MACOVA 2020

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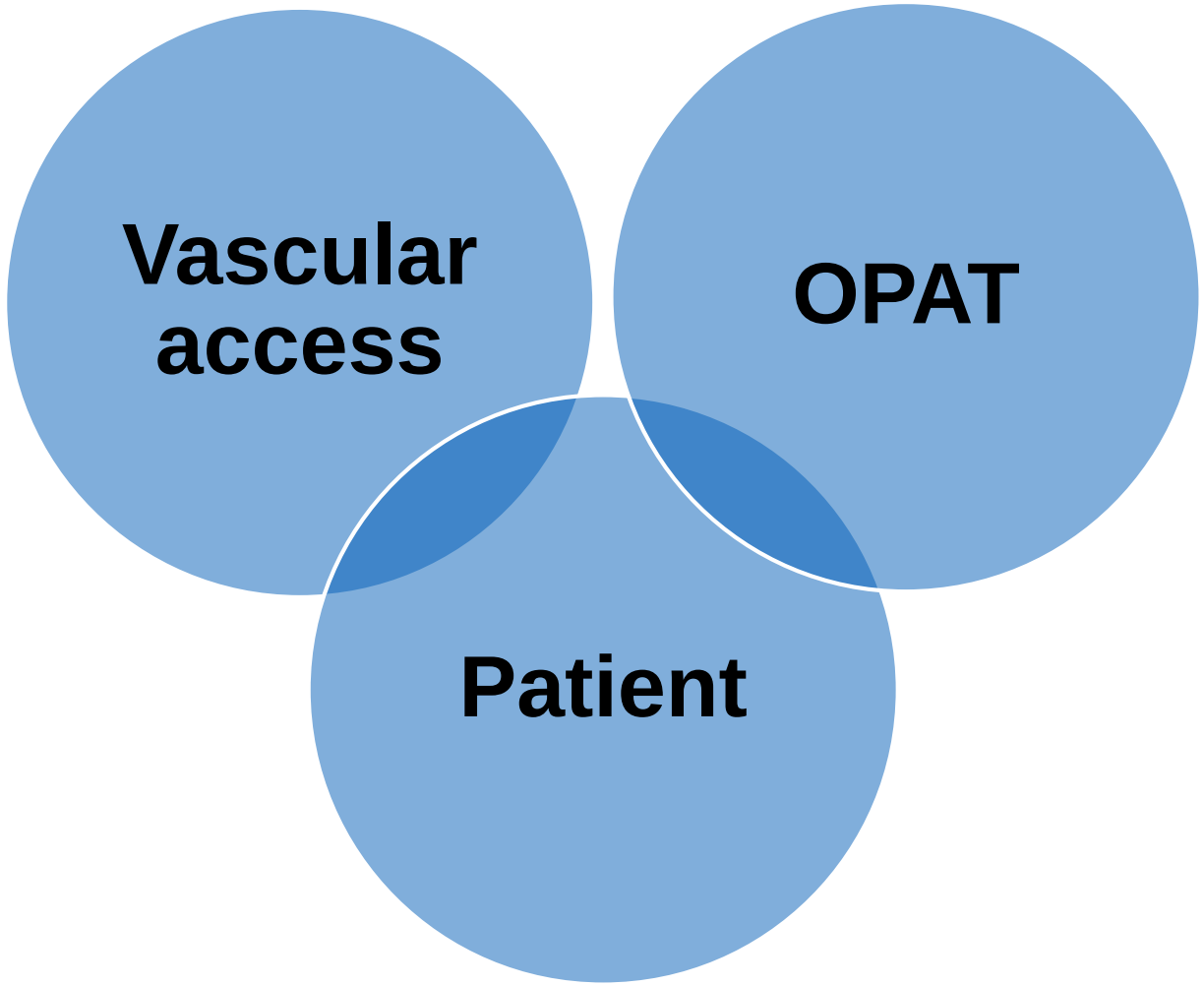
Vascular access services: a vision for the future

Liz Wilson
OPAT Lead Nurse
Wythenshawe Hospital
Manchester University NHS Foundation Trust

Overview



The perfect vascular access service?

