Intravenous Therapy and Peripheral Cannulation Policy

Version 3

| Summary: | To enable patients on intravenous therapy to continue or complete treatment within the primary care or community setting, when it is judged clinically safe and appropriate to do so. |
| Keywords: | Intravenous therapy, IV therapy devices, Vascular Access Device (VAD) PICC, skin tunnelled, implanted port, cannulation, peripheral cannula, midline, insertion, maintenance, removal, flush, diluent, reconstitution, infiltration, extravasation, VIP score, vesicant, phlebitis, thrombosis, thrombophlebitis, infusion. |
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Intravenous Therapy and Peripheral Cannulation Policy
Version: 3
August 2017

Version Control

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<td>Jane Byrne</td>
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<td>Replace ANTT terminology with ‘Aseptic Technique’</td>
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Intravenous Therapy and Peripheral Cannulation Policy

1. Introduction

1.1 This policy and its associated procedures provide information relating to the use and maintenance of Vascular Access Devices for Intravenous (IV) therapy and chemotherapy administration including Central Venous Catheters, Peripheral Cannulae, Implanted Venous Access Devices and Midline Peripheral Catheters. This policy should be read in conjunction with the following procedures which can be downloaded through the Trust’s staff website:

- Procedures for Peripheral Intravenous Devices
- Procedures for Central Venous Access Devices
- Procedures for Implanted Ports
- Standard Operation Procedure (SOP) Disconnection of Continuous Infusional Chemotherapy from Central Venous Access Devices (CVAD’s) in the Community

1.2 This policy will enable the user to reduce the risk to patients and staff. For patients these risks include phlebitis, local and systemic infection, thrombosis, thrombophlebitis, pain, and inappropriate therapy device insertion. For staff, risks include occupational sharps injury, blood spillage and contamination.

2. Who does this policy apply to?

2.1 This policy applies to Doctors and Registered Nurses employed by Southern Health NHS Foundation Trust.

2.2 This policy applies to Registered Nurses who have to be confident and competent, and to any Health Care Professional who is required to undertake any aspect of Intravenous Therapy and/or peripheral cannulation as part of their job description, and is deemed competent and confident after attending training.

2.3 Intravenous (IV) therapy forms an integral part of professional practice for Registered Nurses who will be expected to maintain and develop their competence in accordance with the NMC Code (2015). Competency will be demonstrated through use of the current competency framework (available via the Southern Health intranet and attached to this policy).

2.5 This policy is based on best available evidence adhering to robust standards of practice.

2.6 This service and supporting policy applies to NHS treatment only.

2.7 The policy covers intravenous therapy and maintenance of IV therapy devices in adults only.

3. Definitions

3.1 Aseptic Technique - is defined as a means of preventing or minimising the risk of introducing harmful micro-organisms onto key parts or key sites of the body when undertaking clinical procedures. Refer to SHCP13 Aseptic Technique and Clean Technique Procedure (Infection Prevention and control Policy: Appendix 7)

3.2 Aseptic field – is an area created to control the environment around the procedure and protect the key parts and key sites. Often this can be achieved by placing a sterile towel/s around the procedure site and on the surface that will hold sterile instruments and other items such as dressings.
3.3 **Bolus** – administration of medicine in a small volume, drawn up in a syringe, given directly into a venous access device such as Central Venous Catheter, Peripherally Inserted Central Catheter (PICC), midline catheter or peripheral cannula (also referred to as ‘Push: manual administration of medication under pressure’)

3.4 **Central Venous Access Device** (or Central Venous Catheter) – A device that allows access to a vein for the purposes of administering medications, where the distal tip of the device/catheter sits in the superior vena cava or occasionally in the inferior vena cava.

3.5 **Chlorhexidine Gluconate 2% and 70% Isopropyl Alcohol** – (eg: single use Clinell wipe). Apply for a minimum of 30 seconds and allow to fully air dry for a minimum of 30 seconds to rendering the skin or equipment aseptic. It can be applied in a grid motion with back and forward strokes, or circular starting at the centre and working outwards. Products must be used as per manufacturer’s license.

Care should be taken with the use of products containing chlorhexidine as evidence suggests, although rare, it is known to induce hypersensitivity, including generalised allergic reactions and anaphylaxis in some individuals. In this case a suitable alternative ie: povidone-iodine in 70% alcohol should be used.

3.6 **Competency** – demonstration of underpinning knowledge and skills to perform a procedure safely.

3.7 **Consent** – supplying the patient with relevant information to enable them to make an informed choice.

3.8 **Continuous Infusion** – a large volume of infusion fluid (with or without the addition of a medicine) that is infused over a prescribed time and at a prescribed rate, often over 12 -24 hours.

3.9 **Diluent** – a prescribed substance that dilutes the strength of a mixture or solution.

3.10 **Extravasation** – leakage of a vesicant medicine from the vein into surrounding tissue, causing tissue necrosis, requiring urgent medical attention.

3.11 **Fibrin Sheath** - a protein that works with platelets to clot blood and form a covering to the central venous catheter that may provide a focus for bacterial growth and cause occlusion. It can act as a one way valve allowing fluids to be administered but causing difficulty with aspiration and withdrawal of blood. The use of antifibronolytic agents to clear the catheters should be undertaken only within the secondary care setting.

3.12 **Flush** – a prescribed solution used to maintain patency of venous access devices.

3.13 **Implanted venous access device (implanted ports)** – is a central venous access device, which is completely implanted beneath the skin and attached to an indwelling catheter to ensure reliable vascular access for repeated drug administration, used in patients with poor venous access who require regular treatment.

3.14 **Incompatibility** – a harmful reaction that occurs between the drug and the solution, container or another drug.

3.15 **Induration** – sclerosis or hardening - an abnormally hard area to the skin and tissue.

3.16 **Infection** - the entry of a harmful microbe into the body and it’s multiplication in the tissues, producing clinical signs and symptoms in the person.

3.17 **Infiltration** – leakage of a non-vesicant medicine into the tissue that surrounds the vein.
3.18 **Intermittent Infusion** – a small volume infusion administered at a prescribed rate, usually at specific time intervals during the day.

3.19 **Key sites** - An area belonging to the service user where pathogenic organisms can enter the body and cause infection e.g. wounds, urinary tract, cannula insertion site.

3.20 **Key Parts** - Refers to the key sterile equipment parts. These key parts are the pieces of equipment that are manufactured sterile and would be in direct contact with the key sites of the service user or other key parts.

They have the potential to transmit bacteria and/or microorganisms if they become contaminated. During aseptic technique procedure key parts must be protected from contamination.

The principle is that you cannot contaminate a key part if it is not touched. Any key part must only come into contact with other key parts (e.g. sterile glove, sterile syringe tip and needle hub). Non-key parts can be gripped firmly.

3.21 **Midline Peripheral Catheter** - defined as being between 7.5cm – 20cm in length, used for extended intravenous therapy (4-6 weeks) or when patients present with poor peripheral venous access and when the use of a central venous catheter is contraindicated. The distal end sits in the axillary region of the arm.

3.22 **Medusa** - injectable drug administration guide available via the staff intranet. It contains printable information leaflets on the administration of injectable drugs.

3.23 **Non coring needle** - for use to access implanted port septum for the administration of medication and/or flush. The design allows closure of septum and skin on removal to prevent infection.

3.24 **Palpable cord** – a palpable hardened venous vein that can indicate thrombosis.

3.25 **Peripheral Cannula** - a hollow needle passed through the skin directly into the vein as a mechanism of gaining short term intravenous access to allow injection or infusion of liquids. Sizes range from Yellow 24g, Blue 22g, Pink 20g, Green 18g, Grey 16g, Brown 14g. Size 24-20g is optimal for the administration of intermittent medications. All medications should be administered using the smallest gauge appropriate to the patient following risk analysis.

3.26 **Peripherally Inserted Central Catheters (PICC)** - this central venous catheter is inserted in secondary care and is used for long term access for intravenous therapy. These can be open or valve ended. These are inserted through a sheath into a peripheral vein of the arm under ultrasound guidance, and then carefully advanced upward until the distal tip of the catheter rests in the superior vena cava or right atrium.

3.27 **Phlebitis** – inflammation of a vein.

3.28 **Povidone-iodine in 70% alcohol** – a solution to be used to cleanse the skin or equipment if a patient is allergic to chlorhexidine gluconate. Checks must be made against manufacturer’s guidelines of compatibility with the equipment in use.

3.29 **Reconstitution** - the addition of a liquid or powder medicine to a specified diluent, as per the prescription and manufacturers guidelines.

