



## Vascular surgery by numbers

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There are a number of pressures on vascular specialists in the UK to centralise the delivery of their services. These include political pressure from a Government that has just completed re-organisation of cancer services into Centres and Units based on populations of over one million. There is scientific evidence that concentrating expertise improves the results of high-risk, low-volume cancer surgery. Additionally, in vascular disease, evidence is becoming stronger of a similar volume-outcome effect concerning interventions for abdominal aortic aneurysm (AAA) and carotid disease.<sup>1,2</sup>

Change is also being driven by advances in the delivery of vascular interventions. These increasingly move away from open surgery towards small incision, endovascular procedures that require skills which were formerly taught only to radiologists. Sharing of expertise and training may best be delivered by concentration of surgical and radiological expertise in larger units with an appropriate skill mix.

A third pressure on the horizon is the possible introduction of a national AAA screening programme in the UK. This has been endorsed by the National Screening Committee and now awaits the views of Government, and (no doubt a fierce) debate about financial support. Fundamental to the benefit of an AAA screening programme is low-risk intervention. One solution might be to centralise the delivery of vascular intervention in 50–60 higher volume hospitals, but the financial cost of providing the infrastructure to achieve this in the short term is likely to be prohibitive.

### The volume-outcome argument

Using publicly available Hospital Episode Statistics (HES) data, Holt *et al.*<sup>1</sup> and Dr Foster<sup>5</sup> have suggested that in recent years the mortality rate after elective open AAA surgery may have reached 10% in some hospitals in the UK. Yet, for the 40% of UK vascular specialists who voluntarily

submit their data to the National Vascular Database, run by the Vascular Society of Great Britain and Ireland, the elective AAA mortality rate (including symptomatic aneurysms) was 6.8% in the 2004 analysis,<sup>4</sup> and recent mortality rates from large randomised trials based in the UK were 5.8% (Small Aneurysm Trial)<sup>5</sup> and 4.6% (EVAR I),<sup>6</sup> respectively. Leaving aside possible inaccuracies in HES data, there does appear to be a wide variation in results from elective AAA surgery across the UK, and the potential for improvement. Holt *et al.*<sup>1</sup> suggested that the volume of aortic procedures below which outcome appeared to deteriorate was 32 per unit per year, although their figures were not fully supported in a second analysis.<sup>7</sup> In the UK, stopping all hospitals that perform fewer than 32 aortic procedures per year would exclude almost a third of surgeons who currently perform AAA repair.

Centralising services to increase procedure volume has certain disadvantages. First, it removes the availability of local specialist treatment for most patients: travel would become a requirement for vascular intervention. This diminishes as a problem since many procedures have become less invasive and require a shorter hospital stay (carotid stenting, overnight; endovascular aneurysm repair, 3–4 days). Patients will usually consent to travel if there are clear benefits to them. Yet there are many surgeons in low-volume units who currently have excellent results (validated through the clinical governance arrangements of the National Vascular Database), and these clinicians might be disadvantaged by centralisation. Some might move, but there is a risk of losing surgeons with broad-based expertise in rural areas. Moving vascular surgeons to new hospitals may complicate existing arrangements, particularly when they are integral to general surgery on call. There is increasing recognition, however, from the Association of Surgeons of Great Britain and Ireland that the separation of vascular surgery from emergency general surgery is inevitable.<sup>8</sup>

Centralisation has been achieved in smaller countries; for example, it has been successful in Sweden where vascular surgery is concentrated in the big cities.<sup>9</sup> Yet, it is not immediately possible in the UK which has many sparsely populated areas. A current proposal is the formation of Vascular Networks – groups of hospitals and specialists working as a team to provide vascular services. This may be driven by AAA screening where units will be based around a population of 800,000 to 1.2 million. Screening units will need a shared attitude to care, clinical governance and mandatory performance management and quality improvement. All surgeons would have their surgery monitored through the Network with results checked and validated. This could be done by expanding the National Vascular Database to ensure that the results of AAA surgery are as good as in the randomised trials. Indeed, the results of aneurysm surgery in a national screening programme should be even better, since operating on screen-detected aneurysms seems to be safer.<sup>10</sup>

It is acknowledged that, although there may be exceptions, occasional operators are less likely to achieve first-class outcomes from vascular intervention than larger units staffed by clinicians with appropriate experience working together. Centralisation of upper gastrointestinal cancer surgery has improved clinical outcomes in the UK, although it has proved uncomfortable for many of the clinicians involved.<sup>11</sup> In the next few years, vascular specialists and their interventional radiology colleagues in the UK need to join together to provide high-quality services for patients, and excellence in training the next generation of vascular specialist.

In this way, necessary improvements in outcome should be achievable in parallel with provision of the first national AAA screening programme.

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