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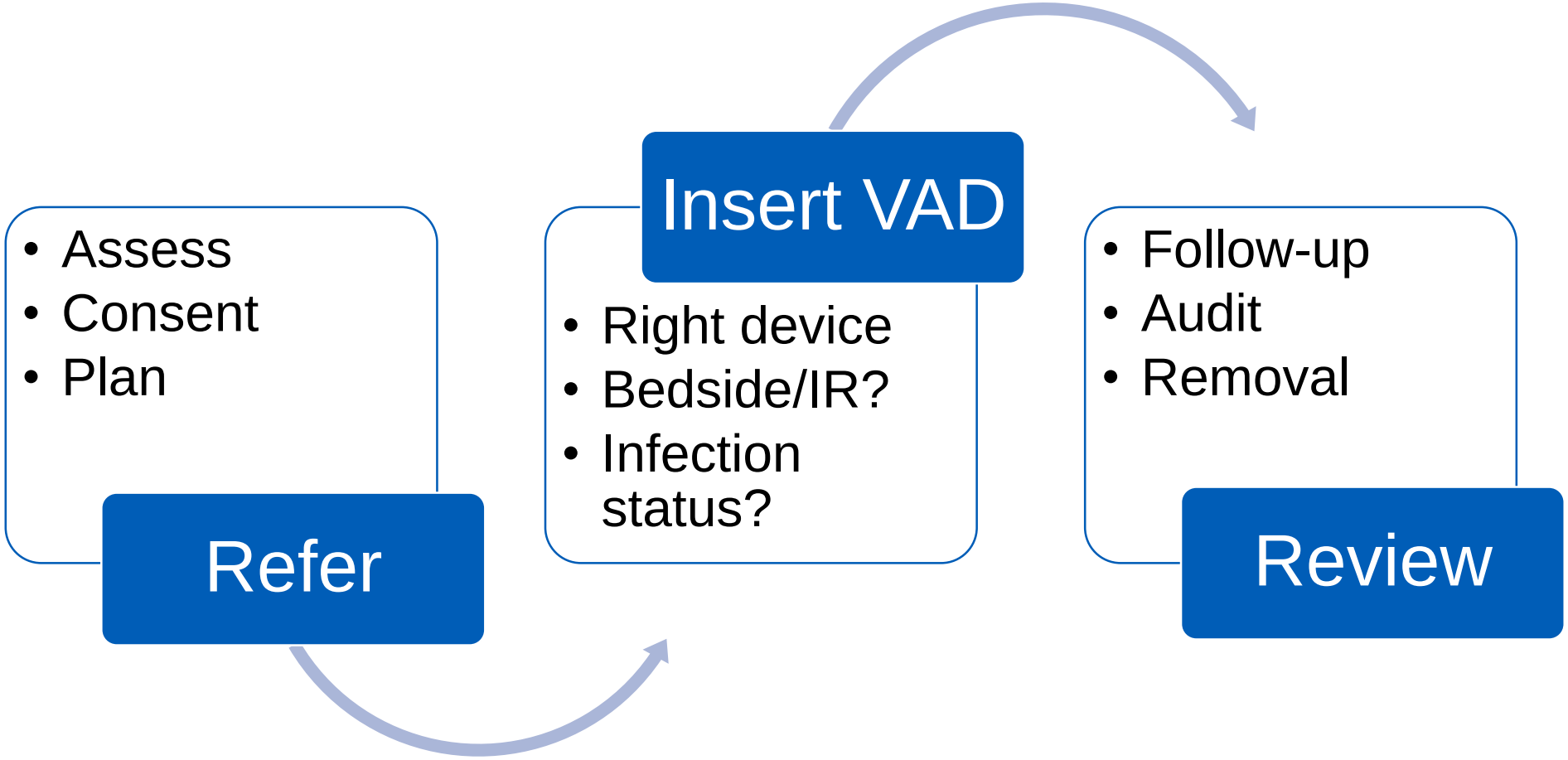

