Policy for the Safe Management and Administration of Intravenous Medicines

Solent NHS Trust policies can only be considered to be valid and up-to-date if viewed on the intranet. Please visit the intranet for the latest version.

Purpose of Agreement	This policy describes good practice for the preparation, prescribing, administration and monitoring of injectable medicines in clinical and community areas. It applies to all registered practitioners who prescribe, handle, supply or administer intravenous medicines in the course of their duties. It informs staff of the Trust's position on the administration of IV medicines and the procedures which must be followed before administration can occur.
Document Type	Policy
Reference Number	Solent NHST/Policy/MMT008
Version	Version 2
Name of Approving Committees/Groups	Solent NHS Trust Medicines Committee Solent NHS Trust Policy Steering Group Solent NHS Trust Assurance Committee
Operational Date	1st May 2016
Document Review Date	31st May 2019
Document Sponsor (Job Title)	Acting Chief Pharmacist
Document Manager (N Job Title)	Contract Pharmacist
Document developed in consultation with	Clinical Training and Development Nurse, Medicines Management Team
Intranet Location	Business Zone / Policies, SOPs and Clinical Guidelines
Website Location	Publication Scheme / Policies and Procedures
Keywords (for website/intranet uploading)	Intravenous, IV, IVI, peripheral, medication, drug, administration

Amendments Summary:

Amend No	Issued	Page	Subject	Action Date
1	April 2016	All	Complete re-write of Policy	1st May 2016

Review Log:

Version Number	Review Date	Lead Name	Ratification Process	Notes
2	April 2016	Steve West	Medicines Committee, Policy Steering Group	Complete rewrite of version 1 of Policy

SUMMARY OF POLICY

The aim of this policy is to describe good practice for the safe preparation, checking, labelling, prescribing, administration and monitoring of injectable medicines in all clinical areas in order to:

- To reduce risk and prevent harm to patients from injectable medicines
- To educate clinical staff on good injectable medicines practice
- To standardise injectable medicine practice across Solent NHS Trust
- To comply with the NPSA (now NHS England) guidance.

A variety of staff may be involved in the delivery of medicines to patients via the intravenous (IV) route with doctors, dentists and non-medical prescribers being responsible for prescribing of IV drugs, together with the appropriate infusion fluid, registered practitioners responsible for the administration of IV medicines in accordance with the prescription and clinical pharmacy staff responsible for providing information regarding IV administration, potential drugs interactions and reactions that patients may have.

The Policy lays out requirements for prescriptions for IV medicines for prescribers to follow, including prescriptions for IV flushes (if required).

IV drugs can be administered to patients on Solent NHS Trust wards or to patients in their own homes attended by Trust community nursing staff. Wards must have a suitable area for IV medicine preparation which is clean, quiet and uncluttered and with adequate lighting. Community nurses must endeavour to find a similar area for IV preparation in patient's own homes for safe administration to proceed. IV medicines must never be prepared at the patient's bedside.

In the ward environment IV drug administration must always be undertaken by two staff members, one of which (but preferably both) must be trained and authorised to administer IV medicines. In the community setting a suitably trained registered practitioner may administer intravenous medicines on their own, in accordance with NMC standards, but are strongly advised to get a second check in circumstances where the IV administration contains high risk drugs or is complicated, for instance, by calculation. Strict no-touch aseptic techniques must be used throughout IV administration.

The policy gives detailed instructions on the preparation of IV medicines and the administration of those medicines to the patient by:-

a. Direct intermittent injection (IV push or bolus)
b. Peripheral intravenous administration
c. Administration via a Central Venous Line

After IV medicine administration patients must be monitored for any reactions to the medicine given, particularly anaphylaxis, and action taken to mitigate the effects of the drug. Patients must also be monitored for possible complications of IV drug administration; infiltration (or tissuing), extravasation, haematoma and air embolism.

Staff administering IV medicines must have been trained in all aspects of IV administration and have passed the assessment of competence at the end of the IV training course. Staff are also required to be authorised by their manager before administering IV medicines. The policy gives full details of the training required.

Services within the Trust will have their own standard operating procedures that supplement information within this Policy. Those procedures will contain a list of approved drugs which may be given via the IV route in that service. This Policy explains the way new drugs not on the list can be applied for either for individual patients or to be added to the list for future patients.

Table of Contents

Policy for the Safe Management and Administration of Intravenous Medicines

1. INTRODUCTION & PURPOSE

1.1 Solent NHS Trust accepts that special procedures need to be in place in relation to managing and administering intravenous drugs. By following these procedures managers and staff who carry out these procedures will be complying will all relevant legislation and best practice.

1.2 "The complexities associated with prescribing, preparing and administering injectable medicines means that there are greater potential risks for patients than for other routes of administration. Weak operating systems increase the potential risk of harm and safe systems of work are needed to minimise these risks." (NPSA March 2007)

1.3 "The administration of medicines….is not solely a mechanistic task… [but] requires thought and the exercise of professional judgement" (Nursing and Midwifery Council (NMC), Standards for Medicine Management, 2015).

1.4 This policy was originally developed following guidance from the National Patient Safety Agency (NPSA), Patient Safety Alert: 20 - Promoting Safer Use of Injectable Medicines. Then and now the aim of this Policy is to minimise risks associated with the management and administration of injectable medicines by following the six key recommendations for action summarised in the Alert:

a. Undertake a risk assessment of injectable medicines procedure and products in all clinical areas to identify high risks, and develop an action plan to minimise those high risks.
b. Ensure there are up to date protocols and procedures for prescribing, preparing and administering injectable medicines in all clinical areas.
c. Ensure essential technical information on injectable medicines is available and accessible to healthcare staff in clinical areas at the point of use.
d. Implement a 'purchasing for safety' policy to promote procurement of injectable medicines with inherent safety features.
e. Provide training for, and supervision of, all healthcare staff involved in managing and administering injectable medicines.
f. As part of the annual medicines management audit programme, healthcare organisations should include an audit of medication practice with injectable medicines.

1.5 The aim of this policy is to describe good practice for the safe preparation, checking, labelling, prescribing, administration and monitoring of injectable medicines in all clinical areas in order to:

- To reduce risk and prevent harm to patients from injectable medicines
- To educate clinical staff on good injectable medicines practice
- To standardise injectable medicine practice across Solent NHS Trust
- To comply with the NPSA (now NHS Commissioning Board Special Health Authority) guidance.

It also describes the procedures which must be followed and the training and competencies which must be undertaken before administration can take place.

2. SCOPE

2.1 This document applies to all directly and indirectly employed staff within Solent NHS Trust and other persons working within the organisation in line with Solent NHS Trusts Equal Opportunities Document. This document is also recommended to Independent Contractors as good practice.

2.2 The most up to date version of this policy is available on the Solent NHS Trust intranet. For ease of use each ward and each clinical team that administers IV medicines may keep a printed version of the Policy, but care must be taken to ensure this is maintained as up to date.

3. DEFINITIONS

3.1 **Intravenous (IV)** - directly into the vein.

3.2 **Continuous Infusion** - the intravenous delivery of a medication or fluid at a constant rate over a prescribed time period, ranging from several hours to days to achieve a controlled therapeutic response.

3.3 **Intermittent Infusion** - the administration of a small-volume infusion, generally 50 –250 ml, over a period of between 20 minutes and 2 hours.

3.4 **Direct Intermittent Injection** (also known as **Intravenous Push** or **Bolus**) - the injection of a drug from a syringe into the injection port of the administration set or directly into a vascular access device.

3.5 **Vascular Access Device (VAD)** - a device inserted into a vein, which permits administration of intermittent or continuous infusion of parenteral solutions or medications. Also known as a cannula or venflon. These must be changed every 72 hours or before or if there are two signs of phlebitis (see VIP score).

3.6 **Peripheral IV Line (PVC or PIV)** - a short catheter inserted through the skin into a peripheral vein (any vein not inside the chest or abdomen).

3.7 **Central IV Line** - a catheter with its tip within a large vein, usually the superior vena cava or inferior vena cava, or within the right atrium of the heart.

3.8 **Central Venous Catheter (CVC)** - an indwelling catheter whose tip lies in the central venous system (lower third of Superior Vena Cava (SVC) or right atrium) with an external catheter for access. This type of catheter is often tunnelled under the skin to a separate exit site where it emerges from underneath the skin. Passing the catheter under the skin helps to prevent infection and provides stability.

There are many different types of central venous catheters available but within Solent NHS Trust only the following will be used: -

- Single lumen Leader Cuff lines
- Double lumen Hickman lines
- Single lumen Broviac lines
- Groshong lines – these have an internal valve and no clamp and could be either single or double lumen
- PICC lines

3.9 **Visual Infusion Phlebitis Score (VIP)** – a system for recognising signs or risks of infection at venous access sites (see Appendix 5).

4. ROLES AND RESPONSIBILITIES

4.1 All Staff

4.1.1 Each registered practitioner is accountable for their practice and must be aware of their legal and professional responsibilities relating to their competence in the prescribing, preparing, labelling, checking, administering, recording and monitoring of injectable medicines.

4.1.2 All registered practitioners, apart from doctors and dentists, must have completed the Trust approved IV training and have been deemed competent to administer IV medicines by their line manger or suitable competent senior manager before administering any IV medicine or fluid. New staff transferring from other trusts that have previously been deemed competent to administer IV medicines must first be assessed by their line manager before administering IV medicines within Solent NHS Trust. A competence assessment form is provided at Appendix 4 and once completed must be filed on the staff members record.

