BRS VA SIG: Buttonhole Cannulation – New Recommendations

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Background

- Queries about infection related to buttonhole cannulation, via RA-BRS Patient Safety
- Representatives from key units met in March 2015
  - Examine buttonhole cannulation
  - Identified further problems with VA care
- BRS VA SIG set up in December 2015

RA-BRS Patient Safety

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The Renal Association (RA) has been an innovator and leader in ensuring safety of renal patients, including the publication of national renal clinical standards. The Patient Safety Project was instituted in 2007, in collaboration with the National Patient Safety Agency (NPSA). Patient Safety is a multi-professional responsibility, and joint working with the British Renal Society (BRS) ensures that incidents and risks are identified and solutions are shared. RA-BRS Patient Safety works with the Medicines and Healthcare products Regulatory Agency (MHRA) in reviewing incidents and risks related to equipment. Patient Safety is overseen by NHS England (NHSE) and RA-BRS Patient Safety liaises with the NHSE and Royal College of Physicians Patient Safety committees.

RA-BRS Patient Safety Lead: Dr. Paul Rylance (and the nephrology nominated expert for the Medicines and Health Care products Regulatory Agency)
Email: patientsafety@renal.org

Deputy Lead: Dr. Katy Jones

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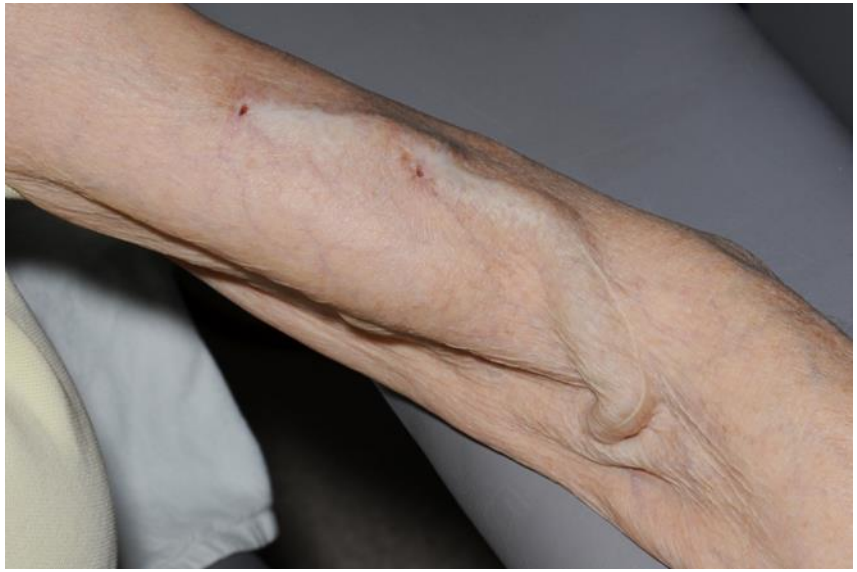
Aims of the Group

- Care of VA post insertion
  - Preservation of function
- Promote consistency in VA care across the UK
- Network across the UK
  - BRS
  - RA
  - Dialysis Access Nurses
  - VASBI - Vascular Access Society of Britain and Ireland
  - UKRR



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Membership of the Group

- Vascular access nurses
- Haemodialysis nurses
- Home haemodialysis nurses
- Haemodialysis educators
- Nephrologists
- Vascular surgeons
- Interventional radiologist
- Patient representative

