Learning Package

Health
Hunter New England
Local Health District

Renal: Vascular Access for Dialysis

Sites where Learning package applies	Clinical areas where care is provided to patients with renal disease
Description	This learning package explores the care of the vascular access for dialysis patients.
Target audience	Nephrology and Non-nephrology clinical staff who provide care to people with a vascular access required for dialysis.
Learning Outcomes, On completion of this package you will be better able to:	• Understand the preferential order for vascular access creation • Ability to compare and discuss indications, locations, advantages/disadvantages of vascular access required for dialysis • Safely perform a nursing assessment for each type of vascular access • Recognise and manage access complications • Understand different cannulation techniques and the correct steps for safe cannulation
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Related Legislation, Australian Standard, NSW Ministry of Health Policy Directive or Guideline, National Safety and Quality Health Service Standard (NSQHSS) and/or other, HNE Health Document, Professional Guideline, Code of Practice or Ethics:

- Infection Prevention and Control Policy [PD2017_013]
- NSW Health Policy PD 2005_406 Consent to Medical Treatment http://www.health.nsw.gov.au/policies/PD/2005/pdf/PD2005_406.pdf
- Renal Guidelines and Procedures http://ppg.hne.health.nsw.gov.au/

Is this package recorded in MyHealth Learning?	Renal: Vascular Access for Dialysis (168552689)
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Renal: Vascular Access for Dialysis

Learning Package

2018

NSW GOVERNMENT Health
Hunter New England
Local Health District

Learning Package Overview

Purpose: *This package is designed to provide baseline information and to guide staff through the resources on vascular access of the dialysis patient. It will be useful for both Enrolled Nurses and Registered Nurses beginning to work in the area of nephrology nursing as well as those who would like to revise their knowledge on the subject*.

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- Ginger Chu 2012 (Renal CNC/Lower Hunter & Greater Newcastle sector).
- Gemma Fogarty 2012 (Renal CNE Nephrology Dept. JHH).

Date for Learning Package Review: 2021

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Table of Contents **Page**

Introduction

This package is one of a suite of packages aimed at offering guided learning for nephrology nurses. The package aims to enhance theoretical knowledge leading to improved clinical practice as they care for patients with a vascular access requiring dialysis.

Disclaimer

This learning package has been prepared by health professionals employed in Hunter New England Local Health District in the Renal Services. While all care has been taken to ensure that the information is accurate at the time of development, the authors recommend that all information is thoroughly checked before use if utilised by another unit, context or organisation.

Naming Convention

Renal: Vascular Access for Dialysis

Aim

To enhance knowledge of Nephrology and Non-Nephrology clinical staff who provide care to patients who have vascular access associated with the delivery of dialysis.

Learning Outcomes or Learning Objectives

Completion of this learning package will enable the learner to:

- *Understand the preferential order for vascular access creation*
- *Compare and discuss indications, locations, advantages/disadvantages of vascular access required for dialysis*
- *Safely perform a nursing assessment for each type of vascular access*
- *Recognise and manage access complications*
- *Understand different cannulation techniques and the correct steps for safe cannulation.*

Pre-requisites

There are no formal prior learning requirements to undertake this package. However this forms part of the learning pathway for a nephrology nurse following completion of

- Haemodialysis or Peritoneal Dialysis SDLP
- Renal Anatomy and Physiology SDLP

Learning Package Outline

The package is designed to be a self-directed learning experience that will guide you through the literature and clinical issues related to the dialysis vascular access.

This package is developed within an adult learning framework so not all activities need to be documented but it is expected that you will complete them in order to facilitate

your learning. Most of the learning activities will be located in the Vascular Access Work Book SDLP. This will need to be completed in conjunction with this SDLP.

Problem based learning

This program is based on a problem-based approach to learning. This approach has been chosen to enhance critical thinking, and to create a body of knowledge that the learner can apply to practice.

