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Time, resourcing, and ethics: how the routinisation of organ donation after circulatory death in the NHS has created new ethical issues

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ABSTRACT

Controlled Organ Donation after Circulatory Death (DCD) was re-introduced in the UK in 2008, in efforts to increase rates of organs for transplant. Following reintroduction there were debates about the ethics of DCD, leading to production of legal and ethical guidelines. Today, DCD makes up 40% of deceased organ donors, leading to claims that the UK has 'overcome' its ethical challenges. However, there is little understanding of how DCD works in practice and the ethical implications of making DCD routine in the context of the NHS. This paper draws on data from an ethnographic study examining the practices of DCD in two acute NHS Trusts in England. Interviews with Intensive Care staff and Specialist Nurses in organ donation, observations of organ donation committee meetings and analysis of Trust documents were conducted. Findings reveal that the routinisation of DCD has created new ethical issues relating to interactions between organisational timeframes for DCD and (under) resourcing for, and de-prioritisation of, donation within an NHS subject to austerity. They include: the perceived burden on families and implications for consent when there are delays in the donation process, due to theatre space and retrieval team shortages; family and staff distress when death does not happen 'on time'; and the problem of where to take patients who do not die in time to donate. I argue these temporal-ethical issues are likely to become heightened as potential donor rates increase with the new opt-out legislation, unless the resourcing required to deal with these problems are also addressed.

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Introduction

The development of transplant medicine over the last 60 years has gone hand-in-hand with increasing demand for transplantable organs in the context of rising rates of conditions such as chronic kidney disease. The World Health Organisation has identified that the approximately 147,000 transplants carried out annually meet only 10% of global need for organs for transplants (Dominguez-Gil et al., 2021). This reported gap has led to diverse measures to increase supplies of these resources. One such effort has involved reviving controlled Donation after Circulatory Death (DCD) programmes in countries like the UK, the US, and Sweden. DCD refers to organ donation 'from a patient who has died following the (planned) withdrawal of life sustaining treatment' (Dominguez-Gil et al., 2021, p. 266); it was used by early transplant medicine in the 1950s and 60s but became

superseded with the establishment of donation after brain death (DBD) (De Vita et al., 1993). In recent years, DCD has been re-introduced in attempts to meet the demand for transplantable organs.

In 2008, the UK Organ Donor Taskforce published the *Organs for Transplant* report, part of a systematic effort to improve rates of deceased organ donation in the UK, which, at the time, were low. One recommendation in this report outlined the need to resolve the 'outstanding legal, ethical and professional issues' around controlled donation after circulatory death to 'ensure that all clinicians are supported and are able to work within a clear framework of good practice' (Department of Health, 2008, p. 9). At the time there were no standardised ethical-legal frameworks for DCD in the UK, meaning the practice was uncommon (Gardiner, 2016). The ODTs recommendations proceeded debates in clinical and bioethics literatures about the ethical implications of DCD. These centred on whether DCD violates a broad interpretation of the dead donor rule (that living patients should not be treated 'as though they were dead' for the purposes of organ donation); whether potential donors receive appropriate care at the end-of-life (due to DCD necessitating alterations to end-of-life care); and debates about when death can be declared and organs removed (Cooper, 2017; Gardiner & Sparrow, 2010, p. 17).

Following the ODTs recommendations, and in response to these debates, there was rapid production of new legal and ethical policies around DCD in the UK, including the 2011 UK Donation Ethics Committee's (UKDEC) *An Ethical Framework for Controlled Donation after Circulatory Death* (Academy of Medical Royal Colleges & UK Donation Ethics Committee, 2011). This outlined the 'principal' ethical issues around DCD, namely the: 'determination of the potential donor's best interests' (referring to potential conflicts of interest about decisions around end-of-life care and donation) and issues relating to the timing of when and by whom death can be diagnosed.

