Reconfiguration: putting the patient first†

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Summary

Increasing sub-specialization in the less-common conditions is leading to better outcomes for patients. Yet the way we provide the service has not changed. Is it time to consider doing things differently? Do we need to reconfigure service provision both within and between units?

Keywords: Reconfiguration • Quality • Outcomes • Leadership

INTRODUCTION

The General Medical Council in the UK produces a document ‘Good Medical Practice’, which sets out the duties of a doctor. The first of these are:

(i) Make the care of your patient the first concern.
(ii) Recognize and work within the limits of your competence.
(iii) Work with colleagues in the ways that best serve patient’s interests.

Do we always fulfil these duties? If you ask a medical student (young and idealistic) what EBM stands for, they will almost certainly say ‘evidence-based medicine’. Some of the more lateral thinkers may say ‘expressed breast milk’. If you ask a trainee (a little later in their career when they have had time to see how surgical teams function), they may say ‘empire-based medicine’.

If you ask established Consultants, they may reflect on some of their colleagues and suggest that EBM stands for ‘ego-based medicine’. By definition, those attracted into a career in cardiothoracic surgery are competitive. Do we always put the patient first? Sometimes competition might get in the way of providing the highest-quality care.

The practice of surgery has changed dramatically over the last two decades. We no longer have a truly ‘general surgeon’. Indeed, within our own specialty, we no longer have general cardiothoracic surgeons—in the early days of my training, a typical theatre list might be a mitral valve replacement or a coronary artery bypass graft followed by an oesophagectomy and then finishing-off with a lobectomy. We are seeing increasing specialization—I would suggest that this is good for patients.

Most would accept that there is a direct positive relationship between the volume of cases undertaken (both by a surgeon and a unit) and the outcomes for patients, particularly in complex procedures. In our specialty, paediatric cardiac surgery would be an example [1]. Thoracic surgeons acknowledge the value of ‘large volume’ oesophagectomy centres, especially in regard to training [2]. This principle seems to apply across the board in all surgical specialties. We all recognize the saying ‘practice makes perfect’. Although it is difficult to discuss, we all recognize the concept of a learning curve, but the challenge for us is to how to smooth out that learning curve so patients do not suffer [3]. So there are arguments for reconfiguring how we provide services within our specialty to improve outcomes.

There is also the question of sustainability. No one would suggest that it is possible to sustain a high-quality service in a very complex area such as paediatric cardiac surgery with one or two surgeons in a centre. In England, we are currently reviewing our national service for paediatric cardiac surgery (‘Safe and Sustainable’) with the aim of concentrating surgical expertise into larger centres (http://www.specialisedservices.nhs.uk/safe_sustainable/childrens-congenital-cardiac-services).

Larger of course means fewer, so this will require some difficult decisions about which units will merge to form bigger centres. As noted above, in paediatric cardiac surgery, there is evidence for a positive relationship between volume and outcome—though it is difficult to be precise as to the minimum volume required by a surgeon or in a unit. To achieve sustainability and to provide high-quality care, we believe that each unit should have a minimum of four surgeons and undertake ideally at least 500 cases per year (with a minimum of 400 cases).

The initial response to any discussion about reconfiguration of services is likely to be negative—change is always uncomfortable. Yet, in our specialty, we already accept that certain services should be provided in a limited number of centres—for example heart and lung transplantation. In the UK, we are currently having a debate as to the balance between how many transplants a surgeon needs to do per year to maintain their skills against maintaining a viable rota and allowing a reasonable work/life balance for the surgeon.

So are there other areas, in addition to paediatric/congenital heart surgery, within our specialty in which we might look at...
reconfiguring services? Let me suggest three: mitral valve repair, aortic dissection and post-infarction ventricular septal defect (VSD).

(i) Mitral valve repair: it is generally accepted that for degenerative mitral disease, repair gives a better outcome than replacement. Both mitral valve repair rate and long-term success are dependent on the surgeon’s experience and skills. Figure 1 is taken from the Society for Cardiothoracic Surgery in Great Britain and Ireland (SCTS) 2008 Database Report [4] showing the increasing trend towards repair vs replacement. However, this masks significant variations. Figure 2 shows all the centres in the UK with a marked variation in repair rate between 95 and 20%. This degree of variation is surely unacceptable. The ideal repair rate must be somewhere within that range. We should be aiming to provide an equivalent service to all our patients. However, this will require a reconfiguration of how the service for mitral valve repair is provided within units with a limited number of surgeons taking on the mitral valve repairs. In our own unit, we have formed a mitral valve ‘team’ and identified three of the seven surgeons undertaking adult cardiac surgery to take on all mitral valve cases. It has been suggested that a minimum number of 25 cases of mitral valve repair per year per surgeon is needed to maintain skills [5]. This has the knock-on effect that our surgical practice will become more concentrated with less variation, and some surgeons may not find this attractive. However, it should provide better outcomes for patients.

