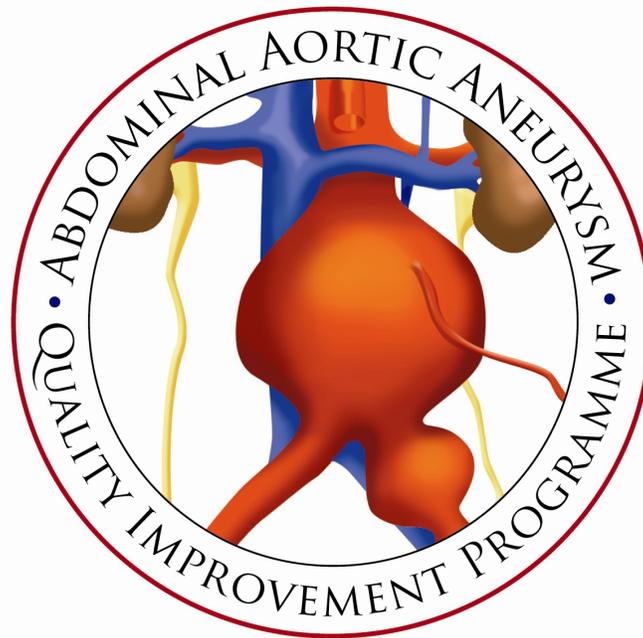




THE VASCULAR SOCIETY
OF GREAT BRITAIN AND IRELAND

NATIONAL ABDOMINAL AORTIC ANEURYSM QUALITY IMPROVEMENT PROGRAMME



FINAL HEALTH FOUNDATION REPORT

APRIL 2012



**Closing the Gap through Clinical
Communities**

Final Report for Closing the Gap through Clinical Communities (award holders)

Project Title: The National Abdominal Aortic Aneurysm Quality Improvement Programme (AAAQIP)

Lead Organisation: The Vascular Society of Great Britain and Ireland (VSGBI)

Partner Organisations: The British Society of Interventional Radiology (BSIR)
The Vascular Anaesthesia Society of Great Britain and Ireland (VASGBI)
The Society of Vascular Nurses (SVN).

Lead Clinician: Mr David Mitchell (*Consultant Vascular Surgeon and Chair of the VSGBI Audit and Quality Improvement Committee*).

ABSTRACT

The Abdominal Aortic Aneurysm Quality Improvement Programme (AAAQIP) was initiated after the UK was found to have a high outlying mortality rate for Abdominal Aortic Aneurysm (AAA) surgery at 7.5%, compared to the rest of Europe at 3.5%, [Vascunet 2008]. The Vascular Society was successful in obtaining a grant from the Health Foundation to run a national programme with the aim of reducing elective AAA mortality in the U.K to 3.5% by 2013.

The AAAQIP involved joint collaboration from the Vascular Anaesthesia Society, the British Society of Interventional Radiology, the Society of Vascular Nurses, local Cardiac and Stroke Networks, Commissioners and patients. The programme aimed to introduce clear standards for vascular teams to help them improve the quality and consistency of AAA care delivery.

The Vascular Society's Quality Improvement Framework for AAA Repair, agreed in 2009, provided the initial standards in which best practice protocols were developed to help vascular clinicians introduce changes into their practice. These were brought together into care bundles to allow measurement of the consistency of care delivery. A regional approach was taken following the Institute for Healthcare Improvement's Collaborative Model for achieving improvement (Innovation Series 2003). Regional quality improvement days were run to introduce quality improvement methodology, to inform teams about data contribution, discuss current clinical issues and introduce best practice protocols. Teams were encouraged to develop local implementation plans and test these using PDSA cycles. Learning was shared between hospitals and across regional groups tackling similar clinical issues. The aim of the QIP was to establish change within three QI meetings in each region, at which point the regional process became autonomous.

As part of the data work stream, Trusts were regularly updated on data contribution. This resulted in an increase in data contribution onto the National Vascular Database of around 100 cases per month, from 66% to 84% nationally. Several units additionally undertook validation exercises to improve their data entry pathway and clinical coding. The elective Infrarenal AAA mortality rate in the U.K. decreased significantly to 2.4% as of March 2012. There remains significant variation in data quality. Changes in the care pathway took hold with the adoption of collaborative decision making involving multi-disciplinary teams. Formal anaesthetic assessment became a core standard for patients requiring interventions for AAA. There was wide adoption of the pre-operative care bundle. Patient focus groups were initiated throughout the UK and changes demanded by patients, such as new patient information tools and early telephone follow up, were integrated into the national care pathway.

NATIONAL ABDOMINAL AORTIC ANEURYSM QUALITY IMPROVEMENT PROGRAMME (AAAQIP) FINAL REPORT 2012

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- All individuals who have provided written accounts about their experiences (see case study list below)

CASE STUDIES

John Nevill (Patient)
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Glossary

AAA	Abdominal Aortic Aneurysm
BSIR	British Society for Interventional Radiology
CQUIN	Commissioning for Quality and Innovation
DFPNI	Department of Finance and Personnel Northern Ireland
EVAR	Endovascular Aneurysm Repair (a graft placed under X ray guidance, usually via the groin arteries)
HES	Hospital Episode Statistics
MDT	Multi Disciplinary Team
NAAASP	National Abdominal Aortic Aneurysm Screening Programme
NVD	National Vascular Database
ONS	Office of National Statistics
OPCS	Operating Procedure Code Supplement (version 4.4 used)
OR	Open Aneurysm Repair (the traditional open surgical approach)
PDSA	Plan Do Study Act
PEDW	Patient Episode Database for Wales
PROMs	Patient Reported Outcome Measures
RAP	Regional Action Plan
SMR01	Scottish Morbidity Record
SVN	Society of Vascular Nurses
VASGBI	Vascular Anaesthesia Society of Great Britain & Ireland
VSGBI	Vascular Society of Great Britain & Ireland

Definitions

- **Vascular Society of Great Britain and Ireland (VSGBI):** The VSGBI is a registered charity founded to relieve sickness and to preserve, promote and protect the health of the public by advancing excellence and innovation in vascular health, through education, audit and research. The VSGBI represents and provides professional support for over 600 members and focuses on non-cardiac vascular disease, including disease of the peripheral arteries, veins and lymphatics. <http://www.vascularsociety.org.uk/>
- **National Vascular Database (NVD):** The NVD is a web based data entry system that aims to collect data on all index vascular procedures. It is housed in a secure NHS server. Data can be entered in real time by users. The NVD is funded largely by subscription from the membership and its sister organisations (BSIR and VASGBI). In addition it receives funding through HQIP for the carotid intervention audit. The VSGBI supports clinicians encouraging 100% of cases to be entered onto the NVD. <https://nvdonline.nhs.uk/> The NVD is also linked to the National AAA Screening Programme Database so that screened patients can be tracked from their invitation to attend screening through to outcome following intervention.
- **Hospital Episode Statistics (HES):** HES is the national statistical data warehouse for England, of the care provided by NHS hospitals and for NHS hospital patients treated elsewhere. National data is also accessed from the Celtic nations and is referred to using the following terms; SMR01 (Scotland), PEDW (Wales) and DFPNI (Northern Ireland). In this report, the term *HES* is used generically to describe data that are collected by these national agencies.

1.1 THE QUALITY CHALLENGE BACKGROUND

Significance of AAAs

Approximately 4000 aneurysms per annum are treated in the UK by elective repair. A 4% reduction in mortality represents an absolute reduction in peri-operative deaths of 160 per annum. At the start of the AAAQIP in 2009, there was evidence in the National Vascular Database of considerable variation in data contribution, mortality rates and clinical practice between centres. For patients to be confident that they are receiving high quality care, it is necessary for the VSGBI to be able to demonstrate that interventions are being delivered consistently. This requires the following 4 key quality challenges to be addressed in order for vascular units to standardise practice to ensure high quality care;

- Poor death rates
- Poor data entry to national clinical audit
- Inconsistent team working
- Lack of patient input to care provision

The observed high mortality rate for AAA repair in the UK is a problem to both clinicians and patients. Health services provided to patients should allow for safe and high quality treatment but when compared to other European countries the UK AAA service demonstrates unacceptable high mortality of 7.5%. The AAAQIP is a national programme that aims to address the high peri-operative AAA mortality rate in the UK, with a reduction from levels of 7.5% to 3.5% by 2013, and the standardisation of care delivery by moving towards best practice in all units.

We recognised that there was significant variation in both clinical behaviour and measurement of outcomes and that standardising care delivery and contribution to national audit were the key issues facing the QIP. Without accurate measurement of outcomes and performance it is not possible to determine acceptable levels of care. A measurement strategy was developed to improve contribution to national clinical audit through regular feedback and developing contribution standards. It is through these standards that progressive improvement can be measured over time, at both a national and local level.

Identifying standards of working will help to draw a consensus about what constitutes vascular team working for clinicians involved in AAA treatment. The development of the AAA Quality Improvement Framework (see Additional Resources) specified the components of a vascular team and reduced ambiguity about team working. The AAAQIP will be the mechanism and driving tool to encourage units to work to these standards.

There is clear evidence that changes in AAA care delivery need to occur to improve patient safety. Improving patient experience however, will be considered for the first time nationally through the AAAQIP. In order to ensure patient experiences are improved patient engagement and collaboration is essential. Patient groups around the country will be set up in order to inform care delivery at all stages throughout the care pathway.

Evidence of Best Clinical Practice

Evidence for best clinical practice is available as the national EVAR 1 trial demonstrated that the 30-day mortality following elective AAA surgery was 4.8% for open surgery and 1.6% for endovascular aneurysm repair, with an overall mortality rate of 3.2% [Greenhalgh et al, 2004]. This was based on a protocol for pre-operative work-up including assessment of cardiac, respiratory, and renal function, with defined indications for surgery.

NICE guidelines (2009) published on endovascular repair indicate that the decision on whether EVAR is preferred over open repair should be made jointly by the patient and the clinical team, taking into account aneurysm morphology, patient age, fitness for surgery and general life expectancy, also the short and long term benefits and risks of the procedures including aneurysm related mortality and operative mortality.

Evidence of Patient Views

Views obtained from patients in Newcastle, Bristol and London in 2009, highlighted issues important to the patient including:

- i) What are the options for not doing surgery and what are the risks?
- ii) What are the risks of surgery and how many people die from surgery?
- iii) Deaths - What do AAA patients undergoing surgery die from?
- iv) Is my Surgeon aware of the statistics and does he follow best practice?

It was important for these to be addressed in order to ensure patients receive not only safe care but patient centred, high quality care to improve their overall outcome and satisfaction.

1.2 LOCAL PROBLEM AND CONTEXT

Between 4% and 8% of older men are affected by an abdominal aortic aneurysm (AAA). Every year in England and Wales about 7000 men die from a ruptured AAA [Vascunet 2008, Jimenez and Wilson 2005]. Most AAAs do not produce symptoms. They can rupture without warning, causing sudden collapse or death of the patient. Ruptured AAAs carry a mortality of about 75%. Clinical trials have demonstrated that screening and intervening to treat larger AAAs reduces aneurysm related mortality [Ashton et al., 2002; Lindholt et al., 2006]. This evidence led to the introduction of a National Abdominal Aortic Aneurysm Screening Programme (NAAASP) to identify and treat at risk aneurysms prior to rupture [NAAASP 2010].

Screen detected and non screen detected aneurysms may be treated by either open surgery (OR), or by endovascular repair (EVAR) involving the insertion of a stent graft through the groin. Both operations carry a risk of death. For a screening programme to be effective it is necessary to reduce the associated peri-operative mortality to a minimum. In 2008, the mortality rate associated with elective AAA repair was reported by Vascunet (a collaboration of European Vascular registries) at about 7.5% in the U.K. This rate compared unfavourably with other European countries which reported mortality rates in the order of 3 to 4% [Vascunet 2008]. Other sources of information from the Intensive Care Society and the Vascular Anaesthesia Society presented similar mortality outcomes for elective AAA repair in the UK [Bayley et al. 2001]. The observed high mortality rate for AAA repair in the UK is a problem to both clinicians and patients. It threatens to invalidate the National AAA Screening Programme.

1.3 INTENDED IMPROVEMENT

Primary Improvement Aims:

Reduce Mortality

1. To reduce the elective mortality for infrarenal AAA repair in the UK to 3.5% by 2013.

Increase Data Contribution onto the National Vascular Database

2. Increase data contribution onto the National Vascular Database (NVD) from 65%-90% by April 2012. To encourage convergence of Hospital Episode Statistics (HES) and NVD data by improving both clinical audit data entry and clinician involvement in coding.
 - Improve data entry, with a focus on accuracy of recording of clinical activity.
 - Drive greater scrutiny of coding and accuracy of data capture.
 - Influence the culture of data entry to real time contribution with a focus on up to date outcome reporting to monitor performance and adherence to standards.

Complete and up-to-date clinical data ensures outcomes can be tracked to identify variation and any areas requiring improvement.

Standardise and Improve Patient Care through the AAA Care Pathway

3. Standardise the management of patients through the AAA care pathway in regions throughout the U.K.

Decrease harm by reducing variation and improving standardisation of care delivery through the introduction of best practice protocols.

- Incorporate a risk assessment module with a traffic light system designed to ensure that patients are only brought forward for surgery once their physical fitness is optimised.
- Integrate a Multi-Disciplinary Team (MDT) proforma to integrate formal MDTs to improve the consistency and safety of pre-operative decision making.
- Introduce the 'Post-operative Communication Care Bundle' to standardise information given to patients upon discharge.
- Use local QI interventions selected by Trusts to standardise an area of the pathway including pre, intra and post operative care as well as patient communication and engagement.

Multi-disciplinary QI interventions aimed to drive greater vascular team working by involving all the personnel required for optimum patient care. As well as this, interventions encouraged clinicians to develop their local pathway of care, linking pre and post operative care. This aimed to standardise practice by setting staff and patient expectations prior to care delivery. We believed that this would both improve care delivery and patient and staff satisfaction.

4. Engage and collaborate with patients to improve informed consent, communication throughout the care pathway and patient satisfaction.

- Explore patient experiences through local patient groups and patient reported outcome measures to identify areas for improvement.
- Involve patients in the development of new patient information leaflets, self help tools as well as protocols for follow up.

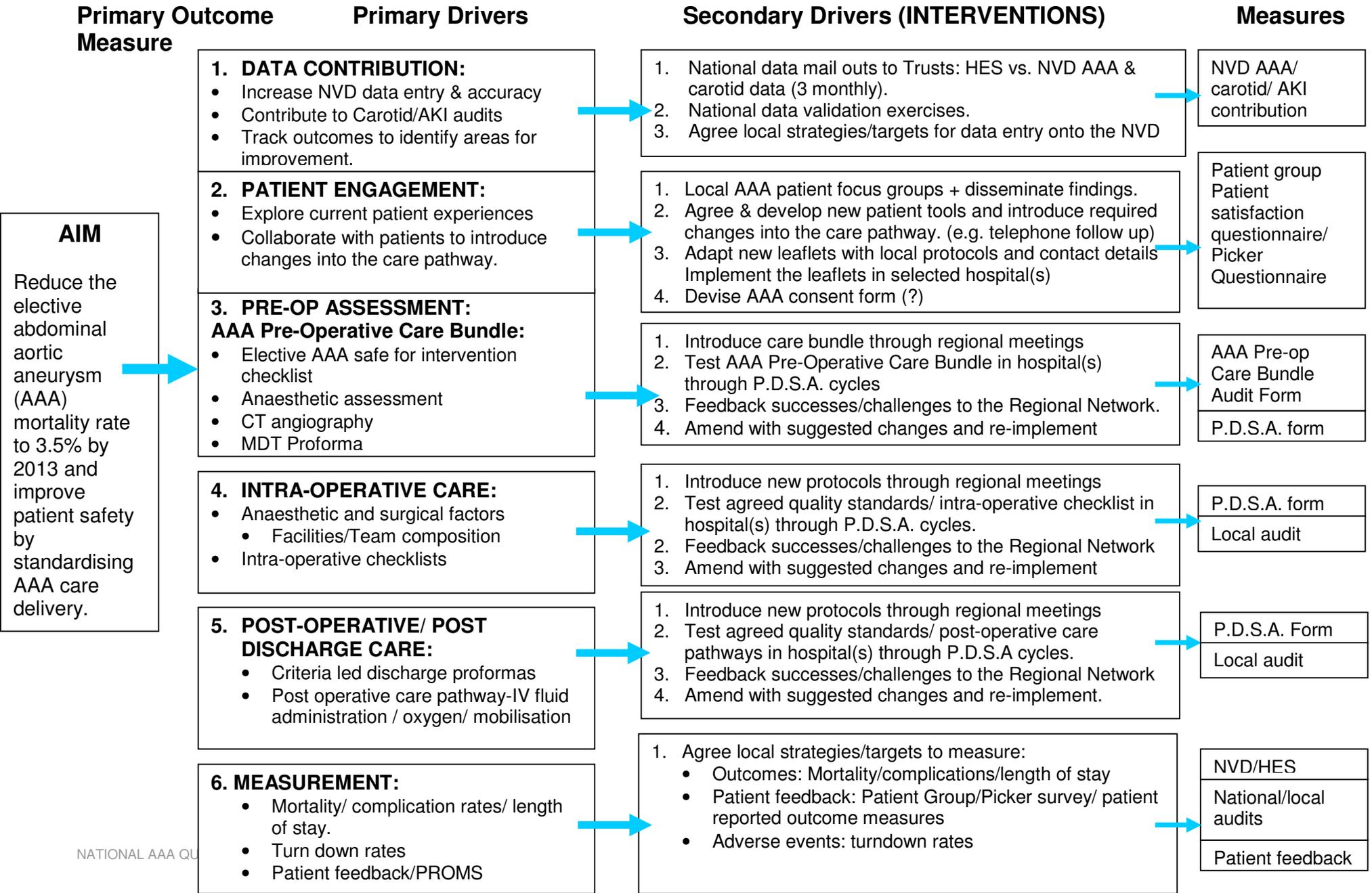
Involving patients in designing improvements in communication and care delivery ensures care becomes more patient-centred. This should improve patient overall satisfaction with care.

5. Measure unanticipated consequences and adverse events as a result of implementing the programme.

A risk of the AAAQIP focus on mortality is that vascular clinicians may be deterred from taking on difficult cases. This programme planned to measure this effect by undertaking a national turn down audit. This aimed to establish the turndown rate for AAA to get an overall picture of vascular practice, the primary reasons for turn down and if the AAAQIP has had any adverse impacts.

A focus on turn down rates throughout the programme, sought to ensure decisions to treat are made jointly by the patient and the clinical team, taking into account aneurysm morphology, patient age, fitness for surgery and general life expectancy instead of a sole focus on chronological age.

Figure 1.3.1



1.3.3 At the outset what factors did you think would help or hinder the work succeeding?

Help

- **The Vascular Society as a national organisation.** Building the AAAQIP upon the recently released Quality Improvement Framework for AAA Repair endorsed by the Vascular Society would help establish national buy-in and engagement into the changes required.
- **Working alongside additional stakeholders.** Early expert input from the Vascular Anaesthesia Society, the British Society of Interventional Radiology and the Society of Vascular Nurses into the Project Plan, and refinement of best practice protocols, would ensure they are suitable for adoption into everyday practice. Publicising the QIP through the three societies would increase engagement at regional meetings and representation from all clinical disciplines.
- **Requirements of national initiatives such as NAAASP.** Ensuring that the AAAQIP, Vascular Society and the National AAA Screening Programme standards were aligned was believed to be a key driver in ensuring adoption of standards and implementation of best practice protocols.
- **Putting data in the public domain.** Giving units feedback on data contribution was felt to be important in encouraging higher quality data entry. We believed that a clear statement about publication of data would help to focus clinicians on the need for high quality data.
- **Specialist QI support.** We identified a lack of knowledge and believed that the QI support provided by the Health Foundation would be a critical component for success.

Hinder

- **Lack of perceived need to change.** Lack of belief in the validity of the mortality data and the evidence base for change due to perception that UK practice had a high quality output.
- **Lack of nationally agreed assessment tools.** The EVAR trial did not seek to disseminate its assessment protocol, and there was a lack of consensus on best practice protocols and proformas that had not necessarily been validated.
- **Gap in quality improvement knowledge.** The central project team and wider implementation team self reported low levels of QI knowledge at the outset. Initially, this meant we were unclear on how to incorporate QI and thus had a less robust Project Plan.
- **Local contextual factors within units.** Time restraints due to busy clinical workloads would hinder engagement. Variation in attitudes to change, as well as local policy differences between Trusts might interfere in the ability to adopt and pilot protocols locally.

1.4 CHANGES ALONG THE WAY

Regional Focus Groups rather than a National Patient Group.

We initially planned to set up a national patient group through the Circulation Foundation. The long distances those patients would have to travel to attend the group made this impractical. It would also restrict representation to the fittest patients and thus make the group non-representative of UK patients. Instead, seven regional patient groups were set up around the U.K. This proved to be beneficial as it has provided local clinicians with direct contact with patients and stories of their experiences. As well as this, it highlighted local issues and areas for improvement. Regional groups additionally allowed the comparison of patient experience around the U.K in order to make national recommendations. It required time to set up the groups, but we used a consistent model that allowed all regions to explore similar issues and compare outcomes.

Regional Implementation: IHI Breakthrough Series Model.

The original application planned to implement and measure changes nationally through the Vascular Society, covering the whole of the U.K. Early central team meetings with the quality improvement and learning development advisors, highlighted practical difficulties with this approach and identified that the project might face difficulties with clinician engagement and ownership. It became clear that the QIP would need to work at the local level with clinical teams in order to secure engagement and implement

QI interventions. This required adoption of a regional implementation plan. Some of the resources in the grant were diverted to allow for wider travel for the central team.

We recognised that this would place a greater onus on regional leads to drive engagement and sustain momentum. This has proven to be the most significant change to the programme and is one of the key factors in the success of this programme. Regional variation in clinical resources, Cardiac and Stroke Network input, roll out of the National Screening Programme and Service Reconfiguration was evident from the outset. A regional approach allowed us to adapt the programme to meet the needs of participating regions and units. This increased ownership of quality improvement interventions, as it made them more relevant and applicable.

Breaking the Care Pathway down into Separate Interventions.

One of the original aims of the AAAQIP was to develop a national care pathway and encourage units to adopt this in order to standardise care. Our first regional meeting was held in the North East. They have regular meetings and strong collaboration with the Cardiovascular Network. An expert working group was set up and developed an outline care pathway. Despite the enthusiasm of the region, implementation of an entirely new care pathway proved difficult.

Experience in other regions early in the programme identified that trying to adopt the whole pathway in one go was a significant challenge to clinical teams. There was variation in enthusiasm for the pathway, with units being at different stages of development. In addition, there is significant variation in NHS Trust attitudes to the adoption of new paperwork and processes that prevented easy introduction of a national pathway of care.

As a result, the care pathway was divided into defined steps with units encouraged to trial one element of the care pathway. This made QI work more manageable among a busy clinical workload and allowed units to select interventions to address specific problem areas within their units. Grouping standards of care into care bundles was also provided a structure for both implementation and measurement of change.

AAA Patient Reported Outcome Measure (PROM)

The original Project Plan outlined the development of an AAA PROM. After a meeting with an economist from the DoH charged with PROMS implementation, we were advised that an AAA PROM would need to encompass AAA specific questions that require appropriate testing. We were also advised that there was no plan within the DoH to adopt further PROMs or support their development.

It rapidly became apparent that developing a specific PROM for AAA would require considerable time, measures with detailed patient focus groups and further statistical testing to establish face and content validity. We felt this was out of the scope and budget of the AAAQIP. We have joined forces with the team at St Georges Vascular Institute to undertake preliminary work with patient groups around PROMs. They plan to take this work forward with a separate research grant.

2. METHODS

2.1 THE INTERVENTION

Data Communication and Measurement

Complete and up to date clinical data ensures outcomes can be tracked to identify variation and any areas for improvement. As well as this, it ensures accurate information on the quality of NHS services can be passed onto patients.

Patient and Carer Perspectives on the Availability of Outcome Data in the Public Domain.

Peter Traves, AAA Patient

I was very fortunate that whilst having the scan for the prostrate that my GP had sent me for the lady doing the scan took the time to do a thorough examination and it was in the course of the scan that she found the aorta walls in my abdomen were thinning and she thought that I had an aneurysm. I feel it is very important for patients and their families to have all the information they can get - death rates, the surgeons experience of treating AAA's and also how the quality of care is rated in the hospitals where they carry out the surgery. I needed this information so I could then make a decision on who does my operation and where I would like to be looked after.