These policies and guidelines have contributed to the now routine practice of DCD in the UK, which makes up 40% of all UK deceased donors (NHS Blood and Transplant, 2020). The rapid rise in DCD has led to claims that the UK has 'overcome' its ethical challenges (Gardiner, 2016). However, there are emerging insights that point to new ethical issues in DCD; for example, a UK study found health professionals were troubled by the strict timeframe in which a potential DCD donor must die to donate their organs (Machin et al., 2021). A US study highlighted the harms experienced by families when DCD donation does not proceed (Taylor et al., 2018) and, relatedly, UK research found families of potential DCD donors stayed approximately 12 hours longer in hospital than families of potential DBD donors, indicating these families have different needs to those of DBD donors (Prescott et al., 2019).

These findings imply the potential development of new ethical burdens in DCD, only now emerging with the routinisation of this 'old' type of donation. I use the concept of routinisation here to refer to the social process whereby new medical procedures eventually become an 'established and habituated part of health care, which is to say a standard of care' (Koenig, 1998; Wahlberg, 2018, p. 188). In other words, DCD is now practiced as an 'ordinary' part of end-of-life care in the context of organ donation, inferring its meanings have also shifted from when it was discussed as an ethical dilemma in the preceding decade. However, there is little understanding of how DCD works in everyday practice and the ethical implications of making DCD routine at the end of life within the context of the English National Health Service (NHS).

In response, this paper draws on data from an ethnographic study examining the everyday practices of DCD in two NHS Trusts in England. The study approach was informed by work across the social sciences concerned with examining the contexts in which ethical issues in science and medicine are shaped and experienced (e.g. Hoeyer & Jensen, 2012; Smith-Doerr & Vardi, 2015). The study thus started from the assumption that the 'ethics of DCD' are not abstract but are produced within particular circumstances, at particular times (Cooper, 2018; Lynch, 2001, 2013). In this case, the

context relates to an NHS which has been subject to below-average funding increases since 2010, and reductions in fields of other public spending that impact the health service, as part of the Conservative Government's programme of austerity (Kerasidou & Kingori, 2019).

In what follows, I argue that the routinisation of DCD has created new ethical issues for donors, their families and health professionals. I show that these relate to organisational timeframes for DCD and the interaction between time and the (under)resourcing for, and de-prioritisation of, organ donation, in the context of wider resourcing issues in NHS Trusts. In doing so, I posit that structural issues, such as competing demands for bed and theatre space in hospital settings, transform into ethical issues in DCD. This framing comes from recent critical scholarship examining the interactions between austerity, healthcare, and ethics in settings such as the UK and Greece, including: the effect of austerity policies on healthcare access (Rotarou & Sakellariou, 2019); the impact of austerity on professionalism and healthcare practice (Kerasidou, 2019; Kerasidou et al., 2016; Owens et al., 2019; Russo et al., 2017); and the effect of austerity in shaping the functioning of NHS Departments, healthcare professions and individual professionals (Kerasidou & Kingori, 2019). By highlighting how issues of resourcing and prioritisation in the NHS have ethical ramifications in relation to donation programmes and those (patients, families, health professionals) implicated within them, this paper contributes to discussions around the ethics of DCD, and scholarship on austerity in relation to ethics and healthcare.

Methods

The data in this paper is taken from a study which aimed to examine how the process of DCD works in everyday clinical practice to produce insights into its ethical implications. The research was interested in how health professionals experienced and *did* DCD as part of their work as Critical Care staff and Specialist Nurses in Organ Donation (SNODs), as well as how DCD was managed at Trust level. To do this, the project took an ethnographic approach to contextually situate the work of DCD.

The study was granted ethical approval from City, University of London School of Health Sciences ethics committee in June 2018 and was given Health Research Authority approval in September 2018 (IRAS project ID: 247468). Data was collected between October 2018 and June 2019 within two acute NHS Trusts in England, focusing on one hospital in each Trust (named here as hospital A and B). These hospitals were chosen as they had high rates of DCD, allowing insight into its practice. In-depth interviews with staff (Intensive care consultants, nurses and SNODs) who had experience of DCD, observations of organ donation committee meetings at the Trusts, and analysis of local Trust documents relating to DCD were conducted.

