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Developed by	Borders SACT Group
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Introduction

Cytotoxic therapy is known to be potentially carcinogenic and mutagenic and is defined as hazardous by the Control of Substances Hazardous to Health Regulations 2002 (COSHH). The risks to those receiving treatment with cytotoxic therapy is well recognised and weighted against clinic benefit. The risk to healthcare workers through occupational exposure, although less clear, is sufficient to indicate that all necessary measures be implemented to prevent and minimise risk from exposure. The guidance outlined in CEL 30 (2012) states all staff working with systemic anti-cancer therapies (SACT) must be made aware of risks and the circumstances under which they may be exposed.

Intent

To promote the safe delivery of SACT in all care settings and minimise risk to all staff involved in the prescribing, preparation, dispensing, transportation, administration and disposal of SACT. SACT encompasses cytotoxic chemotherapy agents, biological therapies, including immunotherapy and disease-modifying targeted agents. The guidance within this document is written primarily to promote safe use of these agents in cancer conditions. However it is recommended clinical governance and risk management arrangements for non-cancer indications should be consistent with this guidance.

It does not cover Intrathecal chemotherapy (refer to NHS Borders policy for Intrathecal Chemotherapy) or hormonal therapies.

These guidelines are intended to promote the safe use of SACT in all care settings, including the patient's home.

General Principles

- NHS Borders Code of Practice for the Control of Medicines **must** be followed whilst prescribing and administrating SACT.
- SACT should only be administered in designated areas by staff who have undergone training in the safe handling and administration of these agents, otherwise advice should be sought from Pharmacy or the Borders MacMillan Centre (BMC).
- SACT should be administered, wherever possible, during 0900hrs-1700hrs Monday to Friday. Outwith these hours (1700-2000) at the discretion of the BMC Senior Nurse.
- Parenteral chemotherapy is not dispensed out of hours.
- Personal Protective Equipment (PPE) **must** be used as advised in the document

SECTION 1:

CLINICAL GOVERNANCE, QUALITY & RISK MANAGEMENT

1. Clinical Governance, Quality and Risk Management

Clinical Governance

The identified lead clinician for SACT is responsible for ensuring compliance with current legislation, national standards and guidelines.

The Borders Systemic Anti Cancer Therapy Operational Group (BSOG) will support the lead SACT clinician and is NHS Borders primary source of advice on issues relating to the provision of SACT services and delivery of SACT.

The group will aim to ensure that SACT services are safe, high quality, effective and equitable in line with best practice nationally and regionally.

Reporting Structure and Communication

The BSOG will report to Cancer Governance Group and Borders General Hospital Clinical Governance Committee.

Designated members from BSOG will represent NHS Borders on the South East Scotland Cancer Network (SCAN) Regional SACT Advisory Group (RSAG) and NHS Lothian Cancer Therapeutics Advisory Committee (CTAC).

Quality

NHS Borders will participate in national and regional audit programmes which will include external peer review from another cancer network.

Action plans with priorities, timescales and responsibilities will be generated from the audit process and monitored via the BSOG

Risk Management

Incidents
All incidents, actual or near misses **must** be reported on Datix Reporting System and managed in line with the NHS Borders Adverse Event Management Policy.

In addition Datix reports are reviewed at the BSOG and also fed in to the NHS Lothian CTAC to enable shared learning.

30 Day Mortality
Deaths occurring within 30 days of administration of SACT are managed as detailed in the standard operating procedure.

SECTION 2:
EDUCATION & TRAINING

2. Education and Training

All staff involved in SACT are require to have appropriate skills, knowledge and training in their field of practice.

Evidence of education, training and competency **must** be documented in the staff training record and be available for audit purposes when required (check passport & training records).

Nursing Staff Borders Macmillan Centre SACT Day Unit

All registered nursing staff with substantive posts in the Borders Macmillan Centre (BMC) Chemotherapy Day Unit **must** have completed the training outlined in the SACT Education and Training standard operating procedure (SOP) which includes the NHS Lothian Chemotherapy Administration Module or equivalent at degree level.

All bank nursing staff working within the BMC will complete training outlined in the local induction SOP and work within this level.

Ongoing Competency will be reassessed:

- Annually
- Should there be any concerns regarding competency
- After a period of prolonged leave

Nursing Staff Out With Borders Macmillan Centre

Whilst SACT is not routinely delivered outwith BMC it is recognised that on occasions it may be necessary to do so and that patients may also be admitted whilst on SACT. The following education and training should be initiated to minimise risk for patients and staff on these occasions.

The Specialist Oncology or Haematology Team when notified of a planned treatment will contact the ward or community team and arrange to deliver education as required but as a minimum will cover:

- Safe handling and disposal
- Specific side effects and management
- Specific observations required
- Management of extravasation, if appropriate
- Details of contacts for advice both in & out of hours

The need for safe handling and specific observations should be communicated via the ward Safety Brief

Pharmacy

All pharmacy staff **must** undertake in house training commensurate with their role in the provision of SACT. At a minimum they will complete a local safe handling training package at induction.

Pharmacists **must** successfully complete training covering the principles of treatment with and the operational delivery of SACT. This will be followed by a period of supervision by an experienced pharmacist during which competency **must** be demonstrated in performing pharmaceutical verification of SACT prescriptions.

Those staff involved in the aseptic dispensing service **must** successfully complete the appropriate in house training program. Competency will be assessed every 2 years.

Medical Staff

Level of competency is in keeping with the Edinburgh Cancer Centre Competency Levels and can be found on the NHS Lothian intranet, The Oncology Online Quality System (OOQS). Ongoing competency is ensured via annual appraisal.

Nurse Non-Medical Prescribers

Non Medical Prescribers (NMPs) will adhere to NHS Borders Independent/ Nurse Formulary Prescribing Policy and will be signed off as competent by a Consultant Oncologist or Haematologist after a period of training & supervision.

NMPs will maintain their personal core formulary and not prescribe outwith their area of competence.
NMPs will complete the competencies as stated in “The Royal Pharmaceutical Society competency framework for all Prescribers”.
NMPs will endeavour to keep a reflective log.
These can be used to demonstrate clinical governance of their prescribing practice. This evidence could be used to support achievement of the dimensions within eKSF for PDP development and NMC re-validation.

NMPs should meet at regular intervals for peer review (case studies, presentations) and support.

Pharmacist Non-Medical Prescribers

Pharmacists must complete an accredited course in Independent Prescribing and be accepted on to the NHS Borders Independent Prescriber register and will adhere to the NHS Borders Independent/Nurse Formulary Prescribing Policy.
Pharmacist Independent Prescribers should train and prescribe under a non-medical prescribing competency framework for SACT. This will define governance requirements, NMPs role and include a service agreement.

Training must be under the supervision of a Consultant Oncologist or Haematologist (although time can be spent with other NMPs) and involve development of a training log with defined competencies being met as part of the framework. This should include reflective statements, mini-cex and case based discussion forms.

The Pharmacist Independent Prescriber should prescribe within the remit of service agreement with Cancer Services that clearly defines their role within the service,

Pharmacist Independent prescribers should continue to keep a reflective log of their practice and are encouraged to engage in peer review discussions with fellow prescribers as part of their continuing professional development

Ancillary Staff

All ancillary staff should receive training commensurate with their role which will be carried out by the Cancer Services pharmacist. The General Services Manager will advise Cancer Services Pharmacist of any training requirements.

SECTION 3:
DECISION TO TREAT, CONSENT & INFORMATION TO PATIENTS

3. Decision to Treat, Consent and Information for Patients

Decision to Treat

Initiation of a new course of SACT **must** be taken by the Consultant Oncologist or Haematologist in discussion with the MDT, if appropriate, and in accordance with the Clinical Management Guidelines (CMGs) and with patients and carers (with the patient's consent) if possible.

A record of the consultation should be documented in the patient case notes and include evidence of

- Treatment decision
- Treatment intent
- Proposed treatment plan and review
- Informed consent
- Performance status
- Co-morbidities

A record of the consultation should be communicated to GPs within 14 days.

Consent

Consent should be taken at an appropriate time after the provision of verbal and written information which includes the potential risks and anticipated benefits of treatment. The Cancer Research UK (CRUK) consent forms which are SACT specific should be used and can be accessed via The NHS Lothian Intranet via OOQS.

Responsibilities

- Medical Staff for discussing the treatment and the consent process and giving the patient a copy of the consent form.
- Treating Nurse for ensuring the patient has signed a consent form prior to administration of SACT. The nurse either at work-up or at the patients first cycle of SACT signs the consent form to confirm that the patient agrees to proceed with the planned treatment.

Patient Information

Patients **must** be offered verbal and written information prior to the initiation of SACT. This information **must** provide, at a minimum

- SACT protocol specific toxicity
- Signs and symptoms of extravasation, if appropriate
- When, who and how to access advice if toxicity develops
- Safe handling and disposal of waste- for patient
- Specific information required if patients are self administering oral/ subcutaneous SACT at home
- Specific information required if patients are self administering oral SACT at home

- Specific information required if patients or Community Nurses are administering subcutaneous SACT at home.
- Advice regarding appropriate contraceptive methods during SACT treatment

Recommendations for patients regarding contraception during SACT

Patients and their partners who are not at risk of becoming pregnant

- Advise to use a condom throughout treatment to protect the partner from potential absorption of SACT by-products through intimate contact during this period of time.

Patients and their partners who are at risk of becoming pregnant

- Advise to discuss methods of contraception that are suitable for use throughout treatment and on completion of treatment with their doctor
- Advise to use a condom throughout treatment to protect the partner from potential absorption of SACT by-products through intimate contact during this period of time.
- Men should continue contraception for 6 months after finishing SACT.
- Females should not conceive for a year after finishing SACT

Information given to patients must be clearly documented

SECTION 4: PRESCRIBING SACT

4. Prescribing SACT

General Principles

- The initial decision and prescribing of SACT chemotherapy **must** be made by a Consultant Oncologist/Haematologist.

- Prescribing should comply with SACT protocols detailed in Clinical Management Guidelines (CMG) approved through the SCAN managed clinical network structure.

- SACT protocols and CMGs can be accessed via NHS Lothian Intranet> OOQS

- Only staff on approved lists may prescribe SACT as per their identified competency level. A list of approved prescribers and competency levels can be accessed via the NHS Borders Cancer Services Microsite (Haematology) http://intranet/microsites/index.asp?siteid=565&uid=36 & NHS Lothian Intranet> OOQS (Oncology).

- SACT **must** be prescribed on the Chemotherapy Electronic Prescribing System Chemocare or, in mitigating circumstances only, on the standardised paper prescription form, and contain information as outlined overleaf.

- Prescribing of oral SACT **must** be carried out to the same standards as those for parental chemotherapy and state the start date and duration of each treatment cycle.

- SACT **must not** be prescribed by repeat prescription.