Karen Traves, Relative of AAA Patient

It is very daunting to have your father come home from a routine scan on his prostrate to be told no prostrate problems but by the way you have an aneurysm. Everyone knows that these can be very dangerous and the information we got initially compared to what we had when he had his CABG x 4 was quite different.

With the advent of the internet and working in the NHS for 23 years (not an employee but a provider) it has become easier to get information in general re health and health related issues. I also was able to speak to a family friend who is a cardiologist to ascertain what the various tests were and what the risks are of EVAR to a patient with my father's health profile. Once we knew my Dad had to have the AAA repaired that's when our concerns and anxieties began to increase as a family. I think patients and their families should be able to easily access the performance of individual Vascular Surgeons who are undertaking repair of AAA's. I think that this should be given to patients when they are told they need surgery. This may be a very different way of doing things compared to what happens now but if we are to have a NHS that puts the patient in the centre then this should be the norm.... not just for treatment of AAAs but all medical interventions a patient may need to have.

The AAAQIP aimed to improve data contribution onto the National Vascular Database (NVD). This was driven through quarterly reporting of all AAA and carotid cases (the Vascular Society runs a separate QI process for carotid surgery and we linked the two for the purpose of driving up data quality) recorded by surgeons on the NVD compared to data submitted by Trusts to Hospital Episode Statistics (HES), for 3 monthly time periods (Appendix A). This was sent to Vascular Leads and Clinical Governance Leads within each Trust performing AAA surgery in the UK. Trusts were asked to validate the data between the two datasets, enter missing cases onto the NVD and correct any coding errors. A Traffic light system was introduced through the Vascular Society, to ensure units were clear about their unit's performance against national standards.

We drove data entry by stating a clear intention to publish unit identifiable data in the future. Data entry rates rose rapidly in the early phase of the programme. Once data entry rates had risen, we provided each vascular unit with data from the NVD and corresponding HES data for a two year time period. We asked units to validate the data and to correct any omissions in the NVD data. This aimed to encourage units to develop a robust process for data contribution and improved data quality to enable the reliable reporting of patient outcomes and highlight potential areas for improvement.

Once the validation period closed the mortality outcomes from all units in the UK performing AAA procedures were published for the first time nationally on 1st March 2012. A copy of the report can be

downloaded from <http://www.vascularsociety.org.uk/news-and-press/2012/77-outcomes-after-elective-repair-of-infra-renal-abdominal-aortic-aneurysm.html>. We believe that the clear intent to place information in the public domain was an important driver to improving data entry into national clinical audit. Patients can now access unit performance data and use this to inform decisions about where to seek treatment. It is our belief that the quality of the data is related to the communication strategy that the AAAQIP team adopted. It has served to focus not only clinicians on data entry, but also involved other stakeholders such as medical directors and commissioners. Many units who complained that they did not have adequate resources for data collection reported that the provision of data to their information governance teams and medical directors helped them to attract extra organisational resources for clinical audit.

Framework for Improving the Results of Elective AAA Repair (2009)

The Vascular Society published a Quality Improvement Framework for improving the results of elective AAA repair which maps to standards set by the National AAA Screening Programme. This provides clear, unambiguous and reliable standards to identify the necessary steps in the care pathway to provide optimal patient care. As part of the QIP we produced best practice protocols mapped to these standards to help vascular clinicians who are introducing changes to their vascular practice.

Best Practice Protocols & Quality Improvement Interventions

Reducing harm to patients can be achieved by reducing variation in care delivery [Nolan 2000]. We aimed to improve standardisation of care delivery by introducing best practice protocols. These were brought together in care bundles to allow measurement of the consistency of care delivery.

Elective AAA Safe for Intervention Checklist

One of the QIP standards was that pre-operative care should involve formal risk assessment and correction of adverse clinical features to reduce the risk of intervention. Evidence for best clinical practice was available from the national EVAR 1 trial which demonstrated that the 30-day mortality following elective AAA surgery was 4.8% for open surgery and 1.6% for endovascular aneurysm repair, with an overall mortality rate of 3.2% [Greenhalgh et al, 2004]. This was based on a protocol for pre-operative work up including assessment of cardiac, respiratory, and renal function, with defined indications for surgery. The QIP met with Professor Greenhalgh and agreed to adopt a modified version of the EVAR trial protocol to provide clinicians with a “safe for surgery” checklist (Appendix B). It was reviewed and adopted for use by the VSGBI and VASGBI. The document forms a preliminary checklist to highlight patients in whom attention should be given to improving fitness prior to intervention for their AAA. It also helps to identify those patients at very high risk who may be better cared for without intervention. It was advised that all patients being considered for abdominal aortic aneurysm surgery should be assessed against it prior to being brought forward for AAA repair.

There has been some difficulty with units varying in their approach to the safety checklist. It became necessary for the AAAQIP team to provide additional information and advice that it should be used not as a definitive assessment, but as a first check of fitness for intervention. It divides patients into groups, denoted safe (green), caution (amber) and unsafe (red). It is used to flag up the need for further assessment and optimisation in the amber and red category before proceeding.

Multi-Disciplinary Team (MDT) Proforma

As part of the process of improving care, the evidence from other specialities, especially in cancer care, is that formal assessment is best done as a team. We believed that this should involve surgeons anaesthetists, radiologists and vascular nurses in pre-hospital care as a minimum standard. This is designed to ensure that all risk factors are identified and minimised prior to intervention. For complex interventions such as cancer, there is evidence that formal MDTs provide more consistent decision making and improve progress along the pathway [Junor et al. 1994].

The ideal is a single meeting at which knowledge about the patient is shared to inform optimal decision making. Some centres could not manage to ensure all clinicians were present at one meeting, due to scheduling difficulties within busy clinical programmes. A compromise developed in the Northern General Hospital in Sheffield, was to require a formal assessment by surgeons, radiologists and anaesthetists that could be carried out at convenient times and documented in a single proforma. This is included within the AAA Pre-operative Care Bundle (Appendix C). The form provided a written record of the decisions about intervention and the personnel involved. A Clinical Co-ordinator would then be

responsible for ensuring that the process of consultation was completed, and requirements for patient optimisation were met before patients were listed for intervention. The form was taken up by a number of units and has been modified through PDSA cycles into a useful document that can be adapted locally by any unit.

Regional Action Plans: IHI Breakthrough Series Model

We found that it was not possible to deliver the AAAQIP centrally, so we undertook a regional approach. This involved working within regions to hold ongoing meetings in order to introduce best practice AAA protocols. We helped local teams run multi-disciplinary days for those involved in the care of patients with aortic aneurysm including vascular surgeons, anaesthetists, radiologists and nurses as well as patients, managers, cardio-vascular networks and commissioners. The days were used to inform teams about data entry levels and publicise the evidence base for change including patient views. An introduction to quality improvement methodology was also given. Each area of the care pathway along with protocol documents were discussed and reviewed through group sessions with a focus on best practice and suggestions of region specific requirements for each protocol.

We aimed to cover each element in the AAA care pathway. These include:

1. Patient consultation: AAA patient information leaflets and consent forms
2. The decision to treat: pre-operative screening and risk scoring.
3. MDT: Who should be involved in the decision to treat?
4. Intra-operative care: team composition, processes and facilities.
5. Post-operative and discharge care.
6. Measurement of outcomes and patient experience.

Based on feedback from the group sessions, Trusts/ teams then agreed to carry out one intervention, to improve an area of care within their hospital. This helped to increase ownership of the protocols and to improve implementation into standard practice. Findings and experiences were then shared at follow up meetings. Teams were encouraged to develop local implementation plans and test these using recognised QI methodologies. Learning was shared across regional groups and between hospitals in differing regions tackling similar clinical issues. Learning was facilitated both through the QIP team and directly between clinical teams.

Key Factors Important for Successful Implementation:

- Participation from all key stakeholders; vascular surgeons, radiologists, anaesthetists, nurses, managers, patients, C&S Networks and SHA/Commissioning teams.
 - A minimum of 3 team members within each unit to carry out an intervention.
- Agreed national standards to provide a focus to standardise practice.
- Allow regional and unit flexibility of integration of the standards and adoption of protocols. This flexibility improves ownership of processes.
- Share current practice and agree ideal best practice for the region.
- Letting improvement work develop over time (i.e. arranging follow up meetings with clear targets for progress).
- Trusts/teams test ONE best practice protocol/intervention initially (i.e. there is collective focus on one important task).
- Regional lead to gather engagement and keep up momentum.
- Local leads within each unit to drive QIP interventions.
- Follow up meetings to report back on progress, share outcomes and learning.
- AAAQIP team to provide ongoing support, track data contribution and outcomes.

Regional action plans work to bring clinicians involved in the care of AAA patients together. Experiences are shared, based on local processes, thus protocols can be adopted with the optimal changes to suit the region. This will act to standardise vascular practice throughout a region and improve patient safety.

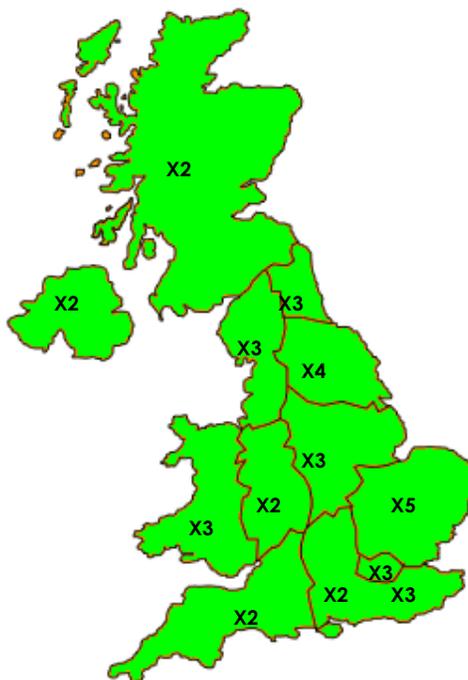
The Role of Key Stakeholders

The Vascular Society of Great Britain and Ireland, Vascular Anaesthesia Society, British Society of Interventional Radiology and the Society of Vascular Nurses were vital to ensure attendance from all clinical disciplines and to disseminate information. It was also important to ensure the local Cardiac and Stroke Networks and Commissioners attended where possible to provide a wider perspective on regional

standards and resources and how QI initiatives fitted in with local reconfiguration. In some regions, the Networks then agreed to run follow up meetings and link local QI work to their service improvement initiatives in order to spread and sustain changes.

Patients were involved in the projects at all stages to ensure the service met the needs from patient's perspectives. The patient voice was particularly important during regional meetings and influenced attitudes within clinical teams. Not only was patient input useful in establishing service requirements from a clinician point of view, but new ideas and suggestions were also introduced by patients and through patient stories (e.g. telephone follow up, practical and AAA specific recovery information) during the delivery phase of the QIP.

Regional Implementation



We covered the whole of the U.K through different phases of implementation throughout the Programme. We aimed to hold at least 3 meetings per region but this varied slightly due to local support in the region from Networks to hold further meetings. As well as this, some regional involvement came towards the end of the grant and we did not have time available to host 3 meetings.

Clinical Practice Prior to AAAQIP-Findings from Regional Action Plan Meetings Assessment

- Most hospitals had vascular x-ray meetings but not specific MDTs. Anaesthetists were not largely included in vascular MDTs although most expressed a strong desire to be involved.
- Risk assessment was highly variable with not every patient likely to undertake the same risk assessment.

Post-operative Care

- Lack of clear protocols for pathway progression with discharge reliant on consultants. Most units were supportive of nurse led discharge to smooth pathway flow. Nurses felt that they would need guidance about how to manage pathway variance, but were supportive of plans for protocol led discharge.
- There was support for setting planned discharge dates to manage patient expectations. These should be agreed with patients and carers prior to admission. Patients requiring complex packages of care in the community should be referred to OT and social services prior to admission wherever possible.

Communication with Patients

- It was consistently revealed that surgeons often provided risk information based on their personal experience of complications.
- Local patients often revealed they felt they had been 'kicked out of hospital' with a lack of post operative follow up and advice.

STEPS IN THE REGIONAL ACTION PLAN PROCESS

Clinicians must be aware of the measurement process as part of the AAA QIP and agree to undertake it as part of the RAP.

Regional Action Plan Event (LS1)

- Discuss current practice & agree best practice against 6 elements of care pathway.
- Teams agree to trial one best practice QI intervention.

DISCUSSION/ AGREEMENT

Take baseline measures

- **Units/AAA QIP team:** Mortality, LOS, complication rates and NVD contribution rates.
- Work with clinicians in each trust to establish current protocols used and additional local measurements.

MEASUREMENT

PDSA Cycles

Clinicians/hospitals in the regions to use PDSA cycles to implement the new protocols and provide feedback to AAAQIP.

IMPLEMENTATION

Improvements:

- **AAA QIP team work with region:**
- Provide template protocol documents and advice.
- NVD tutorial sessions, provide detailed data feedback.
- Carry out patient groups.
- Feedback on progress and best practice nationally.

IMPROVEMENTS

Regional Progress Meeting (LS2)

REVIEW/ DISCUSSION & NEXT STEPS

Regional Sustainability Meeting (LS3)

Outcome measures:

- **AAA QIP team:** Mortality, LOS, complication rates and NVD contribution rates.
- Patient feedback: patient groups/ Picker Survey.
- Local run charts in units: LOS, complications rates

MEASUREMENT

Patient Engagement

Patients, carers and the wider public have a significant role to play in implementing QI changes. They were involved at all levels of the project, helping to design improvements in communication and care delivery. Their personal experiences of the patient pathway provided a strong narrative to emphasise the importance of clinical quality improvement to clinicians. We built a network of patient groups around the U.K to explore patient experiences and to identify areas for improvement. The early outputs from this group work resulted in significant development of written information for patients both pre-operatively and following AAA repair. The patient groups were also involved in helping to develop Patient Reported Outcome Measures (PROMs) for assessment of the quality of care.

Patients additionally attended our regional meetings to provide clinicians with face to face accounts of patient experiences. We also had a national patient representative attending the meetings and advising on the evolution of the programme.

2.2 MEASUREMENT *(see measurement strategy diagram below)*

The National Vascular Database (NVD), a voluntary database for vascular clinicians run by the Vascular Society, was used to measure the impact of the AAAQIP on outcomes. It provides online analysis with real time reporting of procedure numbers, AAA mortality and it allows the comparison of performance for key procedures against national standards.

We compared NVD data to data that healthcare providers collect locally and submit to their relevant national statistics; England – Hospital Episode Statistics (HES), Wales – Patient Episode Database for Wales (PEDW), Scotland – Scottish Morbidity Record (SMR01), and Northern Ireland – Department of Finance and Personnel Northern Ireland (DFPNI). This acted to provide two markers for outcomes and a baseline figure to compare NVD data submission levels against.

Quantitative Clinical

Primary Outcome Measure: Elective Mortality for Infrarenal AAA Repair

Defined within the NVD by the fields containing; elective admission, unruptured AAA and one of the following OPCS procedure codes L19.4, L19.5, L19.6, L19.8, L27.1, L27.5, L27.6, L27.8, L27.9, L28.1, L28.5, L28.6, L28.8, L28.9.

The mortality figures were colour coded to map to the standards outlined by the National AAA Screening Programme which categorises mortality into the following ranges; 0-6% Green - safe, 6.1-10% Amber – areas for improvement, >10% and above Red - unsafe.

Adverse Events Measures: NVD Data

1. Complication rate
2. Length of stay

Process Measures: NVD Data Contribution

1. Total AAA contribution onto the NVD compared to HES - traffic light coded (red, amber, green) contribution.
2. Timeliness of data submission and data completeness – monthly charts of red yellow and white cases (missing mandatory, preferred, desirable fields respectively).
3. No. of clinicians signed up and contributing to the NVD.

The Vascular Society endorsed the following national standards for AAA data entry onto the NVD. The table below outlines the standards using a traffic light system. The numbers of AAA cases on the NVD are compared to those reported by HES to calculate the percentage contribution rate.

Quality Standards: Percentage of AAA data entry onto the NVD as compared to HES	Coded Category
≤75%	Red
76-90%	Amber
91-110%	Green

>110%

Amber

Percentage contribution rates >110% were classed as amber as there may be coding errors and data resolution should be undertaken. These data entry standards were integrated into the quarterly AAAQIP reports from January 2011 and Trusts were encouraged to improve their contribution rates accordingly.

Balancing Measures: Percentage of Patients Turned Down for AAA Surgery

This was measured nationally through a 6 week snapshot Turndown Audit (05/09/11-23/10/11). It is proposed that this audit will be repeated regularly to help the Vascular Society better understand turn down rates nationally and to help identify trends and monitor changes that occur.

Turndown rates were also measured locally by some units to help them to define a baseline and monitor changes in practise as well as to better understand their whole AAA patient population rather than just the AAA patients that proceed to operation. We identified significant variation in turn down rates in units reporting these to the QIP.

Qualitative Clinical

Process Measures: Implementation of Best Practice Protocols

Feedback from region's Trusts/teams on the implementation of the selected best practice protocols (P.D.S.A cycles).

Run charts carried out locally alongside regional action plans: mortality, complication rate, length of stay.

Patient Experience Measures

Feedback from patient groups.

Patient satisfaction and reported experiences through the care pathway (Patient groups/Inpatient Picker Survey).

Figure 2.2.1
What are we trying to accomplish?
OBJECTIVES

AAA QIP: MEASUREMENT STRATEGY
How will we know a change is an improvement?
MEASURES

BASELINE MEASURES

OUTCOME MEASURES

Objective 1: Reduce the mortality for elective Abdominal Aortic Aneurysm (AAA) repair in the U.K. from 7.5% to 3.5% by 2013.

1. Elective mortality for infrarenal AAA repair defined within the National Vascular Database (NVD) by the fields containing:
 • Elective admission/ Elective repair/ Unruptured AAA Infra renal OPCS codes only
NVD & HES: OVERALL/OPEN/EVAR
RUN CHARTS....TRUST/REGIONAL/NATIONAL (monthly)

NVD 2008: OR 8% EVAR 5%
 ICNARC 2007: 6.4%
 NCEPOD 2005: 6.2%
 VASGBI Audit 1999: 7.3%

Users in NVD (01/03/10):
 H Units: 85, RCP Units: 187
 Surgeons: 402
 Anaesthetists: 10
 Radiologists: 24

PROCESS MEASURES

Objective 2: Increase data contribution onto the National Vascular Database (NVD) from 65%-90% by April 2012.

2. No. of clinicians (surgeons, radiologists and anaesthetists) signed up and contributing to the NVD.
RUN CHARTS....NATIONAL (monthly - starting 2011)

3. Total AAA contribution onto the NVD- white (available), yellow (partially available) and red (unavailable).
RUN CHARTS....REGIONAL/NATIONAL (monthly)

Total AAA cases 03/03/10; 16506
 NVD AAA contribution (03/03/10):
 White: 7562, Yellow: 8115, Red: 829
 Period: 01/03/08-28/02/10
 Total AAA cases NVD: 8903
 Total AAA cases HES: 12679
 Infrarenal total AAA NVD: 8490
 Infrarenal total AAA HES: 11924
 Percentage contribution 14/01/11
 Red: 58.7%, Amber: 26.9%, Green: 14.4% of trusts.

Objective 3: Achieve 500 cases of complete Acute Kidney Injury (AKI) data entered onto the NVD by April 2012.

4. NVD AAA contribution compared to numbers reported on HES.
RUN CHARTS....TRUST/REGIONAL/NATIONAL (monthly)

5. AAA contribution identified as: red (<75%), amber (76-90%), green (>90%).
RUN CHARTS....TRUST/REGIONAL/NATIONAL (monthly)

Objective 4: Standardise the management of patients' through the AAA care pathway in regions throughout the U.K. Implement best practice protocols into vascular units through regional action plans (RAPs).

6. AAA records on the NVD with complete AKI data (days 1-3 post op).
RUN CHARTS....TRUST/ NATIONAL (monthly)

None

OUTCOME/PROCESS MEASURES

Objective 5: Engage and collaborate with patients to improve informed consent, communication throughout the care pathway and patient satisfaction. Implement new patient approved information leaflets, responsive to patient's needs as part of (R.A.Ps).

7. Trusts/teams in regions implement and test ONE best practice protocol and complete P.D.S.A cycle template forms (1 month into implementation).
P.D.S.A CYCLES....TRUST

8. Percentage of patients provided with care using best practice protocol.
LS2 MEETING/SNAP SHOT AUDIT.....TRUST

9. Adverse events recorded alongside regional action plans: complication rate, length of stay.
RUN CHARTS....TRUST/REGIONAL/NATIONAL

None

None

NVD (03/03/10)
 Complication rate: 34.9%
 LOS: median 9d OR, 4d EVAR

10. Feedback from patient groups on experience through AAA care pathway in a region/ practical input on information leaflets/consent forms/questionnaires.
PATIENT GROUPS....REGIONAL

11. Percentage of patients receiving appropriate pre-operative patient information leaflets and recovery leaflets.
LS2 MEETING/SNAP SHOT AUDIT....TRUST/REGIONAL

12. Patient satisfaction and reported experiences through the care pathway.
Picker Survey...TRUST

None

None

None

BALANCING MEASURES

Objective 6: Measure unanticipated consequences and adverse events.

12. Percentage of patients turned down for AAA surgery
REGIONAL ACTION PLANS....TRUST/REGIONAL/NATIONAL AUDIT

None

3. RESULTS

3.1 OUTCOMES: What were the results of the project?

PROCESS MEASURES: AAA Data Contribution to NVD as Compared to HES

Data contribution

The chart below (figure 3.1.1) shows the contribution rates of data onto the NVD compared to HES data at the start of this project. Figure 3.1.2 then shows the improvements in data submission as a result of the project data strategy and focus on AAA service improvement.

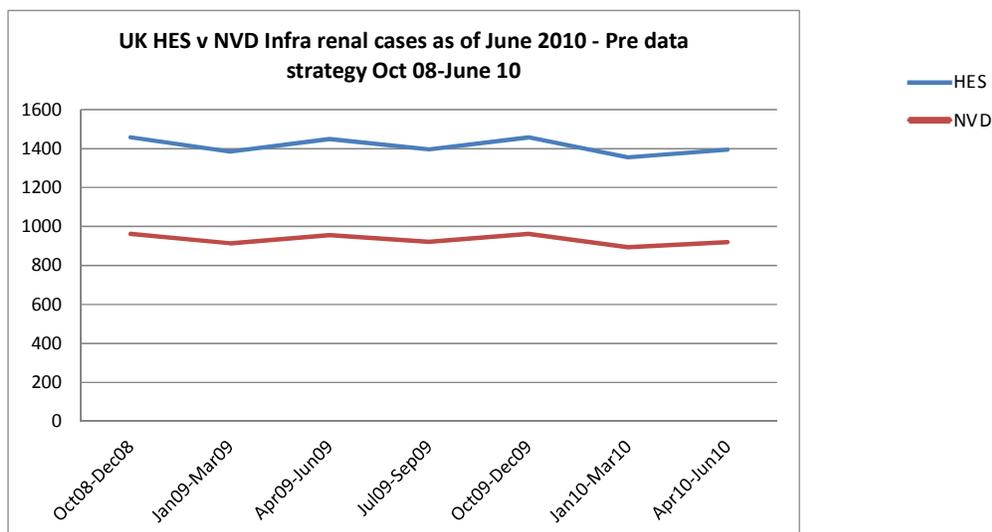


Figure 3.1.1 - UK Infra renal AAA cases as record via NVD and HES from Oct08-Jun10

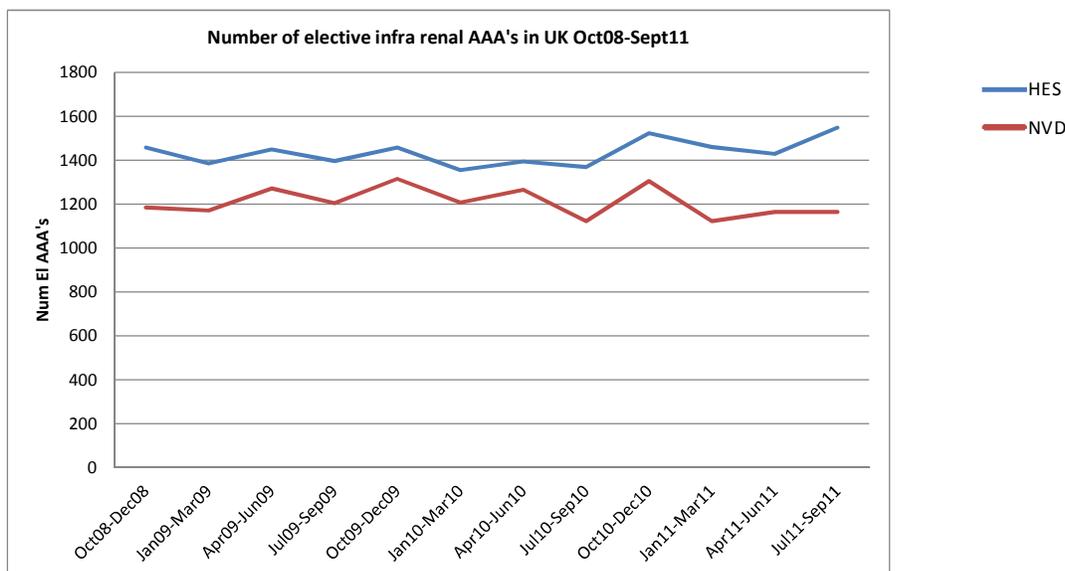


Figure 3.1.2 – UK Infra renal AAA cases as record via NVD and HES from Oct08-Sept 11

Average percentage contribution for NVD data in Figure 3.1.1 was 66% and this has improved to 84% for UK Infra Renal AAA data entry. The South East Coast was the only region to meet the amber standard for data contribution. This is clearly a significant increase in NVD data entry and this has been done through the following key steps;

- Quarterly feedback to all units
- Data validation exercises
- Encouraging units to implement regular coding reviews

- Enter data in a timely manor, ideally on the day of the operation
- Identify a specific individual who is responsible to review the data monthly
- Utilise the NVD data for local outcomes reporting
- Specify in the notes when the patient's case has been entered onto the NVD
- Constant central support for data entry, resolution and data validation

The AAAQIP team had to ensure that the strategy and process was clear and directive in order to drive data entry. We had to be consistent in our messages and be robust in this process in order to encourage national engagement and ensure sustainability long term. The improvements in infra renal AAA data contribution are being sustained. We have faced difficulty with HES data feeds from late 2010 until the present and there has been a slight tailing off of data quality. This serves to highlight the importance of sustaining information feedback to clinical teams in the future.

