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# The evolving approach to ethical issues in living donor kidney transplantation: A review based on illustrative case vignettes<sup>☆</sup>



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## ABSTRACT

Living donor kidney transplantation which involves performing a major surgical procedure on a healthy person solely to benefit another person has always involved dealing with difficult ethical issues. Beneficence, non-maleficence, donor autonomy, altruistic donor motivation, coercion-free donation, fully informed consent and avoidance of medical paternalism have been the dominant ethical principles governing this field ever since the first successful living donor kidney transplant in 1954. The increasing reliance on living donors due to the rapidly growing disparity between the number of patients awaiting transplantation and the availability of deceased donor kidneys has brought with it a variety of new ethical issues of even greater complexity. Issues such as confidentiality of donor and recipient medical information, the appropriateness of the invented medical excuse to avoid donation and the approach to misattributed paternity discovered during work-up for living donor transplantation have made the information to be disclosed prior to obtaining donor's consent much more extensive. In this article, we review the current thinking and guidelines (which have evolved considerably over the past several decades) regarding these ethical issues using five illustrative case vignettes based on donors personally evaluated by us over the past 35 years.

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## 1. Introduction

Ever since the first successful kidney transplant was performed in Boston in 1954 [1], the field of living donor (LD) kidney transplantation (KTx) has been beset by major ethical issues [2–4]. LDKTx was initially opposed because it is the only major invasive procedure performed on a healthy person entirely to benefit another person [5]. Another reason for opposing LDKTx was the belief that, there may be no truly coercion-free donation when biologically or emotionally related (example spouse) donors are involved because a self-perceived sense of duty or expectation on the part of the family or even the medical team, that a medically fit donor should donate to help the recipient, might be pressurizing the donor. Publications opposing [6,7] or supporting [8,9] LDKTx appeared regularly in the 1980s.

However, LDKTx has become an increasingly accepted therapy for end-stage renal disease (ESRD) (currently approximately 40% of all KTxs in the USA are from LDs) for several reasons: i. KTx confers better quality of life (QOL) and longevity on ESRD patients [10–12] ii. there is marked disparity between deceased donor (DD) kidney

availability and demand [13]. iii. unacceptably high death rate in dialysis of patients awaiting DD-KTx [14,15] iv. increasing waiting time for DD-KTx [13] and v. worse posttransplant outcomes with increasing pretransplant dialysis duration [16,17]. The LD pool has expanded to include (besides biologically-related), emotionally-related (examples: spouse and friends) and altruistic (donating to strangers) donors [18,19]. The DD shortage has even promoted discussion of financial compensation to LDs and families of DDs [20,21], though strong opposition to this idea exists [22]. Organ shortage has led to creation of Web sites enabling solicitation of LDs (example: [matchingdonors.com](http://matchingdonors.com)) and “transplant tourism” to developing countries by affluent patients for KTx from paid, economically disadvantaged donors [23,24]. “Paired kidney donation” (wherein [in its simplest version] a pair of LDs incompatible with the persons to whom they wished to donate, trade places and donate to each other's originally intended recipient) was also developed in an attempt to expand LDKTx [25,26]. Partial LD liver, lung and pancreas transplantation is also being performed [27–29].

The increasing acceptance of LDs has engendered additional complex ethical problems. In this article, we present five case vignettes selected from the large number of LDs we have personally evaluated over the past 35 years to illustrate the ethical problems they posed and how we responded to them at the time we saw these LDs. The evolution in the approach to these ethical problems over the past several decades is discussed in the final part of this review.

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## 2. Case Vignette #1 – Kidney donation by a woman in an extra-marital relationship with a married man:

A 43 year old diabetic, married man was accepted for KTx. His 35 year old secretary was found to be a medically acceptable donor to him. During evaluation, she voluntarily revealed that she was having an extra-marital affair with the potential recipient. This case posed the following ethical issues: a. should his subordinate employee and mistress be accepted as his donor? b. Was she hoping that by donating, she could lure him away from his wife and get him to marry her and/or increase her job-security?

