East Midlands
Strategic Clinical Networks

East Midlands Cancer Network

Cytotoxic Policy

Status:	Final Version
Date of Original:	July 2007
Date of Review:	October 2015
Date of this version:	October 2017

Check www.eastmidlandscancernetwork.nhs.uk for latest version

Document Location

The source of the document will be found at this location – www.eastmidlandscancernetwork.nhs.uk (to webpage, not document)

Revision History

Date of this revision: January 2012
Date of next revision: September 2013

Revision date	Summary of Changes	Changes marked
July 2007	First issue	
17.11.10	Include revised extravasation Guidelines	No
17.11.10	Further revision to extravasation Guidelines	No
21.09.11	Revision to extravasation Guidelines and content	No
26.01.12	Encompasses requirements of Peer Review Measures, amended terminology inline with Chemo mandatory dataset and revision of profession roles. Extravasation Guidelines review date amended to September 2013	Yes
24.09.13	Revision to extravasation Guidelines and content and SCN Header added.	

Contents

1. INTRODUCTION

The terms chemotherapy and cytotoxic are used interchangeably in this document and refers to those agents listed in Section 8 of the BNF "Malignant disease and immunosuppression" (including monoclonal antibodies and small molecule agents such as tyrosine kinase inhibitors) with the exception of carmustine wafers due to there use being within a surgical procedure.

Chemotherapy medicines may be used for two purposes:

- Treating cancer and
- As immunosuppressant agents used to treat non-malignant conditions

This policy is applicable to all personnel involved in handling these medicines for the treatment of cancer:

- Medical Staff
- Pharmacy Staff
- Nursing Staff in Hospitals
- Community Nursing Staff
- Independent Sector Treatment Providers

It is anticipated that Trusts will use this policy not only to improve the quality of cancer chemotherapy services, but also to inform the development of chemotherapy services for patients with non-malignant conditions.

Separate policies exist for pharmacy areas dispensing cytotoxics.

Cytotoxic Drugs must be considered potentially harmful to all personnel handling them.

Many Cytotoxic Drugs are an extreme irritant to the eyes, skin, mucous membranes and other tissues. They may also be sensitisers and some are potentially carcinogenic and teratogenic. Therefore it is of the utmost importance that staff are warned of the risks and protected accordingly against the acute effects of accidental contamination and trained in the proper use of protective equipment. Cytotoxic Drug substances are potentially hazardous to health and as such fall into the COSHH Regulations 1988.

The Policy refers to all cytotoxic medicines administered:

- Orally
- Parenterally
- Topically
- Intrathecally
- Intracavity (e.g. bladder instillation).

2. PRESCRIBING

Written informed consent must be obtained for chemotherapy administration by whichever route.

Routine Prescribing

2.1.1. It is essential that systems be in place to ensure chemotherapy treatment is performed with adequate safety and quality control procedures. Consultant medical staff must refer patients who require chemotherapy to Specialist Consultant Colleagues, who routinely use chemotherapy, are recognised by the Trust and listed as doing so, for their clinical management and treatment of these patients.

2.1.2. Cancer Chemotherapy may only be initiated by clinical teams with the appropriate training and experience, which have been approved by the relevant Trust Medicines Management Committee (or equivalent)

2.1.3. Medical Staff and other Designated Practitioners must not be allowed to initiate chemotherapy until they have undergone appropriate training and competency assessment, with documentary proof of this training. It is the responsibility of the supervising Consultant to arrange this training and assessment.