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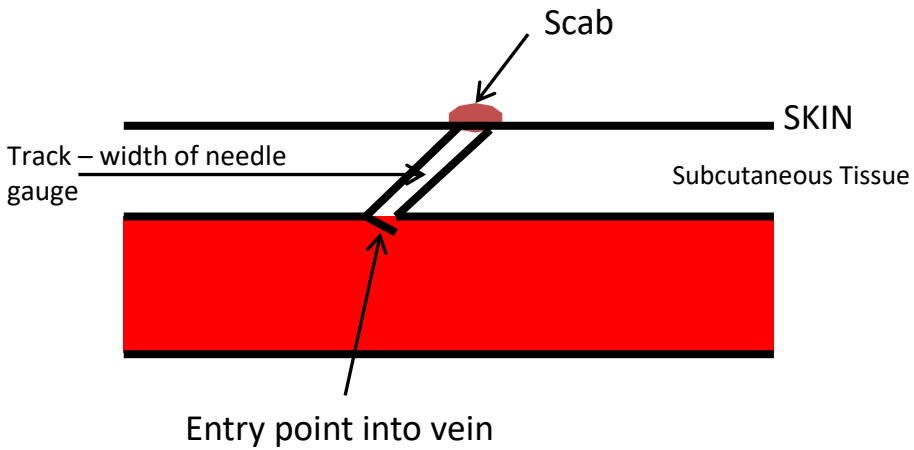
What is Buttonhole Technique?

- Cannulate A-V Fistula vein in exactly the same place, each cannulation
  - Enter the skin through the same site
  - Enter the vein in same direction and depth
- Remove the scab prior to cannulation
- Track development phase
  - Develop a track of scar tissue and flap / puckered point on vein
  - Using sharp needle with same cannulator over number of sessions
- Once track developed, use blunt needles to cannulate
- Reduction in aneurysms, stenosis, ‘blows’/infiltration and haematoma
- Promotes self cannulation



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Clinical Practice Recommendations

- Collated between:
  - Evidence from research / expert opinion
  - Experience of units – success with BH / overcome challenges
- 10 units involved
- 6 sections
  - Key aspects of care
- Each section consists of:
  - Recommendations
  - Rationale for recommendations, with reference to evidence
  - Points for future consideration
    - Require clarification

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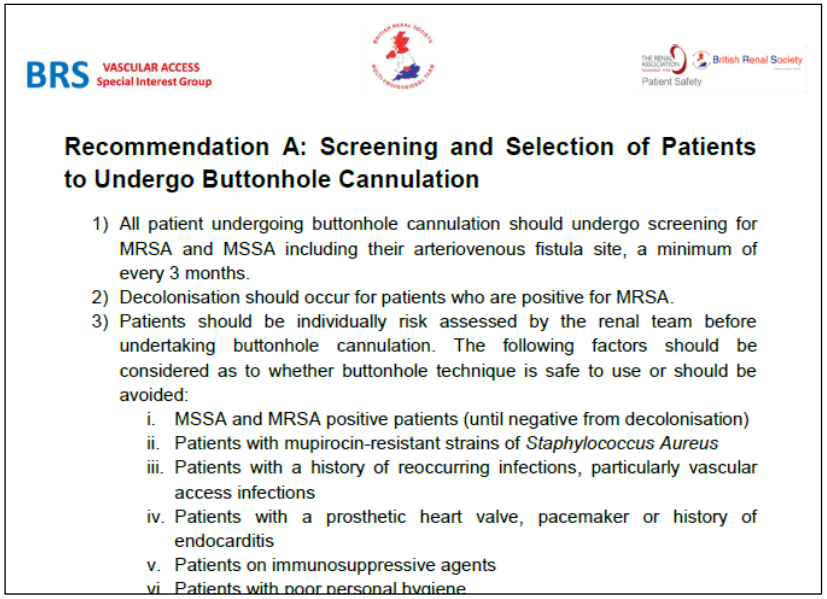
A) Screening and Selection of Patients

- Screen for MRSA & MSSA
- Decolonise for MRSA
- Risk assess patients for use of buttonhole
  - Exclude patients with high infection risk
  - Screening tool from Royal Berkshire

- Points for clarification
  - Decolonise for MSSA?
  - What is decolonisation?
  - How many times should you decolonise?
  - What risk factors should be included in a risk assessment?



