

Managing Access by Generating Improvements in Cannulation

Katie Fielding,
Co-Chair, BRS VA

katie.fielding@nhs.net

Professional Development Advisor – Haemodialysis, Derby Teaching Hospitals NHS Foundation Trust

MDT Fellow, UK Renal Registry

Chair, Measurement and Understanding Workstream, KQuIP

Vascular Access ...



Pre Dialysis Clinic
Patient chooses AVF



Vascular Surgery
Successful AVF



Haemodialysis
Successful use of AVF

Ideal Vascular
Access Process

Assessment
Surveillance
Cannulation
Intervention



Longevity of AVF

Minimise
complications

Effective HD
Treatment

High Primary Failure Rate of AVFs

Timely VA Creation

Patient Empowerment
- Choice
- Care

Patient Info

Pathways

VARIATION in OUTCOMES

Cannulation

Multi-Specialty Working

Complications
- Longevity
- Infection
- USAGE!!

Nursing Care

Managing Access by Generating Improvement in Cannulation

- BRS VA and VASBI project, supported by KQuIP
- Quality Improvement project to improve AVF rates
 - Promote AVF use and longevity through good cannulation practice
- **Aim:** To promote good cannulation practice and improve the patient's experience of cannulation
- Implement at local unit level
 - Satellite or main

The Problem with Cannulation

- 65.8% of cannulation was area puncture

(Parisotto, 2014)

- Buttonhole v. Rope Ladder
- Initial PREM results indicates needling is a problem

Changing fistula/graft cannulation practice: use of a Dialysis Quality Workstream

Sue Gamble, Becci Thrale and The Dialysis Quality Workstream
The Leaver Hospital, Stevenage 2017

INTRODUCTION
Following recent BRS Vascular Access Programme guidance, a clinical audit and survey of practice was undertaken at our unit which identified likely over-use of area puncture cannulation in the dialysis units, with relative under-use of rope-ladder and button-hole needling techniques. As a result of these findings, it was agreed that a Dialysis Quality Group would be set up to improve education of staff and patients, practice and documentation.

THE DIALYSIS QUALITY GROUP
This consisted of a group of staff passionate about improving patient care, length of life of an AV fistula and improving patient experience. It was coordinated by the Practice Standards Manager, with the emphasis of this workstream being a "bottom-up" approach, by staff working in the haemodialysis unit.
Members include:
CSW Higher Level Assistant Practitioner
Registered Nurse Band 5 and 6
Vascular Access Nurse
Vascular Access Consultant
Clinical Nurse Educator
Practice Standards Manager

METHOD OF IMPLEMENTATION
Monthly meetings with an action plan which included the following actions:
- Cannulation skills to be observed
- Vascular access maps to be introduced
- Photograph of each patient's cannulated fistula/graft
- Individualised needling plan of rope ladder or button hole
- Standardised teaching sessions on using the Cannulation Workshop slides, from EDTNA 2016.
- Patient information leaflet to be given to all the patients with a fistula/graft
* The number of rope ladder, button hole and area puncture cannulation in each unit to be identified at the start and then reviewed in 6 months.


RESULTS

Month	Rope Ladder	Button hole	Area puncture
September 2016	0	52	240
March 2017	140	104	33

CONCLUSION
This novel "Bottom-up" approach is being trialled to change vascular access practice patterns. Initial experience of use of photography to create visual images of needling points is highly positive and we anticipate improvements with needling technique use with our approach. Patient engagement and education was central to this project.

ACKNOWLEDGEMENTS
Many thanks to LKPA for purchasing the camera for use in the Satellite Renal Units.
Clinical Photography at Leaver Hospital

NEXT STEPS
Introduction of assessment tool for button hole cannulation suitability
Introduction of colour code system to match cannulation difficulty with staff capability



Aim

Primary Drivers

How to achieve the aim

Secondary Drivers

What will achieve primary drivers

Process Change

What are we going to do

To promote good cannulation practice and improve the patient experience of cannulation

Standardise cannulation practice

Joint BRS and VASBI Cannulation Recommendations

- Release on websites & twitter
- Update Buttonhole Recommendations
- Short, simple summary of recommendations

