

Peripheral intravenous cannula

Don't put them in.

Get them out.

Look after them properly.



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Don't put them in



- In 2017 CCDHB managed 12 healthcare associated (HA) PIVC staph aureus bacteraemia (SAB). 1/3 of our / 36 medical device associated HA SAB.

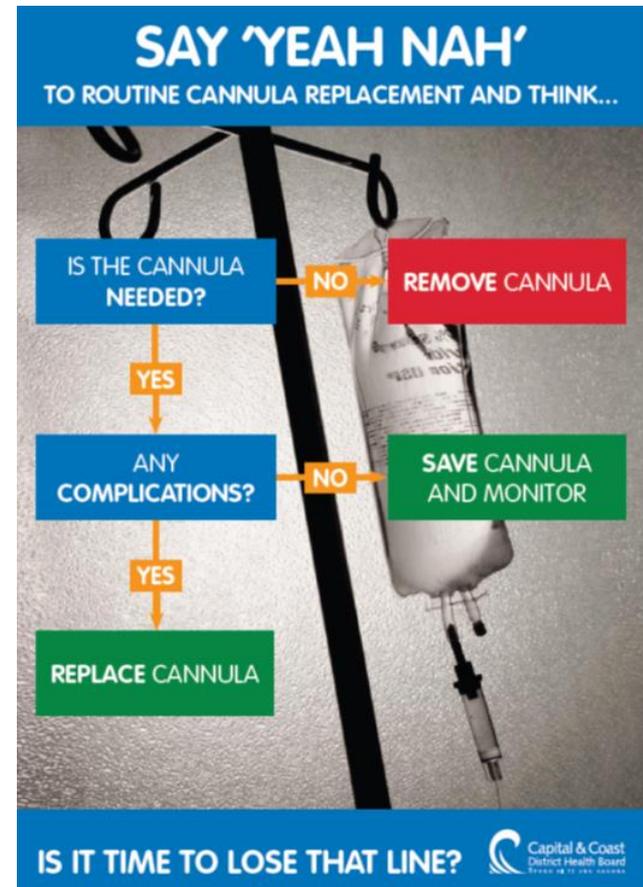
Getting to the point

- Multi-disciplinary clinical leadership partnership
 - Vascular Access and Treatment, Infection Prevention and Control, Clinical Practice committees
- Stewardship programmes – Antimicrobial, Transfusion, TPN
- Vascular access as clinically indicated only
- Right device selection - *adult and paediatric algorithms*
- Insertion or replacement as necessary not routinely
- Review of SOP – *PRICT, amiodarone, scanning*
- Manage DIVAs - hospital wide vascular access services
 - ultrasound or near infra red technologies for insertion to reduce attempts and facilitate compliance with standards
- Standardised management of indwelling devices
- ERAS and early discontinuation of IV fluids

A U D I T...

Get them out

- consensus on clinical indications for PIVC and measure compliance
- review clinical indications each shift:
 - is your patient drinking adequately?
 - have the IV medications been switched to oral?
 - is your patient safe without IV access?
- **only** resite peripheral intravenous cannula (PIVC) when clinically indicated
- ensure prompt removal at the completion of treatment or when the cannula is not needed.



Practice Responsible Intravenous Cannulation Today! (PRICT) Project

- the median ED idle peripheral IV cannula (PIVC) prevalence value was 32.4% ⁽¹⁾

PRICT guidelines:

- 3 questions before performing cannulation:
 - Is my patient unstable or could they become seriously unstable?
 - Is my patient highly likely to need IV fluids, medications or contrast?
 - Does my patient have a specific condition that mandates an IV cannula?

- **31% average cannula insertion REDUCTION**

- **Venepuncture increased by 17%**

Care bundles: insertion

Key elements

- hand hygiene
- ANTT – key part/site protection
- appropriate skin antiseptics
- device selection – *size, design*
- location
- documentation