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Recommendation A: Screening and Selection of Patients to Undergo Buttonhole Cannulation

1) All patient undergoing buttonhole cannulation should undergo screening for MRSA and MSSA including their arteriovenous fistula site, a minimum of every 3 months.
2) Decolonisation should occur for patients who are positive for MRSA.
3) Patients should be individually risk assessed by the renal team before undertaking buttonhole cannulation. The following factors should be considered as to whether buttonhole technique is safe to use or should be avoided:
   i. MSSA and MRSA positive patients (until negative from decolonisation)
   ii. Patients with mupirocin-resistant strains of *Staphylococcus Aureus*
   iii. Patients with a history of reoccurring infections, particularly vascular access infections
   iv. Patients with a prosthetic heart valve, pacemaker or history of endocarditis
   v. Patients on immunosuppressive agents
   vi. Patients with poor personal hygiene

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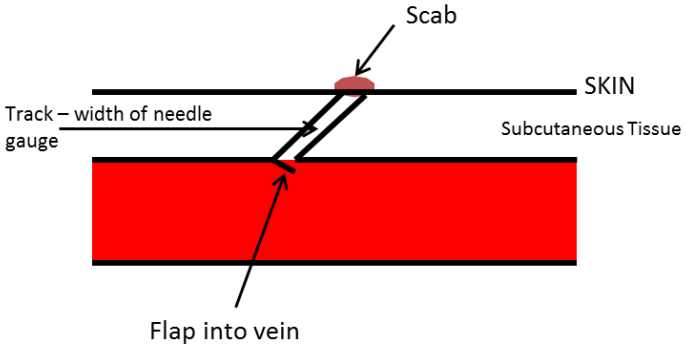
B) Track Development and Cannulation

- Need single, good track to:
  - Perform BH Cannulation correctly
  - Minimise infections
- Track development is key part of the process
  - 1-3 ‘buddy’ cannulators over max. 12 sessions on a mature AVF
- Need to maintain track once developed
  - Blunt needles
  - Consistent cannulation
- Communicate how to cannulate BH sites
  - Images, information, inform patient
- Points for Clarification
  - Why missed cannulations
  - What helps aid blunt needle cannulation



C) Disinfection and Scab Removal

- Remove scab completely
  - Prevents bacteraemias
- Wash arm and hands with soap and water
- Disinfect before and after scab removal
- 0.5-2% chlorhexidene & 70% isopropyl alcohol to disinfect
  - Povidone Iodine or Octenilin if allergic
- Points for clarification
  - What is correct cleaning solution?
  - Should sites be soaked in disinfectant for 1-2 minutes?

1) All patients should wash their hands and fistula limb with soap and water prior to cannulation.
2) 0.5% - 2% chlorhexidine gluconate with 70% isopropyl alcohol should be used to clean the cannulation sites. If the patient is allergic to chlorhexidine, then Povidone Iodine solutions or Octenilin should be used to disinfect prior to cannulation.
3) The recommended contact and drying time for the disinfectant following cleaning, should always be strictly adhered to.
4) Cannulation sites should be disinfected immediately before and after scab removal.
5) Softening of scabs prior to removal is not recommended.
6) Sterile tweezers or sterile picks which are supplied with the dull/blunt needles or separately should be used to remove the scab.
7) To prevent infectious complications, the complete scab should be removed prior to cannulation of the buttonhole site.

Rationale for Recommendation C

The first line of defence to prevent access infections is proper preparation of the sites prior to cannulation. With buttonhole technique the key points need to be good disinfection of the cannulation sites pre and post scab removal and the correct and careful removal of the scab at the buttonhole site (13,15,16). Washing of the arm prior to cannulation (13,15,16, 31) and disinfection of the cannulation site before and after scab removal (1,13,15,16) is thought to reduce infectious complications, although no research has been conducted to clarify this.

