

Date: 18/09/2026
Our Ref: 11772
Enquiries to loth.freedomofinformation@nhs.scot

Dear

Freedom of information – antimicrobials

I write in response to your request for information in relation to use of antimicrobials in NHS Lothian.

Question:

Please provide an overall answer to the questions below factoring in practice in the following clinical areas of the hospital: Critical Care, Emergency Department/Wards, Medical Wards, Surgical Wards, Outpatients, etc.

Please exclude the following areas—where evidence shows that correct practice already takes place—from your response: Oncology, Haematology, Paediatrics, Neonatal Units. Please also exclude responses related to flushing of the needlefree extension or vascular access device as these questions specifically relate to the residual volume of antibiotic in the administration set line (infusion pump set and/or gravity set).

A template spreadsheet (in.xlsx format) is provided for you to fill out as a further attachment to the email containing this letter. Please use this template for ease of data processing.

Q1a. With regards to administration sets (pump and gravity) used to infuse IV antibiotics, does your institution have a policy to flush the administration set to give the full dose of antibiotics in accordance with the following guidelines?

- [The Royal Marsden Manual of Clinical Nursing Procedures, Tenth Edition](#), Chapter 15, which states: “After completion of an intermittent infusion, an appropriate diluent solution should be administered via the administration set. This is to ensure the full dose of medication has been administered to the patient.”
- The “MEDUSA” injectable medicines guide instructions on how to administer intermittent infusions, which states: “Flush the administration set before it is disconnected with sufficient volume of sodium chloride (or compatible diluent) to ensure the total dose is given. Flush at the same rate the medicine was administered.”
- The National Infusion and Vascular Access Society (NIVAS) “Intravenous Administration of Medicines to adults: [NIVAS Clinical Standards for Vascular Access & Infusion Therapy 2026](#)”, which states: “Standard 22.6 IV giving sets must be flushed to ensure the residual medicine within the set is fully administered.”

Q1b. If the answer to Q1a is “yes”, is your organisation fully compliant with your policy to flush the administration set to give the full dose of antibiotics in accordance with guidelines?

Q1c. If the answer to Q1a is “yes”, do you follow the methodology outlined in the NIVAS guidelines linked above?

Answer:

NHS Lothian does not have specific guidance relating to flushing small volume infusions as per the national NIVAS guidance. Medicines policy refers to the requirement for flushing generally, but not specifically in relation to small volume infusions or antibiotics. Whilst there is no Lothian specific guidance, nurses have had access to MEDUSA since the COVID pandemic and this does provide links to the NIVAS guidance. NIVAS guidance should be followed for small volume infusions. Locally, it was decided this was best placed as part of the NHS Lothian IV manual. There has been a previous section in the NHS Lothian IV manual including flushing, but this had been removed as required updating. A draft procedure has been written but it has not yet been fully implemented.

Question:

Q2a. With regards to administration sets (pump and gravity) used to infuse IV antibiotics, if you do have a policy in place to flush the administration set, have you audited compliance with this policy?

Q2b. If the answer to Q2a is “yes”, can you share the audit results? If so, please provide a copy as an attachment to your response to this FOI.

Answer:

No audits have been carried out.

Question:

Q3. What education measures have you put in place to ensure healthcare professionals in your organisation understand:

- a. The existing guidance on flushing administration sets that are used for IV antibiotic infusions (as laid out in the sources above)?
- b. The patient risks involved with failing to flush the residual volume of IV antibiotics in the administration sets?
- c. The possible effects of not flushing the IV administration set containing IV antibiotics on antimicrobial resistance?

Answer:

Nursing and Midwifery staff attend the Intravenous Therapy and Infusion Device study day each year, which covers total dose as per NIVAS guidelines.

Question:

Q4. With regards to administration sets (pump and gravity) used to infuse IV antibiotics, which of the following (if any) are included in your policy with regards to disposing of the administration set and residual volume of either the prescribed antibiotic or flushing solution?

- a. Complete administration set (including drip chamber with sharp) is disposed of into the yellow bag.
- b. Complete administration set (including drip chamber with sharp) is disposed of into the orange bag.
- c. Complete administration set (including drip chamber with sharp) is disposed of into the sharps bin.
- d. Drip chamber/sharp are detached from the administration set line and the drip chamber/sharp disposed of in the sharps bin and the rest of the administration set line disposed of in the yellow bag.
- e. Drip chamber/sharp is detached from the administration set line and the drip chamber/sharp disposed of in the sharps bin and the rest of the administration set line disposed of in the orange bag.
- f. Other (please state)

Answer:

Please find attached a summary diagram of NHS Lothian's waste advice.