Promote leadership of good cannulation practice locally

Local HD nurse champions for cannulation

- Identify HD nurse champions
- Support champions through 3 monthly webinars

Improve knowledge and skills of cannulation in haemodialysis nursing staff

Educational materials on cannulation

- ELearning
- Competency document
- Slidesets with Lesson Plans

Promote awareness of good cannulation practice in haemodialysis patients

Awareness materials aimed at patients

- Posters
- Cards

Promote awareness of frequency of cannulation complications

Run charts and data visible to staff

Electronic spreadsheet

Cannulation Recommendations

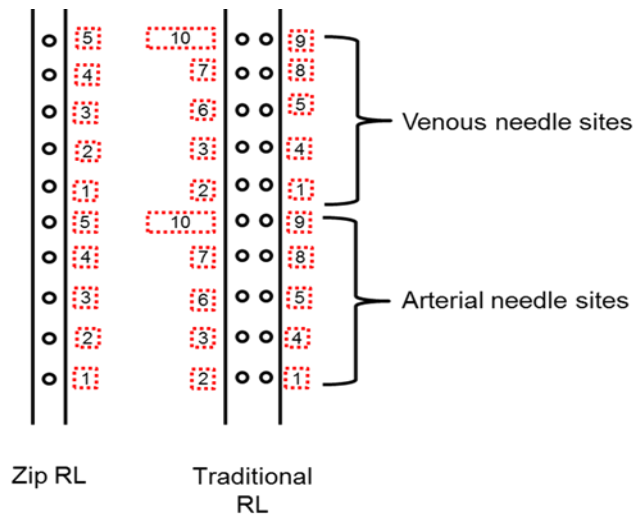


- Currently in draft format
 - Preparing for consultation
 - Combination of evidence and consensus opinion
 - 16 nurses from 14 units across the UK
- 1st part released
 - Definitions of Cannulation Techniques
 - Available on BRS website
- Comprehensive
 - Buttonhole
 - Rope Ladder
 - Area Puncture
- Good cannulation technique
 - Managing cannulation well
- Adult and paediatric cannulation
- Pragmatic and specific
 - Created by cannulators

<http://britishrenal.org/wp-content/uploads/2016/10/Definitions-of-Cannulation-Techniques-used-for-Arteriovenous-Fistulae-and-Grafts-for-Haemodialysis.pdf>

What is Rope Ladder?

- Move up vein in systematic manner
 - Each site 0.5-1cm above previous
- Use as much of vein as possible
 - 2 sites over at least 8cm segment
 - 5cm per cannulation site
- Once reach the top, move to the bottom again
 - Up and down degrades into area puncture
- 2 types
 - Zip / Central
 - Traditional / Side to side



What is Buttonhole?

Cannulate each **site** in:

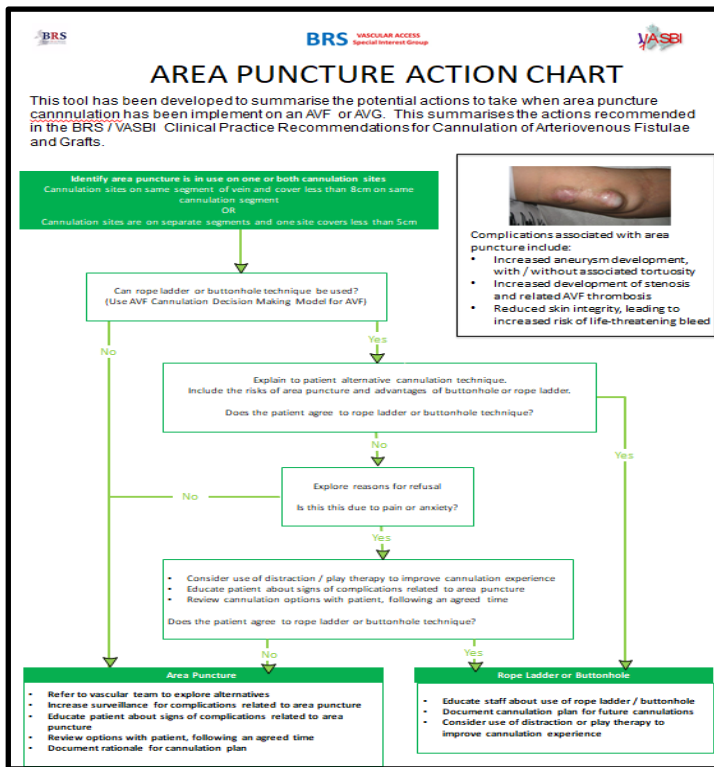
- Same hole in skin
- Same place in vein
- At same angle, depth and direction

- Can include 3-4 cannulation sites on each vein

- Developed by Twardowski (1979)



