The Walton Centre NHS Foundation Trust

Excellence in Neuroscience

Cytotoxic Drugs Policy

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Think of the environment…Do you have to print this out this document? **You can always view the most up to date version electronically on the Trust intranet.**

Contents

PART 1: Policy and Procedure for Safe Prescribing, Handling and Administration of Cytotoxic Drugs

This policy is Part 1 of 3 concerning the use of chemotherapy drugs; Staff using this policy should be familiar with all three parts.

1. Introduction

- This policy is intended for use in The Walton Centre by all medical, nursing, and ancillary staff handling cytotoxic agents and/or involved in the management of patients treated with cytotoxic agents.
- The purpose of this document is to set out the Guidelines for the safe prescribing, handling and administration of cytotoxic chemotherapy agents.
- This policy aims only to cover the use of single dose chemotherapy for immunosuppressive purposes and not for the treatment of malignant disease, i.e. Chemotherapy agents used for the treatment of neurological conditions.
- The Chemotherapy agents that are used to treat patients in The Walton Centre are limited and include:
- Cyclophosphamide
- Methotrexate
- Cytotoxic carmustine (Gliadel) 'wafers' are occasionally used in theatre for the treatment of brain tumours. Some of the principles for safety, handling and storage can be applied. However, this policy does not cover the consent, prescription, preparation or administration of this drug.
- The Handling, Preparation, Administration and Disposal of Cytotoxic Agents may constitute an Occupational Hazard. This policy is intended to safeguard patients and staff, by defining best practice for all disciplines involved in cytotoxic chemotherapy.
- The risk to the patient is well documented and can be balanced against the clinical benefits. The risk to health care staff is largely theoretical. Therefore, while it has not been established that handling cytotoxic agents is consistently linked with adverse health risks, handlers must be aware of the possibility and take reasonable precautions to protect themselves from unnecessary exposure.
- This policy aims to minimise these risks by promoting the safe handling of cytotoxic drugs.

2. Definitions

- **Cytotoxic Agents** – substances often used in the treatment of malignant and other diseases which are designed to destroy rapidly growing cells.
- **Cytotoxic** – an agent or process that is toxic to cells.
- **Chemotherapy** – The use of any chemical agents to treat or control disease. Most often used to describe treatment of malignant and other diseases with cytotoxic agent.

3. Health and Safety

Cytotoxic drugs are hazardous substances, as defined by the Control of Substances Hazardous to Health Regulations 2002 (COSHH). Under COSHH, employers have a duty to assess the risks from handling and using cytotoxic drugs for employees and anyone else affected by this type of work and take suitable precautions to protect and minimise exposure. Employees handling cytotoxic drugs must be given suitable and sufficient information, instruction and training, relevant to their work. For health care

professionals, the potential for exposure exists during tasks such as drug reconstitution, preparation, administration, spillage and disposal of waste.

Employees must be made aware of the risks of working with cytotoxic drugs and the necessary precautions. Only staff that complete the relevant training should be asked or allowed to carry out such work. Employees have a legal duty to take care of their own health and safety and that of others affected by their actions. They must make full and proper use of control measures put in place by the employer. In addition, they should cooperate with their employer so they can comply with any legal duties placed on them. All incidents of **spillage or potential exposure to cytotoxic drugs must be reported in Datix** in accordance with the Trusts Incident Management policy.

Under the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013 (RIDDOR) the accidental release of any substance which may cause a major injury or damage to health is classed as a dangerous occurrence and should be reported. However, a small spillage of a cytotoxic drug which is well contained and easily dealt with is not reportable. Spillage of a large amount, to which people could have been exposed, requires submission of a RIDDOR report.

The Governance team will determine whether an incident is RIDDOR reportable or not and will process such reports where required. Services must not report direct to HSE.

3.1. Pregnancy and breast feeding

Guidance from the Health and Safety Executive (HSE 2021), for new and expectant mothers, states that because a safe level of exposure can-not be determined, everything possible should be done either to avoid exposure, or reduce it to as low a level as is reasonably practicable.