3.30 **Skin tunneled Central Venous Catheter** - this central venous catheter is inserted in secondary care and is used for long term access for intravenous therapy. The distal end of the catheter sits within a large vein, usually the superior vena or occasionally the inferior vena cave, or within the right atrium of the heart. These can be either open or valve ended.
3.31 **Speed Shock** – a sudden adverse physiological reaction to IV medications that are administered too quickly. Some signs of speed shock are: flushed face, headache, tight feeling in chest, irregular pulse, loss of consciousness and cardiac arrest.

3.32 **Thrombophlebitis** – venous inflammation in combination with venous thrombosis, which may lead to vessel occlusion. Dislodgement of a thrombus could cause a pulmonary embolus.

3.33 **Thrombosis** – formation, development or existence of a blood clot within the vascular system.

3.34 **Vascular Access Device (VAD)** - a device used to access a vein for the purposes of administering medication, this may be a Peripheral Cannula, Midline Peripheral Catheter, or Central Venous Catheter.

3.35 **Venous Cannulation** - the procedure for the insertion of a Peripheral Cannula into the venous system.

3.36 **Vesicant** - a caustic medication that causes tissue blistering and necrosis. (Refer to Appendix 11 for examples)

3.37 **Visual Infusion Phlebitis Score (VIPS)** – An observation tool used for monitoring the condition of the IV access site.

### 4 Duties and responsibilities

4.1 Registered Nurses must “Advise on, prescribe, supply, dispense or administer medicines within the limits of your training and competence, the law, our guidance and other relevant policies, guidance and regulations.” NMC Code (2015).

The Registered Nurse has the right to refuse to insert a peripheral cannula and/or administer a medicine via the intravenous route if there are any concerns regarding competency, the level of risk, the prescription or the patient’s condition.

4.2 Registered Nurses must always refer to the current policy and competency framework.

4.3 It is the responsibility of Registered Nurses transferring from other Trusts, to demonstrate competence prior to practicing IV therapy and cannulation, through successful completion of the current Southern Health Foundation Trust Competency Framework. (Refer to Competency Framework on the Southern Health intranet)

4.4 It is a requirement that Registered Nurses attend training if competency cannot be demonstrated or a need for training is identified.

4.5 All Registered Nurses to work within the scope of their practice, job description and must demonstrate current competency at their appraisal.

4.6 Line managers to support staff in the acquisition of training and maintenance of competency. There is operational management responsibility for ensuring that there are sufficient mentors in practice to assess staff completing the theoretical training. Line managers must ensure that appropriate equipment is available, maintained and stored correctly.

4.7 The Registered Nurse should identify the patient, using open questions, prior to providing the intervention. This is required using a minimum of four forms of identification that includes name, date of birth, NHS number and address. Staff must check that this information is compatible with the documented medical record. NHS numbers must be stated on all relevant documentation and on Community Hospital identification bracelets. Documentation should be checked for allergy status and patients asked whether they have any known allergies.
4.8 It is a general legal and ethical principle that Registered Nurses and Doctors obtain valid informed consent prior to commencing treatment. That consent is based upon being given accurate information that is confirmed as having been understood, either verbally or in writing or by gesture. Consent must be documented in the patient’s notes. The Health Care Professional must adhere to the principles of the Mental Capacity Act 2005.

4.9 All record keeping must adhere to standards set out by NMC Code 2015 and Southern Health Record Keeping Standards and Audit Policy.

4.10 Due to anaphylaxis risk with Intravenous Therapy, it is essential that staff undertaking any aspect of intravenous therapy, including routine care and maintenance of vascular access devices, are up to date with mandatory training requirements relating to resuscitation and anaphylaxis management, and have access to recommended equipment.

Anaphylaxis prophylaxis (IM Adrenaline 0.5ml 1:1000) must be readily available at the patients’ bedside when administering medication via the intravenous route.

For community based staff who are administering medication with an identified risk of anaphylaxis (such as intravenous medications, including routine flush) staff should carry an anaphylaxis pack containing the appropriate dose Emerade adrenaline auto injector (or recommended alternative) and a pocket mask. (Refer to Southern Health Medical Emergencies & Resuscitation Policy)

5 Main policy content

5.1 Assessment and eligibility

5.1.1 Eligibility criteria for community care team or community hospital

5.1.2 The IV Therapy Service is open to all adults over 18 years of age registered with a Hampshire GP Practice. Referrals will be triaged by the Integrated Community Care Teams and Community Hospitals as appropriate. The accepting clinician must be fully informed and agrees to the referral. IV treatment at home via peripheral cannula should not normally exceed 5 days duration. If longer term therapy is required a Midline Peripheral Catheter or Central Venous Catheter should be considered.

5.1.3 The GP or Hospital Clinician has documented that the patient’s medical condition is suitable for this treatment.

5.1.4 Within a home setting, IV therapy must be compatible with the competency and capacity of the Community Care Team: the expectation should be that IV therapy should be of no more than thirty minutes duration up to twice daily.

5.1.5 If the therapy is for less than five days and is compatible with the medication required then access via a Peripheral Cannula is appropriate. For therapy lasting no more than eight weeks duration, a midline peripheral catheter is appropriate provided the medication does not contain a vesicant.

5.1.6 A detailed prescription of medication required must be provided by the GP or Hospital Clinician.

5.1.7 A home visit will be available for housebound patients according to the patients assessed care requirements.

5.1.8 Equipment required to perform the task must be provided by the acute hospital or through the equipment store.
5.1.9 Within the Community, GP cover must be available and Out Of Hours medical cover as required.

5.1.10 The patient’s physical and mental health must be considered for home therapy to ensure safe administration. The patient must have capacity to be able to give consent.

5.1.11 A risk assessment of the ability to receive this service at home must be completed, including consideration of appropriate social circumstances and the patient must have access to a telephone (Appendix 2-5).

5.1.12 Written information will be provided to the patient with details of how to access out of hours support and education will be given regarding care of the intravenous therapy device.

5.1.13 Clinical Leadership will be maintained through the normal line management structure.

5.2 Treatment Pathway and discharge planning for community care teams

5.2.1 When a suitable patient has been identified a referral is to be made to the Community Care Teams via their referral point.

5.2.2 Seven days of equipment and prescribed medicines required to perform the task must be provided by the hospital on discharge from the hospital.

5.2.3 All hospital discharge information must be faxed or telephoned through to the patient’s GP.

5.2.4 If referred by a GP/Community Matron a prescription and Community Prescription Chart for the necessary medication must be completed.

5.2.5 A member of the Community Care Team will assess the patient to ensure the eligibility criteria are met.

5.2.6 Patient to be assessed for suitability and risk prior to discharge.

5.2.7 Once the nurse is satisfied the patient meets all the criteria:

- The service will be introduced to the patient and information provided. The patient will be given the opportunity to discuss the service with the member of staff before making the informed decision to have IV therapy in a clinic or at home.

- If the patient chooses to have their IV therapy at home, if not already sited a suitable IV access device will be placed by the nurse /hospital.

5.2.8 On referral a clinical decision needs to be made in relation to whether the Community Nurse should be invited to the discharging hospital to be involved with the patient’s discharge planning, as this provides a useful opportunity for the nurse to familiarise his/herself with the patient’s IV device and therapy. If this is not possible there should be a minimum of 48hour notice of a patient’s discharge, or the community team should be involved in the clinical decision regarding earlier timing of discharge.

5.2.9 Information regarding IV therapy referrals to the Community Care Team should be documented using the referral form (See Appendix 3).

5.2.10 Telephone referrals can also be made using the same referral form. A copy must be faxed to the patient’s GP. All new referrals to be triaged by the Community Care Team and will be accepted following eligibility criteria and workflow capacity. The Community Care Team service will be available 8.30am till 11.00pm 7 days per week and Community Hospital clinics open 5-7 days per week, depending on area.
5.3 Quality Standards

5.3.1 All care will be evidence based and delivered by competent staff using Southern Health policy and procedures.

5.3.2 All teams follow the Southern Health Complaints Policy; this includes openness, transparency and the effective use of clinical incidents as a learning process.

5.3.3 All research activities are registered and implemented in accordance with the Southern Health research governance framework.
Patient in an Acute Setting requiring IV medication in Community Setting (Community Hospital or Home).

Refer to Community Services.

Complete IV Community Referral Form, Risk Assessment, Eligibility Criteria.

Accept?

No

Patient not eligible for Community IV Service Refer back to Acute setting. Consider alternative therapy.