Narrative style interviews were used to explore participants' practices and experiences around DCD, such as how they made decisions around potential donors, the challenges involved with DCD and how they dealt with these. Narrative interview questions enable exploration of how people recall and make sense of past events, allowing insight into individual experiences and how these are situated within wider socio-cultural contexts (Riessman, 2008). In total 23 interviews were conducted with staff across the two hospital sites (13 Intensive Care Consultants, three of whom were Clinical Leads for Organ Donation (CLODs – ICU consultants given a portion of time to promote organ donation and work to maximise donation potential within Trusts); two staff nurses; eight SNODs, two of whom were Specialist Requestors – SNODs who have undergone additional training in communication for the purposes of donation consent). Written consent was taken prior to each interview; interviews lasted between 15 and 65 minutes, were audio recorded and transcribed by a professional transcriber.

Non-participant observations were conducted of four organ donation committee meetings at the Trusts (two at each Trust) to gain insight into how issues around DCD were dealt with at institutional level. Written consent for observations was taken from each committee member at the start of the first meeting at each Trust and was verbally restated at subsequent meetings. Observations were

initially handwritten and were later typed up. Relevant documents, such as Trust statistics around organ donation and minutes were gathered during and after each meeting. I also gathered other Trust documents, such as Standard Operating Procedures (SOPs) and presentations about DCD.

All participants were assigned pseudonyms, and other identifying features (such as Trust names, particular details about donation cases etc) were anonymised. The interview and observational data were analysed thematically (Braun & Clarke, 2006) to identify and explain typifications across accounts in relation to challenges and practices around DCD. The documents were used as an aide memoire in the write up of the fieldnotes as well as used to triangulate the evidence in relation to Trust responses to issues around DCD, which were relayed in committee meetings and by participants in individual interviews.

Results

Getting from consent to withdrawal of treatment: when avoidable delays create ethical issues

Most interviewees discussed the challenges that DCD presented in relation to organising the donation after a family had provided consent. They highlighted the practical steps that had to be taken to set up an organ donation (for both DBD and DCD), which included: sending bloods for testing, checking the potential donor's medical records, tissue typing, organising anaesthetic cover, booking/getting theatre space, booking organ retrieval teams and finding a doctor to certify the death. Staff emphasised the time it could take to organise theatre space and the organ retrieval teams. In hospital B, the SNODs and Clinical Leads for organ donation were concerned with the increasing timeframe for DCD over the last five years, with their statistics showing that the time from consent for DCD to the withdrawal of life sustaining treatment had more than doubled since 2013. As one SNOD explained:

I would say in the old days it could take eight to 12 hours. Now it can take up to 24.

Why is that?

I think it's the processes, all the offering is done by the hub and they are really busy, also, if there's a lot of [donation] activity nationally it can have an impact and sometimes you have to wait for a [retrieval] team to travel from one end of the country to the other. There is the same amount of teams [as in the past] but organ donation has increased and this puts pressures on the retrieval teams ... and also theatre spaces: having a patient go for DCD donation takes up a theatre for four to six hours, that has an impact on anaesthetic cover and on theatre lists. ('Sally', SNOD, hospital B)

Sally highlights issues which can delay the time it takes to get to donation, including an increase in donor numbers and concurrent lack of resourcing in the form of retrieval teams. Significantly, while DCD and DBD both take time to organise, she, and others, stressed the particularity of DCD in creating prolonged timeframes. She highlights the four to six hours that a theatre is needed for DCD donation, creating issues around finding a theatre that can be used for that long, as well as anesthetic cover.

This lengthy theatre time needed for DCD was explained by the fact that, in both Trusts (as is usual practice), the withdrawal of treatment of the potential donor happens in the anesthetic room, adjacent to theatre, meaning the theatre space must be booked for the organ retrieval *and* for the time given for a patient to die after withdrawal of treatment. As one ICU nurse put it:

I think the biggest thing for us is the theatre hold-up, and especially for DCD, because you're taking up an anaesthetic room for up to four or five hours. So we've sat here with patients ventilating them for 24/48 hours waiting for that theatre space to come up, 'cos ... you know ... theatres are needed for operations to keep people alive, not for someone to die in the anaesthetic room. ('Sophie', ICU nurse, Hospital A).