There should be no significant exposure to cytotoxic drugs if good handling practises are adhered to

4. Consent for treatment

4.1. The decision to treat with cytotoxic drugs should be made by a consultant.

- The consent to treatment record should be documented in the patient's notes.

4.2. The patient and carer should have received verbal information on;

- Reasons why the treatment will take place
- Risks and benefits of treatment
- Long and short term side effects of treatment

5. Prescribing Chemotherapy

5.1. Before each course of cytotoxic chemotherapy, the patient should be reassessed as being fit to receive the prescribed treatment by an appropriately qualified, competent practitioner, i.e. the consultant or senior (i.e. registrar or above) member of the medical team.

5.2. Cytotoxic chemotherapy should be prescribed by an appropriately qualified, competent practitioner, i.e. consultant or senior member (with consultant approval) of the patient's own medical team.

5.3. The prescription should include:

- Patient demographic details including full name, hospital number and date of birth (addressograph label is preferred)
- Name, route and dose of drug
- Volume, diluent and rate of administration
- Date dose to be given
- Prescribers signature
- Course (pulse) number
- Patients weight and height
- Ward where drug is to be administered
- Name of consultant

5.3.1 A pre-printed Walton Centre prescription protocol is available for the administration of cyclophosphamide. Protocols include investigations (bloods, urine tests or radiological) and drug treatments required pre and post cytotoxic drug administration.

5.3.2 For inpatients the doctor will prescribe a “dummy drug” – e.g. “cyclophosphamide - see additional chart” on EPMA.

5.3.3 Any additional requirements pre administration should be clearly outlined on the prescription sheet and communicated to the nurse responsible for the treatment.

5.3.4 The medical staff should inform the nurse administering the treatment that based on all results they are happy to proceed.

5.4. Patients admitted to hospital already receiving cytotoxic drugs

Patients taking cytotoxic drugs for cancer who are admitted to hospital should not have these medicines prescribed, dispensed or administered until the prescribing centre has been contacted to confirm a) the regimen and b) that it is appropriate to continue with the treatment given the reason for admission. The local cancer network has agreed this principle. For patients taking these medicines for non-cancer indications, multiple sources should be used to confirm the regimen, and consideration given to the appropriateness of continuing them during admission. Consider whether any current problems could be a side effect of this drug. If there is any doubt about the regimen itself or whether it should continue, the prescribing centre should be contacted as soon as possible, and if this would delay treatment, the prescriber should carefully consider risks and benefits of prescribing an uncertain regimen against withholding treatment.

6. Safe Preparation of Cytotoxic Drugs

- Intravenous cytotoxic drugs are prepared centrally by Pharmacy Aseptic unit at Liverpool University Hospital; they are individually dispensed and ready to administer to named patients.
- Prescriptions should be written at least 24 hours before administration is due and the ward pharmacist informed of the prescription in order to ensure preparation and delivery ahead of the scheduled administration time
- The ward pharmacist will conduct a clinical check and liaise with the aseptics department to arrange preparation and dispensing to the ward.

Preparation of cytotoxic drugs in a clinical area is unacceptable.

7. Transportation and storage of cytotoxic drugs prepared in pharmacy aseptics

7.1. Porters will collect cytotoxic medication upon request

- The transportation of cytotoxic drugs should be in a robust leak proof container labelled –'CYTOTOXIC DRUGS-HANDLE WITH CARE' and be labelled with a universal sign to identify its toxic contents.

I.E. 

OR 

- All cytotoxic drugs will be stored within a locked refrigerator until ready for use.
- Cytotoxic products are contained within a sealed plastic bag for transportation and storage. Once removed from the bag, handling should be kept to a minimum and gloves worn.

8. Administration of Cytotoxic Chemotherapy

8.1. Staff Training and Education

Registered practitioners required to deliver intravenous chemotherapy must, within their scope of professional practice, have:

- Expanded their knowledge regarding administration of cytotoxic drugs by attendance at a chemotherapy (non - cancer) study day.
- Be familiar with Trust policy and procedures regarding use of cytotoxic drugs, including dealing with spillage and management of extravasation.
- Been assessed as competent in the safe handling of cytotoxic drugs.