Yes

Community Hospital/Clinic or Community Care Team

Assessment:

Medical, Clinical and Social assessment & GP aware/accepts. Review date.

Referral document completed.

Supply medication/equipment provided.

Appropriate resources for

Out of hours Community Hospital/ Clinic Community Care Team
5.4 **Infection Control (please read in conjunction with Appendices 9 and 10)**

5.4.1 All care relating to cannulation and IV therapy requires the use of an aseptic technique, observation of standard precautions and product sterility. The use of a clean, plastic, re-usable, wipe-clean tray is recommended for the preparation and administration of medicines for intravenous administration.

5.4.2 IV catheters and peripheral cannulae may be contaminated by the patient’s skin flora at the insertion site or by the introduction of other organisms via the cannula/catheter hub or injection port or seeding in the blood from other infection sites. The potential consequences of catheter-related infections (CR-infections) are so serious, enhanced efforts are needed to reduce the risk of infection to a minimum. A closed system should be used at all times (e.g. Port on device if not attached to Administration set, clamps closed and entry sites protected by sterile transparent vapour permeable film dressing).

5.4.3 When performing hand hygiene the Health Care Professional must be bare below the elbow with no nail varnish or false nails, plain wedding band only – no stoned rings. Skin should be intact and healthy – any cuts and abrasions must be covered with secure waterproof dressing.

5.4.4 It is important to decontaminate hands with soap and water or alcohol gel before and after each patient contact and before applying / removing gloves (Saving Lives, 2017).

5.4.5 Cleansing of skin, and relevant equipment such as ports, ampoules and blood bottles must be undertaken using the appropriate Chlorhexidine Gluconate 2% with 70% isopropyl alcohol wipe for 30 seconds to 1 minute and allowed to air dry for 30 seconds to 1 minute as per manufacturer’s guidance. Health professionals must take in to consideration the fact that chlorhexidine is known to induce hypersensitivity, including generalised allergic reactions and anaphylaxis. Although available evidence suggests this is likely to be rare, any products or medical devices containing chlorhexidine should not be administered to anyone with a possible history of an allergic reaction to chlorhexidine. In the event of either a known or suspected patient allergy to chlorhexidine gluconate, use povidone-iodine in 70% alcohol as an alternative cleanser; if compatible with equipment in use (see manufacturer’s guidelines).

5.4.6 Aseptic technique requires risk assessment to determine use of sterile or non-sterile gloves. If there is a likelihood of the Registered Nurse/Clinician touching the key parts of the system then sterile gloves must be worn. Reference must be made to the individual procedures related to intravenous therapy and the Aseptic Technique and Clean Technique Procedure.

5.4.7 All access devices should be removed when they are no longer needed or if there are signs of infection or phlebitis.

5.4.8 All access devices must be covered with a sterile semi-permeable dressing that allows the site to be observed and changed using an aseptic technique.

5.4.9 At each dressing change the access site must be cleaned with 2% chlorhexidine gluconate in 70% isopropyl alcohol and allowed to air dry (use povidone iodine in 70% alcohol, not aqueous, if patient has sensitivity to chlorhexidine).

5.4.10 The insertion of all access devices must be clearly documented in the patients notes.

5.4.11 Use an IV access device with the minimum number of ports or lumens essential for the management of the patient.

5.5 **Medicine Management**

Refer to the Southern Health Medicines Control, Administration and Prescribing Policy (MCAPP: SH CP 1) regarding correct prescribing and administration of medicines protocols.
5.6 Intravenous administration should follow the following six rights:

- The right patient
- The right drug
- The right dose
- The right time
- The right route
- The right record

5.7 Prescriptions

All IV medicines, including diluents and flushes, must be prescribed by a Registered Medical practitioner or Non-Medical Prescriber responsible for the patient’s care, either on an in-patient prescription chart or a community administration authorisation sheet and FP10. Ideally, all drugs should be available in a ready-to-use form that is either pre-prepared by a pharmacy or purchased pre-prepared from a pharmaceutical company (NPSA, 2007b).

The Registered Medical practitioner or prescriber must ensure the prescription is legible and specifies:

- Patient identification details
- Name and dose of drug, including diluent
- Route of administration
- Rate of administration
- Time, Frequency and duration of treatment including stop date
- Allergies
- Signed and dated

Flushes must be prescribed using the aforementioned principles.

Any adjustments to the patient’s treatment plan will require a new prescription to be completed.

Verbal messages will not be accepted for change in an intravenous drug treatment plan.

5.7.1 Intravenous Fluid Therapy

Staff involved in intravenous fluid therapy should be aware and follow the guidance as issued by NICE (Intravenous fluid therapy in adults in hospital (CG174) updated May 2017). This guideline contains recommendations about general principles for managing intravenous (IV) fluids, and applies to a range of conditions and different settings, and includes: physiological principles that underpin fluid prescribing, pathophysiological changes that affect fluid balance in disease states, indications for IV fluid therapy and the reasons for the choice of the various fluids available and principles of assessing fluid balance.

Prescribers of Intravenous fluid therapy should also refer to the MCAPP policy and follow the key principles as provided by NICE CG174): Remember the 5 R’s: Resuscitation, Routine maintenance, Replacement, Redistribution and Reassessment. Offer IV fluid therapy as part of a protocol (algorithm in NICE guidance), Patients should have an IV fluid management plan in place.
Assessment for and monitoring principles should include: Assess the patient's likely fluid and electrolyte needs from their history, clinical examination, current medications, clinical monitoring and laboratory investigations.

All patients continuing to receive IV fluids need regular monitoring. This should initially include at least daily reassessments of clinical fluid status, laboratory values (urea, creatinine and electrolytes) and fluid balance charts, along with weight measurement twice weekly. (NICE CG174).

5.8 Checking

Checking of medication must be made at selection, preparation and prior to administration of all medicines. Checks must include drug, dose, route, diluent and time against the prescription chart. Check for any allergies. Reducing interruptions whilst checking and the use of a structured approach will reduce human error.

All drugs must be used within their expiry date and documented accordingly.

All medications to be inspected for particulates and/or cloudiness. If identified, discontinue use.

The infusion device/administration set used should be appropriate and compatible for the medicine being administered and the patient receiving the medicine (DH 2004) and in line with manufacturer's guidelines.

IV medicines may not be compatible with certain IV fluid or other medicines so the Registered Nurse must check the recommended diluent and compatibility of each medicine with infusion fluid before administration using product manufacturer’s information. (Refer to the current British National Formulary (BNF available online) relevant appendix and other locally approved information sources e.g. Medusa.)

An independent second check including calculations, by another Registered nurse, must be obtained prior to medicines administration where one is working on the same site, especially where multiple patients are involved.

In an inpatient setting, the second independent check should be sought from a Registered Nurse working on the same ward or in an adjacent area.

Double/second checking is recommended by the NMC, but is not always practical in the community setting. Registered Nurses working in the community setting must recognise whether individual confidence and competence indicates that an independent second check is required. Line managers must support Registered Nurses to be open and honest regarding their competency needs. A family member may only check the name and expiry date of medicine, but may not sign documentation. (MCAPP policy)

When second checking, independent checking of calculations is recommended, and should be undertaken individually and then compared.

All calculations must be documented in the patient’s notes.

All injections should be labelled immediately after preparation, by the person who prepared them, except for syringes intended for immediate push (bolus) administration; the health care professional who prepares the medication is responsible for the immediate labelling and must commence the administration. Refer to MCAPP for further information on labelling injectable medicines)

Infusion to be labelled with Patient’s Full Name; Name of Medicine; Strength; Route of administration; Diluent and final volume; Batch No; Expiry date and time; Name of the Registered Nurse administering the medicine and the second nurse checking the medication.
Reference/checks must be made of previous timed administration of IV therapy to achieve accurate time intervals between medications.

5.9 Storage

Medicines must be stored securely and within the temperature range recommended and according to manufacturer guidelines and in accordance with MCAPP policy.

5.10 Infusions

Where possible all intravenous infusions must be administered via an infusion pump. In addition, the administration and drip rates will need to be accurately calculated by the Registered Nurse and recorded in the patient’s notes.

Correct equipment must be used that is compatible with the medicine being administered. Please refer to manufacturer guidelines. Must also have been maintained correctly and staff member must have had appropriate training in use of the equipment

Aseptic technique must be used when connecting the administration set to the vascular access device. A closed system to be maintained at all times.

In order to prevent air embolism, air to be purged from the administration set and extension tubing prior to attachment to a venous access device.