Our transplant psychologist opined that the donor appeared to have only altruistic motives and had no expectations regarding future relationship with him or job-security. The majority of the transplant team members felt that the selection committee should avoid “moral policing” and supported donation by her. A minority of members opposed transplantation involving an “immoral” pair. We told the recipient that if his wife specifically asked, she will be told that donor's identity was confidential. However, if she discovered the donor's identity on her own, we were not responsible for any effect this might have on his marriage.

Based on majority opinion, we proceeded with LD-KTx using his mistress as the donor.

Immediate graft function was followed by transplant artery thrombosis three days posttransplant resulting in allograft nephrectomy (“punishment for their immorality” according to some transplant team members). The donor had no complications and was lost to follow up after the six week postoperative check-up. The patient subsequently received a DDKTx which functioned well for 4 years before he experienced sudden cardiac death. To our knowledge, his marriage was intact until he died.

## 3. Case Vignette #2 – Case of the sexual molester sibling donor

A 2-haplotype HLA-matched, 37 year old brother was found to be a medically acceptable, altruistic and voluntary donor for his 25 year old sister with ESRD. One week before planned KTx, the recipient informed us that this donor had sexually molested her during childhood. She was afraid he might expect sexual favors as a reward for donation. The ethical issue was whether the recipient should be advised to decline donation by her brother because of this.

We informed her that he was perfectly HLA-matched with her which increased the chance of good posttransplant outcomes, donation may be his way of atoning for his past acts, she owed him nothing in return for donation and that she could accept his kidney if she was confident that she could resist any future sexual demands by him. After considering these points she decided to accept his offer. During the next 12 years, the transplant functioned well with no major medical problems. She reported that her brother moved out of state shortly after donation and never contacted her thereafter. She was lost to follow-up after 12 years.

## 4. Case Vignette #3 – case of the offspring donor coerced by step-mother

A 67 year old male (widowed and remarried) was awaiting KTx. His son (44 years old) through his first wife was a medically acceptable donor, but reported that his step-mother was coercing him to donate to his father by saying that unless he donated his father might die. The ethical issues in this case were: a. whether a medically suitable donor should be excluded because of coercion by his step-mother b. if he wanted, should a medical excuse be invented for him not to donate and c. should he be informed that his father aged 67 and a long-standing heavy cigarette-smoker might have longevity-limiting complications posttransplant?

We advised him that the decision to donate or not was entirely his own, he should not donate under coercion or a feeling of guilt, his father could remain on dialysis and await DDKTx, and LDKTx was not life-saving but may improve posttransplant QOL and outcomes. He was apprised of the posttransplant longevity-limiting complications the recipient may experience in view of his age and smoking history. We also offered him an “invented” medical excuse to avoid donation without losing face with his father and step-mother. He eventually decided that he wanted to help his biological father by donating and then “get out of his life permanently” and declined the offer of a medical excuse to avoid donation. The transplant functioned well until his father died of disseminated lung cancer 3 years later.

## 5. Case Vignette #4 – Case of the older recipient and young spousal donor

A 68 year old diabetic male with ESRD accompanied his 22 year old non-English speaking wife to her donor evaluation visit and insisted on being her interpreter. The ethical issues that this brought up were: a. whether he should be allowed to be present during his potential donor's evaluation, b. if this young donor should be accepted for an older, high-risk, diabetic recipient and c. whether the donor should be told about his increased posttransplant risks.

We told the recipient that donor evaluation cannot be done in the potential recipient's presence. The donor later informed us through a different interpreter that her marriage was unhappy and she was being coerced to donate. She was offered and accepted a medical excuse to avoid donation. In her medical record we found a creatinine clearance value of 70 mL/min (? due to incomplete urine collection) and 10 RBCs/high power field on urinalysis (? due to menstruation). Although these findings could have been the result of these benign alternative explanations, we told the couple that these abnormalities precluded donation by her. We offered him the options of KTx from a DD, a different LD (if available), or donor evaluation of his wife in another program, but he did not want to pursue these alternatives.

## 6. Case Vignette #5 – “Offspring” donor with misattributed paternity

A 23 year old male was evaluated as a donor to his 54 year old father. Before the donor was evaluated, the tissue typing laboratory reported that the already performed HLA-typing revealed that the donor could not be the recipient's biological son. During his donor evaluation, it was clear that he believed that he was a biological offspring. Our dilemma was whether the “father” and “son” should be informed about the misattributed paternity. We were limited by the fact that our institution's recipient and donor consent forms did not expressly address this issue. We, therefore, decided against disclosure and to accept him as an unrelated LD. However, the intended recipient died suddenly at home before the transplant could be performed.