Staff training should be recorded by the relevant ward manager using the 'Cytotoxic Drug Administration Training Record' (see Appendix 2). The sign off assessor must have been previously assessed as competent to administer cytotoxic drugs.

8.2. Chemotherapy study day must include:

- Principles of cytotoxic chemotherapy
- Safe handling
- Administration
- Extravasation and anaphylaxis
- Side effects
- Spillage / disposal

Two registered nurses must check all cytotoxic drugs (at least one registered nurse must be signed off as competent to administer cytotoxic agents).
Agency staff should not participate in the checking or administration of cytotoxic chemotherapy.

9. Patient identification and checking procedures

9.1. It is essential that the patient is fully informed about the proposed treatment and the rationale for therapy.

It is the responsibility of the person administering the drug to protect both themselves and the patient.

Ensure that the patient is relaxed and as comfortable as possible during the procedure.

First dose / course of treatment check that the patient has given informed written consent.

Ensure that appropriate anti-emetic and supportive medications are prescribed and available.
Check that blood tests and urine dip stick or midstream specimen of urine is within acceptable limits to commence treatment.

- Positive identification should be gained by asking the patient to repeat their full name, and date of birth. This should then be checked against the patients wrist band and prescription.
- The name and dose of cytotoxic drug should be checked against the prescription.
- Course number (pulse) should be checked.
- The expiry date of drug.
- The date of prescription.
- The route of administration.
- Discuss any potential side effects with the patient and give them time to ask questions.

For cyclophosphamide, ensure the patient is informed of the need to drink plenty before; during and after the cytotoxic chemotherapy treatment; this is to reduce the risk of irritation or damage to the bladder. 1 Litre pre hydration prior to treatment is recommended and up to 3 litres per day for 3 days post treatment; as tolerated with any underlying medical condition.

10. Administration of intravenous chemotherapy

The following recommendations are considered to be absolute minimum protective clothing that should be worn in clinical areas when staff are administering cytotoxic drugs.

- Gloves: Nitrile
- Plastic apron as a waterproof barrier to spraying or splashing.

There is no evidence to suggest that protective eyewear, masks or armlets are of any benefit if good handling technique is adhered to.

10.1. The Vascular Access Device

An appropriate vascular access device should be selected by a competent practitioner. Cytotoxic drugs should not be given if there is any doubt regarding the safety of the venous access device**.**

10.2. Selection of Cannulation Site

- Avoid the use of the cubital fossa, especially with vesicants (e.g. Mitoxantrone- which is no longer used in the Trust)
- Avoid areas of joint flexion to minimise risk of extravasation
- Ascertain the patency of the vein by free running 100mls of solution as prescribed (e.g. normal saline) through the vein rather than a ‘push’ flush

10.3. General Comments on Intravenous Administration

Ensure all pre-treatment medications have been given as per prescription.

Gather together required equipment including sterile dressing pack and trolley

- Thoroughly wash and dry hands according to infection control policy
- Wear appropriate protective apron and gloves

- Inspect sealed bags before opening to ensure no spillage has occurred into the bag
- Check drug against prescription, including expiry date and time.
- Use aseptic technique throughout administration
- Open the cytotoxic drug directly onto the sterile trolley
- Apply sterile gloves
- If using an infusion bag of cytotoxic chemotherapy, pierce with an appropriate infusion set at waist level straight onto sterile dressing pack. Never pierce bags of cytotoxic chemotherapy at eye level.
- Check patency of cannula, clean hub and administer drug as per protocol.
- Maintain a closed system using a needle free connector to the venous access device
- Ensure visibility of cannula at all times whilst drug is being administered
- Observe patient appropriately
- If administering vesicant cytotoxic therapy (see Appendix 1 for categorisation) nurses must not leave the immediate clinical area. Ensure the intravenous access device is observed
- On completion of the infusion, clear away and dispose of the waste according to policy
- Wash hands thoroughly following the removal of gloves
- Record the administration on the prescription sheet and in the medical notes.