Infusion device to have integral ‘air in line’ detectors to prevent air embolism.

Primary and secondary administration sets (also known as ‘giving sets’ and ‘infusion sets’) when used for continuous infusion of clear fluids must be changed every 96 hours, unless indicated otherwise by manufacturer, and immediately if they become disconnected or the integrity of the product or system has been compromised. (RCN Standards for Infusion Therapy 2016.)

Primary intermittent solution sets should be changed every 24 hours, if remaining connected to a device, or discarded after each use if disconnected. (RCN Standards for Infusion Therapy 2016).

Administration sets in continuous use for Parenteral Nutrition should be changed every 24 hours (RCN Standards for Infusion Therapy 2016).

Administration sets with an integral mesh filter must be used for blood transfusions, and should be removed immediately when transfusion complete or changed at least every 12 hours in accordance with Blood Transfusion Policy. Platelet components should be transfused through a new giving set, not via a set that has been previously used to deliver other blood components.

Infusion should not be allowed to run dry.

Once an administration set has been disconnected from a patient, it must not be reconnected – a new administration set and a new bag of fluid must be used.

Always use a Vascular Access Device with the minimum number of port or lumens essential for management of the patient. Multiple port attachments e.g. three way taps must not be used routinely due to infection risk- a clinical assessment must be undertaken prior to use. (Epic 3)

5.11 Infusion devices

Infusion devices to be maintained correctly and serviced annually or as recommended by manufacturer’s guidance and documented. Electronic infusion devices should be considered an adjunct to nursing care and are not intended to alleviate the nurse’s responsibility for
regularly monitoring and documenting of the infusion rate of the prescribed therapy (RCN, 2016). Record the Infusion pump serial number.

Registered Nurse must have received training in relation to the device being used. Competency to be maintained and recorded. Please refer to the Medical Devices Management Policy.

Documentation to incorporate the following when initialising an infusion:

- Date
- Time started
- Expected completion time
- Device serial number
- Rate setting
- Volume to be infused
- Total volume infused
- Volume remaining
- Rationale for any changes
- Any calculations

5.12 Administration of Cytotoxic Agents

Cytotoxic agents must only be administered via Central venous Access devices due to the risk of extravasation.

Chemotherapy should be administered in a secondary care environment e.g an acute hospital.

Administration of Cytotoxic agents should follow relevant organisational policies and procedures.

Administration of Cytotoxic agents should be initiated upon the prescription of an appropriately qualified clinician.

The Registered Nurse administering cytotoxic agents should have knowledge of disease processes, drug classifications, pharmacology indications, actions, side effects, adverse reactions and methods of administration.

Handling of spilled products and equipment for chemotherapeutic agents should be in keeping with the guidelines for Hazardous Waste Materials (COSHH 2004).

Do not commence cytotoxic therapy if there are concerns regarding dislodged Central Venous Catheter; length of exterior line increased and leakage of fluid from exit site. Stop cytotoxic therapy immediately if the patient experiences pain, swelling, erythema. In these instances the Central Venous Catheter requires full assessment. Any concerns regarding placement should be referred to secondary care for check X-ray.

The disconnection process requires an aseptic technique, and flushing is required after disconnection. (Refer to the SOP for Disconnection of Continuous Infusional Chemotherapy from CVAD’s in the Community). Safe waste disposal of products should follow the Southern Health Handling and Disposal of Healthcare Waste Policy.

Pregnant staff or those planning their pregnancy should be advised of the potential risk associated with handling chemotherapeutic/cytotoxic agents and given the opportunity to refrain from preparing these agents.
Documentation

Documentation must include:
Date, time and reason for insertion
Details of site preparation
The type and size of vascular access device

All maintenance, care and administration should be documented including record of date and time, medicine administered, dose, rate, route, batch number and expiry on the patient’s administration record sheet. VIPS score should be used to record skin integrity and patency of device at each intervention. (See appendix 6)

Signature and printed name must be recorded on the medicine administration record sheet.

Fluid balance chart to be commenced and maintained for all intermittent and continuous infusions.

Physiological observation chart to be commenced and maintained for all patients receiving intravenous therapy. Frequency of observations to be decided according to individual patient assessment and therapy required (minimum weekly with VIPS score).

Nursing notes to state: Date of insertion of IV device, insertion site, and inspections of site using the VIP score. If the device is re-sited, record the new site and why.

Report any adverse reactions to Prescriber, Medicine Management and Medicines and Medicine Health care Regulatory Agency MHRA via a Safeguard Incident Form.

All documents and patient records to be maintained as per Record Keeping Policies, Standards and Standard Operating Procedures.

Flushes

Withdrawal/ aspiration of blood prior to administration of flush in to a midline or central venous access device is recommended

According to the RCN Standards for Infusion Therapy 2016:

“The health care professional should aspirate midlines and central venous access devices to check blood return to confirm patency, assess catheter function and prevent complications, prior to administration of medications and/or solutions”.

Withdrawal of blood is essential before the administration of a vesicant medication or fluid, and prior to taking a blood sample for analysis.

In the absence of blood return for CVAD’s see appendices for algorithm for persistent withdrawal occlusion

- Syringes for medicine administration and flushing must be luer lock with a minimum size of 10ml
- The line must be flushed before administration, after administration and in between every consecutive medicine administration to prevent potentially incompatible medicines from mixing in the IV line. All flushes must be prescribed.
- All flushes must be compatible with medicine and checked against manufacturers guidelines prior to administration.
- Push pause and positive pressure techniques must be used for all flushes including Peripheral Cannulae, Midline Catheters , Central Venous Catheters, and Implanted Ports
- For Central Venous Catheters, attach syringe with flush solution to the Central venous catheter and flush with 10mLs by intermittent push pause technique to create a gentle
turbulent flow designed to remove debris from the lumen of the catheter. For a **non-valved** Central venous catheter, whilst delivering the last mL of solution to create positive pressure. For a **valved** central venous catheter, use an intermittent push pause flush technique, then disconnect by a twist action whilst delivering the last mL of solution to create positive pressure.

- For Peripheral Cannulae – 10mLs 0.9% sodium chloride for injection (or recommended compatible alternative) should be used to flush prior, between medicines and after medicine administration or at least once daily.
- For Midline Catheters, 10mLs 0.9% sodium chloride for injection (or recommended compatible alternative) should be used to flush prior, between medicines and after medicine administration and to maintain patency: 10mLs 0.9% sodium chloride for injection should be used to flush daily.
- For Central Venous Catheters ie Skin tunnelled, or Peripherally Inserted Central Catheter (PICC), 10mls 0.9% sodium chloride for injection (or recommended compatible alternative) should be used to flush prior, between medicines and after medicine administration. To maintain patency, when not in use for therapy, central catheter lumens should be flushed with 10-20mls 0.9% sodium chloride for injection every 7 days. It is important to prevent occlusion that push pause and positive pressure techniques are used at all times.
- For implanted ports, to maintain patency, follow manufacturer guidelines for type of flush and interval between flushes. Many manufacturers recommend use of 0.9% sodium chloride for injection followed by a heparin solution to maintain patency on a monthly or 6 weekly basis. There are risks associated with the high concentrations of heparin solution often recommended by manufacturers. Health Care Professionals must be aware of the concentration risks and frequency of administration. Intermittent push pause technique and positive pressure technique must be used for flushes.

5.15 **Patient monitoring**

Patients receiving intravenous therapy must be monitored using the Physiological observation chart. Fluid balance must be monitored and documented for all patients receiving any IV therapy. All observations to be decided upon according to individual patient assessment and therapy required and recorded in the patients care plan.

Any fluid restricted patients who require IV therapy should be assessed by the Medical practitioner and strict fluid intake should be prescribed and observed.

Peripheral Cannulation Insertion and Management Chart (Appendix 8) must be used to document insertion and removal details.

Central Venous Access Device Monitoring Form should be used to document routine care of central venous access devices, including implanted ports (Appendix 13).

The skin condition surrounding the insertion site must be recorded using the Visual Infusion Phlebitis Score (Appendix 6) at least daily.

**NB:** Refer to SHFT Procedures for routine care and maintenance of Peripheral cannula, Midlines, Central venous access devices and Implanted ports.