Instructions for participants

- It is estimated it will take an average of 4 hours to complete this package.
- Completion of this package is equivalent to Continuing Professional Development (CPD) hours which is a requirement for National Registration. Evidence of CPD can be generated using the reflection on learning page at the end of the package.
- Self-directed learning will be required to complete this package. Some activities will include essential reading and others will have additional supplementary readings that participants can undertake to further consolidate their knowledge.
- A brief outline of the topic followed by recommended readings & learning activities that will reinforce key points guide participants study. Most of the learning activities will be located in the Vascular Access Work Book SDLP. This will need to be completed in conjunction with this SDLP
- There is a suggested reference list but it is by no means complete. Please read widely to facilitate your learning. Journal articles can be accessed through CIAP. The online readings are not provided within this document due to copyright law restrictions. If you have any difficulty locating the readings please seek assistance from your relevant NE/CNE/CNS/CNC or hospital library.

This SDLP uses the following icons:

	**READING** **This icon alerts you to undertake reading related to the topic, which may include Guidelines and Procedures, Journal Articles or Books**
	**LEARNING ACTIVITY** **This icon denotes a learning activity or competency assessment that you will need to complete**
	**GUIDELINES** **This icon alerts you to the presence of a guideline or procedure related to the subject**

Assessment process
When completed, you can return the package to the relevant NE/CNE/CNC/CNS who will discuss it with you.

Reflection tool
At the completion of the learning package there is a reflection form that will assist you in reflecting on the package and how it meets your professional development needs.

Evaluation
A Learning Package Evaluation form when you have completed this package is found on page 22. You will need to return this to the relevant CNE/NE/CNC/CNS. This form is used to inform future updates and modifications of the learning package according to ongoing feedback from the user.

Overview of Vascular Access

Creating and maintaining vascular access patency is crucial for haemodialysis patients. A functioning access is the only way that patients can receive efficient haemodialysis. Vascular access is often referred to as the patient's "life line". Statistics indicate that up to a quarter of dialysis related hospital admissions are attributed to vascular access complications including thrombosis and access failure (Sofocleous, 2011). Therefore, it is important for health care professionals to understand different types of vascular access used for haemodialysis, and the best practice to care and maintain the patency of the access ensuring the best outcome is achieved for the patient.

Successful vascular access creation and maintenance begins with early vascular access referral, evaluation and preservation of the veins. Evaluation of each individual diagnosis, vasculature, previous clotting in the vessels and emotional presentation determines the type of vascular access required. (Bueno, M. & Latham, C. 2017).

Damage to the arm veins from venepuncture and tight blood pressure cuffs can reduce the quality of the haemodialysis vascular access. If necessary, venepuncture should be on the dominant arm to preserve the non-dominant arm for possible fistula or graft creation. Therefore, chronic kidney disease (CKD) patients should be instructed to:

- Avoid cannulation of forearm vein proximal to the wrist in all patients with progressive kidney disease likely to lead to end stage
- Avoid use of blood pressure cuff on the non-dominant arm, or the arm preserved for access creation (Schoch. M, 2015)

READING

1. Bueno, M. V., & Latham, C. (2017). Holistic care of hemodialysis access in patients with kidney failure. Nephrology Nursing Journal, 44(4), 327-332. Retrieved from http://search.proquest.com.acs.hcn.com.au/docview/1929674326?accountid=130851

2. Richard, C. (2011). Preservation of vascular access for hemodialysis in acute care setting, Critical Care Nursing Quarterly, Vol.34, No.1, pp.76-83.

