

INTRODUCTION

This revised UK VHP framework is based on published evidence and guidelines (Moureau et al, 2012, Hallam et al, 2016). Evaluation studies of the original VHP Framework to date have included the uptake of the VHP Framework (Burnett et al, 2018) and a small-scale pilot study exploring the impact of using the framework on the insertion and management of VADs (Weston et al, 2017).

The framework has been developed to facilitate a complex adaptive systems approach to VAD insertion and management and is intended for adult vascular access in acute or planned settings. Whilst the principles of VHP should be incorporated into any emergency situation, it is recognised that other issues may take priority dependent on the condition of the patient and availability vascular access expertise therefore other immediate routes of access may be more appropriate e.g. intraosseous access.

The evidence for each of the sections with references and signposting to further information can be accessed via the Quick Response (QR) code.

Vessel Health and Preservation: The Right Approach for Vascular Access edited by Nancy Moureau, is available on open access <https://www.springer.com/f-book/9783030031480>

GLOSSARY OF TERMS

- CVAD – Central vascular access device
- CVC – Central venous catheter
- Midline – Long venous catheter inserted into arm veins which does not extend centrally
- IV – Intravenous route of access
- PICC – Peripherally inserted central venous catheter
- PIVC – Peripheral intravenous catheter
- Tunnelled CVC – central venous catheter which is tunnelled away from exit site and has anchoring cuff
- VAD – Vascular access device
- VIP – Visual Infusion Phlebitis Score
- VHP – Vessel health and preservation

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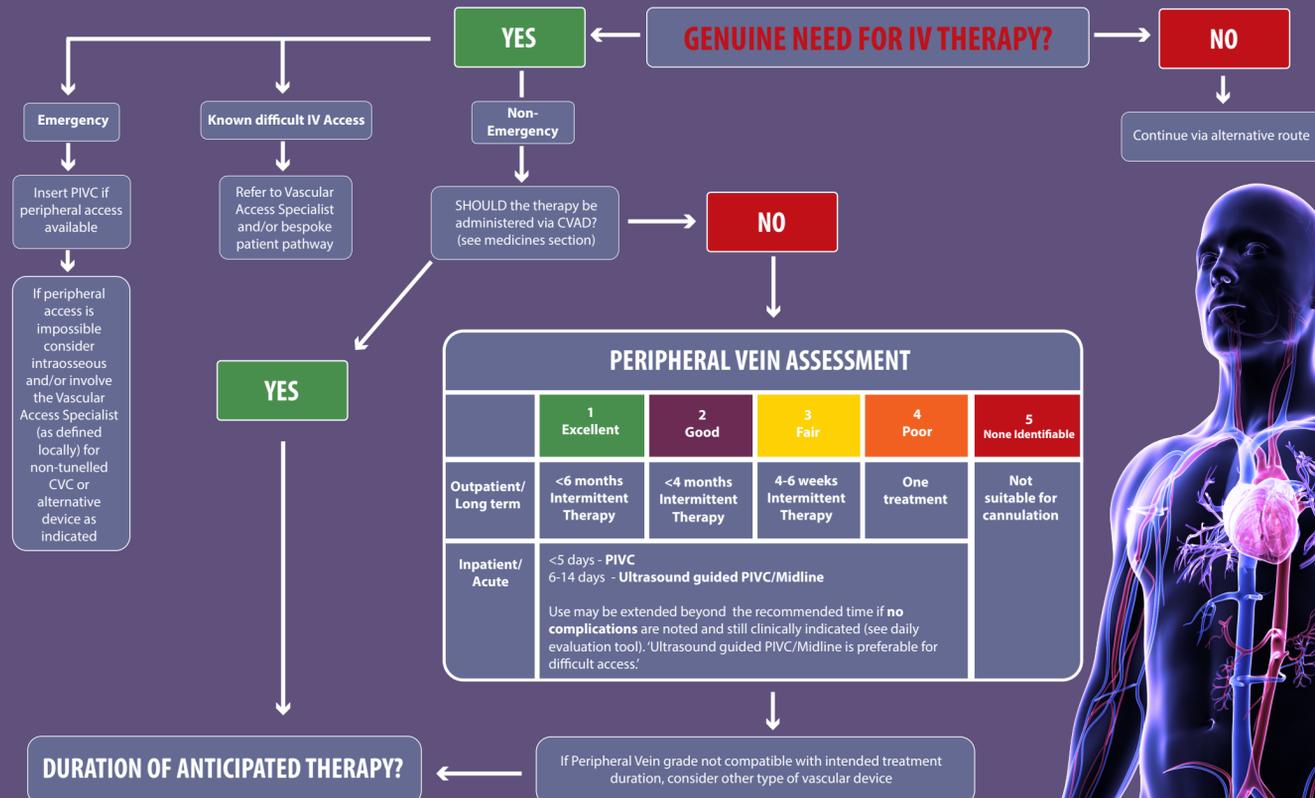
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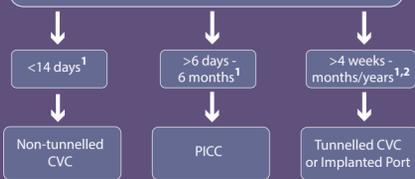
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RIGHT LINE DECISION TOOL



	1 Excellent	2 Good	3 Fair	4 Poor	5 None identifiable
Outpatient/ Long term	<6 months Intermittent Therapy	<4 months Intermittent Therapy	4-6 weeks Intermittent Therapy	One treatment	Not suitable for cannulation
Inpatient/ Acute	<5 days - PIVC 6-14 days - Ultrasound guided PIVC/Midline Use may be extended beyond the recommended time if no complications are noted and still clinically indicated (see daily evaluation tool). ¹ Ultrasound guided PIVC/Midline is preferable for difficult access. ²				

DURATION OF ANTICIPATED THERAPY?