2.1.4. The Consultant responsible for the overall care of the patient must ensure that any healthcare professional who prescribes cytotoxic chemotherapy has adequate experience and specific instructions concerning dosage, route of administration and common toxicity of all medicines prescribed. Chemotherapy prescribed for treating cancer (irrespective of the route of administration) must be prescribed by an oncologist/haematologist of, speciality doctor, registrar grade (SpR/ST3) or above or a competent non-medical prescriber

2.1.5. For prescribing of Intrathecal chemotherapy see the relevant local Trust policy and the Department of Health national guidance on the safe administration of intrathecal chemotherapy

2.1.6. Chemotherapy regimens must routinely be prescribed on the basis of a recognised protocol (including those used as part of a clinical trial). Protocols should be agreed across the Cancer Network, incorporated into a protocol "book"' (actual or web-based) and updated at least annually. The protocol book should also include treatment guidelines for the management of common chemotherapy toxicities (e.g. neutropenic sepsis). The current protocol book should be available wherever chemotherapy is prescribed, dispensed or delivered and where chemotherapy patients are assessed and treated

2.1.7. The Appointed Practitioner in Charge must ensure a list of staff authorised to prescribe chemotherapy is maintained. A copy of this list must be available in the pharmacy area. Only staff whose names are on this list are

authorised to prescribe chemotherapy. Newly appointed medical staff or nursing staff of whatever grade may not prescribe or administer chemotherapy until they have completed the necessary training and competency assessment.

2.1.8. The first cycle (at least) of a regimen of systemic chemotherapy should only be prescribed by a solid tumour oncologist or haemato-oncologist (as applicable) at consultant/specialist staff grade/ST3/SpR level.

2.1.8.1. In order for a staff grade/SpR/ST3 to sign the first prescription, the referral information must be countersigned by the relevant Consultant or equivalent documentation be made in medical notes confirming the treatment decision following consultation

2.1.8.2. A staff grade/SpR/ST3 must be deemed competent to sign first prescriptions and feel comfortable to do so before being permitted

2.1.8.3. In view of waiting times, if the site specific Consultant is absent, the staff grade/SpR/ST3 should discuss the case in detail with another Consultant who will then countersign the referral information if they feel that the treatment plan is appropriate

2.1.9. Prior to the first cycle of chemotherapy, details of specific diseases or conditions affecting fitness for chemotherapy. (This includes that the minimum physical and investigational requirements have been met), allergies and current patient medication affecting chemotherapy must be checked and documented

2.1.9.1. Consideration should be given to making this information available to other members of the multi-disciplinary chemotherapy team to allow a double check of the appropriateness of the regimen proposed.

2.1.10. Speciality doctors, registrars (Spr/ST3) and non-medical prescribers who prescribe chemotherapy must seek advice from the relevant Consultant if a change of dosage becomes necessary that is not covered by local treatment guidelines.

2.1.11. All cancer chemotherapy regimens (irrespective of the route of administration) must be prescribed, following a pre-chemotherapy assessment of the patient, on a specialist pre-printed prescription chart or computer system, with detailed instructions on administration.

2.1.12. All cancer chemotherapy prescription charts (irrespective of the route of administration) must include the patient's name, date of birth, registration details, performance status, height, weight, surface area and full blood count; plus U&Es and LFTs as appropriate.

2.1.13. Prescription charts must state clearly:

- The regimen of chemotherapy to be used
- The date due to be given
- The combination of medicines in each cycle
- The dose of each medicine
- The route of administration for each drug
- The method of administration for each drug (infusion volume, rate etc.)

2.1.14. Any amendments made must be clear e.g. date of administration, dose reduction, altered anti-emetics. The reason(s) for any dose reduction or delay to treatment must be documented according to local procedures.

2.1.15. Copies of all agreed protocols must be available in the pharmacy areas, wards and clinic.

2.1.16. Each cycle of chemotherapy must be prescribed separately with the cycle numbers recorded.

2.1.17. The cycle number and the medicines administered must be dated by the prescriber and listed in the patient's notes as a record of progress.

Intrathecal Chemotherapy

See the Department of Health national guidance on the safe administration of intrathecal chemotherapy and any specific Trust intrathecal chemotherapy policy

Prescribing – Off Protocol Chemotherapy

2.1.18. Requests for one off chemotherapy that is not included in an approved protocol may only be prescribed under the direction of Consultant medical staff approved to prescribe chemotherapy.