3. National Institute of Diabetes and Digestive and Kidney Diseases [NIDDK] (2017). Vascular Access for Hemodialysis. Available online at https://www.niddk.nih.gov/health-information/kidney-disease/kidney-failure/hemodialysis/vascular-access

Types of Vascular Access

- *Understand the preferential order for vascular access creation*
- *Compare and discuss indications, locations, advantages/disadvantages of vascular access required for dialysis*

There are three types of vascular access for haemodialysis enabling direct entry to the bloodstream for treatment. Each of which have advantages and disadvantages:

- Arteriovenous fistula (AVF),
- Arteriovenous graft (AVG) and
- Central Venous Dialysis Catheters (CVDC)

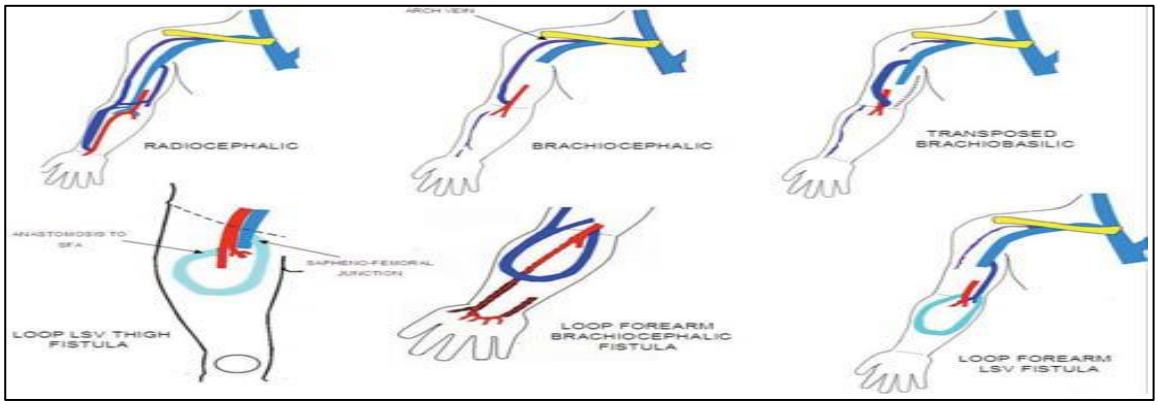
Arteriovenous Fistula (AVF)

The arteriovenous fistula is an internal access created by surgically joining an artery to a vein, which is referred to as an anastomosis (Sofocleous, 2011). The turbulent blood flow from the artery enters the vein in a retrograde direction which subsequently dilate the vein to accommodate increased blood flow for haemodialysis. KDOQI guidelines recommend the AVF as gold standard and where possible and appropriate should be considered as the first choice of access. This is due to reduced risk of infection/clotting compared with the arteriovenous graft and CVDC's. Placement of a fistula should commence with use of the radiocephalic to brachial cephalic and then move to the upper arm (Scarritt, T et al, 2014).

The effects of fistula creation on cardiac function are widely reported. Cardiac output increases to accommodate the additional blood flow through the fistula with consequent hypotension and tachycardia (Min-Kai Chuang, Chin-Hao, C., & Chih-Yang, C. 2016). Such responses can result in clotting within the vascular access. Therefore it is important to assess the patient's AVF regularly post-operatively incorporating the assessment of "Thrill" and "Bruit".

The thrill is a sensation of vibration, which can be felt most strongly over the anastomosis. The bruit is the sound of blood flow, which is heard by placing a stethoscope over the fistula, again most strongly heard at the anastomosis (Richard, C. 2011). You can practice listening to these sounds on dialysis patients to familarise yourself with the variations in sound.

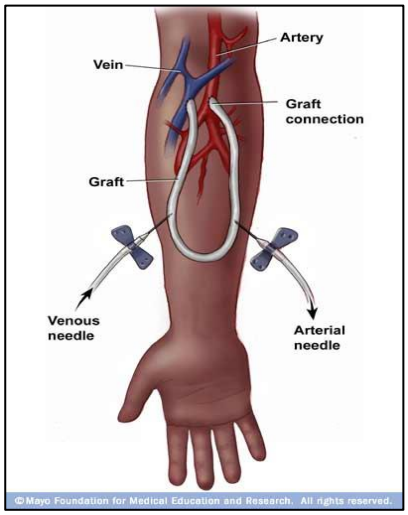
(Figure 1: Common haemodialysis AVF/AVG locations, picture resource: Swinnen, 2011)



