Effectiveness of the new Vascular Access Assessment Record Tool in monitoring the Vascular Access site to prevent Extravasation/ Infiltration for Subject Safety

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Introduction

In the past, vascular sites are monitored periodically with observations charted on clinical notes by SingHealth IMU Clinical Research Nurses (CRNs). It is sub-optimal since extravasation and infiltration cannot be identified promptly, the documentation may be subjective as it is dependent on individual style of recording. The Vascular Access Assessment Record was designed therefore with a primary aim to prevent cases of extravasation and infiltration through early detection and thus delivering quality care to the subjects.

Methodology

Prior to implementation of the Vascular Access Assessment Record, CRNs were trained on how to use the tool, for example to monitor the site every 15 minutes for the first hour of infusion following by hourly monitoring till completion of IV infusion.

WHEN

September 2021

6-month period

February 2022

WHERE

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HOW

Throughout the pilot implementation of the tool, frequent discussion were conducted whenever staff encountered challenges when using the Vascular Access Assessment Record Tool

Achieved 99.83% in preventing infiltration and extravasation

0.17 % incident of infiltration during infusion

WHO

- Clinical Research Nurses (CRN)
- Trial participants , aged 21 years old and above, who require insertion of peripheral or central line for venous access for blood taking and/or infusion

WHY

Accurate, comprehensive assessment and documentation which led to early identification thus preventing infiltration and extravasation.

WHAT

To document and monitor the peripheral/central access line in order to prevent cases of extravasation and infiltration

Key Highlights of the tool (Assessing the IV Access)

- Procedure Performed: Venepuncture/ Cannulation/ Central Venous Access
- Site of procedure: Left/ Right
- Location of procedure: Indicated on the diagram in sequence (E.g. X1, X2 etc)
- Indication: Blood collection/ Infusion
- Assessment of site: Pain/ Discomfort/ Swelling/ Redness/ Bleeding/ Bruising
- Type of flushing solution: Heparinised Saline (50iu/5mLs)/ NaCl 0.9%/ Others
- Dose: Amount flushed

Restricted, Sensitive (Normal)

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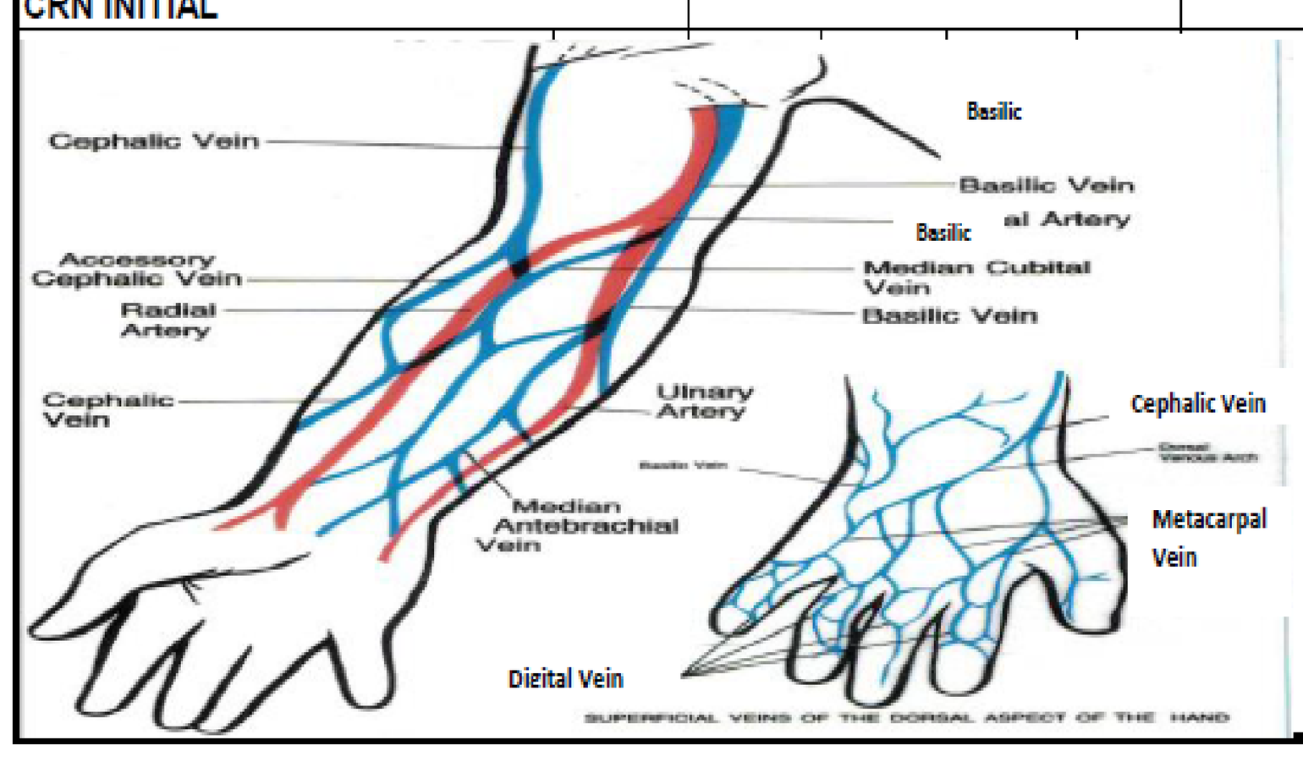
VASCULAR ACCESS ASSESSMENT RECORD

PROTOCOL NO: ____________________ SUBJECT NO/ INITIAL: ____________________

IV ACCESS				
DATE/ TIME				
PROCEDURE	□ Venepuncture □ Cannulation □ Central Venous Access __________	□ Venepuncture □ Cannulation □ Central Venous Access __________	□ Venepuncture □ Cannulation □ Central Venous Access __________	□ Venepuncture □ Cannulation □ Central Venous Access __________
SITE	□ Left □ Right	□ Left □ Right	□ Left □ Right	□ Left □ Right
LOCATION				
GAUGE				
INDICATION				
FLUSHING	□ Heparinised Saline (50iu/ 5mLs) □ NaCl 0.9% □ Others:______ Dose:______	□ Heparinised Saline (50iu/ 5mLs) □ NaCl 0.9% □ Others:______ Dose:______	□ Heparinised Saline (50iu/ 5mLs) □ NaCl 0.9% □ Others:______ Dose:______	□ Heparinised Saline (50iu/ 5mLs) □ NaCl 0.9% □ Others:______ Dose:______
*ASSESSMENT OF SITE	□Yes □No Pain/ Discomfort/ Swelling/ Redness/Bleeding/ Bruising	□Yes □No Pain/ Discomfort/ Swelling/ Redness/Bleeding/ Bruising	□Yes □No Pain/ Discomfort/ Swelling/ Redness/Bleeding/ Bruising	□Yes □No Pain/ Discomfort/ Swelling/ Redness/Bleeding/ Bruising
REMARKS				
CRN INITIAL				



Note:
a)* Tick and/ or delete accordingly.
b) Indicate the location of cannulation/ venepuncture on the diagram in sequence (E.g. X1, X2 etc) and document accordingly.(Not applicable for CVA).
c) Indicate NA if Not Applicable
d) Assess cannula/ central venous site every 15 minutes for the first hour of infusion following by hourly monitoring till completion of IV infusion. Refer to Monitoring/ Removal of IV Access section.
e) If positive Pain, Discomfort, Swelling, Redness, Bruising requires another CRN for 2nd verification and once confirmed to inform CRC to notify PI/ Co-I/ RP accordingly
f) Document in clinical notes if further explanation is required
g) If any cytotoxic drug spillage/ extravasation, to refer to the workflow accordingly

Key Highlights of the tool (MONITORING/ REMOVAL OF IV ACCESS)

- Indicate the purpose for IV Access: Blood collection/ Infusion
- Patency and anchoring of site needs to be checked for infusion
- Pain/ Discomfort/ Swelling/ Redness (PDSR) is checked every 15 minutes for the first hour of infusion following by hourly monitoring till completion of IV infusion
- IV access exit site should be assessed for any indication/ presence of PDSR and should be referred to doctor for further assessment and management if required
- For Central Venous Access, ensure flushing is done prior to de-accessing and removal of IV access

NOTE: Each column in the front page (IV ACCESS) corresponds to each row at the next page (MONITORING/ REMOVAL OF IV ACCESS)

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VASCULAR ACCESS ASSESSMENT RECORD

MONITORING / REMOVAL OF IV ACCESS														
□ BLOOD SAMPLE												□ INFUSION		
i) Good Backflow before Start of Infusion? Yes □									ii) Peripheral/ Central Venous site well anchored? Yes □					
DATE:	0min	15min	30min	45min	1hr	2hr	3hr	4hr	5hr	6hr	7hr	8hr	Others:	Remarks
*Pain /Discomfort/Swelling/Redness	Y / N	Y / N	Y / N	Y / N	Y / N	Y / N	Y / N	Y / N	Y / N	Y / N	Y / N	Y / N	Y / N	
CRN INITIAL														
Time of removal :______hr. Exit Site Assessment:Pain/ Discomfort/ Swelling/ Redness Y / N														
Flushing done prior to Hep Lock? Hep Lock Done?	□ Y es Please Specify:______ □ N o													
□ BLOOD SAMPLE												□ INFUSION		
i) Good Backflow before Start of Infusion? Yes □									ii) Peripheral/ Central Venous site well anchored? Yes □					
DATE:	0min	15min	30min	45min	1hr	2hr	3hr	4hr	5hr	6hr	7hr	8hr	Others:	Remarks
*Pain /Discomfort/Swelling/Redness	Y / N	Y / N	Y / N	Y / N	Y / N	Y / N	Y / N	Y / N	Y / N	Y / N	Y / N	Y / N	Y / N	
CRN INITIAL														
Time of removal :______hr. Exit Site Assessment:Pain/ Discomfort/ Swelling/ Redness Y / N														
Flushing done prior to Hep Lock? Hep Lock Done?	□ Y es Please Specify:______ □ N o													
□ BLOOD SAMPLE												□ INFUSION		
i) Good Backflow before Start of Infusion? Yes □									ii) Peripheral/ Central Venous site well anchored? Yes □					
DATE:	0min	15min	30min	45min	1hr	2hr	3hr	4hr	5hr	6hr	7hr	8hr	Others:	Remarks
*Pain /Discomfort/Swelling/Redness	Y / N	Y / N	Y / N	Y / N	Y / N	Y / N	Y / N	Y / N	Y / N	Y / N	Y / N	Y / N	Y / N	
CRN INITIAL														
Time of removal :______hr. Exit Site Assessment:Pain/ Discomfort/ Swelling/ Redness Y / N														
Flushing done prior to Hep Lock? Hep Lock Done?	□ Y es Please Specify:______ □ N o													
□ BLOOD SAMPLE												□ INFUSION		
i) Good Backflow before Start of Infusion? Yes □									ii) Peripheral/ Central Venous site well anchored? Yes □					
DATE:	0min	15min	30min	45min	1hr	2hr	3hr	4hr	5hr	6hr	7hr	8hr	Others:	Remarks
*Pain /Discomfort/Swelling/Redness	Y / N	Y / N	Y / N	Y / N	Y / N	Y / N	Y / N	Y / N	Y / N	Y / N	Y / N	Y / N	Y / N	
CRN INITIAL														
Time of removal :______hr. Exit Site Assessment:Pain/ Discomfort/ Swelling/ Redness Y / N														
Flushing done prior to Hep Lock? Hep Lock Done?	□ Y es Please Specify:______ □ N o													

Conclusion:

1. Enhanced subject safety by early detection and prevention of infiltration and extravasation

2. Prompt management of symptoms to prevent exacerbation