Timeliness of data entry

Not only is data entry into the NVD important for reporting outcomes and unit performance but the timeliness in which the data is entered is also key. The more timely the data is entered, the likelihood of missing cases is reduced. The charts below show a reduction in delayed data entry and a change in the method of data entry as well as an increase in cases submission.

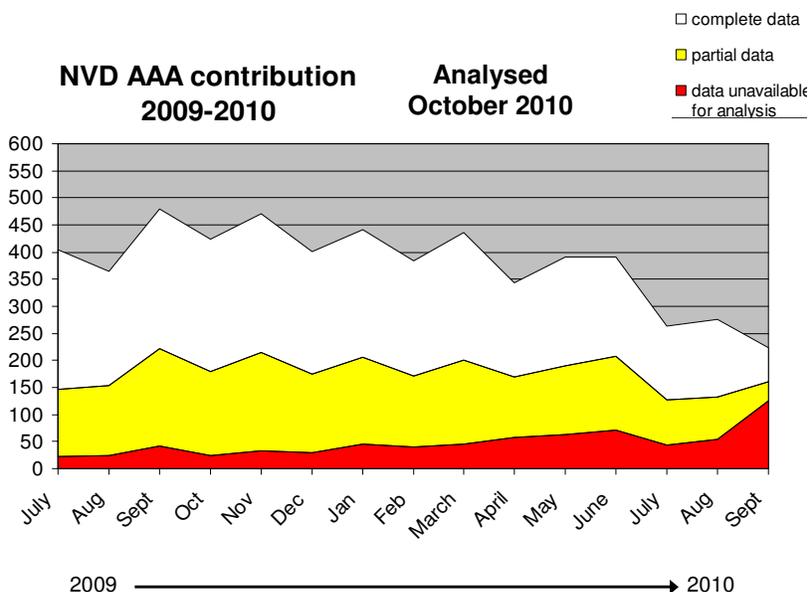


Figure 3.1.3 – NVD AAA contribution and level of case completeness as of October 2010

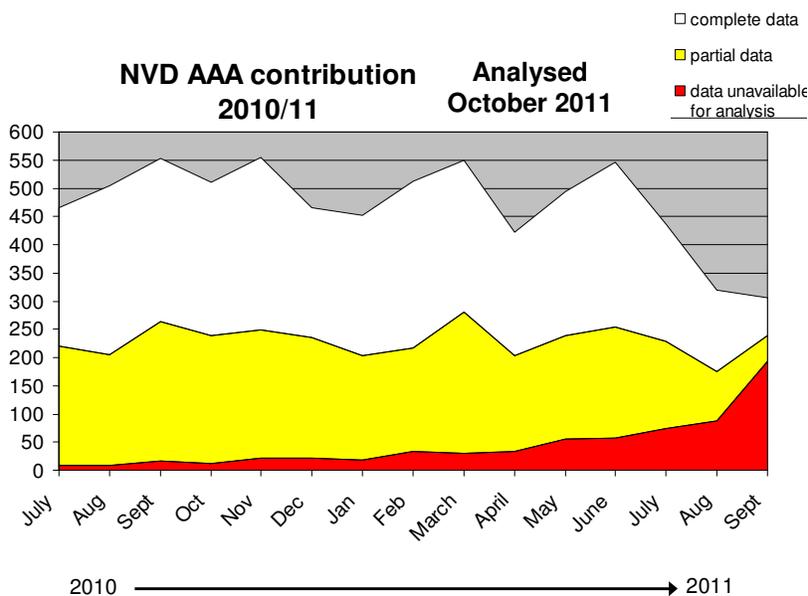


Figure 3.1.4 – NVD AAA contribution and level of case completeness as of October 2011

The delay in data entry has reduced from approximately 6 months to just less than 4 months, making the dataset more representative of current practice. There is also a significant increase in the number of red records in figure 3.1.7 from July-Sept 11 and this is because of a change in data entry processes and a shift in the culture of data entry. Cases on the NVD are being created more concordantly with the date of operation. There is still a delay with the records being updated to contain the necessary completed fields. This is a clear improvement in data quality with a reduction in the number of cases that are missed and not entered into the NVD. There is also a significant increase in the number of yellow and white cases in figure 3.1.7 making the data more readily available and more complete, with an increase of an extra 100 cases per month compared to the previous year.

The charts below show the data contribution rates for units within the East of England as they were in November 2010 (left) and again in November 2011 (right), following the introduction of data feedback. The blue bars identify the number of AAA procedures as reported through HES data. The red/yellow/green (as per the VSGBI data contribution standards) bars show the number of procedures on the NVD by clinicians for the same time period. In the left hand chart, only 3 units out of 15 (20%) can demonstrate good data submission practise (shown in green). The level of data submission significantly increased by the following November 2011, as 8 units out of 15 (53%) now demonstrated good data submission. There were improvements made by 14 of the 15 units. As a region the overall improvements in data entry are clearly evident with previous data entry being reported as poor at 69.1% and in November 2011 this had improved to good at 91.2% when compared to HES data.

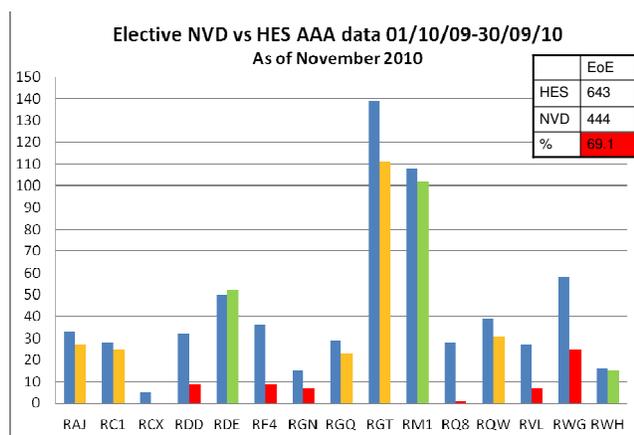


Figure 3.1.5 – Data contribution as of Nov 2010

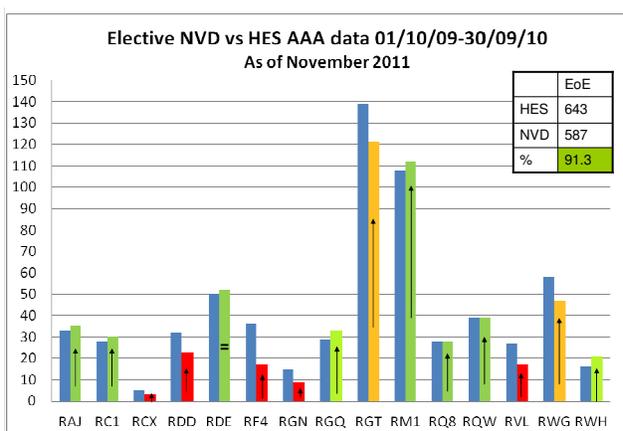


Figure 3.1.6 – Data contribution as of Nov 2011

The East of England has been identified here as an example of unit and regional improvement but similar events have occurred in regions throughout the country as is evident from the maps above.

Case Study: Norfolk and Norwich University Hospital's AAA data entry process

Matthew Armon, Consultant Vascular Surgeon, Norfolk and Norwich

We keep a book in the Vascular Theatre into which all arterial operations are entered and then transferred to our own (Excel) database. Each month the audit lead collates the information and circulates it to each consultant, asking them to check it for completeness and fill in any complications. The length of stay is checked against the Hospital Administration System (PAS) and this also lets us know of any deaths. We are also notified of all deaths on a monthly basis by the hospital mortality committee. We then have a meeting to discuss the previous month's activity, complications and deaths. I usually provide quarterly reports to our departmental meeting, including each surgeon's activity, which may act as a stimulus to make sure no-one misses any cases.

I've found that our own prospectively maintained database is more accurate than the hospital HES data, and it acts as our gold standard. If the number of NVD cases is less than on our own database, it's fairly straightforward to cross-check and find which one's are missing and encourage colleagues to fill them in. Failing that, I end up putting them on myself.

Increase in the number of clinicians signed up and participating on the NVD

Since March 2010, there has been an increase of 69% in the number of surgeons registered to the NVD. Consultants who haven't previously submitted data are now participating. This will help to provide more robust and representative AAA outcomes at unit, regional and national levels. The number of Anaesthetists and Radiologists registered to the NVD has also increased considerably from 10-214 and 24-200 respectively. This would show support to a more collaborative and multidisciplinary team approach being introduced. This is not only being implemented within clinical decision making and patient optimisation but can be seen in data entry. There is a considerable amount of work to be done in order for a clear picture of AAA care to be shown across the three specialities, but this is the initial step in a clinical service driven data collection process.

PRIMARY OUTCOME MEASURE: Elective Mortality for Infrarenal AAA Repair

Defined within the NVD by the fields containing; elective admission, unruptured AAA and one of the following procedures code L19.4, L19.5, L19.6, L19.8, L27.1, L27.5, L27.6, L27.8, L27.9, L28.1, L28.5, L28.6, L28.8, L28.9.

AAA Mortality

As part of the AAAQIP, two mortality validation exercises were undertaken and mortality figures were sent to all UK Trusts identifying their NVD mortality for elective AAA procedures compared to that reported by HES over a 2 year period (01/10/2008-30/09/2010). Trusts were encouraged to validate the mortality data provided and to resolve discrepancies where possible. The majority of units reported incorrect coding of HES cases with several units able to reclaim lost revenue.

Data Validation Case Study: Yorkshire and Humber Region.

Significant numbers of cases on NVD did not map to a correct OPCS coded episode on HES. Some coding was incorrect and other cases appear not to have been put into HES. This resulted in a loss of revenue for the trust and so prompt correction was necessary.

No deaths were associated with the OPCS codes stated in the NVD dataset or the HES data for vascular surgery. A variety of data-sources had been used to verify that all identifiable cases had been entered on the NVD, including HES data, and it was therefore unsurprising that no cases were identified as missing from the NVD. A complete set of HES data for vascular surgery was imported to a relational database, which was integrated to identify matching spells, associated HRG and OPCS coding, and mortalities on HES. Unmatched cases were further investigated to try to identify causes of mismatch. We will continue to validate this dataset, perform a similar exercise for ruptured AAA, improve reconciliation, and cross reference with HES more frequently. This will improve the reliability and accuracy of our unit's data collection as well as increasing trust revenue.

This mortality data was published at unit and region level on 1st March 2012 in the first national Elective Infrarenal AAA mortality report. A copy can be accessed via <http://www.vascularsociety.org.uk/news-and-press/2012/77-outcomes-after-elective-repair-of-infra-renal-abdominal-aortic-aneurysm.html>

National Elective Infrarenal AAA Mortality

National elective infrarenal AAA mortality data is shown below in table 8. The data looks at a 2 year time period from 1st October 2008 to 30th September 2010 based on date of discharge. OPCS codes (as shown below) and elective admission mode were used to ensure that only true elective infrarenal AAA procedures were captured and analysed.

Table 1: AAA mortality data as recorded on the NVD and HES (01/10-08-30/09/10)

	NVD OPEN (%)	NVD EVAR (%)	NVD OVERALL (%)	Data contribution (%)
English				
01/10/08-30/09/10	4.4	1.0	2.4	87
Wales				
01/10/08-30/09/10	3.1	0.8	2.1	107
Scotland				
01/10/08-30/09/10	1.9	0.0	1.0	44.2
Northern Ireland				
01/10/08-30/09/10	5.0	0.0	2.4	117
UK				
01/10/08-30/09/10	4.3	0.9	2.4	84

OPCS CODES:

Open - L19.4, L19.5, L19.6, L19.8

EVAR - L27.1, L27.5, L27.6, L27.8, L27.9, L28.1, L28.5, L28.6, L28.8, L28.9

The mortality figures were colour coded to map to the standards outlined by the National AAA Screening Programme which categorises mortality into the following ranges; 0-6% Green, 6.1-10% Amber, >10% and above Red.

AAA Mortality Rates Compared to Data Contribution

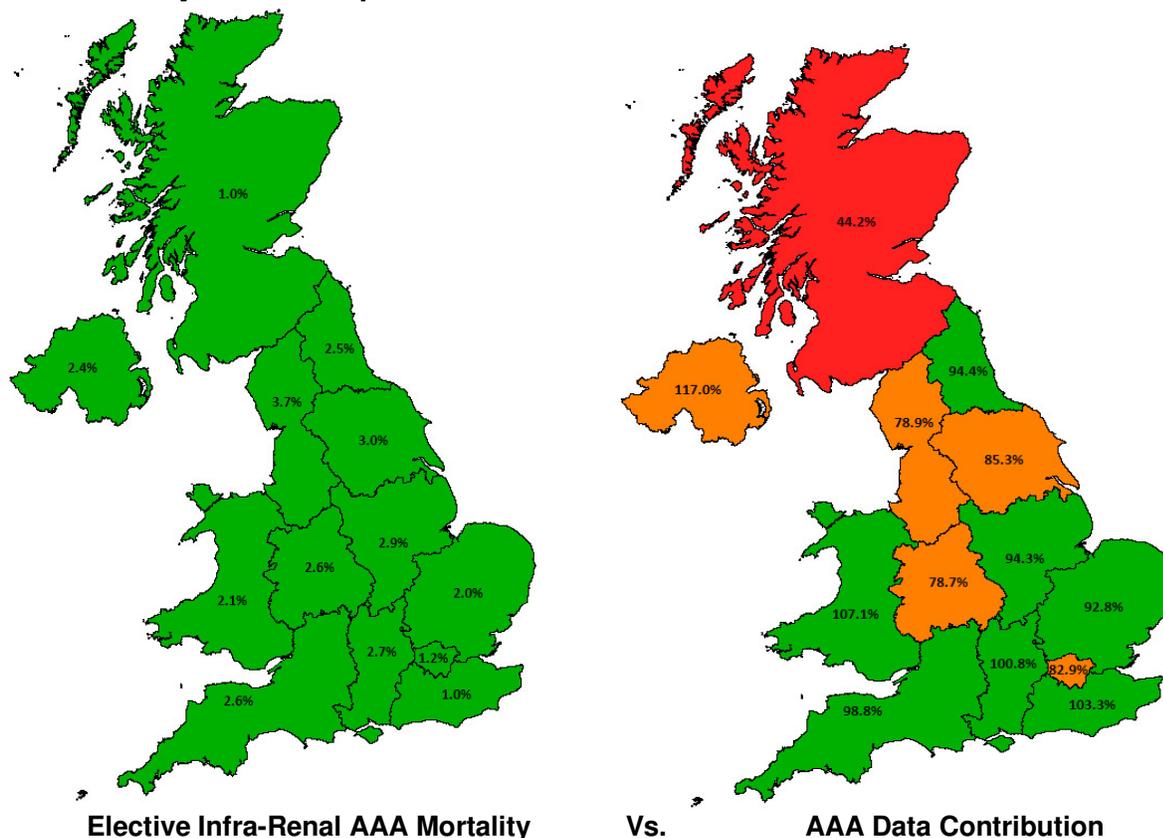


Figure 3.1.7 - Map of UK showing elective infra-renal AAA mortality by region alongside regional data contribution rates for England and the Celtic Nations 01/10/08-30/09/10.

As can be seen from table 8 and figure 3.1.8, the elective infrarenal AAA mortality rate in the UK has decreased significantly since the baseline mortality of 7.5% that was reported in 2008. The overall UK elective infrarenal AAA mortality rate is 2.4%, with OR 4.3% and EVAR 0.9% as of March 2012. There remains significant variation in data quality. Continuing to publish both outcomes and data quality is a key part of our sustainability plan.

OUTCOME MEASURE: Adverse Events; Complication Rate and Length of Stay (NVD).

Length of stay for Infrarenal AAA procedures 01/10/08-30/09/10

Length of stay (LOS) is a measurement that is used to report duration of patient in hospital stay following AAA surgery. AAAQIP identified LOS as one of its key outcome measures to monitor change in hospital stay for AAA patients. During this project the LOS was a median of 9 days for Open Repair and 4 days for EVAR. LOS will be tracked continually moving forward to monitor unit performance and duration of in hospital stay following AAA surgery. LOS has not changed during the lifetime of this project as changes in national LOS take a considerable time to occur. There may be a change in length of hospital stay as a result of some of the changes introduced through this project but these will only become evident over at least a 5 year period. It will also be difficult to attribute the reasons for national reductions due to many impacting variables.

On a local level there has been evidence of reduced LOS through improvement of patient preoperative assessments and the introduction of discharge planning and protocol led discharge. At Royal Victoria Hospital in Northern Ireland through risk scoring patients preoperatively the patients could go to the appropriate care facility post operatively (ward or ICU). They found that using the risk scoring system more patients were able to be sent straight back to the wards following the operation rather than taking up a bed in ICU. Patients that were sent straight back to the wards were found to be discharged earlier from hospital, so not only did the unit reduce their in hospital stay but the pressure on high level care beds was reduced.

At East Kent Hospital there was ambiguity around the average LOS for EVAR patients. It was “thought” that EVAR LOS was 2 days, however, following investigation into this only 60% of patients were discharged in 2 days and 86% of patients left hospital within 3 days. From this work, the need to improve the EVAR pathway and reduce LOS further became apparent with an aim of a 2 day hospital stay for elective EVAR patients. The unit plans to achieve this by ensuring patients are admitted on the day of surgery for standard cases and to remove epidurals/catheters before 6am the day after surgery rather than the current 11am.

BALANCING MEASURE: Percentage of Patients Turned Down for AAA Surgery

A risk of the AAAQIP focusing on mortality was that vascular clinicians may be deterred from taking on difficult cases. Turn down rates were measured on a local basis through Regional Action Plans and through a national snapshot Turndown Audit. A national snapshot audit was undertaken over a six week period between 05/09/2011 and 23/10/2011. Data entry was web based and voluntary.

Results

We measured turn down rates at 24% during this snapshot audit. The primary reason for turndown was lack of fitness in the majority with a significant number deemed unfit for open repair and unsuitable for endovascular repair. A quarter of patients being turned down declined intervention. Dementia was a cause for turndown in 14% and terminal malignancy or severe chronic disease cited as a reason in 21%. As cases were only captured if entered by surgeons into the web tool, these rates are likely to underestimate turndown rates in patients presenting acutely to medical services who are not referred on to a surgical service.

Conclusion

The literature on the management of AAA is heavily focussed on intervention and outcomes from repair. There is less evidence available to support surgeons in making complex decisions regarding the futility of repair in unfit patients. This audit provides a baseline measurement to inform both clinicians and patients about the totality of AAA care in the hospital sector in the UK. This will act as a baseline measurement for the Vascular Society and individual units to monitor rates of turndown as part of quality

improvement to reassure patients that improvements in outcomes are not being made by increasing turnaround rates.

AAA Turn Down Audit, Belfast City Hospital

Data presented at the Northern Ireland AAAQIP Sustainability Meeting (22/02/2012)

Mr Louis Lau, Consultant Vascular Surgeon

We undertook a prospective audit of patients with large AAA who were turned down for surgical repair at the Belfast City Hospital between May and December 2011, using a modified data collection tool adapted from the AAAQIP Project Team. During the 8 months, 88 patients presented to the unit with large AAA (>5.5cm). Twenty-three patients (26%) were turned down for surgery (4 patients presented with ruptured AAA).

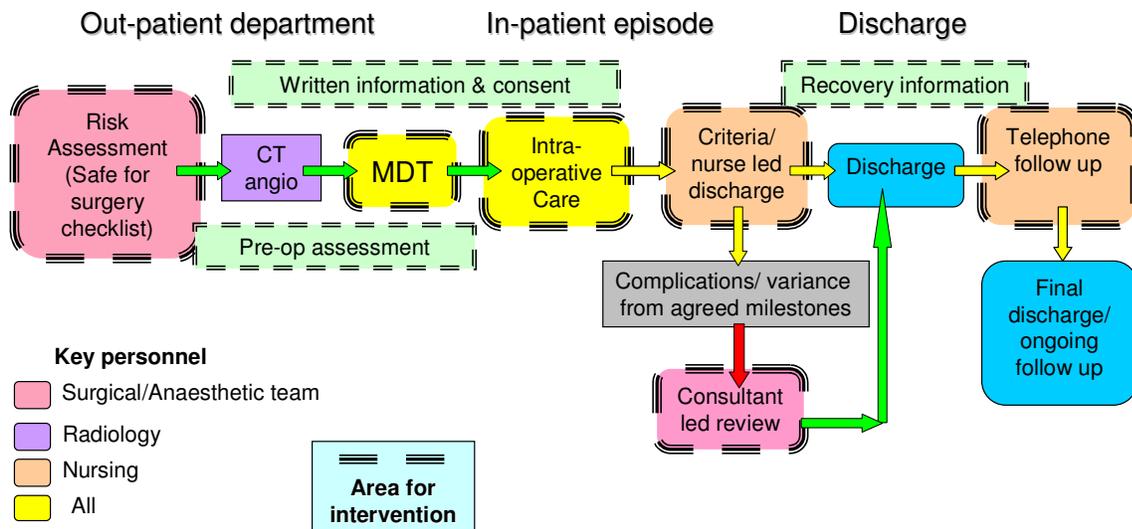
Involvement with the AAAQIP audit has proven to be a very useful exercise. It highlighted the lack of historical data on AAA turn down rate and its influence on the overall mortality rate of patients presented with large AAA. Less than 50% of the cases were discussed at MDT meetings. The MDT decision-making process will need improvement but timely involvement in the MDT process may not be possible for those patients who present as ruptured or symptomatic AAA. The criteria for turn down was poorly defined and continuing to capture the turn down data should be considered as part of the NVD strategy to improve the understanding and guide clinicians in the decision-making process. For those patients who were turned down for elective surgical repair, it is useful to capture the patient's choice of intervention in the event of rupture or development of symptoms so that unnecessary intervention could be avoided.

PROCESS MEASURES: Implementation of Best Practice Protocols.

Practical Outputs from Regional Action Plan Meetings

Feedback from local clinical teams at the first regional meeting in the North East provided clear evidence of variation in practice between neighbouring units. As well as this, there was variation from agreed national standards within the region identifying areas for improvement. Based on this feedback, the North East group agreed to develop a care pathway to provide a consistent approach to care delivery. This pathway has been used as the template for subsequent regional meetings. In these meetings, clinical teams were asked to trial one best practice protocol/intervention in the care pathway and report back at a follow up meeting.

