

Peripherally Inserted Vascular Cannula (PIVC) Guidelines

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1 Introduction & Scope

The aim of these guidelines is to outline the general principles for safe insertion, care and maintenance of **Peripheral IV Cannulae (PIVC)** for all patients at all times.

Duties (Roles and Responsibilities)

Cannulation must only be undertaken independently by practitioners who have been appropriately trained and have been deemed competent, in ANTT and have completed the competency for cannula insertion. Practitioners must undertake cannulation under supervision until deemed competent.

As medical staff undertake cannulation competency as outlined in their training they are only required to complete the Direct Observation of Practice (DOP) assessment rather than the competency pack when joining the Trust.

The Trust is responsible for ensuring that policies, education, training and procedures are in place to minimise the risk of infection.

Line managers are responsible for ensuring that policies, education, training and procedures are made available to any staff who will undertake PIVC insertion and management.

Ward Sister/Charge Nurse, Unit/ Department/ Service Managers are responsible for ensuring that staff are competent in insertion and management of PIVC prior to them undertaking these procedures. They should also ensure that appropriate guidance is available and clearly displayed for all staff to access e.g. in the treatment room.

All staff competent in cannulation are responsible for ensuring that they maintain competency.

2 Definitions

Asepsis - is the absence of infectious organisms such as bacteria, fungi, viruses, or other microorganisms which may cause disease.

Aseptic techniques – are those aimed at minimising infection, ensuring that only uncontaminated objects/fluids make contact with sterile/susceptible sites.

Antisepsis – is the removal of transient microorganisms from the skin by the use of chemical solutions, for disinfection.

Aseptic non-touch technique (ANTT) – a method for ensuring that key parts are not touched or contaminated during an aseptic procedure.

Key Part – a key part is the sterile part of equipment that comes into direct contact with other key/sterile parts i.e. exposed lumens of catheters, intravenous (I.V) line connections, needles, syringe tips etc.

PIVC - Peripheral Intravenous Cannulae

Insertion and Management of Peripheral IV Cannulae (PIVC)

3 Aim

This guideline aims to standardise the insertion technique and subsequent management and removal of PIVCs. By using this guideline the user will act to reduce the risks to patients associated with peripheral IV cannulation.

4 Overview

Insertion of Intravenous devices:

The insertion of intravascular cannulae requires an aseptic non touch technique (link to Asepsis Policy). **These techniques should be employed during any procedure that bypasses the body's natural defences.** (Epic 3 - 2014)

Pre-insertion

- There must be a clear indication of clinical need for PIVC insertion, to prevent inappropriate insertion and exposure to associated risks
- The patient's verbal or implied consent to examination and treatment must be obtained
- Where obtaining verbal/implied consent is not possible, a risk assessment by the registered healthcare professional must be undertaken regarding the need for examination and treatment
- The procedure must be explained to the patient to ensure that they are informed of what the procedure entails and that the risk of allergic reaction to products used is minimised.
- Patients must also be aware of the importance of keeping the PIVC site clean, dry and intact

Site selection

The insertion site should be determined by the risk of infection and mechanical complications, it is generally preferable to use the non-dominant arm with the PIVC sited away from elbow and wrist joints, thereby reducing the likelihood of dislodgement through movement and to maintain cannula patency.

Hand veins have a lower risk of phlebitis than veins on the wrist or upper arm. Veins in the lower limbs should not be used routinely in adults due to the increased risk of embolism and thrombophlebitis.

Any PIVC inserted into lower limbs should be re-sited to an upper limb as soon as possible. If possible, select most distal site for initial cannulation.

Pre-existing medical conditions or injury may prevent particular limbs from being used, e.g. the affected side of a patient who has had a stroke, renal patient with arterio-venous fistula, lymphoedema, a fractured limb, previous mastectomy, limb with bruised, painful, broken or infected skin.