The patient and intravenous access device should be monitored frequently before, during, and after administration for:

- Leakage at the site
- Venous irritation
- Flare reaction
- Allergic reaction
- Anaphylaxis
- Extravasation
- Known side effects

Stop administration if:

- There is any doubt about the checks that have taken place
- The patient requests that the treatment stops
- The patient demonstrates side effects or complications, particularly signs of anaphylaxis or extravasation
- The equipment fails to function properly

11. Administration of Oral Chemotherapy

- Oral preparations can be hazardous if handled carelessly.
- Oral formulations of cytotoxic drugs should not be handled directly. A ‘no touch’ technique should be used or gloves worn to minimise the risk of exposure
- They may be stored and locked in the patients locker unless there are any specific requirements i.e. refrigeration
- Oral cytotoxic drugs can only be administered by registered nurses and clinicians
- Wash hands thoroughly following administration
- Patients should swallow tablets or capsules whole and not chew
- Oral cytotoxic drugs must not be crushed or broken and capsules must not be opened unless advised otherwise by pharmacy.

- If the patient cannot tolerate capsules, then pharmacy should be contacted for an alternative preparation
- If the tablet comes in a blister or foil packed presentation, then push through the blister at the patient's bedside in order to reduce exposure time of the drug.
- After administration, spoons, medicine pots and/or oral syringes should be placed in a purple lidded sharps bin appropriate for cytotoxic waste.
- If a tablet is dropped, then gloves must be worn to pick it up. It should then be placed into a bag and disposed of into a cytotoxic purple lidded 'sharps' box
- 'Damp' dust the area with a wet paper towel in order to remove powder or liquid if dropped and dispose of as contaminated waste
- Patients and carers should be advised to wash hands after administration of cytotoxic drugs.

12. Administration of Intramuscular/Subcutaneous Chemotherapy

12.1. Pre-prepared I.M./S.C. methotrexate can be administered for the treatment of auto-immune disorders.

- Pre-prepared I.M./S.C. cytotoxic drugs can only be administered by registered nurses and clinicians
- A no-touch technique should be followed using protective equipment as described
- Needles should never be re-sheathed
- The administration site will be covered with a waterproof dressing to prevent contamination
- All guidelines on safe handling and administration should be followed
- After administration, syringes/pens should be placed in a purple lidded sharps bin appropriate for cytotoxic waste.

13. Post cytotoxic treatment advice and documentation

13.1. Advise the patient on:

- Fever
- Neutropenia
- Cytotoxic extravasation
- Nausea and vomiting
- Stomatitis, other mucositis and diarrhoea
- Potential adverse effects of the specific drug
- Any follow up required

Continue observation if indicated for the required amount of time or until patient is stable. Discuss with patient regarding the handling of bodily fluids (see part 2 section 16.1 on spillage). Record any problems during or after administration in the patient's medical notes.

14. References

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14.1. Supporting policies/documents

Medicines Policy
Cyclophosphamide Guidelines

PART 2: Policy and Procedure for Management of Cytotoxic Spillages and Safe Disposal

This policy is Part 2 of 3 concerning the use of chemotherapy drugs; Staff using this policy should be familiar with all three parts.

15. Cytotoxic spillages

Staff who work in areas that administer or handle cytotoxic drugs must be familiar with dealing with spillages and contaminated waste. A cytotoxic spillage kit will be available at all times in all areas where cytotoxic drugs are administered, handled or stored.

15.1. Patient Excreta and Body Fluids

The use of universal precautions applies here as with all body fluids

- Wear gloves and protective aprons
- Traces of cytotoxic drugs can remain within the body for up to 3 weeks, but it is generally accepted that after 7 days the majority of the drug has been excreted.
- Urine: 96 hours
- Faeces: up to 7 days
- Vomit (equally toxic)
- Any spillage of excreta in these patients should be treated as a cytotoxic waste spillage during this period.
- Patients who normally take themselves to the toilet must inform staff if they are incontinent; as this would class as a spillage and needs to be dealt with immediately.
- Men should sit down to pass urine in order to minimise the risk of splashing
- Ensure toilets are flushed to minimise contamination

If all precautions are followed patients receiving this low dose chemotherapy do not need to have their own bathroom facilities.

