

KQuIP Quality Improvement Case Study Template

1. Name /title of project and organisation

Scottish Haemodialysis Vascular Access Appraisal, Scottish Renal Registry

2. Short summary of the area we needed to address

This was an unprecedented exercise, undertaken in light of significant variation between Scottish NHS Health Boards in the proportion of patients who receive haemodialysis (HD) using tunnelled central venous catheters rather than through arteriovenous (AV) access. Low rates of AV access generate a substantial burden of morbidity and mortality risk for patients and considerable financial cost for health care providers. This project sought to understand the reasons for variation between health boards and design strategies to maximise AV access use for haemodialysis.

3. What we wanted to achieve

This project attempted to understand vascular access as a whole system rather than simply measuring individual statistics relating to certain aspects of its productivity. The outcome was to achieve an understanding of service structure and function, in a way that would illuminate opportunities for quality improvement.

4. People who were involved in this QI work.

This was an unprecedented exercise involving interviews with a total of 52 clinicians and patients from all 10 (adult and paediatric) Scottish Renal units, and quantitative data collection from all nine adult units.

The investigative team included Dr Scott Oliver (nephrologist), Mr David Kingsmore (vascular surgeon), Dr Ram Kasthuri (interventional radiologist) and Dr Peter Thomson (nephrologist). They were additionally joined by Dr Ann Humphrey (nephrologist) and Mr Stuart Suttie (vascular surgeon) for some interviews. Academic support was provided by Professor Alan Jardine and Professor Denis Fischbacher-Smith, both from the University of Glasgow.

Vascular Access Coordinators from all adult renal units provided quantitative data, which was collated with support from Leigh Bainbridge in NHS Greater Glasgow & Clyde. Statistical support was provided by Jacqueline Campbell and Martin O'Neill, and logistical support was provided by Jackie McDonald and Stephanie Lang, all from NHS National Services Scotland. Secretarial support was provided by Jean Thomson, Antonella Grimon, Kellie Callender and Christina Hays, all from NHS Greater Glasgow & Clyde.

Darlinda's Charity for Renal Research provided financial support for the project.

5. What did we do?

A mixed-methods approach was designed to explore the workings of HD vascular access provision across Scotland, enabling understanding of services' strategic alignment and operational realities.

This was achieved through consideration of existing measures of quality (using routinely published data from national reports and guidelines), and using these to frame a series of semi-structured interviews with key informants in each of the nine adult and one paediatric renal services in Scotland. The qualitative data gained from these interviews was then used to collate a profile of the processes and practice undertaken in each renal service.

Quantitative data were also sought at the time of each interview, as well as through data routinely collected from each service by the Scottish Renal Registry. A further exercise was undertaken following the interview process where all vascular access activity undertaken in each unit was measured for a 6-week period.

Together the cumulative quantitative and qualitative data gained by this approach described each organisation's operation of the clinical systems in question. When applying these data to a model of socio-technical systems theory it became possible to analyse each system's function, output and relative success.

The full methodology is described in the published Scottish Haemodialysis Vascular Access Appraisal report, available on the Scottish Renal Registry website.

6. The outcome of our QI work

A number of recommendations arise from the presented data. They reflect a need for more formal multi-disciplinary team working; protected accessible slots for access creation and maintenance procedures; measurement and discussion of clinical outcomes; and education for all stakeholders in the process. The full list of recommendations is described in the published Scottish Haemodialysis Vascular Access Appraisal report, available on the Scottish Renal Registry website.

7. The impact these changes have had on patient care

This project has been the first to utilise such methodology to describe the structure and function of vascular access services, and to use this to highlight opportunities for service improvement. The project provides many new insights as to how vascular access services should be developed and governed. We anticipate the development of more formal pathways for education, research and joint clinical working within services and across the geographic health boards. The published recommendations (available on the Scottish Renal Registry website) serve as a starting point for clinicians, managers and NHS organisations who wish to improve their vascular access services.

8. What we learned

The project demonstrated the value of understanding clinical problems from a strategic perspective, and of adopting a pragmatic "work as done" approach to understanding challenges encountered along the way. It was apparent that clinical knowledge alone was insufficient to address the identified vulnerabilities in vascular access services; effective

quality improvement requires that clinical working groups are supported by experts in data analysis, IT services, and NHS financial planning.

9. Describe the whole process in three words

Realistic understanding matters.

9. Contact details and link to the recommendations

To read the full report and the 70 recommendations follow the link:

<http://www.srr.scot.nhs.uk/Projects/PDF/2015/Scottish-Renal-Registry-vascular-paper-2015.pdf>

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Please email your case study to James McCann at James.McCann@renalregistry.nhs.uk