2.1.19. Any off protocol chemotherapy prescribing must be done in accordance with the EMCN Non Protocol Chemotherapy Policy.

2.1.20. The Network Chemotherapy Group must review all adult off protocol prescribing annually

2.1.21. The children's cancer network (CCN) and the co-ordinating group (CCNCG) must review off protocol prescribing annually.

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Oral Chemotherapy

2.1.22. At the time of writing the first prescription for oral, outpatient chemotherapy a clear time limit must be specified in the patient's notes, after which a Consultant must review the patient.

2.1.23. At this review, and at each subsequent review, a limit to the number of cycles must be specified in the patient's notes, after which the patient must be reviewed.

2.1.24. Oral chemotherapy used for treating cancer should only be prescribed (initiated) by an authorised Consultant, staff grade, registrar (ST3) or non-medical prescriber, all cycles should be prescribed by the Acute Trust. Primary care colleagues must not be asked to prescribe chemotherapy for patients unless a robust governance framework is in place. Hydroxycarbamide may be prescribed in primary care as part of a Shared Care Agreement ensuring patients are under the care of a consultant

haematologist. GPs may also prescribe topical cytotoxic agents for some skin malignancies or pre-malignant conditions.

2.1.25. Non-specialists who prescribe on-going oral anti-cancer medication should have ready access to appropriate written protocols and treatment plans including guidance on monitoring and treatment of toxicity.

3. *DISPENSING*

General Principles

3.1. Chemotherapy (irrespective of the route of administration) will only be routinely dispensed during normal working hours

3.2. The Pharmacist / appropriately trained technician must not release the medication for administration unless the prescription has been signed by the prescriber and clinically checked by the pharmacist.

Oral Chemotherapy

3.3. Staff dispensing oral anti-cancer medicines should be able to confirm that the prescribed dose is appropriate for the patient, and that the patient is aware of the required monitoring arrangements. Pharmacy staff should have access to information in the written protocol and treatment plan from the hospital where treatment is initiated and advice from a pharmacist with experience in cancer treatment in that hospital.

Parenteral Chemotherapy

3.4. Parenteral chemotherapy dispensing must be carried out in negative pressure isolators within positive pressure clean rooms, where alternative arrangements exist, a robust risk assessment must be undertaken

3.5. Only authorized staff should prepare parenteral chemotherapy. Staff must not be allowed to dispense parenteral chemotherapy until they have undergone appropriate training and competency assessment

3.6. The aseptic dispensing of chemotherapy must be under the supervision of a specialist Pharmacist in accordance with pharmacy procedures. The number and experience of the technical staff must be adequate for the amount of work undertaken and this must proceed in an ordered, systematic and unhurried fashion.

3.7. Pharmacy should receive adequate advance warning of intended parenteral Cytotoxic Chemotherapy, even where this is provisional and the final decision to prepare and administer the medicines depends, for example, on the patient's blood count. In cases where there is a clinical need for chemotherapy to be given urgently the prescription should be generated as soon as possible and the case discussed with the Pharmacist to ascertain the soonest that chemotherapy can be safely dispensed.

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3.8. There should be an agreed arrangement whereby the Head of the Cancer Service, in consultation with the pharmacy service and lead chemotherapy nurse, is able to

limit the number of chemotherapy patients being treated when they judge the workload to have reached unsafe levels

4. TRANSPORTATION

Hospital

4.1.1. When transporting cytotoxic drugs from the pharmacy, all parenteral preparations must be transported in containers able to contain leaks, appropriately labelled to ensure staff are aware of the contents.

4.1.2. Intrathecal therapy is delivered/collected in accordance with the relevant Trust Intrathecal Chemotherapy Policy.

4.1.3. Chemotherapy must only be transported in appropriate containers by members of staff aware of the risks or patients taking chemotherapy home for administration by district nurses.