Arteriovenous Graft (AVG)

The haemodialysis arteriovenous graft is created by surgically joining an artery and vein using a synthetic material such as polytetrafluoroethylene (PTFE) (Sofocleous, 2011). There are two sites of anastomosis with an AVG with assessment required at both. The AVG is utilised for haemodialysis access when native vessels are not suitable for creating an AVF. An AVG can be created in any accessible area that a vein and an artery can be joined. The AVG has a lower functional life span than an AVF due to complications including infection, blood flow and intimal hyperplasia (Bachleda, P. et al. 2015).

(Figure 2: Synthetic loop graft. Picture source: Mayo Foundation for medical education and Research Brochure)



(Figure 3: Common straight forearm AVG, picture source: JHH)

Central Venous Dialysis Catheter (CVDC)

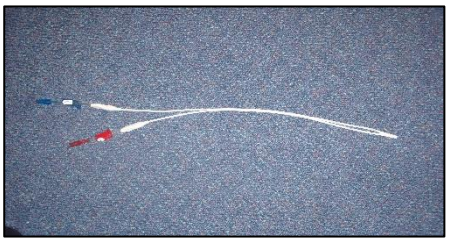
<u>Tunnelled double lumen cuffed catheter (Permcath)</u>

A haemodialysis catheter is a double lumen catheter which is most commonly inserted into the internal jugular, with the tip located in the right atrium (Scarritt, T et al, 2014). This type of access should not be considered permanent due to associated risk of potential complications. A CVDC should only be considered when patients are

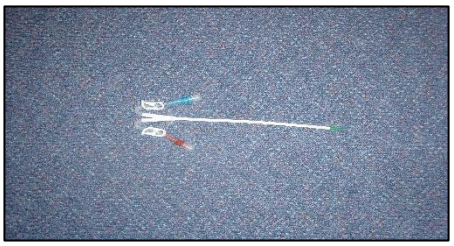
ineligible for creation of an AVF/AVG or immediate vascular access is required. Once the catheter is connected to the dialysis machine blood is drawn from the arterial and returned to the patient via the venous lumen.

Two types of CVDC

(Figure 4: Double lumen cuffed CVDC Picture source: JHH 2011)



(Figure 5: Double lumen uncuffed Vascath Picture source: JHH 2011)

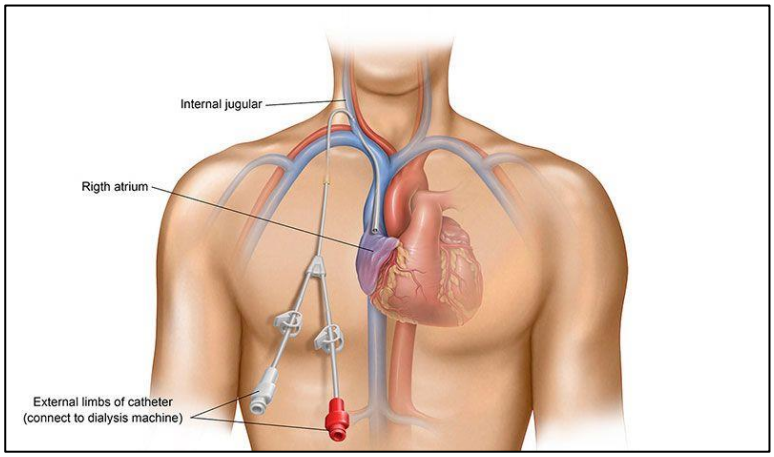


Cuffed CVDC placement is attended under ultrasound guidance and sutured in place. Sutures at the initial insertion site can be removed after 7 -10 days but **wing sutures/CVC securement device as per local policy must remain until granulation of the tissue surrounding the Dacron cuff secures the catheter in place (3 months minimum)**. Before removing a tug test should be performed by gently tugging the catheter and observing for skin traction at the Dacron cuff site. It is extremely important to check the sutures regularly to ensure they are secure. **If the sutures are loose or missing, especially at the early stage post insertion, a Medical Officer/Nurse Practitioner/General Practitioner needs to re-suture as soon as possible. Until this is attended a CVC securing device should be applied e.g. Stat Loc.**