- Skin Preparation – Use 2% Chlorhexidine gluconate in 70% isopropyl alcohol, clean for 30 seconds and allow drying for 30 seconds. (Single patient povidone – iodine application may be used if there is sensitivity to the former)
- Personal protective clothing (PPE) – are single use items and should be disposed of immediately after each procedure (link to: Standard Precautions policy). PPE is required to protect staff from exposure to body fluid and chemicals (COSHH regulations).
- Hand Hygiene – correct effective hand hygiene techniques must be undertaken before and after each patient contact, and before applying gloves prior to the procedure. (Link to: Hand Hygiene policy).

- Aseptic technique – an aseptic non touch technique should be used (link to: Asepsis policy).
- Dressing – use a sterile transparent semi permeable dressing to allow observation of the insertion site, write date and time of insertion on the dressing.
- Safe disposal of sharps – a sharps container must be available at point of use and should not be overfilled; do not re sheath needles; do not pass sharps from hand to hand. (Link to: Blood Borne Viruses policy and Sharps policy).
- Documentation – insertion of all devices must be recorded and must clearly state date and time of insertion.

(Adapted from: Saving Lives: Reducing Infection, Delivering Clean Safe Care).

Equipment

- The following will be required to ensure the procedure is performed without disruption:
- Clinell universal sanitising wipes (to clean tray)
- A clean procedure tray or designated trolley
- 2% Chlorhexidine Gluconate in 70% isopropyl alcohol impregnated wipe/applicator
- Sterile semi-permeable transparent dressing
- Clean tape to secure extension set connector
- Non-ported PIVC of appropriate size for all in-patient areas (ported cannula may be inserted in theatre, if the cannula requires changing replace with a non-ported cannula)
- Extension set connector (use single lumen where possible) with needle free access device
- 0.9% Sodium Chloride or POSI flush solution for flushing,
- Non sterile, well-fitting gloves should be worn while performing the procedure
- Single patient use or cleanable tourniquet.
- Personal Protective Equipment (PPE) as per Standard Precautions (link to guidelines)
- Sharps bin
- Topical local anaesthetic if required e.g. amethocaine gel
- Record on CPD

Peripheral IV cannula choice

Non-ported cannulas should be used for patients on in-patient areas, where possible.

Ported cannulas can be used when the device is only required for short term use such as for surgery e.g. theatres/anaesthetics, endoscopy, day treatment units, or in

emergency situations. If the cannula requires changing replace with a non-ported cannula.

Procedure

For advice on correct practice for cannula insertion staff must refer to the Cannulation Competency Assessment document. There is also a picture guideline of the ANTT steps for this procedure which should be located on all wards where IV prep is performed.

Documentation

All cannula insertions must be recorded on CPD by the inserter to enable ongoing monitoring of the device and removal

Management of the peripheral IV cannulae inserted by the ambulance personnel

Any cannula inserted by ambulance crew or outside of this organisation should be changed as soon as possible by ED or the admitting ward

Ongoing care:

- **Hand Hygiene** – must follow the WHO 5 Moments of hand hygiene as indicated by the ANTT process <http://staffroom.ydh.yha.com/clinical-Directorate-Information/infection-prevention/hand-hygiene/who-save-lives-clean-your-hands-poster/view>
- **Site inspection** - Peripheral vascular catheter insertion sites should be inspected at a minimum during each shift, and a Visual Infusion Phlebitis score should be recorded (Epic 3; 2014)
- **Device access** –
 - ANTT must be used; ports or hubs must be cleaned for 30 seconds with 2% chlorhexadine in 70% isopropyl alcohol and allowed to dry for 30 seconds prior to accessing the port or hub
 - An extension set must always be attached to the cannula use a catheter with the minimum number of ports or lumens essential for management of the patient
 - .Systems should be closed, attained by use of self closing access ports such as a 'bionector' (attached to the extension set)
- **Disconnection** –
 - must be kept to an essential minimum
 - lines no longer required must be discarded immediately
 - during temporary suspension any disconnected line must have the key part protected with a sterile bung, and must be re-connected using ANTT and following thorough cleaning of the keys parts as above
- The line must be clearly labelled with patient details, and date and time the line needs to be replaced (**N.B. Arterial lines are colour coded red**)