4.1.4. Additional checks should be performed at the time of delivery to ensure the drug is stored appropriately. If the parenteral chemotherapy item is intended to be stored then the person receiving the chemotherapy must check the area intended for storage and ensure that the area is appropriate and no other chemotherapy is stored in the same area that could cause confusion and increase clinical risk.

4.1.5. If a regimen is to run over more than one nursing shift, it is the responsibility of the nurse in charge of the clinical area to ensure that a suitably trained professional is available throughout the proposed period of treatment.

Hospital Outreach Services / Community

4.1.6. Parenteral Cytotoxic medication for the use in the community will be given to the appropriate member of nursing staff / patient in an appropriate container appropriately labelled to ensure staff are aware of the contents

5. STORAGE

Hospital

On receipt in the clinical area, the nurse must check the expiry date and storage conditions and ensure that the drug is not administered outside of this period without further reference to a pharmacist.

5.1. Dispensing and storage of Intrathecal chemotherapy must be in line with the relevant local Trust Policy for the management of Intrathecal chemotherapy.

5.2. There must be dedicated areas for the storage of chemotherapy at ward level, for items stored at both room temperature and in the refrigerator.

5.3. Unused and unopened syringes/infusions containing chemotherapy medicines must be retained in the clinical area and or returned to pharmacy in accordance with locally agreed procedures

5.4. Chemotherapy infusions, which have been partly used or damaged and require disposal must be disposed of on the ward following locally agreed procedures

Hospital Outreach Services / Community

5.5. Wherever possible chemotherapy should not be stored beyond the session of administration (e.g. the duration of that days clinic)

If chemotherapy has to be stored in an outreach clinic or a patient's home a risk assessment must be undertaken before this takes place

5.6. There must be arrangements in place to monitor the temperature within the storage area (in particular refrigeration) with defined permissible maximum and minimum temperature thresholds and clear advice regards action to be taken should storage temperatures deviate from permissible ranges

6. CHECKING OF CHEMOTHERAPY

Parenteral Chemotherapy

6.1.1. All staff who administer parenteral chemotherapy must have successfully completed a network agreed competency based training course.

6.1.2. A list of staff authorised to prescribe and administer parenteral cancer chemotherapy must be maintained by each service provider. Only staff whose names are on the list are authorised to administer cancer chemotherapy.

6.1.3. Nursing staff of any grade may only administer cancer chemotherapy under the supervision of an appropriately trained nurse until they have completed the necessary training and achieved competency.

6.1.4. A cytotoxic drug must only be administered when:

- An official prescription has been signed by the Doctor or authorised non medical prescriber according to local procedures
- The drugs have been checked against the prescription.
- **THE PRESCRIPTION MUST ALWAYS BE PRESENT BEFORE ANY CYTOTOXIC IS ADMINISTERED**
- If this is the first cycle of treatment, check that the consent form has been signed.

In the event of a discrepancy at any of the stages of verification, the chemotherapy must not be given until the problem is resolved to the satisfaction of the Medical Practitioner, pharmacist and the nursing staff. If the discrepancy cannot readily be resolved, Consultant advice must be sought.

- **If in doubt, do not proceed.**

6.1.5. The following must be checked with another suitably trained member of staff against the prescription sheet:

- Body surface area (at the point of administration)
- Patient Identification (using Trust policy for positive patient identification, or equivalent)
- Laboratory results are within accepted limits
- Toxicity results are within accepted limits
- Correct drug
- Correct dose of drug
- Correct dilution of drug (infusion fluid and volume)
- Correct route and method of administration
- Expiry date is sufficient to permit the completion of planned therapy.
- Informed consent has been obtained for the planned therapy

6.1.6. A nurse who has completed a network agreed competency based training course must always be one of the two practitioners responsible for checking, signing and administering cancer chemotherapy. One of the two people checking any chemotherapy must be the administering person. The following details must be documented in line with Trust policy for medicines administration:

- Date of administration
- Time of administration

6.1.7. Peripheral vesicants in paediatrics must always be given by medical practitioners and nurses who have successfully completed a network agreed competency based training course specific to peripheral vesicants.