15.2. Incident reporting spillages

Any spillage of cytotoxic waste should be reported on Datix. Datix should include description of incident, including drug name and quantity, how it was cleaned and how the waste was disposed of. The incident form should also include the names of staff or patients involved.

16. Dealing with the spillage

16.1. Immediate Action following a spillage

16.1.1 Spillages must be dealt with immediately. Following any spillage, the area must be identified with a warning sign so staff, patients or members of the public do not become contaminated.

16.1.2 Personal contamination must be dealt with promptly and as a priority over any other spillage.

16.1.3 All staff must wear aprons and gloves as a minimum; eye protection and masks are also recommended. If the spillage is on the floor foot protection as used in theatre is suggested.

16.1.4 If protective clothing has been contaminated during the spillage then remove contaminated items and put on fresh protective clothing. Place all contaminated clothing in hazardous waste bag.

16.1.5 New, expectant and breastfeeding mothers should be specifically advised against any direct involvement in the management of a cytotoxic drug spillage.

16.2. Liquid Spillages

1. Put a paper towel ring around the spill to contain the fluid so that it cannot spread to a larger area.
2. Use Clinell Spill wipe (orange packaging) as instructed on back of pack to absorb liquid spillage.
3. Put the soiled wipe and the disinfectant wipes used to clean the spill area back into the self- seal Clinell bag.
4. Dispose of pack into the purple lidded cytotoxic sharps bin.
5. Protective eyewear, mask and footwear (if worn) should be disposed of into cytotoxic sharps bin
6. Arrange for immediate collection of the ‘sharps’ bin.
7. A Datix incident form should be filled in.
8. Replace the cytotoxic spillage kit.
9. Inform pharmacy (if required) so that drugs can be remade

17. Personal accidents

- If a patient, member of staff or visitor is involved in a spillage of cytotoxic drugs or potentially contaminated patient excreta, the following procedures should be used;
- All events should be reported to a senior member of staff and documented on a Datix incident form.

17.1. Skin

- Remove all contaminated clothing immediately.
- The contaminant must be removed as quickly as possible by flushing the affected area with a large amount of cold water.
- If running water is not available, use bottles or bags of sterile water or normal saline as an alternative.
- After initial copious flushing, wash the contaminated skin with soap and water.
- After rinsing, repeat the process
- Shower facilities should be utilised if a large area is contaminated.
- Do not use hand creams or emollients as these improve absorption of the drug.
- Medical attention should be gained from Occupational Health or Accident and Emergency Department as appropriate.

17.2. Eyes

- Immediately irrigate eye with sodium chloride 0.9% (via an administration set) for approximately 10 minutes.
- Medical attention should be sought immediately from the Occupational Health / Accident and Emergency Department or Eye clinic

17.3. Needle stick injuries

- Treat as with any other needle stick injury as per Trust policy. Immediately encourage bleeding, and wash the area thoroughly in running water for at least 10 minutes.

17.4. Clothing

- Remove contaminated clothing immediately.
- Put on gloves and an apron.
- Rinse thoroughly under running tap water.
- Squeeze dry and place in a plastic bag.
- Uniforms and hospital linen should be double bagged in the appropriate laundry bags and sent to the hospital laundry
- However, if the spillage is more than 10mls and bed linen is affected, double bag, label and dispose as waste.
- Personal clothing should be taken home and washed twice.
- The first wash should be separate from other clothing.
- Dispose of gloves in a double yellow clinical waste bag.
- If the drug has soaked through outer clothing, underwear must be removed and treated as above. The area of the skin affected should be treated as in section 18.1

18. Disposal of Cytotoxic Waste

The recommendations of this policy act only as a guide and are supplementary to the trusts Waste Management Policy.

18.1. Used Disposable Equipment

- While still wearing gloves and an apron, place any needles, syringes, giving sets, bags, empty ampoules or vials into a rigid purple lidded cytotoxic sharps bin
- Giving sets should **not** be removed from the bags prior to disposal.
- The sharps bin should be clearly labelled as cytotoxic waste so that it can be incinerated at 1000^{o}C to ensure degradation of the cytotoxic agent.