The issue of waiting for theatre space was discussed by one consultant in reference to the 'deprioritisation' of donors over other, living cases:

If you are a theatre nurse, or coordinator, on an emergency theatre at night and you're looking at a theatre list and you have got x, y and z to do and that's [potential donor] a patient that's ventilated, they are deprioritised. Some people say well actually this [other case] is an emergency, the surgeons are coming I need to restore the circulation to this leg. And if we're going to do it [DCD] properly we would open an extra theatre and would spend the money doing that. Because if you leave someone in ICU for 24 hours you are spending three thousand pounds. ('Mike', ICU consultant, Hospital B)

Mike points out the inefficiencies involved in the 'deprioritisation' of potential DCD donors over other theatre cases, highlighting the cost implications of keeping a potential donor on ICU. The funding and costs around organ donation were routinely brought up during both Trust's donation Committee meetings, where I discovered each Trust was assigned around £60,000 annually from NHS Blood and Transplant (NHSBT) for donor-related activities. This money was discussed, by one Chair, as 'being such a small amount (...) it could pay for one kidney machine'. One of the Clinical Leads at Hospital B told me they often used a proportion of these funds to pay for basic staff provisions, like tea and coffee, no longer supplied by the under-funded Trust, as well as paying for staff to attend educational courses and conferences, funding for which had been cut in recent years. The money provided by NHSBT for donor-related activities at each Trust was therefore being funnelled into other areas, considered vital for staff morale and development, and was not enough to contribute to resources, such as extra theatre space, that were viewed to affect timeframes for organ donation.

The problem of theatre delay was additionally linked to the status of both hospitals being Trauma centres with high demand for theatre space, with one SNOD stating: 'theatres are *always* busy; generally nine to five it's incredibly difficult to get a theatre slot'. She explained the catch-22 effect of not being able to get theatre space for donors:

Because the theatres are full with emergencies, we can't get into theatre, but also the emergencies have no ICU bed to go in, because the donors are in the ICU beds waiting to go to theatre. There's no room for manoeuvre. Donation is increasing; we're having more SNODS; our consent rate is going up; opt-out is coming in, donation's only gonna get higher – we don't have the resources and capacity to support that. And it does lead to delays. ('Kim', SNOD, Hospital A)

Kim highlights the paradox of waiting for theatres for potential donors when emergency cases are prioritised, when these cases are also dependent on a free ICU bed, which potential donors take up until they can get into theatre. Issues of under-resourcing for theatre space also, therefore, interacted with lack of resourcing in the form of ICU beds in the context of busy trauma hospitals.

Issues with timeframes involved in setting up DCD was not only seen as a practical-resourcing problem. This was also discussed by participants as creating an extra burden for already distressed families:

I think one of the hardest things families find ... it's the length of time it takes once that decision [to donate] has been made [...]. a lot of families find it very hard that they have decided, that life sustaining treatments aren't going to be maintained but now we are leaving their relative on a ventilator to get them to a donation process. One family did withdraw their consent for DCD because it was almost 48 hours after the decision and the patient hadn't proceeded to theatre and they felt like they were prolonging their [relative's] suffering. And this family withdrew their consent for donation. The son in particular was just very upset that it was taking so long and he felt like he was prolonging his father's agony. ('Kate', ICU Consultant, Hospital B)

Participants emphasised the agony that this waiting could cause. This related to distress on the part of the relatives as well as the concern expressed by families who felt the wait was prolonging the suffering of their dying relative. The lengthy timeframes involved in setting up DCD was therefore seen as an ethical issue, in that it was perceived to create an extra layer of distress for grieving families and questions over what was in the best interests of the donor.