4.1.3 Every member of staff involved in the injectable medicines process must acquaint themselves with this policy.

4.2 Doctors, Dentists and Non-Medical Prescribers

4.2.1 Before prescribing the prescriber must satisfy him/herself that it is essential and safe for the drug to be given by the injectable method chosen, checking to ensure the compatibility of the drug with any infusion fluid used and the compatibility of any medicines that have been mixed together. If unsure, the relevant clinical pharmacist or the local Medicines Information Centre or, out of hours, the on-call hospital pharmacist must be contacted.

4.2.2 Before commencing treatment the prescriber must ensure that there are competent staff available for the perceived duration of treatment to administer, monitor and deal with any problems which might arise.

4.2.3 An indwelling needle/cannula must be inserted by a doctor, dentist or a designated nurse who has received appropriate instruction and been assessed as competent.

4.2.4 The prescriber must prescribe the drug required on the patient's drug chart, or electronic prescription, in accordance with the Trust's Medicines Policy and provide any additional written instructions concerning administration.

4.2.5 Where appropriately trained and competent practitioners are not available to administer an IV drug, or where the IV drug prescribed has been risk assessed and not added to the list of drugs that can be administered in that locality (where such a list is in operation), then a doctor or dentist must administer the prescribed drug.

4.3 Ward/Team Managers

4.3.1 Ward/Team Managers are responsible for ensuring that appropriate staff meet required competencies for the administration of IV medicines. It is every manager's responsibility to ensure

that all their staff are informed as to which members of the team are assessed as competent to administer IV medicines.

4.3.2 For in-patient units, Ward/Team Managers are also responsible for ensuring IV medicines can be prepared in a clean and safe environment with sufficient light and space free from clutter and equipment that might compromise safe preparation. In domiciliary settings the responsibility lies with the administering nurse who must discuss any concerns with his/her manager.

4.3.3 Ward/Team Managers are responsible for ensuring that information, facilities and resources are available to allow staff to meet required competencies for the safe preparation, checking, administration and monitoring of injectable medicines therapy.

4.3.4 Ward/Team Managers must ensure that a current local procedure is in place detailing the IV drugs that may be administered in that ward/service.

4.4 Registered Practitioners Administering IV Medicines

4.4.1 Before administering any IV medicine, the registered practitioner must:

a) Ensure that a clear, legal and complete prescription has been entered on the appropriate prescription and has been signed by the prescriber.
b) Ensure that any addition instructions concerning the administration of the medicine are clear.
c) Ensure that the drug prescribed is listed within locality procedures as one of the drugs that can be administered within that area, if such a procedure exists. If the drug is not listed in the locality procedure, the practitioner must either contact the prescriber to alter the prescription or conduct a risk assessment of the drug in conjunction with a clinical pharmacist, in accordance with local procedure.

4.4.2 In any situation where the administration instructions are unclear or doubts exist concerning the safety or efficacy of the stated dose or method of administration, the registered practitioner must inform the prescriber and must not administer the medication until he/she is satisfied that it is safe to do so.

4.4.3 When preparing medicines to be given by the intravenous route, the registered practitioner must ensure that these are prepared and administered on an individual basis for each named patient.

4.4.4 If the medication is added to an intravenous infusion fluid, the infusion container must be labelled with the date and time of the addition, name and quantity of the medicine, name of the patient and the legible signature of the registered practitioner or both practitioners where administration is checked by a colleague.

4.4.5 The registered practitioner is responsible for administering IV medicines and monitoring patients in accordance with this policy, the prescription, locality procedures and their own professional standards for safe IV administration.

4.5 Medicines Management Team

4.5.1 The Medicines Management Team is responsible for the preparation, communication and audit of this policy.

4.5.2 Where a locality approved list of IV drugs has been prepared, the Medicines Management Team will only supply IV drugs that are approved for use within each locality.

4.5.3 The Medicines Management Team will be responsible for ensuring that up to date supporting information is available to practitioners relating to IV medicines.

4.5.4 Clinical Pharmacists working within ward areas are responsible for:

a) Ensuring the safe, clinically appropriate and cost effective use of IV medicines through involvement at all stages of medicines usage and management.
b) Providing up-to-date information and guidance to other registered practitioners on all pharmaceutical aspects of IV drug therapy, pharmaceutical care and medicines management.
c) Confirming legal requirements are met.
d) Advising on the individualisation of patient IV therapy.
e) Advising on patient monitoring of drug effects and side effects.
f) Education and counselling of patients, carers and hospital staff on the safe and correct use of IV medicines.
g) Advising on drug-drug and drug-fluid interactions and compatibilities in IV fluids.
h) Assisting with risk assessments of injectable medicines for inclusion in locality procedures and assisting in the assessment of those localities for safe administration of IV medicines.

5. LOCAL PROCEDURES

5.1 For those areas where IV medicines are administered by suitably trained registered practitioners, there will be a local procedure which will provide a list of IV medicines that can be administered on that ward or in that service. It will also provide information as to any particular local circumstances or instructions, over and above instructions within this Policy, relating to the preparation, prescribing, and administration and monitoring of injectable medicines.

5.2 In the absence of a local procedure covering an area, all intravenous medicines must be prescribed and administered by qualified doctors or dentists.

5.3 If a prescribed IV drug does not appear on the list of drugs for that ward or service within its local procedure, an application can be made for inclusion of the drug by completion of the IV Drug Request Form, situated at Appendix 7. The requesting doctor or dentist may request that the drug be administered by registered practitioners for a specific patient only or be included within the local procedure for administration to any patients when prescribed.

5.4 Requests for inclusion of a drug within a local procedure for administration to any patients when prescribed will be considered by the Trust's Medicines Committee and will only be added once Medicines Committee approval has been obtained.

6. PRESCRIPTIONS FOR IV MEDICINES

6.1 Prescribers must ensure that prescriptions for IV medicines state:

a) Name and details of the patient
b) Any drug sensitivities or states 'None Known'
c) Date and prescriber's signature
d) Name of the drug to be administered.
e) Dose
f) Frequency of administration
g) Duration of treatment
h) Details of the precise route of administration
i) The intravenous fluid to be used if appropriate, and the quantity to be infused

j) The type of diluent/reconstitution solution and its quantity
k) The concentration of administration
l) The rate of administration
m) The weight and if relevant the surface area of the patient must be added to the prescription when this information is vital for calculating doses

6.2 If a flush fluid is to be used, this must also be prescribed, or administered according to Trust approved patient group direction.

6.3 Any additional instructions, including particulars for patient monitoring and any subsequent tests required, to aid safe and effective administration of the drug must be given in the patient's notes.

7. GENERAL STANDARDS FOR IV ADMINISTRATION

7.1 All ward areas where IV drugs are to be administered must be risk assessed to ensure that all medications given intravenously will be prepared in an appropriate environment – see Section 13. Preparation of injectable medicines must not be undertaken at the patients' bedside due to the increased risk of microbial contamination and higher risk of error if the lighting is poor.

7.2 In domiciliary settings, a clean area in which to prepare medicines must be available when administering via the intravenous route. If no such area is available, a risk assessment must be carried out and the results recorded in the patient's notes. If a decision has been made not to continue with administration, the prescriber must be informed immediately.

7.3 When administering IV medicines, a strict clean 'non-touch' technique or aseptic technique must be observed by all participants throughout the procedures where the key parts of equipment are not permitted to come into contact with surfaces, hands or anything that might possibly be contaminated.

7.4 Injectable medicines mixed in clinical areas and domiciliary settings are for immediate use only and, once prepared, must not be stored for use later.

7.5 In the ward environment IV drug administration must always be undertaken by two staff members. The lead staff member administering the drug must be a suitably trained registered practitioner (see section 14). Wherever possible the second member of staff should also be a registered practitioner.

7.6 In the community setting:

a) A suitably trained registered practitioner (see section 14), may administer intravenous medicines on their own, in accordance with NMC standards.
b) In the following scenario's it is strongly advised that IV administration is subject to a second check if possible:
    - IV administration of controlled drugs
    - Infusion of ready prepared potassium salts
    - If complex calculations are required. Calculations must be written down so that practitioners can compare answers and calculation methods

7.7 Cytotoxic drugs must only be checked and administered by registered practitioners who have undertaken additional training in cytotoxic drug therapy.

7.8 No registered practitioner can check a medication if he/she is unfamiliar with the drug, its effects and usual method of preparation/administration. If it is beyond their sphere of competence they must decline to check, without fear of reprisal, and an alternative checker be found.

7.9 Medications must be checked by both practitioners at the time of administration. It is not acceptable practice for one practitioner to check the vials and ampoules and then leave them for the second checker to prepare and administer alone at a later time.

8. PREPARING TO ADMINISTER AN IV MEDICINE

8.1 Before a registered practitioner proceeds with administration of any IV medication he/she must have read the prescription and any additional notes carefully and be confident that the treatment and dosage prescribed is correct and appropriate for that patient.

8.2 The registered practitioner must also ensure that:

a) The medicine prescribed is included in the local procedure for that ward/service for administration by registered practitioners.
b) They have the necessary skills and training or accreditation to administer that particular medication.
c) They have the necessary skills and training or accreditation to administer medication via the route specified.
d) They are certain that they have up to date information on the patient's clinical condition.
e) They have checked and prepared the medications correctly according to the relevant guidelines.
f) They have all the equipment necessary for safe administration and monitoring ready to take to the patient's bedside.
g) They observe strict universal infection prevention guidelines and use aseptic technique.

8.3 If in doubt further technical information on administration of medicines is available from:

- Medusa Injectable Medicines Guide available on the Solent NHS Trust intranet page or at http://medusa.wales.nhs.uk/?ID=0afdaa1f8a8697cef34760831902b0b22747
- Summary of Product Characteristics supplied with the product or available at www.medicines.org.co.uk
- Further information is available through Medicines Information at University Hospitals, Southampton (Tel 02381 206908/9).

