

## EDITORIAL I

### Diagnosis of death and organ donation in 2012

P. G. Murphy<sup>1</sup>, A. R. Bodenham<sup>1</sup> and J. P. Thompson<sup>2,3\*</sup>

<sup>1</sup> Department of Anaesthesia and Intensive Care Medicine, Leeds General Infirmary, Leeds LS1 3EX, UK

<sup>2</sup> Department of Cardiovascular Sciences, University of Leicester, Leicester, UK

<sup>3</sup> Adult Intensive Care Unit, University Hospitals of Leicester NHS Trust, Leicester Royal Infirmary, Leicester LE1 5WW, UK

\* E-mail: jt23@le.ac.uk

There have been many developments in organ donation and transplantation over the last 5 yr. These have included the creation of the UK Organ Donation Taskforce, which reported in 2008 and had the specific aim of increasing organ donation by 50% in 5 yr. The Taskforce has subsequently been responsible for several initiatives which have improved donation rates, although donor numbers lag behind the numbers needed and the target has not yet been achieved. The purpose of this special postgraduate issue of the *BJA* is to provide a comprehensive overview of the recent changes in the diagnosis of death and organ donation both in the UK and internationally, with contributions from national and international experts. Although aimed primarily at anaesthetists and intensive care physicians, we hope that it will be relevant to all those involved in intensive care, organ donation, transplantation, and end-of-life care. Some sections related to organizational change, ethics, consent, and legal issues will be of interest to clinicians not actually involved in intensive care or anaesthesia for transplantation.

As clinicians, we may think we understand how to diagnose death, but ideas and traditional definitions are changing. In the UK, brain-stem death has been considered equivalent to brain death for more than 30 yr although international definitions of death differ. Death is viewed as a process involving irreversible changes to the brain, resulting in loss of capacity for consciousness and spontaneous breathing. However, it can be diagnosed using three different sets of criteria (somatic, cardiorespiratory, and neurological), which may be applied variably in different parts of the world.<sup>1,2</sup> Even when detailed diagnostic criteria are accepted, there are significant differences in their interpretation and

application worldwide, as discussed by Gardiner and colleagues.<sup>1</sup>

Organ donation rates are improving in the UK,<sup>3</sup> but still lag behind other countries.<sup>4,5</sup> Watson and Dark provide a fascinating insight into the history of organ transplantation and the many new developments which have helped improve outcomes for individual donors.<sup>3</sup> However, despite the increasing trend towards live donors, there remains a large deficit in the numbers of organs available for transplant. Consequently, huge numbers of patients continue to die while awaiting transplants, particularly lung transplant.

Many may be unaware that elements of consent for organ donation differ from consent in other areas of medicine, when the patient is expected to be alive and potentially benefit themselves from the proposed intervention. It may surprise readers that consent for organ donation has similarities with consent for childbirth and cosmetic surgery; these requiring a different level of information and consent compared with that for more conventional surgical procedures. Similarly, the question of why some countries have much higher rates of severely brain-injured patients who ultimately die in an Intensive Care unit raises interesting ethical debates on futility and public health expenditure. These and other issues are discussed in the article by Farsides,<sup>6</sup> which is timely given the recent release of the UK Nuffield bioethics report on this subject.<sup>7</sup>

Several of the legal aspects of consent for organ donation in England and Wales were clarified by the Human Tissue Act (2004) and the Mental Capacity (2005), but consent rates vary internationally and could arguably be improved in the UK. There are many reasons for non-consent, some of

which are amenable to change.<sup>8</sup> Intriguingly, some aspects of consent are unclear and the law continues to evolve. Since August 2011, new and renewal UK driving licence applications contain a clause asking about organ donation. There is perhaps an assumption that the licence will not be permitted if the questions are not answered. The legal and moral concerns over this are discussed by Price.<sup>9</sup> Different countries adopt different approaches, from explicit consent ('opt-in') to presumed consent ('opt-out') to compulsory choice ('mandated choice'), all of which have advantages and drawbacks.<sup>9</sup> Such issues have been challenged in the UK Nuffield bioethics report.<sup>7</sup>

Organ donation in paediatrics involves particular and special concerns, including ethical, legal diagnostic, and organizational difficulties, although with many parallels to adult donation.<sup>10</sup> This article makes a strong call for the reassessment of the use of brain death tests in neonates, which is currently not practiced in the UK. Tissue and eye donations also differ in several respects to solid organ donation.<sup>11</sup> There are also specific ethnic and cultural considerations pertaining to decisions for organ donation.<sup>12</sup> These should be understood and addressed by all those involved in transplantation, in particular those clinicians requesting organ donation.

