

Renal: Vascular Access Skills Development Package

[LP: 2018:07]

Skills Development Package



Health
Hunter New England
Local Health District

Renal: Vascular Access Skills Development Package

Sites where Skills Development package applies	Clinical areas where care is provided to patients with renal disease
Description	This skills development package explores the care of the vascular access for dialysis patients.
Target audience	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:	<ul style="list-style-type: none">• Demonstrate competency in AVF/AVG cannulation• 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• Demonstrate competency in U/S mapping and landmark recognition of an AVF/AVG
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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:	
<ul style="list-style-type: none">• 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 Skill Development Package (177720388)
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2018



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Skills Development Package Overview

Purpose: *This package is designed to provide skill development and guide staff through the resources on vascular access. It has been developed to compliment the Vascular Access for Dialysis SDLP which provides the knowledge base related to the skill. It will be useful for both Enrolled Nurses and Registered Nurses in the area of nephrology nursing that are required to develop and achieve competency in the various aspects of vascular access.*

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Introduction

This skills development package is one of a suite of packages aimed at offering guided learning for nephrology nurses to further enhance their clinical skills and knowledge. The package explores different types of vascular access, nursing assessments, cannulation techniques and central venous dialysis catheter access. It has been developed to compliment the Vascular Access for Dialysis SDLP which provides the knowledge base related to the skill.

Disclaimer

This skills development 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 Skills Development Package

Aim

To provide guided learning for nephrology nurses to enhance their clinical skills and knowledge on: different types of vascular access, nursing assessment, cannulation competency and problem solving skills for vascular access issues.

Learning Outcomes or Learning Objectives

Completion of this skills development package will enable the learner to:

- *Demonstrate competency in AVF/AVG cannulation*
- *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*
- *Demonstrate competency in U/S mapping and landmark recognition of an AVF/AVG*

Pre-requisites

Although there are no formal prior learning requirements to undertake this package the nurse would be currently working in a dialysis unit to achieve completion of activities. The skills development package also forms part of the learning pathway for a nephrology nurse following completion of

- Haemodialysis Dialysis SDLP
- Renal Anatomy and Physiology SDLP

And is completed along side

- Vascular Access For Dialysis Learning Package

Skills Development 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. The activities in this workbook will need to be completed in conjunction with the Vascular Access for Dialysis 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.. This will need to be completed in conjunction with this skills development package.
- 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.

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 skills development 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 Skills Development Package Evaluation form when you have completed this package is found on page 27. 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.

Module 1: Level 1 (Novice)

Suggested timeframe: First 2 weeks of haemodialysis experience

- For completion of this activity you are required to observe your mentors clinical skill in AVF/AVG assessment and cannulation. You will need to have been signed off on all three sections.



LEARNING ACTIVITY


Activity 1a. Observe staff assessing and cannulating at least 3 times on 3 different patients and discuss the following with your mentor:

	1	2	3
How to identify an anastomosis			
How and why you feel for a Thrill and listen to the bruit			
How to identify the Arterial and Venous side of the fistula and the direction of blood flow			
What identifies the presence or absence of infection			
How to visualise an A-V fistula under ultrasound			


Activity 1b. Practice assessing an AVF/AVG with your mentor and sign you off for 3 practice sessions:

Date	Instructor/Mentor	Learning needs
1.		
2.		
3.		


- Prior to this activity where available practice on a simulation arm is required. For completion of this activity you are required to attempt cannulation with expert staff supervision ensuring that you address the following learning outcomes. You will need to have been signed off on all three sections.

 LEARNING ACTIVITY			
Activity 2a. Observe staff assessing and cannulating at least 3 times on 3 different patients and discuss the following with your mentor:			
	1	2	3
How to inject local anaesthetics			
How to immobilise the fistula			
The difference between bevel up and down			
The difference between wet and dry needling			
How to hold the needle when cannulating			
How to correctly tape the cannula after insertion			
Activity 2b. Cannulate an AVF/AVG with your mentor and sign you off for 3 patients:			
Date	Instructor/Mentor	Learning needs	
1.			
2.			
3.			