8.4 Whenever possible commercial or pharmacy prepared infusions [CIVAS] must be used. Any other intravenous preparations prepared on the wards or in the community must be mixed immediately before administration. All medications added to infusion fluids must be well mixed before administration.

8.5 Intravenous medicines must not be added to containers of blood or blood products.

8.6 If more than one medicine is prescribed to be added to an infusion, a specific entry in the medical notes must indicate that the medications to be added are compatible with each other and with the infusion fluid to which they are to be mixed.

8.7 A registered practitioner must never administer medication that they have not witnessed being prepared with the exception of pre-prepared medication from a pharmacy manufacturing unit.

8.8 Unless a drug is to be injected immediately by bolus injection, it must be labelled immediately after preparation. No syringes or bags are to be left unsupervised or unlabelled. The labels for intermittent and continuous infusion containers need to contain:

- the patient's name
- the name of the drug
- the dose of the drug
- the name and volume of any diluent used
- the total volume of the infusion solution
- the date and time of commencement
- the name of the person(s) who prepared and administered it

8.9 The label must be applied so that it does not obliterate the graduation markings on the syringe, and in such a way as to remain visible throughout the administration process, especially if used in a syringe driver or pump.

8.10 All the injectable medicines required for an individual patient must be prepared, labelled (unless being given by bolus injection) and administered BEFORE preparing injectables for another patient. If more than one injectable medicine is required for an individual patient, all the medications can be made one after the other, PROVIDED each syringe, including flushing solutions, is labelled immediately after drawing up. Under no circumstances shall any practitioner be in possession of more than one unlabelled syringe at any one time, even if the syringes appear easily distinguishable by other means (e.g. size, colour of contents, etc.).

8.11 Medication syringes must never be left attached to the vials using the needle as a means of identification instead of labelling an item as there is an increased risk of microbial contamination.

9. ADMINISTRATION OF IV MEDICINES

9.1 Explain the procedure to the patient and/or carer and answer any questions they may have at a level and pace taking into consideration:

- their level of understanding,
- their culture and background,
- their preferred way of communicating,
- their needs.

9.2 Assess their understanding of the procedure/treatment and if possible gain their verbal consent. Refusal of treatment must be documented and reported to the prescribing medical practitioner as soon as possible. Refer to the Medicines Policy if the patient lacks capacity to give consent.

9.3 If possible, confirm the patient's identity by obtaining verbal confirmation of personal details from the patient. Then check the details on the wristband (if applicable) against the details on the prescription. Do not administer a medication if there is any question about the patient's identity.

9.4 Check the patients' allergy status by checking the wristband (if applicable) and prescription chart/electronic prescription.

9.5 Confirm the patient's clinical condition, their specific care pathway, observation charts and laboratory test results. Record baseline observations if required.

9.6 Perform a final check of the prescription to ensure that it is unambiguous and signed in accordance with the Trust Medicines Policy; that the medication is due and has not already been given and that

the practitioner is authorised to administer via this route. It is essential that the practitioner is familiar with the medicine to be administered including its therapeutic uses, normal dosages and frequency, side-effects, cautions, contra-indications and the need for any monitoring post-administration.

9.7 Perform a final check of the medication, checking all empty vials and ampoules, any calculations made, the syringes are labelled correctly and that there is no particulate contamination. Do not prepare the IV medicine at the patient's bedside.

9.8 Bedside checks of identity and administration are often undertaken at night. Ensure that there is adequate light to do them safely.

9.9 Assist the patient into a comfortable position, preserving privacy, dignity and warmth.

9.10 Wash your hands according to Trust policy and put on fresh gloves and aprons. Use any other Personal Protective Equipment (PPE) following risk assessment.

9.11 Select and expose the desired administration site and examine it. The site may be an area of skin or there may already be an existing access device in situ. If an existing device this must be exposed and examined before giving an intravenous injection. Should there be evidence of local inflammatory response, or of leakage around the cannula insertion site, the medication must not be given and the prescribing doctor or dentist informed so the device can be removed/replaced. Vascular access devices (VAD) must be changed at least every 72 hours or earlier if there are two signs of phlebitis (see VIP score – Appendix 5).

9.12 All access ports and injection sites must be cleaned with Chlorhexidine 0.5% in denatured ethanol 70% and left to dry for 30 seconds prior to injection.

9.13 The patency of a cannula must always be checked prior to the injection, either by increasing the infusion rate, or by the administration of 2ml of Sodium Chloride 0.9% Injection. Maintenance of their patency is important to reduce the discomfort and expense of replacement. The Sodium Chloride 0.9% Injection must be prescribed in the normal way for intravenous administration or be administered under a Trust approved Patient Group Direction. Should there be any doubt as to the patency of the cannula, the medication must not be administered and the prescribing doctor or dentist informed so the VAD can be removed/replaced. Heparin 50units in Sodium Chloride 0.9% IV Flush is occasionally used instead of Sodium Chloride 0.9% Injection for flushing of cannulae but has a number of disadvantages over Sodium Chloride 0.9% Injection. Heparin 50units in Sodium Chloride 0.9% IV Flush must be prescribed if it is to be used or be administered under a Trust approved Patient Group Direction.

9.14 Any infusion device or pump being used must also be checked to ensure that:

- it has been set up and programmed correctly
- it is delivering the correct volume
- it is clean
- it has not been tampered with

9.15 Commence the administration of the medication by either:

- Intravenous bolus of medication or flushing solution
- Intermittent infusion of intravenous medication
- Continuous infusion of intravenous medication

9.16 Monitor the patient and the administration site closely during administration as well as afterwards.

9.17 Act swiftly to stop, alter or titrate administration according to patient's clinical condition and response to the medication.

9.18 During administration the infusion set, container and its contents must be monitored, looking for:

- Contamination
- Damage
- Occlusion
- Discolouration of the solution
- Particles or precipitate in the solution or giving set
- The amount of volume remaining in the container

9.19 Once finished, clean all the access ports again with Chlorhexidine 0.5% in denatured ethanol 70% and leave to dry for 30 seconds before re-securing or redressing the device.

9.20 Assist the patient into a comfortable position and readjust clothing if necessary. Maintain privacy and dignity.

9.21 Ask the patient/carer if they require more information. Reiterate important pieces of information and give reassurance if required. Explain the need for any subsequent monitoring that the patient will require.

9.22 Dispose of used equipment and personal protective clothing in accordance with the Trust Waste Management Policy.

9.23 Wash hands thoroughly.

9.24 Make a clear record of the administration on the prescription chart. Administration may also need to be recorded in the patient's notes along with the insertion/removal of venous access devices, specific instructions from medical staff, the patient's response etc. It is the administering practitioner who is responsible for making the record.

9.25 Communicate to other relevant staff members involved in the patient's care that medication has been administered.

10. AFTER ADMINISTRATION OF AN IV MEDICINE

10.1 A patient who is receiving or has received intravenous medication must be observed for signs of any reaction to the medication:

a. Signs and symptoms of anaphylaxis
b. Changes in vital signs
c. Changes in alertness or orientation
d. Changes in fluid balance
e. Unpleasant side-effects from medication
f. Expected/desired effects of the medication

The administering practitioner is accountable for ensuring that this is carried out, either by monitoring themselves or delegating clearly to another registered practitioner.

10.2 The injection site or venous access device or cannula, also must continue to be monitored, looking for signs of:

a. Infection and sepsis
b. Occlusion
c. Infiltration
d. Extravasation
e. Pain
f. Contamination
g. Phlebitis
h. Thrombophlebitis

10.3 Certain drug regimens require specific monitoring. Any such regimen must be documented in the patient's notes as must the stage at which a medical review must be obtained.

10.4 The registered practitioner must record the results of monitoring in the patient's notes, on the observation and fluid balance charts and on any locally agreed Trust monitoring document. Include any deviations from the monitoring regime and communicate the results to the appropriate professional colleagues.

10.5 It is essential that the practitioner is familiar with the local escalation procedures should the patient's condition deteriorate.

10.6 The registered practitioner must report errors and adverse events in accordance with the Trust Incident reporting policy and complete an incident report form. Ensure senior staff have been informed of any adverse event as well as the prescriber of the medication.

11. METHODS OF INTRAVENOUS ADMINISTRATION

11.1 Direct Intermittent Injection (Intravenous Push or Bolus)

11.1.1 Administration by direct intermittent injection is where small volumes of drugs are given directly into the cannula, via:

- A closed needle free IV access system such as a closed needle free device (one or two lumen)
- The injection port of the cannula (only in an emergency)
- A pump

11.1.2 Manufacturers' recommendations must be followed as most drugs given this way have to be administered over a set period of time, unless in an emergency e.g. cardiac arrest. Rapid administration of medication can cause the patient to go into 'speed shock'.

11.2 Peripheral Intravenous Administration

11.2.1 The methods of administration of peripheral intravenous medication are:

- By the addition of the drug to an intravenous fluid container
- By injection of the drug through the injection port of an intravenous giving set.
- Intermittently through an indwelling needle or cannula
- By a syringe driver, pump or other infusional device

11.3 Administration via a Central Venous Line

11.3.1 Administration of medicines via a central venous line requires a specific authorisation and a certificate of proficiency. Central line administration must not occur unless specific training has been undertaken by the practitioners involved in administering.

11.3.2 Administration via a central venous line must be carried out in such a way as to minimise the risk of air embolism.

12. COMPLICATIONS OF INTRAVENOUS DRUG ADMINISTRATION

12.1 Infiltration or 'tissuing' - can be defined as the inadvertent administration of a non-toxic or non-vesicant solution/medication into the surrounding tissues instead of the vein (Intravenous Nursing Society 2006). The infusion must be stopped immediately and the patient's doctor or dentist informed. Treatment will depend on the severity of the infiltration.