PERIPHERAL INTRAVENOUS CANNULA - INSERTION CARE BUNDLE	
Hand hygiene	<ul style="list-style-type: none"> • compliance with the 5 moments of hand hygiene • hands decontaminated before clean glove application
Personal protective equipment	<ul style="list-style-type: none"> • clean gloves applied immediately prior to insertion • plastic apron applied if indicated
Skin preparation	<ul style="list-style-type: none"> • 2% chlorhexidine gluconate in 70% isopropyl alcohol is applied and allowed to dry • if patient sensitivity, use 10% povidone-iodine • if indicated, hair is removed using clippers (not shaven) to improve dressing adherence
Aseptic technique	<ul style="list-style-type: none"> • compliance with aseptic non-touch technique • a new sterile cannula for all cannulation attempts • a single use latex free tourniquet
Dressing	<ul style="list-style-type: none"> • a sterile, semi-permeable, transparent dressing is applied allowing observation of insertion site
Practice	<ul style="list-style-type: none"> • no more than two attempts at insertion by the same health care professional when alternative clinical support is available • fluid administration containers, tubing and connectors must be replaced when a new PIVC is inserted
Documentation	<ul style="list-style-type: none"> • date, catheter size, reason for insertion, location and operator undertaking insertion • number of attempts if more than one and any associated complications
Safety	<ul style="list-style-type: none"> • where available and not clinically contraindicated use safety equipped cannulation equipment • sharps container for point of care disposal.

Care bundles: maintenance

key elements:

- hand hygiene
- bung antisepsis
- aseptic non-touch technique – *key part/site protection*
- location, securement and immobilisation
- dwell frequencies and interactions
- documentation
- tubing change frequencies and management – *disconnect and discard*

PERIPHERAL INTRAVENOUS CANNULA - ONGOING CARE BUNDLE	
Hand Hygiene	<ul style="list-style-type: none"> • compliance with the 5 moments of hand hygiene • hands decontaminated before clean glove application
Personal protective equipment	<ul style="list-style-type: none"> • clean gloves applied immediately prior to ongoing care activities • plastic apron applied if indicated
Bung/line preparation	<ul style="list-style-type: none"> • 70% isopropyl alcohol is used and allowed to dry.
Aseptic technique	<ul style="list-style-type: none"> • use an aseptic non-touch technique • saline flushing shall be in a pulsatile (push-pause-push) motion • Saline flush – inject at least 1-5ml of 0.9% sodium chloride into the PIVC as appropriate • Administration of medicine as per prescription • Saline flush – inject at least 1-5ml of 0.9% sodium chloride into the PIVC using positive pressure (clamping) technique at completion
Dressing	<ul style="list-style-type: none"> • a sterile, semi-permeable, transparent dressing must remain dry and intact or is changed immediately • if the insertion site is obscured by an opaque dressing, preventing visual inspection, this dressing must be changed
Practice	<ul style="list-style-type: none"> • PIVC that are no longer clinically indicated must be removed promptly • PIVC are left in situ in hospitalised and community care patients for the duration of therapy unless complications occur • PIVC must be flushed with 0.9% sodium chloride to review patency each shift unless in more frequent use • PIVC insertion sites must be revealed and inspected each shift, (daily in the community) and every time the cannula is accessed, or infusion rates are altered
Documentation	<ul style="list-style-type: none"> • PIVC(s) site location, appearance (using the 0-5 visual infusion phlebitis scale), and on-going care requirements must be recorded daily in the PADP care plan, as available, or in an alternate area specified location e.g. the patient care flow chart • any other actions, significant or exceptional findings must be documented in the appropriate clinical record
Safety	<ul style="list-style-type: none"> • use needleless access systems • use leuc lock connections • sharps container for point of care disposal
Removal	<ul style="list-style-type: none"> • dressing is removed gently, use of adhesive remover if skin is fragile • PIVC is removed slowly and gentle pressure is applied as tolerated for 2-3 mins or until bleeding stops • site is assessed and dressing applied • integrity of PIVC is checked before disposal in to biohazard bag • if site appears infected, swab is taken and sent to microbiology for culture and sensitivity • site is covered with an adhesive dressing, left in place for 24 hrs • date, time and reason for removal is documented in the clinical notes • a reportable event form is completed if required

Look after them properly

ANTT – aseptic non-touch technique

ANTT is based on a unique concept called:

‘Key-Part and Key-Site Protection’



ANTT teaches users to **IDENTIFY** the **Key-Parts** of the equipment and **Key-Sites** of the patient that need to be **aseptic** – and then **PROTECT** them from contamination at all times

...using basic precautions such as hand cleaning and PPE, plus a combination of aseptic fields and non touch technique.

Undertake the 5 moments for hand hygiene.

Watch for the  for your moments.