Stage 1: Refer

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- **Referral for specialist review**
- **Patient assessment by expert practitioners**
  - **Risk v Benefit**
- **Determine a plan to proceed**
- **Consent as necessary**

Assess	Guideline
Infection status	MRSA / CPE / CDI / VRE / MSSA etc
Temperature	>36°<37.5° C → continue (outside of above range → D/W team/microbiology
Early warning score	≥3 → D/W team/micro
Platelets	<150 = ↑ risk of bleeding/haematoma <50 = thrombocytopenia, ↑risk
Inflammatory markers (WCC, CRP)	If high consider risk D/W team +/- micro

Patient assessment

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- **Relevant drug history**
  - **consider anti-coagulants i.e. aspirin, LWMH, rivaoxaban, warfarin etc**
- **Relevant medical history**
  - **upper limb DVT or #'s, breast surgery +/- lymphoedema, OA, PPM/AF etc**
- **Known liver disease?**
  - **Check INR as well as platelets**
- **Previous history of line infections/vascular stents**
  - **Consider escalation to Interventional Radiology**

Allergy review:

- **Latex?**
- **Chlorhexidine?**
- **Local anaesthetic?**
- **Silicon?**
- **Adhesive dressings?**
- **Nickle?**

Vessel Health & Preservation

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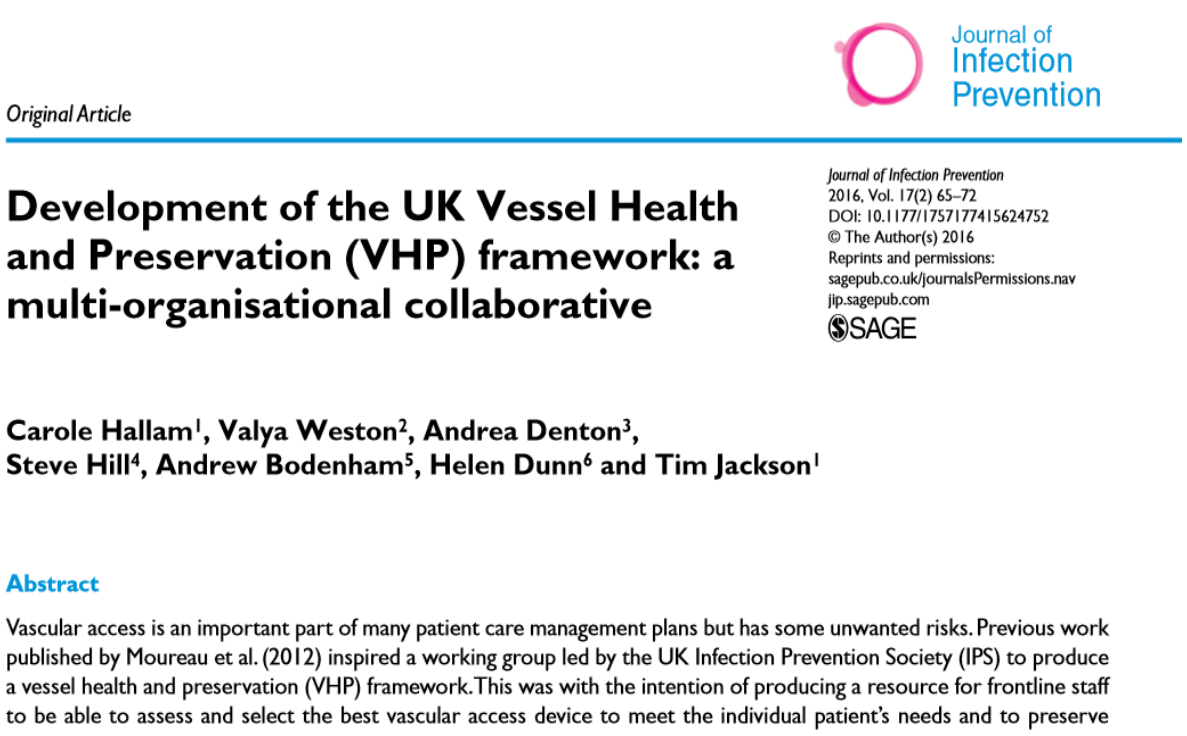
Consider:

1. **Reason for the vascular access request e.g.**
   - **Abx, TPN, Chemo,**
     - **For TPN patient must be apyrexial for at least 48 hours pre line insertion**
2. **Planned duration of treatment**
3. **pH & osmolarity of the prescribed medications**



Journal of Infection Prevention

Original Article

Development of the UK Vessel Health and Preservation (VHP) framework: a multi-organisational collaborative

Journal of Infection Prevention
2016, Vol. 17(2) 65–72
DOI: 10.1177/1757177415624752

SAGE

Carole Hallam[1], Valya Weston[2], Andrea Denton[3], Steve Hill[4], Andrew Bodenham[5], Helen Dunn[6] and Tim Jackson[1]

Abstract

Vascular access is an important part of many patient care management plans but has some unwanted risks. Previous work published by Moureau et al. (2012) inspired a working group led by the UK Infection Prevention Society (IPS) to produce a vessel health and preservation (VHP) framework. This was with the intention of producing a resource for frontline staff to be able to assess and select the best vascular access device to meet the individual patient's needs and to preserve

Device selection (Hallam et al 2016)

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Duration of therapy			
<10 days	>10 days – <4 weeks	>4 weeks - <6months	>4 months - <6 years
↓	↓	↓	↓
Midline / PICC line	Midline / PICC line	PICC / tunnelled CVC / TIVAD	Tunnelled CVC / TIVAD

pH	<5 or >9	PICC / tunnelled CVC / TIVAD
Osmolarity	>600 Osm/l	

Stage 2: Insertion

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- Collaborative / MDT approach
- Bedside / interventional radiology / theatres
- Bedside placements: USS & ECG
- IR placements: USS & fluoroscopy
- Evidence based practice

Bedside placement

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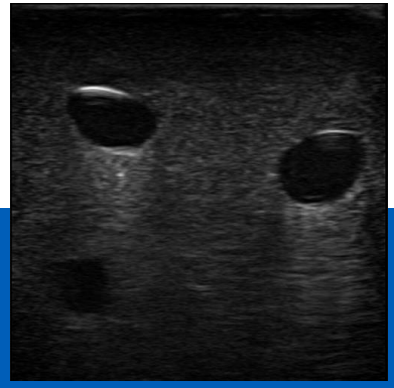
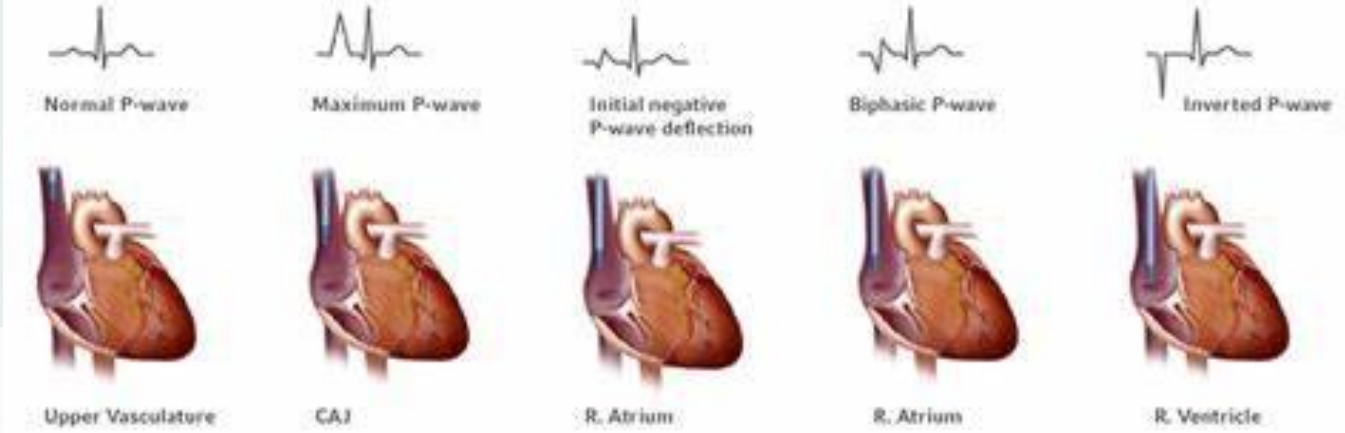
- PICC & Midlines
- USS
- ECG guided insertion
- CXR free
- Evidence based practice