Care Pathway Interventions



Snapshot of Feedback from Best Practice Interventions around the U.K

❖ East of England (EoE)

AAA QIP in the East of England Review 2011 – 2012

*Kevin Varty
Regional Clinical Lead.*

Introduction

The AAA QIP initiative in the East of England started with a well attended regional meeting in January 2011. Background information on data (HES/NVD) and care pathways developed in other regions (North East) were available as a guide to introduce the QIP principles. Historically the surgeons in the region have held meetings twice a year to discuss regional issues, both clinical and training. This provided a basis of good interaction between units on which to develop the AAA QIP process. The involvement of radiologists and anaesthetists was however a new, but welcome, challenge. Patient representatives attended the first meeting and contributed to discussions on information, patients understanding of “risk”, and PROMS. Motivating units to change established practices was clearly going to be the biggest challenge. The key “levers” available to assist in this process were;

1. The evidence base supporting the need to improve AAA mortality in the UK
2. National Vascular Database, data to compare unit activity and outcomes
3. National drive for reconfiguration of units based on volume/outcome.

The importance of this AAA QIP initiative for units continuing to provide AAA care was clear. This was the key driver for units to adopt change.

Main Areas of Development

14 months on from the first meeting, certain parts of the “care bundle” pathway have featured more than others and been developed further as a result.

1. Risk Scoring.
2. MDT meeting, recorded outcomes, anaesthetic input
3. NVD and HES data, how to improve coding and data entry.
4. Patient information and PROMS.

Many units “piloted” use of the above after the first meeting. A feedback meeting followed this in July 2011. Addenbrookes and Bedford described their versions of Risk scoring and MDT proformas. Although extra work was involved using these they proved to be clinically useful. The development of a mini-case summary of the AAA, readily to hand rather than needing to refer to the medical notes, was regarded as useful. Anaesthetic input varied widely, but was accepted by all as important for high risk cases, especially for open AAA repair. Norwich developed a post operative care bundle for EVAR with early return to the vascular ward and discharge. This project resulted in a reduction in HDU bed usage and Length of Stay. Harlow and Chelmsford reported on patient information and PROMS. The feedback was very positive for the patient experience and was largely driven by the Vascular Specialist Nurse. It became clear that the specialist nurse is a key player in much of the AAA QIP process. Lastly, Ipswich reported an audit of turn down rates pre the introduction of EVAR. Rates were higher than expected. There was agreement that all cases should be recorded at MDT meetings including those turned down. Units should know their “turn down rate”.

In order to avoid an over prescriptive approach to introducing “care bundles” we adopted a set of regional standards agreed by all units. Standards were set for pre, intra and post operative care. Overall unit standards were included also. In adopting these standards units had a degree of freedom in the protocols and practices they each used.

These standards can be viewed by clicking the link below:

<http://www.aaqip.com/aaqip/rap-east-outcome-documents.html>

At the final QIP meeting each unit reported on how they were progressing against the standards. There was still much variation, and all units had areas in need of development. At this stage, the issue of service reconfiguration came to the fore. Uncertainty about which units were to continue with AAA care in the region was going to influence who developed their AAA QIP standards further. Currently the outcome of a regional review is awaited. The core vascular units emerging from this will need to look at the AAA QIP standards, and implement their protocols to achieve them.

Coding

One further meeting took place. A special event was dedicated to coders, in order to explore how NVD and HES data is brought together. Again a well attended meeting took place, active discussion. Coding is a precise and lengthy process, in order to standardise what is recorded. Coders frequently need clinical help. The overwhelming message from the meeting was that clinicians and coders need to meet and interact, in order to ensure AAA HES data concurs with NVD recording.

Reflection

AAA QIP was timely, the political / service backdrop focussed minds on the task. Despite this, real change was slow. Over a year progress towards fully implemented care pathways was underway, but no unit had completed the process. Data was better, mortality was down. Ensuring the AAA QIP process continues is the next challenge once regional reconfiguration is agreed. The standards provide one way of encouraging this, with new units / networks challenged to meet the standards. A regional review to look at this will be a useful way of taking things forward.

Sending EVAR patients directly back to the ward rather than HDU. Norfolk and Norwich University Hospital

Through group sessions at the first East of England regional meeting, Norfolk and Norwich Hospital discovered that their current post-operative destination procedures did not map to the practice of other units in the region. Whilst they sent all EVAR patients to high dependency, most other units sent these patients directly back to the ward. This had implications for length of stay and costs for the hospital. Following this, Norfolk planned to send EVAR patients directly back to the Ward rather than extended recovery or HDU. The case study is included below.

The Care Pathway is available to view via the link below:

<http://www.aaqip.com/aaqip/rap-east-outcome-documents.html>

Implementing a New Integrated Care Pathway for EVAR Norfolk and Norwich University Hospital

Darren Morrow, Consultant Vascular Surgeon

The vascular surgery unit at the Norfolk and Norwich University Hospital performs about 60 elective EVARs per year. Until last year all patients were admitted to the High Dependency Unit post-operatively. This often led to delayed starts and sometimes even cancellations due to a lack of HDU beds. A retrospective audit of 50 consecutive EVARs showed most patients did not need HDU care and those that did could usually be identified pre-operatively.

We proposed that in future all EVARs would be performed in the mornings and most patients should be admitted directly to the vascular ward post-operatively. Those likely to need HDU care should if possible be identified in the anaesthetic pre-assessment clinic. There was unanimous support for this change amongst the vascular surgeons, anaesthetists, intensivists and nursing staff.

A multidisciplinary EVAR Integrated Care Pathway (ICP) was developed which detailed the necessary medical and nursing care on each post-operative day and aimed for discharge on the third day. A surgeon and an anaesthetist gave small-group tutorials to the ward nurses explaining the procedure and the possible post-operative complications.

The nurses asked that there should be no confusion over which doctor to call if the patient gave them cause for concern. It was agreed that this should be the vascular registrar during normal working hours or the on-call general surgical registrar out-of-hours both supported by the vascular consultant and HDU registrar as required. An online EVAR booking diary was created which could be accessed by all relevant staff. This allowed the ward sister to roster an additional staff nurse on the twilight shift on those days when a post-operative EVAR patient was expected.

The outcomes of this new care pathway are being audited prospectively. Data for 34 consecutive patients is available. There were 3 planned and no unplanned admissions to HDU. Doctors were called for reasons of fever, epidural haematoma, bleeding from the groin wounds, hyponatraemia, low urine output, hypotension, urinary retention and exacerbation of COPD. The mean length of stay was 3 days.

Unexpectedly, due to increasing pressure to admit patients on the day of surgery, there were some delayed starts due to a lack of a vascular ward bed. We also found that the ICP was unpopular with the junior doctors who preferred to write traditional medical notes. We are therefore considering replacing it with a guideline.

Overall, we have found this to be a very positive change. There have been no adverse outcomes. We have reduced our use of HDU beds and our length of stay. The ward nurses feel more engaged and the patients certainly seem satisfied.

Trailing the Multi-Disciplinary Team (MDT) proforma. Bedford Hospital

Arindam Chaudhuri, Consultant Vascular Surgeon.

As part of the AAAQIP, Bedford agreed to trial the MDT proforma. This was modified using versions from Addenbrookes and Bedford as well as versions on the web. A document was produced that provided a linear description of pre-operative patient care as well as allowing risk assessment to inform the MDT (Appendix D). It was felt important to record MDT member details to ensure a collaborative majority decision took place as well as making the need for a critical care bed more robust. Anaesthetists did not attend X-ray meetings but were required to formally comment prior to admission. All parties were required to sign off their part of the document. This had become a useful document that could be taken to various departments in the hospital and was particularly useful if the notes were not available. Resistance to the proforma was present but its completion became easier as it became routine practice. The unit reported that it allowed them to track patients and planned to extend it into a whole care pathway.

❖ Yorkshire and the Humber

Development of an Integrated Care Pathway

Doncaster Royal Infirmary

Helen Findley, Alaisdar Strachan, Siobhon Gorst, Julia Perry, Martha Mayhew, Sewa Singh and Nandan Haldipur.

Doncaster developed an integrated care pathway for AAA patients to include the AAAQIP pre-operative care bundle along with pre-operative flowcharts for assessment of complex patients, documentation of the MDT, plans for patient education/preparation, peri-operative documentation and an enhanced recovery pathway which is used on critical care.

The Care Pathway is available to view via the link below:

<http://www.aaqip.com/aaqip/rap-north-west-outcome-documents.html>

Case Study: Implementing AAAQIP at Doncaster Royal Infirmary: An Anaesthesia Trainee's Perspective. *Dr Helen Findley FRCA. ST5 Registrar in Anaesthesia.*

As a Registrar with an interest in vascular anaesthesia, I was keen to get involved in a major service improvement project and implementing AAA QIP at Doncaster Royal Infirmary (DRI) has given me the opportunity to do just that. At DRI we have been running our AAA fast-track recovery pathway since 2009. The pathway is progress based, rather than time based; it advocates early removal of lines and catheters, encourages early feeding, prompt mobilization and discharge planning from admission. Initial audit showed a trend toward reduction in hospital length of stay. The pathway anecdotally had high staff satisfaction ratings because it empowered staff and allowed valid and endorsed decision-making at all levels. During the past year we have developed the pathway using PDSA cycles involving small numbers of patients to gain regular feedback from critical care staff, anaesthetists, surgeons and physiotherapists and implement small but important changes.

Our improvements have included:

- Rolling out the staged recovery pathway for all appropriate patients having both open AAA and EVAR procedures.
- Encouraging a culture of non-acceptance of less than excellent analgesia for open AAA patients, with a 24-hour service for replacing a poorly working epidural.
- Addition of a guideline for use of prophylactic CPAP in patients identified pre and peri-operatively as being at higher risk of respiratory deterioration.

It has been vital to brief all critical care staff well during this process and with over 100 critical care nursing staff, it has been a challenge. Attendance at monthly management meetings, regular communications with critical care consultant and senior nursing staff and the use of posters have helped. We have also recently launched the first version of our AAA repair integrated care pathway (IPOC), which is initiated at the first clinic appointment and documents the entire perioperative process for all patients.

The IPOC includes:

- Flowcharts to standardise pre-operative assessment process; consensus from all specialties
- A new framework for patient education; AAA QIP patient information leaflets, were adapted for local use, with particular focus on post-operative recovery.
- A database of all AAA patients being worked up, highlighting high-risk patients, available for all members of the MDT to view.

From being involved in the early MDT meetings and attending the Yorkshire and Humber Regional AAA QIP meeting to producing our integrated care pathway for all elective AAA patients, I have gained vital experience of a host of management issues and I would recommend senior trainees, both surgical and anaesthetic, get involved locally in implementation of the project.

Criteria Led Discharge for EVAR.

Huddersfield Royal Infirmary

Melanie Addy and Jeremy Pinnell

Huddersfield Royal Infirmary utilized plan, do, study, act (PDSA) methodology to develop a criteria led discharge pathway for EVAR. Generic trust documentation was used as a basis to develop the pathway (Appendix E). Following this, the pathway was piloted on one patient. It was then analysed and the required changes were made. The pathway was then re-implemented on a further 10 patients, evaluated, amendments made and the final version agreed as the standard protocol for all planned EVAR patients. Huddersfield found that patients were discharged earlier in the day. As well as this, patient experience has improved, the discharge process is slicker and patients are not required to wait for a doctor for prescriptions.

Case Study: Standardising Pre-operative Assessment at North Bristol NHS Trust.

AAA Pre-operative Care Bundle Audit

An initial audit was carried out over a 4 months period (Dec 10-March 11) to measure whether patients were assessed consistently at NBT for AAA surgery. The ultimate aim was to utilise findings from the audit to agree and implement recommended changes to the AAA pre-operative assessment pathway.

Findings

Areas of good practice:

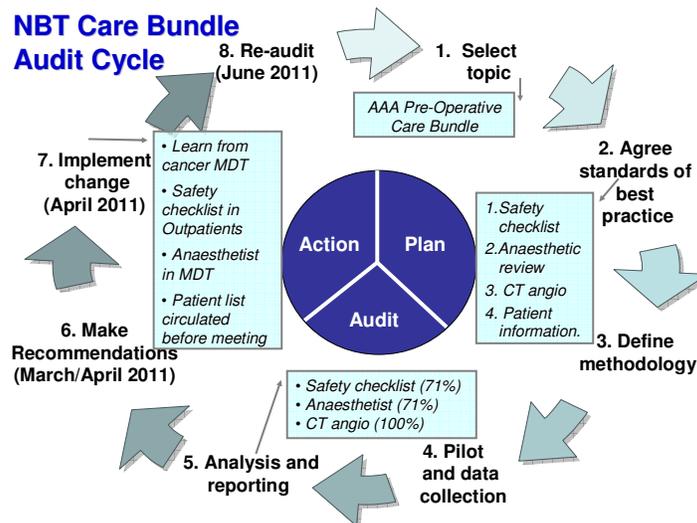
- 100% of patients received CT angiography in order to establish their suitability for EVAR.

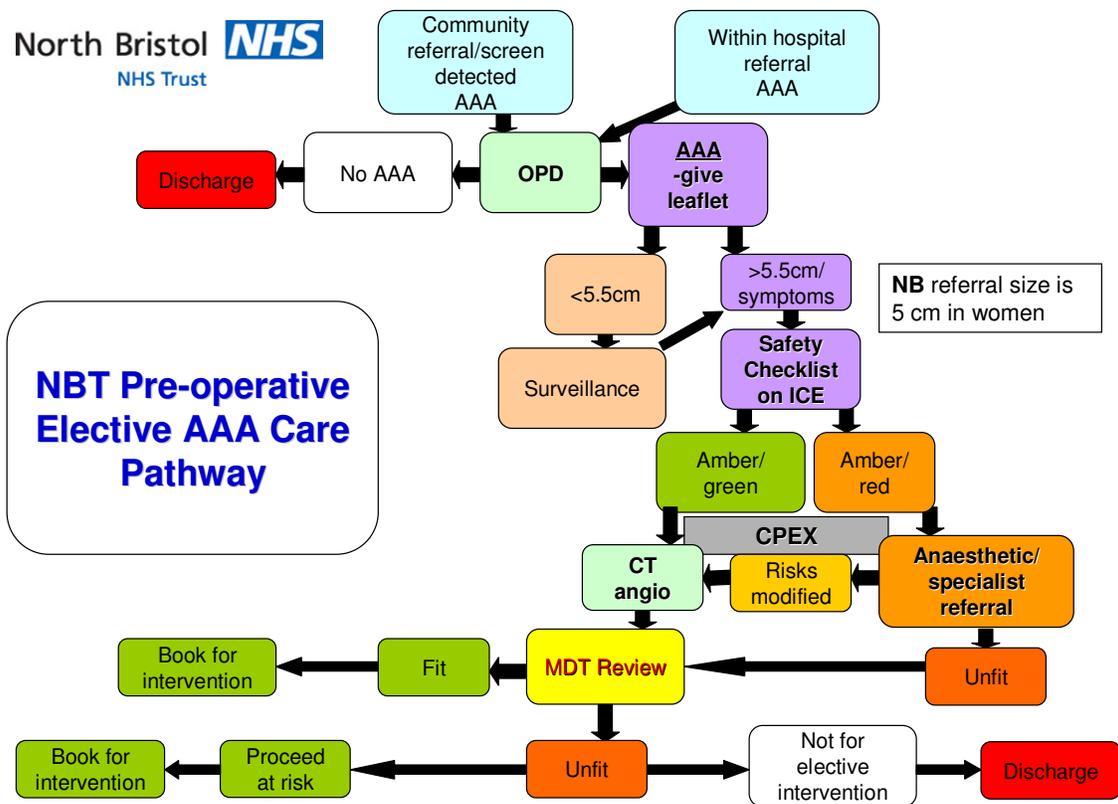
Areas for improvement:

- The safe for surgery checklist was only completed in 71% of cases. The second period of intervention has struggled to show further improvement so an additional PDSA cycle is required in order to address the areas requiring development.
- Not all patients were assessed by a Multi-Disciplinary Team (MDT) to include a surgeon, radiologist and anaesthetist as a minimum.
- The provision of providing information to patients was not documented throughout the pathway. This is problematic as it is important to clarify whether patients have been able to make an informed and joint decision about their treatment and if they have received the appropriate time (e.g. 2 weeks) to be able to provide consent to surgery.
- 86% of patients were consistently risk assessed for VTE on admission compared to only 57% reassessed at 24 hours (national standard).

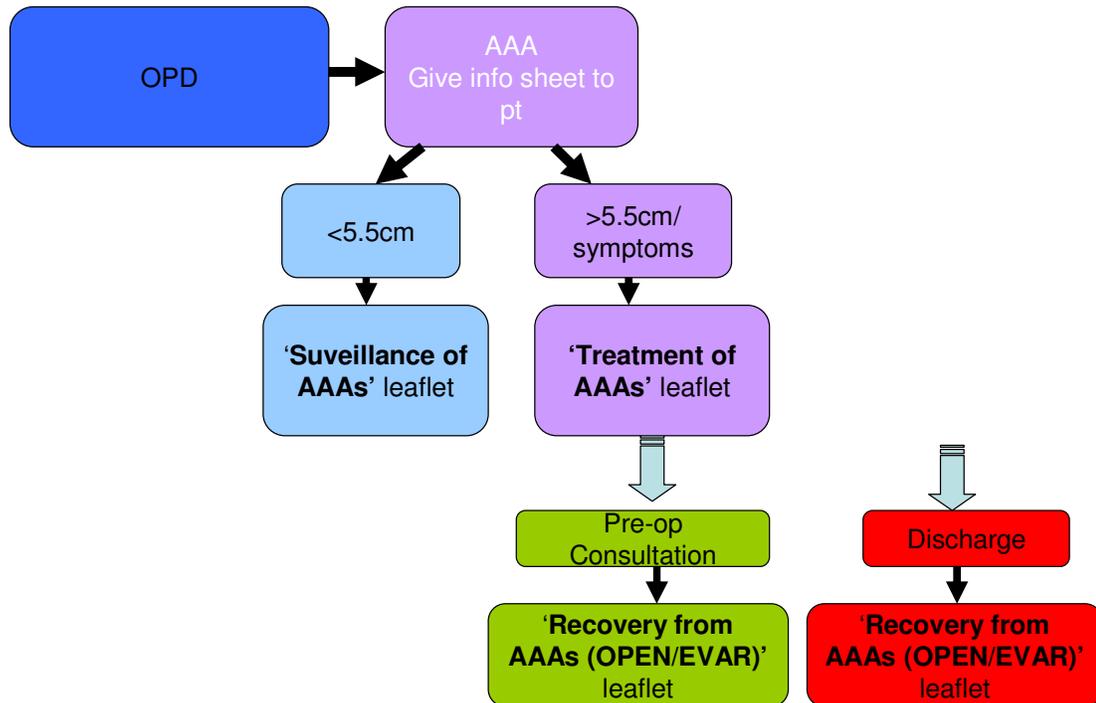
Reconfiguring the Care Pathway

A pathway (see next page) was developed for pre-hospital care using both checklist and MDT to guide patient assessment and provide clarity about how the patient should proceed. An anaesthetist agreed to attend the weekly MDT meeting. Vascular surgeons and nurses reported this to be beneficial, creating a more holistic approach to patient assessment and collaborative decision making. Following several P.D.S.A cycles, one of the areas for improvement involved fully involving the vascular secretaries in the changes. This ensured the safety checklists were passed from the vascular surgeons to the Vascular Nurse Specialist to coordinate the next MDT meeting. A pathway was also agreed for providing patients with information in a staged approach. This involved providing an initial 'Treatment Options Leaflet' along with verbal reassurance at the first Outpatients consultation. A 'Recovery from Surgery' leaflet was then given at discharge by the Vascular Nurse along with an agreement to carry out a post discharge telephone follow up call. The Vascular Nurse found that telephone follow up allowed her to deal with patient anxieties and provide advice and reassurance early in the post discharge period. This also provided reassurance to relatives and carers who often reported feeling highly anxious.





Patient Information Leaflets



Patient Case Studies following Telephone Follow Up

Medway Maritime Hospital

Ms Mary Miles/ Ms Helen Stannett; Vascular Nurse Specialists

Patients:

- 12 EVAR
- 5 Ruptures (4 OPEN/1 EVAR)
- Gender: 24 male : 5 females
- Timing of call: on average 72 hrs post discharge
- Time taken per telephone call: 5 – 20 minutes
- 12 OR
- Age range: 49 – 80 years
- LOS: 48 hrs – 3 weeks
- Often need more than one call

Case Study A

Mr N, aged 64 had a routine open repair of his aortic aneurysm. He was deemed green (safe) on the AAAQIP safety checklist. He made a slow post operative recovery, complicated by underlying renal disease, which had been optimised pre-operatively, involving his renal Consultant. Telephone follow up highlighted extreme anxiety from both Mr & Mrs N regarding his lack of appetite. This created huge tension between husband and wife and we rang twice weekly for almost 5 weeks.

Case Study B

Mr P, aged 68, had an open repair of a ruptured aortic aneurysm and recovered well, he was discharged home after three weeks. Telephone follow up revealed similar dietary concerns expressed in case study A. In addition, Mr P became de-motivated and had taken to his bed, refusing to get dressed or get up.

This also required twice weekly calls, involving many members of the family, for a period of weeks. We also involved the GP and district nurse.

Key Findings:

Although this only provides a snapshot from the patients contacted following AAA surgery, it highlights two main perpetual themes:-

- **Lack of appetite/dietary concerns**
- **Lack of motivation and depressed mood/low spirits**

Patients' lack of appetite causes tremendous stress on their wives. It is not only the patients, but their partners who often need reassurance and contact to help resolve issues, or just to listen.

All patients undergoing vascular surgery are given our contact number prior to being discharged, however, on contacting them; they tended to say, "We didn't like to bother you".

Changes in Clinical Practice:

The telephone follow up trial was found to enhance patient experience and was not only user friendly for the vascular team, but enabled the continuity of care. Following this, there are plans to formalise this as part of the patient pathway, integrating it into vascular nurse job plans. Nutritional needs will also be highlighted pre-operatively as well as a dietary advice sheet upon discharge.

Pilot study using Patient Reported Outcome Measures (PROMs) for patients undergoing AAA surgery.

Frimley Park Hospital

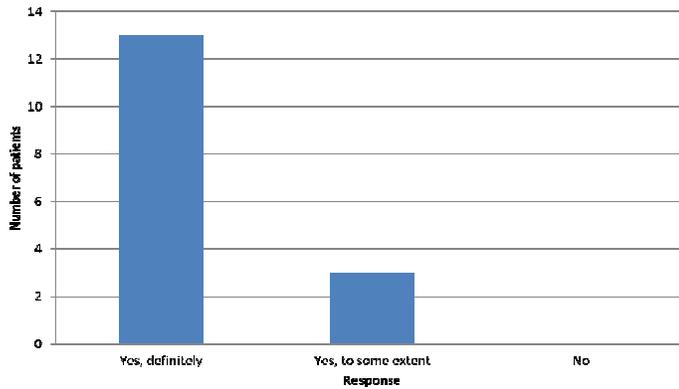
Mr Patrick Chong, Consultant Vascular Surgeon

One of the quality improvement interventions at Frimley Park Hospital, was to integrate measurement of the quality of care from a patient's perspective. As a disease specific AAA PROM has yet to be developed, the generic Picker Inpatient Survey was used to assess the quality of care over 9 domains.

The key findings are displayed below:

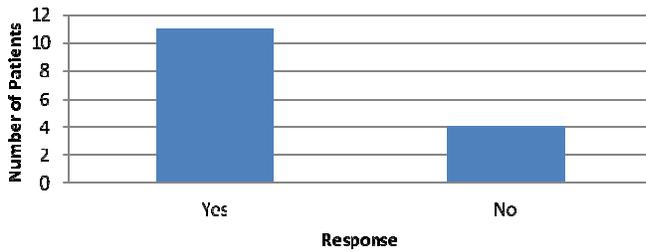
Pre-operative Care

Were you involved as much as you wanted to be in decisions about your care and treatment?



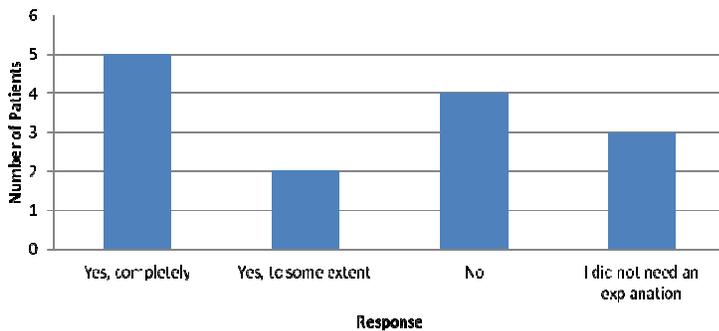
Discharge

On the day you left hospital, did your discharge proceed as planned without delay?