## 7. Other ethical problems

In addition to the problems presented in the vignettes above, other ethical dilemmas may be encountered, some common and others rare. Examples of commonly encountered ethical problems include: a. if a person with medical problems with uncertain long-term renal and health implications should be permitted to donate and b. if donation by a person (especially a minority donor) with moderate obesity, metabolic syndrome and/or family history of hypertension, diabetes mellitus or CKD/ESRD is appropriate. After thorough evaluation, we have allowed donation by persons with mild hypertension well controlled with a single medication, persistent microscopic hematuria for which no cause could be established despite complete urological work-up and kidney biopsy, unilateral/small/non-obstructing kidney stone (with negative work-up for a metabolic cause for nephrolithiasis) or a small unilateral renal artery aneurysm. It should be pointed

out that many centers including ours are more willing to accept a Caucasian rather than an African American donor with hypertension, given the greater chance of future severe hypertension and increased susceptibility to CKD/ESRD in the latter. In the donors with unilateral renal abnormalities mentioned above, the abnormal kidney was removed and transplanted after bench surgery to remove the stone and repair the aneurysm, respectively. In dealing with potential donors with such “minor” medical problems, it is our policy to explain clearly that although these problems are unlikely to pose risks to the remaining kidney or general health following donation, a benign long-term outcome cannot be guaranteed. If a strongly motivated donor understands and accepts this small but unpredictable risk, we believe that the correct (non-paternalistic) approach is to permit donation.

An example of a rare ethical problem (not personally encountered by us) is whether potential LDs wishing to publicize their donation by having a personal interview of them and/or their surgery recorded and disseminated, should be allowed to do so. Such donors may be rejected as “publicity-seeking” and non-altruistic. However, acceptance of such donors after carefully excluding underlying psychological problems has been supported [30]. Such publicity may even be beneficial in encouraging other potential altruistic donors to come forward. If confronted by such a request, our approach would be to avoid prejudging the donor as not being altruistically motivated. We would subject the candidate to a thorough psychological evaluation to ascertain if the decision to donate has a rational and predominantly altruistic basis, and that the desire for publicity is not the only or major motivation, before deciding on acceptability for donation.

## 8. Discussion

### 8.1. Beneficence, non-maleficence, assessment of motivation and non-paternalism

Generally accepted ethical principles since the advent of LDKTx include “beneficence” (benefiting both recipient and the donor), “non-maleficence” (not harming the donor), respecting donor autonomy, and avoidance of paternalism by transplant professionals [31,2–4]. The first two cases presented above illustrate the principles of beneficence and non-paternalism. By offering better QOL and longevity than dialysis, and permitting preemptive transplantation and scheduling of surgery at an optimal time, LDKTx benefits the recipient [32]. The emotional fulfillment of helping another person, and the possible early discovery and treatment of previously undiagnosed conditions during evaluation, are the benefits to the donor [2,33,34]. The transplant team should limit itself to ensuring that the donor is medically acceptable, understands the risks of donation, is able to give informed consent, is under no coercion, and is motivated altruistically [2,35]. Besides medical evaluation, thorough psychosocial assessment (preferably by an experienced transplant psychologist/psychiatrist) is an important part of determining donor eligibility [35–37]. The donor should be assessed carefully to ensure altruism as the predominant motivation, absence of coercion, realistic expectations of posttransplant outcomes, and that the need for publicity, feeling of guilt or other psychopathology are not the major reasons underlying donation. Psychosocial evaluation is particularly important in donors with a psychiatric history because the stress of donation may exacerbate their mental illness or precipitate its recurrence. The donor’s personal psychiatrist should also be consulted regarding the stability of mental status, possible psychiatric risks of donation and availability for future follow-up of the donor.

There are rare reports of donor suicide after donation, especially when the recipient does not do well posttransplant [37].