Donation after circulatory death is an increasingly important source of viable organs in the UK and other countries, although practice varies. It differs in several ethical and logistical aspects from donation after brain death, and may be relatively unfamiliar to many clinicians. Many pathophysiological changes occur around the time of death and many of these are detrimental to the function of the donated organ.<sup>13</sup> What interventions should be performed to prevent organ deterioration before a diagnosis of death and do these pose ethical problems? Donation after cardiac death may eventually become the predominant method of donation, after withdrawal of life-sustaining interventions; these and other questions are addressed in the articles by Manara and colleagues<sup>14</sup> and McKeown and colleagues.<sup>13</sup>

The UK Organ Donation Taskforce has implemented a multifaceted framework to increase organ donor numbers. The principles of the framework are detailed in this supplement and we commend these as essential reading for all those involved in donation.<sup>4</sup> Many agree that a fundamental change is required in the attitudes towards death and end-of-life care.<sup>4 15 16</sup> The Taskforce also recommended mandatory specific training for clinicians involved. Other recommendations include performance management initiatives, which we believe will increasingly pervade all clinical areas, as government bodies, service purchasers, and other interested parties try to control complex health organizations.

In this issue, we have tried to summarize the current scientific, clinical, legal, ethical, and practical aspects of organ donation. While changes in the field are occurring rapidly, we hope it will provide a useful summary of practice in 2012 and serve as a useful background to future developments.

## Declaration of interests

P.G.M. is a Consultant in Anaesthesia and Intensive Care Medicine, was a member of the UK Organ Donation Taskforce, and is National Clinical Lead for Organ Donation at NHS Blood and Transplant. A.R.B. is a Consultant in Anaesthesia and Intensive Care Medicine and a member of the BJA Editorial Board. J.P.T. is a Consultant in Anaesthesia and Intensive Care Medicine and Editor of the BJA. The views expressed in this article are those of the authors.

## Funding

The production (typesetting, printing, binding, and distribution) of this special postgraduate issue of the BJA has been funded in part by the Department of Health.

## References

- Gardiner D, Shemie S, Manara A, Opdam H. An international perspective on the diagnosis of death. *Br J Anaesth* 2012; **108** (Suppl. 1): i14–i28
- Smith M. Brain death: time for an international consensus. *Br J Anaesth* 2012; **108** (Suppl. 1): i6–i9
- Watson CJE, Dark JH. Organ transplantation: historical perspective and current practice. *Br J Anaesth* 2012; **108** (Suppl. 1): i29–i42
- Murphy PG, Smith M. Towards a framework for organ donation in the UK. *Br J Anaesth* 2012; **108** (Suppl. 1): i56–i67
- Rudge C, Matesanz R, Delmonico FL, Chapman J. International practices of organ donation. *Br J Anaesth* 2012; **108** (Suppl. 1): i48–i55
- Farsides B. Respecting wishes and avoiding conflict: understanding the ethical basis for organ donation and retrieval. *Br J Anaesth* 2012; **108** (Suppl. 1): i73–i79
- Human Bodies: Donation for Medicine and Research*. London: The Nuffield Council on Bioethics, 2011. Available from [http://www.nuffieldbioethics.org/sites/default/files/Donation\\_full\\_report.pdf](http://www.nuffieldbioethics.org/sites/default/files/Donation_full_report.pdf) (accessed 24 October 2011)
- Vincent A, Logan L. Consent for organ donation. *Br J Anaesth* 2012; **108** (Suppl. 1): i80–i87
- Price DPT. Legal framework governing deceased organ donation in the UK. *Br J Anaesth* 2012; **108** (Suppl. 1): i68–i72
- Brierley J, Hasan A. Aspects of deceased organ donation in paediatrics. *Br J Anaesth* 2012; **108** (Suppl. 1): i92–i95
- Gaum L, Reynolds I, Jones MNA, Clarkson AJ, Gillan HL, Kaye SB. Tissue and corneal donation and transplantation in the UK. *Br J Anaesth* 2012; **108** (Suppl. 1): i43–i47
- Randhawa G. Death and organ donation: meeting the needs of multiethnic and multiethnic populations. *Br J Anaesth* 2012; **108** (Suppl. 1): i88–i91
- McKeown DW, Bonser RS, Kellum JA. Management of the heart-beating brain-dead organ donor. *Br J Anaesth* 2012; **108** (Suppl. 1): i96–i107
- Manara AR, Murphy PG, O'Callaghan G. Donation after circulatory death. *Br J Anaesth* 2012; **108** (Suppl. 1): i108–i121
- Simpson PJ. What are the issues in organ donation in 2012? *Br J Anaesth* 2012; **108** (Suppl. 1): i3–i6
- Bion JF, Nightingale P, Taylor BL. Will the UK ever reach international levels of organ donation? *Br J Anaesth* 2012; **108** (Suppl. 1): i10–i13