Overall, patients reported the care they received to be excellent with particular praise for pre-operative care. Patients felt they were involved in the decision for treatment and both patients and relatives had the opportunity to talk to a doctor or nurse. However, areas for improvement were identified in post operative care. Delayed discharges occurred in 25% of cases with patients reporting that they were not fully informed about medication side effects and what to look out for when they got home.

Did a member of staff tell you about medication side effects to watch for when you went home?



Frimley Park reported this to be a really valuable exercise, identifying areas for improvement. They are continuing with a prospective study and plan to implement disease specific AAA PROMS once developed.

Patient Engagement and Collaboration

Organisation of National AAA Patient Groups

Aim: To gain insight into patient experiences to inform our Quality Improvement Programme. To seek help with the implementation of the QIP, with particular reference to ensuring high quality communication throughout the pathway of care.

Method: Patient groups were convened in seven locations in the U.K.

- Bristol, Newcastle, Leeds, Manchester, Aberdeen, Cardiff and London.

Patient sample: AAA patients; 57 men, 8 woman (average age= 74).

- 5 spouses, 7 cardiac patients.
- 34 EVAR, 31 OPEN, 1 both.
- Average LOS= 11 days.
- 31% reported complications.
- C.difficile infections, hernias, lung and wound infections.

Focus group model: Facilitator (Consultant Surgeon or Vascular Nurse) and Note Taker

Open and semi structured questions:

Exploring patients' experiences of AAA repair.

- Diagnosis, information and communication, recovery and follow up.

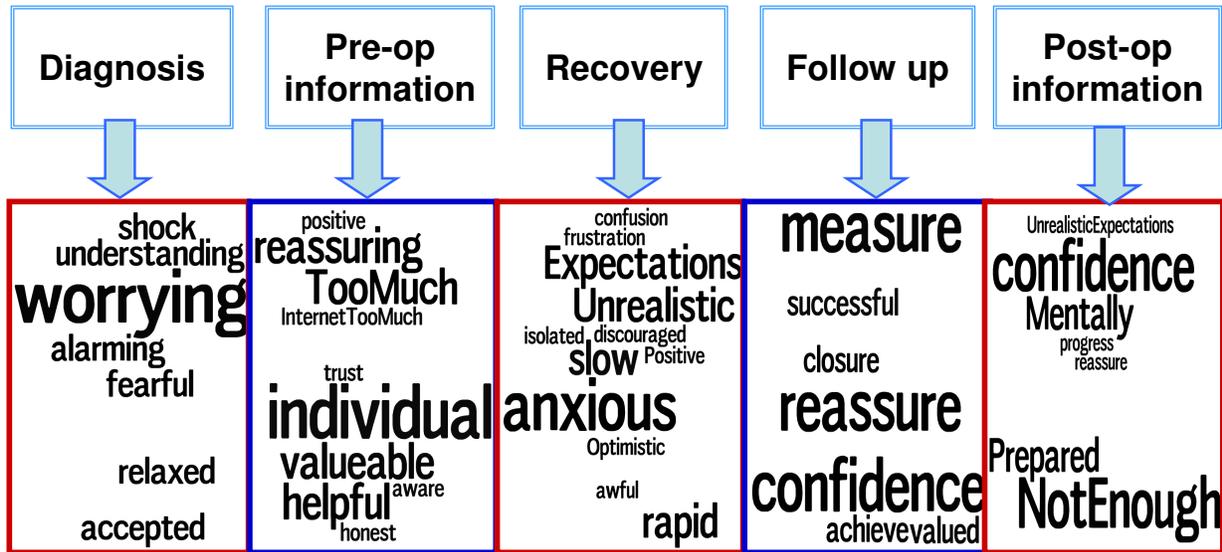
Seeking patient views on specific themes:

- Decision making, MDT working, centres of excellence.

Formal questionnaires

AAA Patient Group Findings

AAA patient experiences through the care pathway



The diagram above displays patient experiences collected through our AAA patient focus groups. A Wordle chart technique has been used to capture outcomes with the size of the words directly relating to the frequency at which they occurred. Larger words reveal the salient and significant themes within the focus groups. Pre-operative information was found to be both valuable but at times too much. This highlights the need for vascular clinicians to individually tailor information. Patients revealed they often had unrealistic expectations of post operative outcome leading to anxiousness in a slow recovery. Not enough post operative information was provided and patients felt this was needed to provide confidence in their recovery.

Pre-operative Care: What patients want.

Patients want to be able to talk to all members of the vascular team and particularly value explanations by anaesthetists and nurses. Family members should be involved and pictures work well to aid explanations.



Post-operative Care: What patients want.

Patients want to know what to expect, milestones for recovery and what to look out for in terms of complications e.g. normal level of pain. It is felt that a named contact should be provided.

Summary of Key Patient Group Findings

- It is felt that ultimately patients themselves should make the decision to proceed or not with surgery.
- Patients particularly value their surgeon's explanations, but also found explanations by vascular nurses, or anaesthetists very reassuring.
- Percentages/statistics have less meaning. Patients would rather know about functioning after surgery.
- Information should be in different formats: written information to digest as well as verbal reassurance.
- Any unrealistic expectations need to be dealt with. It is important to inform patients that it may take them a significant time to recover. This avoids unnecessary anxiety associated with a slow recovery.
- General consensus among patients that not enough post-operative information is provided, "*Nothing was provided to give confidence in recovery*". The effects of EVAR & OPEN procedures are underestimated. Clinical teams need to give more realistic information.
- All patients wish to be seen in clinic postoperatively, even if just for quick check of scar at 6 weeks. Patients felt it achieved a degree of closure, even for those on EVAR follow up programmes, "*It is so important to know the operation has been successful*".
- A telephone point of contact to a named individual in the vascular service post discharge was felt to be beneficial.

AAA Patient Case Study: Providing information on 'what to expect' and effects of treatment on quality of life



My diagnosis (quite accidental during a scan prior to cholecystectomy) and consultative process progressed very satisfactorily with one exception. I was informed that my internal iliac arteries must be embolised prior to EVAR and that collateral blood flow to my pelvis/ lower torso areas would take 6-12 months to become fully established. Now, 2 years after embolization I still have regular and quite severe pains in my buttocks and thighs after gentle exercise. These pains considerably limit my mobility. Further improvement seems unlikely and I feel I could have been better informed of this problem.

All other aspects of my preparatory care were excellent. My programme was completed very rapidly; day 1-admittance, day 2- EVAR procedure and day 3-discharged.

I am very grateful to all concerned for my current good health and I'm aware that things could have been very different. I lead an active life (albeit with limited mobility) including piloting aircrafts and gliders and I plan to continue for years to come!

John Nevill, AAA Patient, Montrose. 30th March 2011.

AAA Patient Case Study: The Importance of Post-operative Follow Up

My AAA was repaired by major abdominal surgery in 2002 and was entirely without complications until I left the hospital. I was extremely well looked after on the ward and made a rapid and complete recovery.

An ongoing problem which occurred and persisted for nearly 3 months following release from hospital was a serious lung infection. I was not warned of this possibility though I believe it be a fairly common occurrence with most forms of abdominal surgery. I felt unsupported by the hospital and very much on my own with an interminable, unpleasant infection which was treated only by my GP and monitored by x-ray by my local accident hospital. I felt isolated and abandoned after the superlative care I have been receiving. That could have been treated a lot better.

Douglas G. Williamson. AAA Patient. Huntlv. 22 March 2011

My involvement with the AAAQIP in Wales: Ongoing Collaboration with Patients University Hospital Wales

Kate Rowlands; Vascular Nurse Specialist

My involvement with the AAAQIP began in the summer of 2010, when I was asked to help organise the first patient group in Wales. I felt that this would be an exciting opportunity to gain more insight into patients' experiences and perspectives of having abdominal aortic aneurysm surgery. This also came at a time when I had been planning to update our own patient information.

For the group in Cardiff, our aim was to discover more about the patient experience, by facilitating a semi-structured discussion within the group, allowing the group to talk about their experience of discovering their aneurysm, their pre and the post-operative time and their recovery once home. Discussion naturally touched on the communication and information they received, or that they needed.

Most patients had discovered they had an aneurysm through an incidental finding. The initial meeting was attended by 5 patients and 1 spouse, who had had either an open or endovascular repair. It was evident that most of the patients were eager to talk about their experience, with some having unresolved questions about their recovery, despite in some cases it being over a year since their surgery. Whilst feeling prepared for the operation they felt less prepared for their recovery at home, and still had unanswered questions, and anxiety about their recovery, and whether their stent or graft was still in place. Difference in follow-up between the open surgery and EVAR patients raised questions within the group, which were explained, and reinforced throughout the session.

Interestingly, in this first meeting the consultant vascular surgeon joined for the second half, and although prior to this the group had been discussing their experiences, at this point the patients began asking specific questions concerning their operation and health that they had been clearly been waiting to ask for some time. A clear outcome from this initial meeting was that the patients wanted more information concerning their recovery at home. As a consequence, I agreed to develop a recovery leaflet, for open surgery and EVAR, which would be sent to the group to review, and fed back at a second meeting. Two formats of information leaflets were designed; a combined leaflet with the updated pre-operative information *and* recovery information, along with the leaflet containing just the recovery information.

Subsequent feedback on the leaflets was positive, but the group again highlighted the need for verbal reassurance and information from the vascular surgeon both post-operatively and at the follow-up appointment.

Suggestions to improve the leaflets included;

- More information on the risks of wound infection and what to look for.
- Information on the risk of having a low mood after the operation.
- Inclusion of a diary in the leaflet to document queries and questions that can then be asked at the follow up appointment.

In June 2011, a further group was held for EVAR patients, and their partners who were sent the final updated leaflet prior to the day.

There were a few issues that became apparent:

- The varying experiences were often related to co-morbidity
- Some felt they had been 'lucky' to have their aneurysm found, while others discussed the concern of living with a small, but growing aneurysm.
- Many stressed the importance of having reassurance both during the procedure, and after, to know that the stents or grafts had 'stayed in place'.
- All gave positive feedback about the updated leaflets.
- Spouses expressed a need for written information as they often missed information given verbally to the patient.

For me, the patient group discussions highlighted the need for clear and understandable verbal and written communication, and it appears to have a direct affect on patients' experiences of their AAA intervention and reported outcomes. Communication breakdown can lead to patients remaining troubled for several months or years after their surgery. It is possible that healthcare professionals may well be underestimating the importance of on-going communication, for all patients including those patients whose surgery has been clinically successful.

The work with the AAAQIP and the Health Foundation has been a valuable experience, and prompted areas for further study including health literacy. Deciding on the type of risk information to present to patients to facilitate discussion and informed choices prior to treatment decisions would benefit from review. This is balanced with the information patients tend to be expressing a preference for which does not seem to involve statistics or in depth figures of risk. In our groups, it appeared that patients were fairly prepared for their surgery, with the risk information given in measured amounts, without the over use of statistics. Further work may demonstrate how patients understand and interpret risk and the associated statistics related to AAA surgery, and how this information might be given in a meaningful way for decision making and for the process of consent.

Running AAA Patient Focus Groups in Aberdeen Aberdeen Royal Infirmary

Paul Bachoo; Consultant Vascular Surgeon

This was a very interesting experience which introduced me to several new areas for future consideration.

Firstly, it brought home the fact that traditionally, certainly in Aberdeen; the thought of sitting down with a group of individuals who had received surgery in our department without the traditional outpatient clinic review was in itself a novel experience. The process of organising the facility to accommodate this meeting in a relaxed and informal setting presented an interesting challenge as space for such meetings within the Department is certainly not available during office hours. However, once facilities were secured in our new education centre it soon became very impressive that across the Department, who ever they had been operated on by these individuals were only too willing to come in and contribute to the discussion process. Given that abdominal aortic aneurysms occur predominantly in men I was somewhat surprised that this older group of male patients were in deed willing to participate in open and intimate discussion. My recollection was that not only did they give up their free time but only a few of the individuals took the offer of travel claim reimbursement.

I was soon impressed on how the information technology and the World Wide Web were not only domains of the young but a great source of information albeit of variable quality to individuals of a much older generation with specific health needs. Many despite not having grown up with the World Wide Web were familiar with this resource and each and every person had explored the Internet for self education regarding their condition. In hindsight, why this should have been such a surprise is merely a reflection of my own bias and probably reflects on the changing profile of our patients. Patients are no longer passive but instead are informed, interactive and able to challenge clinical pathways intellectually.

A recurring theme that was very pleasing despite high-profile adverse cases in the media was that the Vascular MDT was still held in good standing. They considered the availability of options and choices in treatment essential, disregarded age as a determining factor in decision-making for intervention and agreed that quality-of-life was without exception the most important feature in determining treatment decision plans. Whilst they appreciated the importance from a medical perspective of technical outcomes they strongly felt that much more consideration should be given through extended roles of staff in supporting future patients during recovery. Interestingly, one of the subjects who had undergone an endovascular repair said that he felt abandoned following very successful surgery in that he seldom if ever saw medical staff for review, either in hospital or the community. This was despite being on a formal surveillance programme after surgery.

In conclusion the ideal department offering AAA service for patients should have access to a facility for such focus group meetings within office hours and that a mechanism should exist whereby periodic review of specific treatment outcomes are constantly audited against the standards set by previous patients. There is a need particularly in aneurysm patients undergoing endovascular repair for a more human component of surveillance. This could be achieved through telephone interviews by nursing staff. I certainly am much more aware of this. The Internet is often a source of information and that greater use of this should be made during the preoperative consultation process. We personally put much more emphasis now on trying to forecast and describe the post discharge phase of the treatment pathway.

Practical Outputs from Patient Group Findings

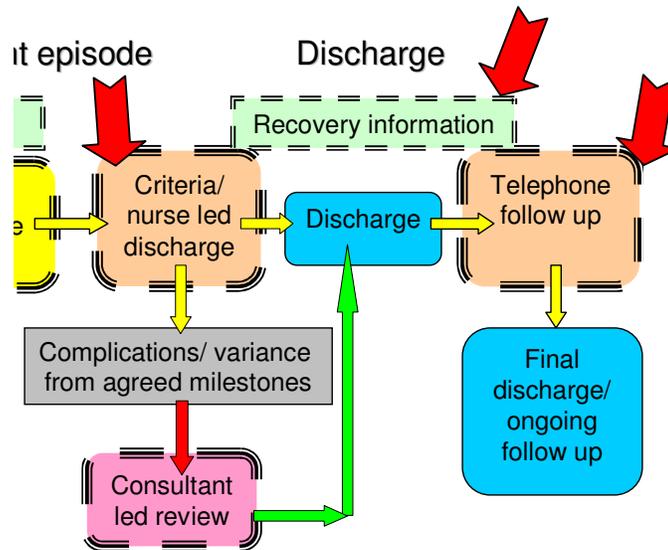
National Recommendations

- 1) Patient experiences should be measured (at unit level):
 - i) To identify gaps in the care pathway and make improvements.
- 2) The provision of patient information needs to be complete, consistent and measured.
 - i) Provide surveillance, pre-operative as well as post operative information (see newly developed patient information leaflets at www.aaqip.com).
 - ii) Consent should be sought before admission to hospital.
 - iii) Ensure the provision of information is documented for audit
- 3) Focus on the provision of post operative and recovery information
 - i) Use the AAAQIP recovery specific patient information leaflet (OPEN & EVAR).
- 4) Ensure greater communication and follow up checks with patients post-operatively
 - i) Telephone follow up by a vascular nurse is highly valued
 - ii) There is value in developing self help tools for recovery at home (e.g. exercise plans)
- 5) Measure quality of life following surgery

AAA patients found existing patient information leaflets to be too risk orientated and defensive. A lot of statistics were presented that were not found to be helpful, post operative information on recovery milestones was found to be lacking in all 7 patient groups nationally. Based on this feedback, the AAAQIP revised Surveillance (see additional resources) and Treatment (see additional resources) patient information leaflets. As well as this, new recovery specific leaflets were developed (see additional resources). These contain specific post operative information on what to expect in hospital, recovery milestones including returning to work, driving and being active. Additionally, they include practical advice on exercise as well as an area to record any concerns for patients to take to their follow up appointment. This aims to provide patients with the tools and autonomy to self manage recovery.

These new patient information leaflets were tested against local and national leaflets through regional action plans including Princess Alexandra Hospital, Torbay, Pennine and Leeds. These were found to be favoured by patients due to the practical recovery advice. Broomfield and Harlow reported that patients liked the 'information on treatment options including what will happen if a patient is unfit for surgery.' There has been a large uptake of these leaflets throughout the U.K.

Changes to the AAA Care Pathway



We designed the 'Post-operative Communication Care Bundle' (Appendix F) to introduce required changes into the AAA care pathway based on feedback from patient groups. This included:

1. Recovery specific information leaflets to address the lack of post operative recovery information that has been identified nationally.
2. Criteria led discharge to ensure patients are fully informed upon discharge (including medication, pain relief & follow up).
3. Telephone follow up to ensure patients are provided with a point of contact post-operatively to address concerns (Appendix G).

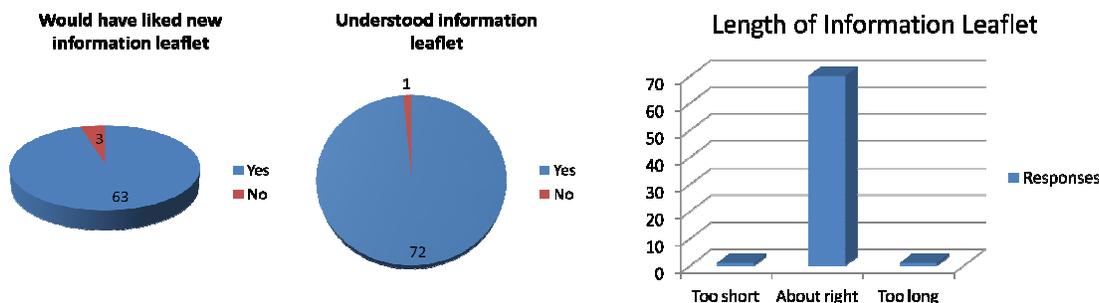
These protocols were not a routine part of existing practice and were tested and implemented through interventions as part of regional action plans.

Feedback from the Implementation of Patient Centred Care Pathway Interventions AAA Recovery Patient Information Leaflets

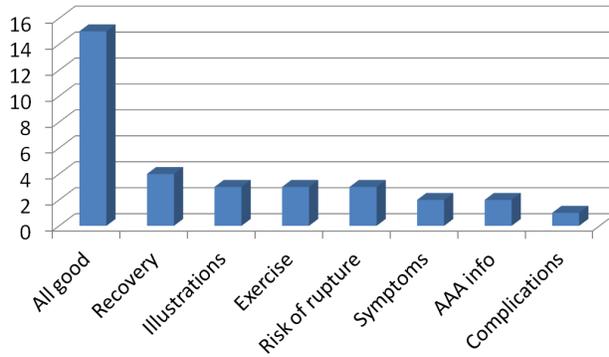
Leeds Vascular Institute

David Russell and Anne Johnson; Consultant Vascular Surgeon and Vascular Research Nurse

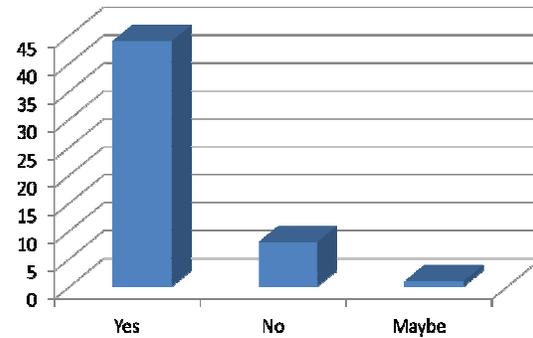
Leeds adapted the AAAQIP recovery leaflets to reflect local information. 90 patients were surveyed on the content with an 86% response rate. The majority of patients liked and understood the leaflets and felt they were the right length. Practical recovery advice, illustrations and exercises were felt to be particularly good aspects. When surveyed on their preference for telephone follow up, patients were very supportive of this. These findings reflected those that were found throughout the U.K.



Particularly Good Aspects



Preference For Post-op Phone Call



AAA Patient Case Study: The value of good communication.

My aneurysm was triggered by accident during tests triggered by a prostate problem. When the tests confirmed prostate cancer I tended to regard the aneurysm as secondary to the cancer and something to be dealt with as quickly as possible. I think this attitude helped by reducing my assessment of the importance of the aneurysm and contributed significantly to my speedy recovery.

In the preliminary phase after the diagnosis of the AAA the unequivocal optimism of the consultant regarding my prospects for a complete recovery was very reassuring. The early counselling together with the supporting documentation and a bit of well-aimed surfing made the treatment options very clear and my choice of EVAR procedure rather than the open operation a no-brainer. After my choice was made admission to the hospital followed a few days afterwards.

The first day I spent acclimatising and being briefed by an extremely professional and confidence boosting anaesthetist on the general merits of anaesthesia and epidurals. Again, the choice seemed a no brainer.

I was in hospital for less than 3 days. My recovery at home was swift. I started taking walks after one or two days and within a month was walking 2 or 3 km and contemplating 9 holes. Everything else had returned to normal.

Deryk McNeill. AAA Patient, Angus, Aberdeen. 28th March 2011

3.2 QUALITY AND ROBUSTNESS OF DATA

- ***What were the barriers or difficulties you encountered in obtaining good quality data?***
A reluctance by clinical teams to accept that they were ultimately responsible for data quality. Providing clear feedback about data quality was helpful in securing engagement and ownership of the issue.
- ***What assumptions have been made?***
That data is entered correctly in real time. We have to rely on surgical teams to check their data. We have been able to counter game playing by providing HES (or equivalent) data against which units can validate their data.
- ***What limitations are there in your analysis?***
Data are incomplete with only 90% data entry in England and 84% in the UK as a whole. Scottish data remains poor at the present time. Many of the non compulsory fields are missing preventing more detailed case mix analysis.

Ensuring that the data was robust was a key focus of the AAAQIP from the start of the project and throughout. Data quality and outputs were also addressed at every meeting to highlight the importance, retain continuity and reinforce the responsibility to the clinicians to ensure the accuracy of the data.

Implementing progressive strategies such as the traffic light system helped to focus attention and provided clinicians with clear targets and progress comparisons with neighbouring units. Knowing that the information was being put in the public domain was a new and additional incentive for units and clinicians to ensure high data quality.

Measuring the Implementation of Best Practice Protocols.

The success and outcomes from implementing best practice protocols proved the most difficult measure. Vascular practice was found to be highly variable throughout the U.K proving difficult to establish baseline measures. We targeted interventions based on salient issues within each region and thus had to be quite flexible in our approach to interventions. This made it complicated to set an overall structured measurement plan, thus, outcomes are both a mixture of outcome measures such as length of stay that units have undertaken locally, as well as qualitative feedback at regional meetings. This makes the impact of interventions a lot more difficult to quantify.

Robustness of Patient Feedback.

Developing a regional rather than a national patient group strategy proved to be highly beneficial to ensure representative feedback from AAA patients. The majority of themes including the need for joint decision making, verbal reassurance, setting expectation for in hospital care, recovery and the need for greater post operative follow up was replicated in all 7 regions. This produced a strong evidence base to justify change to clinicians as well as clear changes in the care pathway.

Alternative methods were also used to collect patient feedback including the generic inpatient 'Picker Survey'. Findings mirrored those of the patient groups where patients reported high scores for pre-operative care yet low scores for information and advice upon discharge and post operative contact.

We were able to gain an overall national picture of patient experience but were limited locally as individual units did not have baseline measures of patient experience, thus it was difficult to validate patient satisfaction post AAAQIP interventions. A structured measurement plan for obtaining baseline patient satisfaction scores and then repeating this throughout interventions would have been beneficial.

3.3 WHAT IMPACT HAS THE PROJECT HAD?

- ***Who has benefited and how?***
Patients, we can now demonstrate low death rates for elective AAA repair.

Surgeons have benefitted from learning about QI methodology. Improved data entry has been an important achievement and is under-pinned by the demonstrable improvement in patient outcomes.