Intrathecal Chemotherapy

This must be carried out according to Department of Health national guidance on the safe administration of intrathecal chemotherapy and the relevant Trust Intrathecal Chemotherapy Policy

7. ADMINISTRATION

Timing

Where possible chemotherapy must be commenced and completed during the working day as agreed locally unless medically indicated. This is in order to ensure the ready availability of appropriate sources for advice.

Exceptions:

- Continuous Infusions
- Timed chemotherapy
- Chemotherapy given more than once a day
- Urgent need to administer out of hours as agreed locally.

Location

Chemotherapy must be undertaken in designated clinical areas that are regularly used for the purpose and equipped to deal with any emergencies that might arise from the treatment. These areas have to comply with the relevant national guidance.

In exceptional circumstances, appropriately trained staff will administer the chemotherapy in the clinical area where the patient is based. The administering staff must ensure the team caring for the patient are aware of the safety precautions necessary in caring for the patient.

Hospital Outreach Services / Community

7.1.1. Prior to any chemotherapy being administered outside of the acute trust setting, a risk assessment of the proposed location must be undertaken. This assessment must include the following factors:

- Staff safety (in conjunction with any organisational policies on lone working)
- Patient (and contacts if appropriate) safety
- Environment for drug administration
- Risk of spillage and potential consequences
- Access to medical support
- Access to emergency medicines and equipment

7.1.2. If the above risks are deemed unacceptable, steps must be taken to mitigate the risks to an acceptable level at the proposed location. Where this is not feasible an alternative location must be sought

Intrathecal Chemotherapy

This must be carried out according to Department of Health national guidance on the safe administration of intrathecal chemotherapy and the relevant Trust Intrathecal Chemotherapy Policy

Oral Chemotherapy

7.1.3. Oral chemotherapy may be administered in any clinical area. However prior to commencing administration, advice should be sought as to whether it is clinically appropriate to continue therapy.

7.1.4. Tablets must **not** be crushed or capsules opened prior to administration without consulting pharmacy. Advice should be sought from the pharmacy team if patients experience swallowing problems.

7.1.5. Non-specialists who administer on-going oral anti-cancer medication should have ready access to appropriate written protocols and treatment plans including guidance on monitoring and treatment of toxicity. Drug charts should be annotated to indicate that the prescribed medicine is "Cytotoxic"
If in doubt, do not proceed.

Outreach/Community Administration

7.1.6. Patients discharged into the community on continuous cytotoxic chemotherapy infusions may be overseen by appropriately trained community nursing staff. The pump may be disconnected and disposed of by these staff under local agreement.

8. INFORMATION

Chemotherapy Information for General Practitioners

8.1.1. General Practitioners should be fully informed and receive up-to-date written information about the anticancer therapy being administered from the initiating hospital. This information should include contact details for specialist advice. Written information, including details of the intended anti-cancer regimen, treatment plan and arrangements for monitoring, taken from the original protocol should be given to the General Practitioner
NB. caution must be taken if trusts issue a copy of 'prescriptions' to GPs as there is a risk of inappropriate continuation of medicine. It must be stated on any written communication that 'This medication is NOT for continuation by primary care'

8.1.2. There should also be written guidelines for General Practitioners covering advice to give and action to take when patients undergoing cancer chemotherapy consult them with symptoms that may be related to complications. Conditions to be covered should include neutropenic sepsis, extravasation injury, nausea and vomiting.

8.1.3. These guidelines should be sent to individual General Practitioners each time one of their patients commences a regimen of cancer chemotherapy.

8.1.4. It is the responsibility of the Staff member prescribing the chemotherapy to ensure the appropriate guideline is sent to the General Practitioner.

