

REVIEW

Have we reached the limits in altruistic kidney donation?

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SUMMARY

Altruistic donation (unspecified donation) is an important aspect of living donor kidney transplantation. Although donation to a stranger is lawful and supported in many countries, it remains uncommon and not actively promoted. Herein, we ask the question if we have reached the limit in altruistic donation. In doing so, we examine important ethical questions that define the limits of unspecified donation, such as the appropriate balance between autonomous decision-making and paternalistic protection of the donor, the extent of outcome uncertainty and risk-benefit analyses that donors should be allowed to accept. We also consider the scrutiny and acceptance of donor motives, the potential for commercialization, donation to particular categories of recipients (including those encountered through social media) and the ethical boundaries of active promotion of unspecified kidney donation. We conclude that there is scope to increase the number of living donation kidney transplants further by optimizing existing practices to support and promote unspecified donation. A number of strategies including optimization of the assessment process, innovative approaches to reach potential donors together with reimbursement of expenses and a more specific recognition of unspecified donation are likely to lead to a meaningful increase in this type of donation.

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Key words

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Background

Living donation is an important aspect of kidney transplantation. Globally in 2019, 36% of all kidney transplants were from living donors [1,2]. The benefits of live donor kidneys include improved graft quality due to shorter cold and warm ischaemic time; optimal donor work-up, reducing the risk of disease transmission; and elective surgery to optimize recipient's health and minimize waiting time [3–9]. This is reflected in the commitments of professional organizations, such as

NHS Blood and Transplant (NHSBT), The American Society of Transplant Professionals, and the United Network for Organ Sharing, to expand living donor programmes [5,10]. Globally, the most common live donor–recipient relationship is a close family member [2]. Some countries restrict the permissible donor–recipient relationships, precluding donation to genetically unrelated persons, with the exception of spouses. Anonymous donation to a stranger is lawful and supported in many countries, including Australia, Canada, the Netherlands, New Zealand, South Korea, the United

Kingdom and the United States while in others, such as Italy, Sweden and Spain, anonymous transplantation, while legal, remains uncommon and not actively promoted [11].

There is no universally agreed terminology for donation from a living person to a stranger, and the terms ‘unspecified’, ‘anonymous’, ‘nondirected’, ‘altruistic’ and ‘Good Samaritan’ are used interchangeably in the medical literature [3,5,12,13]. This paper adopts the morally neutral term ‘unspecified kidney donation or UKD’, recommended by ELPAT [14]. The underlying principle is that this form of donation requires a person to be willing to donate a kidney with no knowledge of the recipient’s personal circumstances or identity, on the basis that the outcome of transplantation may never be known.

Although UKD accounts for only 10% of all living donations in the UK and 3% in the United States [1,15], the contribution is important, particularly for the role it plays in kidney exchange programmes, facilitating transplants for immunologically complex patients through paired or pooled donor schemes (Fig. 1) [11,16,17].

In the UK, it is recommended that all UKD should donate into chains to maximize the benefits for recipients [5]. In 2019–2020, there were 95 unspecified donors; 47 of these initiated chains that benefited 118 adult and four paediatric recipients, including highly sensitized individuals unlikely to ever receive a deceased donor kidney [1]. Over the last ten years, unspecified donation has made a significant contribution to living donor transplantation in the UK (Table 1) and with the development of altruistic donor chains, the number of transplants made possible by these donors has tripled. In the United States, this resulted in 30 transplants occurring from a single UKD [18].

This paper will examine important ethical questions that define the limits of UKD, such as the appropriate balance between autonomous decision-making and

paternalistic protection of the donor, the extent of outcome uncertainty and risk-benefit analyses that donors should be allowed to accept, the scrutiny and acceptance of donor motives, the potential for commercialization, donation to particular categories of recipients (including those encountered through social media) and the ethical boundaries of active promotion of UKD [19–25].