I hope the information provided helps with your request.

If you are unhappy with our response to your request, you do have the right to request us to review it. Your request should be made within 40 working days of receipt of this letter, and we will reply within 20 working days of receipt. If our decision is unchanged following a review and you remain dissatisfied with this, you then have the right to make a formal complaint to the Scottish Information Commissioner within 6 months of receipt of our review response. You can do this by using the Scottish Information Commissioner's Office online appeals service at <https://www.foi.scot/appeal>. If you remain dissatisfied with the Commissioner's response you then have the option to appeal to the Court of Session on a point of law.

If you require a review of our decision to be carried out, please write to the reviewer at the address at the top of this letter. The review will be undertaken by a Reviewer who was not involved in the original decision-making process.

FOI responses (subject to redaction of personal information) may appear on NHS Lothian's Freedom of Information website at: <https://org.nhslothian.scot/FOI>

Yours sincerely

Alison Macdonald
Executive Director of Nursing Midwifery and AHPs
Cc: Chief Executive
Enc.

NHS Lothian Clinical Waste Segregation Guidelines



Orange Stream

Waste for Alternative Treatment (AT) such as sterilisation

**NO FLUID
NO SHARPS**



Orange waste bag

All waste that is contaminated with, or suspected to be contaminated with, blood or bodily fluids

Any residual liquid waste must be gelled for disposal

- ✓ Autoclavable Lab waste
- ✓ Clean room waste
- ✓ Disposables used PPE
- ✓ Contaminated wipes
- ✓ Used dressings, plasters, bandages
- ✓ Spillage sets
- ✓ Nappies, incontinence pads

NOT FOR:

- ✗ Metal
- ✗ Recycles (plastics, paper, cardboard, tin)
- ✗ Chemical
- ✗ Medicinal waste
- ✗ General waste
- ✗ External packaging
- ✗ Paper towels
- ✗ Non-Infectious waste
- ✗ Sharps waste
- ✗ No free-flowing liquids



Orange Lidded Sharps Waste

Any residual liquid waste must be gelled for disposal

- ✓ Sharps contaminated with blood and body fluid only
- ✓ Used syringes, sharps, and similar invasive devices with no medicines contamination
- ✓ Tubing and suction sets

NOT FOR:

- ✗ Medicinal waste
- ✗ Sharp used in conjunction with medicines
- ✗ Cytotoxic waste

Blue Stream

Waste for High Temperature Treatment such as incineration (HTI) or specialist means



Blue Lidded Medicinal Waste (Non-cytotoxic)

Any residual liquid waste must be gelled for disposal

- ✓ Sharps, syringe & needle used in conjunction with medicines
- ✓ Vials, injectables, infusion bags, etc. contaminated with non-cytotoxic medicines
- ✓ Part doses ampoules of medicines
- ✓ IV set /syringes with medicines and/or blood contamination
- ✓ Empty IV infusion bags and TPN bags
- ✓ Reconstituted CD denaturing kits
- ✓ Remove medicinal outer packagings

NOT FOR:

- ✗ Cytotoxic waste



Blue Pharmaceutical Waste (Non-cytotoxic) 'NO SHARPS'

Do not mix with non-clinical hazardous waste bottles
Any residual liquid waste must be gelled for disposal

All non-sharp, non-cytotoxic medicinal waste NOT included in list for Blue Lidded Medicinal waste. This includes:



- ✓ Patient returned non cytotoxic medicines in dispensed packaging; patient ID obscured
- ✓ Empty blister packs
- ✓ All empty containers (glass, plastic, metal) with residual contamination with medicinal or pharmaceutical waste products must be disposed of in blue pharmaceutical containers, e.g. bottles, jars
- ✓ Empty creams and ointment tubes, including those with white soft paraffin base
- ✓ Empty eye drop containers
- ✓ Empty outer plastic of MDI with cannisters removed
- ✓ Empty DPI inhalers
- ✓ Expired non-cytotoxic tablets, capsules, etc
- ✓ Remove outer packagings

NOT FOR:

- ✗ Cytotoxic waste

Purple Stream

Waste for High Temperature Treatment such as incineration (HTI) or specialist means