12.2 Extravasation

12.2.1 The inadvertent administration or leakage of a toxic or vesicant drug into surrounding tissues, which can lead to tissue necrosis. A vesicant is any drug, which has the potential to cause tissue damage, while irritant drugs may cause local tissue inflammation and discomfort, but do not result in necrosis and therefore tend to be dealt with more conservatively.

12.2.2 Initially, extravasation may cause pain and swelling at the injection site. Tissue damage including necrosis and/or sloughing of the skin may occur, particularly if the solution is concentrated (hypertonic), highly acidic or markedly alkaline. Drugs likely to cause tissue necrosis include calcium, sodium bicarbonate and cytotoxic agents used in cancer chemotherapy. In severe cases the patient may need a skin graft.

12.2.3 Extravasation must be dealt with rapidly to minimise damage, discomfort and long-term effects. Administration must be stopped as soon as extravasation is suspected and appropriate supportive therapy started according to local procedure. It may be appropriate to leave the cannula in place so that the drug can be aspirated and an antidote can be administered. Special care is needed with cytotoxics as the treatment varies according to the drug involved.

12.3 Haematoma - If blood leaks into the tissue surrounding a venepuncture site a haematoma may form. Patients receiving anticoagulants or thrombolytic (e.g. streptokinase or alteplase) may be at particular risk. Pressure applied to the site for 3 to 4 minutes after the removal of a cannula can help to prevent the formation of a haematoma.

12.4 Air Embolism - Although it is often impossible to remove absolutely every air bubble from IV administration, it is important to minimise the amount of air administered. A fatal air embolism can occur when small air bubbles accumulate and block the pulmonary circulation. Ensuring the giving set is primed is an important step when preparing an IV infusion and pump. There is also a risk of air embolism when caring for central lines.

13. RISK ASSESSMENT

13.1 All ward and clinic areas where IV drugs are to be administered must undertake a risk assessment to ensure that all medications given intravenously will be prepared in an appropriate environment. This risk assessment must be carried out by the ward/team manager with assistance from a pharmacist if required. Each ward must have a clean, quiet and uncluttered area with adequate lighting suitable for the preparation of injectable medicines. Preparation of injectable medicines must not be undertaken at the patients' bedside due to lack of space, the increased risk of

microbial contamination, greater likelihood of interruptions and higher risk of error if the lighting is poor.

13.2 In domiciliary settings, a clean, quiet and uncluttered area with adequate lighting in which to prepare medicines must be available when administering via the intravenous route. If no such area is available this must be recorded in the patients notes. If a decision has been made not to continue with administration, the prescriber must be informed immediately.

13.3 Each ward/clinic area or group of wards/clinics must have a standard operating procedure (SOP) giving local information which relates to the safe administration of intravenous medicines in that area. The information contained within the SOP is supplementary to this policy and must be used alongside this Policy.

13.4 Should a prescriber prescribe an IV drug that does not already appear within the local SOP, a risk assessment of the safety of administering that drug in that area must be carried out by the registered practitioner and a clinical pharmacist. If the risk assessment indicates it is safe for that drug to be administered, the drug may be obtained and used. A copy of the risk assessment form (see Appendix 9) must be sent to the Medicines Committee for ratification, after which the IV drug can be added to the list of drugs within the SOP for the locality concerned.

13.5 Intravenous drugs are purchased by the supplying Pharmacy Service (either in house or sub-contracted) to the Trust. It is essential that all drugs, but in particular IV drugs, are obtained in such a way as to minimise the risk of their use in patients of the Trust. This means that where possible, licensed drugs from reputable suppliers are purchased, and that products are ready to use and require no further manipulation prior to administration. In some cases ready-made infusions will be purchased rather than products requiring dilution at ward level. The Pharmacy Service will assess the relative risks of all drugs purchased in accordance with National Patient Safety Agency guidance on injectable medicines and will purchase in accordance with the Trust's SOP for the Purchase of Medicines for Safety.

14. TRAINING

14.1 Solent NHS Trust recognises the importance of appropriate training for staff. Appropriate training courses to meet the requirements for IV drug administration are provided by the Trust's Learning and Development Department and are included in the Training Needs Analysis (TNA) on the intranet.

14.2 All staff who administer or check intravenous medicines must undertake an annual Medicines Management update training session for their specific area of practice.

14.3 All staff who administer intravenous medicines must attend annual training in Anaphylaxis and Basic Life Support.

14.4 Before commencing administration of intravenous medicines for the first time, all staff must attend a Trust arranged Intravenous Drug Administration and Therapy one day course and pass the assessment at the end of that course.

14.5 Staff who have undertaken Intravenous Drug Administration training in another Trust before coming to work for Solent must undertake the Trust arranged Intravenous Therapy Training Update and pass the assessment at the end of the course before commencing administration of IV

medicines. Update training is also available to any other staff where they or their manager might deem it beneficial.

14.6 At the end of both the Intravenous Drug Administration and Therapy whole day course and the Intravenous Therapy Update course, staff will receive a certificate to indicate their competence in administering IV medicines and that they passed the assessment.

14.7 Managers of wards/clinics/localities will maintain a record of their staff competent and authorised to administer intravenous medicines.

14.8 It is preferable that staff conducting a second check of IV medicines have also attended the Intravenous Drug Administration and Therapy training or the Intravenous Therapy Update training as appropriate. However, if a second IV trained registered practitioner is not available to perform a check, then IV administration may be checked and monitored by other registered practitioners under the indirect supervision of a competent registered practitioner.

14.9 Staff who administer cytotoxic drugs within the Community Paediatric Nursing Service must undertake specific training in conjunction with the relevant acute Trust managing the care of the patient before they are able to administer these drugs. A record of their training will be kept on their personal file and will be kept by the service manager.

15. EQUALITY & DIVERSITY AND MENTAL CAPACITY ACT ASSESSMENT

An Equality and Diversity and Mental Capacity Act Assessment was conducted in relation to this Policy (see Appendix 6). The result of the assessment was no negative impact on any patient group or staff group as this policy is to ensure equality of practice across the organisation.

16. MONITORING EFFECTIVENESS

16.1 The policy will be monitored through various methods including adverse incident reporting, significant event review, other medicines management audits and clinical prescribing audits, as required and agreed on a regular basis. Audits will be completed on an annual basis.

16.2 The effectiveness of this policy will be reviewed by the Medicines Committee and will be discussed prior to the stipulated review timeframe at the Medicines Committee meeting. Details of these discussions will be documented in the minutes.

16.3 The Assurance Committee will be responsible for overseeing risk management and clinical or corporate governance issues.

17. REVIEW

This document may be reviewed at any time at the request of either staff side or management, but will automatically be reviewed three years from initial approval and thereafter on a triennial basis unless organisational changes, legislation, guidance or non-compliance prompt an earlier review.

18. REFERENCES AND LINKS TO OTHER DOCUMENTS

National Patient Safety Agency (NPSA), 2007, Patient Safety Alert: 20 - Promoting Safer Use of Injectable Medicines
Dougherty L (2000), Changing Tack on Therapy. Nursing Standard (Edition 14):- p30, 61
Dougherty. L and Lamb. J (2008) 2nd Ed, Intravenous Therapy in Nursing Practice, Blackwell Publishers, Oxford
Dougherty L & Lister. S (2008), Manual of Clinical Nursing Procedures, Royal Marsden Hospital, Blackwell
Infusion Nurses Society (2006) Infusion Nursing Standards of Practice, Journal of Infusion Nursing, 29 (S1) Suppl) S1-S92
NMC (2015) Standards for Drug Administration
RCN (2010) Standards for Infusion Therapy
UHS intranet*: Marsden Manuel Chapter 12: Drug Administration*
UHS *Policy on the Prescribing, Acquisition, Storage and Administration of Medicines*

Links to other key Trust documents:

Medicines Policy
Controlled Drugs Policy and associated SOPs
Community Adult Nursing IV drugs list
Community Children's Nursing IV Drugs List
SOP for the Management of Controlled Drugs at Dental Service Clinics
Policy for the Safe Handling and Disposal of Healthcare Waste
Hand Hygiene Policy
Aseptic Technique and Aseptic Non-touch Technique Policy
Management of Sharps and Inoculation Policy
Clinical Policy for Peripheral Venous Cannula Insertion and Management (Adults)
Anaphylaxis Policy
Mental Capacity Policy and Toolkit
Procedure for the Administration of IV Cytarabine via a Central Venous Catheter to Children
Standard Operating Procedure for the Purchase of Medicines for Safety

APPENDIX 1 - A Guide for Safe Independent Checking of IV Medicines.

1. Ensure your checking partner is competent to check the medication.

2. Remember that you (and your checking partner) are human and all humans will make mistakes from time to time, even if it is a task they are competent in and have performed many times.

3. Do not automatically assume that your checking partner has got it right. Assume that they might have got it wrong this time and it is your job to make sure they have not.

4. Check the prescription and the medication as carefully as you would if you were performing the task alone.

5. Check all parts of the prescription chart including the patients' identity, allergy status and concurrent medications. Do not just check the prescription for the intended medication.

6. Avoid reading the prescription out loud together or pointing to the text that you want your checking partner to read. This can "put words into the second checkers mouth" and simply compound any error made.

7. Perform your checks in silence, independently from each other and confirm that it is correct afterwards.

8. Likewise, calculations must be made independently as calculations made together are likely to show the same errors, especially if one checker is not confident with mathematical skills.

9. Ensure all aids to checking are to hand (such as a calculator, the BNF, locally used displacement values etc.).

10. Consider the experience and knowledge of your checking partner. They may require more time to check accurately and this must be permitted without question even during busy periods.

APPENDIX 2 – Detailed Procedure for Preparation of Injectable Medicines

A2.1 Before Preparing the Medication

A2.1.1 Read the prescription chart carefully and check that it has been written in accordance with Trust's Medicines Policy.