Donor benefit concept

Living donation (LD) requires a healthy person to undergo surgery, which necessarily involves some degree of physical harm with no clinical benefit [3,5]. The ethical permissibility of LD is grounded in a *prima facie* duty to respect the autonomy of the competent adult who voluntarily decides to donate an organ unconditionally and understands the risks and potential benefits of the procedure [26–28]. At the same time, the surgeon undertaking the nephrectomy is bound by professional ethics of beneficence and nonmaleficence, and may, as an autonomous moral agent, refuse to operate whether they consider the risk of harm to the donor is too high, even if the donor is prepared to accept these risks [29–31]. This is reflected in current guidelines recommending separate medical teams for donor and recipient to avoid conflict of interests [32,33].

Risk-benefit balance

While LD cannot be in the donor’s best medical interests [34], it is generally accepted that the donor will benefit in some way from donation and approval requires an individualized risk-benefit evaluation [8,26,27,35,36] where the wishes of a competent and informed donor should be respected and acknowledged [8,37,38].

The concept of donor benefit is clearer in specified kidney donation (SKD) as the welfare interests of both parties are often intertwined and successful transplantation may result in tangible positive outcomes for the donor [39,40]. For example, the donor will avoid the pain of seeing a loved recipient suffer, the overall well-being of the family may improve by removing the constraints of dialysis, and caregiver burden may be reduced. In UKD, notwithstanding a broader concern for the suffering of others, the welfare interests of the anonymous donor and recipient are distinct. The benefit or significance of donation to the anonymous donor lies in the fact that donation is fulfilling and meaningful in a personal way [32].

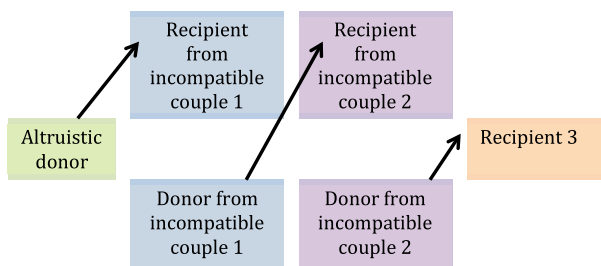


Figure 1 Example of chain or pooled donor scheme allowing incompatible donor–recipient pairs to receive and donate a kidney to another donor–recipient pair or recipient.

Table 1. Number of Unspecified Kidney Donors in the UK over last 10 years and the number of transplants facilitated (* – NHSBT introduced altruistic donor chains in January 2012).

Year	Number of nonspecified donations (UKD) per year	Number of UKD donors entering an altruistic donor chain*	Number of transplants as result of a chain started by UKD*
2019/20	95	47	122 (118 adults, 4 children)
2018/19	64	33	83 (82 adults, 1 child)
2017/18	89	33	82 (78 adults, 4 children)
2016/17	86	24	60 (58 adults, 2 children)
2015/16	83	25	63 (60 adults, 3 children)
2014/15	107	17	34 (32 adults, 2 children)
2013/14	118	27	Data not available
2012/13	77	7*	35 (32 adults, 3 children)
2011/12	34	0	0
2010/11	28	0	0

Donation to a stranger does not increase the risks of donation compared to donation to a specific recipient per se. However, there are different views on the degree of acceptable risk in UKD and whether a different risk threshold should apply when there is no emotional or familial connection with the recipient [41]. Arguably, the defensible moral position is to apply the same standards irrespective of donation type by maximizing safety for all, because the unspecified donor does not, as an individual, require more protection than the specified one [42] and it is risks that should be evaluated, not relationships [43]. Some clinical guidelines explicitly support the principle that the donor–recipient relationship is irrelevant to the acceptable risk [44]. In contrast, interviews conducted with transplant nephrologists and surgeons found that professional attitudes varied towards unspecified donors and the majority believed in stricter criteria for nonfamily donors [19], in part reflecting the disagreement among transplant professionals on what constitutes reasonable risk. This viewpoint fails to acknowledge that subjective value of donation to the donor. Consideration of benefit does not require transplant professionals to share the donor's moral values system but simply to understand the context within which the decision is made, and whether the donor has considered the risks involved [43,45].