Purple Lidded Cytotoxic/Cytostatic waste

e.g., Systemic Anticancer therapy (SACT), Antineoplastic, Antivirals, immunosuppressants, hormonal drugs and Botox

Any residual liquid wastes must be gelled for disposal

- ✓ Sharps, syringe & needle used in conjunction with cytotoxic medicines
- ✓ All MDI (metered dose inhalers) cannisters
- ✓ PPE from treatments in purple lidded 30L/60L bin
- ✓ Expired, unused cytotoxic/cytostatic waste – please ensure pharmacy staff advised prior to any action for disposal of any unused/unpunctured SACT

NOT FOR:

- ✗ Non-Cytotoxic waste

Purple lidded containers are not collected from Community Dental Practices

Yellow Stream

Waste for High Temperature Treatment such as incineration (HTI) or specialist means



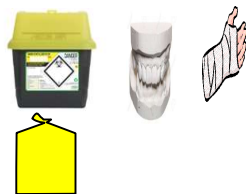
Anatomical waste

Any residual liquid waste must be gelled for disposal

- ✓ Recognisable body part e.g Tissue and Organs / placenta
- ✓ Suction waste
- ✓ Liners, Cell Saver, Bypass
- ✓ Dialysis sets
- ✓ Body fluid drains.
- ✓ All un-autoclaved CL2 Lab Waste and Pathology specimens
- ✓ Teeth with no amalgam fillings,
- ✓ Full blood bags - infectious and non-infectious
- ✓ Other liquid waste that cannot be solidified to be placed in 30 or 60 litre yellow rigid leak proof bins

NOT FOR:

- ✗ Cytotoxic waste
- ✗ Medicinal waste
- ✗ Sharps waste



Gypsum wastes

- ✓ Plaster cast
- ✓ Dental moulds
- ✓ Teeth impressions

Clearly marked Gypsum

Products containing gypsum must be disposed of in gypsum wastes containers separately from other waste streams.

Gypsum containing waste products are not collected from Community Dental Practices.

Please contact your local Facilities Department for advice.



Battery Operated devices waste

- ✓ Laryngoscopes,
- ✓ Implants,
- ✓ Pacemakers and other invasive electrical devices i.e. energy source

- ✓ One small sharps container for batteries. **Clearly marked "Batteries"**
- ✓ Batteries should be disposed of through special hazardous waste routes.
- ✓ One larger container for soiled medical devices

Requires decontamination prior disposal
16 EWC code required.

Red Stream

For specialist disposal; may not refer to incineration - please refer to label



Surgical and Laboratory metal instruments

- ✓ Single use metal instruments
- ✓ Surgical Pins
- ✓ Metal prosthetics (joints)

NOT FOR:

- ✗ Single used non metal instrument
- ✗ Medicinal waste
- ✗ Needles

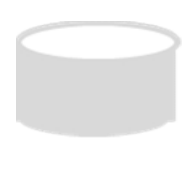


Dental waste

- ✓ Tooth pots and Amalgam capsules
- ✓ Teeth extractions with and without fillings

NOT FOR:

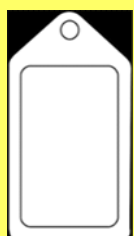
- ✗ Gypsum waste



Other Dental waste

- ✓ lead foils
- ✓ x-ray
- ✓ photo developer fluids and any other 'heavy' metals.

Sealed containers only to prevent leakage - clearly identified the site producer, marked with substance name and segregated



SHARPS CONTAINERS - MUST BE CORRECTLY ASSEMBLED, IDENTIFIED WITH DEPARTMENT NAME/CODE, STAFF NAME AND DATE OF OPENING. FILLED TO THEIR DESIGNATED FULL LEVEL TO PREVENT SPILLAGE, TEMPORARILY CLOSED WHEN NOT IN USE; MUST BE PERMANENTLY CLOSED WHEN FULL, MARKED WITH CLOSING DATE, STAFF NAME AND TAGGED.

ORANGE BAGS - WHEN FULL MUST BE "SWAN-NECK" SEALED WITH A YELLOW TAG, LABILLED TO IDENTIFY DEPARTMENT NAME/CODE, STAFF NAME, AND DATED.

ORANGE BAGS MUST BE KEPT SEPARATE FROM RIGID CONTAINERS.

Patient identifiable information found on external packaging should be disposed of in confidential waste