Administration set replacement

- Immediately after administration of blood and blood products.
- Immediately after drug administration
- Total parenteral nutrition after 24hrs
- All other fluid sets after 72hrs

Cannula Removal

- The cannula/catheter should be removed when complications occur i.e. VIP score >1; or as soon as it is no longer required.
- With clean hands loosen the dressing
- Using a gauze square prepare to apply gentle pressure at the cannula entry point
- Withdraw the cannula, apply pressure until bleeding has stopped
- Tape the gauze in situ
- Record removal

5 Trust Associated Documentation

Related guidelines and policies on Horizon:

[Asepsis - Principles of](#)

[Decontamination of Reusable Medical Devices](#)

[Decontamination of Reusable Communal Equipment and the Environment](#)

[Effective Hand Hygiene](#)

[Isolation Procedures](#)

[Needlestick, Sharps and Splash Injuries](#)

[Sharps \(Safe Use, Handling and Disposal of Policy\)](#)

[Standard Precautions Policy](#)

[Surveillance and Data Collection](#)

6 External References

Epic 3 - National Evidence-Based Guidelines for Preventing Healthcare-Associated Infections in NHS Hospitals in England

http://www.his.org.uk/files/3113/8693/4808/epic3_National_Evidence-Based_Guidelines_for_Preventing_HCAI_in_NHSE.pdf

National Patient Safety Agency (2007) *Promoting the safer use of injectable medicines. Multi-professional safer practice standards for: prescribing, preparing and administering injectable medicines in clinical areas*. London: NPSA. Ref; **NPSA/2007/20** <http://www.nrls.npsa.nhs.uk/resources/?entryid45=59812>

The Health and Social Care Act 2008 Code of Practice on the prevention and control; of infections and related guidance (2015)

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/449049/Code_of_practice_280715_acc.pdf

