So far there has not been a complete definition of death that is acceptable to all, and there likely will not be. However, the discussion can be advanced by precision in thinking and acknowledgement of all the available data.

Declaration of interest
None declared.

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Reply from the authors
Editor—I thank Drs Hill, Evans, and Stadlan for their comments on our recent article.1

Sometimes it is necessary, as Dr Stadlan suggests, to seek to improve and strengthen the criteria and definitions clinicians use to diagnose human death. Likewise, it is sometimes necessary to question the current practices of organ donation, so that greater legal and ethical clarity can be found.2 The objections Drs Hill and Evans, both retired UK medical practitioners, have raised consistently over many decades, against neurological criteria for diagnosing death, appear to arise from a total rejection of organ donation, in any of its forms, living and deceased. In Dr Evans recent correspondence in the Journal of Medical Ethics, he concludes, ‘And it may be time to question the whole edifice of human organ transplantation—which depends upon abuse of the dying or harming the healthy’.3 While Drs Hill and Evans are entitled to their personal view, it is important we never forget the ethical, legal, and societal framework organ donation now operates in within the UK, which has been outlined throughout this BJA supplement on the Diagnosis of Death and Organ Donation.

In the UK, there is clear guidance on criteria to diagnose death by the Academy of Medical Royal Colleges,4 Department of Health guidance establishing the legality of donation after circulatory death (DCD),5 an independent national Donation Ethics Committee which has published best practice ethical guidance for DCD,6 National Institute for Health and Clinical Excellence (NICE) guidance on organ donation,7 professional guidance,8 and a duty placed on UK doctors, by the General Medical Council, to identify potential organ donors and be prepared to explore the option of deceased donation when a patient is close to death.9 Society itself, time and time again in surveys, tells us that it supports organ donation and the government has responded with considerable investment, in organ donation, over the last 4 yr.

It is possible we are all wrong, and Drs Hill and Evans are correct in their objections to organ donation. But every time I witness the altruism and sacrifice of a donor family, or see the transformed life that this gift brings to another, I am reminded that organ donation represents humanity, at its most noble. Supporting a patient and their family’s wish to donate at the end of life is very much in keeping with the commitments I made, when I first became a medical practitioner.

Declaration of interest
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8 DCD consensus meeting report. 2010. Available from www.ics.ac.uk/intensive_core_professional/standards_and_guidelines/dcd
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Goal-directed fluid therapy in patients undergoing colorectal surgery
Editor—we read with interest the study of intraoperative goal-directed fluid therapy (GDT) in aerobically fit and unfit...
patients having major colorectal surgery.\(^1\) In contrast to previous studies,\(^2\)\(^3\) this study did not show any advantages of GDT, based on stroke volume optimization using oesophageal Doppler monitoring, over liberal fluid therapy in terms of the length of hospital stay and the time to fitness for discharge.

The goal of haemodynamic management is to maintain adequate organ perfusion to supply sufficient oxygen to all organs. In clinical settings, we conventionally control haemodynamic variables such as heart rate, mean arterial pressure (MAP), and central venous pressure by fluid therapy, blood transfusion, and vasopressor administration. However, intraoperative hypovolaemia is common and may be a potent cause of organ dysfunction and increased postoperative morbidity and mortality.\(^3\) Therefore, fluid responsiveness has been widely studied during the past 10 yr, and dynamic parameters such as arterial pulse pressure variation (PPV) and stroke volume variation (SVV) have been identified as the best indicators in mechanically ventilated patients.\(^4\)

However, PPV and SVV should be interpreted with caution. We must remember that under stable mechanical ventilation, PPV and SVV are markers of the position on the Frank–Starling curve, not indicators of blood volume status or markers of cardiac preload.\(^5\) However, the slope of the Frank–Starling curve differs among patients depending on cardiac contractility: the slope decreases in patients with decreased cardiac contractility, whereas it increases in those with increased cardiac contractility. Therefore, minimizing PPV or SVV by volume loading may cause overhydration in patients with increased cardiac contractility and occult hypovolaemia in those with decreased cardiac contractility.\(^5\) GDT based on SVV can improve the postoperative outcome when the other haemodynamic parameters, such as cardiac output and MAP, are considered together. In addition, intraoperative blood transfusion was associated with a higher risk of mortality and morbidity in non-cardiac patients with severe anaemia.\(^6\) In this study,\(^1\) patients receiving GDT showed higher blood loss and were more likely to receive blood transfusion intraoperatively. However, whether this was caused by the adverse effects of the starch administered or caused by differences in the operative details between the groups is unknown. Thus, the data do not indicate which factors contributed to the prolonged length of hospital stay and the delayed time to fitness for discharge in the case of patients receiving GDT. Furthermore, an increase in systemic vascular resistance decreases cardiac output. The depth of anaesthesia and type of analgesia may influence the systemic vascular resistance. Thus, assessment of a single haemodynamic parameter alone can cause inappropriate decision-making in fluid therapy. Haemodynamic monitoring is essential for appropriate perioperative care in surgical patients. We agree with the authors’ finding that GDT based simply on stroke volume optimization does not confer any additional benefit over conventional liberal fluid therapy. However, GDT based on a multiparametric approach could improve postoperative outcome because every haemodynamic variable has limitations and interferes with the other variables.

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Reply from the authors

Editor—We thank Drs Toyama and Shimoyama for their comments on our study.\(^1\) Perioperative goal-directed fluid therapy (GDT) is controversial. A variety of minimally invasive cardiac output devices are available, and the information they provide can be supplemented with a number of blood tests such as serum lactate, central venous oxygen saturations, oxygen extraction ratio, and haematocrit. Drs Toyama and Shimoyama argue for a multiparameter approach to GDT, incorporating a marker of ‘fluid responsiveness’ along with other variables such as mean arterial pressure, cardiac output, and haematocrit to guide complex haemodynamic manipulations which include fluid loading, blood product transfusion, vasopressor, and inotrope therapy. There are some studies to substantiate such an approach for GDT in the ‘high risk surgery’ population: notably that of Pearse and colleagues\(^2\) which reported substantial outcome benefit for algorithm guided ‘early’ GDT, involving fluid loading and dopexamine infusion titrated to achieve DO\(_2\) index \(>600\) ml min \(^{-1}\). This management was initiated in the critical care unit just after the completion of surgery and then continued for at least 8 h. In practice, there is a balance to be struck between complexity and ‘user friendliness’. Despite much enthusiasm, the practicalities of transcribing critical care style management principles into the theatre environment are difficult. As Toyama and