To judge the recipient’s and the donor’s acceptability on the basis of any other considerations than those listed above may constitute an attitude of paternalism. For example, in case #1, allowing moral judgment about the extra-marital relationship between the recipient

and donor to influence the decision to accept the donor would have been inappropriate. Similarly, in case #2, advising the recipient that she should not accept her molester-sibling’s kidney would have been paternalistic. We believe that it was right for the transplant team to limit itself to informing the recipient of the pros and cons of accepting a kidney from the particular donor, and allowing her to make the final decision. Strong arguments against paternalism in deciding the acceptability of recipient/donor pairs have been published [2,38,39]. It has been argued that, in donors with minor medical abnormalities with uncertain long-term deleterious effects on the donor’s health, the transplant team should limit itself to communicating these uncertainties and letting the donor make the final decision. Advocates of non-paternalism also recommend that a well-motivated donor’s willingness to accept some uncertain risks to oneself in order to improve the recipient’s QOL should generally prevail. Other authors, however, have opined that an attitude of paternalism to protect donor interests is not inappropriate [40,41]. It should be noted that in actual practice, despite published guidelines for evaluation of LDs [35–37], there is wide variation between US centers in the medical and psychosocial acceptance criteria for donors [42–44] and what is considered appropriate concern for donor safety in one program may be considered paternalistic in another.

### 8.2. Avoiding donation under coercion

Another important ethical principle governing LDKTx is that donation should be free of coercion [35–37]. Case #3 (son coerced to donate by stepmother) and #4 (young wife coerced by older spouse to donate) illustrate this issue. In such situations, the transplant team should explain to the donor that while LDKTx may offer better outcomes than DDTX, it is not a life-saving procedure, the alternatives to LDKTx (dialysis and DDKTx), and point out that donation should not be on the basis of coercion or a feeling of guilt. While the donor should be encouraged to discuss in advance the decision to donate with any person the donor feels should have input (such as the spouse), it should be emphasized that an adult donor capable of giving informed consent has the sole right to make the final decision about donating. Besides coercion, the donor may also be split between a sense of obligation to the recipient and concerns such as serious operative morbidity/mortality to oneself vis-à-vis obligations to one’s spouse/children, or the anticipated need to donate a kidney to another family member (e.g., offspring) in the future [45]. The transplant team must respect such concerns (however unrealistic they may seem) and be prepared to go along with the donor’s wish to be excluded on this basis.

### 8.3. Donor privacy

Case #4 also illustrates the importance of never evaluating the donor in the presence of the potential recipient to ensure the donor’s freedom to express in private his/her thoughts about donation. Also, the potential donor should not be put on the spot by announcing to the recipient the donor’s fitness to donate before the donor has made a definite decision. The donor should be informed that he/she can withdraw from donating at any time and if this happens, the recipient will only be told that in the light of newly discovered information, the transplant team decided that the donor was unsuitable. The donor should be assured that the donor’s change of mind about donating will not be revealed to the recipient. However, if the transplant team decides to turn down the donor, the reason(s) underlying this decision should be explained in detail to the donor. The donor’s right to seek a second opinion elsewhere should be stressed and the results of the tests already completed should be made available to the donor to facilitate this process.