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Appendix i



Peripheral Cannulation

for the ANTT practice principles see www.the-antt.org

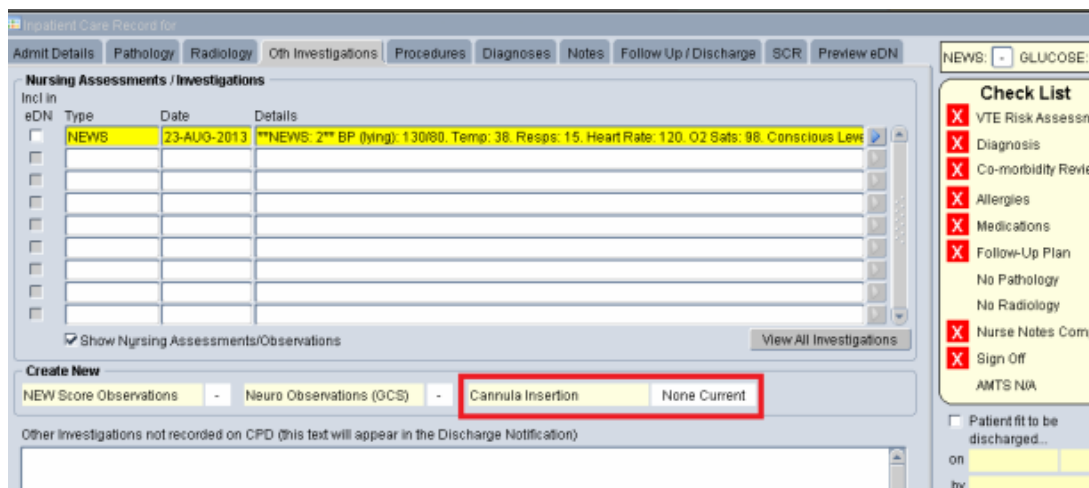
V8.1

	Preparation zone							
<p>1 Consent patient. Patient cleans Hand and arm.</p>		<p>2 Clean hands with alcohol hand rub or soap & water</p>	<p>3 Clean tray according to local policy creating an aseptic field. Whilst it dries</p>	<p>4 Gather equipment (A cannula pack standardises equipment & saves time)</p>	<p>5 Clean hands with alcohol hand rub or soap & water</p>	<p>6 Prepare flush & prime extension set using non touch technique (NTT)</p>		
Patient zone		<p>7 Position arm on drape and pillow. Apply apron.</p>	<p>8 Apply disposable tourniquet, locate vein, release tourniquet</p>	<p>9 Clean hands with alcohol hand rub or soap & water</p>	<p>10 Re-tighten tourniquet</p>	<p>11 Apply gloves Use sterile gloves if key-parts or key-sites need touching directly.</p>	<p>12 Clean site for 30 sec's, allow to dry (use 2% chlorhexidine/70% alcohol)</p>	<p>13 Anchor vein below puncture site & insert cannula using NTT & secure</p>
		Decontamination zone	<p>14 Dispose of sharps</p>	<p>15 Using NTT, attach extension set, flush device, use semi permeable dressing, fixation device</p>	<p>16 Dispose of equipment, & clean tray as per local policy</p>	<p>17 Dispose glove & immediately.....</p>	<p>18 Clean hands with alcohol hand rub or soap & water</p>	