(ii) Aortic dissection: at the recent 48th Annual STS Meeting in Fort Lauderdale, a presentation was given (by Iribarne) using the National Inpatient Sample/AHRQ data set from 2005 to 2008. They reviewed 1229 patients presenting with acute aortic dissection—a mean of only 5.3 cases per unit. The authors demonstrated significantly better outcome in high-volume centres with high volume being defined as more than 11 cases per year—even this is still less than one per month. As surgeons, we all recognize that we are uncomfortable doing one or two aortic dissection cases per year—collecting data on outcomes will not show significant differences and we can always explain why a patient who died was more difficult than others. Surely, there must be scope for improving the outcomes if we were to concentrate surgery for aortic dissection with specific surgeons with an interest in aortic surgery undertaking the operations. In order to maintain a reasonable work/life balance, a sustainable rota needs to be formed as these cases often come out of hours. In large units, there may be scope for a small team of aortic surgeons to provide a 24 h emergency rota. However, in most cases, this will not be possible. A more radical solution is for regional units to work together and form a rota of surgeons with expertise in aortic surgery. This may mean that some centres would not undertake surgery for aortic dissection at all. In London in the UK, the centres have formed such a rota for the whole city, and this is already beginning to show dividends (Prof. John Pepper, Royal Brompton Hospital—personal communication).

(iii) Post infarction VSD: another paper at the recent STS meeting (by Arnaoutakis in the Richard E. Clark database section) looked at 2876 patients from the STS National Database between 1999 and 2010. One thousand nine hundred and ninety had surgery within 7 days: that is 165 cases per year. The overall mortality was 54% in those patients having surgery within 7 days. The Invited Discussant of the paper, Tirone David (Toronto), reviewed their database of 42,000 patients in Toronto. Ninety-one had a post-infarct VSD. Nine different surgeons undertook the surgery and the overall mortality was 45%—similar to the STS report. However, on further analysis he found that two of the nine surgeons undertook 53% of these operations with a mortality of 20%. Strong evidence that reconfiguring the service to concentrate the expertise will provide benefits for patients. Again, this may be possible within a large unit as these patients do not usually need to be done out of hours. Certainly, we should establish a mentoring system for younger surgeons with less experience—the hospital manager may not be impressed with two surgeons operating together but this will be good for patients.
Figure 2: Variation in rates of mitral valve repair.
CONCLUSION

EACTS has an important role to play in promoting and facilitating the collection of data on outcomes—evidence from the UK has shown that the process of feeding outcome data back to units (and so allowing benchmarking) leads to improved outcomes for patients. However, in these less-common operations, the numbers will be small and so the statistical limits will be wide, making it difficult to demonstrate differences in results. Complacency may result.

Change is uncomfortable but progress requires change. A career in cardiothoracic surgery has always been seen as challenging and exciting and we want this to continue so we attract the best of the surgical trainees. The earlier generations of surgeons undertook the full range of cardiac and thoracic surgery but over the years we have seen increasing specialization—to the benefit of patients. Is it time to take the next step and provide even further specialization so that we can improve outcomes for patients? There obviously has to be a balance, because if we focus surgical procedures too much, surgeons will have a limited repertoire and it could make the specialty unattractive.

Change requires strong leadership. Reconfiguring the clinical service to concentrate rarer procedures in the hands of fewer surgeons and possibly fewer units will be a form of ‘disruptive innovation’ and needs careful management [6]. It would also mean accepting that newly accredited surgeons will not be competent to perform the full range of operations—and a recognition that the end of formal training does not mean the end of learning.

The aim of the presentation at the meeting and of this paper is to stimulate discussion. The views are my own and do not represent the policy of the EACTS adult domain.

I return to the duties of a doctor set out at the beginning. We must make the care of our patient our first concern and not our own careers or surgical practice. We should recognize and work within the limits of our competence and strive to develop expertise in certain areas. We should work with our colleagues in ways that best serve patients even if this means limiting our surgical repertoire. We should strive for excellence.

Aristotle said: ‘We are what we repeatedly do; excellence then is not an act but a habit’.

Conflict of interest: none declared.

REFERENCES