But key to the risk-benefit balance is accurate information provision. There is evidence of significant variability in the information provided to donors on risks and postdonation outcomes with poorer understanding of financial and psychological risks [12,46,47]. Furthermore, there is evidence that potential donors are more inclined to underestimate the risks, accept a higher degree of risk and long-term uncertainty compared to professionals [37,48–50].

Physical harm

The most obvious form of harm concerns the impact of donation on physical health and is the starting point in the risk-benefit analysis. Overall mortality from donor nephrectomy is very low at 0.03%, similar to appendicectomy [51–53]. Current evidence suggests that morbidity from live kidney donation is also low [51–59] with a <1% chance of developing end-stage-renal disease (ESRD) over 15 years [57] and with outcomes comparable to those of specified donors [60]. It is important to note that the published studies have limited generalizability due to small sample sizes from single centres with predominantly white donors, variable comparison groups, retrospective design with potential for recall bias and high rates of loss to follow-up [53,61]. As a result, there are concerns about reliability of long-term data for nonwhite populations, overweight populations, those with pre-existing hypertension and the young [8,19,62,63]. In most jurisdictions, persons over the age of 18 years may be legally permitted to donate but there are important questions regarding the ethical acceptability of young persons, especially as unspecified donors, as their lifelong risks of ESRD post-donation may not be fully appreciated [8,57,64–67].

Psychosocial consequences

The drive to donate to an unknown person remains poorly understood and scepticism regarding motivations and underlying psychopathology are recognized among transplant professionals [21,43,60,68–70]. Greater understanding of unspecified donor motivations is required to increase acceptability and understanding by the transplant community and society at large [22]. It is

also important to understand the impact of not being able to donate when evaluating unspecified donors. The repercussions of rejecting a prospective specified donor are intuitively more apparent. However, frustration of the unspecified donor's wish to donate also constitutes harm and needs to be explored further as there is little research about outcomes of declined donors [71].

Unspecified donors most commonly describe a desire to help another individual and fulfil a sense of social responsibility to address social inequality and improve well-being of others, even if unknown [21,43,72–75]. They are also more likely to display other altruistic behaviour, such as donating to charity, participating in volunteer work and registering as blood or bone marrow donors [60,72,75]. Experience of kidney disease, illness or death of a loved one [72] or conversely, experience of a loved one who has benefited from donation [76] are also relevant. In the UK, the majority completing UKD are older and retired [60,77], although in the United States, the average age is lower [78]. The role of faith in decision-making varies, as some donors are not driven by religious beliefs [60,71,72,77,79], while others perceive donation as an integral part of their spiritual belief system [76] or an act of living out faith [79].

Qualitative studies on UKD confirm that donation is a largely positive experience with evidence of increased sense of well-being postdonation and few lasting adverse physical or psychological outcomes [20,61,71–73,76,77,79–83], although there is limited research on the long-term psychological impact of UKD [84]. It is important to note that these results should be interpreted with caution and cannot convincingly exclude adverse outcomes due to small numbers involved and limitations of study design [84,85]. A prospective UK study exploring how variation in attitudes and practice around UKD impact on it and also comparing psychosocial and physical outcomes between unspecified and specified donors is in progress and results are awaited [86]. While increased rates of donor regret compared to specified donors have been reported [80], overall, the evidence is comparable and the majority of donors would donate again if given the opportunity [60,72,76,79,87].

One donor describes his donation as 'a secret smile that stays with me' consistent with a common belief among donors that they gain more than they lose in donation (personal correspondence, from Live donor coordinator in Edinburgh Transplant Centre, Scotland).

Of interest, donors have also described feelings of disappointment when donation remains unacknowledged by the recipient [60,72,73] impacting on levels of

self-satisfaction [71]. These findings support a reconsideration of the traditional, over simplistic assumptions that unspecified donors do so for purely altruistic motives [13,76].

