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Wider lessons of the pulmonary artery catheter trial

Intensivists are rising to the challenge of evaluating established practices

Although we demand rigorous scrutiny of the safety and efficacy of new products, clinicians have been slow to evaluate existing practices. This may be human nature—most clinicians pay lip service to the need to scrutinise and optimise current practice but generally believe it is others' practice, and not their own, that is suboptimal. Consequently, observational studies that show differences in outcomes associated with variation in practice are only rarely followed by randomised trials. A trial soon to get underway in British intensive care units is one such exception: from it, the rest of medicine may be able to learn much about having the courage to look within and to seek to practise better medicine.

One reason why it is hard to question existing practice is that clinicians often feel it is unethical to submit a particular aspect of their practice to randomisation, irrespective of the evidence against that practice. But with such a position, how can we ever progress? What is the ethical difference between denying a patient in the control arm of a clinical trial a new, as yet unapproved and unproved, treatment and denying her an established treatment of uncertain value?

The solution is to be committed to more rigorous evaluation of current practice. That means certain established interventions must be evaluated further. And there lies the rub: a clinician, regardless of personal belief, must be prepared to enrol patients in trials where existing treatments will be denied to randomly selected patients. An example of such a process was the United Kingdom extracorporeal membrane oxygenation (ECMO) collaborative trial in neonates.¹ This intervention was already available when the trial started, though not to all babies. Although virtually every neonatologist in the United Kingdom had a strong opinion on its value, there was no consensus. The neonatologists gathered together, suspending personal beliefs and practice styles, to conduct a landmark randomised controlled trial which showed convincingly the importance of regional centres for extracorporeal membrane oxygenation. But in that trial patients were randomised to be transferred to different hospitals, thus avoiding the need for individual doctors to treat the neonates under their own care in different ways.

A much greater challenge is the UK pulmonary artery catheter management trial. The pulmonary artery catheter has been the mainstay of haemodynamic monitoring and management of critically ill patients for the past 30 years, but recent data from observational studies suggest the catheter may be of questionable benefit and potentially cause harm (FN MacKirdy et al, Intensive Care Society scientific meeting, May 1997).² Although it is a diagnostic tool, there are a series of haemodynamic manipulations that clinicians may use in response to readings from a pulmonary artery catheter. Harm may result, therefore, both from inexpert placement of the catheter and injudicious choice of therapies in response to readings from the catheter.

British intensive care units have huge variations in pulmonary artery catheter use, with insertion rates varying from 3% to 76% of admissions (K Rowan, personal communication). If the pulmonary artery catheter does indeed influence mortality, the number of lives lost or saved due either to inappropriate use or to lack of use could be staggering. In response, the British adult intensive care community has gathered together to conduct a randomised trial of pulmonary artery catheter use. More than one third of all intensive care units in the United Kingdom are participating in this 6000 patient trial. The heart of the study is the intensive care community's commitment to examine and improve practice.

In every participating intensive care unit clinicians must subject their personal management style to randomisation. This is not trivial. Consider a patient randomised not to receive a pulmonary artery catheter yet cared for by a clinician who believes she provides better care using that catheter. She must continually remind herself that her existing beliefs are not supported by strong scientific evidence—and her management of the current patient, without the pulmonary artery catheter, must continue. To stay the course will force many clinicians to face many demons. They will learn much about themselves, the way in which they appraise evidence, and the way in which they develop and maintain their practice style.

Despite the large size of the trial, the large number of participating units will allow this study to be completed in 12 months. This act of solidarity will bring crucial evidence to bear on a problem that has been debated worldwide for decades. It is the perfect example of commitment to greater scrutiny and optimisation of practice that we must all engage in, across all fields of medicine.

The UK pulmonary artery catheter management trial is a challenge—a challenge to all of medicine. It asks us to have the courage to look within, to examine ourselves, and to seek to be better. Regardless of the fate of the pulmonary artery catheter, the greatest testament to the intensive care community will be their ability to complete the trial. And with its completion we look forward to similar trials of established but unproved treatments in other areas of medicine. For only with such commitment can clinicians truly make the statement that they seek to provide optimal care.

Derek Angus *associate professor*

University of Pittsburgh School of Medicine, University of Pittsburgh, 200 Lothrop St, Pittsburgh, PA 15213, USA

Nick Black *professor*

Department of Public Health and Policy, London School of Hygiene and Tropical Medicine, London WC1E 7HT

1 UK Collaborative ECMO Trial Group. UK collaborative randomised trial of neonatal extracorporeal membrane oxygenation. *Lancet* 1996; 348:75-82.

2 Connors AR, Speroff TS, Dawson NV, Thomas C, Harell FE, Wagner D, et al. The effectiveness of right heart catheterization in the initial care of critically ill patients. *JAMA* 1996;276:889-97.

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