Uncuffed double lumen catheters (Vascath)

These catheters are for an access period where dialysis is seen as a short term treatment option due to high risk of infection and dislodgment. They are commonly inserted into the internal jugular and on occasion the femoral vein. If not inserted under U/S guidance X-Ray confirmation ids required prior to use (please refer to guideline and procedure for CVAD). Sutures must remain insitu until removal to avoid dislodgement.

(Figure 6: Central Venous Catheter)



	LEARNING ACTIVITY Please refer to the Vascular Access Work Book SDLP for the learning activities linked to this section
	READING 4. Min-Kai Chuang, Chin-Hao, C., & Chih-Yang, C. (2016). The effect of haemodialysis access types on cardiac performance and morbidities in patients with symptomatic heart disease. PLoS One, 11(2) doi:http://dx.doi.org/10.1371/journal.pone.0148278 5. Scarritt, T., B.A., Paragone, C. M., P.A.C., O'Gorman, Ronald B, MD, PHD, Kyriazis, D. K., M.D., Maltese, C., M.D., & Rostas, Jack W,I.I.I., M.D. (2014). Traditional versus early-access grafts for hemodialysis access: A single-institution comparative study. The American Surgeon, 80(2), 155-8. Retrieved http://search.proquest.com.acs.hcn.com.au/docview/1518528643?accountid

	GUIDELINES Locate and read: 1. Central Venous Access Device (CVAD) Dressing HNELHD GandP16_18 2. Renal: Commencement of Haemodialysis using Central Venous Dialysis Catheters (Permcath/Vascath) with a Luer Access Device HNELHD CP 16_30 3. Renal: Completion of Haemodialysis - Disconnection of Central Venous Dialysis Catheter (Permcath/Vascath) with Luer Access Device HNELHD CP 16_29 4. Renal: Completion of Haemodialysis or Haemodiafiltration via an Arteriovenous Fistula or Graft (AVF/AVG) HNELHD CP 16_16 5. Renal: Cannulation of an Arteriovenous Fistula / Graft HNELHD GandP 15_09

Complications and Management

- *Recognise and manage access complications*

Common complications of an AVF and an AVG include: infiltration, stenosis, steal syndrome and aneurysm. Nurses should have the ability to utilise handheld ultrasound to increase knowledge of the vascular access and decrease risk associated with various complications.

Maturation of Vessel for Cannulation

The KDOQI "rule of six" can be used as a guide to assess fistula maturity (NKF KDOQI guideline, 2006)

- Minimum of 6mm diameter with tourniquet
- Depth less than 6mm
- Blood flow greater than 600mL/min
- Greater than 6cm of viable cannulation area along the AVF

Thrombosis

Common complication of AVF and AVG. Detection and reporting of thrombosis is the responsibility of the haemodialysis nurse. (Thomas, N. 2014) A thrombosed access requires urgent intervention with the aim to salvage the access. Refer to your areas policy and procedure on the unit's steps in managing a thrombosed access.

Extravasation / Infiltration

Occurs when a cannula penetrates through a vessel wall and causes a haematoma. First line management includes the removal of the needle with application of direct firm pressure immediately. Apply ice and avoid re-cannulation in that area if possible until swelling has resolved.

(Figure 7: Extravasation/infiltration, picture source: Property of JHH, 2015)

Observation and supervision should be undertaken until competency has been achieved before independent cannulation is possible. A thorough nursing assessment using palpation and auscultation of the entire access is essential to identify areas prior to cannulation and therefore key in avoiding potential complications (Thomas, N. 2014).