Psychological risk

Negative outcomes reported by donors include the expression of feelings of regret postdonation related to the lengthy assessment procedures [88,89], unexpected stress within their relationships as a consequence of donation [79] and temporary psychological distress [81]. Poor social functioning and the negative financial impact have been shown to predict regret in living donors, highlighting the importance of careful donor screening and emphasizing the need for good social support and financial planning [79,90]. Accounts of family members or friends indifference or even opposition to UKD have been reported [5,72,86], with donors describing perceptions of irrational or reckless behaviour and having to deal with subtle disapproval or active dissuasion [73]. This is likely to reflect the lack of understanding of the donor's motivations but may also highlight the concept that a donor's primary duty should be towards their present and future family [73]. This sense of obligation towards family members who may need an organ in the future is a genuine reason for candidate withdrawal [48]. These views may differ for older donors as financial and caring responsibilities towards dependents change but are particularly relevant for young persons, adding further ethical uncertainty surrounding their eligibility as living donors.

While not an absolute contraindication to donation, the lack of a support network is a concern and most centres encourage donors to involve their significant others in the donor evaluation process [20,71,79,85,91,92]. The role of peer support and patient-friending groups as support networks for prospective donors should also be acknowledged [93].

Psychosocial screening

Early practice guidelines for the UKD assessment recommended 'comprehensive psychosocial evaluation' by a qualified mental health professional, with 'additional psychosocial scrutiny' [91] but specific details are scarce. The vacuum has been filled with local protocols resulting in considerable variability in current evaluation practices, including referral criteria, assessor qualifications, use of psychiatric screening tools and limited consensus on relative and absolute psychological

contraindications to donation [19,73,74,84,85,94,95]. Safe, robust and effective screening for psychosocial issues is fundamental to reduce variation in practice, and justify decisions to decline candidates [74,79,90] and there is increasing support for national assessment frameworks [95,96]. The ELPAT living organ donor Psychosocial Assessment Tool (EPAT) was designed to improve consistency in identifying donors who may be at risk of negative psychosocial outcomes and provide direction around donor screening for transplant centres without a dedicated psychiatrist [66].

In the UK, a formal mental health assessment of prospective donors is no longer required but is recommended practice for UKD [5]. Traditionally, the evaluation of UKD has been more stringent seeking to determine the motivation and exclude underlying psychopathology that may impair their judgement [19,74,85] compared to SKD, which focuses primarily on identifying any evidence of pressure or coercion, with motives being more readily accepted. The assessment should also identify unrealistic expectations, as these are associated with negative psychosocial outcomes postdonation [74,92] and recognize where donation is being used as an act of self-promotion or to boost self-esteem and seek approval, atonement or redemption from others [72,76,77,79,91]. Qualitative studies reveal negative accounts of screening experiences, including donor perception that they need to prove their sanity [61,73], raising important questions about the need for extensive scrutiny of donor motives [68]. There is limited evidence comparing psychological outcomes in UKD and SKD although studies concluded that there were no differences in psychiatric prevalence or history, personality type, self-esteem or well-being between the groups [60,80].

Promoting unspecified donation

Ethical considerations in the promotion of unspecified donation

Social media, as well as more traditional channels of print media, radio or television, play an important role in generating public awareness of LD by disseminating information, stimulating discussion and engaging potential donors [17,72,77,79,97]. Some social media platforms may contribute to disproving misinformation around organ donation, including the misapprehension that the contraindications for blood donation also apply or that there is an upper age limit (there have been successful living donors in their 80's) or that a history of mental illness precludes donation [5,12,60,79,98,99].