A2.1.2 Check the patient's details and allergy status**.**

A2.1.3 Check that the medication is due and has not already been given.

A2.1.4 Check that the medication is available. If unavailable attempt to locate the medication or contact the prescriber to prescribe an alternative if unable to locate. Urgency will be dictated by the type of medication prescribed and the patient's clinical condition.

A2.1.5 If necessary, refresh your knowledge of the medication to be administered by reading the accompanying product information and BNF.

A2.1.6 Verify the route of administration and ensure you have the necessary training to administer medication via that route.

A2.1.7 Verify the patient's clinical condition and the appropriateness of the prescribed treatment.

A2.1.8 Ensure the patient is able to receive the medication at the desired time (and is not off the ward) since the medication, once prepared, cannot be stored.

A2.1.9 Obtain the assistance of a second checker.

A2.1.10 Clean the preparation area using detergent wipes or hard surface wipes and allow to dry. Assemble the medication(s) and equipment required, carefully checking labels and expiry dates and the packaging for any defects**.**

Items that may be required

The prescription chart(s)	Chlorhexidine 0.5% in denatured ethanol 70% wipe for decontaminating ampoules/vials
Prescribed medication	Sharps bin
Prescribed diluent	Personal protective equipment
0.9% Sodium Chloride flush if required	Intravenous fluid bag if required
Appropriately sized needles	Intravenous giving set if required
Appropriately sized syringes	Infusion device or pump if required
Medication labels	Monitoring equipment
A clean dish or tray or sterile field	Drip stand if required

A2.1.11 Calculate the dose, volume and flow rate required. Obtain an independent check from colleague.

A2.1.12 Prepare the medication labels. **(Do NOT apply the label to the syringe until the medication has been drawn up.)**

A2.1.13 Decontaminate hands according to Solent NHS Trust hand hygiene policy.

A2.1.14 Put on clean gloves.

A2.1.15 Observe strict "non-touch" technique throughout the preparation procedure.

A2.2 Withdrawing Medication or Flushing Solution from a Single Dose Ampoule (plastic or glass) into a Syringe

A2.2.1 Attach appropriately sized needle to syringe. Use a blunt needle with a filter for drawing up.

A2.2.2 Tap the ampoule gently to dislodge any medication in the neck.

A2.2.3 Clean the neck of the ampoule with Chlorhexidine 0.5% in denatured ethanol 70% and leave to dry for 30 seconds.

A2.2.4 Open the ampoule by twisting (plastic) or snapping (glass) the neck of the ampoule. Take care not to cut fingers or contaminate the product with glass.

A2.2.5 Unsheath the needle and gently insert into the ampoule.

A2.2.6 Draw up the desired amount of the medication into the syringe tilting the ampoule if necessary.

A2.2.7 Remove the needle from the syringe and dispose of according to Trust policy. Do not resheath the needle.

A2.2.8 Gently tap the barrel of the syringe to accumulate air bubbles at the top of the syringe and expel the air carefully.

A2.2.9 Apply a fresh needle appropriate for administration purposes or a sterile blind hub. Keep the needle sheathed.

A2.2.10 If not administering immediately, label your syringe.

A2.2.11 Inspect the solution for any particles. Discard if it appears contaminated.

A2.2.12 Place the full and labelled syringe onto a clean tray or dish.

A2.2.13 The medication is ready to administer. Proceed to the patient.

A2.3 Withdrawing Solution or Suspension from a Vial into a Syringe

A2.3.1 Attach appropriately sized blunt needle with filter to syringe. Keep it sheathed at present.

A2.3.2 Remove the tamper-evident seal from the vial.

A2.3.3 Clean the rubber bung with Chlorhexidine 0.5% in denatured ethanol 70% and leave to dry for 30 seconds.

A2.3.4 Keeping the needle sheathed, draw up into the syringe a volume of air equal to the volume of the solution needed.

A2.3.5 Insert the needle into the vial through the rubber bung and inject the air from the syringe into the vial. Do not release the plunger yet.

A2.3.6 Holding the syringe upright with the vial inverted on the end, ensure the tip of the needle is below the level of the liquid.

A2.3.7 Release the plunger and the solution will flow into the syringe.

A2.3.8 If a larger volume of solution is required (in excess of 10mL) adopt the “push-pull” technique. Repeatedly inject small volumes of air and withdrawing equal volumes

of solution thus keeping the pressure inside the vial at an acceptable level. Continue with this until the desired amount of solution drawn up.

A2.3.9 Once the desired amount is in the syringe, draw up a small amount of excess air and withdraw the needle.

A2.3.10 Remove the needle from the syringe and dispose of according to Trust policy.

A2.3.11 Gently tap the barrel of the syringe to accumulate air bubbles at the top of the syringe and expel the air carefully.

A2.3.12 Apply a fresh needle appropriate for administration purposes or a sterile blind hub.

A2.3.13 If not administering immediately, label your syringe.

A2.3.14 Inspect the solution for any particles. Discard if it appears contaminated.

A2.3.15 Place the full and labelled syringe onto a clean tray or dish.

A2.3.16 The medication is ready to administer. Proceed to the patient.

A2.4 Reconstituting Powder in a Vial and Drawing up the Resulting Solution or Suspension into a Syringe

Injectable medicines in powder form need reconstituting with a specified diluent prior to use. The type and amount of diluent must be specified at the time of prescribing.The manufacturer may provide the diluent with the medication. Otherwise it may be provided by pharmacy or supplied from ward stock.

The manufacturer may also provide special equipment such as filtration needles with which to prepare the product. The practitioner needs to ensure he/she has read the accompanying instructions on how to use such equipment before starting.

If the patient requires only some of the total dose contained in the vial, (as is common with children and babies), it is important that the practitioner is aware of the displacement value of that medication and calculates accordingly. The clinical pharmacist or the medicines information service are able to give advice on displacement values.

A2.4.1 Draw up the diluent as described in A2.2 for an ampoule or A2.3 for a vial.

A2.4.2 Remove the tamper-evident seal from the vial and swab the rubber bung with Chlorhexidine 0.5% in denatured ethanol 70%. Leave to dry for 30 seconds.

A2.4.3 Inject the diluent from the syringe into the medication vial through the rubber bung.

A2.4.4 Keeping the tip of the needle above the level of the diluent, release the plunger and the syringe should fill up with displaced air (unless product was vacuum packed.)

A2.4.5 If a large volume is required (over 10mls) adopt the push-pull technique as described in A2.3.8 above.

A2.4.6 With the needle and syringe still in place, gently agitate the contents of the vial to combine the medication and the diluent.

A2.4.7 Avoid vigorous shaking as this may cause the product to foam. Instead “swirl” the vial or invert it several times.

A2.4.8 inject the air from the syringe back into the vial. Do not release the plunger yet.

A2.4.9 Holding the syringe upright with the vial inverted on the end, ensure the tip of the needle is below the level of the liquid.

A2.4.10 Release the plunger and the solution will flow into the syringe.

A2.4.11 Once the desired amount is in the syringe, draw up a small amount of excess air and withdraw the needle.

A2.4.12 Remove the needle from the syringe and dispose of according to Trust policy.

A2.4.13 Gently tap the barrel of the syringe to accumulate air bubbles at the top of the syringe and expel the air carefully.

A2.4.14 Apply a fresh needle appropriate for administration purposes or a sterile blind hub.

A2.4.15 If not administering immediately, label your syringe.

A2.4.16 Inspect the solution for any particles or precipitate. If either is noted, do not use but retain securely at ward level along with the diluent used to show the pharmacist.

A2.4.17 Place the full and labelled syringe onto a clean tray or dish.

A2.4.18 The medication is ready to administer. Proceed to the patient.

A2.5 Adding a Medicine to an Infusion Bag or Container

A2.5.1 Prepare the medication for injection according to the relevant sections A2.2, A2.3 or A2.4 above.

A2.5.2 Check the outer wrapper of the infusion bag for damage.

A2.5.3 Remove the outer wrapper and proceed to examine the infusion bag or container. Check it against a good light for cracks and leaks. Check that any tamper-evident seals are still in place.

A2.5.4 Check the expiry date of the infusion and the solution itself. The solution must not be hazy or cloudy or contain any particles or precipitate.

A2.5.5 Remove the tamper-evident seal from the additive port and swab the port with Chlorhexidine 0.5% in denatured ethanol 0.5%. Allow to dry for 30 seconds.

A2.5.6 A volume of infusion fluid equivalent to the volume of medicine solution to be added must be withdrawn from the infusion container first via the additive port using a needle and a syringe (e.g. if you need to add 12mL to a 250mL infusion bag – remove 12mL from the infusion bag first).

A2.5.7 Ensure an infusion bag is resting on a flat surface before adding or withdrawing any solution. Never try to add solution to an infusion bag that is in a hanging position.

A2.5.8 When injecting into or withdrawing solution from an infusion bag, insert the needle through the centre of the additive port being careful not to puncture the container or catch the needle on any part of it.

A2.5.9 Inject the medicine into the infusion bag and withdraw the needle and syringe and dispose of them in accordance with Trust policy.

A2.5.10 Invert the bag or container at least 5 times to ensure thorough mixing. If the solution is not adequately mixed, the medication may settle into a layer in the container and the patient could inadvertently receive a concentrated or rapid dose.

A2.5.11 Do not add anything to an infusion bag or container once it is hanging or infusing into the patient as adequate mixing becomes impossible.

A2.5.12 Label the infusion bag immediately.

A2.5.13 Check the solution again for cloudiness, discolouration, particles and precipitation.

A2.5.14 Remove the seal on the giving set port of the container and swab the port with Chlorhexidine 0.5% in denatured ethanol 70%. Allow to dry for 30 seconds.