The solution used to disinfect cannulation sites is also believed to be important in

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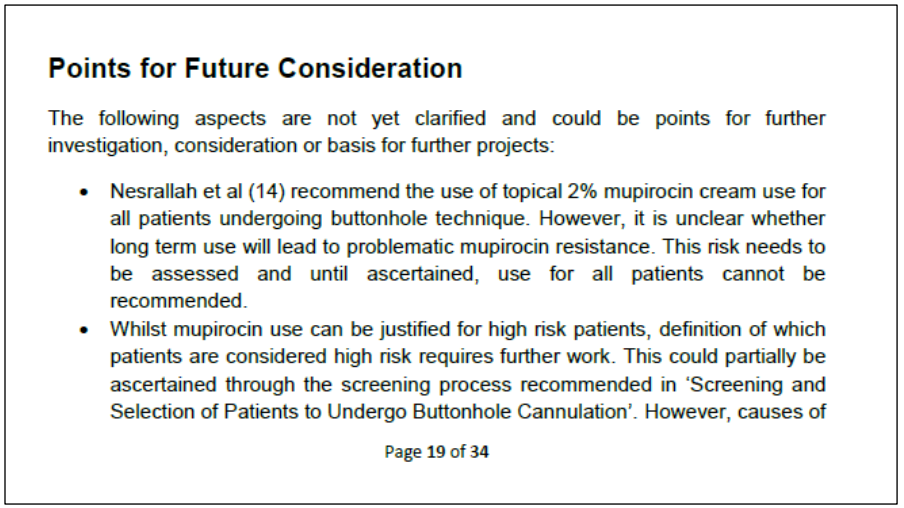
D) Mupirocin Use

- Use mupirocin on cannulation sites post dialysis for patients with high infection risk
- Screen for mupirocin resistance and discontinue positive patients
- Points for clarification
  - Should this be used on all patients?
  - Are there alternatives?
    - Naseptin, inadine, octenilin etc.



Points for Future Consideration

The following aspects are not yet clarified and could be points for further investigation, consideration or basis for further projects:

- Nesrallah et al (14) recommend the use of topical 2% mupirocin cream use for all patients undergoing buttonhole technique. However, it is unclear whether long term use will lead to problematic mupirocin resistance. This risk needs to be assessed and until ascertained, use for all patients cannot be recommended.
- Whilst mupirocin use can be justified for high risk patients, definition of which patients are considered high risk requires further work. This could partially be ascertained through the screening process recommended in 'Screening and Selection of Patients to Undergo Buttonhole Cannulation'. However, causes of

E) Patient Engagement

- Focussed on how to facilitate self care and self cannulation
  - Patient ownership

- Patient information
- Involve from the start of the process
- AV fistula and cannulation sites in areas patient's could cannulate
- Patient to develop track (if self cannulate)

- Points for clarification
  - What is the best way to support patients?
  - Training / Troubleshooting / Maintaining procedures

F) Staff Training and Assessment

- Education package for all cannulators
- Supervised practice and competency assessment

- Staff procedures will ‘slip’ unintentionally
  - Human factors
  - How do we maintain procedures?

- Reassessment every 2 years
- Annual theoretical update
- Monthly audits of practice

Completion and Dissemination

- Launch at UK Kidney Week

- Available on:
  - RA-BRS Patient Safety Website www.renal.org/clinical/renal-association-british-renal-society-patient-safety
  - BRS website http://www.britishrenal.org/

- Email Shot

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Future Plans

1) Cannulation Recommendations
   - Build on BH Recommendations
   - Include all cannulation techniques
   - Education and competencies

2) National Survey
   - Structure of vascular access services across the UK
   - What leads to success

3) Vascular Access Haemorrhage
   - Care bundles – surveillance and management
   - Patient and staff information

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Thank you!

- Members of BRS VA SIG and their renal units
- Xtramed and Richard Cole
- Mick Kumwenda, Richard Fluck and Paul Rylance
- BRS Council and Karen Jenkins
- Derby Teaching Hospitals NHS Foundation Trust

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