5.16 **Removal**

Midline Peripheral Catheters and Central Venous Catheters CAN ONLY be removed by trained and competent staff in an appropriate setting. The risks associated with removal include air embolism, and bleeding.
5.17 Risks associated with intravenous therapy and their management

Occluded Central Venous Catheters:

Effective flushing intermittent push pause and positive pressure techniques are essential to avoid occlusion of the Central Venous Catheter. If the Central Venous Catheter does become blocked and blood cannot be aspirated, ask patient to cough/raise arm/lean forward/turn head; if necessary flush with 2-10mLs 0.9% sodium chloride (do not use force) using a 10mL luer lock syringe then repeat attempt to aspirate from the catheter. If the Central Venous Catheter remains blocked the patient should be referred to secondary care for investigations and treatment using anti fibrinolytic therapy.

Breakage of Central Venous Catheter:

If the catheter is damaged and splits external to the patient, clamp the catheter proximal to the split to prevent air embolism/seepage of blood. Use smooth edged clamp or protect line from damage by clamp with gauze swab. Wrap broken section in swab of chlorhexidine gluconate 2% or suitable alternative ie: povidone-iodine in 70% alcohol, if patient has known or suspected hypersensitivity to chlorhexidine. Refer to secondary care for immediate attention and possible repair.

5.18 Infiltration

Infiltration is defined as the inadvertent administration of non-vesicant (non-caustic) medication or solution into the surrounding tissue instead of into the intended vascular pathway (RCN Standards for Infusion Therapy 2010).

Registered Nurses need to be able to demonstrate knowledge regarding the recognition, prevention, management and reporting of infiltration.

An ‘Infiltration Scale’ should be used to assess and document infiltration observed. (Appendix 7)

Should infiltration occur, administration of the medicine must be discontinued immediately. Remove the peripheral cannula.

On-going monitoring is required due to the risk of compression to nerves and acute limb compartment syndrome – pain/sensation, pulse in limb, perfusion.

Presence and severity of infiltration to be documented – include time of infiltration, area, site and volume of infiltration.

5.19 Extravasation

Extravasation is defined as the ‘inadvertent administration of a vesicant solution or medication into surrounding tissue’ (RCN Standards for Infusion Therapy 2016).

Registered Nurses need to be able to demonstrate knowledge regarding the recognition, prevention, management and reporting of extravasation.

Risk factors relate to medicine/patient/device/clinician.

5.20 Extravasation is a medical emergency

Prompt and immediate assessment and treatment needs to be commenced. Prompt referral to secondary (Acute) care as further treatment may be required.

Discontinue medication administration immediately.

Disconnect but keep syringe/administration set containing medicine to ascertain volume delivered.
Aspirate residual medicine.

Treatment requirements to be determined **prior** to removal of Venous access device. Therefore do not remove any Venous Access Device.

Central Venous Catheters would be required to be removed in secondary (Acute) care if appropriate.

The patient requires on-going monitoring; pain, limb perfusion, blood pressure and pulse.

Document time of injury, area and site of injury, appearance of infusion site, distal circulation and details of the drug and diluent.

Safeguard reporting is required.

**5.21 Speed Shock and Fluid Overload**

Speed Shock and fluid overload can occur when a medication or infusion is too rapidly introduced to the circulation.

Signs and symptoms of speed shock include, headache, dizziness, tightness in chest, tachycardia, and hypotension.

For prevention of speed shock, the Registered Nurse needs to have knowledge of the recommendations regarding speed or rate at which a medication should be administered. The prescription should be referred to at all times: any discrepancies or concerns should be raised with the prescriber.

Signs and symptoms of fluid overload include restlessness, dyspnoea, cough, tachycardia, hypertension, and low oxygen saturations.

Regular monitoring of the patient is required during the administration of fluids, including the Physiological Observation Chart, fluid balance charts, blood pressure, pulse, and respiratory rate and oxygen saturations.

Prompt referral to secondary care/Emergency Services is required should either speed shock or fluid overload be suspected.

**5.22 Phlebitis and Infection**

Phlebitis of the peripheral cannula or midline peripheral catheter site is identified by observation of pain, erythema, oedema, possible palpable cord.

Monitor and document assessment of the site using a Visual Infusion Phlebitis (VIP) Score at least once daily (See Appendix 6)

**Remove the peripheral cannula if VIP score is 2 or more.**

Document on chart and in patient’s notes.

Retain removed cannula in aseptically in a sterile pot until it is known whether specimen collection may be required.

Monitoring of the exit site of the Central Venous Catheter should include redness, erythema, pain, oedema and leakage. Should any of these be observed referral should be made to secondary care for advice. Do not attempt removal.

If the patient show signs of deterioration Blood Cultures may be required. This procedure can only be undertaken confident and competent practitioner, who has been trained in this procedure. Specimen must be transported in this procedure in line with Transport of Clinical Specimens (Procedure SH CP 34)
Alert medical staff as patient will require review and antibiotics may be required. When appropriate re-site the peripheral cannula for continuation of treatment. Complete new peripheral cannula insertion management form.

6 Training requirements

6.1 Initial Training: Prior to undertaking any IV therapy or cannulation procedures, all staff must be able to demonstrate clinical competence in accordance with relevant current Southern Health policies and have a clear understanding of the underlying principles of practice. This will be achieved by Nursing and other health care staff:

- Staff must maintain currency of the Basic Life Support and Anaphylaxis training.
- Prior to IV and peripheral cannulation training all staff should have completed Aseptic Technique e-presentation and successfully completed the Aseptic Technique e-assessment available via the LEaD website.
- Staff must attend an IV study day before the Peripheral Cannulation study day- bookable via LEaD

6.2 Continuing Professional Development: E-Assessment in IV therapy every 2 years with face to face training in the event of failure of the e-assessment.

- Demonstrate competency in practice using the Southern health Foundation Trust competency framework tool.
- Staff who have been trained and practiced in a previous post may be allowed to demonstrate an equivalent level of competency through a period of supervised practice and the successful completion of the competency framework including knowledge and application of the policy.
- Medical staff will demonstrate ongoing professional development through annual appraisal and revalidation

7 Monitoring compliance

<table>
<thead>
<tr>
<th>Element to be monitored</th>
<th>Lead</th>
<th>Tool</th>
<th>Frequency</th>
<th>Reporting arrangements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Competency in IV Therapy</td>
<td>Line manager</td>
<td>Competency Framework tool</td>
<td>Every two years</td>
<td>Annual appraisal</td>
</tr>
<tr>
<td>Competency in Peripheral Cannulation</td>
<td>Line manager</td>
<td>Competency Framework tool</td>
<td>Every two years</td>
<td>Annual appraisal</td>
</tr>
</tbody>
</table>

8 Policy review

This policy will be reviewed 3 years from the date of approval or sooner in the event of significant safety issues or changes of practice.

9 Associated trust documents

This policy needs to be read in conjunction with the current organisational policies and procedures for:

- Aseptic Technique and Clean Technique Procedure
- Blood Transfusion Policy

Intravenous Therapy and Peripheral Cannulation Policy
Version: 3
August 2017
Intravenous Therapy and Peripheral Cannulation Policy

10 Supporting references

- Bravery K , Ho A, (Sept 2010) Central Venous Access Devices (Long Term)
- Great Ormond Street Hospital for Children NHS Trust
- IV Team www.ivteam.com
- NMC Record Keeping, London, NMC.
- NMC Standards for Medicine Management, London, NMC.
- Royal College of Nursing (RCN) (2016) Standards for Infusion Therapy, London, RCN.
## Appendix 1: Training Needs Analysis

If there are any training implications for your policy please complete the form below and contact the Learning, Education and Development department (LEaD) on 02380874091 before the policy is approved.

<table>
<thead>
<tr>
<th>Training Programme</th>
<th>Frequency</th>
<th>Course Length</th>
<th>Delivery Method</th>
<th>Facilitators</th>
<th>Recording Attendance</th>
<th>Strategic &amp; Operational Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>IV Therapy and Cannulation and 2 yearly e-assessment</td>
<td>Once only</td>
<td>6 hours</td>
<td>Face to face</td>
<td>Clinical training team</td>
<td>MLE</td>
<td>Director of Nursing</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Directorate</th>
<th>Service</th>
<th>Target Audience</th>
</tr>
</thead>
<tbody>
<tr>
<td>MH/LD/TQ21</td>
<td>Adult Mental Health</td>
<td>All clinical staff required to provide IV therapy and or peripheral cannulation as part of their job description</td>
</tr>
<tr>
<td>Specialised Services</td>
<td>All clinical staff required to provide IV therapy and or peripheral cannulation as part of their job description excluding medical staff</td>
<td></td>
</tr>
<tr>
<td>Learning Disabilities</td>
<td>All clinical staff required to provide IV therapy and or peripheral cannulation as part of their job description</td>
<td></td>
</tr>
<tr>
<td>TQtwentyone</td>
<td>Not applicable</td>
<td></td>
</tr>
<tr>
<td>ISD’s</td>
<td>Older Persons Mental Health</td>
<td>All clinical staff required to provide IV therapy and or peripheral cannulation as part of their job description</td>
</tr>
<tr>
<td>ISD’s</td>
<td>Adults</td>
<td>All clinical staff required to provide IV therapy and or peripheral cannulation as part of their job description</td>
</tr>
<tr>
<td>ISD’s</td>
<td>Childrens Services</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Corporate</td>
<td>All</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>
Appendix 2: Equality Impact Assessment

The Equality Analysis is a written record that demonstrates that you have shown due regard to the need to eliminate unlawful discrimination, advance equality of opportunity and foster good relations with respect to the characteristics protected by the Equality Act 2010.