A2.5.15 Open the packaging of the giving set and check the tubing for damage. Close the roller clamp.

A2.5.16 Remove the cover to the spike of the giving set and insert it through the giving set port firmly but carefully, taking care not to perforate or damage the container.

A2.5.17 Ensure the spike of the giving set is fully inserted into the port. Otherwise, it can become contaminated and microbes may contaminate any subsequent infusions if the same giving set is used.

A2.5.18 Squeeze the chamber of the giving set gently and allow it to half fill with infusion fluid, leaving a clear space for the drops to be observed.

A2.5.19 Keep the Luer end of the giving set capped and sterile until it can be attached to the patient's venous access device.

A2.5.20 Open the roller clamp slowly and allow the infusion fluid to flow through the length of the tubing, expelling all the air ("priming the line"). Examine the tubing for air bubbles and ensure they are expelled.

A2.5.21 Close the clamp again once the giving set tubing is filled with infusion fluid.

A2.5.22 The medication is ready for administration. Proceed to the patient.

APPENDIX 3 – Detailed Procedure for Administration of IV Medicines

A3.1 Procedure for Administration of Drugs by Direct Injection (Bolus)

No.	Action	Rationale
1.	Check the prescription chart/record to ensure the right patient, the drug is correctly prescribed and there are no documented allergies.	Prevent drug being given to the wrong patient and an error from occurring on administration.
2.	Explain and discuss the procedure with the patient.	To reassure the patient and gain informed consent for procedure.
3.	Check any infusion in progress for compatibility to ensure it is safe to stop whilst the drug is given.	Some IV infusions could be detrimental to the patient if stopped. Another cannula may have to be considered.
4.	Wash hands using the six-stage hand washing technique. Dry with paper towels and put on non-sterile gloves.	Infection prevention and gloves to protect yourself.
5.	Prepare drugs as recommended by the manufacturers' guidelines and detailed procedure in Appendix A2.	Prevent medication error from occurring.
6.	If more than one syringe is being used label the syringe with the drug name	To prevent errors in administering the wrong syringe
7.	Draw up a flush of Sodium Chloride 0.9% for injection and attach a new needle or sterile bung. Do not re-sheath needles.	To prevent sharp injury and contamination of the syringe.
8.	Place syringes in a clinically clean receptacle and collect any other necessary equipment, including a sharps bin. Remove gloves and wash hands thoroughly.	Infection Prevention.
9.	Proceed to the patient and, with a second nurse, silently check patient identity against the prescription chart and prepared drug. In domiciliary settings, one nurse should verbally check the patients identity against the prescription record	To prevent the wrong drug being given to the wrong patient.
10.	Wash or gel hands and apply new non-sterile gloves.	Infection Prevention.

11.	Remove any bandages and inspect the insertion site of the cannula using the Visual Infusion Phlebitis (VIP) Score. See appendix 5	To prevent the development of Phlebitis
12.	Observe the infusion, if in progress and switch off.	To prevent the drug mixing with an in compatible fluid.
13.	Clean end of closed needle free device with Chlorhexidine 0.5% in denatured ethanol 70% for 30 seconds then allow to air dry for 30 seconds. Take care not to contaminate the cannula or any other connections.	To prevent the introduction of contamination or infection.
14.	Check patency of cannula by slowly injecting Sodium Chloride 0.9% using push, pause and positive pressure flushing technique.	To prevent backflow and thrombus from occurring.
15.	Check that no resistance is met, no pain or discomfort is felt by the patient and observe for any swelling or leakage.	To prevent infiltration.
16.	Administer medication using aseptic non-touch technique. Observe insertion site for swelling throughout procedure and ask the patient to express any discomfort or pain.	Prevent cross infection and early detection of any complications during administration. To prevent extravasation.
17.	Flush with 0.9% Sodium Chloride between drugs and following last drug administered. Re-clean closed needle free device with Chlorhexidine 0.5% in denatured ethanol 70% and restart infusion (if appropriate) at prescribed rate.	Prevent the cannula from becoming blocked. To prevent infection and continue with the patient's current treatment.
18.	Observe insertion site carefully. If indicated re-apply bandage to cannula site.	Check for any signs of Phlebitis. Only bandage if patient is confused or a high risk of pulling cannula out.
19.	Discard all sharps into sharps bin. **Do not re-sheath needles**. Remove gloves and wash and dry hands.	As stated in the Trust Policy and prevent sharps injury. To prevent cross infection.
20.	Document procedure/sign drug chart and record the VIP Score. Check availability of drug for next dose.	As per drug administration policy to prevent Phlebitis. To prevent a late or missed dose from occurring.

A3.2 Administration of Drugs by Intermittent Infusion

Intermittent infusion is the administration of a small volume of infusion over a period of 20 minutes – 2 hours. The drug may be administered either as stat dose or repeated at specific time intervals.

An intermittent infusion may be used when:-

- The pharmacology of the drug dictates this specific dilution and administration.
- The drug will not remain stable for the time required to administer a more diluted volume.
- When a patient is on restricted fluid intake
- Less likely to cause fluid overload than a continuous infusion

May be given along side an existing infusion, if compatible, via needle free IV access system such as a closed needle free device. Principles of asepsis must be followed during administration.

No.	Action	Rationale
1.	Check the prescription chart to ensure the right patient, the drug is correctly prescribed and there are no documented allergies.	Prevent drug being given to the wrong patient and an error from occurring on administration
2.	Explain and discuss the procedure with the patient.	To reassure the patient and gain informed consent for procedure.
3.	Check any infusion in progress for compatibility to ensure it is safe to stop whilst the drug is given.	Some IV infusions could be detrimental to the patient if stopped. Another cannula may have to be considered.
4.	Wash hands using the six-stage hand washing technique. Dry with paper towels and put on non-sterile gloves.	Infection prevention and gloves to protect yourself.
5.	Prepare drugs as recommended by the manufacturers' guidelines and detailed procedure in Appendix A2.	Prevent medication error from occurring.
6.	Complete intravenous additive label and apply to infusion fluid.	To prevent a medication error from occurring.
7.	Draw up a flush of Sodium Chloride 0.9% for injection and attach a new needle or sterile bung. Do not re-sheath needles.	To prevent sharp injury and contamination of the syringe.
8.	Place syringes in a clinically clean receptacle and collect any other necessary equipment, including a sharps bin. Remove gloves and wash	Infection Prevention

	hands thoroughly.	
9.	Proceed to the patient and, with a second nurse, silently check patient identity against the prescription chart and prepared drug. In domiciliary settings, verbally check the patients identity against the prescription record	To prevent the wrong drug being given to the wrong patient.
10.	Wash or gel hands and apply new non-sterile gloves.	Infection Prevention.
11.	Remove any bandages and inspect the insertion site of the cannula using the VIP Score. See appendix 5.	To prevent the development of Phlebitis
12.	Observe the infusion, if in progress and switch off.	To prevent the drug mixing with an in compatible fluid.
13.	Clean end of closed needle free device with Chlorhexidine 0.5% in denatured ethanol 70% for 30 seconds then allow to air dry for 30 seconds. Take care not to contaminate the cannula or any other connections.	To prevent the introduction of contamination or infection.
14.	Check patency of cannula by slowly injection Sodium Chloride 0.9% using push, pause and positive pressure flushing technique.	To prevent backflow and thrombus from occurring.
15.	Check that no resistance is met, no pain or discomfort is felt by the patient and observe for any swelling or leakage.	To prevent infiltration.
16.	Connect giving set using aseptic non-touch technique, open the control valve and administer via an IV pump.	Prevent speed shock or rapid infusion of medication
17.	Tape the administration set and clear away all equipment.	Avoids placing a strain on the cannula.
18.	Check the insertion site and ask the patient if they are comfortable. Frequently check and monitor the patient during infusion.	Early detection of any complications during administration.
19.	When the infusion is completed switch off, wash hands and put on non-sterile gloves.	Infection Prevention.

20.	Disconnect infusion set, clean connections with Chlorhexidine 0.5% in denatured ethanol 70% for 30 seconds and allow to air dry for 30 seconds.	Infection Prevention
21.	Flush with 0.9% NaCI between drugs and following last drug administered. Re-clean closed needle free device with Chlorhexidine 0.5% in denatured ethanol 70% and restart infusion (if appropriate) at prescribed rate.	Prevent the cannula from becoming blocked. To prevent infection and continue with the patient's current treatment.
22.	Ensure cannula dressing is clean, intact and secure. Make sure the patient is comfortable.	Infection prevention and to protect the cannula.
23.	Observe insertion site carefully. If indicated reapply bandage to cannula site.	Check for any signs of Phlebitis. Only bandage if patient is confused or a high risk of pulling cannula out.
24.	Discard all sharps into sharps bin. **Do not re-sheath needles**. Remove gloves and wash and dry hands.	As stated in the Trust Policy and prevent sharps injury. To prevent cross infection.
25.	Document procedure/sign drug chart and record the VIP Score. Check availability of drug for next dose.	As per drug administration policy to prevent Phlebitis. To prevent a late or missed dose from occurring.

A3.3 Administration of Drugs by Continuous Infusion

A3.3.1 Continuous infusion may be defined as the intravenous delivery of a medication or fluid at a constant rate over a prescribed time period to achieve a controlled therapeutic response. Greater dilutions of medicines help to reduce venous irritation.

A3.3.2 Large or small volumes may be delivered continuously. Usually indicated when constant blood levels are required or the drug is required to be highly diluted.

A3.3.3 Pre-prepared solutions should be used where possible, and only one additive should be made to each bag, bottle or syringe, unless stability is confirmed by pharmacy.

A3.3.4 Ensure thorough mixing of the drug, as layering will occur and the patient may inadvertently be given a concentrated bolus.

A3.3.5 The infusion needs to be monitored constantly for discoloration or presence of particles.