- Prior to this activity where available practice CVDC access and dressing in simulation. For completion of this activity you are required to attempt CVDC access and dressing with expert staff supervision ensuring that you address the following learning outcomes. You will need to have been signed off on all three sections.

	LEARNING ACTIVITY		
<p>Activity 3a. Observe staff accessing and attending CVDC dressing at least 3 times on 3 different patients and discuss the following with your mentor:</p>			
	1	2	3
Identification and management of exit site infection			
Correct aseptic technique for CVDC dressing and access			
Acceptable blood flow rates and pressures			
Basic trouble shooting			
<p>Activity 3b. Access and attend CVDC dressing with your mentor and sign you off for 3 patients:</p> <ul style="list-style-type: none"> • <i>Please attend the CVAD competency with a certified mentor/CNC/CNE/NE/CNS</i> 			
Date	Instructor/Mentor	Learning needs	
1.			
2.			
3.			

- For completion of this activity you are required to become familiar with the documentation required for the dialysis vascular access. These charts include: dialysis treatment chart, vascular access chart, progress notes and renal database. You will need to have been signed off on all three sections.



LEARNING ACTIVITY

Activity 4a. Observe staff completing documentation required for the complete dialysis treatment that involves the vascular access. Discuss the following with your mentor:

	Mentor Signature for completion
What elements of the vascular access is documented pre/during/post treatment and why?	
Locate the section for mapping the AVF/AVG and discuss	
What type of information should be recorded in the nursing notes and database regarding vascular access	
Locate the forms required for access surveillance. How would you have this attended?	

Activity 4b. Attend documentation and have your mentor sign you off that all elements are completed appropriately:

Date	Instructor/Mentor	Learning needs
1.		

- For completion of this activity you are required to use the theoretical knowledge acquired from the Vascular Access for Dialysis SDLP combined with the practical knowledge from completion of the previous activities to answer the following questions.



LEARNING ACTIVITY

Activity 5a. Please use these questions as discussion points with your mentor/CNE/CNC.

1. List 3 nursing care strategies to assist patients in vein preservation.

2. Describe the nursing intervention required when you have inserted a cannula but no flashback is visible

3. List 5 clinical indicators of stenosis

4. What is the suggested angle to use when cannulating an AVF/AVG and why do they differ?

5. Why is ultrasound part the assessment prior to cannulation? What information can you obtain from using ultrasound?



LEARNING ACTIVITY

Activity 5b. Please use this case study as a discussion point with your mentor/CNE/CNC/NE. Can you find patients that are reflective of the situation?

Case Study:

Mrs J: 81 years old, HD x 3 wkly, NIDDM, R AVF created 2010 and first used 2014. She is presently being assessed pre her HD Rx:

1. What requirements/assessments are needed prior to her cannulation?

2. Describe the cannulation technique used with an AVF?

3. Post cannulation Mrs J reports pain and there is swelling of the access what are you immediate interventions?


4. Discuss possible nursing care regarding continuation of treatment for Mrs J?

5. Discuss patient education Mrs J will require post her treatment and the infiltration?

Module 2: Level 2 (Novice - Proficient)

Suggested timeframe: First 4 months of haemodialysis experience

- For completion of this activity you are required to observe your mentors clinical skill in troubleshooting, assessment and management of dysfunction and complication related to the vascular access. You will need to have been signed off on all sections.



LEARNING ACTIVITY

Activity 1a. Observe staff troubleshooting, assessing and managing access dysfunction and complications. Discuss the following with your mentor:

	Mentor Signature for completion
Identification of an access that has failed to mature and discuss the interventions required	
Discuss and give a rational as to the choice of needle site placement	
Identify areas of a mature access that could be established for new cannulation sites. Discuss why this is a significant nursing skill	
What are the early warning signs of access dysfunction and the nursing interventions required to prevent failure?	
Demonstrate location and discuss assessment of CVDC cuff placement. Why/When is this attended?	
What actions would be taken for an exposed CVDC cuff?	
What information must be provide to patients with a CVDC and how is this documented?	
Identify and discuss strategies that are employed within the unit you work to prevent infection.	

Activity 1b. If the opportunity arises to experience troubleshooting, assessing or managing access dysfunction or complication have your mentor sign you off that all elements are completed appropriately: *Note - This is not compulsory for completion*

Date	Mentor	Reflection

- For completion of this activity you are required to observe your mentor’s clinical skill in use of the hand held U/S to assess the vascular access and then practice the technique yourself. You will need to have been signed off on all sections.



LEARNING ACTIVITY

Activity 2a. After using the U/S on an AVF/AVG use these questions as discussion points to explore what is visualised with your mentor.

	Mentor Signature for completion
Discuss the components of the U/S machine and demonstrates correct technique for use	
Identification of a centralised view of AVF/AVG on the ultrasound screen	
Identification of vessel depth and length and discuss the rational for location prior to needle placement	
Identify elements of the vessel visualised with U/S which may be of interest	
Discuss and give a rational as to the choice of needle site placement	

Activity 2b. Complete the questions below and discuss your answers with your mentor

6. Explain how you would establish blood flow direction on an AVF/AVG in relation to needle placement. Why is this important and if you were unsure what techniques might you use?

7. Outline the assessment process prior to CVDC access or cannulation. What are the common clinical indicators for dysfunctional access?

- For completion of this activity you are required to use the theoretical knowledge acquired from the Vascular Access for Dialysis SDLP combined with the practical knowledge from completion of the previous activities to answer the following questions.



LEARNING ACTIVITY

Activity 3a. Please use this case study as a discussion point with your mentor/CNE/CNC/NE. Can you find patients that are reflective of the situation?

Case Study:

Mr Blogg: 67years old, HD x 3 wkly, IDDM, 2 x failed AVF's over his 7 years on HD Rx. Has had a CVDC insitu for 2mths & it has been 2wks since his AVG was created. He is presently being assessed for his HD Rx:

6. What requirements/assessments are needed prior to first cannulation?

7. Describe the cannulation technique used with an AVG?

8. Discuss possible AVG complications and nursing management

9. Discuss patient education Mr Blogg will need for his new AVG?

10. Discuss the process of successful cannulations prior to the catheter being removed?

11. Discuss the process for catheter removal?

- For completion of this activity you are required to firstly observe the use the hand held ultrasound and then use and assess an AVF/AVG yourself. Note the landmarks that are visible and the difference in what you visualise for an AVF and then an AVG. You will then need to review and discuss the images below.



LEARNING ACTIVITY

Activity 7a. Observe staff using the hand held ultrasound and discuss the following with your mentor:

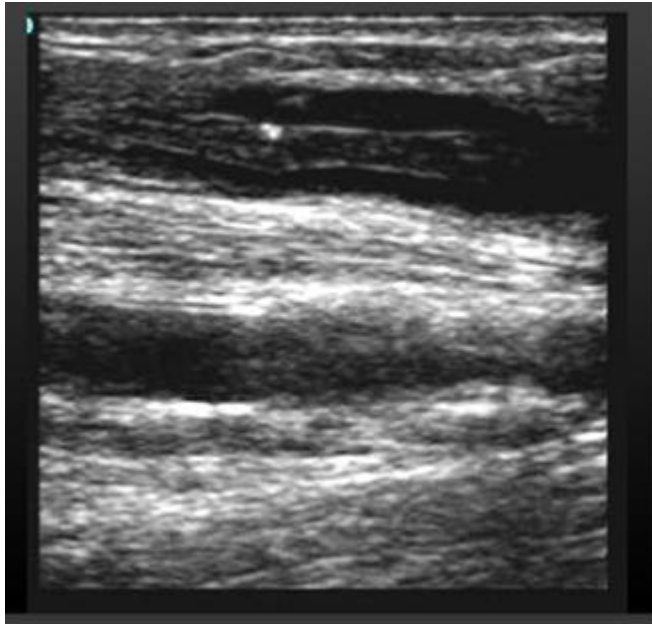
	Mentor Signature for completion
Why and when should a hand held U/S be used for assessment of an access?	
Locate the common findings of the vessel using the U/S e.g. vessel wall, anastomosis, bifurcations, fibrin.	
Discuss what identification of these findings mean when cannulating a vessel	
How will the information you gain be of assistance to other nurses and the patient? How is it best to convey this information?	