SECONDARY QUESTIONS

Secondary questions which may refine line choice in individual patients:

- Patient preference: lifestyle issues and/or body image.
- Known abnormalities of vascular anatomy which limit access site.
- Therapy specifics: e.g. intermittent vs continuous therapy, extreme duration of therapy (months-years) specific indications (e.g. bone marrow transplant).
- Local availability of vascular competency.
- Need for long term dialysis with: AV fistula, avoid vein damage from PICC or Axillary/Subclavian catheters.
- Relevant past medical history: coagulopathy, severe respiratory dysfunction and other contra-indications to central access.
- Patient factors: e.g. cognitive function.

The risk benefits of individual device choice are starting to be challenged in large clinical trials³ with other studies in progress

³Taxbro et al (2019)

PERIPHERAL VEIN ASSESSMENT

Suitable Vein Definition; Visible and compressible, 3mm or larger⁴

Grade	Number of suitable veins	Insertion Management
1	4-5 Veins	Insertion by trained competent healthcare practitioner (HCP)
2	2-3 Veins	Insertion by trained competent HCP
3	1-2 Veins	Insertion by trained competent HCP
4	No palpable visible veins	Ultrasound guided cannulation, by trained competent HCP, once only cannulation
5	No suitable veins with ultrasound	Refer for alternative vascular access device

Known difficult IV access patient must be referred to an IV specialist and will require an individualised pathway

⁴van Loon et al (2019)

⁵The number of attempts for cannulation before escalation should be reflected in local policy

⁶Referral process to be determined locally

SUITABILITY OF MEDICINES

The most important principle to use when assessing suitability for an infusion to be administered via a peripheral intravenous catheter (PIVC) is that ALL intravenous medicines potentially pose a threat to vessel health.

In broad terms the safety of a medicine infusion to prevent damage to the vessel will relate to factors such as:

- pH
- Osmolarity
- Viscosity
- Volume of dilution
- Speed of infusion
- Size and fragility of the peripheral vein

A central vascular access device (CVAD) should be the preferred device to administer infusions of vesicant chemotherapy and parenteral nutrition.

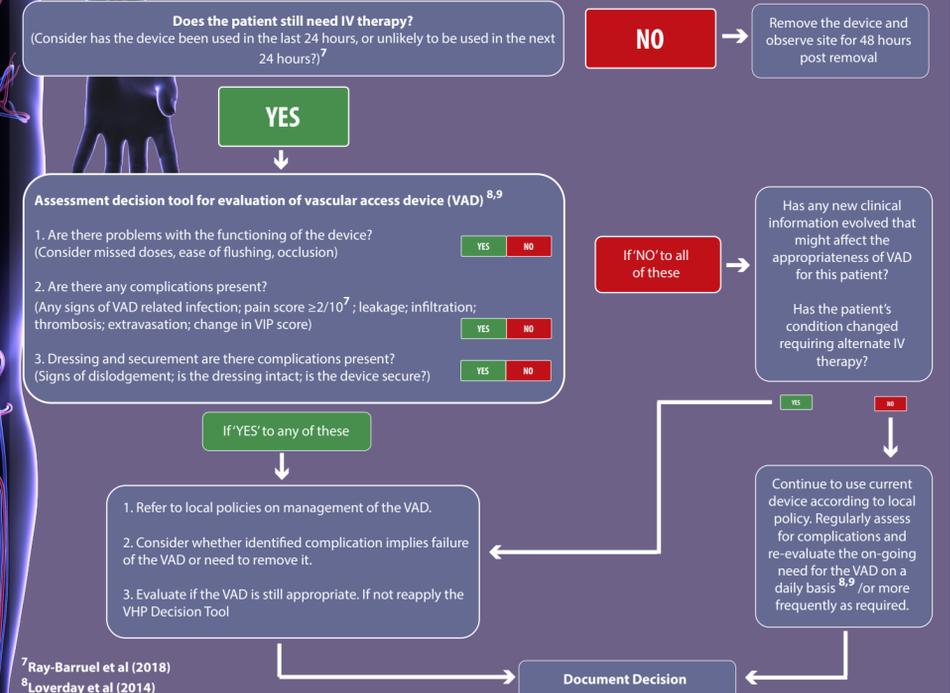
For some infusions, use of a CVAD is the preferred or essential route, for example, vasoconstrictor medicines (e.g. adrenaline and noradrenaline).

Many medicines administered by IV injection have a high osmolarity. Diluting the injection with sodium chloride 0.9% or glucose 5% before administration will reduce the osmolarity).

Note: The use of a CVAD is specified for some medicines in the Summary of Medicine Product Characteristics (SmPC). Where this is the case the recommendation should be followed.

See the Medusa website for more information <http://medusa.wales.nhs.uk/Home.asp>

DAILY EVALUATION



⁷Ray-Barruel et al (2018)

⁸Loveday et al (2014)

⁹RCN (2016)