Chemotherapy Information for Patients

8.1.5. Patients should be fully informed and receive verbal and up-to-date written information about their anticancer therapy from the initiating hospital. This information should include contact details for specialist advice, which can be shared with non-specialist practitioners. Written information, including details of the intended anti-cancer regimen, treatment plan and arrangements for monitoring, taken from the original protocol should be given to the patient.

8.1.6. There should be written guidelines for patients undergoing chemotherapy covering advice and action to be taken if and when they develop symptoms that may be related to side effects or complications. Conditions to be covered should include neutropenic sepsis, nausea and vomiting.

8.1.7. Where possible peer reviewed chemotherapy information (e.g. Macmillan) should be used and supplemented with local information about accessing advice and services

8.1.8. It is the responsibility of the Trust staff member giving the chemotherapy to ensure the patient/guardian has the appropriate written information.

9. PROTECTION OF PERSONNEL

Pregnant Staff & Nursing Mothers

9.1.1. An individual risk assessment must be undertaken at the first opportunity. Where other risks cannot be mitigated to an acceptable level consideration should be given to redeploying the member of staff within the organisation

10. PROTECTION OF THE ENVIRONMENT

Spillage

10.1.1. The main priorities are to contain and prevent further contamination or operator exposure.

10.1.2. The responsibility for clearing up a spillage lies with the member of staff involved with the incident, unless it is felt by a senior member of staff that this person is not sufficiently trained to deal with the spillage or is pregnant. In this event, the senior staff member or deputy will decide upon who will deal with the spillage.

10.1.3. In the event of a spillage the nurse must follow the local chemotherapy spillage policy

Contact with Eyes

10.1.3. Eye wash facilities must be available for the use in the event of contamination of the eyes.

10.1.4. The relevant local policy must be followed at all times.

Contact with Skin

10.1.5. For **ALL** cytotoxic agents **rinse the skin well** with copious amounts of water unless otherwise stated below or refer to the manufacturer's guidelines. If necessary seek medical advice.

10.1.6. Contaminated clothing or linen should be changed immediately and treated according to the local policy for soiled linen. (See spillage policy)

10.1.7. The relevant local policy must be followed at all times

Needlestick injuries

10.1.8. Refer to hospital policy

Disposal of Cytotoxic Waste

10.1.9. Local waste disposal policies must be followed at all times

Disposal of Excreta

10.1.10. Significant amounts of cytotoxic substances may be excreted in urine, vomit and faeces for up to three weeks after administration of these drugs.

10.1.11. The local policy must be followed at all times

Bed Linen

10.1.12. When contaminated by excreta, bed linen should be dealt with in the same way as spillage of the drug during preparation (See spillage policy)

10.1.13. In the **community** contaminated bed linen should be bagged separately until it can be washed in the normal way – **separate to other washing**.

Surfaces

10.1.14. Surfaces contaminated by spillage after cleaning must be decontaminated chlor clean or equivalent as per local policy.

Cleaning up Materials

10.1.15. Aprons, gowns and gloves – **all disposable** – should be double bagged in heavy duty clinical waste bags, sealed and labelled:

"DANGER CYTOTOXIC HAZARD FOR INCINERATION"

as should any paper towels used to assist in the washing process

11. MANAGEMENT OF CYTOTOXIC EXTRAVASATION

11.1.1. The Cancer Network Extravasation guideline must be followed at all times (See appendix 2)

12. REFERENCES

- Control of Substances Hazardous to Health Regulations 1988.
- Health and Safety at Work Act 1974.
- Clinical Practice Guidelines. The Administration of Cytotoxic Chemotherapy. Recommendations Royal College of Nursing 1998.
- National Guidance on the Safe Administration of Intrathecal Chemotherapy 2001.
- NPSA Rapid Response Alert – Risks of Incorrect Dosing of Oral Anti-cancer Medicines (NPSA/2008/RRR001), January 2008
- Chemotherapy Services in England: Ensuring quality and safety - A report from the National Chemotherapy Advisory Group; August 2009
- National Cancer Peer Review Programme, Manual for Cancer Services: Chemotherapy Measures, Version 1.0, 22nd June 2011. Gateway 16104

Appendix 1 – Staff Definitions

Throughout this document, certain specialist titles describe healthcare staff who have defined responsibilities regarding the management of medicines. Only staff with contracts (or honorary contracts of employment) to work in the relevant Trust are recognised as having any involvement with medicines.