Stenosis

An occlusion in the vein that affects adequate blood flow (Ball, L. 2017). Significant stenosis will reduce greater than 50% of normal vessel diameters which can affect the efficiency of haemodialysis delivery, cause vessel damage and result in access clotting. In the haemodialysis patient, there are signs and symptoms that indicate stenosis:

- Recirculation values greater than 20%
- Prolonged bleeding post venepuncture
- Elevated pressures
- Decreased blood flow

- Oedema of the extremity
- Reduced Kt/V
- Altered physical appearance of the fistula and / or thrill (Ball, L. 2017).

High output cardiac failure (AVF)

This is attributed to a large volume/high flow of blood through the fistula and associated increased cardiac output. (Stern 2011) Indications include tachycardia, shortness of breath, pulmonary oedema, peripheral oedema which occur at ideal body weight. Medical review and possible cardiac or vascular surgery consultation may be necessitated (Min-Kai Chuang, et al. 2016).

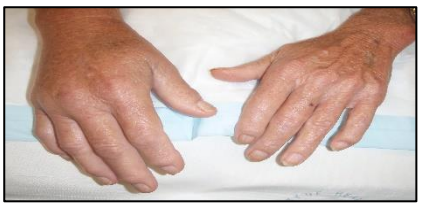
Steal syndrome

This syndrome occurs when blood entering the limb is drawn into the fistula and returned to the general circulation without entering the capillaries, which decreases blood supply to the hand. Symptoms include:

- mild to severe pain in the hand
- sensory loss during haemodialysis

Upper arm fistulae are more likely to cause ischemic symptoms compared to forearm fistulae due to blood circulation. Patients presenting with these symptoms need an urgent referral to a vascular surgeon as ligation of the fistula to preserve distal circulation may be required to avoid ulceration and possible amputation of the digits if untreated (Scarritt, T et al, 2014).

(Figure 8: Picture Source: JHH, 2011)
Steal syndrome - Hand will appear pale and cyanotic and the radial artery will not be palpable



Aneurysmal Dilation

This is most likely to occur due to failure to rotate needle sites but may also result from venous stenosis. The aneurysmal ballooning can result in overstretched, shiny skin, and subsequent risk of uncontrolled bleeding. Cannulating into an aneurysm can result in hemorrhage. Aneurysms need surgical referral for evaluation as they may necessitate corrective surgery. A stable aneurysm has intact skin without any change in pigmentation and should be carefully monitored for increased size and skin changes. Alternative cannulation sites should also be selected (Thomas, N. 2014).

To prevent damage to the fistula and further aneurysmal development it is recommended that the needle be inserted at different points referred to as rope ladder technique (Ball, L. 2017).

(Figure 9: picture of aneurysm, picture source: FH, 2014)

Palpable Graft Pulsation

This may be present with or without elevated venous pressure and can indicate venous stenosis or clotting. This requires vascular access assessment and possible intervention.

Recirculation Percentage

May be indicative of venous stenosis or cardiac heart disease and needs to be investigated further.

Excessive Pressure Changes

Excessive pressure change for an AVF/AVG is reflective of an inability of the access to provide blood flow demanded by the blood pump. Pressures below a negative or above a positive of 200mmHg with 15 gauge needles and a blood flow of 300 - 350mL/min may indicate:

- poor needle placement
- inflow or outflow stenosis
- thrombus

The running of blood flows that create such a high negative pressure proportionally increase the risks of recirculation with the access and therefore decreases the adequacy of dialysis. Once poor needle placement has been eliminated, activation of the surgical referral pathway is required.

Reasons for excessive pressure change for CVDC include:

- fibrin formation
- kinking of line
- clamps engaged
- thrombus

Once kinking and clamp engagement has been eliminated activation of surgical referral pathway is again require.

Fibrin Sheath Formation

Fibrin sheath develops around the interior of the catheter and is comprised of flimsy fibro epithelial tissue. The sheath prevents adequate blood flow through the catheter and can be removed by angioplasty (Chu, G. 2016).