Clinical teams with the recognition that multi-disciplinary team working provides a mutually supportive working environment and a more thorough and consistent approach to patient care. Vascular specialist nurses with clear demonstration of the need for and value of good quality communication both pre and particularly post-operatively.

- ***How has the intervention contributed to building clinical teams' skills in improving quality?***

By making QI implementation a team based activity and empowering teams to work together. It has become clear that many of the projects were organised and driven by non surgical team members, particularly anaesthetists and vascular nurses.

- ***How has it contributed to knowledge about how to engage clinicians in QI?***

By demonstrating the value of engaging people at a local level and getting them to own their projects. It makes it personal and more likely to be adopted as routine clinical practice. It has served to break down barriers between team members and also between clinical teams and the central Vascular Society and QIP teams.

- ***Are there any other benefits that have emerged beyond the original scope of the project?***

Yes, an increased understanding of QI methodology in the VSGBI. The project has provided a clear demonstration of the value of measurement and the use of clear standards and targets to drive improvement.

- ***Are there any disadvantages?***

Some organisations have shown little willingness to engage in the process. For these units, data entry and reporting has been the key to getting them to focus on the quality of their service. A project without such hard targets might have struggled to get these units to engage at all.

We have yet to get recognition that this work needs to be self sustaining. We believe that where there has not been commissioner/network support that sustainability may be very challenging.

Change in Culture: Acceptance of the Importance of Data for Measurement and Improving Quality

We have witnessed a change in attitude to data collection as feedback from the VS membership and the Annual Meeting (2011) was supportive of unit and surgeon level reporting of performance against quality standards in order to maintain safe care.

St George's Vascular Institute: Data Validation Exercise

Ian Loftus, Consultant Vascular Surgeon

We have learnt a number of lessons from this dataset analysis. For HES, we as a Trust must ensure that the correct OPCS codes are applied to each aneurysm patient, and data is recorded into the NVD accurately. We now have weekly meetings between Consultants, a senior data manager responsible for the NVD, and our coding staff. Every case going through the unit is checked from discharge summary to final code and NVD input.

Clinicians were entering data retrospectively at a delayed rate of approximately 6 months post discharge. Following changes in AAA practice during the lifetime of AAAQIP, data is now entered in a much more timely fashion. Clinicians find it easier to ensure all AAA cases are entered onto the database by starting the procedure entry onto the NVD at the time of intervention. This ensures that the patient is captured on the NVD and reported within the unit's procedural activity. We believe that the QIP has created a cultural shift within the profession, so that having poor data is no longer acceptable.

Development of Regional Vascular Networks

We have seen the development of Regional QI Networks focusing on the quality of care. For example, we had great response and engagement at the Yorkshire and Humber Progress Meeting. Clinicians reported the benefits of sharing QI efforts through the regional meetings and wanted to share care pathway protocols as well as in house databases that had been developed.

“Most surgeons do provide the best possible care to their patients. Given this bias, I was unsure how the AAA QIP initiative would be received by my vascular colleague. However, the first meeting was received with guarded enthusiasm. The subsequent meeting were well received and ideas/ models of care came pouring in. Contact with clinicians from other centres gave us insight into different pathways of care and ideas that we could incorporate in our own department to improve outcomes and patient care. Inviting and ensuring that all the teams in the region engage in the process was one of the most challenging steps. Having attended the first meeting, all the provider units were well represented with little persuasion. This is testimony to the fact that the meetings/agenda of the meeting has been of a very high quality. I hope that the meetings continue with the same level of enthusiasm and I have no doubt that the quality of care for AAA will continue to improve.”

Nandan Haldipur, Yorkshire Regional Lead

Aligning National Quality Standards

We have also witnessed the alignment of quality care standards in key stakeholders. Representatives from Cardiac and Stroke Networks and Commissioning Groups were included in each of our regional action plan meetings. The scope of vascular work covered by each of the Networks was found to be variable and the AAAQIP became the central forum for communicating standards. The introduction of national commissioning for vascular services has involved the QIP team in the clinical reference group. This has enabled us to have a voice to ensure that standards are linked between the QIP, VSGBI and NAAASP.

East Midlands Cardiovascular Disease Network Case Study

Atiya Chaudhry-Green; Assistant Director

The Network had been invited to the first regional AAAQIP meeting in October 2011, and then worked with the AAAQIP team to integrate the day with a Network Vascular Regional meeting that took place in March 2012. The first event was useful in meeting the East Midlands Vascular lead clinicians and stakeholders. I had recently started as the lead Assistant Director for the Network's Vascular workstream to support implementation of the SHA review of Vascular Surgery services. It was also useful having a national leader with a strong clinical background who supported the teams to use service improvement skills/approach. However, I'm not sure all of them used a PDSA cycle process but the outputs of these events had the following benefits:

1. Making clinicians aware of variations in practice
2. Reviewing their services to review their current processes and produce information to share for the 2nd event
3. Sharing what worked and some protocols
4. Networking with national and regional stakeholders
5. Latest picture on participation in NVD and what the data is showing which acts as lever for change
6. Opportunity to involve patients

On the 2nd AAAQIP regional meeting which was integrated with the Network Vascular steering group the following positive highlights included:

1. Networking
2. More wider teams were invited with equal representation from clinicians, nurses and managers including some patients
3. All Trusts delivered a presentation sharing outputs and learning
4. National presence supporting answering questions on the latest review of NVD data and POVS 2012 sharing the challenges that lay ahead
5. Opportunity to share ideas moving forward i.e. to integrate QI as part of the Network Steering group meetings and the facility to blog.
6. A longer event is planned for July 2012 with a presentation to be produced by the national AAAQIP team on NVD participation and outcome data being provided which a local clinician will share.

On a personal note the AAAQIP team have been really helpful in leadership, organising, co-ordinating and working well in partnership with the Network. We will miss their presence and external national leadership moving forward. There is a real need articulated by all, at the recent meeting, that a national presence at local quarterly meetings would be helpful to steer debate, facilitate communication to resolve/discuss issues and challenges and act as levers for change.

NHS Midlands and East SHA: case study of working with AAAQIP

Sally Standley; Director

In January 2010 the former East of England Strategic Health Authority's commissioning team were asked for comment on the robustness of local commissioning arrangements, to support local roll out of the national AAA screening programme. In order to ensure that this commentary was well informed, the SHA asked to attend a meeting arranged by the AAAQIP team.

- i) *The variation in practice across the region.*
- ii) *Issues with data quality and completeness.* The Cardiac and Stroke Networks had recent experience of improving data quality and completeness in both cardiac and stroke services, and their supporting approach of route cause analysis was identified as being appropriate to support vascular providers. The SHA agreed to make this a priority for the cardiac and stroke networks for 2011/12; adjusting their annual Accountability Agreement work plan to release capacity for their involvement at a local level.
- iii) *The 'elephant in the room' ie the number of providers that were going to be unable to meet the minimum activity levels set out in the emerging VSGBI 2011 recommendations for maximising clinical outcomes.* The AAAQIP team facilitated discussion of the issues associated with volume and outcomes, and the realisation that several East of England providers would not meet best practice thresholds for volume of activity. The SHA agreed to address this issue by exploring the options of how 100% of the region's population could access providers who did comply with the threshold criteria.

Work on all three areas progressed, with AAAQIP gradually withdrawing its level of involvement, and passing this on to local ownership, supported by the Cardiac and Stroke networks. Each network identified a vascular lead clinician and lead manager, to help lead and drive the work. The SHA facilitated cross network working to ensure consistency and support collaborative working.

The independence and neutrality of the AAAQIP team enabled the work to be embarked on with a clear sense that it was a level playing field. The team's style supported local ownership and engagement in addressing the issues.

As a result of the initial work of the AAAQIP team substantial progress has been made on all three emerging areas of work. The AAAQIP team identified the 'case for change', and was able to engage all clinicians in exploring and taking ownership of the issues. The team facilitated a 'can do' approach to tackling the underlying issues. The willingness to engage other organisations, ie the SHA and the cardiac and stroke networks, enabled additional supporting capacity to be brought to the work; and sustainable arrangements to be put in place to continue the work through to completion.

The AAAQIP team has enabled the NHS across the region to improve elective vascular services at both an operational and strategic level, working concurrently with and through provider and commissioning organisations. Data quality and completeness has improved; regional guidelines and pathways have been developed and adopted; and the regional review of elective vascular surgery is about to embark on formal public consultation about the emerging proposals.

In summary, the AAAQIP team's involvement was instrumental in identifying the need for change; initiating the forum for discussion; maximising clinical engagement; and facilitating an open and collaborative approach to addressing the necessary issues. It was a model of good practice bringing benefit to clinical care across the region.

4. DISCUSSION/ LEARNING

4.1 SUCCESSES AND DIFFICULTIES

Successes

Our clinical area of vascular surgery involves a wide range of clinicians including surgeons, radiologists, anaesthetists, nurses, sonographers, managers etc. Our regional events have had good levels of engagement and have provided a forum for clinicians to reflect and hear the perspectives of other professionals and patients. For example, anaesthetists and nurses have been able to demonstrate that they would like to be involved in MDTs and have more responsibility to carry out criteria led discharge to manage patients post operatively. This has worked to lead changes in practice.

Involving junior staff such as House Officers and Senior Trainees is beneficial for quality improvement work. This builds a pool of expertise that will be able to carry on QI work in the future. They also provide valuable information to senior clinicians, helping with adoption of changes in practice. There are direct benefits for their personal and professional development, carrying this work out as part of their training. The collaborative approach utilised throughout the AAAQIP has highlighted the importance of working within an MDT and initiated a change in attitude between specialities.

Patients are the focus for all health care delivery. An essential part of the QIP was to involve patients in efforts to develop AAA services to ensure that they meet patient needs as well as achieving necessary clinical goals. Patient groups were established throughout the UK through encouragement and support from the AAAQIP team. Gaining patient involvement in the project gave an added dimension and richness to improvements that were being undertaken. Comments and feedback from patients and their relatives helped to shape the interventions to improve the impact on the patient experience. Through this process both clinicians and patients were given the opportunity to communicate in differing situations compared to the usual doctor patient relationship. This has enabled situations to be interpreted in different ways, expanding perceptions and developing ways of working.

AAA QIP in the East Midlands – my thoughts on a valuable exercise

Dr Davis Thomas; Regional Lead
Chair, BSIR Registries and Audit Committee

As a clinical lead for the AAA QI Programme in the East Midlands (and probably the only clinical lead who is not a vascular surgeon), I was asked to share my experiences regarding the AAA QI programme in the East Midlands to date.

I first heard about the AAA QI programme at a BSIR (British Society of Interventional Radiology) committee meeting in Nov 2010. Having visited the AAA QIP website, I was sufficiently impressed and contacted Roxanne Potgieter to express an interest in setting up a regional meeting in the East Midlands. I was very keen that interventional radiologists as well as other groups involved in the management of AAA were invited to be involved. The enormity of organising the initial meeting dawned on me when I realised that there was no formal database of vascular surgeons or interventional radiologists in the region. The list obtained from the professional bodies was not complete and I had to rely on colleagues in the region who were kind enough to send me details of their vascular team and also pass on the invitation to other relevant personnel in their hospitals. We were also successful in getting active patient group participation through contacts in the local and regional vascular patient groups. Local and regional management and commissioner support was also vital in taking this forward.

The first event in October 2011 was held at Northampton General Hospital hosted by Mr David Ratliff and myself. We had a great turn-out with over 40 attendees from a wide variety of groups including patient representatives, commissioners and management.

The follow-up meeting was in March 2012 and was held in Leicester. Once again this was well attended with a lot of enthusiasm. The various groups presented their work and experiences and discussed the issues that arose as a result of this. The East Midlands data from the national vascular database for AAA and carotids was also presented and discussed. Full details and minutes of the meetings are available on the AAA QIP website.

I know that with our efforts in the EM AAA QIP, we have recognised, acknowledged and have encouraged the involvement not only of the various professional groups but also of patient groups, managers and commissioners. The process was truly multi-disciplinary. I have learnt a lot from the whole process and I know most of my colleagues would agree. This process has brought us together as a group and helped us a lot in networking, in sharing problems and solutions as well as in putting faces to names. Carrying the momentum forward will be a challenge. I hope that we will be able to take forward the lessons learnt from the QI programme and meet regularly to share knowledge and experience as a network of colleagues with a shared interest in vascular diseases in the East Midlands.

Difficulties

Developing of a Post-operative Care Pathway: The Challenges of Quality Improvement

Sheffield Vascular Institute

Sumayer Sanghera; Consultant Vascular Anaesthetist

I got involved with this programme as the initial meeting was on a day I was not scheduled to be at work, and so you can see that this is done in our own time and is not recognised either by the Trust or our commissioning authorities.

It is time consuming trying to arrange meetings so that the relevant personnel are present, especially as it requires a multidisciplinary approach to make the postoperative care pathway work. I was lucky in that a vascular surgeon and a critical care consultant were keen for this to work and so we each persuaded our colleagues to agree to the pathway.

I have to say to get consensus was a great achievement. The next problem was trying to make the critical care nurses understand and follow the principal that they could move patients along the pathway rather than waiting for a doctor to say so. We have had a meeting regarding the first cohort of patients where we found that not all the nurses were aware. We are about to analyse the data from this set of patients but this requires our audit office to approve the project, otherwise it does not get recognised by the trust and so once we have made appropriate adjustments the pathway can be incorporated into the patients' notes. This adds to the workload and again has to be done in our own time.

To actually achieve a change we have had to put a small group of patients through the pathway and now have to present this to show how this has worked for example, decrease in length of stay, improve quality etc....To show improvement in quality as assessed by the patients, will take longer and require someone to follow up the patients not just at 6 weeks when seen by the surgeon, but say 3 months and one year later. This requires an assessment of their life style etc and is a manpower issue.

Overall the whole process will improve the patient journey and that is what keeps us motivated.

Changes Observed in the Quality of Care and in Increasing Clinical Engagement and Skills in Quality Improvement.

Local implementation of the pre-operative care bundle at North Bristol and Torbay has resulted in changes in the multi-disciplinary team process where an anaesthetist now attends and advises at the MDT meeting and the safe for intervention checklist has enabled the identification of patients who are high risk for surgery. Collaborative joint decision making is now visible and the pre-operative process has been streamlined with patients identified as 'high risk' fully discussed and followed through the pre-operative process. As well as this, vascular secretaries have been incorporated into the process to ensure each patient is sent the same patient information leaflet to standardise the provision of written information given to patients.

Broomfield and Harlow Hospital, who took part in our East R.A.P, have now formally set up a pre-assessment clinic which ensures the capture of all AAA patients. They have also begun to implement our patient information leaflets which have received good feedback: "less wordy, practical advice for new or sudden symptoms and advises on driving." This has helped identify patient preferences for information where previous local consultant developed leaflets were found to "raise anxiety".

4.2 ESTABLISHING A CLINICAL COMMUNITY

The AAAQIP was delivered on behalf of the VSGBI, BSIR, VASGBI and SVN. The Vascular Society was an existing clinical community, but having the support of professional organisations was a key step in engaging all members of our clinical community. The VSGBI have allowed the promotion of the AAAQIP through annual meetings and newsletters. As Vascular Society members can be competitive in nature, this was to our advantage as regions engaged with the programme for "not wanting to be left behind". It also increased access to stakeholders such as the National Screening Programme and strengthened pre-existing links with fellow societies such as the VASGBI, BSIR and SVN. This allowed a wide range of expert input into the development of best practice protocols and engagement of all clinical team members to carry out interventions.

Implementation of the AAAQIP required us to build contact lists. This enabled us to communicate more effectively with clinicians, managers and commissioners. Combined with a regional implementation strategy, this allowed us to develop a national community, regional and local communities. We used these communities to share learning and to develop strategies for sustaining improvement. Regular communication was provided through data quality feedback, local and national vascular newsletters.

The national AAAQIP website (www.aaqip.com) acts as a repository of information and also provides a home for regional activities to be recorded. This allows shared learning by anyone with access to the internet. These factors combined to maintain engagement through 3 meetings per region allowing local QI Networks to form.

When implementing change at a regional level, having the resources and manpower to ensure further face to face follow up meetings is vital. This provides a forum to demonstrate progress creating an impetus for others to get engaged. It also allows shared learning of what works and what failed, so that teams at different stages do not repeat the mistakes of those who went before them. This should allow faster implementation of the national care pathway through sharing knowledge.

West Midland's AAAQIP

Mark Gannon; Regional Lead

There was a time not too long ago when there were seventeen hospitals providing Vascular Surgical Services in the West Midlands. In 2009 the compelling need to look at service provision and the drivers which highlighted this need were being brought into stark relief. The blueprint for reconfiguration supported by the clinicians was a seven network model providing for the six million people living in the West Midlands. The hub and spoke arrangements were agreed by the local clinicians in all but one network where a bidding process was needed and advice sought in making the decisions.

It was against this background that the AAA Quality Improvement Programme [AAAQIP] came to visit the West Midlands. This was the penultimate region in the country to host a visit and all the West Midland networks sent teams to the Programme Meeting. The whole spectrum of involved clinicians including surgeons, radiologists, anaesthetist, nurse specialists, theatre and ward nurses, pre-assessment staff, vascular laboratory scientists and physiotherapists as well as managers from Providers and Commissioners and cardiac and stroke network staff attended and contributed to the QIP Programme Meeting. The AAAQIP Team were very well rehearsed and brought with them the outputs and the fruits of their work in the twelve previous meetings and the Team were very well equipped to facilitate the different network groups as they negotiated their way through the discussions on the stages of the patient journey. The seven networks attending the meeting were at very varied stages of development with some mature networks ready for rejuvenation and refreshment, and the newly formed networks keen to take advantage of all the previous experience available to them to select and learn in order to set themselves up with the most contemporary and refined systems and processes.

The QIP Team's experience was invaluable and adapted flexibly to all the different needs of the networks. The Service Improvement approach helped to keep the focus of the groups and the interchange between and within teams was very constructive.

Every network agreed to undertake Service Improvement projects; these include a plan to develop referral pathways and the MDT process, a project to develop a database for managing the clinical investigational and radiological bundle of assessments which feed into the MDT, and an audit of diagnosis to treatment times. The intra-operative care is going to be studied in an audit of the provision of trained personnel, equipment and availability out of hours. The factors impacting on length of stay and the patient expectations and the management of the ward to community pathway is going to be investigated to improve awareness of this phase of recovery. The global assessment of patient experience is to be captured in one study, and a series of interventions which aim to improve that experience will see the use of information audited, the provision of telephone follow up explored and a DVD of the patient's journey will be produced. Finally a tool will be developed to assess outcomes of EVAR which go beyond simply looking at survival and unpick some of the complexities of the endovascular approach. Reporting back on all of these interventions in June facilitated by the National QIP Team will be the next stage in the evolution of improved Vascular Services in the West Midlands.

4.3 ACHIEVEMENTS, CHALLENGES AND THINGS THAT DIDN'T QUITE WORK OUT AS PLANNED

We set out to reduce the mortality from repair of unruptured AAA from a reported 7.5% in 2008 to less than 3.5% by the end of 2013. Our first mortality report produced in March 2012 gives a national rate of 2.4% for in-hospital mortality. This would appear to have achieved our target.

Whilst there is much to be commended, it is important at this stage of our project, that we do not assume that we have achieved all we wished to. We have initiated a programme of reform and collectively we

have learnt the value of a rigorous approach to measurement. In addition, a move from the traditional “surgical firm” structure to a more open team structure has begun. Surgeons are seeing the value of engaging in a team to provide high quality outcomes. The role of anaesthetists and radiologists in providing specialist care are more established. Specialist nurses in acting as a clear focus for communication has also become a critical part of a successful team. However, this idealised team structure has yet to be widely recognised as the model for care delivery by clinicians. It needs to become part of the culture of how we care for patients.

When reflecting on how this project ran, it is clear that we set out with no idea of how to manage such a complex process. That we were successful rests on a number of key factors.

The first and most important factor is having a strong professional organisation. Without the leadership of the VSGBI this project would not have succeeded. The structures of the society, a robust leadership with support for delegated chairs in education, research and audit, allow it to bring about change both quickly and flexibly. The support of the society for change and for setting clear standards (e.g. traffic light standards for data entry) has been invaluable in driving improvement, It has forced all vascular surgeons to accept that Quality improvement is a professional issue, not a personal one that they can adopt or not on whim. Whilst not all units have engaged with equal enthusiasms, having clear targets, robust measurement and a stated plan to publicise outcomes has ensured that even the most reluctant have contributed.

The lack of QI experience was a major obstacle to delivery of this programme and having expert professional assistance was a key factor in success. Early QI briefings and review of the project plan rapidly identified key weaknesses. This enabled the core team to move rapidly to a model of regional engagement and delivery. Without this input it is likely that the project would have delivered much more slowly.

Having a flexible core team was an asset. We came to the project unencumbered with knowledge or prejudice. This allowed us to adapt quickly. There is no doubt that more understanding of QI methodology and project management at the outset would have moved the project along more quickly. So this aspect of the team may be seen both as an advantage and a missed opportunity. One important learning point was that having a youthful team was not a disadvantage, other than the initial weak knowledge base. The lack of understanding of “how things are done” within the vascular community was an asset as strategies were implemented without regard to traditional hierarchies, often with surprising success (to the programme director and VSGBI colleagues). This reinforces the view that change requires new thinking and an acceptance of new ways of doing things.

The regional approach was undoubtedly helpful, but engagement was not universal. Many clinicians are busy people and this provides the perfect excuse for being “unable” to engage. For this reason only a small proportion of clinicians from each region actually attended meetings and contributed. However, those who did were clearly enthusiastic and were able to carry messages back to their local teams. One key point was that it was often nurses and anaesthetists who wished to engage with the QI agenda. Provided the surgeons involved were not obstructive, this often provided local success with QI projects. The most significant changes were seen when the whole team was engaged.

The involvement of commissioners and cardiovascular networks was very helpful and where this engagement was strong, the process moved forward much more robustly. Currently the East of England, Northern West and East Midlands have strong leadership and a plan for sustaining the QI process around their re-configurations. We believe that this is the best model for sustaining change. In Yorkshire and Humber we were rebuffed by the cardiovascular networks and this region is sustained by the enthusiasm of their clinicians. It remains to be seen if this will prove successful in the long term. The South West saw limited engagement. There is limited re-configuration in this region and therefore limited stimulus for engagement. There is a strong loco-regional vascular society and traditionally there has been significant interest in improving and disseminating outcomes. It may be that this is one initiative too many at the current time. Seeking engagement with Scotland has been a lengthy process, but we have full engagement with the Scottish Department of Health and this promises to be an enduring process. There is a tradition of seeking to improve standards within Scotland and there is clearly good

understanding of QI methodology. The late arrival to the project may not prove to be an obstacle to improvement.

One conclusion is that a national project delivered regionally requires a lot of time on the ground by the core team to set up and run meetings. Within the busy clinical timetable of the programme director and the limited experience of the project team, finding enough time to run all the meetings has proved difficult. The two and a half year timetable for delivery is very demanding and this project might have succeeded better on a slightly longer timeframe. This should be born in mind for future national proposals.

The breakup of the NHS into national groups has also hampered project delivery. There are sensitivities about how projects are perceived nationally at commissioning level. This is largely absent from the clinicians who see themselves as part of a truly national service. Politicians need to reflect on how the greater societal good is served by not erecting artificial barriers to delivery of national service developments. A good example is the continual distinction between delivery of healthcare in England versus Scotland and issues around funding “national” clinical audit. Some form of standard co-operation agreement for running UK wide initiatives would greatly facilitate the delivery of UK wide clinic projects.

Input from the quality improvement advisors and learning development consultants was important early on in the programme to develop strategies and measurement plans. We feel that it would have been extremely helpful to have some support to demonstrate cost effectiveness of the AAAQIP as being able to demonstrate savings through the interventions undertaken would have provided a greater impetus for unit managers to get involved, again driving a whole team approach towards improvement and offering additional unit level support to clinicians. It was advantageous to work with proactive clinicians in the early stages to achieve early wins and create a growing evidence base of change occurring elsewhere to foster competitiveness. In the final stages of the Programme it was important to collaborate with local Cardiac and Stroke Networks to create sustainability plans.

Staff buy in was achieved at each region by presenting a variety of evidence for change. This included high mortality rates from a range of resources, the national deficit in recovery information identified through patient groups as well as reinforcing the requirements of the new AAA Screening Programme. The patient feedback was particularly beneficial as clinicians agreed with this aspect even if they did not agree with mortality data figures and thus were prepared to engage in the whole process to improve the quality of care that patients receive. Local patients attended a range of our regional meetings. This provided clinicians with a firsthand account about what patients in their region had experienced. Group discussions at regional events to review current practice and identify problems ensured that interventions became relevant to local clinicians to increase ownership.