Cleanse hands with alcohol hand rub or soap & water.

Preparation zone



1 Disinfect the tray (front then back) using a large alcohol based surface wipe - creating a general 'clean' field.



2 Gather equipment place around tray.



3 Apply non-sterile gloves (as preferred or required). Use sterile gloves if you cannot protect key-parts.



4 Open equipment prepare IV therapies protecting key-parts using aseptic non-touch technique (ANTT).



5 Place prepared therapies and equipment in to the tray, with all key parts protected.



6 Remove gloves if used.

Patient zone



7 Gain clear access to the IV access device.



8 Apply non-sterile gloves (use sterile gloves if you cannot protect key-parts).



9 Scrub key parts

- use a large 70% alcohol wipe
- scrub the bung, starting on the tip
- scrub on and away from the tip, down the sides using different areas of the wipe for 15 seconds
- allow time to dry.



10 Administer therapies using ANTT.

Check cannula and insertion site

- presence
- appearance
- function each shift.



11 Dispose of sharps & equipment appropriately.



12 Remove gloves.

Decontamination zone



13 Dispose of gloves.



14 Document

- therapy administration in the medication chart immediately.

Document

- cannula and insertion site observations daily in the PADP.



15 Clean tray (front then back) with a soap/detergent wipe or warm soapy water.

Look after them properly

- Mandate ANTT education of all healthcare professionals at under and post graduate levels – DONM and CMO approval
 - assessments to include theory, verbal reasoning and practical competency assessment
- Mechanism for infection of cannula
 - System factors
 - Human factors
 - Environmental factors
 - Patient factors
- Equipment design – buy closed systems, swabbable surfaces, mechanically acceptable designs

Audit

CARE PROCESS AUDIT: Peripheral IV Cannula (PIVC) Management



HOW TO USE THIS TOOL

Check criteria over page for each care intervention

1. Mark Y (yes) when the question is answered correctly.
Mark N (no) when the question is answered incorrectly, or not documented.

2. Total the columns and calculate the compliance percentage.

3. Send results to: ClinicalAudit@ccdhb.org.nz

- Meaningful process and outcome measures
- Monitor compliance, review complications, disseminate learnings

Patient Observation ↓	KEY CARE INTERVENTIONS →		1 Dressing(s) secure, clean and appropriate Mark Y or N	2 Site inspection with phlebitis score for all PIVC(s) Mark Y if phlebitis score ≤1	3 PIVC(s) insitu have appropriate site selection (cannula location) Mark Y if appropriate	4 PIVC(s) inserted in Wellington or Kenepuru hospitals Mark Y or N	5 PIVC clinically indicated Mark Y or N
	Tick when Applicable						
	1 PIVC	2 PIVC					
1	<input type="checkbox"/>	<input type="checkbox"/>					
2	<input type="checkbox"/>	<input type="checkbox"/>					
3	<input type="checkbox"/>	<input type="checkbox"/>					
4	<input type="checkbox"/>	<input type="checkbox"/>					
5	<input type="checkbox"/>	<input type="checkbox"/>					
6	<input type="checkbox"/>	<input type="checkbox"/>					
7	<input type="checkbox"/>	<input type="checkbox"/>					
8	<input type="checkbox"/>	<input type="checkbox"/>					
9	<input type="checkbox"/>	<input type="checkbox"/>					
10	<input type="checkbox"/>	<input type="checkbox"/>					
Total number of times a care intervention was performed							
% WHEN CARE WAS GIVEN: 10 patients: total number x 10 5 patients: total number x 10			%	%	%	%	%
Comments:							
Practice focus required:							
Clinical area and auditor name:						Date: / /	

CARE PROCESS AUDIT: Peripheral IV Cannula (PIVC) Management

Criteria for Care process Audit

Dressing(s) secure, clean and appropriate

- Mark Y** If all PIVC dressings are intact, clean and dry and no blood visible
If all PIVC sites are visible with semi-permeable, transparent dressing allowing observation of insertion site.
- Mark N** If one or more PIVC dressings are not intact, clean or dry
If PIVC sites are not visible because insertion site is covered by a dressing that prevents site assessment i.e. the insertion site is obscured by an opaque dressing that prevents assessment.