This burden of time also had practical implications in relation to consent. The consultant above describes the case where the wait led a family to withdraw their donation consent. This was not a one-off case: six interviewees recounted either direct or indirect (i.e. heard from colleagues)

experiences of consent being withdrawn in such situations. Some participants also recounted cases where families refused to consent from the outset because of the length of time they were told the donation process may take. This is backed up by national statistics (2019/20), showing that 17.8% of families did not consent to DCD because the length of time for the donation process was too long (contrasting with only 5.2% of families in DBD) (NHS Blood and Transplant, 2020).

The issue of growing timeframes around DCD had been recognised by both Trusts, particularly regarding the difficulty of securing timely theatre space. At both hospitals, this was being dealt with through the creation of a Standard Operating Procedure (SOP) for theatres in relation to the 'booking, staffing and prioritisation of organ retrieval operations in the operating theatre' (SOP from Hospital B). During fieldwork, Hospital A was in the process of finalising a new theatre SOP. In one of the donation committee meetings, this SOP was discussed as helping deal with delays with getting a donor into theatre. At both Trusts, the SOP included categorising organ donation cases as 'urgent', meaning they would take priority over elective surgery but not emergency cases ('patients who require life, limb or organ saving intervention' – Theatre SOP for Hospital B). One SNOD emphasised the importance of this policy, stating that:

It [SOP] makes our job a lot easier; because if you've got a policy to back you up when you go and speak to people and they're saying 'no' and so, it's in the policy: this has been agreed by x, y and z people ('Becky', SNOD, Hospital A).

This new 'proceduralisation' (Cooper, 2018) of theatres around donation was felt to aid the legitimacy of organ donation taking up theatre time. For the staff involved, these procedures could be used to 'back them up' when trying to arrange theatre space in challenging circumstances. These procedures were therefore intended to tackle some of the delays in DCD that were seen to cause distress on the part of families and potential donors and led to material consequences for donation consent.

The implications of not dying 'on time'

The second key issue discussed by participants related to the fact that, to become a DCD donor, patients must die within a two-to-three-hour window once they have their life-sustaining treatment withdrawn. This time frame, it was explained, was necessary to ensure organs remain viable for transplantation. This short window of time meant it was never guaranteed that a potential DCD donor would become an organ donor. One SNOD explained the difference this created between DBD and DCD:

the other problem with DCD is that it's less certain; with DBD I think you have more guarantee that donation will proceed. With DCD its 50/50 and then sometimes you are telling the family, it's gonna be a delay and then maybe the patient doesn't die on time and then nothing happens. ('Isabelle', SNOD, hospital A)

The SNOD highlights what happens when a patient does not die 'on time', stating, 'then nothing happens', referring to the donation not proceeding. These accounts were backed up by Trust statistics. In hospital A and B 30% and 60%, respectively, of non-proceeding DCD donations in 2018–19 were reported to be due to 'prolonged time to asystole' (i.e. the patient not dying on time). Whilst this issue was thus practical, in that there was a loss of potential donors, it was also highlighted as having ethical implications, which I categorise in three ways.

First, because families were told about the requirement for their relative to die within three hours, some participants highlighted the 'complex' emotions this could lead to:

And sometimes they [potential DCD donors] don't die within the timeframe and sometimes that is distressing for them [families]. You know that sense of the one good thing that could have come out of this was that they could be an organ donor and now they can't because they haven't died quickly. And then you can see them almost thinking, well it is a very complex set of emotions, isn't it to want your relative to die more quickly. ('Adrian', ICU Consultant, Hospital A)

The consultant explains that, in cases where the patient is not dying quickly, families may desire for the dying process to be speeded up, which constitutes a 'complex set of emotions', referring to the seeming paradox of a family wanting their relative to die. One SNOD recounted a family who made this desire explicit:

So one time . . . the patient just stabled out and then for three hours we were sat in the anaesthetic room and it almost turned a little bit jokey – the family was like 'Come on mum, die, come on, you're meant to be dona[ting]' and it was really strange [...] the whole family were wishing this lady to pass-away. And it was really sad. The family really wanted her to donate, she didn't. ('Julie', SNOD, Hospital B)

The SNOD labels this 'strange' behaviour of a family vocalising their wish for their mother to die in time for donation. Importantly, this 'strange' behaviour was explained as demonstrative of the desire for families to *want* their relative to die in the right timeframe so they might be able to donate their organs.