My Participation in the East Midland’s Regional Meeting

Charles Prior; AAA Patient

My involvement with the AAA came from working with the ‘Vascular Patients Group’.

The meeting I thought was very informative, by attending the meeting you found out the amount of people and their skills that were involved in making sure that patients received the best care that could be given. I discovered things like ‘being in the checking system’ that would automatically continue.

I found the meeting very useful in that meeting a cross range of people, hearing their views and putting their thoughts and points forward.

I think the surgeons and consultants really did listen to the patients views. I think they seemed to like the view of looking from the outside in at the meeting as opposed to inside out.

I would certainly recommend that any patients that had the opportunity to attend a meeting and to put forward their own point of view and to air their views would probably give some input to help the AAA in the future.

The North East formed the first regional action plan team. Despite being an integrated region with regular meetings between units and strong involvement with the cardiovascular networks, the region struggled to engage clinicians in piloting the care pathway that was developed. Initial work carried out in the region was highly productive and outlined each element of the care pathway with multidisciplinary input, however, the pathway has been found to be too lengthy in practice. A start-up phase involving a highly integrated and representative steering group, developing and refining protocols for intervention with QI input at this stage would be beneficial to ensure they can be practically implemented.

Following the initial regional meeting it was difficult to steer progress from a small central team. Regions with a strong local lead demonstrated the most engagement. If carrying out a national project it is important to ensure a minimum amount of team members in each region are signed up to the core project team from the offset. Our project began with an implementation team made up of one local lead (surgeon) from each region to drive implementation at a local level. Involving a minimum of a radiologist, anaesthetist and manager from each region would increase ownership of the QI work at a local level, ensure each clinical discipline is represented to increase engagement across clinicians and increase the accountability of the work.

4.4 DIFFERENCES BETWEEN OBSERVED AND EXPECTED OUTCOMES

Larger external agendas such as re-configuration of services may have had an impact on engagement and progress of QI work within specific regions. To provide an example, following the initial meeting in Northern Ireland with 40+ attendees, only 2 Trusts were represented at the follow up teleconference. As well as factors such as holiday period, the centralisation of AAA surgery to a single site in Belfast meant the two amalgamating units in Northern Ireland have remained engaged yet for other units this has reduced the impetus to be involved. This resulted in lower engagement at the follow up meetings affecting the benefits of sharing findings from QI interventions.

Implementation of the AAAQIP in Northern Ireland Royal Victoria Hospital

Paul Blair; Northern Ireland Regional Lead

The Northern Ireland AAA QIP regional meeting took place on 26 May 2011. A teleconference was held in September and a regional progress meeting on 22 February 2012. The workshop provided a unique opportunity to bring a wide range of healthcare professionals and patients together to review our current practice and implement change. Standardisation of care between vascular units was particularly important as the two major units in the province merged in December 2011.

Attendance at the initial meeting in May was excellent but maintaining interest and engagement amongst a wide range of specialties and ensuring projects were followed up proved quite difficult. Despite these problems we considered the effort involved to be worthwhile.

As we are in the middle of a reconfiguration of vascular services, representatives from Public Health and the Commissioners found the forum particularly useful. Similarly, standardisation of care between units with respect to critical care bed usage and pre-assessment was also useful.

The small group workshops involved a range of medical specialties and input from nurse specialists and patients was particularly constructive. All clinical staff benefited from having the patient's perspective on consent, pre-operative information and expectations following surgery. A number of small audit projects were undertaken and these have already led to small but significant changes in clinical practice.

Although facilitating a regional meeting of AAA QIP proved somewhat time consuming it was extremely worthwhile. The importance of a national group, making a regional visit and engaging in the process should not be underestimated. The follow-up meeting also ensured that at least some of the audit projects were undertaken with a reasonable outcome achieved.

5. RESOURCES TO SHARE

See additional resources included with this report.

6. PLANS FOR SUSTAINABILITY

100% data completion, vascular clinicians owning their own data and utilising this data to improve the quality of care has been reinforced as a central theme throughout the AAAQIP, as well as a core aim of the Vascular Society. This has been achieved, for example through the national symposiums on outcome reporting as part of the Vascular Society's AGM 2011. This aims to increase the number of clinicians signed up and contributing to the NVD to sustain the measurement of outcomes.

The central AAAQIP team will also aid in the development of the new National Vascular Registry (NVR) reviewing recommended changes to the database to increase usability and ensure data contribution increases steadily throughout and following the project. We believe that this will act as a powerful motivator for continuing quality improvement and complete data collection. Commissioning for Quality and Innovation (CQUIN) payment frameworks for data entry are proposed to be used by a few regions' to link data entry to Trust income and embed measurement as part of the culture.

Best practice quality standards developed throughout the AAAQIP such as MDT meetings and formal risk assessment of patients are proposed to be embedded into the new NVR. This will maintain the focus on the quality of care with regular reports to drive improvements in care. The Vascular Society additionally plans to repeat the 'National Turn Down Audit' annually in order to gain a picture of overall vascular practice and track balancing measures.

The third meeting in each region as part of the IHI Breakthrough Model (Learning Set 3) will focus on sustainability. Here, local clinicians discuss and agree plans to hold ongoing meetings to include resources and where meetings will be held, agree standards and protocols to be adopted throughout the region as well as areas of care that require further P.D.S.A testing. Local Cardiac and Stroke Network and Commissioner involvement becomes crucial here. We have collaborated with local bodies throughout the regional action plan process to ensure service and quality improvement with clinicians can be built into future work-plans of the Networks.

This was successfully implemented in the East of England as the Cardiac and Stroke Networks and Specialist Commissioning Group included the AAAQIP work within their commitments for 2012/13 and agreed to take on the role of the QIP. They ran the third regional meeting liaising with the regional lead on an ongoing basis to ensure adherence to the care pathway quality standards. They are additionally working with individual clinicians in the region to address quality problems such as coding errors and holding coding workshops independently of the AAAQIP.

One of the main challenges we face in order to sustain changes is a lack of enthusiasm. Those regional groups that are not actively engaged with the AAAQIP at this stage and fail to come to regional meetings will be unlikely to sustain a regional network without the central team and funding resources. The reconfiguration of vascular services into hub and spoke models, with fewer units undertaking interventions, will act as a competing focus away from the quality of care to more contextual factors and problems. It will be important for the Vascular Society to reinforce high quality care as a qualifying factor to remaining a central unit performing elective interventions to maintain the AAAQIP changes.

Working on behalf of the Vascular Society as a clinical community, and mapping the AAAQIP's standards to those endorsed through the Vascular Society's 'Provision of Vascular Services Document', has worked to establish a national impetus for change and maintain these standards beyond the life of the AAAQIP. We have additionally mapped our best practice protocols to the requirements of the National AAA Screening Programme which is currently being rolled out throughout the U.K. This will prompt units to implement AAAQIP standards and protocols in order to ensure they can become screening centres. This will drive high quality care and the use of our protocols beyond the life of the AAAQIP. The website will remain with all the final resources and we will seek to establish a link with the NAAASP website to ensure these are easily accessible.

7. PLANS FOR SPREAD

7.1 Explain your plans for spreading the learning and outputs of this project.

As part of the regional action plan process we ensure all clinicians involved in the care of AAA patients take part in our regional meetings to make certain best practice is disseminated throughout the whole clinical team. We also stipulate that each unit should be represented to ensure findings can be translated back into local units. Although preliminary work is being undertaken with patient groups to develop an AAA PROM, once a questionnaire has been designed post AAAQIP it will require testing nationally. Many units are keen to undertake this work and we are developing a contact list for units to continue this work in 2012/13.

The AAA QIP website has been commissioned for 5 years. Final outcomes from the AAA QIP will be reported during project closure and will remain in place for reference on the website. These will include data reports e.g. mortality, effectiveness of best practice protocols and patient experiences and feedback. The website will be publicised in all closing reports, meetings and e-mails. It will continue to be managed by a few VS core team members after project closure.

7.2 How are you going to promote your innovation and convince others of its value?

We will attend regional vascular meetings and the annual meetings of stakeholders such as the Scottish Vascular Review meeting attended in 2011. Here we presented findings of outcomes from national AAA patient groups held as part of the AAAQIP. This allowed consideration of the inclusion of new quality standards within the Scottish Government Vascular Services Quality Improvement Framework.

We have already built up an evidence base of variability in patient experience; the large impact elective AAA repair can have on patient Quality of Life (QoL) and the need to measure outcomes through an AAA Patient Reported Outcomes Measure. We plan to produce a report of responses from Patient Groups demonstrating the psychological impact of having an AAA and the need for post operative functionality measurement. A final report with recommendations on AAA PROMS will be sent to the OHE to encourage adoption into the National PROMS Programme.

7.3 What advice would you give to someone attempting to replicate your work in another organisation / setting?

- **What levers should they employ to facilitate change?**
 - Have clear targets against which progress can be measured
 - Publicising the relevant data i.e. data contribution, mortality rates, patient group findings to the clinicians, Trust management and additional stakeholders to build an evidence base for change. Employ additional strategies such as traffic lighting data to identify areas for improvement and targets to work towards. Updating data and outcomes at regular intervals to identify improvements or slippage.
 - Mapping best practice interventions to national initiatives (such as the National AAA Screening Programme for our project).
 - Try and get some of your goals adopted as national policy (e.g. quality accounts)
- **What barriers and challenges should they prepare for?**
 - Clinicians lacking in quality improvement and measurement knowledge.
 - Lack of support from hospital management.
 - Local hospital regulations preventing the adoption of new protocols/ care pathway documents.
 - Consultants not engaging with quality improvement work preventing enthusiastic nurses from fully undertaking the work locally.
- **What risks should they be aware of?**
 - Publishing outcome data without regards to problems with data quality.
 - Lack of involvement of other healthcare professionals. Project seen as “Vascular Surgical” and not team based.
 - High engagement at regional events yet low completion of QI interventions at a local level.

- Slow progress of regional implementation process continuing beyond the life of the project.
- **Where should they target their efforts to enhance their chances of success?**
 - Training the central team or ensuring appropriate quality improvement input.
 - Appropriate set up period with expert input to ensure the right best practice protocols have been selected, outline the main requirements from local teams as well as a structured and well defined measurement strategy.
 - Well organised regional events to put forth the evidence base for change and explain the proposed interventions.
 - This should allow local teams time to review the suggestions and make local amendments, agree a local implementation and measurement strategy as well as provide training in QI to support these efforts.
 - Local onsite and peer review visits will help to maintain contact with the central team and the impetus to change as well as address problems local teams may encounter.
- **What should they do to ensure they are successfully measuring the effects of their intervention and producing robust evidence?**
 - Record baseline measures prior to implementation.
 - Ensure data quality is high; greater than 90% data contribution onto the NVD. Undertake validation exercises to check for clinical coding errors.
 - Develop a plan for local measurement to include:
 - What: Mortality, length of stay, patient satisfaction.
 - Who: Team member tasked with regular data capture.
 - When: Regular intervals suitable to measure (e.g. monthly, quarterly).

8. RETURN ON INVESTMENT

Costs of elective AAA repair prior to the AAA QIP:

Costs of operating on patients that may have been unfit for surgery:
(due to lack of formal risk scoring and pre-operative assessment)

- Increased deaths
- Increased adverse events
- Complications during surgery
- Increased ICU time
- Increased bed days
- Increased ward resources

Costs of implementing the AAAQIP and improving and implementing quality:

1. Immediate project costs:
 - Staff Salaries
 - Staff Training
 - Stationary & postage
 - Publicity costs and attending meetings
 - Meeting costs
 - Data costs
2. Developing costs:
 - Meetings costs to develop best practice protocols
 - Elective AAA Safe for Intervention Checklist:
 - Travel costs to development meeting
 - Consultant time for making necessary changes
 - 4x Consultant Vascular Surgeons
 - 2x Consultant Vascular Anaesthetist
 - 2x EVAR trial researcher

- Multi-Disciplinary Team Proforma:
 - 4x Consultant Vascular Surgeons
 - AAA Pre-Operative Care Bundle:
 - 4x Consultant Vascular Surgeons
 - 2x Consultant Vascular Anaesthetists
 - Advisory consultation with 3x consultant surgeons and anaesthetists.
3. Costs of implementing QI methodology:
 - NVD tutorial session costs
 - Regional Action Plan costs
 - QI Introductory sessions
 4. Costs of measuring adherence and implementation:
 - Audit costs
 - Site visits
 - Data analysis costs

Costs of AAA Repair as a STATE that is aimed to be delivered as part of the AAAQIP:

1. Implementing Pre-Operative Care bundle and AAA Elective Safe for Intervention Checklist: (Formal risk assessment-identify patients that are not currently for surgery).
 - Reduce interventions-lowers costs
 - Reduce deaths
 - Reduce complications and bed days that result in surgery on unfit patients.
2. Developing a formal MDT process using best practice MDT protocol:
 - Increase staff communication and efficiency of assessing the patient.
 - Reduce variation in practice and communication channels to reduce consultant time.
 - Opportunity costs-formal MDT protocol increases efficiency of clinician time resulting in opportunities to carry out other work and make savings elsewhere in healthcare.
3. Patient Engagement: Better communication with patients (New AAA leaflets, post operative information on recovery)
 - Increase in patient satisfaction due to correct expectations
 - Reduction in complaint costs
4. Costs of increased data entry:
 - Increased costs in admin time required
 - Increased P.A. time for clinicians

9. CONCLUSIONS

There are many resources available within NHS Trusts to support quality improvement and to improve the safety of patients coming to major surgery. Although the focus of this document is on improving care to patients with aortic aneurysms, the techniques and messages hold good for all patients requiring vascular interventions.

There is an urgent need for clinicians to improve contribution to national audit. Without the ability to accurately measure what we do, we are unable to describe how we need to change, or what change we are achieving. National clinical audit will allow clinicians to reclaim the right to advise patients from a clear understanding of the quality of service that they provide. Audit needs to be a central part of our culture.

The other strong message is that we have much to gain from listening more to our patients. There is a need to provide both better and more consistent information to support patients through what are major,

life changing events. The experience of those involved in our patient focus group work (from both sides) is that we will all benefit from communicating well with each other. This approach can only improve the quality of care that the NHS provides.

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11. APPENDICES

APPENDIX A



National Abdominal Aortic Aneurysm Quality Improvement Programme

www.aaaqip.com



14th October 2010

Project Director
David Mitchell

Mr XXXXX XXXXXXXX
Department,
Hospital,
Town,
County
Postcode

Project Manager
Roxanne
Potgieter

Dear XXXXX XXXXXXXX,

Re: Contribution to National Audit on the National Vascular Database (NVD) 01/01/10 to 31/03/10

Project Assistant
Julia McCleary

This letter forms the third in a series of communications from the Abdominal Aortic Aneurysm Quality Improvement Programme (AAA QIP) notifying Trusts of their data contribution to national audit on the NVD. An explanatory leaflet about the NVD and actions that need to be addressed to help increase participation is included. Complete data entry will allow online assessment of the quality outcomes for your Trust. NVD data will form the basis for revalidation and is a requirement for participation in the National Abdominal Aortic Aneurysm Screening Programme (NAAASP).

A.K.I. Audit
Helen Hindley

The tables below outline the number of Abdominal Aortic Aneurysm (AAA) surgeries, Acute Kidney Injury (AKI) data and carotid endarterectomies recorded by HES compared with the number submitted to the NVD. This data has been recorded for your NHS Trust between the months 01/01/10 to 31/03/10.

Contact
0117 323 2267
0117 323 2612

Abdominal Aortic Aneurysm (AAA) Cases (01/01/10 to 31/03/10).

Cases	Total HES (n)	Total NVD (n)	NVD available	NVD unavailable
AAA elective	<5	0	0	0
AAA em/urgent		0	0	0

Email
info@aaaqip.com

The data is derived by date of discharge for relevant procedure codes on HES that are identical to those in the NVD. Of the AAA cases that have been recorded on the NVD, are available for analysis (i.e. coloured yellow or white on the NVD) and are unavailable (i.e. coloured red on the NVD). Records that are unavailable for analysis only require a few additional fields to be completed and we encourage your surgeons to revisit any red records. Units that upload data periodically may have a zero NVD return if they have not uploaded in the last eight months. We would encourage more frequent uploads.

Fax
0117 323 5168

Acute Kidney Injury (AKI) Audit Data (01/01/10 to 31/03/10).

The AKI audit is part of the Vascular Society's national clinical audit and runs within the AAA QIP. It is funded through Kidney Care UK. AKI data fields on the NVD have been set up to capture relevant information on AKI in surgical patients undergoing AAA repair. This data will be used to identify factors associated with AKI and resource implications of AKI on acute services.

	Total AAA cases on NVD (n)	AAA cases with complete AKI data
AKI Data	0	0

c/o Dept of
Surgery
Southmead
Hospital
Westbury-on-
Trym
Bristol
BS10 5NB

UK Carotid Interventions Audit (CIA) data (01/01/10 to 31/03/10).

We have included Carotid surgery as the National CIA forms part of the quality accounts within Trusts and informs the National Stroke Strategy. The Healthcare Quality Improvement Partnership (HQIP) has an expectation that all surgeons who conduct carotid endarterectomy participate.

	HES (n)	Total NVD (n)	Elective	Emergency
Carotid Cases	<5	1	1	0

Future Communications

Future reports will come out three months in arrears to allow cleaning of the HES data. The next round of data analysis will take place in January. The deadline for completion of data entry/upload to the NVD for the next round of data analysis will be Tuesday 28th December 2010. We will be analysing data between 01/04/10-30/06/10 and comparisons will be sent out in mid January.

We suggest that this data be used to guide the need for review of data collection processes and to stimulate internal validity checking to ensure that your organisation is making a full contribution to national audits.

Yours faithfully



DC Mitchell MS FRCS
Chair Audit & QI committee, VSGBI
Project Director, National Abdominal Aortic Aneurysm Quality Improvement Programme.

APPENDIX B



*The Vascular Society and
Vascular Anaesthesia Society of Great Britain & Ireland*

Elective Abdominal Aortic Aneurysm – Preoperative Safe for Intervention Checklist

Guidance Notes For Use

The Quality Improvement Programme is designed to reduce the peri-operative mortality rate for elective AAA intervention to less than 3.5% by 2013.

The Safe for Intervention Checklist (overleaf) will help to grade the risk of treatment for individuals with an unruptured AAA. It is recommended that the Checklist is completed for every patient being considered for elective AAA treatment and filed in the patient case notes.

The Checklist is designed to be used as part of decision-making process on whether to proceed with intervention or whether treatment should be postponed whilst patient fitness is improved. It is not designed to be used to decide on the need for intervention, but to inform the consent process with individual patients. It is recommended that the results of the Checklist should be shared with the patient and their views recorded in the case notes.

This Checklist should be used as part of preoperative workup as defined in the Quality Improvement Framework which should include preoperative assessment by an anaesthetist with experience in elective vascular anaesthesia (1). It is intended that the Checklist should be used as part of a suite of Quality Improvement Programme tools including an AAA pathway and an Multi-Disciplinary Team (MDT) proform (www.aaqip.com).

This document is endorsed by the VSGBI and VASGBI as a preliminary checklist. It is advised that all patients being considered for intra-abdominal aneurysm surgery should be assessed against it prior to being investigated for surgery.

(1) <http://www.vascularsociety.org.uk/library/quality-improvement.html>

Elective Abdominal Aortic Aneurysm – Preoperative Safe for Intervention Checklist

PATIENT DETAILS	NHS Number:
Patient Name:	
D.O.B:	Hospital Number:

Questions	Y	N
1. Has the patient had a myocardial infarct or unstable angina/ angina at rest in the last 3 months?		
2. Has the patient had new onset of angina in the last 3 months?		
3. Does the patient have a history of poorly controlled heart failure? (<i>nocturnal dyspnoea or inability to climb one flight of stairs due to SOB</i>)		
4. Does the patient have severe or symptomatic cardiac valve disease? (e.g. Aortic stenosis with gradient >60mmHg or requiring valve replacement, drop attacks)		
5. Does the patient have significant arrhythmia? (<i>Symptomatic, ventricular, severe bradyarrhythmias or uncontrolled supraventricular tachycardia</i>)		
6. If available , does the patient have any of:- 1. FEV1 < 1.0 L or <80% of predicted value ; 2. PO2 < 8.0 kPa; 3. PCO2 > 6.5 kPa		

If the answer to any of 1 – 6 is yes, the patient is **coded RED** and is very high risk for surgery.

Questions	Y	N
7. Does the patient get SOB climbing one flight of stairs? (<i>short slope if lives on one floor</i>)		
8. Does the patient have evidence of moderate renal impairment (creatinine >180 micromol/l) or previous renal transplant ?		
9. Has the patient had treatment for cancer in last 6 months, or has life threatening tumour?		
10. Does the patient have poorly controlled diabetes mellitus? (<i>HbA1c > 7.5%, blood sugar usually >10 mmol/l</i>)		
11. Does the patient have uncontrolled hypertension (i.e. SBP >190; DBP >105)		
12. Has the patient had a TIA or CVA within the last 6 months?		

If the answer to any of 7-12 is yes, the patient is **coded AMBER** and is higher risk for intervention.

Questions
If the answers to <u>all</u> of the above are no, the patient is coded GREEN and is fit to proceed, provided they are on appropriate preoperative medication

Other Risk Factors

Other risk factors that increase the risk (**amber**) or preclude (**red**) repair (circle): Yes / No
(e.g. dementia, cancer, stoma, adhesions - specify if yes):.....

Please Tick

Patient is coded:	Proposed Action:
Red	Not recommended for immediate intervention – Specialist review required if surgical treatment still to be considered.
Amber	Significant comorbidity requiring preoperative optimisation.
Green	Fit to proceed to further stage of formal assessment

N.B. It is recommended that all patients scoring red or amber should be reviewed by an Anaesthetist with experience in Vascular anaesthesia prior to listing for intervention.

Name: _____ Grade: _____ Date: _____

Guidance Notes For Use

Introduction

The Vascunet Report (2008) identified elective abdominal aortic aneurysm mortality as substantially greater in the UK than in other countries (7.9% vs. 3.5%)¹. Early and late AAA mortality rates have been found to be increased in patients with a preoperative clinical diagnosis of “unfit for open surgery”². The U.K. Small Aneurysm Trial also found poor preoperative lung and renal function to strongly associate with postoperative death³. Identification of preoperative factors associated with a high mortality risk is important to inform surgical policy and to direct suitable preoperative interventions. Bernstein et al, (1988) advocated a 72% 5-year survival of all their AAA patients as a direct result of an aggressive policy of screening for and selectively treating coronary disease and carotid stenosis preoperatively⁴.

Preoperative assessment, risk scoring and MDT working are defined quality standards in the Vascular Society of Great Britain and Ireland’s (VSGBI) framework for improving the results of elective AAA repair (2009)⁵. To achieve these standards nationally, there is a need to introduce reliable preoperative screening checks through best practice protocols, ensure the involvement of the relevant clinicians and reduce variation in vascular practice.

Therefore, the AAA QIP has outlined a strategy that aims to:

- i) **Reduce risk: Identify those high at risk from surgery and in need of preoperative intervention.**
- ii) **Provide a pathway of care for those who are currently not fit for surgery.**
- iii) **Ensure the minimum personnel required including anaesthetists with interest in vascular anaesthesia are involved in the decision to treat.**
- iv) **Provide patients with the appropriate information and offer them a choice of treatment.**

The following care bundle has been designed to achieve these aims. It should be implemented on all patients before surgical intervention.

The Care Bundles Concept

The theory behind care bundles is that when several evidence-based interventions/guidelines are **grouped together** and applied in a single ‘protocol’, it will improve patient outcome*.

- It is a simple method of monitoring adherence/existence of local guidelines, and as such is a valid assessment of quality.
- It will provide rapid easily interpretable information.
- It is a form of auditing and can identify areas for improvement.
- It is NOT research.
- It is NOT prescriptive. Each unit can identify their own criteria for each element.

AAA PRE-OPERATIVE CARE BUNDLE

A. STANDARDS:

To be completed on all patients (AAA>5.5cm) proceeding to intervention.