Draft Content



A Good Cannulation Technique

Clinical Practice Recommendations

- Registered nurses and non-registered staff who cannulate AV fistulae and grafts should constantly aspire to develop a good cannulation technique. This is on-going development of a skill that is never complete. Skill development can progress through regular cannulation practice, observation of experienced, skilled cannulators and guidance from experienced and skilled cannulators.
- A good cannulation technique will:
 - Minimise damage to the AV fistula / graft during cannulation
 - Minimise complications from cannulation
 - Minimise pain and anxiety related to cannulation
- A good cannulation technique should result in either a successful cannulation or failed attempt at cannulation of the AV fistula / graft; with the minimum amount of damage to the AV fistula vein or graft and surrounding tissue, whilst minimising pain and inspiring confidence in the patient.
- Prior to needle insertion, documentation of previous cannulations should be reviewed along with a documented cannulation plan. If available, the patient's report of previous cannulations should be explored and applied.
- Prior to needle insertion, a good assessment of the vessel should provide a clear idea of the depth and direction of the needle insertion which will result in the correct position of the needle. Needle insertion should not continue without this clear idea of depth and direction.
- Once entering the skin, the needle insertion route should take the most direct route to the vein and not follow a tortuous route to the vein.
- The needle insertion movement should be accurate, considered, gentle and continuous, minimising pain and discomfort for the patient.
- Needle insertion is a balance between prompt insertion of the needle and a gentle technique, so whilst insertion should not be rapid, it also should not be unnecessarily prolonged.
- The needle insertion should aim to finish with the tip of the needle in the centre of the AV fistula vein / graft.

Cannulation Champions



- Cannulates regularly
 - Haemodialysis nurse(s)
 - Vascular access nurse(s)
- Local implementation of MAGIC
- 3 monthly webinar / call
 - Webinar v. Conference call
 - MAGIC Network
- Point of contact



Measurement Strategy



- Outcome measures
 - AVF / AVG cannulation technique
 - Missed cannulation
 - Patient experience measures
 - Pain PREM qu
 - Infection
 - AVF rates
 - AVF loss
- Process Measures
 - Feedback on package
- Platform to measure regularly and view results
- Monthly on whole unit v. weekly per shift
- Feedback results to MAGIC after each phase
- Ready Jan 2018

Educational Materials



- ELearning package
- Slidesets and lesson plans
 - Need to do 1 but not both
 - Choice
- Competency package
 - Nationally recommended package

- In development
- Based on cannulation recommendations
- Feedback once implemented

Awareness Materials



- Aimed at patients
 - Increase awareness of good practice
 - Promote engagement
- Posters, cards, information
 - In development
- Feedback once implemented
- What is an AVF
- What is rope ladder and buttonhole
- What are signs of problems

Locally identified HD nurse champion(s)
to liaise with and run MAGIC locally

Phase 1

Baseline
Measurement

Implement
weekly /
monthly
measurement
strategy

Phase 2

Educational package,
including process
measures &
educational
evaluation

All HD nurses to
access ELearning /
Slide sets

Copy of
recommendations
available

Phase 3

Competency
package

All HD nurses
to access
competency
package

Educational
evaluation of
competency

Phase 4

Awareness
materials

Awareness
materials given to
patients and
displayed on HD
unit

Evaluation of
awareness
materials -
Patient survey at
end

Phase 5

Review of
MAGIC and use
of data to
progress local
QI

Signpost to
KQuIP resources

MAGIC
withdraws
support – locally
led

MAGIC Data
Collection Points
and Review with
Champion(s)

Measurement strategy continues – data reviewed locally

Draft Objectives

MAGIC Objectives

1. To maximise the use of rope ladder and buttonhole cannulation and minimise the use of area puncture cannulation
2. To reduce the number of 'missed cannulation' (more than 1 attempt to insert a needle at one cannulation site)
3. To minimise the level of pain related to cannulation
4. To minimise infection in AVF & AVGs
5. To evaluate the impact and content of MAGIC project materials

Local Long Term Objectives

1. To increase the prevalent rate of AVF and AVG use to consistently above the Renal Association Standards of 80%
2. To reduce the rate of AVF and AVG loss of use

KQuIP/UKRR Regional Day

East Midlands

15:00- 16:00 - Breakout Sessions

Consider the following questions, write on flipchart and agree who is feeding back :-

1. What does the data and national project mean for?

- Our unit
- Our region

2. Why the East Midlands region should take on one of the KQuIP projects as a region?