18.2. Contaminated Non-Disposable Equipment / Items

- Wearing gloves and an apron, non-disposable equipment should be rinsed well with cold water to remove any trace of contaminant
- It will then be washed using soap and hot water to prevent cross infection
- If non-disposable equipment or items are sent to another department for terminal cleaning, it must be transported in a sealed leak-proof bag or container
- These should be clearly labelled indicating that they are potentially contaminated with cytotoxic drugs
- Sinks should be washed thoroughly and then all materials used in process discarded as cytotoxic waste.

18.3. Protective Clothing and Wipes

- Contaminated protective clothing, wipes, and aprons worn during the administration of chemotherapy should be placed in a double clinical waste bag or sharps box and clearly labelled as cytotoxic waste and sent for incineration
- After cytotoxic spillage, arrangements must be made for immediate collection of the rigid sharps bin for incineration

18.4. Part Used Doses of Medication

- While still wearing protective clothing, cap any syringes
- If it is in an infusion bag, clamp the giving set and leave in place
- Place the syringe or bag into a yellow bag and into a purple lidded cytotoxic sharps bin
- Clearly document how much of the dose was administered and the reason for discontinuation of treatment
- Inform medical staff and pharmacy if replacement medication is required.

18.5. Unused Oral Doses

- Any unused oral doses (e.g. tablets that have been dropped or oral liquids that have been refused etc) should be disposed of in the cytotoxic sharps box
- In order to minimise contamination, the tablet or liquid should be placed in a sealed plastic bag or a medicine pot with a secure lid before placing in a cytotoxic sharps box

PART 3: Management of Chemotherapy Extravasation

This policy is Part 3 of 3 concerning the use of chemotherapy drugs; Staff using this policy should be familiar with all three parts.

19. Definitions:

- Extravasation - accidental leakage from the vein / cannula into the surrounding tissue of a solution that has the potential for severe tissue damage. Depending upon the substance that extravasated, injury can range from very mild skin reactions to necrosis.
- Vesicant - vesicants are drugs (cytotoxic or non-cytotoxic) with the potential to cause blistering and ulceration and if left untreated, tissue necrosis
- Exfoliants – an agent that elicits inflammation and shedding of the skin
- Irritants - an agent that elicits inflammation and irritation
- Inflammitants - an agent that elicits mild to moderate inflammation and flare
- Neutrals - inert compounds

20. Scope

Cytotoxic drugs may be divided in categories based upon their propensity to cause extravasation injury. At The Walton Centre our chemotherapy cytotoxic drug list is limited to the following:

Non-vesicant:

- Cyclophosphamide (neutral)
- Methotrexate (Inflammitants)

These drugs may cause mild to moderate inflammation, irritation, discomfort and pain but are unlikely to result in tissue breakdown.
It is the practitioner's responsibility to recognise the potential for injury and appropriate management for any drug which they are administering.

21. Potential causes of extravasation

Potential causes of extravasation include:

- Dislodgement of the distal tip of the cannula into the tissues surrounding the vein.
- Constriction of the blood flow distal to the cannula tip which increases venous pressure and allows fluid to leak from the hole in the vein made by the cannula.
- Inappropriate selection of the position and size of the cannula and the length of time which the cannula is left in situ.
- Practitioner unfamiliarity with the drug and the manufacturer's recommendations for administration.

22. Risk reduction

- Only authorised practitioners who have been trained and assessed may administer chemotherapy.
- The Trust chemotherapy administration policies must be adhered to at all times
- Particular care must be taken with the selection and positioning of the cannula.
- Drugs with the highest vesicant potential should be given first.

- All practitioners administering cytotoxic drugs must have an understanding of the management of extravasation and know the contents and whereabouts of the extravasation kit.
- All staff must be aware of what is classed as a spillage and how to manage this.

23. Recognition

It is important that extravasation is not misdiagnosed because the treatment itself may involve the administration of drugs which can cause further physical trauma to the patient and may also potentiate extravasation.

Misdiagnosis often occurs when the practitioner fails to differentiate between flare reaction, irritation or extravasation.