The Sherlock 3CG Tip Confirmat
peripherally inserted central catheters

Medical technologies guidance [MTG24] Published date: March 2015 Last updated: May 2019

Radiology Placement

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- For PICC, tunnelled CVC & TIVAD
- For complicated patients, where visualisation is required
  - Fluoroscopy is used
- Provided by Consultant radiologists & interventional radiographers

Benefits of an MDT approach:

- Standardises care
- Allows a vascular service to be sustainable / robust
- Encourages collaborative working

Stage 3: Review

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- Every patient followed up at 48 hours
- Ward support
  - Care plan
  - Weekly visits
  - Education & training
- Line removal

Audit:

- Compliance with care plan
- Blood Stream Infections

VAD infection definitions

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CRBSI

- Systemic infection plus evidence implicating CVC as source of infection
- Systemic infection often occurs with a normal exit site
- Peripheral BC & line BC have same isolates
- Causes inc: bio-film, contaminated infusates/valve, seeding out from other infection source

CABSI

- Associated with the insertion of the device
- Occurs within 48 hours of procedure, with no other obvious cause for infection
- Causes inc: active infection at time of insertion; difficult insertion/compromised insertion technique

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Outpatient Parenteral Antimicrobial Therapy

at Wythenshawe Hospital

Vascular access services: a vision for the future

Outpatient Parenteral Antimicrobial Therapy (OPAT)

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- **Provide ‘hospital standard’ care to patients in the community**
- **Specialises in infection management**
- **Can enable an early discharge**
- **Or prevent a hospital admission**

JAC Antimicrob Resist
doi:10.1093/jacamr/dlz026

JAC-Antimicrobial Resistance

Updated good practice recommendations for outpatient parenteral antimicrobial therapy (OPAT) in adults and children in the UK

Ann L. N. Chapman[1]*, Sanjay Patel[2], Carolyne Horner[3], Helen Green[2], Achyut Guleri[4], Sara Hedderwick[5], Susan Snape[6], Julie Statham[7], Elizabeth Wilson[8], Mark Gilchrist[9] and R. Andrew Seaton[10]

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3 pathways:

1. **Hospital**
2. **Community**
3. **Self-administration**

Why OPAT?

- Reduce patient/family costs
  - (emotional, financial etc)
- Return to ‘normal life’ (school, work etc)
- Support of OPAT team (24/7)
- Acute, chronic & palliative patients

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- Reduced length of hospital stay
- Reduce incidence of HCAI
- Reassurance of MDT :
  - Infectious Disease Consultant, OPAT CNS, antimicrobial pharmacist

Hospital pathway / Infusion Suite

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- 7 day service for OPAT patients
- Specialist infection management
- Cellulitis service
  - A&E, GP, Ambulatory Care referrals
- Line insertions (PICC, midlines & cannula)