Second, when this death did not take place in time, this was seen to cause extra distress for grieving families and disappointment among staff:

There is a little kind of . . . sadness that it [donation] didn't happen. In a way that life could have been saved. The family almost 100% presume that they will pass away. And I think going back, facing the patient . . . they [family] will ask more questions: So 'he's alive, what now?' and 'you said he's gonna die', but actually we did say there is a possibility [that they won't] . . . even though they've been informed, the families always say that he will die in their understanding. They hear this [they will die] more than they hear that the patient might come back. ('Nina', ICU Nurse, Hospital A)

The extract describes the 'disappointment' and sadness experienced by health professionals and perceived to be felt by families when their relative did not die in time. Participants highlighted what a family had gone through up until this point: giving consent; waiting for the donation to be organised; and waiting for their relative to die. This time spent anticipating a donation led to perceived distress on the part of families when the donation did not happen, along with disappointment on the part of the clinical team.

The nurse also points to the issue of families 'hearing' that their relative will die *more* than they might hear the possibility of this *not* happening. The SNODs were keen to emphasise how they would try to prepare a family for the eventuality of a non-donation: 'I would always say that it [death] might not happen in time, so that families are aware that it's a possibility and if after the patient has been extubated and they seem very stable, half an hour in I am starting to plant the seed that this [donation] might not happen' ('Sally', SNOD, Hospital B). Despite careful communication about the possibility of death not occurring on time, that accounts emphasised the upset expressed by families when this happened is telling. It shows that, no matter how well prepared for this outcome families might be, this does not prevent a non-donation outcome from being distressing.

Third, the nurse's quote above highlights the questions asked when a patient does not die in time. The question of 'what now?' exemplified the practical and moral concern highlighted by staff in relation to what happens to these non-proceeding DCD patients:

If they don't [die in time] they're gonna' come back up to Critical Care and then they're coming back into this environment, where we were trying to save their life. [...] And it's really hard; it's long, and it's dragged out. ('Sophie', ICU Nurse, Hospital A).

These dying patients occupied a tricky position: they were no longer a potential donor and were subsequently moved back into the ICU or a general ward to die. Placing these patients back in a ward was discussed as an ethical issue because a) the patients (and their families) were being returned to a space where they were previously treated to save their life and b) it was felt that bringing them back to a general ward to die was not fair on families who had, by and large, gone through the donation process.

One senior ICU clinician made explicit these concerns:

It's a big deal for families to see their relative go to theatre, with the idea that they are going to donate. And I feel quite strongly that if donation isn't facilitated, they should not be coming back to a bay in the ICU. I feel it is just the wrong thing to do. When we started this, I said if this [DCD] is what society wants, this is what the government wants, we need to make absolutely sure that we are facilitating it properly and if a family have had the grace and the patient has had the grace to put themselves through this process, surely if they don't donate, there should be a place where they can go to, a nice room, where they can sit with them. Bringing them back to the unit, where everybody else is being actively treated, and they are just sitting there, with the clock ticking waiting for them to die, it just seems quite wrong. [...] I feel sometimes it is a very brutal process in terms of if they don't donate. ('Mike, ICU consultant, Hospital B)

The consultant emphasises his concerns in relation to families: having 'put themselves' through donation they should not be returned to a space where other patients are being 'actively treated' – a set-up he labels as 'brutal'. In other words, he and others in the study felt that the current process, as it stood for non-proceeding DCD donors, was not ethically fit for purpose.

These non-proceeding donors and their families came to represent a problematic category for staff, they were no longer potential donors, nor were they seen as 'ordinary' patients. They occupied a liminal space, within which there was little in the way of resources, shaped by the constraints of private spaces in the NHS, to suit their needs. It was felt that these families should be given something back (in the form of a private space) for the process that they had put themselves through, without the outcome that was expected or desired by any of the involved parties.