(Figure 10: Fibrin formation, picture source: Fistula first (2011)

Cuff Extrusion

The purpose of a Dacron cuff is to inhibit infection and serve as an anchor point preventing dislodgement. An exposed cuff indicates that the tip is no longer in the correct location which will reduce haemodialysis efficacy. As the anchor point is disrupted the catheter is also at great risk of complete dislodgement.

On assessment signs and symptoms of sepsis should be assessed and review and replacement of the catheter should be immediately arranged.

(Figure 11: Cuff exposed at exit site picture source: Fistula first (2011)

Local or Systemic Infection

Effective hand hygiene and aseptic technique is essential management for the prevention of infection of the haemodialysis access. Bacterial infection accounts for approximately 15% of the haemodialysis population mortality (ANZDATA, 2016). Inflammation, pain, fever and impaired skin integrity require medical review. If infection suspected, microbial cultures should be collected and sent and if appropriate activation of the Sepsis Pathway commenced prior to treatment. If treatment is to progress for AVF/AVG avoid cannulation into or close to an infected area. For CVDC antibiotic therapy with or without catheter replacement may be required. For ongoing assessment of the vascular access ensure skin integrity is maintained for the limb (AVF/AVG) and along catheter tunnel and at suture sites.

LEARNING ACTIVITY
Please refer to the Vascular Access Work Book SDLP for the learning activities linked to this section

READING

Access via CNE/CNC/Renal Resource Centre Wansey/HNE Libraries:

6. Please review vascular access in Chapter 8 of Thomas, N. (Ed.). (2014). Renal nursing (4th Ed). West Sussex, UK: John Wiley & Sons, Ltd.

GUIDELINES
Locate and read:

6. CARI/KHA guideline: Dialysis guideline – Vascular Access (2012) Available at: http://www.cari.org.au/Dialysis/dialysis_guidelines.html

Nursing Assessment

- *Safely perform a nursing assessment for each type of vascular access*

Nursing assessment of an AVF/AVG should include inspection, palpation and auscultation. This assessment must be attended prior to cannulation to assess for blood flow, needle site position and to avoid unnecessary complications.

Inspection

- Inspect the patient and their access before, during and after each haemodialysis treatment. Assess the access for presence of redness, exudate, oedema, aneurysm development, collateral vessels and prolonged bleeding after needle withdrawal
- Compare limb to opposite limb for oedema, discolouration, warmth, sensation and movement
- Monitor intradialytic pressures and recirculation measurements.
- For the AVF examine development of alternate needle sites and maturation (Use gentle tourniquet pressure if required).
- Use hand-held ultrasound to visualise and map diameter and depth of vessel to assist in optimal needle placement to promote access longevity (Schoch, M. 2015).

Auscultation

- Listen for the bruit with the stethoscope commencing at the anastomosis. Assess that it can be heard evenly and lessen as you move along the vessel. Identifying any change in pitch as this may indicate developing stenosis.
- Listen to the patient – what are they feeling, are there any altered characteristics of the pulse or thrill in the vessel? (Bueno, M. & Latham, C. 2017).

Palpation

- Feel the “thrill” vibration with the three fingers. Feel for warmth or tenderness. The “Thrill” is a continuous buzzing vibration felt strongly over anastomosis. This will reduce in strength as you move away from the anastomosis. Note any warmth or tenderness (Schoch, M. 2015).

LEARNING ACTIVITY

Please refer to the Vascular Access Work Book SDLP for the learning activities linked to this section

READING

7. Schoch, M. L., Du Toit, D., Marticorena, R. M., & Sinclair, P. M. (2015). Utilising point of care ultrasound for vascular access in haemodialysis. Renal Society of Australasia Journal, 11(2), 78.26

Cannulation Techniques

- *Understand different cannulation techniques and the correct steps for safe cannulation.*

Prior to cannulation of a vessel a management plan involving mapping of the vessel and authorization from the Vascular Surgeon (or Nephrologist for rural areas when no vascular surgeon available) directives must be attended.