Clinical characteristics at Peripheral lines	Flare Reaction	Vessel irritation	Extravasation
Presenting symptoms	Itching is the predominant symptom, with pain, burning and red streak	Aching and feeling of tightness in vein	Pain and burning at site, stinging may occur during or after infusion
Colouration	Patchiness, blotching, elevated erythema along vein	Erythema or dark discolouring along vein	Erythema at site and may occur proximal to previous venepuncture site.
Swelling	No	Not Usually	Usually occurs
Blood Return	Usually occurs	Usually occurs	None or minimal Increased resistance to administration of drug

23.1. Central Venous Access Devices (CVAD)

Symptoms of extravasation may include;

- Aching discomfort in the shoulder/neck pain (this is the most common), burning, aching/discomfort, swelling of chest wall
- Fluid leakage at or around exit site and along subcutaneous canal

24. Management of Extravasation

24.1. Specific courses of action depend upon:

- The nature of the drug
- How much has extravasated
- The location of the extravasation

If extravasation is suspected, treatment must begin as soon as possible (see Appendix 1 for flowchart). Early detection and treatment within 24 hours can significantly reduce tissue damage. However in some cases extravasation may only become apparent 1-4 weeks after administration.

24.1.1 Contents of extravasation kit

Copy of Extravasation management procedure and patient information leaflet.

- Dimethyl sulfoxide (DMSO/RIMSO 50%-99%)
- Hyaluronidase 1500 units
- Hydrocortisone cream 1%
- Water for injection
- needles
- Luer lock syringes 2ml, 5ml, 10ml
- Hot/cold pack
- Dressing
- Gauze
- Gloves
- Safety glasses optional
- Indelible Pen for marking the affected area

The kit must be tamper-proof, date of expiry must be visible and replacements obtained from Pharmacy as required.

24.2. Surgery and debridement

Even if identified and treated early, progressive extravasation can give rise to ulcerated and necrotic tissue. The goal of surgery is to remove and retained infusant and damaged tissue.

24.3. Documentation

Document the incident and action taken in patient's records (paper / electronic) and on Datix.

Documentation should include:

- Drug name, dose and volume infused
- Patient problems /complaints/ comments
- Location of cannula
- Appearance of the area
- Diameter of the affected area
- A photograph of the affected area may help as evidence. (with patients consent)
- Nursing/ medical management and action taken; including antidote
- Signature and name of person responsible for the infusion

If ongoing treatment is required referral can be made to the Tissue Viability Team.

An orange alert card should be completed and placed in the front of the patient's case notes.

24.4. Post Care

After the immediate steps are followed, patients should be closely monitored. Observe extravasation site for colour, sensitivity, swelling, fluid leakage until site regains its normal appearance.

If the site deteriorates or condition does not improve, referral or follow up must be made, this may include referral to the Plastic Surgery Team.

24.5. Discharge

The patient should be advised that the site may remain sore for several days.

They must be given advice on when and how to seek further help.

If upon discharge the patient develops any of the below they must seek immediate help. During working hours contact the department that the treatment was given.

After 6pm (Monday – Friday) and weekends:

Contact NHS 111: go to a walk in centre or the Accident and Emergency department.

- Increased pain
- changes to skin colour
- increased oedema or swelling
- stiffness in the affected extremity
- skin breakdown

The patients GP should be informed of any extravasation incident following cytotoxic treatment and any follow up plan.

25. References

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Appendix 1: Procedure for Management of Extravasation

Immediate treatment for all extravasation:

1. STOP the infusion, but leave cannula/CVAD in place and inform medical staff
2. Aspirate as much fluid as possible from the cannula/CVAD: if possible draw back 3 – 5mls of blood
3. Identify agent using table below and obtain and apply correct warm/cold pack
4. Collect extravasation kit from Jefferson/Chavasse
5. Mark extravasation area with permanent pen
6. Remove peripheral cannula with minimal pressure
7. For CVAD consider seeking advice from plastic surgeons regarding line removal to minimize tissue damage
8. Complete DATIX

Non-Vesicants

Cyclophosphamide
Methotrexate

AIM DISPERSE & DILUTE

- Elevate the limb.
- Apply a warm pack to the affected area for 20 minutes 4 times daily for 1 to 2 days.
- Apply hydrocortisone 1% cream every 6 hours for as long as erythema persists.
- Give several subcutaneous (or intradermal) injections of 150 – 1500 units of hyaluronidase* diluted in 1ml sterile water as 5 separate 0.2ml injections around the periphery extravasated area to dilute the infusate (Administration of hyaluronidase should begin within 1 hour of extravasation for best results).
- Consider referral to Plastic Surgeon

Rationale:
Applying a heat source to the extravasation site causes vasodilation, increasing distribution and absorption and decreasing the local drug concentration.