Stage 1: Screening

<table>
<thead>
<tr>
<th>Date of assessment:</th>
<th>10/6/15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of person completing the assessment:</td>
<td>Steve Coopey</td>
</tr>
<tr>
<td>Job title:</td>
<td>Head of Clinical Development</td>
</tr>
<tr>
<td>Responsible department:</td>
<td>LEaD</td>
</tr>
<tr>
<td>Intended equality outcomes:</td>
<td>Service users are able to access this service as identified solely by clinical need and therefore this policy does not discriminate against service users</td>
</tr>
</tbody>
</table>

Who was involved in the consultation of this document? | ISD Medicines Forum |

Please describe the positive and any potential negative impact of the policy on service users or staff.

In the case of negative impact, please indicate any measures planned to mitigate against this by completing stage 2. Supporting Information can be found be following the link: www.legislation.gov.uk/ukpga/2010/15/contents

<table>
<thead>
<tr>
<th>Protected Characteristic</th>
<th>Positive impact</th>
<th>Negative impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Disability</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Gender reassignment</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Marriage &amp; civil partnership</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Pregnancy &amp; maternity</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Race</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Religion</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Sex</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Sexual orientation</td>
<td>x</td>
<td></td>
</tr>
</tbody>
</table>

Stage 2: Full impact assessment

<table>
<thead>
<tr>
<th>What is the impact?</th>
<th>Mitigating actions</th>
<th>Monitoring of actions</th>
</tr>
</thead>
</table>
### Appendix 3: Referral form/checklist for accepting patient for community IV Therapy from secondary care.

**Referral date:**

**Patients Name:**

**NHS Number:**

**Date of Birth:**

**Address**

**Tel:**

**Mobile:**

**Registered GP:**

**Referrer’s Name:** .................................

**Contact  Tel No:**.................................

<table>
<thead>
<tr>
<th>Check list</th>
<th>Yes</th>
<th>No</th>
<th>If No, action required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient is over 18 years of age.</td>
<td></td>
<td></td>
<td>Refer to paediatric service if patient is under 18.</td>
</tr>
<tr>
<td>Patient is registered with a Southern Health NHS Foundation Trust GP.</td>
<td></td>
<td></td>
<td>Unable to accept for community IV.</td>
</tr>
<tr>
<td>Patient discharge destination (if not home address) within Southern Health.</td>
<td></td>
<td></td>
<td>Discuss with GP potential for Temporary Registration.</td>
</tr>
<tr>
<td>Registered GP .....................................</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Check list</td>
<td>Yes</td>
<td>No</td>
<td>If No, action required</td>
</tr>
<tr>
<td>----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>-----</td>
<td>----</td>
<td>--------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>The GP or hospital clinician has determined that the patient medical condition is stable for this treatment in the community setting and that <em>in preference</em>, the first dose of IV medication has been undertaken in the acute hospital.</td>
<td></td>
<td></td>
<td>Unable to accept for community IV. Refer again when medically stable.</td>
</tr>
<tr>
<td>The GP or Hospital clinician is prepared to accept the medical responsibility agreed on the medicine referral form.</td>
<td></td>
<td></td>
<td>Unable to accept for community IV.</td>
</tr>
<tr>
<td>Patient has capacity to give and has given consent for community IV therapy.</td>
<td></td>
<td></td>
<td>Unable to accept for community IV.</td>
</tr>
<tr>
<td>Patient has access to a telephone.</td>
<td></td>
<td></td>
<td>Unable to accept for community IV.</td>
</tr>
<tr>
<td>The patient’s social circumstances are appropriate to accepting Community IV therapy.</td>
<td></td>
<td></td>
<td>Unable to accept for community IV.</td>
</tr>
<tr>
<td>The treatment regime can be sustained by the service with appropriate skills and staffing levels Peripheral Cannuale should be used for - &lt; 5 days medication. Bolus or infusion of no greater than 30 minutes bd.</td>
<td></td>
<td></td>
<td>Consider switch to other treatment if clinically effective. Seek advice from Microbiologist if appropriate.</td>
</tr>
</tbody>
</table>

Referral accepted by:  

Date:  

Intravenous Therapy and Peripheral Cannulation Policy  
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August 2017
### Appendix 4: Information required once referral is accepted to community services

<table>
<thead>
<tr>
<th>Information Required</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of IV medicine to be used in the community.</td>
<td></td>
</tr>
<tr>
<td>Anticipated duration of the treatment.</td>
<td></td>
</tr>
<tr>
<td>Potential IV Medicine Incompatibility and Source</td>
<td></td>
</tr>
<tr>
<td>Number of doses patient has received before responsibility passed to community team.</td>
<td></td>
</tr>
<tr>
<td>Date peripheral cannula / central venous access device last sited.</td>
<td></td>
</tr>
<tr>
<td>Type of central Venous Access Device</td>
<td></td>
</tr>
<tr>
<td>Date X-ray confirmed proximal tip position</td>
<td></td>
</tr>
<tr>
<td>Prescription Chart completed for prescribed Medicines and flushes.</td>
<td></td>
</tr>
<tr>
<td>Medicine Referral Form Completed.</td>
<td></td>
</tr>
<tr>
<td>Treatment including flushes and diluents.</td>
<td></td>
</tr>
<tr>
<td>Has the acute site/team administered Heparin lock of high (100units/mL) concentration prior to discharge? If yes, this will need to be removed from central catheter on admission to Community services.</td>
<td></td>
</tr>
<tr>
<td>If infusion – Duration of dose administered.</td>
<td></td>
</tr>
<tr>
<td>Pump Available? Flow rate.</td>
<td></td>
</tr>
<tr>
<td>Baseline blood results where relevant e.g. U+E, LFTs, FBC, CRP Therapeutic levels</td>
<td></td>
</tr>
<tr>
<td>Repeat blood tests and date/s due.</td>
<td></td>
</tr>
<tr>
<td>Additional monitoring requirements e.g. Fluid chart, BP, Pulse.</td>
<td></td>
</tr>
<tr>
<td>Follow up/medical review/OPD date GP Review date.</td>
<td></td>
</tr>
<tr>
<td>Date and time of last IV administration.</td>
<td></td>
</tr>
<tr>
<td>Date and time of next IV dose.</td>
<td></td>
</tr>
</tbody>
</table>

Completed by (Block Capitals) _______________________________________________________

Signed                                                                                   _______________________________________________________

Date                                                                                      _______________________________________________________
Appendix 5: Medicine referral form for shared care

Copies to:
- Pharmacy Advisor General
- Practitioner Community Care Team

Date:________________________

Patient Name: ________________________________

Date of Birth:____________________

NHS Number: ________________________________

........................................ (Medicine name) has been prescribed for the treatment of the above patient for .................... (Diagnosis). I authorise that ........................................ (Medicine name) may be given to this patient by Registered Nurses trained and competent in IV therapy in the community/community hospital.

A full signed prescription card will also be provided.

Consultant Signature: ________________________________

Name (Print) ________________________________

Date __________
Appendix 6: Example of a Visual Infusion Phlebitis Score – perform and document at least once daily.

This example is relevant for assessment of a peripheral cannula. For central venous access devices, the same principles of assessment should be applied. Following assessment, appropriate action entails discussion with GP, Medical Clinician, Consultant if shared care or local hospital Specialist Nurse. On no account should central venous access devices be removed in the community setting. Removal should take place in an appropriate setting due to the risk of bleeding and air embolism.