Discussion

This paper has argued that the routinisation of DCD in the UK has created new ethical issues for potential donors, their families and health professionals, not previously considered. I have shown that these issues pivot around the timings involved in getting from consent to withdrawal of life-sustaining treatment and from withdrawal of treatment to death. Specifically, these relate to the perceived burden on families and implications for consent when there are delays in the donation process; family and staff distress when death does not happen 'on time'; and the problem of where to take patients who do not die in time to donate. These findings add to the emergent empirical evidence, which has highlighted the difficulties for families and health professionals when DCD does not proceed (Machin et al., 2021; Taylor et al., 2018).

Importantly, I develop the notion of time as an ethical issue in DCD. Whilst the *Ethical Framework* for DCD does discuss time, this is only related to timings around declaring death and transferring care to retrieval teams. The findings from this paper extend the understanding of time as an ethical issue into that which relates to the organisational timeframes of DCD. Specifically, time becomes an ethical issue in three ways: first, when processes around DCD are delayed due to limited resourcing, leading to implications for gaining and maintaining donation consent and family distress; second, how specific time-requirements for dying in DCD leads to disappointment with the (regular) occurrence of non-proceeding DCD; and, third, how the frequency of non-proceeding DCDs reveals issues around resource allocation, in the lack of perceived suitable places to take these patients to die.

The first and third temporal-ethical issues – delays with getting to withdrawal of treatment and the lack of suitable spaces to take non-proceeding DCDs – have only revealed themselves with the routinisation of DCD, now the most frequently initiated deceased donation pathway in the UK (Curtis et al., 2021). What is significant is that these temporal-ethical problems are underpinned by issues of (under)resourcing and the (de)prioritisation of spaces for potential (and non-proceeding) donors. Writing in the US context, Kieran Healy (2004) demonstrated the positive association between local resources (spending) provided for organ donation and organ procurement rates: what he discussed as 'the ability for organisations to produce contexts for giving' (p. 387). In this vein, this paper has shown that structural issues, related to resourcing for donation, have potential effects on donation rates (such as families withdrawing or refusing donation consent due to delayed timeframes) and on contributing to increased distress on the part of donor families and health professionals.

I argue that these ethical issues cannot therefore be solved solely through the development and use of new procedures, such as theatre SOPs. Some of these issues materialise in the context of wider resource deficits: in an NHS subject to austerity (Robertson et al., 2017), with hospitals stretched for resources, such as theatres and private bed spaces, and shortages of organ retrieval teams with increasing donor rates (albeit pre-covid). It has been reported that the new opt-out legislation in England for organ donation may be put at risk due to issues around staff cuts and retrieval team shortages (Campbell, 2018); equally a recent European review highlighted how lack of timely access to surgical theatres may have adverse effects on donation (including withdrawal of family consent), 'leading to the loss of otherwise transplantable organs' (Vanholder et al., 2021, p. 558). I argue that the ethical issues around DCD highlighted here are likely to become heightened as potential donor rates increase with the opt-out legislation, unless the resources needed to deal with the temporal challenges around DCD are also addressed.

This study is one of the few empirical studies to have examined the ethics of DCD since it became re-implemented over a decade ago. There are several important limitations to acknowledge in this study. First, the settings were within major trauma centres in England with high demand for theatre space and high rates of DCD. It may be that issues in these settings, such as restrictions on theatre space, may not be so prominent in hospitals not classed as trauma centres. Nonetheless, the kind of hospitals in this study are those which produce the bulk of UK organ donors, making the findings significant for policymakers concerned with organ donor rates and ethics. Second, the participants in the study were mainly ICU consultants and SNODS; there was minimal representation of ICU nurses and no junior clinicians. It is possible that further interviews with these groups may highlight different experiences. Finally, this study focused on health professionals rather than donor relatives. Whilst some findings align with an existing study on the harms experienced by families in relation to unsuccessful DCD (Taylor et al., 2017), there is no research on how families experience and can be best supported through the process of DCD. Future research should focus on this area to understand the experiences and implications of DCD more fully for all involved parties.

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