In recent years, social media communities around LD have rapidly flourished with no legal oversight and limited ethical analysis, despite their tremendous power [97]. Living donors play an active role as informal peer educators, but national organization strategies are also used to increase public support for the concept of LD aiming to increase donation numbers [10,100]. However, the use of the media to promote UKD requires careful scrutiny and an ethical framework, particularly when transplant professionals are involved, to avoid conflicts of interest and erosion of public trust [71]. Unlike dissemination of factual information on a transplant centre's Facebook page, personalized media appeals focus on personal stories of real patients to deliberately trigger an emotional reaction to motivate individuals to donate [75]. These strategies raise legitimate questions about potential for manipulation and coercion within the broader context of the legitimacy of nudges in the healthcare setting [71,101,102].

Against this background, the role of nonprofit groups, such as the National Kidney Foundation and WaitList Zero in the United States, and British 'Give a Kidney' charity become increasingly important. Collaboration between previous unspecified kidney donors, healthcare professionals and procurement organizations is seen as the most effective model for engaging with target audiences [11]. However, in many jurisdictions, there is a persistent hesitancy in promoting UKD due to the real, albeit small, risk to healthy individuals. While these risks have been extensively publicized and rehearsed, many centres may well consider those individuals who approach them, but would stop short of actively promoting this type of donation. While this reluctance stems from the principle of minimizing the risks of harm, it could also be seen as treating UKD differently from directed kidney donors. In countries where LD screening and consent-giving processes are rigorously regulated, donor autonomy is unlikely to be compromised [100] and as long as the information provided is accurate and prospective donors are directed to reliable sources of objective information, these channels may be ethically acceptable and should be considered for promoting and portraying the benefits of UKD in a balanced way.

Solicitation

The conversion of unspecified donors to specified following media solicitation and requests to donate to categories of unknown recipients, poses new ethical challenges to the integrity, transparency, accountability

and equity of transplant programmes [76,103]. The decision to undertake UKD is considered largely free from emotional obligations [11], and the anonymity of the process allows the donor to opt out without providing explanations [71]. However, external pressure may still manifest itself in the context of public solicitation if a potential unspecified donor requests that their kidney is donated to a person with whom there is no pre-existing relationship and contact between the parties was initiated for the purpose of transplantation. Donation after public solicitation is permissible in some countries including under certain conditions in the United States, Canada, the Netherlands and the UK [30,103–105]. Potential donors should be aware that an expression of interest posted on a potential recipient's social media is likely to be seen by many others, generating support which in itself may pressurize the individual to pursue donation [76].

However, there is evidence that social media appeals can help increase UKD. In the UK, few offers to donate a kidney to an unknown person on social media result in actual donations yet these appeals can result in high numbers of individuals requesting information on donation (such as 300% increase in UK organ donation registration after an advertising campaign) [106]. These individuals may be unsuitable for the SKD but may be willing to explore UKD and therefore there needs to be agreement on how to effectively manage these potential donors [11].

Directed donation to categories of individuals

Requests by prospective donors to donate to an unknown person with specific characteristics raise significant ethical concerns about the integrity of the transplant system and public trust in organ allocation equity. While arguments based on race may be morally unacceptable, it should be properly acknowledged that 'moral particularism' reflects a natural instinct of giving preference to those to whom we feel connected, such as a member of a group or community or network [107]. Despite the fact that rejecting these requests may reduce the numbers of donations [28,108,109], there seems to be widespread consensus that donation should be unconditional [24,110,111]. There is some evidence that the public and transplant professionals may be receptive to preferential allocation to a child or less-privileged patients [69,112] provided the choice of the donor was not based on unacceptable moral principles [30].

There is limited evidence on the real impact of social media strategies on UKD so it is important to explore the connection between visibility and commitment

through the experience of prospective donors, as it is unclear how social media works, for example by nudging existing predispositions or permanently changing individual perceptions and moral commitments.