A3.3.6 Label the infusion line and bag, bottle or syringe.

A3.3.7 Principles of asepsis must be used throughout procedure

A3.3.8 If using a pump ensure the correct infusion rate is set.

No.	Action	Rationale
1.	Check the prescription chart/record to ensure the right patient, the drug is correctly prescribed and there are no documented allergies.	Prevent drug being given to the wrong patient and an error from occurring on administration
2.	Explain and discuss the procedure with the patient.	To reassure the patient and gain informed consent for procedure.
3.	Check any infusion in progress for compatibility to ensure it is safe to stop whilst the drug is given.	Some IV infusions could be detrimental to the patient if stopped. Another cannula may have to be considered.
4.	Wash hands using the six-stage hand washing technique. Dry with paper towels and put on non-sterile gloves.	Infection prevention and gloves to protect yourself.
5.	Prepare drugs as recommended by the manufacturers' guidelines and detailed procedure in Appendix 2.	Prevent medication error from occurring.
6.	Complete intravenous additive label and apply to infusion fluid.	To prevent a medication error from occurring.
7.	Draw up a flush of Sodium Chloride 0.9% for injection and attach a new needle or sterile bung. Do not re-sheath needles.	To prevent sharp injury and contamination of the syringe
8.	Place flush and infusion in a clinically clean receptacle and collect any other necessary equipment, including a sharps bin. Remove gloves and wash hands thoroughly.	Infection prevention
9.	Proceed to the patient and, with a second nurse, silently check patient identity against the prescription chart and prepared drug. In domiciliary settings, one nurse should verbally check the patients identity against the	To prevent the wrong drug being given to the wrong patient

	prescription record.	
10.	Wash or gel hands and apply new non-sterile gloves	Infection prevention
11.	Expose the injection port on the container, clean with Chlorhexidine 0.5% in denatured ethanol 70% for 30 seconds and allow to dry for 30 seconds.	Infection prevention.
12.	Switch off the infusion and hang the new container quickly using a non-touch technique. Restart the infusion and adjust the rate of flow as prescribed.	Prevent speed shock or rapid infusion of medication.
13.	Ask the patient if any abnormal sensations etc are experienced.	To detect any adverse reaction.
14.	Discard all sharps into sharps bin. Do not re-sheath needles. Remove gloves and wash and dry hands.	As stated in the Trust Policy and prevent sharps injury. To prevent cross infection.
15.	Document procedure/sign drug chart and record the VIP Score. Check availability of drug for next dose.	As per drug administration policy to prevent Phlebitis. To prevent a late or missed dose from occurring.

APPENDIX 4

TOOL FOR ASSESSMENT OF COMPETENCY TO ADMINISTER INTRAVENOUS THERAPY

Name of nurse:

Date of Assessment:

Name of Assessor:

Type of intravenous line being assessed:

Name of drug(s):

Area of competency being assessed	Competent	
	Yes	No
Attitude		
1. Explanation of procedure to patient		
2. Answering any questions asked		
3. Reassuring, allaying fears and anxieties		
Task		
1. Demonstrate correct checking of drug/fluid		
2. Use of aseptic technique		
3. Use of appropriate infection control procedures		
4. Correct Administration of intravenous therapy		
5. Safe disposal of waste		
Knowledge		
1. Outline of legal and professional responsibilities in administration of intravenous therapy		
2. Name the prescriber who is taking clinical responsibility		
3. Description of the correct transport & storage of the drug/fluid being used		
4. Name the possible side effects & drug interactions of the drug(s) being used		
5. Demonstrate the ability to correctly perform a drug calculation		
6. Describe the care of the line (if not already demonstrated)		
7. List the complications that could occur		
8. Describe the nurse's role in solving these complications		
9. State the signs and symptoms of anaphylaxis		
10. Describe the emergency treatment of anaphylaxis		
Cytotoxic drug administration (if applicable)		
1. Name the type of intravenous line used in the community for cytotoxic therapy		
2. List 3 complications of cytotoxic therapy		
3. Describe the precautions you would take when handling cytotoxic drugs		
4. Describe how would deal with a spillage in the patient's home		
5. Name the precautions which a woman who may be pregnant or is breast-feeding should take		

Visual Infusion Phlebitis Score

smith&nephew
IV 3000®
Moisture Responsive
Catheter Dressing

Policy Statement

All patients with an intravenous access device in Place must have the IV site checked at least daily for signs of infusion phlebitis. The subsequent score And action(s) taken (if any) must be documented. The cannula site must also be observed when:

- Bolus injections are administered
- IV flow rates are checked or altered
- Solution containers are changed

The incidence of infusion phlebitis varies. The Following 'Good Practice Points' may assist in Reducing the incidence of infusion phlebitis:

1 Observe cannula site at least daily
2 Secure cannula with a proven intravenous dressing
3 Replace loose, contaminated dressings
4 Cannula must be inserted away from the joints whenever possible
5 Aseptic technique must be followed
6 Consider your policy position on resiting of the cannulae
7 Plan and document continuing care
8 Use the smallest gauge cannula most suitable for the patients' needs
9 Replace the cannula at the first indication of infusion phlebitis (Stage 2 on the VIP score)

IV site appears healthy	0	No signs of phlebitis	OBSERVE CANNULA
One of the following is evident: • Slight pain near IV site or • Slight redness near IV site	1	Possible first signs	OBSERVE CANNULA
Two of the following are evident: • Pain at IV site • Erythema • Swelling	2	Early stage of phlebitis	RESITE CANNULA
All of the following signs are evident: • Pain along path of cannula • Erythema • Induration	3	Mid-stage of phlebitis	RESITE CANNULA CONSIDER TREATMENT
All of the following signs are evident and extensive: • Pain along path of cannula • Erythema • Induration • Palpable venous cord	4	Advanced stage of phlebitis or start of thrombophlebitis	RESITE CANNULA CONSIDER TREATMENT
All of the following signs are evident and extensive: • Pain along path of cannula • Erythema • Induration • Palpable venous cord • Pyrexia	5	Advanced stage of thrombophlebitis	INITIATE TREATMENT

Adapted with permission from Andrew Jackson Consultant Nurse, I.V. Therapy and Care, Rotherham General Hospital NHS Trust, © Andrew Jackson 1999.

Wound Management
Smith & Nephew Healthcare Ltd
Healthcare House, Gouldon Street
Hull HU3 4DJ

T 01482 222200
F 01482 222211

advice@smith-nephew.com
www.smith-nephew.com
www.ivteam.com

APPENDIX 6 – Equality Impact Assessment

Step 1 – Scoping; identify the policies aims	**Answer**		
1. What are the main aims and objectives of the document?	To inform staff managing intravenous medication of the correct procedures and the Trusts position on Intravenous Therapies		
2. Who will be affected by it?	All staff prescribing and administering intravenous therapies		
3. What are the existing performance indicators/measures for this? What are the outcomes you want to achieve?	This policy gives access to essential intravenous drug therapy for patients on Solent NHS Trust wards and in their own homes when visited by community nurses.		
4. What information do you already have on the equality impact of this document?	None		
5. Are there demographic changes or trends locally to be considered?	No		
6. What other information do you need?	None		
Step 2 - Assessing the Impact; consider the data and research	**Yes**	**No**	**Answer** (Evidence)
1. Could the document unlawfully against any group?		X	Any appropriate patient requiring intravenous therapy will have access to it
2. Can any group benefit or be excluded?		X	Applies equally to all patients
3. Can any group be denied fair & equal access to or treatment as a result of this document?		X	
4. Can this actively promote good relations with and between different groups?	X		
5. Have you carried out any consultation internally/externally with relevant individual groups?		X	
6. Have you used a variety of different methods of consultation/involvement			N/A
Mental Capacity Act implications			
7. Will this document require a decision to be made by or about a service user? (Refer to the Mental		X	

Capacity Act document for further information)			