#### 8.4. Donor's right to know versus recipient's privacy rights

Does a donor have the right to know the recipient's risk factors and anticipated posttransplant prognosis before deciding to donate? Since the LD is undertaking personal risk only to help the recipient, it is reasonable to take the view that the he/she is entitled to receive information about the recipient's comorbidities and compliance behavior, and their likely effect on posttransplant outcomes [46,47]. Recipient #3 (67 year old a former heavy smoker who died eventually of disseminated lung cancer), and recipient #4 (68 year old diabetic in whom preexisting widespread atherosclerotic vascular disease was highly likely) can both be considered higher risk candidates in whom posttransplant longevity cannot be assured. Recently, the following arguments have been advanced against sharing the recipient's medical information with the donor: a. if a recipient is considered acceptable for KTx by the transplant team, he/she should be equally acceptable for LD or DD-KTx and all that the potential donor needs to know is that the recipient has been accepted for transplantation after careful evaluation and b. disclosure of recipient's medical information to the donor is a violation of recipient's privacy rights and the Health Insurance Portability and Accountability Act (HIPAA) regulations [48,49]. A case in point is LDKTx in an HIV-positive recipient wherein the recipient's confidentiality rights regarding HIV-status conflicts with the donor's right to refuse donation to a HIV-positive recipient. It has been argued that KTx outcomes in carefully selected HIV-positive patients is better than that in the older diabetic and, therefore, it is unnecessary to inform the donor that the recipient is HIV-positive since it is not standard practice to inform the donor that an elderly diabetic is a higher risk candidate [50]. The Organ Procurement and Transplantation Network's (OPTN) recent recommendation is that the transplant team should take all reasonable precautions to protect the privacy of medical information of both the donor and recipient, thereby placing the recipient's right to privacy ahead of the donor's right to know [49]. OPTN also recommends that the donor consent form should clearly mention that any recipient may have risk factors which may increase risk of morbidity or mortality posttransplant, and these will not be disclosed to the potential donor in the interest of recipient confidentiality [49]. However, these OPTN recommendations do not preclude discussion of each other's medical issues *directly* between donor and recipient.

#### 8.5. Offer of an "invented" medical excuse

Offering an unwilling donor an "invented" medical excuse against donation to avoid losing face with the recipient, family and others, was a widely accepted practice in the past [45] but has now become controversial for several reasons: a. the belief that physicians should never lie (even to help a coerced/unwilling donor), b. if the falsehood is eventually discovered, trust issues for the donor and credibility and medico-legal liability for the transplant team may arise c. false documentation in the donor's medical record may result in future employment and insurance problems for the donor and d. a medically excused donor may decide to donate to spouse, offspring or another recipient in the future creating a potentially awkward situation [45]. Recent OPTN recommendations actually state that the recipient consent form should clearly explain that in order to protect the donor's privacy rights, the specific reason(s) for excluding a donor will not be disclosed to the recipient who should only be told that the donor was determined to be unsuitable [49]. We offered a medical excuse to the donor in case #3 and excused the donor in case #4 on (questionable) medical grounds, because at the time of their evaluation, this practice was considered ethically appropriate.

#### 8.6. Misattributed paternity discovered during donor-recipient testing

The problem of unexpected discovery of misattributed paternity by HLA-testing for pretransplant work-up has received little attention

in the transplant literature. Case #5 illustrates the ethical dilemma that can arise in this regard. Proponents of disclosure of misattributed paternity argue that the donor should be willing to donate even after knowing that he/she is not the biological offspring of the recipient and that the recipient may be expecting better outcomes when the donor is a child rather than an unrelated donor [51,52]. Furthermore, if the misattributed paternity information eventually comes out, loss of credibility and legal liability for the transplant center might develop. Points against disclosure include: serious family discord resulting from the information and problems for the mother if the presumed father did not already know the information [51,52]. It has been argued, however, that the mother in this situation is not a patient of the transplant team which, therefore, has no responsibility to protect her interests. A compromise approach to this problem is to state in the recipient and donor consent forms that HLA-typing tests may disclose information contradicting the presumed biological parent-offspring relationship and that this information will be disclosed to the recipient and the donor only if *both* parties give fully informed consent in writing *in advance of testing* agreeing to such disclosure (no disclosure if only one party consents) [51,52]. Since our institution's consent forms did not address this issue specifically, we decided against disclosure in case #5. Recent OPTN guidelines do not mention discovery of misattributed paternity [49] and this is an issue that transplant centers will have to address soon.

#### 8.7. Information that the potential donor must be given prior to obtaining consent

Lately, the amount of information to be shared with the donor by the transplant team prior to obtaining an ethically rigorous informed consent for donation has expanded considerably. Donor evaluation has always involved educating the candidate about the surgical procedure, potential early postoperative complications including the small chance of mortality (approximately 1 in 3000), duration of hospitalization and convalescence before returning to pre-donation activity level, and discussing long-term post-donation issues. The donor should understand the following: a. immediately after nephrectomy kidney function is halved. However, hypertrophy of the remaining kidney will result in achievement of 65% to 75% of the original (two kidney) level function over a 3 to 6 month period, and this is sufficient to maintain good health, QOL and sexual/reproductive function, b. if the remaining kidney has to be removed for any reason in the future, the donor will require dialysis immediately c. some donors develop mild hypertension (~30%) and/or minimal proteinuria (~10–15%) long-term, but donor longevity and QOL are not usually compromised by these, and d. that studies (at least until recently) have revealed a lower risk of developing ESRD in donors compared to the general population [53–56].