Community pathway

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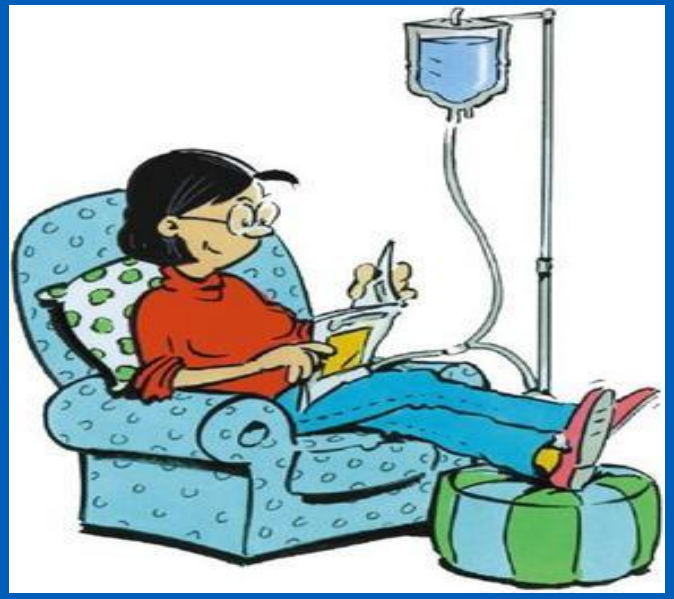
- Community nurse visits patient in their own home
- Provides line care
- Collects safety labs/monitoring
- Administers antimicrobial therapy
- Pt returns weekly to OPAT team for medical & nurse review



Self-administration pathway

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- Teach patient or carer to deliver IV medications
- How to identify an issue with their vascular access device
  - Escalation procedure to follow
- Returns weekly to OPAT for medical/ nurse review & line care
- Teaching package
- Closely monitor for complications

- Empowers patients & carers
- Encourages self-care
- Facilitates return to ‘normal’ life

Elastomeric devices

Benefits of elastomeric devices

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- Available as ‘short’ or ‘long’ infusions
  - 1 hour or 24 hours
- Can reduce community & hospital visits
- Needle-free (EU directive 2012)
- ANTT compliant
- So easy to use & to teach!

- Can promote antimicrobial stewardship
- Various antimicrobial therapies are compatible to use via this format
- Popularity growing worldwide

Evidence of OPAT success

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Data collected & input into National OPAT Database (NORS, BSAC):

- **OPAT OUTCOME**
  - **Success, Partial, Failed, Indeterminate**
- **INFECTION OUTCOME**
  - **Cured, Improved, Failed**

OPAT VAD infections

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January 2015 – December 2019

- **Continuous monitoring of all lines placed**
- **1 catheter related blood stream infection**
- **Rate reported per RCN & INS recommendations (2016)**
- **>20,000 catheter days**

$$\frac{\text{No. of device related infections}}{\text{Total no. of catheter days}} \times 1000 = \text{No. of VAD infections per 1000 catheter days}$$

OPAT Line placements

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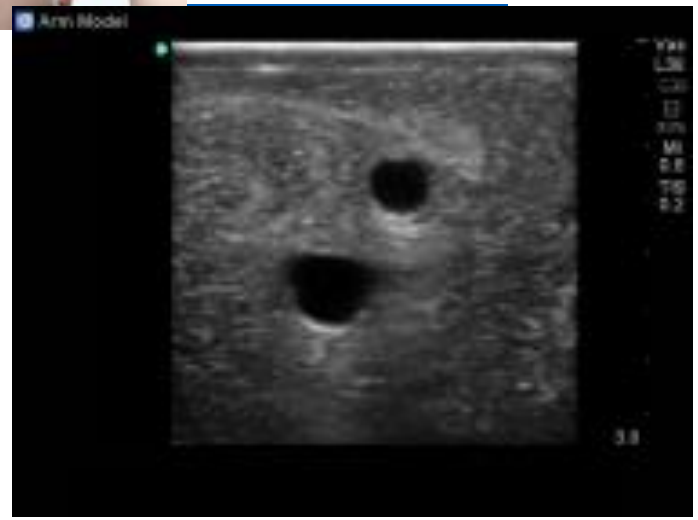
- ECG guided PICC insertions
- Team accuracy rate of 99.4%
- Line infection rate:
  - 0.04 per 1000 catheter days
  - PICC & midlines



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