With permission from Andrew Jackson – Consultant Nurse, Intravenous Therapy & Care, The Rotherham NHS Foundation Trust (Adapted from Jackson, 1998)
Appendix 7: Infiltration Scale – to be used in the event of infiltration after removal of cannula

Should infiltration occur, administration of the medicine must be discontinued immediately. Remove the peripheral cannula.

On-going monitoring is required due to the risk of compression to nerves and acute limb compartment syndrome – pain/sensation, pulse in limb, perfusion.

Presence and severity of infiltration to be documented – include time of infiltration, area, site and volume of infiltration.

Grade Clinical criteria

• **No symptoms**

**Skin blanched**

• Oedema <1 inch (2.5cm) in any direction
• Cool to touch
• With or without pain

**Skin blanched**

• Oedema 1–6 inches (2.5cm–15cm) in any direction
• Cool to touch
• With or without pain

**Skin blanched, translucent**

• Gross oedema >6 inches (15cm) in any direction
• Cool to touch
• Mild to moderate pain
• Possible numbness

**Skin blanched, translucent**

• Skin tight, leaking
• Skin discoloured, bruised, swollen
• Gross oedema >6 inches (15cm) in any direction
• Deep pitting tissue oedema
• Circulatory impairment
• Moderate to severe pain
• Infiltration of any amount of blood product, irritant, or vesicant
• (RCN Standards for Infusion Therapy 2010)
### Cannulation: Insertion and Monitoring Form

**Patient Details:** (please attach patient label if available)

NHS Number: 

GP: 

---

**Guidance: (Adapted from A Jackson 2007)**
- Always use Aseptic Technique
- Cleanse skin with chlorhexidine gluconate 2% in 70% Isopropyl Alcohol (eg blue Clinell wipe) for 30-60 seconds: air dry
- Secure cannula with approved dressing
- No more than 2 attempts by one clinician
- Insert cannula away from joints
- Use smallest gauge cannula for therapy
- Recommend at least a daily flush
- Observe the cannula and document
- Replace solid dressing immediately
- Replace cannula after 72 hours, unless clinical reason (document reason*)

---

**PLEASE DESCRIBE ANY ALTERNATIVE SITE USED AND RATIONALE:**

<table>
<thead>
<tr>
<th>Consent</th>
<th>Informed (please tick)</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Best Interests (please tick)</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Attempt 1: Date:</th>
<th>Time:</th>
</tr>
</thead>
</table>

**Reason unsuccessful:*

<table>
<thead>
<tr>
<th>Attempt 2: Date:</th>
<th>Time:</th>
</tr>
</thead>
</table>

**Reason unsuccessful:**

<table>
<thead>
<tr>
<th>Insertion Reason</th>
<th>Yes (please tick)</th>
<th>No (please tick)</th>
</tr>
</thead>
</table>

- Rehydration
- IV Antibiotics
- Chemotherapy
- Blood
- Other: please state

---

<table>
<thead>
<tr>
<th>Gauge</th>
<th>24/Yellow</th>
<th>22/Blue</th>
<th>20/Pink</th>
<th>18/Green</th>
<th>16/Grey</th>
</tr>
</thead>
</table>

**Batch No:** 

**Expiry:**

**Inserted by:**

<table>
<thead>
<tr>
<th>Name:</th>
<th>Signature:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade:</td>
<td>Bleep No:</td>
</tr>
</tbody>
</table>

**Procedures and equipment used:** (please tick)

- Aseptic Technique
- Skin prep (30 seconds to 1 minute)
- Dressing
- Extension set (please select) Single: Double
- Local Anaesthetic (please select) Yes: No

**Which local anaesthetic used:**

**Flush solution used and volume:**
**Intravenous Therapy and Peripheral Cannulation Policy**

**Version: 3**

**August 2017**

---

### Peripheral Cannula Care: Always remove cannula immediately if no longer required

<table>
<thead>
<tr>
<th>Observation</th>
<th>Time</th>
<th>Clinical Indication</th>
<th>Inspection Site</th>
<th>VIP Score</th>
<th>Dressing Intact</th>
<th>Flush</th>
<th>Comments</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day 1/ Date</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Day 2/ Date</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Remove the cannula on Day 3 if no longer needed**

| Day 3/ Date |      |                      |                 |           |                 |       |          |      |

**Remove the cannula on Day 4 if no longer needed/ or review and replace – cannula can only remain in exceptional circumstances**

| Day 4/ Date |      |                      |                 |           |                 |       |          |      |

**Remove or replace – exceptional reason only for cannula to remain in place**

| Day 5/ Date |      |                      |                 |           |                 |       |          |      |

**All Cannulas Must Be Removed On Day 5**

---

<table>
<thead>
<tr>
<th>Reason for removal:</th>
<th>Yes</th>
<th>No</th>
<th>Cannula in place:</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>No longer required</td>
<td></td>
<td></td>
<td>Less than 72 hrs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VIP score of 2 or more</td>
<td></td>
<td></td>
<td>From 72-96 hrs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Infiltration</td>
<td></td>
<td></td>
<td>Reason*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extravasation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other (Please state)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Removed by:**

- **Print name**
- **Signature**

**Date:**

---

**Diagram:**

- **IV site appears healthy**
  - [0] No signs of phlebitis
    - Observe cannula

- **One of the following signs is evident:**
  - Pain at IV site
  - Redness
  - Seeding
  - Reason*
  - [1] Possible first signs of phlebitis
    - Observe cannula

- **Two or more are evident:**
  - Pain at IV site
  - Redness
  - Seeding
  - [2] Early stage of phlebitis
    - Resite cannula

- **All of the following are evident:**
  - Pain along path of cannula
  - Redness around site
  - Seeding
  - Pulpable venous cord
  - [3] Medium stage of phlebitis
    - Resite cannula
    - Consider treatment

- **All of the following are evident and extensive:**
  - Pain along path of cannula
  - Redness around site
  - Seeding
  - Pulpable venous cord
  - [4] Advanced stage of phlebitis or the start of thrombophlebitis
    - Resite cannula
    - Consider treatment

- **All of the following are evident and extensive:**
  - Pain along path of cannula
  - Redness around site
  - Seeding
  - Pulpable venous cord
  - [5] Advanced stage thrombophlebitis
    - Initiate treatment
    - Resite cannula
Appendix 9: Aseptic Technique Flow Diagram

Aseptic Technique

Central Venous Access
(including Implanted devices)

Device Care
Always Requires
Sterile equipment
Sterile gloves
Disposable apron
Hand hygiene

Peripheral and Midline Devices

Are you able to perform non touch technique without touching the key parts/key sites?

Yes

No/ not sure

Clean non sterile gloves
Disposable apron
Hand Hygiene
Sterile medical devices
Uses a non-touch technique – i.e. do not touch the ends of the sterile connections or other items that will touch the susceptible site e.g. giving IV antibiotics via a peripheral cannula

Sterile gloves
Disposable apron
Hand Hygiene
Sterile medical devices
Uses a non-touch technique i.e. do not touch the ends of the sterile connections or other items that will touch the susceptible site e.g. changing a dressing on a central venous catheter
## Appendix 10: Infection Control Table of Evidence

### Infection Prevention Central Venous Access Device (CVAD)

<table>
<thead>
<tr>
<th>Care Topic</th>
<th>Best Practice</th>
<th>Source of Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Catheter site inspection</td>
<td>Regularly (at least daily or every visit) observe for signs of infection (e.g. pain, swelling, palpable vein chord, redness, pus, fever, raised CRP, raised WBC). Document findings and actions in the patients notes.</td>
<td>NHS Improvement (2017), Saving lives 4th Edition: recommends daily but not all lines: e.g. PICC are visited daily</td>
</tr>
<tr>
<td>Hand hygiene</td>
<td>An aseptic technique must be used for all catheter site care and when accessing the system. Decontaminate hands (using soap and water or alcohol hand gel/rub) before and after all catheter site care and when accessing the system.</td>
<td>EPIC 3 (2013)</td>
</tr>
<tr>
<td>Protective clothing</td>
<td>Single use disposable sterile gloves and plastic aprons must be worn for all central catheter care and when accessing the system.</td>
<td>EPIC 3 (2013)</td>
</tr>
<tr>
<td>Choosing the right dressing</td>
<td>Use a sterile transparent, vapour permeable dressing to allow observation of insertion site.</td>
<td>NHS Improvement (2017) Saving Lives 4th Edition</td>
</tr>
<tr>
<td>Frequency of dressing changes.</td>
<td>Transparent dressings should be changed every 7 days in Central venous catheters or sooner if they are no longer intact or moisture collects under the dressing. All Central venous catheters lines including PICC lines should be kept dressed whilst in hospital.</td>
<td>EPIC 3 (2013)</td>
</tr>
<tr>
<td>Insertion site cleaning when Changing catheter dressing.</td>
<td>A single patient use 2% chlorhexidine gluconate solution in 70% isopropyl alcohol should be used to clean the central venous catheter insertion site during</td>
<td>EPIC 3 (2013)</td>
</tr>
</tbody>
</table>
Catheter dressing change. A single patient use aqueous solution of chlorhexidine gluconate should be used if the manufacturer’s recommendations prohibit the use of alcohol.