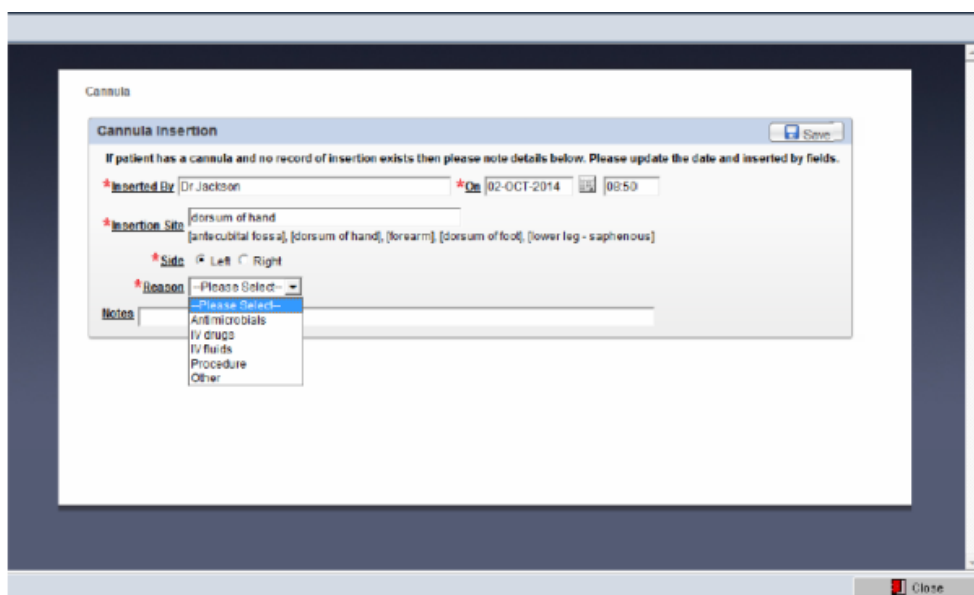
Appendix ii

Recording cannula insertions via ICR

Go to the 'Oth Investigations' tab and click on Cannula Insertion



This opens the screen below

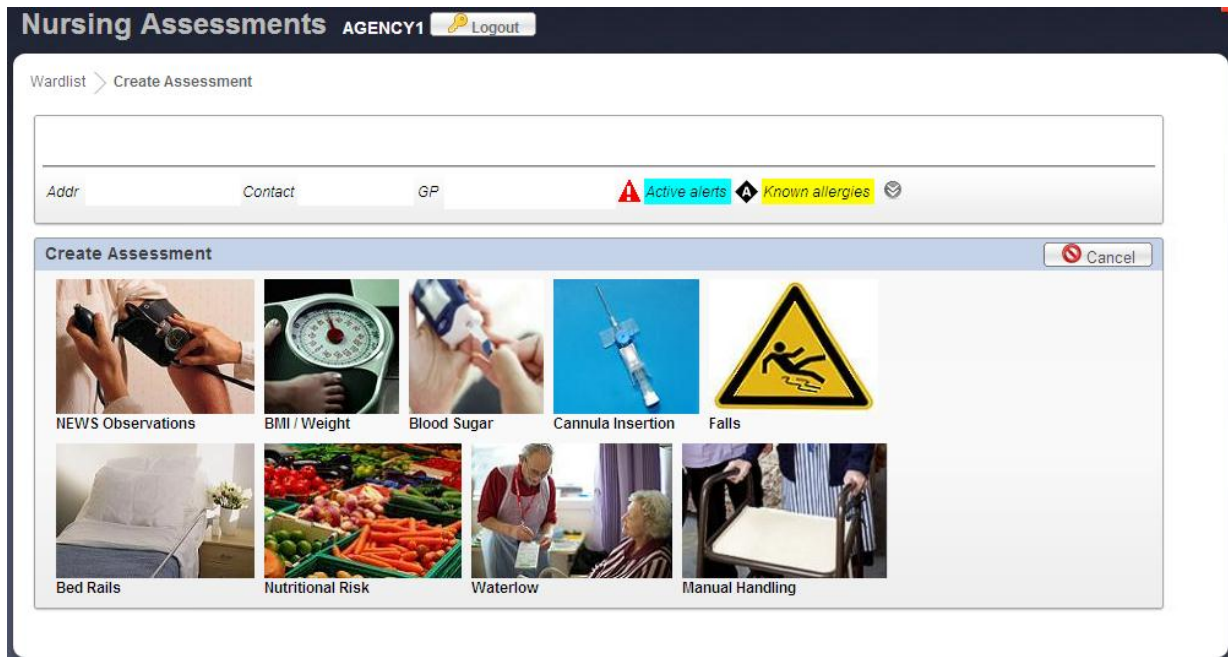


'Inserted by' will automatically be set to you but you can change this if it was inserted by a colleague or enter unknown if needed

- Select site, side and 'Reason' for cannula
- You can also record notes e.g. verbal consent or difficult cannulation 3 attempts
- Once saved you can repeat to add in further cannulas where a patient has more than 1
- Recording any procedure performed on a patient is a GMC requirement – signed and dated.
- Use the system to do this for you.

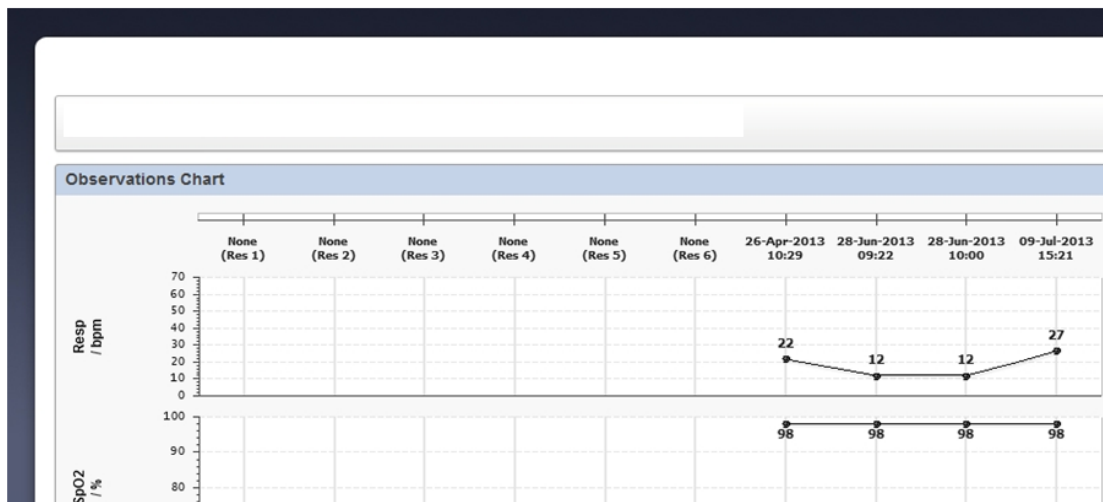
Appendix iii

Nursing Assessment – Cannula Insertion



To start a new observations assessment click on the Observations Icon above

[Record New Observations >>](#)