PIVC(s) site inspection using phlebitis score

- Mark Y** When phlebitis score(s) ≤ 1
- Mark N** PIVC site visible and phlebitis score >1
PIVC is not visible because insertion site obscured with a dressing that prevents assessment.

Insertion location: PIVC(s) site selection

- Mark Y** If one or more PIVC are sited in the hand/arm:
- in skin that is healthy, intact and free of bruising
 - away from areas of flexion and/or bony prominences i.e. the forearm, above or below the antecubital fossa
 - at least 5-10cm away from the radius of the wrist on the ventral surface (palm side)
 - in veins free from complication, arteriovenous shunt or fistula
 - where there is no anatomic deformity, lymphoedema, paraesthesia or paralysis
 - is not affected by breast surgery or lymph node dissection.
- Mark N** If one or more PIVC are sited in the hand/arm:
- in areas of skin inflammation, disease, bruising, oedema or breakdown, or previous IV infiltration
 - in areas of flexion and/or over bony prominences – including the antecubital fossa
 - within a 5-10cm radius of the wrist on the ventral surface (palm side)
 - veins affected by phlebitis, sclerosis, or thrombosis, with arteriovenous shunt or fistula.
 - affected by anatomic deformity, lymphoedema, paraesthesia or paralysis.
 - affected by breast surgery or lymph node dissection.

Insertion environment: PIVC(s) inserted in Wellington or Kenepuru hospitals

- Mark Y** 1 or more PIVC insitu were inserted in Wellington or Kenepuru hospitals.
- Mark N** 1 or more PIVC insitu were inserted in the community, an alternative hospital/healthcare environment or by ambulance services.

PIVC(s) clinically indicated

- Mark Y** PIVC is considered *clinically indicated* if it meets the following criteria:
- Used for IV fluids and/or IV medication within 8hrs of audit
 - Used for a procedure within 8hrs of the audit
 - Insitu due to medical instability (e.g. seizures, GI bleed, cardiac monitoring)
 - Insitu for other planned used within 24hrs of audit.
- Mark N** PIVC only used for flushes
PIVC (s) are insitu 'just in case' and are not authorised by the medical team, with the appropriate clinical indications documented in the clinical notes.

PHLEBITIS SCORE

All patients with a PIVC should have the IV site checked every shift for signs of complications. The cannula site must be observed:

- When bolus injections are administered
- IV flows rates are checked or altered
- When solution containers are changed

Phlebitis Score Card			
0	<ul style="list-style-type: none"> IV site appears healthy 	0	no signs of phlebitis Observe Cannula
1 OF:	<ul style="list-style-type: none"> Slight pain near IV site Slight redness near IV site 	1	possible first signs Observe Cannula
2 OF:	<ul style="list-style-type: none"> Pain at IV site Erythema Swelling 	2	early stage of phlebitis Resite Cannula
ALL OF:	<ul style="list-style-type: none"> Pain along path of cannula Erythema Induration 	3	mid-stage of phlebitis Resite Cannula Consider Treatment
ALL OF:	<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:	<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



Surveillance

- Data for PIVC infection history difficult to obtain or analyse
 - Underreporting
 - No denominator of line days
 - Lack of focus until infection – poor documentation and record of observations
 - Fear of acc reporting
- Investigation tool and activity - useful data
 - IV/IPC collaboration – *promotes understanding*

Collaboration

REVIEW^{from} DAY 2

This patient has been on

Since:

DD/MM/YYYY

(

days)

Date:

DD/MM/YYYY

Staff:

Suitable oral option is available
When patient has been Afebrile >24hrs
Infectious condition is suitable for oral treatment*
Tolerating oral or nasogastric food or fluid
Clinical and laboratory trend towards improvement
Haematology & Oncology patients excluded

** Excludes bacterial endocarditis, CNS infection, cystic fibrosis and bone or joint infection
- discuss with infectious diseases.*

IV to Oral Antibiotic SWITCH Criteria

DOCTOR REVIEW

Antibiotics still indicated?

Yes No

Suitable for oral switch?

Yes No

Reason (if continuing IV):

Can IV line be removed?

Yes No

Review date _____

Signature _____

CHOOSE
WISELY

REVIEW SEE NOTES



Vascular Access Matters

- Campaign early device removal, include in related campaigns like antibiotic stewardship programmes
- Reduce cannulation
- PIVC insertion and maintenance bundles
- Everyone is responsible for prevention and control of infection