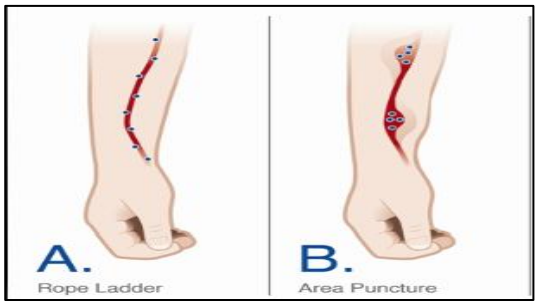
Rope ladder

The gold standard for cannulation techniques is rope ladder. This technique involves varying cannulation sites along the fistula uniformly. This allows optimal development of the vessel for cannulation and reduces risk of aneurism formation (Ball, L. 2017).

Area Siting

This technique is commonly seen where historically rope ladder has not been utilised. Nurses have cannulated similar sites located in one small area of the access. This practice leads to formation of aneurismal areas and reduces longevity of the access. It also increases risk of profound haemorrhage – HEED the herald bleed.

(Figure 13: picture source: NEN E learning Vascular Access)



(Figure 14: Rope Ladder picture source: FH 2014)

Buttonhole – for AVF only

Primarily used for patient self-management where there are limited areas for needle placement. This technique requires one nurse to needle consistently to establish the needle track. Once established blunt needles may then be used for future access in the vessel. Due to the associated high risk of infection this technique requires

authorization by the patient's vascular surgeon and is not uniformly practiced within the HNELHD (Brouwer & Lamendola, 2009).

	Please refer to the Vascular Access Work Book SDLP for the learning activities linked to this section

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KDOQI guideline: Guideline 4 (2006): Detection of access dysfunction: monitoring, surveillance, and diagnostic testing. Available at: http://www2.kidney.org/professionals/KDOQI/guideline_upHD_PD_VA/

Min-Kai Chuang, Chin-Hao, C., & Chih-Yang, C. (2016). The effect of haemodialysis access types on cardiac performance and morbidities in patients with symptomatic heart disease. PLoS One, 11(2) doi:http://dx.doi.org/10.1371/journal.pone.0148278

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Learning Package: Reflection on Learning

This document guides your reflection on the extent to which the package meets your professional development needs, and how you plan to apply your learning into practice. This tool is not part of the assessment process, and has been included as a document that you may wish to include in your professional portfolio. Time taken to complete learning package_____

What was your purpose in completing this learning package?

_____

_____

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Did you achieve this by completing the learning package?

_____

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Reflecting on the content, what key learning have you obtained?

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_____

What learning will you apply to your practice immediately? How will you do this?

_____

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What learning needs have you identified as a result of completing this learning package?

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_____

How do you plan to address these needs?

_____

_____

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_____

_____

Signature:_____ Date:_____

Learning Package Evaluation Form

Your feedback regarding this learning package is important to ensure the package meets your learning needs. Please take 5 minutes to answer the following questions to facilitate any change required for future learning packages.

1. The learning outcomes of the learning package were clearly identified	Yes	No
2. The learning outcomes of the package were appropriate		
3. The content provided enabled me to meet the learning outcomes?	Yes	No
4.The activities motivated my interest in the topic	Yes	No
5.The activities and workbook questions supported my understanding of the topic		
6.The package was presented in a logical manner	Yes	No
7.The assessment process related to this package was clearly outlined (if applicable)	Yes	No

8. My most relevant learning outcomes from this package were:

_____
_____

9. The key learning points from this package I can immediately apply to practice include:

_____
_____

10. The least relevant component(s) of this package were:

_____

_____

11 Some suggestions I would like made to improve the package would be:

_____
_____

12. Further comments:

_____
_____

Thank you for your time to complete the evaluation
Please return to:

The relevant CNE/NE/CNC/NP within your area