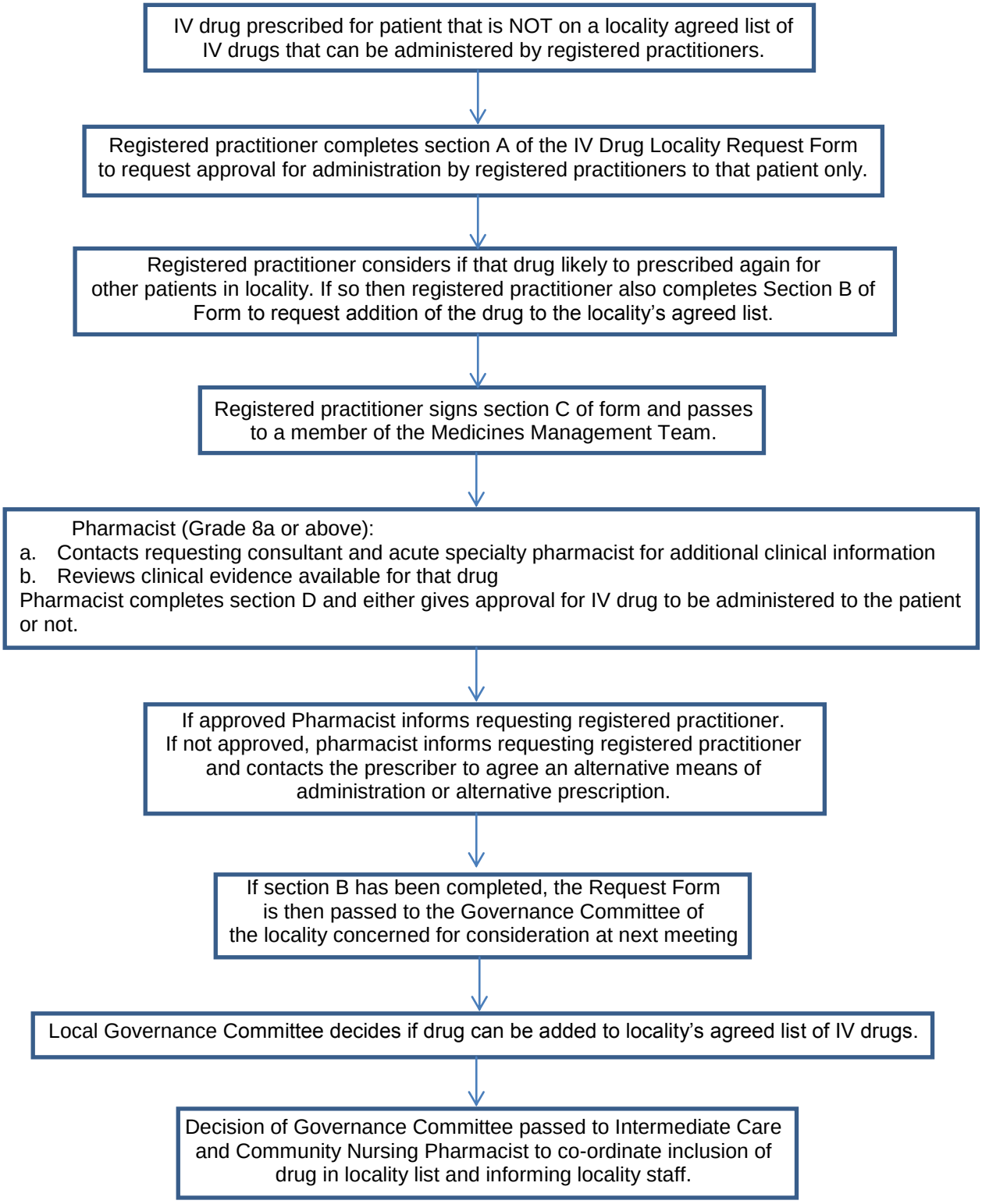
If there is no negative impact – end the Impact Assessment here.

Step 3 - Recommendations and Action Plans	**Answer**
1. Is the impact low, medium or high?	
2. What action/modification needs to be taken to minimise or eliminate the negative impact?	
3. Are there likely to be different outcomes with any modifications? Explain these?	
Step 4- Implementation, Monitoring and Review	**Answer**
1. What are the implementation and monitoring arrangements, including timescales?	
2. Who within the Department/Team will be responsible for monitoring and regular review of the document?	
Step 5 - Publishing the Results	**Answer**
How will the results of this assessment be published and where? (It is essential that there is documented evidence of why decisions were made).	

****Retain a copy and also include as an appendix to the document****

APPENDIX 7 – IV Drug Locality Request Form

Flow Chart for approval for administration of an IV drug not on a locality's agreed list.



IV DRUG LOCALITY REQUEST FORM

If requesting an IV drug for use in an individual patient only – complete section A
If requesting an IV drug to be also added to the list able to be administered generally within your locality – complete section A and B

Section A – Request for IV Drug for an Individual Patient

Patient name: . . . . . .
Address: . . . . . .
. . . . . .
Date of Birth: . . . . . .
NHS No: . . . . . .
Allergies: . . . . . .
Weight: . . . . . .
GP: . . . . . .

Complete all details or attach pre-printed addressograph label.

IV Drug Prescribed: . . . . . .
Dose . . . . . .
Frequency . . . . . .
Indication . . . . . .
IV method Bolus / Intermittent Infusion / Continuous Infusion
Diluent and Infusion Rate . . . . . .
Additional administration details . . . . . .
. . . . . .
. . . . . .

Please state what monitoring administering nurses will be required to undertake

. . . . . .
. . . . . .

Patient to receive IV drug On Hospital Ward / At Home / Other – please specify
. . . . . .

Has the drug been administered to the patient before? YES / NO
If Yes, how many doses have been given? . . . . . .

Please state reason why IV drug needs to be administered by Solent NHS Trust staff and why not being administered in acute hospital.

. . . . . .
. . . . . .

Prescribing doctor/dentist . . . . . Dr's Telephone number . . . . . .

If possible attach a copy of the patient's prescription chart to this form, or a list of all the medicines that patient is currently taking or alternatively, list the drugs being taken by the patient below.

Drug	Form	Strength	Frequency

Section B – Request for IV Drug to be added to Locality List.

Locality drug requested for

Community Adult Nursing ☐

Community Children's Nursing ☐

Mental Health ☐

Registered Practitioners have necessary competencies to administer YES / NO

IV method Bolus / Intermittent Infusion / Continuous Infusion

Please state what monitoring administering nurses will be required to undertake

. . . . . .

. . . . . .

Section C – Registered Practitioner completing Section A and/or B

Requestors Name . . . . . Signature . . . . . .

Job Title . . . . . .

Contact telephone . . . . . Date . . . . . .

Section D – Medicines Management Team Pharmacist (Grade 8a or above)

Drug is on Formulary EAST / WEST / BOTH

Information sources used Medusa / MI service / SPC / Other - . . . . . .

Is the request for licensed or unlicensed administration? . . . . . .

Monitoring – is it reasonable, practical and safe for administering nurses to undertake any monitoring required?

. . . . . .

. . . . . .

Risk of anaphylaxis (from SPC) . . . . . .

Preparation – is it reasonable, practical and safe for the administering nurses to prepare the drug, taking into account the calculations and manipulations required for the dose to be prepared and the risk of occupational exposure (eg cytotoxics, monoclonal antibodies)

. . . . . .

Other information . . . . . .

. . . . . .

Drug approved for IV administration for single patient named above YES / NO

Pharmacists Name . . . . . Signature . . . . . .

Contact telephone . . . . . Date . . . . . .

Section E – Locality Governance Committee

Date request considered by Governance Committee . . . . . .

Request for . . . . . (Drug) to be added to . . . . . .

Locality IV Drug List was:

☐	APPROVED for the drugs licensed indications and doses
☐	APPROVED with restrictions for use (specify below)
☐	NOT APROVED

Restrictions on use . . . . . .

. . . . . .

Governance Committee Chairperson Name . . . . . .

Signature . . . . . Date . . . . . .

PATIENT _____

HOSPITAL NUMBER _____

DATE OF BIRTH _____

CONSULTANT _____

Affix Addressograph

Saving Lives: reducing infection, delivering clean and safe care

CANNULA INSERTION & MANAGEMENT FORM

Solent NHS Trust

WARD _____

DATE & TIME INSERTED _____ BY _____ SIGNATURE _____ BLEEP _____

DATE & TIME REMOVED _____ BY _____ SIGNATURE _____

INSERTION

GAUGE 24 22 20 18 16 14

Lot No _____ Number of attempts _____

CONSENT

Informed ☐ Implied ☐ Unable ☐

INSERTION REASON

IV Fluids ☐ IV Antibiotics ☐ Blood ☐

Chemotherapy ☐ Surgery ☐ Other _____

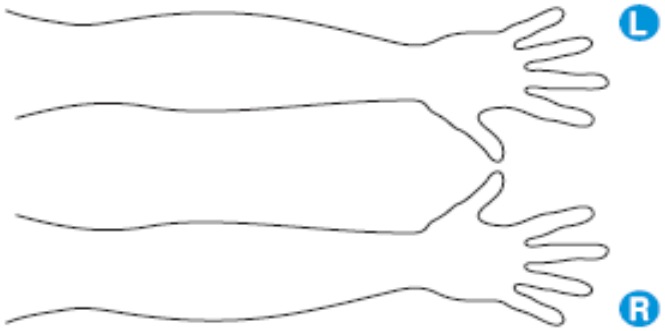
ADHERED TO

Aseptic Technique ☐ Skin prep ☐ IV 3000 dressing ☐

Extension ☐ Single ☐ Double ☐

Local Anaesthetic YES ☐ NO ☐

SUCCESSFUL FLUSH POST INSERTION ☐



Please mark successful cannulation with an X and failed cannulation with an F

REMOVAL REASON

Not required ☐

Phlebitis (& score) ☐

Infiltration ☐

Extravasation ☐

Other _____

CANNULA IN PLACE

<72hours ☐

Not >96 hours ☐

COMMENTS

_____

_____

Peripheral intravenous ongoing cannula care bundle

Observation	Time	Hand hygiene	Continuing clinical indication	Site inspected	Dressing intact	Aseptic cannula access	Administration set replacement	Does cannula need replacing?	Date and Signature
DAY 1	AM								
	PM								
DAY 2	AM								
	PM								
DAY 3	AM								
	PM								
DAY 4	AM								
	PM								

Saving Lives: reducing infection, delivering clean and safe care

High Impact Intervention No 2

Peripheral intravenous cannula care bundle

Aim

To reduce the incidence of peripheral intravenous cannula infections

Solent NHS

NHS Trust

Hand hygiene

Decontaminate hands before and after each patient contact. Use correct hand hygiene procedure as per trust policy

Continuing clinical indication

All intravenous cannulae and associated devices are still indicated. If there is no clinical indication for use then the intravenous cannula must be removed.

Site Inspection

Regular observation for signs of infection/ phlebitis, every time cannula is accessed, documented in the patient notes/RIO.

Dressing

An intact, dry, adherent transparent dressing should be present. A date and time of insertion must be applied & visible at the cannula insertion point. Bungs should not be applied directly to a cannula. Single or double lumen adaptors must be insitu

Cannula access

Use Chlorhexidine 0.5% in denatured ethanol 70% and allow drying prior to accessing the cannula for administration of fluids or injections

Administration set replacement

Immediately after administration of blood, blood products. All other fluid sets after 72 hours, giving sets should be labelled with date and time on commencement of use

Routine cannula replacement

Cannula replacement should occur every 72-96 hours