<table>
<thead>
<tr>
<th>Topic</th>
<th>Best Practice</th>
<th>Source of Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Catheter Replacement</td>
<td>No routine catheter replacement.</td>
<td>NHS Improvement (2017)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Saving Lives 4th Edition</td>
</tr>
<tr>
<td>Injecting a port or catheter hub.</td>
<td>Using an aseptic technique (hand hygiene, disposable sterile gloves and disposable plastic aprons), clean ports or hubs with 2% chlorhexidine gluconate in 70% isopropyl alcohol prior to accessing the line for administering fluids or injections.</td>
<td>NHS Improvement: Saving Lives 2017</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EPIC 3 (2013) state sterile gloves</td>
</tr>
<tr>
<td></td>
<td>After 24 hours following total parental nutrition (72 hours if no lipid)</td>
<td>Saving Lives 4th Edition</td>
</tr>
<tr>
<td></td>
<td>After 72 hours with all other fluid sets.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Document date of administration set change.</td>
<td></td>
</tr>
<tr>
<td>Infection Prevention Peripheral Cannula (PC)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Topic</th>
<th>Best Practice</th>
<th>Source of Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cannula site inspection.</td>
<td>Regularly (at least daily or every visit) observe for signs of infection (e.g. pain, swelling, palpable vein chord, redness, pus, fever, raised CRP, raised WBC). Document findings and actions in the patients notes. And peripheral cannula management form.</td>
<td>NHS Improvement (2017)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Saving Lives 4th Edition</td>
</tr>
<tr>
<td>Hand hygiene</td>
<td>An aseptic technique must be used for all peripheral cannulae site care and when accessing the system. Decontaminate hands (using soap and water or alcohol hand gel/rub) before and after all catheter site care and when</td>
<td>EPIC 3 (2013)</td>
</tr>
<tr>
<td>Table: Intravenous Therapy and Peripheral Cannulation Policy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------------------------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Protective clothing</strong></td>
<td>Single use disposable sterile/non sterile gloves and disposable plastic apron</td>
<td>EPIC 3 (2013) says risk assessment and non sterile can be used</td>
</tr>
<tr>
<td><strong>Choosing the right dressing</strong></td>
<td>Use a sterile transparent, apour- permeable dressing to allow observation of insertion site</td>
<td>NHS Improvement (2017) Saving Lives 4th Edition</td>
</tr>
<tr>
<td><strong>Frequency of dressing changes</strong></td>
<td>Transparent dressings should be changed every 72-96 hours or earlier if indicated</td>
<td>NHS Improvement (2017) Saving Lives 4th Edition</td>
</tr>
<tr>
<td><strong>Frequency of cannula replacement</strong></td>
<td>Replace in new site after 72-96 hours or earlier if indicated clinically</td>
<td>NHS Improvement (2017) Saving Lives 4th Edition</td>
</tr>
<tr>
<td><strong>Administration set replacement</strong></td>
<td>Immediately after administration of blood, blood products All other fluid sets after 72 hours</td>
<td>NHS Improvement (2017) Saving Lives 4th Edition</td>
</tr>
<tr>
<td><strong>Continuing clinical indication</strong></td>
<td>Continue use only if all intravenous cannulae and associated devices are still indicated. If there is no indication for use then the intravenous cannula should be removed</td>
<td>NHS Improvement (2017) Saving Lives 4th Edition</td>
</tr>
<tr>
<td><strong>Cannula access</strong></td>
<td>Use 2% chlorhexidine in 70% isopropyl alcohol, allow to dry prior to accessing the cannula for administering fluid or injections</td>
<td>NHS Improvement (2017) Saving Lives 4th Edition</td>
</tr>
</tbody>
</table>
Appendix 11: List of medications reported to have caused extravasation injuries (not exhaustive).

<table>
<thead>
<tr>
<th>Penicillin</th>
<th>Dobutamine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vancomycin</td>
<td>Dopamine</td>
</tr>
<tr>
<td>Aciclovir</td>
<td>Epinephrine</td>
</tr>
<tr>
<td>Ganciclovir</td>
<td>Norepinephrine</td>
</tr>
<tr>
<td>Gentamicin</td>
<td>Vasopressin</td>
</tr>
<tr>
<td>Nafcillin</td>
<td>Calcium gluconate 10%</td>
</tr>
<tr>
<td>Amphotericin</td>
<td>Potassium chloride 7.45%</td>
</tr>
<tr>
<td>Cefotaxime</td>
<td>Sodium bicarbonate 4.2% 8.4%</td>
</tr>
<tr>
<td>Calcium chloride</td>
<td>Sodium chloride 10%</td>
</tr>
<tr>
<td>Cisplatin</td>
<td>Mechloremethamine</td>
</tr>
<tr>
<td>Dactinomycin</td>
<td>Melphalan</td>
</tr>
<tr>
<td>Daunorubicin</td>
<td>Mitomycin</td>
</tr>
<tr>
<td>Doxorubicin</td>
<td>Paclitaxel</td>
</tr>
<tr>
<td>Epirubicin</td>
<td>Vinblastine</td>
</tr>
<tr>
<td>Idarubicin</td>
<td>Vincristine</td>
</tr>
<tr>
<td>Vinodesine</td>
<td>Vinorelbine</td>
</tr>
<tr>
<td>Total Parenteral Nutrition (hyperosmolar)</td>
<td>Promethazine</td>
</tr>
<tr>
<td>&gt;10% Dextrose (hyperosmolar)</td>
<td>Diazepam</td>
</tr>
<tr>
<td>Mannitol 15% (hyperosmolar)</td>
<td>Digoxin</td>
</tr>
</tbody>
</table>
**Patient details (please attach patient label if available):**

Name:
Address:
Date of birth:
NHS/Hospital number:
GP:

**Central Venous Access Device:**

- Date of insertion:
- Type of central venous access device:
- Reason for insertion:
- Date for removal (if known):

**Care of a Central Venous Access Device**

- Always use aseptic technique
- Routine maintenance – recommend flush at least a weekly.
- Observe insertion site and document VIPS score
- Replace soiled dressing immediately

![Central Venous Access Device Monitoring Form Diagram]
<table>
<thead>
<tr>
<th>Observation</th>
<th>Date:</th>
<th>Date:</th>
<th>Date:</th>
<th>Date:</th>
<th>Date:</th>
<th>Date:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flush solution:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flush volume</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blood aspirated and discarded Yes/No/volume</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Measurement of external line</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Line in position and patent</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VIP score</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dressing changed</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bung replaced</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any medications administered Yes/No</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>If yes: details of medication</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any other observations:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nurse signature</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix 4: Algorithm for persistent withdrawal occlusion

Blood return is absent
Flush central venous catheter with 0.9% sodium chloride in 10ml syringe using a brisk ‘push pause’ technique. Check for flashback of blood.

Blood return is still absent
Proceed if happy to do as long as there are no other complications or pain.

Ask patient to cough, deep breathe, change position, stand up or lie with foot of the bed tilted up. Ascertain possible cause of PWD.

Blood return obtained – use central venous catheter as usual.

Blood return is still absent

Patient to receive highly irritant/vesicant drugs or chemotherapy

NO

YES

The following steps should initially be done on admission or prior to drug administration and documented in nursing care plan so that all staff are aware that patency has been verified.

Step 1
Administer 250ml normal saline ‘challenge’ via an infusion pump over 15 minutes to test for patency – the infusion will probably not resolve the lack of blood return (unless the patient has a high sodium or is on restricted fluid – go to step 2).

If there have been no problems, therapy can be administered as normal. If the patient experiences any discomfort or there is any unexplained problems then stop and seek medical advice.

It may be necessary to verify tip location by chest x-ray.

Step 2
Instill urokinase 5000ui in 30ml and leave for 60 minutes. After this time withdraw the urokinase and assess the catheter again. Repeat as necessary. If blood return is still absent, it may be necessary to verify tip location by chest x-ray.