Protocol in Care Bundle	Intervention	Measure
1. All patients should undergo standard pre-operative risk assessment.	Use Elective AAA Safe for Intervention Checklist. (Care pathway Proforma 1)	No. of patients having checklist completed.
2. All patients should undergo CT angiography for assessment for OR or EVAR.	Include as integral part of AAA Care Pathway.	No. of patients undergoing CTA.
3. All patients should be seen by an anaesthetist with interest in vascular anaesthesia prior to listing for surgery.	Ensure local process for anaesthetic involvement.	No. of patients being seen by an anaesthetist.
4. Patients should be assessed for surgery through a MDT process involving surgeon and radiologist as a minimum, with input from an anaesthetist interested in vascular anaesthesia.	Complete MDT Proforma. (Care pathway Proforma 2)	No. of patients assessed through MDT.
5. Patients should be given written information about their treatment and choice (if suitable) between OR and EVAR.	Use local hospital AAA information leaflet or national AAA QIP patient information leaflets.	No. of patients given AAA patient information leaflets and offered choice of treatment.

Notes:

1. **Elective AAA Pre-operative Safe for Intervention Checklist.** This is a traffic light protocol taken from the EVAR 1 and 2 trials. It has been reviewed and adapted for use by the Vascular Society and Vascular Anaesthesia Society of Great Britain and Ireland. The document forms a preliminary checklist to indicate whether to proceed with intervention or whether treatment should be postponed whilst patient fitness is improved. It is advised that all patients being considered for intra-abdominal aneurysm surgery should be assessed against it prior to being investigated for surgery.
2. **CT Angiography.** Vascular radiology departments should have a standard protocol for AAA EVAR assessment. If renal impairment is present further action may be needed, based on the eGFR:
 - eGFR > 60 no additional procedures required
 - eGFR 30-60 ensure adequate oral rehydration before CT
 - eGFR < 30 patient to be formally discussed at MDT to decide if fit for intervention, **prior to imaging**. Patient to be managed using written protocol to minimize risk of contrast induced nephropathy. Consent to include statement on risk of requiring renal replacement therapy.
 - Care needs to be taken with IV contrast in renal impairment and local guidelines should be followed.

- CTA will be performed according to local protocols pertaining to the particular type of scanner in use. In general, assuming that a modern multi-slice scanner is available for assessment, the protocol should include a suitable volume of IV contrast injection (100-120 mls) with bolus-tracking to trigger the imaging and maximum 2mm slice acquisitions, with 1mm reconstructions in order to produce adequate raw data for 3D analysis.
 - Ultrasound measurements of aortic diameter should use inner to inner wall in line with the NHS abdominal aortic aneurysm screening programme.
- 3. Anaesthetist.** All patients should be seen pre-admission by an anaesthetist with an interest in vascular anaesthesia. N.B. For this purpose an anaesthetist with an interest in vascular anaesthesia should be performing regular elective vascular anaesthesia.
- **Medication.** At this stage, medication should be reviewed and optimised for the intervention.
- 4. MDT.**
- All elective procedures should be reviewed pre-operatively in an MDT that includes surgeon(s) and radiologist(s) as a minimum. An anaesthetist with interest in vascular anaesthesia should be consulted before deciding to admit for surgery. **Centres should move towards anaesthetists attending MDTs.** If this is not currently achievable applications for sessions for anaesthetists to attend the MDTs should be supported. Fitness issues that may affect whether open repair or EVAR is offered must be considered. **ALL** CT scans and patients who are seen with an AAA > 5.5cm, and those being considered for treatment below 5.5cm, should be discussed at the MDT. The decisions made at the MDT should be recorded, including the decision regarding Open or Endovascular repair for those patients proceeding to treatment. Any patient preferences for open or endovascular repair should be documented
 - Surgeons and radiologists who perform AAA treatments should regularly attend AAA MDT meetings. Whilst it is recognised that current anaesthetic job plans may not include provision for attendance at these MDT meetings, this should also be an aim.
 - It is advised that the MDT is supported by a coordinator in order to ensure all appropriate cases are discussed and adequate documentation is maintained.
- 5. Patient Information.** All patients should be provided with an AAA information leaflet detailing the risk, complications and expected outcomes/recovery periods of AAA treatment options. Two patient information leaflets have been designed for this purpose, one for patients undergoing regular surveillance and one for patients being considered for intervention. The 'Recovery from AAA Repair' patient information leaflets taken from the Vascular Society's AAA Quality Improvement Programme should also be provided to patients at the consultation or following surgery to provide more information on what to expect after AAA surgery e.g. pain, medication, returning to work.
- 6. Consent.** All patients should sign a consent form detailing the risks, benefits and complications of the procedure. Standard agreed information should be included along with any local risk figures. **All patients should be asked if their data can be entered into the National Vascular Database.**

Structure Change:

This bundle needs to be incorporated into routine paperwork.

References

1. Second Vascular Surgery Database Report 2008. European Society for Vascular Surgery. Eds: Gibbons C, Kinsman R, Walton P. Dendrite Clinical Systems Ltd 2008, ISBN 1-903968-21-6
 2. Buth, J. Laheij, R. J. F. (2000). Early complications and endoleaks after endovascular abdominal aortic aneurysm repair: Report of a multicenter study. *Journal of Vascular Surgery*, 31, (1), 134-146.
 3. Brady, A. R., Fowkes, F.G.R., Greenhalgh, R. M., Powell, J. T., Ruckley, C.V. and Thompson, S.G. (1999). Risk factors for postoperative death following elective surgical repair of abdominal aortic aneurysm: results from the UK Small Aneurysm Trial. *British Journal of Surgery*, 87 (6), 742 – 749.
 4. Bernstein, E.F., Dilley, R.B. and Randolph, H. F. (1988). The improving long-term outlook for patients over 70 years of age with abdominal aortic aneurysms. *Journals of Annual Surgery*, 207(3): 318–322.
 5. Framework for improving the results of AAA repair. Vascular Society. Available at: <http://www.vascularsociety.org.uk/library/quality-improvement.html>
 6. Fulbrook, P and Mooney, S (2003) Care Bundles in Critical Care: a practical approach to evidence based practice. **Nursing in Critical Care** Vol 8 no 6.
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B. PROTOCOLS

PROFORMA 1



The Vascular Society and
Vascular Anaesthesia Society of Great Britain & Ireland

Elective Abdominal Aortic Aneurysm – Preoperative Safe for Intervention Checklist

Guidance Notes For Use

The Quality Improvement Programme is designed to reduce the peri-operative mortality rate for elective AAA intervention to less than 3.5% by 2013.

The Safe for Intervention Checklist (overleaf) will help to grade the risk of treatment for individuals with an unruptured AAA. It is recommended that the Checklist is completed for every patient being considered for elective AAA treatment and filed in the patient case notes.

The Checklist is designed to be used as part of decision-making process on whether to proceed with intervention or whether treatment should be postponed whilst patient fitness is improved. It is not designed to be used to decide on the need for intervention, but to inform the consent process with individual patients. It is recommended that the results of the Checklist should be shared with the patient and their views recorded in the case notes.

This Checklist should be used as part of preoperative workup as defined in the Quality Improvement Framework which should include preoperative assessment by an anaesthetist with experience in elective vascular anaesthesia (1). It is intended that the Checklist should be used as part of a suite of Quality Improvement Programme tools including an AAA pathway and an Multi-Disciplinary Team (MDT) proform (www.aaqip.com).

This document is endorsed by the VSGBI and VASGBI as a preliminary checklist. It is advised that all patients being considered for intra-abdominal aneurysm surgery should be assessed against it prior to being investigated for surgery.

(2) <http://www.vascularsociety.org.uk/library/quality-improvement.html>

Elective Abdominal Aortic Aneurysm – Preoperative Safe for Intervention Checklist

PATIENT DETAILS	NHS Number:
Patient Name:	Hospital Number:
D.O.B:	

Questions	Y	N
1. Has the patient had a myocardial infarct or unstable angina/ angina at rest in the last 3 months?		
2. Has the patient had new onset of angina in the last 3 months?		
3. Does the patient have a history of poorly controlled heart failure? (nocturnal dyspnoea or inability to climb one flight of stairs due to SOB)		
4. Does the patient have severe or symptomatic cardiac valve disease? (e.g. Aortic stenosis with gradient >60mmHg or requiring valve replacement, drop attacks)		
5. Does the patient have significant arrhythmia? (Symptomatic, ventricular, severe bradyarrhythmias or uncontrolled supraventricular tachycardia)		
6. If available , does the patient have any of:- 2. FEV1 < 1.0 L or <80% of predicted value ; 2. PO2 < 8.0 kPa; 3. PCO2 > 6.5 kPa		

If the answer to any of 1 – 6 is yes, the patient is **coded RED** and is very high risk for surgery

Questions	Y	N
7. Does the patient get SOB climbing one flight of stairs? (short slope if lives on one floor)		
8. Does the patient have evidence of moderate renal impairment (creatinine >180 micromol/l) or previous renal transplant ?		
9. Has the patient had treatment for cancer in last 6 months, or has life threatening tumour?		
10. Does the patient have poorly controlled diabetes mellitus? (HbA1c > 7.5%, blood sugar usually >10 mmol/l)		
11. Does the patient have uncontrolled hypertension (i.e. SBP >190; DBP >105)		
12. Has the patient had a TIA or CVA within the last 6 months?		

If the answer to any of 7-12 is yes, the patient is **coded AMBER** and is higher risk for intervention.

Questions
If the answers to <u>all</u> of the above are no, the patient is coded GREEN and is fit to proceed, provided they are on appropriate preoperative medication

Other Risk Factors

Other risk factors that increase the risk (**amber**) or preclude (**red**) repair (circle): Yes / No
(e.g. dementia, cancer, stoma, adhesions - specify if yes):.....

Please Tick

Patient is coded:	Proposed Action:
Red	Not recommended for immediate intervention – Specialist review required if surgical treatment still to be considered.
Amber	Significant comorbidity requiring preoperative optimisation.
Green	Fit to proceed to further stage of formal assessment

N.B. It is recommended that all patients scoring red or amber should be reviewed by an Anaesthetist with experience in Vascular anaesthesia prior to listing for intervention.

Name: _____ Grade: _____ Date: _____

PROFORMA 2

NHS: Multidisciplinary Care Pathway for Elective AAA Intervention

PATIENT LABEL
Name:
DOB:
Hospital No:

DETAILS OF AAA

Asymptomatic / Symptomatic (circle)

Give details if symptomatic:

Maximum diameter (cm):

Date decision made to investigate with a view to intervention: / /

Name of Vascular Consultant making this decision:

Information leaflet on AAA and treatment options (circle): Yes / No State reason if no:

Urgency of investigation (circle): Urgent / Routine

KNOWN RISK FACTORS

Tick	Risk	Details
<input type="checkbox"/>	Technical	
<input type="checkbox"/>	Cardiac impairment	
<input type="checkbox"/>	Respiratory impairment	
<input type="checkbox"/>	Renal impairment	
<input type="checkbox"/>	Other (specify):	

INVESTIGATIONS REQUESTED (state reason if not requested)

Tick	Test	Results
<input type="checkbox"/>	FBC	
<input type="checkbox"/>	HbA1c (if diabetic)	
<input type="checkbox"/>	U&E	
<input type="checkbox"/>	LFT	
<input type="checkbox"/>	Coagulation screen ¹	
<input type="checkbox"/>	Cross infection screen	
<input type="checkbox"/>	ECG	
<input type="checkbox"/>	CXR*	
<input type="checkbox"/>	CPX	
<input type="checkbox"/>	Respiratory function*	
<input type="checkbox"/>	MUGA or echo*	
<input type="checkbox"/>	CTA	

* Not required unless unsuitable for CPX or specifically indicated

MULTIDISCIPLINARY TEAM MEETING **Date:** .. / .. /

To discuss all patients with AAA > 5.5cm including those not operated on and those with aneurysms < 5.5cm being considered for treatment. Based on information captured above and with details of each case presented by the clinical team that did the outpatient consultation.

1. Team members present

Surgeon (s):
Radiologist(s):
Co-ordinator:

2. Anatomy

Suitable for EVAR: Yes / No / Maybe
Comment:

3. Physiology

Fit for surgery: Yes / No / Maybe
Comment:

4. Decision

Intervene: EVAR / Open
Further investigation:
Imaging (comment):
Physiology (comment):
Specialist consultation:
No intervention (comment):

5. MDT sign off

Surgeon:
Radiologist:

6. Co-ordinator transmits documents to Anaesthetist, date: .. / .. /

7. Decision re critical care bed: Yes / No

Comments on fitness for intervention:

Signed off by Consultant Vascular Anaesthetist:

TREATMENT PLAN DISCUSSED WITH PATIENT AFTER MDT DATE: .. / .. /

Open Repair Waiting list form completed Patient given OR info leaflet
EVAR Request form completed Patient given EVAR info leaflet
No Intervention

Patient's comments or requests:

Patient's comments or requests:

APPENDIX D

For staff use only:
Surname:
First names:
Date of birth:
Hospital no:
(Use hospital identification label)

Bedfordshire Vascular Unit Multi-Disciplinary Team AAA Record

CONSULTANT: PT/ NN/ AC/ TM

MDT Review Date: __ / __ / ____

MDT personnel present:

1. Surgeons- PT/ NN/ AC/ TM
2. Radiologists- RAM / VV

Initial MDT outcome OR/ EVAR/ / FEVAR/ re-assess/ **no intervention**

Comments:

DETAILS OF AAA

- Asymptomatic / Symptomatic Max diameter (cm): _____
- Anatomical variants e.g. large iliac aneurysms (detail)
- Information leaflet on AAA given: Yes /No
- State reason if no:

INVESTIGATIONS

FBC Hb _____ **WBC** _____ **Plts** _____ **Clotting** **PT** _____ **APTT** _____

U&E Na _____ **K** _____ **Cr** _____ **eGFR** _____ **U** _____

ECG Normal / **Abnormal** _____

ECHO Normal / **Abnormal** _____

CPEX AT= ; **VO_{2max}**= ; **date:** __ / __ / ____

DSE (for FEVAR) Normal / **Abnormal**

KNOWN RISK FACTORS

Pre-assessment Safety Checklist **RED** **AMBER** **GREEN**

Tick	Risk	Details
<input type="checkbox"/>	Technical	_____
<input type="checkbox"/>	Cardiac impairment	_____
<input type="checkbox"/>	Respiratory impairment	_____
<input type="checkbox"/>	Renal impairment	_____
<input type="checkbox"/>	Other (specify):	_____

Consultant Vascular Anaesthetist

Name:

Decision re critical care bed: Yes / No

Comments on fitness for intervention:

Date: __ / __ / ____

Signature:

Consultant Vascular Surgeon Review Date: __ / __ / ____

Comments :

V-POSSUM score

Treatment decision after review and discussion with patient:

Open Repair EVAR FEVAR

Funding authorisation for EVAR/ FEVAR **Yes / No** Date __ / __ / ____ State reason if not:

No Intervention (Definite or Deferred)

Comments:

Signature: **Date:** __ / __ / ____

APPENDIX E

Criteria Led Discharge for patients that have undergone Elective EVAR

Patient label
Name
Address
DOB
Hospital number

Consultant
Ward

This is a framework for the appropriate level of nurse / AHP to facilitate a multidisciplinary approach to discharge for patients who can be classified as simple discharges, which can be met without complex planning and delivery. Ensuring a more timely, effective discharge process. Decisions should be made in conjunction with members of the multidisciplinary team, supported by condition specific criteria, without the need to wait for Senior Medical permission.

Patients post Elective Angioplasty / Angiogram may be discharged against individual condition based criteria.

Estimated discharge date	
Actual discharge date and time	
Note reason for delay in discharge if appropriate	
Discharger signature	
Print name and designation	

Criteria	Yes	No	Comment	Initial and date
Patient aware of estimated discharge date				
Appropriate next of kin aware and satisfied with discharge date				
U & E's within normal limits on Day 1 and 2				

Limb symptoms improved or unchanged				
Limb perfused – foot pink with brisk capillary refill				
Distal pulses unchanged				
Wound – no evidence of oozing, swelling or bleeding				
TPR and BP within patients normal range				
Mobility no worse than prior to procedure				
Eating & Drinking				
Has passed urine				
Pain managed with analgesia				
Written and verbal post op instructions given and understanding checked				
Appropriate arrangements made for clip / suture removal				
TTO prescribed and checked against the drug chart				
Sick note (if required)				
Out patient appointment made and transport booked				
Any additional requirements – please specify _____ _____				



APPENDIX F

ABDOMINAL AORTIC ANEURYSM QUALITY IMPROVEMENT PROGRAMME



ELECTIVE ABDOMINAL AORTIC ANEURYSM POST-OPERATIVE COMMUNICATION CARE BUNDLE

Guidance Notes For Use

Introduction

The National AAA Quality Improvement Programme seeks to drive up the standard of care provided to patients with AAA. Vascular clinicians taking part in our regional action plans have consistently revealed that they are '*unsure about particularly what patients' get out of information*'. Fulfilment of expectations is a strong predictor of patient experience (Pettersen et al, 2004). High quality communication helps to set expectations appropriately so that patients are mentally prepared for their operation.

High quality patient information:

- Enables patients to participate in decisions about their health and health care.
- Clarifies treatment options, highlighting risks and benefits and any areas of uncertainty.
- Encourages patients to take responsibility for maintaining their health.
- Clarifies what the Trust can and cannot provide.
- Reinforces verbal information as part of the process of informed consent.
- Improves patient safety.
- Reduces patient anxiety and improve patient outcomes.

Part of the QIP revolves around ascertaining patient views and seeking their active contribution to the production of written information and delivery of the programme. National patient groups have been set up in 7 regions of the U.K including Bristol, Newcastle, Leeds, Manchester, Aberdeen, Cardiff and London. A consistent theme that has emerged nationally is that patients feel they do not receive enough post operative information, in particular **what to expect**. Many patients reported that they faced unexpected consequences from AAA surgery and as a result this lead to anxiousness in their recovery. Patients' expectations need to be corrected and hospitals have a responsibility to provide the appropriate information to ensure patients' experience the best possible care.

Therefore, the AAA QIP has outlined a strategy that aims to:

- v) Address the lack of post operative recovery information that has been identified nationally.
- vi) Standardise the process of providing patient information.
- vii) Ensure patients are fully informed upon discharge (inc medication, pain relief & follow up).
- viii) Ensure patients are provided with a point of contact post-operatively to address concerns.

The following care bundle has been designed to achieve these aims. It should be implemented on all patients after surgical intervention.

The Care Bundles Concept

The theory behind care bundles is that when several evidence-based interventions/guidelines are **grouped together** and applied in a single 'protocol', it will improve patient outcome⁶.

It is a simple method of monitoring adherence/existence of local guidelines, and as such is a valid assessment of quality.

- It will provide rapid easily interpretable information.
- It is a form of auditing and can identify areas for improvement.
- It is NOT prescriptive. Each unit can identify their own criteria for each element.

AAA POST OPERATIVE COMMUNICATION CARE BUNDLE

AAA PATIENTS FOLLOWING SURGICAL INTERVENTION

Protocol in Care Bundle	Intervention	Measure
DISCHARGE: 1. Patients should be given a written recovery patient information leaflet.	Provide patient with AAAQIP 'Recovery from AAA Repair (OPEN and EVAR)' patient information leaflet. Available at: http://www.aaqip.com/aaqip/pi-patient-information-leaflets.html	No. of patients receiving AAA recovery leaflet for the type of repair they received.
2. Provide patients with a consultation upon discharge to include explanations of any: a. Complications b. Implications for recovery c. Medication d. Follow up.	Consultation with specialist nurse/ ward sister to be included as integral part of AAA discharge procedure.	No. of patients provided with consultation upon discharge.
3. Provide patients with a contact number to phone for advice in the early post-operative period.	Ensure local contact information is provided to patient.	No. of patients receiving local contact number.
4. Verbal telephone follow up: All patients should be contacted by a named individual (specialist nurse/ house officer) in the early post operative period to check on recovery progress.	Specialist nurse/ named individual to schedule and undertake follow up telephone call.	No. of patients receiving follow up telephone call between 48-72 hours/1 week after discharge.

Notes:

1. The AAAQIP 'Recovery from AAA Repair (OPEN & EVAR)' patient information leaflets have been developed in collaboration with national AAA patient groups. These include information on what to expect on the ward, mobilizing procedures etc... Pain, medication, mobility, driving and work upon returning home and important information about follow up and what to do if problems occur. They also include findings from our patient groups such as feeling low in spirits, the possibility of longer recovery times and post operative symptoms.
Available at: <http://www.aaqip.com/aaqip/pi-patient-information-leaflets.html>
2. Findings from our national patient groups have revealed that many patients are not informed about the consequences of complications once they have occurred and patients lack explanations on medication including pain and statins and when to lower dosage. The vascular team should have a consistent approach to communication about progress along the pathway and reinforce agreed discharge plans. Variance should be clearly explained along with implications for discharge from hospital and future recovery.
3. Patients should be provided with both a normal working hour's telephone point of contact as well as an out of hour's point of contact. This can include a local specialist vascular nurse, GP or emergency department.
4. A verbal telephone follow up call should take place between 48 - 72 hours/1 week following discharge. This provides an opportunity to ensure that recovery is proceeding as planned and to answer any queries that patients or their carers may have.

APPENDIX G



ABDOMINAL AORTIC ANEURYSM QUALITY IMPROVEMENT PROGRAMME (AAAQIP)



TELEPHONE FOLLOW UP PROTOCOL FOR AAA PATIENTS

This proforma is to be used as a guide for telephone follow ups for AAA patients who have been discharged from hospital. The telephone follow up should take place between 48-72 hours/ 1 week after discharge depending on the locally agreed protocol.

Expected post operative symptoms:

- **OPEN REPAIR:** Patients will still be sore and having difficulty moving, but should be coping with oral painkillers.
Medication: Pain killers
Follow up appointment: No

- **EVAR:** Patients should be getting up and about without much pain, controlled on oral analgesia.
Medication: Pain killers
Follow up appointment: Yes (6 weeks)

Patient Name:	Type of repair: OR <input type="checkbox"/> EVAR <input type="checkbox"/>	Date discharged:
Patient I.D:	Job role:	Date:
Name of clinician carrying out telephone follow up:		
1. How are you feeling following your surgery? <i>If patient is feeling ill: Clarify if it is pain, illness such as upset tummy or chest problems such as a cough.</i>		
2. Do you have a family member/ carer looking after you? Yes <input type="checkbox"/> No <input type="checkbox"/> If no; suggest the patient seeks help from a family member or friend.		

3. Were you prescribed pain killers upon discharge?

Yes No

If no; send new prescription (ACTION)

4. Have you got any pain?

Yes No

If yes: Are you managing this adequately with the painkillers provided?

Yes No

5. Are you clear about the medication you should be taking i.e. statins?

Yes No

6. Are you clear about what happened during your operation i.e. any complications and how long it should take you to recover?

Yes No

If no; inform of any complications that occurred and send recovery leaflet (ACTION)

7. Is your wound(s) healing satisfactorily?

Yes No

If no, why?

a. Is your wound(s) dry?

Yes No

b. Is there any surrounding redness or discharge from the wound(s)?

Yes: redness No

discharge

If yes; Book for early follow up appointment (ACTION)

8. Do you have any stitches and clips still in place?

Yes No

a. *If yes* do you have a date for them to be removed by the district nurse?

Yes No

If no, Follow this up (ACTION)

9. Are you aware of when your next follow up appointment is?

Yes No

If no, Check this and let the patient know (ACTION)

10. Did you get written information given to you before or after your operation?
 Yes No

11. Did you find it useful?
 Yes No

a. If no, what else would like to see in it?

12. Are there any concerns I can help you with today?

Actions required (please list all and then carry them out)

ACTION	REQUIRED	COMPLETED
1. Resend prescription (pain killer <input type="checkbox"/> / statin <input type="checkbox"/> .	<input type="checkbox"/>	<input type="checkbox"/>
2. Resend patient information leaflet	<input type="checkbox"/>	<input type="checkbox"/>
3. Ensure the patient is booked into be seen by the district nurse and inform patient.	<input type="checkbox"/>	<input type="checkbox"/>
4. Book for early follow up appointment	<input type="checkbox"/>	<input type="checkbox"/>
5. Book for standard follow up appointment	<input type="checkbox"/>	<input type="checkbox"/>
6.	<input type="checkbox"/>	<input type="checkbox"/>
7.	<input type="checkbox"/>	<input type="checkbox"/>
8.	<input type="checkbox"/>	<input type="checkbox"/>
9.	<input type="checkbox"/>	<input type="checkbox"/>
10.		

Please return this form to the relevant consultant's office for filing in the patient's notes. (This is a formal record and will be signed off in the patient's notes).

Sign off

Name:

Date:

