**Results:** Post-op complications included haematoma (n=6), TIA (n=2), glossopharyngeal nerve praxia (n=1) and wound infection (n=1). The most commonly occurring complications of bleeding, cranial nerve damage and stroke were mentioned during the consent process (90-96%). However, significant risks of death, myocardial infarction and thromboembolism were rarely mentioned (23-33%). Infection was mentioned in 52% of cases. The majority (86%) of patients were consented >2 weeks before their surgery, however 10% were consented on the day of their operation. Written information about CEA was provided in 37% of cases and a 33% of patients were given a copy of their consent form.

**Conclusion:** Communication could be improved at this unit by providing written information and a copy of the consent form. Contextualising risk can also aid understanding using percentage or relative risk values. Importantly, significant risk to life must be discussed during the consent process.

**0597: VARICOSE VEINS: ARE WE INVESTIGATING APPROPRIATELY?**
H. Knowles, A. Mudawi, H. Ashour, V. Bhattacharya. Queen Elizabeth Hospital, UK

**Aim:** Varicose veins are a common surgical condition. Duplex ultrasound scans can diagnose incompetent valves causing varicosities. New NICE guidelines (CG168) state that all patients presenting with leg varicosities should be referred for duplex before a decision is made to operate. This audit looked at practice at Queen Elizabeth Hospital, Gateshead.

**Methods:** Retrospective study of patients undergoing varicose vein surgery between March and June 2014. Patients were identified using coding and investigation results taken from IT system Medway.

**Results:** Forty-five patients were identified. Forty-one (91%) had a duplex scan done prior to operation while four (9%) did not. Patients waited a median of 27 days for a scan. Results of clinical examination with handheld Doppler were documented for thirty patients; these were compatible with duplex results in only 60% of cases. For three patients clinical examination suggested leg vein valve incompetence, while duplex scan confirmed causes which would not benefit from surgical intervention (pelvic, obturator incompetence).

**Conclusion:** Duplex scan is vital to diagnose valve incompetence prior to invasive operations, as discrepancies exist between clinical examination and formal scan. It is also used to assess appropriateness of vein before radio-frequency ablation. This audit highlights a need to meet this important standard.

**0631: A PROSPECTIVE STUDY TO ESTABLISH WHETHER THE MALNUTRITION UNIVERSAL SCREENING TOOL (MUST) SCORE CAN INDEPENDENTLY PREDICT OUTCOMES OF PATIENTS UNDERGOING RECONSTRUCTIVE SURGERY OR AMPUTATION FOR CRITICAL LIMB ISCHAEMIA (CLI)**
M. Hillen, J. Seymour, J. Yeo, G. Griffiths, A. Howd. NHS Tayside, UK

**Aim:** To establish whether the MUST score, a validated nutrition-screening tool, can independently predict the postoperative outcomes of patients undergoing reconstructive surgery or amputation for CLI.

**Methods:** All patients with CLI over a 6-month period (February 2014 – July 2014) were included in the study. Data was collected prospectively from patients’ case notes. Patient demographics, MUST score, BMI, eGFR, albumin, past medical history (PMH), smoking status, operation date and type and length of stay were analysed. Primary end points included wound healing, infection requiring antibiotics and in-hospital or 30-day mortality.

**Results:** 74 (43M : 31F) patients were included in the study. Mean age 73.2 years. Most patients had a low risk MUST score (74%). The most common PMH risk factors were diabetes (44.6%), current smoker (29.7%) and chronic renal failure (20%). 42 patients (56.8%) had normal wound healing. 24 patients (32.4%) developed an infection requiring antibiotics. Only 10 patients had in-patient or 30-day mortality.

**Conclusion:** It has been observed from the small numbers accrued so far that the MUST score does not independently predict outcomes for patients undergoing surgery however with so many confounding factors affecting surgical outcomes and healing, larger study numbers are needed and a multivariate analysis performed.

**0666: IS CLINICIAN CODING OF ABDOMINAL AORTIC ANEURYSM (AAA) REPAIRS BETTER THAN CLINICAL CODERS?**
M. Walls, I. Nichol. James Cook University Hospital, UK

**Aim:** Clinician coding at the time of surgery is a recent introduction to our department. Anecdotal evidence revealed errors in the coding from our coding department and we sought to assess whether clinician coding is more accurate than coding from our Clinical Coding department.

**Methods:** 88 consecutive emergency and elective AAA repairs were identified between January 2013 - July 2014. Operation notes were searched for clinician coding and procedure recorded and compared to the OPCS v4.7 codes recorded by our coding department.

**Results:** Clinician coding was poor (33%). 18.2% of cases had no recorded departmental coding with half of those having no coding at all. Overall, 14.8% of codes were the same between recording clinician and department, rising to 61.5% if cases where both parties recorded codes are considered. Errors include anatomical variances eg. juxta- vs infrafrenal, not recording additional procedures, most commonly embolectomy or use of non-specific codes.

**Conclusion:** Coding is important to ensure accurate remuneration of costs incurred in delivering services. Clinician coding does not significantly increase fidelity of codes but understanding the codes used can ensure documentation is worded to enable to coder to more accurately include all relevant parts of any given procedure.

**0681: SMOKING CESSATION AND BEST MEDICAL THERAPY (BMT) HOW WELL ARE VASCULAR SURGEONS DOING?**
R. Slade, A. Sukha, T. Sykes. Royal Shrewsbury and Telford Hospital Trusts, UK; D University of Keele Medical School, UK

**Aim:** BMT is a key component in the management of patients with vascular disease. The aim of this study is to determine how well BMT is documented in the correspondence to primary care with particular reference to the preoperative clinic letter and discharge summary following a surgical intervention.

**Methods:** Patients between Jan-Jun 2014 were identified from a prospectively maintained vascular-database and the corresponding clinic letters and discharge summaries were retrieved.

**Results:** 107 patients underwent vascular surgery between Jan-Jun 2014. The operations included open AAA repair n=21, Carotid endarterectomy n=23, Femoral endarterectomy n=12, Vascular bypass n=43 and Revision surgery n=8. Overall, antplatelet therapy was documented in 79% (n=85) of pre—operative clinic letters and 96% (n=103) of discharge summaries. Similarly, lipid-lowering therapy was recorded in 79% (n=85) and 92% (n=98). Smoking status was recorded in 32% (n=34) of pre—operative clinic letters; 21% (n=23) were smokers and all identified smokers were offered advice to stop smoking.

**Conclusion:** Documentation of smoking status and advice is poorly recorded in the pre and post-operative correspondence to primary care and unrecorded in the discharge summary. Similarly, pre-operative ant platelet and lipid lowering therapy documentation is suboptimal. ‘Best Medical Therapy,’ has been implemented into a standardised clinic template and a ‘smoking status/advice’ section in the electronically generated discharge summary has been implemented.

**0684: A FEASIBILITY STUDY TO INVESTIGATE THE ACCEPTIBILITY TO PATIENTS OF ULTRASOUND GUIDED INJECTION OF LOCAL ANAESTHETIC FOR ENDOVASCULAR ANEURYSM REPAIR IN PATIENTS UNSUITABLE FOR GENERAL OR REGIONAL ANAESTHESIA**
P. Bennett, R. Bradbury, A. Howard, S. Mackenzie. Chesterle Hospital University Foundation Trust, UK

**Aim:** To determine the acceptability to patients of ultrasound guided injection of local anaesthetic for endovascular aneurysm repair in patients unsuitable for general or regional anaesthesia.

**Methods:** A prospective feasibility study of patients undergoing endovascular aneurysm repair and given ultrasound guided local anaesthetic injection during the procedure.

**Results:** 23 patients underwent ultrasound guided injection of local anaesthetic. 96% felt this was acceptable. However, 34% had concerns about the amount of anaesthetic used, and 13% felt the injection was uncomfortable.

**Conclusion:** Ultrasound guided injection of local anaesthetic and sedation for endovascular procedures is acceptable to patients. Further studies should be performed to determine the optimal technique and sedation used.

Aim: There are no reported studies in the literature describing ultrasound guided infiltration (USGI) of local anaesthetic (LA) in endovascular aneurysm repair (EVAR) in patients in whom general/regional anaesthesia (GA/RA) is contra-indicated. We report for the first time, a new technique of LA infiltration for EVAR and investigate its acceptability to patients using surrogate markers of peri-operative pain (POP), anxiety (POA) and patient satisfaction (PS).

Methods: All patients unsuitable for GA/RA between October 2013 and September 2014 under a single consultant Vascular Surgeon at a District General Hospital were included. USGI was used to block the appropriate nerve territories and tumesce the common femoral artery in an attempt to provide an effective LA. Visual analogue scales were used to assess the aforementioned parameters immediately following the procedure prior to leaving theatre.

Results: 5 patients were unable to have GA/RA and were used in this feasibility study; 3 were elective and 2 emergency, 3 had bilateral and 2 had unilateral USGI. The median POP, POA and PS were 2.98/10 [0.4-5.3], 28.5% [0-73] and 92.2% [73-100] respectively. The procedure had a 86.4% [48-100] friends and family recommendation score.

Conclusion: This feasibility study demonstrates an effective local anaesthesia for EVAR can be achieved using USGI using the surrogate markers POP, POA and PS.

0705: HOW CAN SURGEONS MONITOR THEMSELVES BETTER: VALIDATING PERFORMANCE OF CUSUM (SPRT) REAL-TIME MONITORING METHODS USING ANONYMISED UK NATIONAL VASCULAR DATABASE

C. Wou1, F. Durrant, A. Jibawi. Ashford and St Peter’s Hospitals NHS Foundation Trust, UK

Aim: Traditional audits are unable to provide short feedback loops to quickly identify underperforming surgical units. We aim to assess reliability and accuracy of continuous monitoring of vascular outcomes using CUSUM.

Methods: Cumulative mortality, funnel plot and CUSUM (SPRT) were applied to the National Vascular Database (NVD) and performances compared. In-hospital mortality for 140 centres (1995-2011) following elective abdominal aneurysm repair were compared. Data was adjusted for case-mix. Doubling of odds ratios (OR) were considered a proxy for significant deviation from the accepted surgical failure rate from national mortality rates (p). Control limits were approximated using simulation, Markov chain and fractional polynomial techniques. Average run length was used as a performance measure.

Results: Compared to audit, CUSUM has significant sensitivity to a unit’s outlier status, with an average of 0.89 alerts (no outlier status) to 23 alerts (outlier status). For best CUSUM performance, values of OR ≈ 3 and p = 3 correlated with CUSUM sensitivity of 80%, specificity of 80% and positive predictive value of 78%. Fractional polynomial technique and CUSUM simulations correlated well to real-time NVD data analysis.

Conclusion: CUSUM techniques can be optimised to detect outliers in real-time, and adjusted for case-mix to ensure a ‘level playing field’ for all units.

0725: IS IT POSSIBLE TO QUANTIFY THE CHANGE IN SERVICE DEMAND FOR AORTIC SURGERY FOLLOWING THE CENTRALISATION PROCESS: AN NVD-BASED PREDICTIVE MODEL

F. Durrant1, C. Wou, A. Jibawi. ASPH, Chertsey, UK

Aim: The centralisation of aortic aneurysm surgery centres has created challenges through limited availability of key resources. This study aims to compare changes in aortic surgery workload between 2008-2010 and 2010-2012 using data from the National Vascular Database (NVD).

Methods: Data from the NVD for each Trust was compared between two time frames. Three models were used to provide predictive model: ANOVA analysis, A Wilcoxon Rank-Sum Test and regression coefficient estimation. Multiple regression analysis was used to build a predictive model to estimate changes in workload. Actual vs. predicted workload was tested, and standardized residual values analysed.

Results: In the second period, 1117 more open and 3916 more EVAR procedures were performed. The average of submitted procedures rose by 52 cases in the second period. Average mortality rate fell by 5% (open) and 0.1% (EVAR). Wilcoxon Rank-Sum Test demonstrated a significant increase (p < 0.005) in the overall workload for all relevant Trusts. Based on this analysis, a prediction equation was devised: 

\[
\text{workload}_{2010} = A + B \times \text{workload}_{2008}
\]

where A = 34.75 and B = 1.21.

Conclusion: For each centre, workload increased by 1.21 times that of pre-centralisation. Vascular service planning should consider this and match capacity (theatre sessions, secretarial support, and staff) accordingly.

0745: EVIDENCE BASED MANAGEMENT OF CRANIOFACIAL HYPERhidrosis: A SYSTEMATIC REVIEW

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Aim: Primary Craniofacial Hyperhidrosis (CH) can adversely impact quality of life. No comprehensive review of management exists. Here, we review the evidence to guide CH management.

Methods: Two independent reviewers performed a systematic review using PRISMA guidelines. MEDLINE and EMBASE were searched (1966-2014). Articles containing MeSH terms “Hyperhidrosis”, “Head”, “Neck”, and synonymous text words. Inclusion criteria were experimental and observational studies addressing CH treatment.

Results: Of 832 references, 26 met inclusion criteria. Twenty-two studies evaluated T2 sympathetic ablation (level III evidence). Outcome measures were subjective and follow-up was short (18/24 <2yrs). Reported efficacy was high (70-100%), recurrence rates were low (0-7.8%), and complications transient. 10-80% experienced troubling compensatory sweating. One RCT and one observational study evaluated Botox. Both employed objective outcome measures, with similar findings. 100% efficacy lasted a median of 5-6 months. The main side effect was frontalis muscle inhibition. Two studies evaluated Anticholinergic therapy-topical glycopyrrolate (efficacy 96%) and minimal oxybutynin (efficacy 60%).

Conclusion: There are few quality studies evaluating CH treatment clinically. Based on current available evidence, we recommend topical glycopyrrolate and intradermal Botox as first line therapies due to their efficacy and safety. T2 sympathectomy should be reserved for patient's refractory to first line therapy.

0760: RADIATION EXPOSURE DURING COMPLEX ENDOVASCULAR REPAIR OF THE AORTA


Aim: To compare radiation dose to the operating team for complex (branched and fenestrated) endovascular aortic repairs with safe limits set by the International Consultation on Radiological Protection (ICRP) and to determine predictive factors of radiation exposure.

Methods: Elective branched and fenestrated procedures were analysed prospectively in a hybrid-operating theatre using cumulative electronic dosimeters. Radiation dose to the body, both over and under lead garments, as well as to the head, were recorded for the main-operator and assistant. Mann-Whitney U, univariate and multivariate linear regression tests were employed.

Results: Of 17 cases studied, over-lead body dose (IQR) was significantly higher for the main operator compared with the assistant: 80 μSv (37-163) vs 32 μSv (6-48); p = 0.003, as was the case for head dose, 54 μSv (24-130) vs 15 μSv (7-43); p = 0.022. Operator height, total digital subtraction angiography (DSA) acquisition time and acquisition time in left anterior-oblique (LAO) and cranial positions, p<0.05, independently predicted main operator head dose.

Conclusion: Radiation exposure in the hybrid-operating environment compares favourably with doses previously measured in the interventional radiology-suite. However, every effort must be made to minimise DSA runs, as well as time spent in LAO and cranial positioning as adverse stochastic effects may occur at any dose.