- Dose modifications and reasons for these must be clearly annotated in the chemocare record.

Requirements for SACT prescription

PATIENT DETAILS	Checked
Patient name	
Date of birth	
CHI number	
Height, weight & body surface area where relevant	
Diagnosis	
Performance Status	
Relevant haematological or biochemistry results	
Any other relevant tests e.g. ejection fraction	

SACT DETAILS	Checked
Name of SACT protocol	
All SACT medicines to be administered including protocol doses • Full GENERIC names (& proprietary name where applicable) • Specific formulation	
Calculated doses to be administered	
Indication for any dose modifications	
Maximum cumulative dose where applicable	
Route, method and duration of administration	
Where appropriate, diluents and infusion volumes	
Hydration schedules if required	
Pre-medication if required	
Appropriate supportive therapy	
Indication of concomitant radiotherapy where applicable	
Cycle number and date of administration	
Intervals between cycles	
For oral SACT, the start date and duration of each treatment cycle	

PRESCRIBER DETAILS	Checked
Signature, printed name, designation, date & contact details	

PHARMACY DETAILS	Checked
Pharmaceutical verification signature and date	

ADMINISTRATION DETAILS	Checked
Signatures, date and time of administration	

All details outlined above are clear, legible & unambiguous	

SECTION 5: VERIFICATION, PREPARATION & DISPENSING OF SACT

5. Pharmacy Verification, Preparation and Dispensing of SACT

Pharmaceutical Verification

A suitably trained pharmacist should undertake the pharmaceutical care and treatment verification for patients receiving SACT in accordance with legislative requirements, national standards and local policy. Key checks are outlined below.

The prescription is signed and dated as a record of pharmaceutical verification.

Adapted from British Oncology Pharmacy Association (BOPA) Standards for Pharmacy Verification of Prescriptions for Cancer Medicines (3rd Edition, 2018).

PRESCRIBER DETAILS	Checked
Prescriber details and signature are present (electronic acceptable)	
Authorised to prescribe SACT	

PATIENT DETAILS	Checked
Patient demographics- name, address, date of birth, CHI (age)	
Height, weight & body surface area (BSA) is correctly calculated, taking into account recent weight	

PRESCRIPTION DETAILS	Checked
Protocol has been through local approval processes	
If out with usual protocols SCAN approval has been sought (e.g. non-formulary requests)	
If using paper prescriptions- current Master Prescription Chart (MPC) is used (check version number on OOOQs)	
For the first cycle, the protocol is the intended treatment as documented in the patient specific treatment plan and is appropriate for the indication	
The protocol is appropriate for the patient's diagnosis, medical history, performance status and SACT history	
Clear, legible, unambiguous & includes all details required for dispensing, labelling & administration	
Ensure all parts of prescription are verified	

ADMINISTRATION DETAILS	Checked
There are no known medicine or food interactions or conflicts with patient allergies or previous adverse reactions	
The timing of administration is appropriate in relation to interval since last treatment	
Route/ method of administration is appropriate	
Supportive care is prescribed and it is appropriate for the patient and SACT protocol	
Requirement for dose adjustment and/or prophylaxis, to minimise risk of neutropenic sepsis, as specified in the SACT protocol.	

CALCULATION	Checked
All dose calculations and dose units are correct and have been calculated correctly according to the protocol and any other relevant local guidance	
Cumulative dose and maximum individual dose as appropriate	
Reason for any dose adjustment is documented and the dose adjustment is appropriate	

LABORATORY RESULTS	Checked
Relevant laboratory values are within accepted limits as defined in the SACT protocol	
Other essential tests have been undertaken where appropriate	
Doses are appropriate with respect to renal and hepatic function	
Doses are appropriate with respect to performance status and co-morbidities and any experienced toxicities	

Preparation & Dispensing of Parenteral SACT

Recommended gloves for use during dispensing & checking of parenteral SACT are disposable SAFESKIN PFE-XTRA NITRILE GLOVES.

- All parenteral SACT will be dispensed by appropriately trained pharmacy staff, working to Standard Operating Procedures (SOPs).
- Dispensing will take place within an approved and validated cytotoxic safety cabinet, where appropriate.
- On weekdays this service will be available between 09.30 and 16.00.
- On receipt of a prescription for SACT Pharmacy Department policies and procedures for safe handling must be followed.
- Nitrile gloves must be worn by staff when handling all ampoules, vials, syringes, infusion bags and administration sets containing cytotoxic drugs.
- All parenteral cytotoxic drugs will be provided to the clinical area in a ready to use form, no manipulation of the dosage should take place outwith the Pharmacy cytotoxic preparation area.
- The drug will be provided in a double plastic overwrap.
- All worksheets relating to cytotoxic drug preparation will be kept for a period of 5 years in accordance with Good Manufacturing Procedures.

Labelling of parenteral SACT

The drug labelling will include:

DETAILS	Checked
Generic name of drug (+/- proprietary name if appropriate)	
Drug vehicle solution	
Quantity of drug	
Intended route of administration	
Volume of bolus doses, or approximate volume of infusion	
Batch number and expiry	
Storage requirements	
Patient's name and unit number	
Any other labelling requirements as recommended by the manufacturer e.g. 'cytotoxic agent'	
Pharmacy name	

Labelling will be attached to both the drug preparation and the plastic overwrap, so that details can be verified at the clinical area prior to opening the final packaging.

Preparation and labelling of Parenteral Vinca Alkaloids

All parenteral doses of vinca alkaloids will be dispensed & supplied in a 50ml minibag by the pharmacy aseptic unit ready for administration.

The dispensing label of all vinca alkaloids **must** state, in addition to the standard information-

FOR INTRAVENOUS USE ONLY – FATAL IF GIVEN BY OTHER ROUTES

Preparation & dispensing of Oral SACT

All oral SACT **must** be dispensed from within the Pharmacy Department for specific named patients only.

Recommended gloves for use during dispensing & checking of oral SACT are disposable SAFESKIN PFE-XTRA NITRILE GLOVES.

The labelling of oral SACT will comply with legal requirements and must also include:

- Appropriate direction and any time limit of treatment, eg 'for 5 days'
- All cytotoxic medicines must carry a warning on the label stating that it is 'cytotoxic agent'.
- If a dispensing triangle is required, one reserved for dispensing SACT must be used. This must be thoroughly cleaned after use.
- Crushing tablets or opening capsules is not recommended – if this is essential, then this procedure should be carried out in the Pharmacy Department, preferably in the cytotoxic preparation cabinet to minimise staff exposure to cytotoxic drug.
- If solutions are to be dispensed, staff must work over a leak-proof tray to contain any spillage.
- If compliance aid id required a risk assessment must be carried out by a member of the pharmacy team,
- Oral SACT will have a supplementary label stating:

PLEASE DO NOT ADMINISTER IF PATIENT ADMITTED TO HOSPITAL UNTIL ADVISED BY SPECIALIST HAEMATOLOGY/ONCOLOGY STAFF

SECTION 6:
RECEIPT, STORAGE & TRANSPORTATION OF SACT

6. Receipt, Storage and Transportation

Pharmacy Department

Receipt and storage of SACT in pharmacy

- Safe handling procedures must be employed when handling any SACT. All staff involved must be appropriately trained.
- On receipt, SACT will be transferred to the designated safe and secure storage area within the Pharmacy. Storage conditions will be as appropriate for each medicine.
- Storage areas for SACT will be used exclusively for this purpose and will be clearly marked as containing cytotoxic medicines.

Clinical Areas

Transportation of SACT to clinical areas

- All SACT **must** be packaged to ensure escape, leakage or spillage cannot occur during transportation. The packaging must be robust and protect the handler.
- The packaging **must** be labelled with a biohazard symbol and labels stating “Contains Cytotoxic Drugs”
- Parenteral cytotoxic drugs **must** be taken directly to the clinical area by pharmacy or nursing staff who have undergone training in the safe handling of SACT.
- Procedures **must** be available to deal with spillage during transportation and the person transporting the SACT must be trained in the procedure outlined on pages 31-36
- In the event of a parenteral preparation not being used or no longer required clinical staff **must** return the drugs to pharmacy as soon as possible, adhering to the guidelines above.

Any SACT spillage must be reported on Datix

Receipt and storage of SACT in clinical areas

- Staff receiving SACT in, or for, the clinical area **must** be trained in safe handling and storage procedures.

- Staff receiving SACT in, or for, the clinical area are required to sign for receipt of these products. Storage requirements for SACT can be determined from the labelling details. It is the responsibility of staff receiving the SACT products to ensure they are stored appropriately.

- Clinical areas using SACT **must** have clearly identified, separate areas for storage of cytotoxic products.

- The temperature for the fridge should be between 2°C and 8°C. The temperature of fridges used in the storage of SACT **must** be checked & logged on a daily basis. In the instance of any recordings outwith the stated temperatures contact Pharmacy department to check stability data.

SECTION 7:
SAFE HANDLING OF SACT

7. Safe Handling

Exposure to cytotoxic products may occur during drug preparation, administration, disposal of equipment or contact with human excreta through inhalation, absorption, direct skin contact or ingestion.

To minimise the risk of occupational exposure closed system transfer devices (CSTD) should be used and the following guidance adhered to.

Personal Protective Equipment

- A disposable green plastic apron and powder free disposable NITRILE gloves **must** be worn at all times.
- Wash hands thoroughly prior to application of disposable gloves and again on removal of gloves
- Gloves should be changed every 20 minutes or immediately if they are torn, punctured or contaminated
- Change gloves between patients
- Dispose of gloves and apron in a sharps container designated for Cytotoxic waste

Reproductive risks for staff

All staff working with SACT should be made aware of the reproductive risks and advised to discuss any concerns with their line manager.
Staff who are pregnant or are breast feeding must let their line manager know as soon as possible to ensure a risk assessment can be completed and risk management measures identified and implemented.

Guidance for risk assessment in pregnancy is located on NHS Borders intranet under Occupational Health and Safety Manual. Further advice can also be sought from the Occupational Health Department.

High risk activities to be considered in the risk assessment and avoided in pregnancy if possible are listed below

- Dispensing of parentarel products or manipulation of oral cytotoxic agents
- Managing a SACT spillage
- Managing spilled body waste and contaminated linen from patients within 7 days of SACT administration
- Intravesical administration including withdrawal of solution
- Topical administration of cytotoxic drugs
- Handling of 24-hour urine collections from patients within 7 days of SACT administration

SECTION 8:
DISPOSAL OF SACT WASTE & CONTAMINATED PRODUCTS

8. Disposal of SACT Waste and Contaminated Products

Recommended gloves for use during disposal of SACT & SACT contaminated products are disposable SAFESKIN PFE-XTRA NITRILE GLOVES.

Used Equipment

All equipment used to administer SACT must be disposed of in a sharps bin designated for cytotoxic waste.

- Designated cytotoxic sharps bins (purple lids) must be labelled clearly to show they contain cytotoxic waste and also tagged with a ward identification tag.
- Cytotoxic waste must be uplifted on a daily basis for incineration
- Syringes, needles, gloves and aprons are disposed of directly into the sharps bin.
- Equipment, which has the potential for leakage, is double wrapped and sealed in a yellow disposal bag and then deposited into the sharps bin. This includes administration sets and infusion bags.
- Administration sets, tubing and contaminated needles are disposed of intact to prevent aerosolisation.

Part Used Preparations

Part used doses of cytotoxic chemotherapy must be reported to pharmacy.

- Double wrap and seal in a yellow disposal bag and place in a sharps bin designated for cytotoxic waste

Contaminated Linen

- Wear NITRILE gloves and a disposable plastic apron to handle contaminated linen
- Package and seal in a contaminated linen bag and label clearly that it contains contaminated waste
- Send to laundry

Contaminated patient clothing should be treated as hazardous waste. It should be double bagged and given to relatives to take home and wash.

Relatives should be advised to-

- Wear plastic gloves when handling the laundry
- Put the laundry into a plastic bag to carry it to the washing machine and dispose of the bag in the household waste bin
- Wash at the hottest setting
- Run the machine empty through the cycle again

Disposal of Excreta

Unless otherwise specified excreta from patients who have received SACT should be assumed hazardous for a minimum of 7 days after the completion of treatment. It should also be assumed that there will be a high concentration of oral SACT present in patients' vomit for up to 2 hours after administration.

To minimise risk the following steps should be adhered to-

- Explain to the patient the potential hazard from excreta
- There must be designated toilets for patients only
- Male patients should be instructed to sit when urinating
- All patients should be instructed to flush the toilet twice with the lid closed
- Mattresses and pillows must be protected with plastic covers
- Bedpans, urinals and sick bowls must be disposable
- Patients receiving SACT should be clearly identified to staff via the ward safety brief
- Staff dealing with excreta must wear PFE-XTRA nitrile gloves and a plastic apron
- Excreta and disposable bedpans, urinals and sick bowls are double sluiced.
- If unable to dispose of immediately then the excreta should be labelled as SACT waste and vernagel absorbent crystals added.
- Use scales for urine measurement to avoid having to pour urine into a measuring jug thus avoiding aerosol formation.
- Wash hands meticulously at the end of any of the above procedures.
- Ensure patient has relevant written information about what precautions should be taken at home.
- Educate relatives on the need to wear gloves when handling any patient bodily fluids at home.
- Staff dealing with excreta must be aware of the procedure for safe handling and disposal of SACT products

Specific Guidance

<u>Drainable catheter bags, urometers and leg bags</u>

- Ensure that drainable catheter bags and leg bags are emptied regularly. If there is to be a delay in disposal, put absorbent crystals into a disposable urine bottle and empty the urine directly into this. Dispose of the urine bottle in the sluice machine and double sluice. Double wrap used catheter bags/urometers in plastic disposable bags and place in a SACT sharps bin.

<u>Patients with colostomy, ileostomy or urostomy bags on SACT</u>

- Sprinkle absorbent crystals into a hazardous waste disposal bag and put the used stoma bag into this. Seal the bag and then place into second hazardous waste disposal bag and seal. Sprinkle absorbent crystals into a dedicated SACT sharps bin and place the item into the sharps bin for disposal. Ensure bin is securely sealed.

<u>Patients receiving intra-vesical mitomycin C and BCG</u>

- Contamination of skin with urine from a patient who has recently received intravesical Mitomycin: rinse contaminated skin with 8.4% Sodium Bicarbonate solution (250 ml bottle)

and then wash the area thoroughly with soap and water for at least 5 minutes. Use of hand creams or other emollient preparations is inappropriate as this may assist the penetration of any traces of Mitomycin-C into the epidermal tissue.

- Safe disposal of catheter contents and bag post bladder instillation with SACT
- Wear an apron and gloves, close the flow valve to bladder drainage and remove the urinary drainage bag with SACT and urine and re connect a new catheter bag.
- Dispose of urinary drainage bag containing SACT and urine mix into a yellow disposable bag, double bag, seal and place in a dedicated SACT sharps bin with absorbent crystals to absorb any leakage from the catheter bag. Ensure bin is securely sealed.

Patients with Naso-Gastric (NG) tubes on SACT

- Syringes used to aspirate NG tubes and NG tube collection bags - sprinkle absorbent crystals into a disposable urine bottle and empty the content from the syringe or bag into this. Dispose of the urine bottle in the sluice machine and double sluice. Double wrap the syringe used to aspirate in yellow disposable bags and place in SACT sharps bin. Double wrap used collection bags in yellow disposable bags and place in a SACT sharps bin.

Patients with chest drains

- This **must** remain as a sealed unit. Double bag the drain, sprinkle absorbent crystals into base of SACT sharps bin and place the chest drain into the sharps bin for disposal. Ensure bin is securely sealed.

Suction equipment

- Double bag all disposable equipment, sprinkle absorbent crystals into base of SACT sharps bin. Ensure bin is securely sealed.

SECTION 9: MANAGEMENT OF SACT SPILLAGE & ACCIDENTAL CONTACT

9. Management of SACT Spillage and Accidental Contact & Minimising Risk

Spillage kits must be kept in all areas of the hospital where SACT is prepared & administered.

It is the responsibility of the Pharmacy Department and Nurse in Charge (for the clinical area) to ensure there is a kit available at all times and that staff know where it is kept. Replacement/ additional spillage kits are available from Pharmacy Department.

Recommended gloves to deal or use with spillage of SACT are disposable SAFESKIN PFE-XTRA NITRILE GLOVES.

Each of spillage kit contains:

	Quantity
Powder free nitrile gloves (large, X-large)	2 (1 each)
Blue-Poly-coated gown (large)	1
Safety Goggles	1
N95 Rated respirator mask	1
Absorbent towels	3
20 gallon chemo waste bags	2
Shoe coverings	1
Caution sign	1
Absorbant pads	3
Scoop & scraper	1

In addition Sodium bicarbonate 8.4% **must** be available with the spillage kit where the following drugs are used.

Carmustine	Daunorubicin	Doxorubicin
Epirubicin	Mitomycin C	Mustine

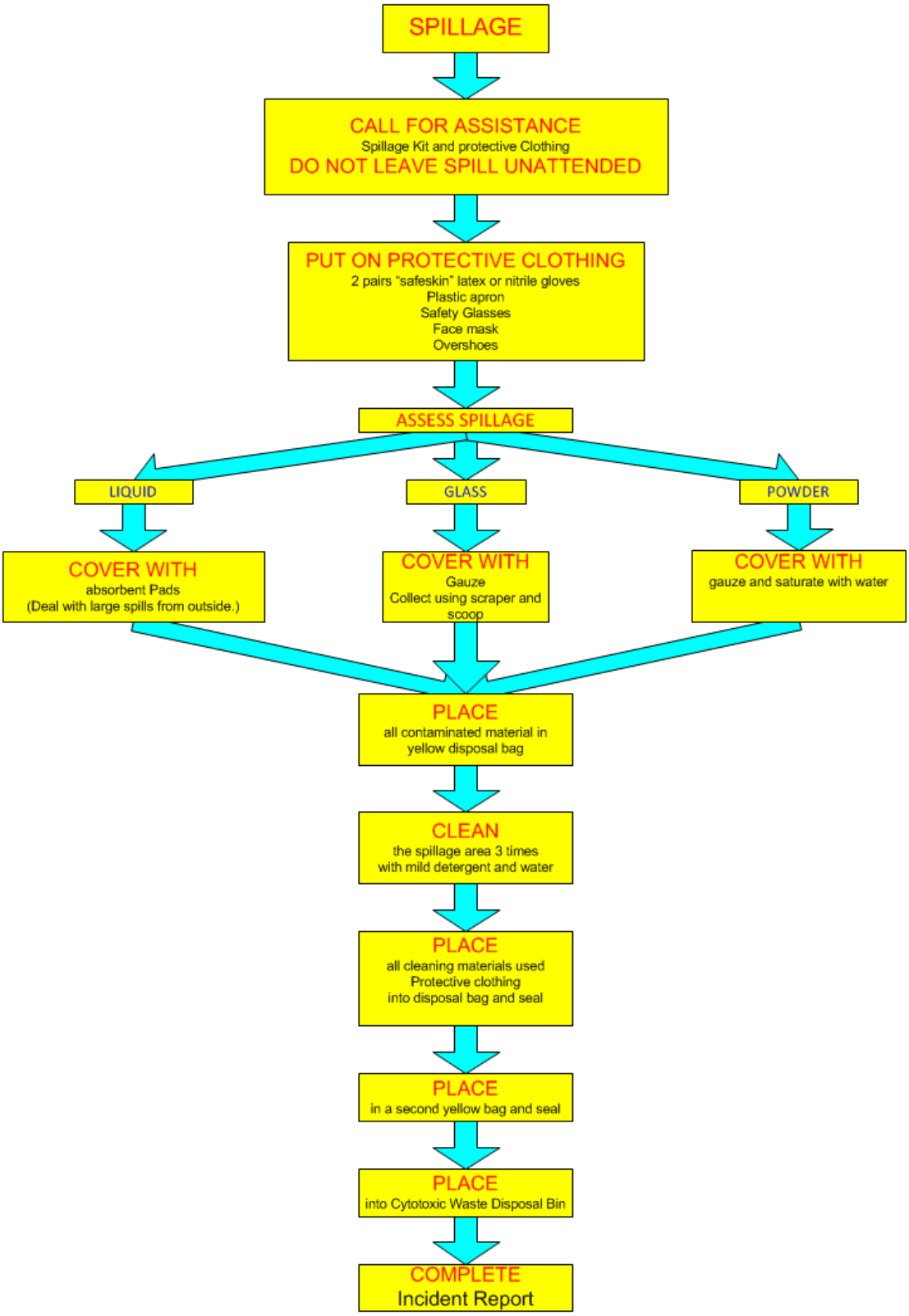
The expiry of the spillage kit and sodium bicarbonate must be checked weekly by the treatment room nurses.

The following flowcharts on pages 32 & 33 detail the procedures for managing cytotoxic spillage & spillage on

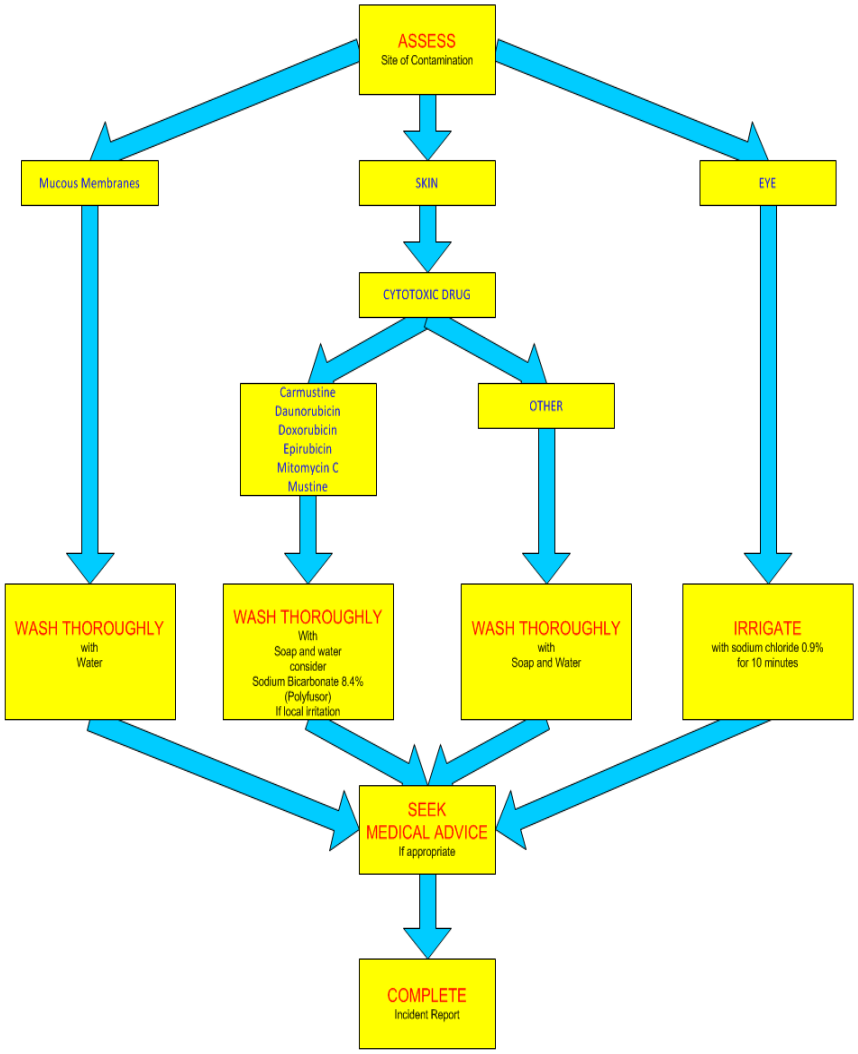
- Surfaces e.g. flooring
- Personnel
- During transportation

Any SACT spillage must be reported on Datix

Management of Cytotoxic Spillage



Management of Cytotoxic Spillage on to Personnel



Minimising Risk to Personnel

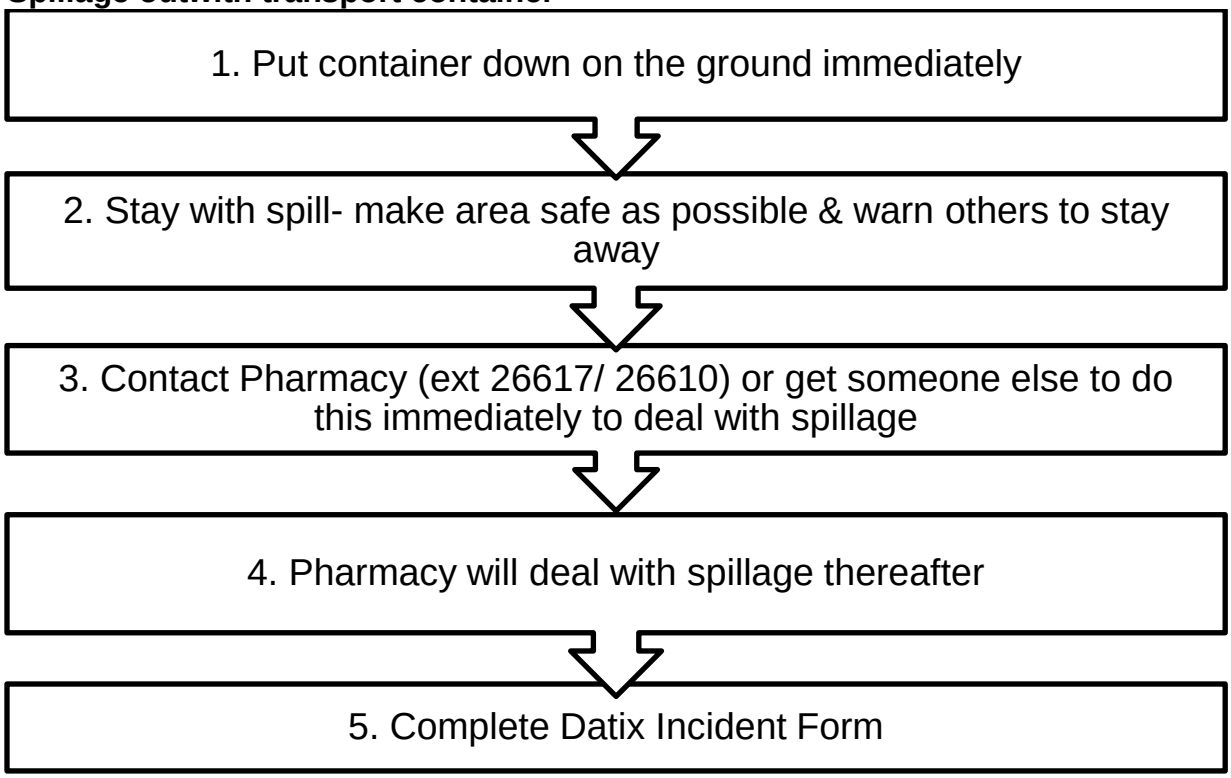
Risk	Recommended practice
Accidental Subcutaneous Injection	Use needle free devices and never re-sheath needles. Follow NHS Borders Policy for Needlestick Injury.
Accidental Contamination of the eye	Always change or hang SACT infusions at waist level over a plastic tray
Accidental Contamination of Mucous Membranes	Avoid ingestion of food and drink and the application of lip balm/lipstick in environments where SACT is stored, administered or disposed of.

Dealing with a spillage of SACT from an approved transportation container from Pharmacy

Items dispensed from the aseptic unit will be wrapped in a light protective plastic covering within a sealed plastic bag before being placed in a hard clear plastic transport container.

Spillage contained within transport container
In the event of the spillage being contained within the transport container- return the container to Pharmacy immediately. **DO NOT OPEN THE CONTAINER**.

Spillage outwith transport container



IN THE EVENT YOUR SKIN HAS BEEN CONTAMINATED

1. **Follow steps 1-3 above- highlighting urgency due to skin contamination**
2. **Once relieved, wash skin quickly as possible with copious amounts of water & then soap & water at nearest toilet.**
3. **Ensure area is examined by doctor→ present yourself to A&E as soon as possible**
4. **Report injury to supervisor & complete DATIX Incident Form as an occupational injury**

Dealing with a spillage of SACT whilst transporting waste from Pharmacy &/or ward area(s)

1. **DO NOT** touch cytotoxic waste bin or spillage.

2. Stay with spill- make area safe as possible & warn others to stay away

3. Contact Pharmacy (ext 26617/ 26610), BMC (ext 26817/ 26833) or Ward 7 (ext 26007) or get someone else to do this immediately to deal with spillage . If they cannot attend ask for spillage kit to be brought from Pharmacy.

   Out of hours contact nurse in charge to retrieve kit from Emergency Drug Cupboard.

4. Put on gloves from kit & carefully place absorbant pad over the spill. Place the sign that states **CAUTION- CHEMOTHERAPY DRUG SPILL- PROCEED WITH CARE**' on top of pad

5. Dispose of gloves in yellow hazardous waste bag found in spillage kit.

   DO NOT attempt to clean up spillage yourself.

6. Stay with spill. The person allocated from pharmacy to deal with spillage will come as soon as possible to clear it up.

7. Complete Datix Incident Report Form

IN THE EVENT YOUR SKIN HAS BEEN CONTAMINATED

1. **Follow steps 1- 2 above & put out an urgent call to a second porter**
2. **Once relieved, wash skin quickly as possible with copious amounts of water & then soap & water at nearest toilet.**
3. **Ensure area is examined by doctor→ present yourself to A&E as soon as possible**
4. **Report injury to supervisor & complete DATIX Incident Form as an occupational injury**

SECTION 10:
ADMINISTRATION OF SACT

10. Administration of SACT

General principles

SACT **must** be administered

- Within well organised and safe systems of work
- Between 0900-1700hrs where possible to allow access to specialist staff
- By staff who have approved levels of skills, expertise and experience
- In dedicated areas or wards where there is easy access to expert help and all the equipment necessary for the management of emergencies such as extravasation, spillage and anaphylaxis
- Applying safe handling measures throughout

SACT **must not** be administered

- If there is any uncertainty about the checks being carried out
- If there are insufficient resources to monitor individual patients appropriately
- If there is any doubt to the patients fitness to receive treatment following toxicity assessment

Knowledge and skills required of staff administering SACT

- Completed mandatory training as outlined in Section 2: Education & Training
- Mechanism of action and side effects of the SACT being administered
- Competent in the assessment and grading of toxicities using the Common Terminology Criteria for Adverse Events
- How to manage toxicity and adverse reactions
- SACT safe handling and disposal procedures
- How to operate correctly any infusion pumps or devices to be used
- How to meet the informational needs of patients and carers

Administration of Parenteral SACT

Prior to administration of parenteral SACT an independent double check of prescription & drugs is undertaken with another competent chemotherapy nurse or clinician. One of the checkers should also be the administrator. This check should include the following:

AT SACT CHECKING STATION	Checked
Relevant laboratory results reviewed & within parameters & time frame. Any deviations are documented & relevant adjustments to SACT are made as per Master Prescription Chart (MPC)	
Relevant toxicity assessments reviewed & within parameters. Any deviations are documented & relevant adjustments made as per MPC.	
Results of other relevant investigations reviewed as per SACT MPC e.g. ECG	
Calculate patient's body surface area (BSA)/ check weight, if appropriate	
Calculate the dose of each agent to be administered according to the MPC and compare with the chemotherapy prescription.	
Check annotation on Chemocare for any changes in doses/ administration	
Check prescription for any specific administration instructions such as premeds	
Check the drugs against the written chemotherapy prescription • Correct patient name & CHI number • Correct drug name • Correct dose • Correct infusion fluid (if applicable)	
Check the expiry date and time will not pass before administration is complete	
Check the appearance and physical integrity of SACT	
Document check completed	

AT PATIENT CHAIR/ BED SPACE	Checked
Verify identity of patient verbally confirming name & date of birth or against wristband	
Confirm intravenous access is established according to Principles of Intravenous SACT administration (page 44) if applicable	
Check patient details match prescription & drug	
Check any pre-meds have been administered	

Administer SACT in accordance with Principles of Parenteral SACT administration on page 44.	
Document administration (electronically & hand written)	

Peripheral Administration of Vinca Alkaloids

All vinca alkaloids **must** be given in a 50ml Sodium Chloride 0.9% infusion bag (covered by a bag to protect from light) over 5 minutes.

The nurse **must** remain with the patient during the vinca alkaloid infusion observing the cannulation site and patient continually.

On completion of the infusion the line is flushed over 15 minutes using

- 250mls Sodium Chloride 0.9% for vinblastine
- 100mls Sodium Chloride 0.9% for all other vinca alkaloids

A nurse **must** stay with the patient for the first 3 minutes of the flush.

Administration of Oral SACT

Prior to administration of oral SACT an independent double check of prescription & drugs is undertaken with another competent chemotherapy nurse or clinician. One of the checkers should also be the administrator. This check should include the following:

AT SACT CHECKING STATION	Checked
Relevant laboratory results reviewed & within parameters & time frame. Any deviations are documented & relevant adjustments to SACT are made as per Master Prescription Chart (MPC)	
Relevant toxicity assessments reviewed & within parameters. Any deviations are documented & relevant adjustments made as per MPC.	
Results of other relevant investigations reviewed as per SACT MPC e.g. ECG	
Calculate patient's body surface area (BSA)/ check weight, if appropriate	
Calculate the dose of each agent to be administered according to the MPC and compare with the chemotherapy prescription.	
Check annotation on Chemocare for any changes in doses/ frequency/duration	
Check prescription for any specific administration instructions such as premeds	
Check the drugs against the written chemotherapy prescription • Correct patient name & CHI number • Correct drug name • Correct dose & frequency & duration	

Check relevant patient counselling points on label e.g. take with or without food	
Check the expiry date	
Check the correct amount of oral SACT dispensed is correct & matches label	
Document check completed	

AT PATIENT CHAIR/ BED SPACE	Checked
Verify identity of patient verbally confirming name & date of birth or against wristband	
Check patient details match prescription & drug	
Administer SACT in accordance with any instructions highlighted in MPC	
Educate patient on any specific counselling instructions	
Ensure patient given safe handling advice	
Ensure any relevant supportive medications are supplied as per MPC	
Document administration (electronically & hand written)	

Additional administration notes:

- If the capsules or tablets are in blister packs **DO NOT** open the pack if there is evidence of leakage of capsules or it is thought that the tablets are crushed or broken. Contact Pharmacy for advice.

- If administering liquid preparations the dose **must** be measured over a leak proof tray to contain any spillage.

- Measuring spoons and cups **must** only be used once and disposed of into a designated cytotoxic sharps bin.

Supportive Care during Treatment
Supportive care advice for the management of cancer and SACT related complications are available on the Cancer Services Microsite & via NHS Lothian Intranet> OOQS.

Monday to Friday 0900-16.30
- All patients: Acute Oncology nurse, BGH, bleep 3041

Out of Hours
- Haematology Patients: Consultant Haematologist on call via 0198682600 (switchboard)
- Oncology patients from: Oncology registrar on call Edinburgh Cancer Centre 0131 537 1000 (NHS Lothian switchboard)

Useful Telephone Numbers

Borders Macmillan Centre (reception)	01896 826888
Pharmacy Department	01896 826602
Cancer Pharmacist	01896 826000 bleep 2074/6614
Acute Oncology Nurse	01896 826000 bleep 3041
BMC unit bleep holder	01896 826000 bleep 6833
Consultant Haematologist	01896 826000 bleep 6246
Edinburgh Cancer Centre (switchboard)	0131 537 1000
Cancer Treatment Helpline- Patient/carer information available 24 hours, 365 days	0800 9177711

Principles of Parenteral SACT Administration

SELECTING A SITE	
ACTION	**RATIONALE**
Most suitable veins in the forearm	Ease of access. Sufficient tissue to protect nerves and tendons. Allows some flexibility and movement
Possible veins on dorsum of hand or wrist	Superficial veins easy to observe
Avoid Anticubital Fossa	Extravasation difficult to detect
Avoid limbs with compromised circulation e.g lymphoedema, axillary node clearance or bruised areas	Detection of extravastion more difficult. Venous return less efficient/increased risk of infection
Avoid sites previously exposed to radiation	"Recall phenomena" may occur
If peripheral venous access poor i.e. less than 3 veins consider hickman line or PICC catheter	Cytotoxic chemotherapy irritant to veins with potential to damage veins for future use

SELECTING A CANNULA	
ACTION	**RATIONALE**
Cannula should be Teflon or silicone	Allow greater flexibility then steel cannula
The smallest cannula suitable for the purpose should be used, bearing in mind the rational in the box opposite and taking into account venous access and drug to be infused	The smaller the cannula the less trauma associated with cannulation. Short narrow pipes results in a smaller diameter for flow of fluid therefore the pressure of delivery may have to be increased. If the pressure of blood is greater than the pressure of incoming fluid there is a risk of rupture of the vein around the cannula edge. The greater the pressure of incoming fluid the greater the risk of vein wall rupture
Only one venepuncture per vein. If vein punctured ideally select a vein in an opposite limb. If more than one attempt at cannulation is necessary in the same arm a proximal site should be selected.	Potential for extravasation at previous cannulation site.
Cannula should be lightly taped or secured with a transparent dressing. Do not obscure cannulation site	Early detection of extravasation
If cytotoxic drugs are administered via a CVAD it is essential that the line bleeds prior to administration. If it does not then the guidelines for this situation, outlined in the management of skin tunnelled catheters document located on NHS Borders Intranet, are followed	Minimise risk of extravasation

ADMINISTRATION OF SACT INFUSIONS	
ACTION	**RATIONALE**
Educate Patient to report any stinging, pain or burning at cannulation site or any symptoms which may suggest adverse reactions	Early detection of extravasation or adverse reactions
Select site and cannulate with appropriate sized cannula for vein and product to be administered	Reduce risk of extravasation
Inspect the cannula regularly for any signs of redness or swelling	To detect any condition which may render the vein unsuitable
Establish a free flowing intravenous infusion with a fluid compatible with the drug to be administered	Checks integrity and patency of vein.
Infuse 50mls-100mls saline rapidly	To check patency and integrity of vein
Check for flashback	To check correct insertion of cannula
Administer pre-meds if required	Reduce the risk of adverse reaction
Vesicant drugs should not be administered as slow infusions via peripheral veins	Increased risk of extravasation
Check site frequently during administration	To detect any signs of extravasation
Put used syringes in double yellow disposal bag in yellow tray	Reduce exposure to cytotoxic drugs
Flush with appropriate infusion fluid on completion of infusion	To remove all drug from tubing and cannula & prevent drug interaction
Remove cannula in accordance with safe handling guidelines	Minimise risk of exposure to cytotxic agents

ADMINISTRATION OF SACT BOLUS	
ACTION	**RATIONALE**
Educate patient to report any stinging, pain or burning at cannulation site or any symptoms which may suggest adverse reactions	Early detection of extravasation or adverse reactions
Select site and cannulate with appropriate sized cannula for vein and product to be administered	Reduce risk of extravasation
Inspect the cannula regularly for any signs of redness or swelling	To detect any condition which may render the vein unsuitable
Establish a free flowing intravenous infusion with a fluid compatible with the drug to be administered	Checks integrity and patency of vein.
Check for flashback	To check correct insertion of cannula
Administer pre-meds if required	Reduce the risk of adverse reaction
Administer vesicant drugs first	Vein integrity at its best
Administer bolus drugs via the plum pump.	Allows constant observation of Patient and site to detect any problems early.
Give large volumes slowly, no greater than 5ml/min	Allow drug dilution and minimise extravasation
Check site frequently during administration	To detect any signs of extravasation
Flush with appropriate infusion fluid on completion of infusion	To remove all drug from tubing and cannula & prevent drug interaction
Put used syringes in double yellow disposal bag in yellow tray	Reduce exposure to cytotoxic drugs
Flush line prior to removal of cannula	To remove any residual drug from cannula
Remove cannula in accordance with safe handling guidelines	Minimise risk of exposure to cytotoxic agents
ADMINISTRATION OF SUBCUTANEOUS SACT	
ACTION	**RATIONALE**
Inform patient of the procedure. Ensure patient comfortable. Has private area if appropriate.	To prevent patient requiring to move during the procedure.
Check temperature, blood pressure, pulse and oxygen Sats	To have baseline observations if patient has reaction to SACT
Administer pre-meds if required	Reduce the risk of adverse reaction

A 25G orange subcutaneous needle or 24G safety system with removable PRN should be used to administer SACT	To minimise the risk of damaging skin and for patient comfort
Use pinch technique to administer injection at either 45° or 90° to the skin surface depending on patient assessment	There is a poorer blood supply in the epidermal layer therefore the drug is absorbed more slowly.
Rotate injection site where appropriate: Rituximab – abdomen only Daratuzumab – abdomen only Herceptin – thigh Bortezomib – abdomen and thigh Azacitidine – arm, abdomen and thigh Cytarabine – arm, abdomen and thigh	Minimise risk of exposure to cytotoxic agents
Administer SACT in the time as per MPC	To allow dispersal of SACT
Ensure no leakage from the site. Cover with a cotton wool ball or plaster if necessary	To maintain skin integrity and prevent contact with SACT treatment.
Dispose of syringes in a cytotoxic purple lidded bin	Reduce exposure to cytotoxic drugs

SECTION 11: EXTRAVASATION

11. Extravasation

Extravasation refers to the inappropriate or accidental administration of a drug into subcutaneous or intradermal tissue rather than intravenously as intended. This often leads to pain and erythema which, if left untreated, can lead to tissue death and necrosis with associated functional loss. Extravasation is possible with any intravenous injection, although only considered problematic with agents classified as vesicant or irritant. It can occur during peripheral or central administration. SACT agents are classified according to their potential to cause serious necrosis when extravasation occurs.

Risk factors

The following factors can contribute to risk associated with extravasation-

1. Technique
2. Site
3. Drug
4. Patient
5. Disease Parameters

Minimising the Risk of Extravasation

<u>The Technique</u>

- Administration of SACT **must** only be carried out by staff educated and trained in the safe use of SACT on a continuing basis.
- Staff cannulating for SACT **must** be skilled in cannulation technique and educated and trained to a level where they can exert professional judgement in relation to type and size of cannula used.
- Adherence to Principles of Intravenous SACT Administration as laid out on page 2
- Vesicant drugs should only be given peripherally as a bolus with the exception of vinca alkaloids as detailed in the administration section

<u>The Site</u>

Sites for the administration of SACT should be chosen on the following basis

- Adherence to Principles of Intravenous SACT Administration as laid out on page 2
- The cannula can be easily inserted and secured
- The site can be easily observed
- The site will not come under stress if the patient moves

<u>The Patient</u>

Several patient related factors can contribute to increased risk of extravasation and should be considered prior to administration of SACT.

Age

- Extravasation occurs most frequently in infants under 6 months
- The elderly are likely to have more fragile veins and skin and suffer from concurrent illness

Inability to communicate coherently which can result in extravasations going unnoticed

- Heavily sedated or comatosed patients
- Stroke
- Confused patients

The Drug

Staff administering SACT **must** be aware of the potential extravasation risks of individual drugs as listed on page 56..

Disease Parameters

Examples include-

- Circulatory problems which can result in reduced peripheral pain sensations e.g from diabetes, Raynauds phenomenon
- Lymphoedema
- Previous radiotherapy to the site of injection or close by

Symptoms of Extravasation

Suspect possible extravasation if:

- Patient complains of burning, stinging, pain or any other acute changes at the injection site. Patients should be instructed to report these immediately if they occur.
- Redness or blanching of tissue at the site
- Swelling, leakage or saturation is observed around the injection site
- No blood return is obtained from the cannula
- The infusion does not flow freely or there is resistance when attempting to give drugs by bolus injection

Delayed Extravasation

This should be considered if patients report skin changes in the area of a previous cannulation used to administer SACT.

Referral to Plastic Surgery

Referral to a plastic surgeon is indicated when, despite conservative treatment, the extravasation injury progresses to ulceration. Wide excision with use of grafts may be indicated.

Referrals should be made via on call Plastic Surgery Registrar at St John's Hospital, Livingston on 01506 523000 (switchboard).

Extravasation Kit- location & contents

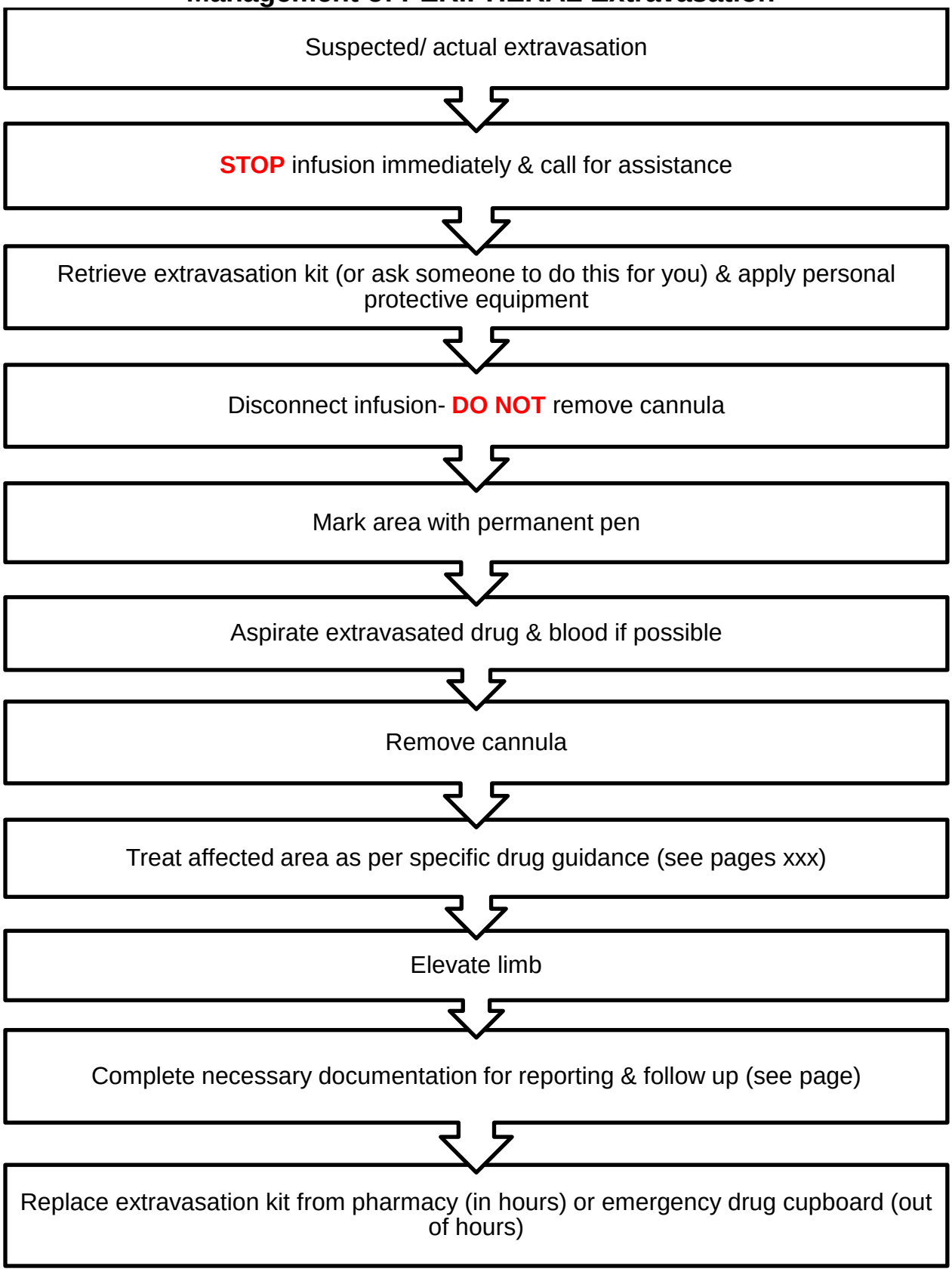
All wards and departments administering SACT must have access to an extravasation kit.

Staff **must** be aware of where the kit is kept & kits **must** be checked weekly and any expired or used kits **must** be return to Pharmacy Department for replacement.

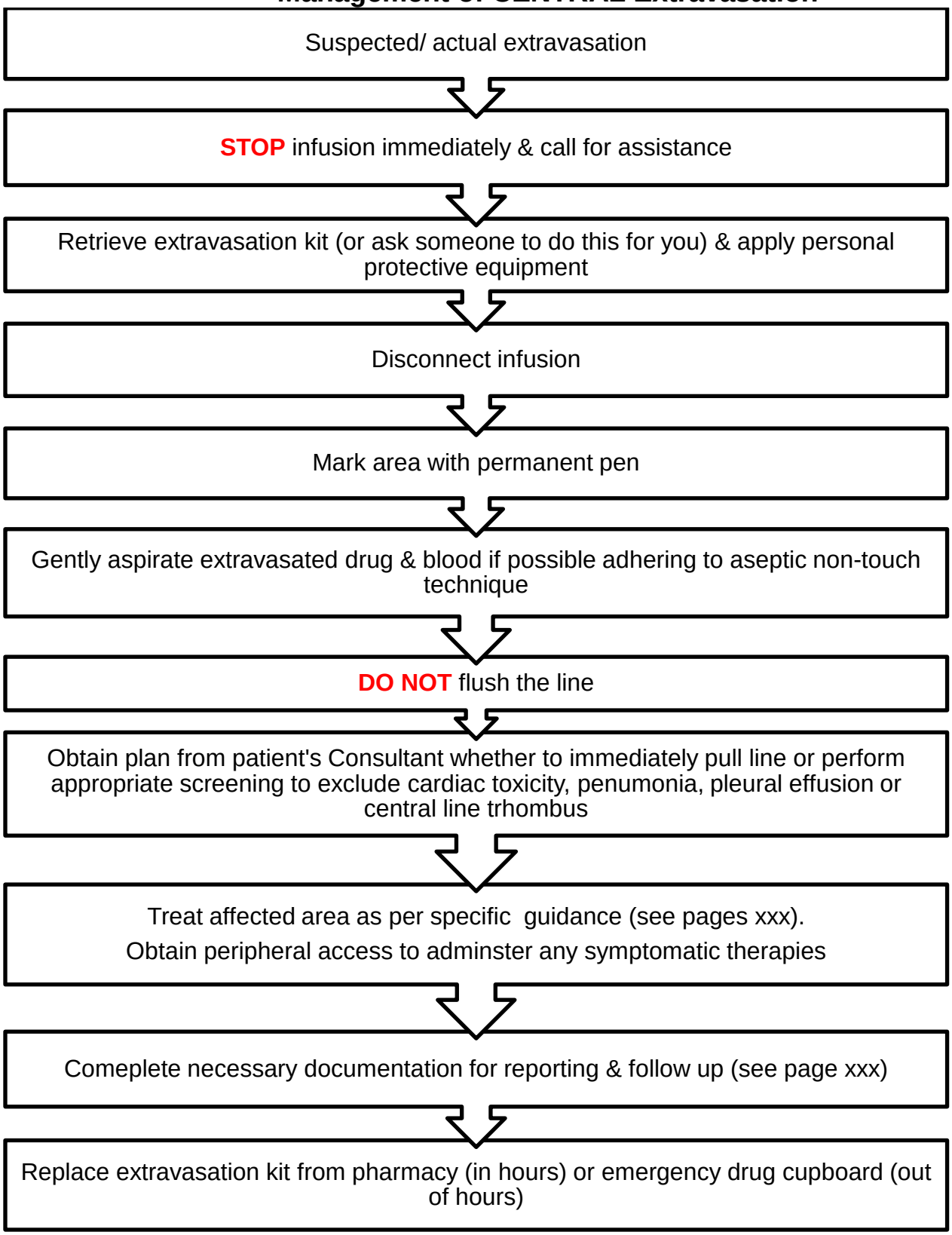
Each extravasation kit contains:

	Quantity
Anthisan Cream	1 tube
Chlorphenamine 10mg	1 vial
DMSO 50%	1
Hyaluronidase 1500units	1 vial
Hydrocortisone 1% Cream	1 tube
Hydrocortisone 100mg	2 vials
Sodium Chloride 0.9%	5 x 5mL amps
Water for Injection	2 x 5mL amps
Water for Injection	5 x 10mL amps

Management of PERIPHERAL Extravasation



Management of CENTRAL Extravasation



Management of extravasation by drug classification

Definition

Vesicant	Capable of causing pain, inflammation & blistering of the local skin, underlying flesh & structures, leading to tissue death & necrosis
Exfoliant	Capable of causing inflammation & shedding of the skin, but less likely to cause tissue death
Irritants	Capable of causing inflammation & irritation rarely proceeding to breakdown of tissue
Inflammitants	Capable of causing mild to moderate inflammation & flare in local tissue
Neutral	Do not cause inflammation or damage

The drugs are also given a group classification score of 1-5 with

- 1 = indicating the lowest risk of tissue damage occurring (neutral) and
- 5 = indicating the greatest risk of tissue damage occurring (vesicant)

Classification of method of treatment

Colour	Method to treat area	Rationale
RED	**Heat- Disperse & dilute**	Cause vasodilation→ increases drug distribution & absorption & decreases local drug concentrations. Aids the dispersal of vinca-alkaloids & other non-vesicant induced injuries where "spread and dilute" treatment is required. Heat should never be used for doxorubicin-induced injury as this increases the cellular uptake of doxorubicin, increasing cytotoxicity.
BLUE	**Cold- Localise & neutralise**	Causes vasoconstriction→ localising extravasated drug & allow time for agent to be dispersed by local vascular & lymphatic systems. Topical cooling diminishes pain and discomfort Decreasing the blood supply decreases the metabolic demand of the affected & at risk tissue slowing drug uptake. It also changes the fluidity of the cellular membrane making the cells less sensitive to the damaging effects of doxorubicin. Avoid use in for vinca-alkaloid induced injuries as it is shown to increase ulcer formation.
BLACK	**Both**	See individual drugs

Drug Classification Table

Drug	Colour code	Group	Classification
Aflibercept	RED	1	Neutral
Alemtuzumab	RED	1	Neutral
Amsacrine	BLUE	5	Vesicant
Arsenic Trioxide	BLUE	3	Irritant
Asparaginase	RED	1	Neutral
Atezolizumab	RED	1	Neutral
Avelumab	RED	1	Neutral
Bendamustine	BLUE	5	Irritant
Bevacizumab	RED	1	Neutral
Blinatumomab	RED	1	Neutral
Bleomycin	RED	1	Neutral
Bortezomib	BLACK	2	Inflammitant
Brentuximab	RED	1	Neutral
Busulfan	BLUE	5	Vesicant
Cabazitaxel	BLUE	3	Irritant
Carboplatin (*)	BLUE	3	Irritant
Carmustine	BLUE	5	Vesicant
Cemiplimab	RED	1	Neutral
Cetuximab	RED	1	Neutral
Cisplatin (*)	RED	4	Exfoliant
Cladribine	RED	1	Neutral
Clofarabine	RED	1	Neutral
Chlormethine (mustine)	BLUE	5	Vesicant
Crisantaspase	RED	1	Neutral
Cyclophosphamide	RED	1	Neutral
Cytarabine	RED	1	Neutral
Dacarbazine (**)	BLUE	4	Exfoliant
Dactinomycin	BLUE	5	Vesicant
Daunorubicin	BLUE	5	Vesicant
Daunorubicin Liposomal	BLUE	4	Exfoliant
Decitabine	RED	1	Neutral
Docetaxel	RED	4	Exfoliant
Doxorubicin	BLUE	5	Vesicant

Doxorubicin Liposomal	BLUE	4	Exfoliant
Durvalumab	RED	1	Neutral
Epirubicin	BLUE	5	Vesicant
Eribulin	RED	1	Neutral
Etoposide	BLUE	3	Irritant
Fludarabine	RED	1	Neutral
5- Fluorouracil	BLACK	2	Inflammitant
Gemcitabine	RED	1	Neutral
Gemtuzumab ozogamicin	BLUE	3	Irritant
Idarubicin	BLUE	5	Vesicant
Ifosfamide	RED	1	Neutral
Ipilimumab	RED	1	Neutral
Irinotecan	BLUE	3	Irritant
Melphalan (***)	BLUE	5*	Vesicant
Methotrexatre	BLACK	2	Inflammitant
Mifamurtide	RED	1	Neutral
Mitomycin C	BLUE	5	Vesicant
Mitoxantrone	BLUE	4	Exfoliant
Nelarabine	RED	1	Neutral
Nivolumab	RED	1	Neutral
Obinutuzumab	RED	1	Neutral
Ofatumumab	RED	1	Neutral
Oxaliplatin	RED	4	Exfoliant
Paclitaxel (**)	RED	4	Exfoliant
Paclitaxel albumin	RED	4	Exfoliant
Panitumumab	RED	1	Neutral
Pegasparaginase	RED	1	Neutral
Pemetrexed	RED	1	Neutral
Pembrolizumab	RED	1	Neutral
Pertuzumab	RED	1	Neutral
Pentostatin	RED	1	Neutral
Pixatrone	RED	1	Neutral
Raltitrexed	BLACK	2	Inflammitant
Ramucirumab	RED	1	Neutral
Rituximab	RED	1	Neutral
Siltuximab	RED	1	Neutral
Streptozocin	BLUE	5	Vesicant

Temsirolimus	BLUE	3	Irritant
Thiotepa	RED	1	Neutral
Topotecan	BLUE	4	Exfoliant
Trabectedin	BLUE	5	Vesicant
Trastuzumab	RED	1	Neutral
Trastuzumab emtansine	BLUE	3	Irritant
Treosulfan	BLUE	5	Vesicant
Vinblastine	RED	5	Vesicant
Vincristine	RED	5	Vesicant
Vindesine	RED	5	Vesicant
Vinflunine	RED	5	Vesicant
Vinorelbine	RED	5	Vesicant
Vyxeos (liposomal cytarabine/ daunorubicin)	BLUE	5	Vesicant

Additional notes:

(*) = concentrations of cisplatin greater than 0.5mg/ml and carboplatin >10mg/ml are associated with tissue damage if extravasated.

(**) = there are rare reports of dacarbazine and paclitaxel causing tissue necrosis on extravasation.

(***) = for the purposes of this policy, melphalan, although classed as a neutral drug, should be treated as a vesicant and only administered centrally as an infusion. This decision is based on Edinburgh Cancer Centre experience.

Neutral Drugs

The following drugs are classed as NEUTRAL drugs

Aflibercept	Alemtuzumab	Asparaginase
Atezolizumab	Avelumab	Bevacizumab
Blinatumomab	Bleomycin	Brentuximab
Cemiplimab	Cetuximab	Cladribine
Clofarabine	Crisantaspase	Cyclophosphamide
Cytarabine	Decitabine	Durvalumab
Eribulin	Fludarabine	Gemcitabine
Ifosfamide	Ipilimumab	Mifamurtide
Nelarabine	Nivolumab	Obintuzumab
Ofatamumab	Panitumumab	Pegasparaginase
Pemetrexed	Pembrolizumab	Pertuzumab
Pentostatin	Pixatrone	Ramucirumab
Rituxumab	Siltuximab	Thiotepa
Trastuzumab		

Instructions:

- Follow the general instructions on page 53

- Firmly apply a **HEAT PACK** to the extravasated areas for 20 minutes every 6 hours for the first 24 hours

Heat sources should not be applied directly to the skin. A piece of dry gauze should be placed as a protective barrier between the skin and heat source.

In large volumes extravasations where is the patient is experiencing discomfort due to swelling, the following MAY be considered

- Dispersal of the drug can be facilitated by the use of SUBCUTANEOUS HYALURONIDASE.

Dilute 1500 units of hyaluronidase in 2ml of water for injection or sodium chloride 0.9%. Give as 0.2ml subcutaneous injections over and around the circumference of the affected area. Gently massage area to facilitate dispersal.

- Arrange review at Borders MacMillan Centre

Inflamminant Drugs

The following are classed as INFLAMINANT drugs-

Bortezomib	5-Fluorouracil	Methrotrexate
Raltitrexed	Trabectedin	

Instructions:

- Follow the general instructions on page 53

- Firmly apply a **COLD PACK** to the extravasated areas for 30 minutes every 4 hours for the first 24 hours

> Cold sources should not be applied directly to the skin. A piece of dry gauze should be placed as a protective barrier between the skin and cold source.

- When the initial inflammatory reaction has subsided, a WARM compression MAY be used to aid the dispersal of any residual fluid

- Apply topical HYDROCORTISONE CREAM 1% every 6 hours for up to 7 days (or as long as erythema continues).

- Arrange review at Borders MacMillan Centre

Irritant Drugs

The following are classed as IRRITANT drugs:

Arsenic Trioxide	Bendamustine	Cabazitaxel
Carboplatin	Etoposide	Gemtuzumab ozogamicin
Irinotecan	Temsirolimus	Trastuzumab emtansine

Instructions:

- Follow the general instructions on page 53

- Firmly apply a **COLD PACK** to the extravasated areas for 30 minutes every 4 hours for the first 24 hours

> Cold sources should not be applied directly to the skin. A piece of dry gauze should be placed as a protective barrier between the skin and cold source.

- Apply topical HYDROCORTISONE CREAM 1% every 6 hours for up to 7 days (or as long as erythema continues).

- Arrange review at Borders MacMillan Centre

Exfoliant Drugs

The following are classed as EXFOLIANT drug. This section is split into 4 sub-groups-

A) These instructions apply to the following exfoliant drugs

Cisplatin	Docetaxel	Oxaliplatin
Paclitaxel	Paclitaxel albumin	

- Follow the general instructions on page 53

- Firmly apply a **HEAT PACK** to the extravasated areas for 20 minutes every 6 hours for the first 24 hours

Heat sources should not be applied directly to the skin. A piece of dry gauze should be placed as a protective barrier between the skin and heat source.

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In large volumes extravasations where is the patient is experiencing discomfort due to swelling, the following MAY be considered

- Dispersal of the drug can be facilitated by the use of SUBCUTANEOUS HYALURONIDASE.

Dilute 1500 units of hyaluronidase in 2ml of water for injection or sodium chloride 0.9%. Give as 0.2ml subcutaneous injections over and around the circumference of the affected area. Gently massage area to facilitate dispersal.

- Arrange review at Borders MacMillan Centre on day 1,3 & 10 post- extravasation

B) These instructions apply to the following exfoliant drugs

Topetecan		

Instructions:

- Follow the general instructions on page 53

- Firmly apply a **COLD PACK** to the extravasated areas for 30 minutes every 4 hours for the first 24 hours

Cold sources should not be applied directly to the skin. A piece of dry gauze should be placed as a protective barrier between the skin and cold source.

- Apply topical HYDROCORTISONE CREAM 1% every 6 hours for up to 7 days (or as long as erythema continues).

In large volumes extravasations where is the patient is experiencing discomfort due to swelling, the following MAY be considered:

- Dispersal of the drug can be facilitated by the use of SUBCUTANEOUS HYALURONIDASE.

Dilute 1500 units of hyaluronidase in 2ml of water for injection or sodium chloride 0.9%. Give as 0.2ml subcutaneous injections over and around the circumference of the affected area. Gently massage area to facilitate dispersal.

- Arrange review at Borders MacMillan Centre on day 1,3 & 10 post- extravasation

C) These instructions apply to the following exfoliant drugs

Daunorubicin (liposomal)	Doxorubicin (liposomal)	

Instructions:

- Follow the general instructions on page 53

- Firmly apply a **COLD PACK** to the extravasated areas for 30 minutes every 4 hours for the first 24 hours

Cold sources should not be applied directly to the skin. A piece of dry gauze should be placed as a protective barrier between the skin and cold source.

- Starting 8 hours after extravasation alternate between topical DMSO & HYDROCORTISONE 1% every 2 hours in the first 24 hours. Thereafter apply four times a day for up to 14 days.

Apply topical DMSO (dimethylsulfoxide) by painting on with a cotton bud. Do not cover area until dry as this may cause blistering.

- Arrange review at Borders MacMillan Centre on day 1,3 & 10 post- extravasation

D) These instructions apply to the following exfoliant drugs

Dacarbazine	Mitoxantrone	

Instructions:

- Follow the general instructions on page 53

- Firmly apply a **COLD PACK** to the extravasated areas for 30 minutes every 4 hours for the first 24 hours

Cold sources should not be applied directly to the skin. A piece of dry gauze should be placed as a protective barrier between the skin and cold source.

- Alternate between topical DMSO & HYDROCORTISONE 1% every 3 hours for 5-7 days.

Apply topical DMSO (dimethylsulfoxide) by painting on with a cotton bud. Do not cover area until dry as this may cause blistering.

- Arrange review at Borders MacMillan Centre on day 1,3 & 10 post- extravasation

Vesicant Drugs

The following are classed as VESICANT drug. This section is split into 3 sub-groups

A) These instructions apply to the following vesicant drugs

Amsacrine	Chlormethine (mustine)	Dactinomycin
Daunorubicin	Doxorubicin	Epirubicin
Idarubicin	Mitomycin C	Streptozicin
VYxeos (liposomal cytarabine/daunorubicin)		

Instructions:

- Follow the general instructions on page 53

- Firmly apply a **COLD PACK** to the extravasated areas for 30 minutes every 4 hours for the first 24 hours

Cold sources should not be applied directly to the skin. A piece of dry gauze should be placed as a protective barrier between the skin and cold source.

- Alternate between topical DMSO & HYDROCORTISONE 1% every 2 hours in the first 24 hours then every 3 hours for the next 7-10 days.

Apply topical DMSO (dimethylsulfoxide) by painting on with a cotton bud. Do not cover area until dry as this may cause blistering.

- Arrange review at Borders MacMillan Centre on day 1,3 & 10 post- extravasation

B) These instructions apply to the following vesicants drugs

Vinblastine	Vincristine	Vindesine
Vinflunine	Vinorelbine	

- Follow the general instructions on page 53
- Firmly apply a **HEAT PACK** to the extravasated areas for 20 minutes every 6 hours for the first 24 hours

Heat sources should not be applied directly to the skin. A piece of dry gauze should be placed as a protective barrier between the skin and heat source.

or as long as

- Dispersal of the drug can be facilitated by the use of SUBCUTANEOUS HYALURONIDASE.

Dilute 1500 units of hyaluronidase in 2ml of water for injection or sodium chloride 0.9%. Give as 0.2ml subcutaneous injections over and around the circumference of the affected area. Gently massage area to facilitate dispersal.

- Arrange review at Borders MacMillan Centre on day 1,3 & 10 post- extravasation

C) These instructions apply to the following vesicants drugs

Busulfan	Carmustine	Melphalan
Treosulfan		

Instructions:

- Follow the general instructions on page 53
- Firmly apply a **COLD PACK** to the extravasated areas for 30 minutes every 4 hours for the first 24 hours

Cold sources should not be applied directly to the skin. A piece of dry gauze should be placed as a protective barrier between the skin and cold source.

- Apply topical HYDROCORTISONE CREAM 1% every 6 hours for up to 7 days (or as long as erythema continues).

- Arrange review at Borders MacMillan Centre on day 1,3 & 10 post- extravasation

SCAN Extravasation Report Form

NHS Borders

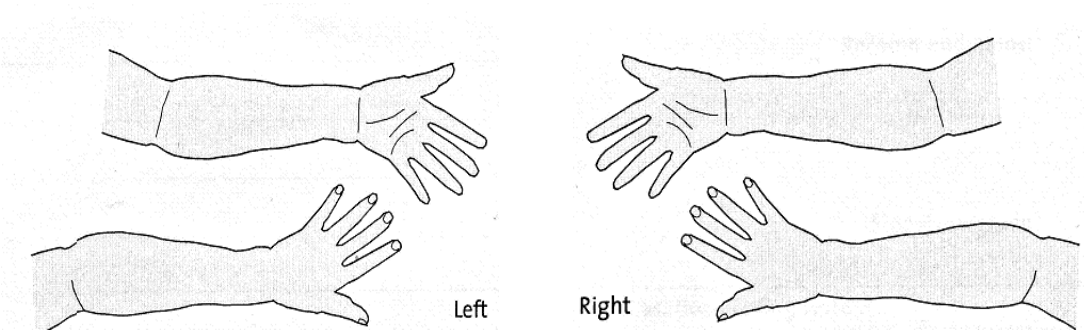
Patient addressograph

This 4 page form is to be used in the event of a suspected or actual extravasation of a SACT drug. All extravasations **must** be reported to a senior nurse or medical staff. A follow up appointment is required prior to patient discharge & all further reviews are to be reported on this form & filed in the patient's notes.

Date of incident		
Ward/ Area		
Patient's consultant		
Name of senior nurse informed		
Name of doctor/ nurse/ pharmacist informed		
SCAN extravasation policy followed?	Yes	No (give reason)
Datix Incident Form completed?	Yes	No (give reason)
Patient Information Leaflet supplied?	Yes	No (give reason)
GP Information Letter sent?	Yes	No (give reason)
Follow up appointment(s) given?	Yes (date):	No (give reason)
Report form completed by (name/job title):		

Name of drug(s) extravasated			
Approximate volume of drug extravasated			
Type of SACT involved	IV bolus	IV infusion	Other:……
Cannula size			

1. Indicate site of extravasation, including failed cannulation sites-



Extravasation involving CVAD?	Yes (indicate type & site):	No

Pre-injection- was IV access patent?	Yes	No	Unknown
Post-injection- was there a blood return?	Yes	No	Unknown

2. Did patient report any sensations reported during injection?

Burning	Pain	Swelling	Throbbing	Numbness	Erythema	No complaints
Other (specify):						

For persistent swelling, pain or delayed ulceration seek advice from Plastic Surgery via oncall registrar at St John's Hospital, Livingston (NHS Lothian) on 01506 523000.

3. Steps taken to manage & treat extravasation

Elevated limb	Warm pack	Cold Pack	Hydrocortisone Cream 1%	Hyaluronidase	DMSO
Other (specify):					

If blistered consider adding sterile dressing

1. Assessment of affected area(s)

Using the extravasation grading system detailed below please complete the following for each visit/ telephone assessment:

	Initial day of SACT	Visit day 1	2	Visit day 3	4	5	6	7	Visit day 10
Date									
Colour									
Integrity									
Skin temp									
Oedema									
Mobility									
Pain									
Photograph taken?	Y / N	Y / N	Y / N	Y / N	Y / N	Y / N	Y / N	Y / N	Y / N
Refer to Plastics?	Y / N	Y / N	Y / N	Y / N	Y / N	Y / N	Y / N	Y / N	Y / N
Initials									

Dates of further follow ups (if required)				
Recommendations:				

	Grade 0	Grade 1	Grade 2	Grade 3	Grade 4
Colour	Normal	Pink	Red	Blanched centre surrounded by red	Blackened
Integrity	Unbroken	Blistered	Superficial	Tissue loss exposing subcutaneous tissue	Tissue loss exposing deep structures, or necrosis
Skin temperature	Normal	Warm	Hot		
Oedema	Absent	Non-pitting	Pitting		
Mobility	Full	Slightly limited	Very limited	Immobile	
Pain	Rate on a scale of 1 (no pain) & 10 (worst ever pain)				

(Adapted from West of Scotland Chemotherapy Extravasation Guidelines (2008))

4. Document final outcome

Final outcome		
Completed by		**Date**

Datix Reporting Form outcome completed	**Y**	**N (give reason)**
Completed by		**Date**

Extravasation: Patient Information Leaflet

Patient addressograph	Date issued:
	Issued by:

Dear patient,

You have been supplied this leaflet as you have been treated for an extravasation. This leaflet will explain what this is & how to the hospital & yourself will manage the affected area. A letter has also been sent to your GP to inform them of the event.

What is extravasation?

Extravasation is the accidental leakage of drugs outside of the vein and into the surrounding tissues. With some drugs this may lead to an immediate painful reaction and result in local tissue damage. You may have noticed pain, stinging, swelling or other changes in the skin at the site of the drug administration, or the nurse may have noticed that the drug was not flowing easily.

Why did this happen?

Extravasation is a rare but known complication of intravenous chemotherapy. It is impossible to completely avoid this even though we take all possible precautions. The important thing is that it has been detected and treated.

Why is extravasation a problem?

It can lead to pain, stiffness and tissue damage.

What treatment have you received to prevent tissue damage?

The nurse/doctor has given you the recommended treatment for the extravasation. Although this will help to minimise the chance of developing further problems, you will need to keep checking the area every day.

Checking the area

Once a day, check the area for the following:

- Has the area changed colour or increased in redness?
- Is the area blistering, peeling or flaking?
- Is the area more uncomfortable?
- Is the pain making it difficult for you to exercise the arm or hand?

If you answered yes to any of the questions in the checklist, or if you have any other concerns, then you should contact us:

Contact numbers	In hours (Mon-Friday 0900-1700)	Out of hours

(Note to staff- it is **not** appropriate to refer extravasations to Cancer Treatment Helpline)

What else do you need to do?

- Gently exercise the affected arm or hand.
- Take mild painkillers such as paracetemol. Haematology patients should avoid ibuprofen.
- Do not a*pply any other lotions, creams or ointments unless you have been instructed to do* so by a doctor or nurse.
- Do not expose the area to strong sunlight.
- Avoid wearing tight clothing around the affected area.
- Protect the affected area when bathing (or having a shower) so that it does not get wet.

Treatment	Times when treatment to be applied*							

*Your nurse/doctor will enter & tick the times when you should be applying the treatment you have been prescribed

(Adapted from West of Scotland Chemotherapy Extravasation Guidelines (2008))

Extravasation: Letter to GP

Dear Dr._____

Patient addressograph/ details:

Your patient has experienced an extravasation of their anti-cancer treatment (see below).
The Border MacMillan Centre (BMC) will take responsible for the acute management of this complication. This may range from monitoring the patient for skin breakdown in the affected area to input from the plastic surgical team, particularly if the damage gets worse. This is dependent upon the drugs involved, the amount extravasated and the area infiltrated by the drug.
You are not expected to undertake the management of this but it is recommended that you retain this information in the patients file in the event of any future intervention being required. If you have any questions do not hesitate to call the unit.

Date of extravasation					
Drug(s) extravasated					
	Neutral	**Inflammitant**	**Irritant**	**Exfoliant**	**Vesicant**
Acute treatment given					
Review Date in BMC					
Expected Outcome					
Nurse Involved					
Contact Details	**Ward:**	**Consultant** (name & number)**:**			

Many Thanks, _____(signature & printed name)

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