Direct payment for kidneys

The use of direct financial incentives remains controversial [113–116]. Worldwide, national laws explicitly prohibit payment for organs and this stance has been persistently endorsed by the WHO [117] and transplant community [118]. Supporters of financial incentives for donation claim that it increases LD, reduces demand for a black market and transplant tourism [119], and relieves the financial burden of ESRD [120]. Worldwide, there are limited examples of lawful national reimbursement programmes. Arguments against financial compensation include risks of exploitation of socioeconomically vulnerable donors, inequitable access to organs favouring high-income recipients [121,122], the immoral commodification of the human body [33,123], increased recipient risk due to nondisclosure of medical conditions and decreased deceased donation due to mistrust in transplant professionals [124]. Iran is the only country that operates a program providing fixed financial payment for donors [125], while many other countries, such as Israel, offer compensation for medical costs and lost wages to ensure donors do not incur financial loss [126].

Conclusions

There is scope to increase the number of LD kidney transplants further by optimizing existing practices to support and promote UKD. It is important to consider that the acceptability of novel approaches is a normative question and while positive recipient outcomes and a willingness to donate (and to transplant) contribute to the public endorsement of UKD, these should not be the sole reasons for expanding UKD programmes [107]. It must also be acknowledged that there are potentially conflicting responsibilities for transplant professionals: to provide accurate information to prospective donors, to safeguard donors' well-being, to make decisions to approve or reject a candidate, to improve transplant outcomes and to drive innovation [19,108].

There is a suggestion that the way to increase UKD is to extend current national guidelines [63]. However, given that many units are more conservative than the recommended national guidelines, it seems unlikely that an extension would make a difference. However, in

countries, where national guidelines are restrictive or inexistent, pioneering units have the ability to drive the policies. We believe there are a number of current strategies that could be enhanced.

- *Optimizing assessment processes.* The Netherlands has the highest LD rates within Europe [WHO] and has areas of best practice including comprehensive psychosocial assessment, dedicated LD teams and home visits all of which are credited with a positive impact on donation rates [72,90,99,127]. As an example of UK best practice, Northern Ireland introduced a one-day LD assessment program in response to feedback that their convoluted assessment process was off-putting. This has been recognized as responsible for an impressive increase in activity from 4.3 per million population [pmp] in 2009 to 32.6 pmp in 2011–15 [88]. A global study quantified the variation in assessment processes and highlighted the negative impact of delay on both donors and recipients [89]. In line with this, the UK has committed to completing assessments within 4.5 months [10]. However, an accelerated assessment process must not compromise quality, and there are arguments that a deliberately slow evaluation may provide donors with adequate time to interpret information and proceed thoughtfully [47,77].
- *Innovative strategies to reach donors.* There is evidence that both professional and peer volunteer home-education initiatives improve SKD rates, particularly among minority communities [10,80,99,128]. Provided the safety nets highlighted above are maintained, this could be expanded to include promotion of UKD, particularly among those who express interest to donate but are not compatible. A dedicated unspecified donor coordinator could be advantageous as the needs of unspecified donors are different and they have been shown to be of benefit in SKD, with positive impact on numbers of completed transplants [129]. The process likely requires a multidisciplinary approach, and patient and donor organizations are

working to encourage conversations to normalize donation in real life and online with government support [5,76,130–132].

- *Reimbursement of expenses.* There is broad consensus that the donor should be reimbursed for expenses incurred as part of the donation process, such as travel, accommodation and childcare expenses [33,133]. There is evidence that financial cost is a reason for withdrawal and has an effect on negative outcomes [129,134]. However, lost wages, insurability protection and long-term medical care are more complex issues as they are context-specific and provisions may easily translate into powerful inducements to donate [3].

- *Recognition for unspecified donation.* In the UK, establishing unspecified donation programmes required a significant amount of work from the live donor teams yet only LD transplant rates (rather than live donor nephrectomy numbers) are reported in national statistics and reimbursed. In 2019, despite the significant contribution to living donation at a national level, the completed UKD rates varied between UK centres from 0 to 13 [1]. As implantation of an unspecified kidney usually takes place at a different unit, the lack of recognition for the live donor team involved in the donor assessment and retrieval process does not incentivize promotion of UKD.

With this in mind, we believe that we are a long way from reaching the limit in altruistic donation and there is potential for growth while maintaining appropriate safeguards to protect individuals and inspire public confidence.

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