To start a new observations assessment click on the hyperlink at the top of the TPR Chart for Record New Observations >>

Cannulae Review - None Currently Recorded

***Does the patient have a cannula?** Yes No

Observations

***Taken By** SSW-ONE, A (Bank Nurse) [AGENC] ***Taken Date** 01-OCT-2015 12:13

***BP - (Lying)** / **BP - (Standing)** /

***Resp Rate** ***Conscious Level** [v]

***Heart Rate** **Heart Rhythm** [v]

***Temp (°C)** Not Measurable

***O2 Sats (%)** Not Measurable

Pain Score [v] (Rest) [v] (Movement)

***Catheterised** No Yes

***Urine passed in last 8 hours** [v]

***Supplemental Oxygen** No Yes

Notes [v]

Obs not done [v]

Notes [v]

NEWS

Score:

Score Indicators

[Syst BP](#)
[Resp](#)
[Conscious](#)
[Heart](#)
[Temp](#)
[O2 Sats](#)
[O2 Supp](#) No (0)

Stopwatch

00:00

Guidance

[Escalation Policy](#)
[ABCDE Assessment](#)
[Acute Pain Policy](#)
[Oxygen Therapy](#)

After clicking the button to create a new assessment, the Assessment form will appear as shown below. A red asterisk indicates that the field is needed to create a NEW Score for the patient.

Cannulae Review - None Currently Recorded

***Does the patient have a cannula?** Yes No

The first part of the screen to be completed is **'Does the patient have a cannula?'** Answer with either 'Yes' or 'No'. If recording 'Yes' once the NEWS has been entered, when clicking on 'Save' and 'Close' you will be prompted to record the cannula insertion. This screen will be explained later in the e-learning as part of the Cannula module.

Cannulae Review

***Are the cannulae details below correct?** Yes No

Inserted Date	Inserted Site
27-AUG-2015 08:59	antecubital fossa (Left)

If your patient already has a cannula inserted the screen above will appear instead. Again answer either a 'Yes' or 'No'. You will see the inserted date and site below to confirm the details are correct.

Cannulae Review - None Currently Recorded

* Does the patient have a cannula? Yes No

When recording the NEWS assessment, if recording Yes to the answer above, when clicking on Save and Close when the NEWS is complete, you will be presented with the screen below.

Cannula Insertion Save and Close Close

If patient has a cannula and no record of insertion exists then please note details below. Please update the date and inserted by fields.

* **Inserted By** * **On**

* **Insertion Site**
[antecubital fossa], [dorsum of hand], [forearm], [dorsum of foot], [lower leg - saphenous]

* **Side** Left Right

* **Reason**

Notes


Cannula can also be recorded directly from the new assessment screen via the 'Cannula Insertion' icon shown in the picture below. This will then show the same screen as shown above.

Nursing Assessments AGENCY1 Logout


Wardlist > Create Assessment

Addr Contact GP
▲ Active alerts ◆ Known allergies


Create Assessment Cancel




NEWS Observations




BMI / Weight




Blood Sugar




Cannula Insertion




Falls




Bed Rails



Nutritional Risk



Waterlow



Manual Handling

Select Cannula to be Edited

--NEW CANNULA-- ****WARNING: THERE IS ALREADY A CANNULA RECORDED AND NOT MARKED AS REMOVED****

Cannula Insertion Save and Close Close

If patient has a cannula and no record of insertion exists then please note details below. Please update the date and inserted by fields.

***Inserted By** SSW-ONE, A (Bank Nurse) ***On** 09-DEC-2013 16:00

***Insertion Site** [antecubital fossa], [dorsum of hand], [forearm], [dorsum of foot], [lower leg - saphenous]

***Side** Left Right

***Reason** --Please Select--

Notes

If a cannula is already recorded as inserted and you try to record another cannula, then a warning message will appear in red ****WARNING: THERE IS ALREADY A CANNULA RECORDED AND NOT MARKED AS REMOVED****. If you need to record another cannula inserted, fill in the bottom section and click on **Save and Close**.

Wardlist Refresh

Showing: All Patients

Name	Age	Bed	OBS	GLUC	Due	Obs Freq	Actions
[Pencil] [Smiley]	38	2	NEW: 2	3.5	-99m NEW Others	6 hourly	Esc
[Pencil] [Smiley]	23	3	NEW: 2	16	-99m NEW Others	4 hourly	Can
[Pencil] [Smiley]	23	4	NEW: 6	DM 12	-99m NEW Others	1 hourly	Esc
[Pencil] [Smiley]	104	5	NEW: 8	7.5	-99m NEW Others	30 mins	Esc
[Pencil] [Smiley]	25	6	NEW: 1	5	-99m NEW -99m GLU	1 hourly	
[Pencil] [Smiley]	43	7	NEW: x	5	Tday CAN Others	Stopped	

When you are required to perform a check on a cannula, a reminder will show on the ward list screen to say when it's due.

By clicking on the 'Tday CAN' link, this will allow you to perform a check

Select Cannula Back to Wardlist

Inserted Date	Inserted Site	Next Check Due On
[Pencil] 19-DEC-2013 10:43	antecubital fossa (Right)	20-DEC-2013
[Pencil] 19-DEC-2013 12:28	dorsum of hand (Left)	20-DEC-2013

If there is more than one cannula inserted, the box above will appear. You need to click on the pencil icon against the cannula you are performing a check on otherwise you will see the box below.

Cannula Insertion Save and Close Close

***Inserted By** [SSW-ONE, A (Bank Nurse)] ***On** [19-DEC-2013] [10:01]

***Insertion Site** [antecubital fossa]
[antecubital fossa], [dorsum of hand], [forearm], [dorsum of foot], [lower leg - saphenous]

***Side** Left Right

***Reason** [Antimicrobials]

Notes []

Checks Perform Check / Removal

Next Check Due 20-DEC-2013

No checks have been recorded

By clicking on the button for Perform Check / Removal the screen below will appear:

Cannula Check Save and Close Close

DAY 7: Inserted on 03-DEC-2013 14:27 into antecubital fossa free text (Right) by free text. Reason: IV drugs.

***Checked By** [SSW-ONE, A (Bank Nurse)] ***Checked Date** [09-DEC-2013] [16:39]

***VIP Score** [-- Please select--] [VIP Score Guidance](#)

Notes []

***Flushed** Yes No

***Cannula Still Required** Yes No

***Dressing Dry and Intact** Yes No

***Cannula Dated** Yes No

***Cannula Requires Removal** Yes No

- Please select--
- 0 - No signs of phlebitis
 - 1 - Possibly first signs of phlebitis
 - 2 - Early stage of phlebitis
 - 3 - Medium stage of phlebitis
 - 4 - Advanced stage of phlebitis or start of thrombophlebitis
 - 5 - Advanced stage of thrombophlebitis

Above are the options available via the VIP Score dropdown list. Clicking on the link for VIP Score Guidance will show the guidance below:

Visual Infusion Phlebitis Score		
IV site appears healthy	0	No signs of phlebitis OBSERVE CANNULA
One of the following is evident <ul style="list-style-type: none"> • slight pain near IV site • slight redness near IV site 	1	Possibly first signs of phlebitis OBSERVE CANNULA
Two of the following is evident <ul style="list-style-type: none"> • Pain at IV site • Erythema • Swelling 	2	Early stage of Phlebitis RESITE CANNULA
All of the following are evident <ul style="list-style-type: none"> • Pain along path of cannula • Erythema • Induration (abnormal hardening) 	3	Medium stage of Phlebitis RESITE CANNULA CONSIDER TREATMENT
All of the following are evident and extensive <ul style="list-style-type: none"> • 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 are evident and extensive <ul style="list-style-type: none"> • Pain along path of cannula • Erythema • Induration • Palpable venous cord • Pyrexia 	5	Advanced stage of thrombophlebitis INITIATE TREATMENT RESITE CANNULA