Activity 7b. Assess an AVF/AVG on three different patients with U/S and locate the images you see below. Discuss the following with your mentor and record your findings:

Date	Image 1. AVF	Identification of elements of U/S



LEARNING ACTIVITY

Date	Image 2. AVF	Identification of elements of U/S
		

Date	Image 3. AVF	Identification of elements of U/S
		



3. Please identify the purpose of a recirculation study. How can a recirculation study be performed?

4. Identify and discuss access recirculation and how this would be performed during a dialysis Rx. In your response outline what actions would be taken for a recirculation 10 – 20% and above 20% and why.

5. Discuss the circumstances for the initiation of Single Needle and Click Clack dialysis. In your response outline the positive and negative patient outcomes related to both.

6. Discuss the nursing interventions required for a patient entering the unit without a luer lock device on the end of their CVDC. Include reference to the renal G&P.

- For completion of this activity you are required to use the theoretical knowledge acquired from the Vascular Access for Dialysis SDLP combined with the practical knowledge from completion of the previous activities to answer the following questions.



LEARNING ACTIVITY

Activity 2a. Please use this case study as a discussion point with your mentor/CNE/CNC/NE. Can you find patients that are reflective of the situation?

Case Study:

Mr G: Long term HD patient. There have been recent cannulation difficulties with his AVF which is over 10 years old.

1. What complications could be occurring with Mr G's fistula and why?

2. Discuss the process for the review of an access that has had increased complications. How would you inform the patient and what fears may he have related to this?

3. Mr G's access clots prior to the necessary interventions he required. Discuss the process and nursing interventions required.

- For completion of this activity you are required to use the hand held ultrasound to assess complex AVF/AVG's. Note the landmarks that are visible and the difference in what you visualise for an AVF and then an AVG. You will then need to review and discuss the images below.



LEARNING ACTIVITY

Activity 3a. Using the hand held ultrasound discuss the more complex findings with your mentor:

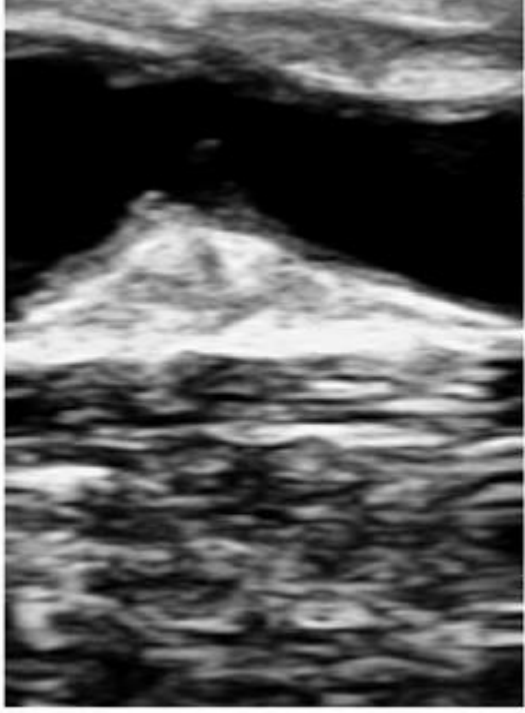
	Mentor Signature for completion
What is the impact on cannulation with the location of a clot in a vessel on U/S assessment?	
What findings under U/S would prompt you to refer the vessel for formal assessment?	
Locate nerve bundles and the impact they have on cannulation sites and patient comfort.	
Demonstrate and discuss the taking of images of the vessel and how they can improve patient access viability.	

Activity 3b. Using the U/S attempt to locate the images you see below. Discuss the following with your mentor and record your findings:

Date	Image 1. AVF	Identification of elements of U/S



LEARNING ACTIVITY

Date	Image 2. AVF	Identification of elements of U/S
		

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Skills Development 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 the package_____

What was your purpose in completing the skills development package?

Did you achieve this by completing the skill development package?

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

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

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

How do you plan to address these needs?

Signature: _____ Date: _____

Skills Development Package Evaluation Form

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

- | | | |
|--|-----|----|
| 1. The learning outcomes of the 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