) and [Safe management of the care environment](#).

R7.2 Sharps should not be disposed of into waste bags. Safe systems of work beyond disposal to prevent sharps and inoculation injuries are described in the NIPCM literature review on [Management of Occupational Exposure to Blood Borne Viruses](#).

GPP7.5 Sharps containers should not be re-opened once sealed.

R7.3 Staff who handle special (hazardous) waste in health and care settings should have immediate access to an appropriate selection of PPE. A risk assessment should be undertaken to determine which items of PPE are required.

Research Question 8: How should non-hazardous waste be handled in health and care settings?

GPP8.1 When handling non-hazardous waste such as offensive/hygiene waste, PPE should be worn based on risk assessment considering any anticipated exposure to blood and body fluids.

Research Question 9: How should waste be labelled or tagged in health and care settings?

R9.1 Healthcare waste must be appropriately labelled and marked as per legislation which is summarised in SHTN 03-01.

GPP9.1 Healthcare waste may be labelled using written labels, numbered tags, tape or pre-printed labels.

Research Question 10: How should waste be transported in health and care settings?

GPP10.1 When transporting waste receptacles around the health and care setting:

Receptacles should be handled with care and held away from the body.

Bags should only be handled by the neck and must not be dragged or thrown.

GPP10.2 Special (hazardous) waste should not be left unattended whilst being transported in a health and care setting.

GPP10.3 Damaged waste bags containing infectious clinical waste should be placed within a new, intact receptacle/bag.

GPP10.4 Trolleys, carts or any other containers used to transport waste in health and care settings should be easy to clean. Containers for transporting waste should be able to hold any liquid waste spills should they occur, for example enclosed with drainage and plug.

GPP10.5 Trolleys, carts or any other containers used for transporting waste must be kept clean and be included in cleaning schedules. Transport containers should be steam-cleaned or disinfected regularly as per SHTN 03-01 guidance.

GPP10.6 Different waste streams being transported from intermediate to bulk storage should remain segregated and not be collected in the same trolley, cart or container in health and care settings.

GPP10.7	Waste bags should be transported from intermediate to bulk storage in trolleys, carts or containers for that intended purpose, rather than carried by hand.
GPP10.8	When transporting healthcare waste in a secondary trolley, cart or container from intermediate to bulk storage, staff should ensure that these are loaded safely and not over filled.
GPP10.9	Waste collections from intermediate and bulk storage should be scheduled, accounting for quantity of waste produced, to prevent accumulation of waste in storage areas. Time between waste collections should be as short as reasonably practicable.
GPP10.10	Waste being transported from intermediate storage from multiple care areas within the same facility to bulk storage should not be transported through clinical areas where possible. Identified routes should be used specifically for the purpose of waste transportation.
R10.1	Staff transporting waste in health and care settings must be provided with appropriate PPE. The items of PPE required should be determined by risk assessment.
R10.2	Consignment notes should be provided with special (hazardous) waste being transported out-with the health or care setting, with requirements detailed in SHTN 03-01.

Research Question 11: How should waste be stored prior to uplift for disposal in health and care settings?

R11.1	Healthcare waste must be stored securely. Waste should not be allowed to accumulate in corridors, within care areas, or other publicly accessible areas.
GPP11.1	Waste storage room capacity should take into consideration the quantity and type of waste produced. Waste storage rooms should be large enough to accommodate segregation of waste streams and for staff to be able to enter and move around.
GPP11.2	Local arrangements should be in place to manage and store unpredicted increases in volume of waste such as that associated with outbreak or contingency events, or when scheduled waste collection is not able to be carried out. Special (hazardous) waste should not be stored outside.
GPP11.3	Intermediate and bulk storage should be secure and inaccessible to the public. Wheeled storage containers should be locked at all times except when being filled by staff.

- GPP11.4** Requirements for bulk storage areas in health and care settings should be applied as described in SHTN 03-01.
- GPP11.5** Specific storage requirements (i.e. refrigeration) for infectious clinical waste should be applied as described in SHTN 03-01.

Research Question 12: How should waste spillages be managed?

- GPP12.1** Spillages of waste should be cleaned up as soon as reasonably practicable.
- GPP12.2** SHTN 03-01 should be followed regarding requirements for workplace-specific procedures for handling waste spills.
- GPP12.3** When a waste spill occurs, assessment of infection risk should be undertaken to ensure necessary IPC measures are implemented.
- GPP12.4** Spilled waste and any absorbent materials used to soak up this waste should be disposed of as infectious clinical waste. Where the waste spill has been risk assessed as non-hazardous, for example uncontaminated food or drink spillage, then absorbent material may be disposed of via non-hazardous waste stream.
- GPP12.5** Sharps waste spills should not be picked up by hand.
- GPP12.6** Training should be provided to those handling waste spills, and prompts such as posters may be used detailing spill procedures.
- GPP12.7** Kits to manage waste spills should be available in healthcare facilities and in all vehicles carrying healthcare waste. Spill kits may include items to contain the spill, equipment for cleaning up spilled waste and appropriate PPE. Local Board risk assessment should be undertaken to determine what specific items are required.
- GPP12.8** In the event of a waste spillage, the responsible person (trained staff) should manage spillages of blood/body fluids specifically by following Infection Control Precautions as outlined in the NIPCM, refer to [Appendix 9](#) for the flowchart.
- R12.1** Occupational exposure events involving waste spills must be reported to the Health & Safety Executive under Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013.