Cannula Check
Save and Close
Close

DAY 7: Inserted on 03-DEC-2013 14:27 into antecubital fossa free text (Right) by free text. Reason: IV drugs.

*Checked By *Checked Date

*VIP Score [VIP Score Guidance](#)

Notes

*Flushed Yes No

*Cannula Still Required Yes No

*Dressing Dry and Intact Yes No

*Cannula Dated Yes No

*Cannula Requires Removal Yes No

Flushed - Record yes/no if the cannula has been flushed. If Yes is selected an additional box will appear to record the Batch Number.

There are a number of radio buttons to record whether the

- Cannula is still required - if selecting No this will recommend removal of the cannula.
- **Dressing Dry and Intact** - if selecting No this will recommend removal of the dressing.
- **Cannula Dated** - if selecting No, this will recommend removal of the cannula.
- **Cannula Requires Removal** - if recording yes, this will allow you to record this has been removed.

***Cannula Still Required** Yes No
 ***Dressing Dry and Intact** Yes No **Change Dressing**
 ***Cannula Dated** Yes No **Suggest Remove Cannula**
 ***Cannula Requires Removal** Yes No ***Reason** **Details**

Remove

Removed By

Cannula not dated
 -- Please select --
 Blocked
Cannula not dated
 No longer required
 Phlebotic
 Removed by patient
 Removed prior to arrival in ward
 Tissued
 Other

If the cannula requires removal and you record Yes, this will activate additional items to the right of the field and also at the bottom.

From the 'Reason' field, click on the down arrow to select a reason from the pick list as show in the image above. The 'Details' field is a free text field so if selecting other than the reason can be entered into this field.

At the bottom of the screen an additional section appears to record who removed the cannula.


Wardlist Refresh									
Showing: All Patients									
Name	DOB	Bed	NEWS	GLUC	Due	Obs Freq	Actions		
[Name]	11/01/1975	2	2	12	-3d FAL Others	6 hourly			
[Name]	05/01/1990	3	2	20	10m NEW -99m GLU	4 hourly			
[Name]	18/09/1990	4	6	12	40m NEW	1 hourly			
[Name]	17/03/1909	5	1	7.5	30m NEW Others	30 mins			
[Name]	14/12/1988	6	1	5	-99m NEW -99m GLU	1 hourly			
[Name]	03/03/1970	7		5	-10d CAN	Stopped			

If you were to close out of the cannula screen and go back to the main ward list screen, if removal wasn't recorded a flag will appear in the Actions column.


If clicking on the Icon  this will display the screen below:

Cannula Removal

Cannula inserted on 11-NOV-2013 14:17 into HAND (Left) by CHERYL cHANDLEY
IV fluids

Removed By 

Checks

Checked On 	Checked By	VIP Score	Flushed	Cannula Details	Notes
13-NOV-2013 16:29	SSW-ONE, A (Bank Nurse)	1	No	Still Required: No Dressing Dry and Intact: Yes Dated: Yes Marked For Removal: Yes	-
13-NOV-2013 11:26	SSW-ONE, A (Bank Nurse)	0	No	Still Required: Yes Dressing Dry and Intact: Yes Dated: Yes Marked For Removal: No	-
11-NOV-2013 14:19	SSW-ONE, A (Bank Nurse)	2	No	Still Required: Yes Dressing Dry and Intact: No Dated: Yes Marked For Removal: No	-

1 - 3

You can now record who removed the cannula by clicking on the arrow next to the field for Removed By to select from the list. Once recorded, click Save and Close. This will remove the Cannula Action icon from the front screen.