## **UK VESSEL HEALTH AND PRESERVATION 2020**

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

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

www.springer.com/f-book/9783030031480



For further information

# **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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## FIRST CONSIDERATION

NO **GENUINE NEED FOR IV THERAPY?** CONTINUE TREATMENT VIA AITERNATIVE ROUTE\* \*Alternative routes of therapy include: topical, sublingual, rectal, sucutaneous, SEE RIGHT LINE DECISION TOOL

# PERIPHERAL VEIN ASSESSMENT

transcultaneous, inhaled, nassal and others.

SUITABLE VEIN DEFINITION: VISIBLE AND COMPRESSIBLE, 3MM OR LARGER<sup>4</sup>

GRADE	NUMBER OF SUITABLE VEINS	INSERTION MANAGEMENT <sup>5</sup>
1	4-5 Veins	Insertion by trained competent healthcare practicioner (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 6

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

<sup>4</sup>van Loon et al (2019)

<sup>5</sup>The number of attempts for cannulation before escalation should be reflected in local policy

<sup>6</sup>Referal process to be determined locally

### **SUITABILITY OF MEDICINES**

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 prévent damage to the vessel will relate to factors such as:

- pHOsmolarity
- 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.

The most important principle to use 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 follow

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











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#### **RIGHT LINE DECISION TOOL DURATION OF ANTICIPATED THERAPY? GENUINE NEED FOR IV THERAPY?** >4 weeks ->6 days - $<14 \, \mathrm{days}^1$ Refer to Vascular Access Specialist months.years 1,4 and/or bespoke patient pathway YES or Implanted Port Known difficult IV Access Continue via alternative va alternative route Consider: Oral, sub lingual, Inhaled, subcutaneous, nasal, transferma topical etc <sup>1</sup>Chopra et al (2015) <sup>2</sup>Loveday et al (2014) Insert PIVC i peripheral access availab administered via CVAD? (see medicines section) **SECONDARY QUESTIONS** intraosseous and/oi involve the Vasculai Access Specialist (a: defined locally) for non-tunelled CVC or alternative device as indicated 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. PERIPHERAL VEIN ASSESSMENT • Therapy specifics: e.g. intermittent vs continuous therapy, extreme duration of therapy (months-years) specific indications (e.g. bone **Excellent** Good None identifiable marrow transplant). • Local availability of vascular competency. Outpatient 4-6 weeks 0ne Not suitable <4 months <6 months • Need for long term dialysis with: AV fistula, avoid vein damage from ntermittent Long term treatment for cannulation Therapy Therapy Therapy PICC or Axillary/Subclavian catheters. • Relevant past medical history: coagulopathy, severe respiratory <5 days - PIVC Inpatient, 6-14 days - Ultrasound guided PIVC/Midline dysfunction and other contra-indications to central access. Use may be extended beyond the recommended time if no complications are noted • Patient factors: e.g. cognitive function. and still clinically indicated (see daily evaluation tool). Ultrasound guided PIVC/ Midline if preferable for difficult access. The risk benefits of individual device choice are starting to be challenged in large clinical trials<sup>3</sup> with other studies in progress If Peripheral Vein grade not compatible with intended treatment duration, consider other type of vascular device <sup>3</sup> Taxbro et al (2019)

#### **DAILY EVALUATION** Does the patient still need IV therapy?(Consider has the device been used in the last 24 hours, or unlikely to be used in the next 24 hours?) Remove the device and observe site for 48 hours NO post removal YES Assessment decision tool for evaluation of vascular access device (VAD) 8,9 1. Are there problems with the functioning of the device? YES NO Has any new clinical information evolved that (Consider missed doses, ease of flushing, occlusion) might affect the appropriateness of VAD for this If'NO to 2. Are there any complications present? (Any signs of VAD related infection; pain score $\geq 2/10^7$ ; lea kage; infiltration; thrombosis; extravasation; change in VIP score) all of these Has the patient's condition changed YES NO requiring alternate IV therapy? 3. Dressing and securement are there complications present? (Signs of dislodgement; is the dressing intact; is the device secure?) YES NO YES NO If 'YES' to any of these Continue to use current device according to local 1. Refer to local policies on management of the VAD. policy. Regularly assess for complications and re-evaluate the on-going need for the VAD on a daily basis<sup>8,9</sup>/or more 2. Consider whether identified complication implies failure of the VAD or need to remove it. frequently as required. 3. Evaluate if the VAD is still appropriate. If not reapply the VHP Decision Tool <sup>7</sup> Ray-Barruel et al (2018) <sup>8</sup> Loveday et al (2014) <sup>9</sup> RCN (2016) **Document Decision**