Medical Practitioner
A doctor registered with the GMC

Nurse
A nurse registered with the NMC.

Pharmacist
A Pharmacist registered with the General Pharmaceutical Council

Pharmacy Technician
A Medical Technical Officer who has completed a nationally recognised qualification in pharmacy, and may perform authorised roles under the supervision of a pharmacist or other qualified practitioner. They are registered with the General Pharmaceutical Council

Designated Practitioner
A practitioner from a Health Care Group (approved by the Trust) identified by the Appointed Practitioner in Charge as competent and appropriate to perform a specific function and the designation as such has been communicated to and accepted by the practitioner.

Independent Prescriber
-A UK registered doctor,
-A dentist prescribing from the Dental Formulary,
-A nurse prescriber prescribing within their area of competence.
-A pharmacist prescriber prescribing within their area of competence.

Appendix 2 –EMCN Guideline for the Management of Presumed Cytotoxic Extravasation-check website for latest version

Your nearest Extravasations kit is located:

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GUIDELINE FOR MANAGEMENT OF EXTRAVASATION

NHS East Midlands Strategic Clinical Networks

Extravasation is a severe complication in the administration of cytotoxic chemotherapy. It causes pain, erythema, inflammation, discomfort and if left undiagnosed or inappropriately treated can lead to necrosis, secondary infection and functional loss of the tissue and/or limb concerned. This may also hinder future treatments in some cases. If treatment is delayed, surgical debridement, skin grafting and even amputation may be the consequence

1. STOP the injection immediately, but leave the cannula in place
2. Classify the agent using the tables below and treat as directed (if not listed below consult Pharmacy)
3. Collect extravasation kit
4. Apply COLD pack immediately (WARM if non DNA binding Vesicant)
5. Aspirate as much fluid as possible through the cannula, try to draw back about 3 to 5ml of blood
6. Mark the extravasation area with a permanent marker pen
7. Contact the patient's doctor
8. Remove the cannula only after appropriate treatment

Vesicants DNA-binding

Amsacrine
Bendamustine
Carmustine
Dacarbazine
Dactinomycin
Daunorubicin
Doxorubicin
Epirubicin
Idarubicin
Mitomycin C
Mustine
Trabectidin
Treosulfan

AIM: LOCALISE & NEUTRALISE

- Neutralise the infusate by applying a thin layer topical DMSO to the marked area using a cotton bud. Do not use DMSO If blistering present.
- Allow the DMSO to dry, and then cover with a non-occlusive gauze dressing, this should be applied within 10-25 minutes
- Apply a cold pack for 30 minutes. Repeat every 4 hours for 24 hours to help localise the infusate
- 3 hours after first DMSO application apply hydrocortisone 1% cream. Repeat every 6 hours for 7 days
- Elevate the limb

Consider referral to Hand/Plastic Surgeon

Vesicants Non-DNA-binding

Cabazitaxel
Nab-paclitaxel
Paclitaxel
Vinblastine
Vincristine
Vindesine
Vinflunine
Vinorelbine

AIM: DISPERSE & DILUTE

- Give several subcutaneous (or intradermal) injections of 150 – 1500 IU of hyaluronidase diluted in 1 mL sterile water as 5 separate 0.2ml injections around the periphery extravasated area to dilute the infusate.
- Use 25 to 27 gauge needle and change after each injection
- If there is no blood return in the affected IV catheter, consider infusing 0.4ml of hyaluronidase mixture directly through the affected IV catheter before removing the catheter and administering the remainder of the dose subcutaneously around the periphery extravastion
- Apply hydrocortisone 1% cream every 6 hours for as long as erythema persists.
- Elevate the limb
- Apply a warm pack to the affected area for 30 minutes 4 times daily for 1 to 2 days