* Hyaluronidase increases the absorption of local anaesthetic. If local anaesthetic has been applied to the area (e.g. Ametop, Emla) prior to cannulation and within 6 hours of extravasation, then the patient must be monitored for signs and symptoms of systemic anaesthsia such as increased pulse rate and decreased respirations and the doctor informed immediately via bleep.

Vesicant

AIM: LOCALISE & NEUTRALISE

- Elevate the limb.
- Apply a cold pack for 20 minutes. Repeat every 4 hours for 24 hours to help localise the area.
- Neutralise the area by applying a thin layer topical DMSO to the marked area using cotton bud. Do not use DMSO if blistering present.
- Allow the DMSO to dry and then cover with non-occlusive gauze dressing; this should be applied within 10-25 minutes.
- 3 hours after first DMSO application apply hydrocortisone 1%cream. Repeat every 6 hours for 7 days.
- Consider referral to Plastic Surgeon

Rationale:
Applying a cold source to the extravasation site causes vasoconstriction, localizing the drug. An antidote can be used at this stage to neutralize the drug, depending on the drug and volume of extravasation. The drug will then be dispersed via the local vascular and lymphatic systems.

Saline Flush out technique
This is a procedure that may be required to limit inflammation, pain or discomfort but should only be carried out by specialist.

In all cases:

- Do not apply direct manual pressure to suspected extravasation site
- Given analgesia as required
- All extravasation injuries should be referred to tissue visibility nurse specialist for advice and support
- Digital imaging should be arranged
- DATIX incident report

Appendix 2:

Cytotoxic Drug Administration Training Record

Name	Pin Number	Date attended chemotherapy study day	Read Trust Policy on the use of Cytotoxic Drugs	Date of competence assessments			Date and signature of sign off assessor
				1	2	3	

Appendix 3: Version Control

Version	Section/Para/ Appendix	Version/description of amendments	Date	Author/Amended by
2.0	All	Updated at expiry date	April 2015	[redacted]
3.0	All	Updated at expiry date	November 2017	[redacted]
4.0	All All 3.1 1.0	Updated at expiry date. Review of references Addition of guidance from HSE 2021 in Pregnancy Remove Mitoxantrone	September 2022	[redacted]

Translation Service

This information can be translated on request or if preferred an interpreter can be arranged. For additional information regarding these services please contact The Walton centre on [redacted]

Gellir gofyn am gael cyfieithiad o'r deunydd hwn neu gellir trefnu cyfieithydd ar y pryd os yw hynny'n well gennych. I wybod rhagor am y gwasanaethau hyn cysylltwch â chanolfan Walton ar [redacted].

هذه المعلومات يمكن أن تُتَرْجَم عند الطّلب أو إذا فضّل المترجم يمكن أن يُرَتَّب للمعلومة الإضافيّة بخصوص هذه الخدمات من فضلك اتّصل بالمركز ولتون على [redacted]

ئەم زانیاریە دەکرێت وەربگێڕدرێت کاتێك کە داوابکرێت یان ئەگەر بەباش زاندرا دەکرێت وەرگێڕێك ئامادە بکرێت (ڕێك بخرێت) ، بۆ زانیاری زیاتر دەربارەی ئەم خزمەتگوزاریانە تکایە پەیوەندی بکە بە Walton Centre بە ژمارە تەلەفۆنی [redacted].

一经要求，可对此信息进行翻译，或者如果愿意的话，可以安排口译员。如需这些服务的额外信息，请联络Walton中心，电话是：[redacted]。