NB. Administration of hyaluronidase should begin within 1 hour of extravasation for best results

Consider referral to Hand/Plastic Surgeon

Irritants[1]
Arsenic Trioxide
Cyclophosphamide
Liposomal Daunorubicin
Liposomal Doxorubicin
Etoposide
Fluorouracil
Ganetespib
Ifosfamide
Mephalan
Mitoxantrone
Streptozocin

Possible irritants[2]
Carboplatin
Cisplatin
Docetaxel
Gemtuzumab Ozogamicin
Irinotecan
Oxaliplatin*
Topotecan

AIM: LOCALISE

- Apply cold pack for 30 minutes every 4 hours for 24 hours (*for oxaliplatin – treat using a warm compress to avoid the risk of paraesthesia which can be precipitated by cold)
- Apply hydrocortisone cream 1% every 6 hours for 7 days or as long as erythema persists

Non-vesicants[1]
Aflibercept
Asparaginase
Bleomycin
Bortezomib
Brentuximab vedotin
Cladribine
Clofarabine
Cytarabine
Eribulin
Etoposide phosphate
Fludarabine
Gemcitabine
Inotuzumab ozogamicin
Interferons
Interleukin-2
Methotrexate
Mifamurtide
Monoclonal antibodies
Nelarabine
Pemetrexed
Pentostatin
Raltitrexed
Temsirolimus
Thiotepa
Trastuzumab emtansine
Vosaroxin

AIM: SYMPTOMATIC RELIEF

- Elevate the limb
- Consider applying a cold pack if local symptoms occur
- Apply hydrocortisone cream 1% four times each day if erythema is present

[1] Any agent extravasated in high enough concentration may be an irritant

[2] There have been few reports of these agents acting as irritants, but there is no clear evidence for this

NOTE: For those medications that are not considered a vesicant but cause prolonged patient discomfort at the infusion site, it is strongly recommended that a central line be placed

NB. Causes which may commonly lead to misdiagnosis include: Allergic reaction / flare reaction / vessel reaction / venous shock / phlebitis etc

- Complete documentation and send to nominated person:
  - Nursing +/- Medical notes / records
  - Drug chart
  - Incident form (DATIX form)
  - Patient information leaflet
- Give analgesia if necessary
- Arrange a follow-up appointment. The extravasation should be reviewed after it has occurred at:
  - 24 hours
  - 1 week
  - 3-4 weeks and then subsequently until resolution of erythema if present
- Contact pharmacy for replacement drugs

The treatment proposed above is "first aid" only. Seek further advice – early review by plastic surgeon is advisable, consider medical photography

For latest version see www.eastmidlandscancernetwork.nhs.uk

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Checked by: EM Chemotherapy Group
Date: Sept 11
Last updated: 14th October 2015
Review date: 14th October 2017 EMCN-DC-0003-10

Large prints are available in treatment areas detailing location of Extravasation kit

Appendix 3

EXTRAVASATION KIT CONTENTS

Antidotes/Medication/Diluents
1 x DMSO topical solution
2 x Hyaluronidase 1500 units injection
2 x Hydrocortisone 100mg injection
1 x Hydrocortisone 1% Cream
4 x Water for injection amps
2 x Sodium Chloride 0.9% amps

Equipment
Syringes
25-27 Gauge Needles
1 x Black permanent marker pen
1 x Hot pack
1 x Cold pack

Documentation
Green Extravasation reporting card
Drug Chart
Patient information leaflet

Items available in clinic area
Injection swabs
Gloves
Apron
Dressings
Sterile gauze dressing
Drug chart
Tape measure/ruler (disposable)