Recent OPTN guidelines and other publications have recommended additional information to be shared with the donor prior to obtaining consent.

1. Donor evaluation will be conducted by a nephrologist and surgeon not involved in the care of the recipient (to avoid conflict of interest) [49].
2. Donor evaluation should include examination by a "patient advocate" (a physician outside the transplant team and uninvolved in the care of the recipient) and the advocate's opinion will be a major factor in accepting or turning down the donor [49,57].
3. While laparoscopic donor nephrectomy has decreased postoperative pain and the duration of hospital stay and convalescence [58–60], these may vary from donor to donor given individual differences in speed of healing and pain tolerance [61], a point worth stressing since many healthy donors may never have undergone major surgery previously.

4. If unexpected intraoperative problems arise, laparoscopic nephrectomy may have to be converted to an open procedure.
5. It is not illegal to compensate the donor for expenses incidental to donation (travel, stay, lost wages, etc.) [49]. However, many donors do incur financial loss secondary to such expenses despite the existence of a national organization (National Living Donor Assistance Center) which provides grants to donors to defray incidental donation-related expenses.
6. Surveys have shown that long-term, approximately 90% of the donors are happy about their decision to donate but about 10% regret their decision for various reasons [62].
7. Perioperative anxiety and stress may be worse than expected (especially in surgery-naïve donors), and the donor may experience depression or guilt feelings if there are adverse recipient outcomes such as transplant failure or death [62].
8. While donors will not incur any costs related to evaluation, surgery and postoperative care, donor evaluation may uncover conditions that may preclude donation. Such conditions and any long-term health problems developing after donation will have to be treated through the donor's insurance or personal funds [49].
9. Donor evaluation may reveal diagnoses requiring mandatory reporting to outside agencies (example: communicable diseases) [49].
10. The evidence that kidney donation is generally safe in the long-term is based largely on studies of Caucasians donors [53] and it is unclear whether this data can be extrapolated to minority and/or economically disadvantaged donors [63]. The incidence of ESRD appears to be higher in minority compared to Caucasian donors [64]. In fact, two recent studies have suggested that the incidence of ESRD in prior kidney donors is statistically significantly higher than in well matched non-donors [65,66], though the absolute risk in donors is still very small. One of these studies suggested that long-term cardiovascular and all-cause mortality may be higher in donors, though again the absolute effect is very small [65]. These recent findings must be shared with potential donors while emphasizing that the absolute increase in risk is small.
11. If a prior donor develops ESRD subsequently, he/she will be granted priority to receive DD-KTx ahead of others on the waiting list [49].
12. While most prior donors do not experience any problems in this regard, some may have problems obtaining employment and/or life/health/disability insurance [67]. It is advisable for the prospective donor to discuss these issues with the employer and/or insurer in advance.
13. The donor is entitled to receive the transplant center's one year graft and recipient survival (compared to national results) and donor outcome data [49].
14. Current guidelines support protection of recipient's and donor's right to privacy regarding their respective medical information, recommend against inventing/documenting a medical excuse to avoid donation, but guarantee the donor's right to withdraw from kidney donation at any time with the recipient being told only that the donor was found to be unfit to donate (without providing specific reasons) [49]. In fact, some centers include a mandatory "cooling-off" period after the donor makes the initial decision to donate before scheduling the date for surgery, to allow the donor time to deliberate before confirming the decision [68].
15. While semi-annual follow-up of kidney donors by the transplant center for 2 years following donation is currently mandated [49], it is advisable to continue annual checkups indefinitely to enable early detection of progressive renal dysfunction, proteinuria, hypertension, diabetes, etc., especially in view of recent studies indicating a small increase in risk of ESRD and mortality in donors [65,66]. However, this will have to be paid for by the donor's insurance or personal funds.

Several studies have shown that the amount of information disclosed to the donor by different transplant centers is highly variable [69,70] and that donor consent forms use language difficult to comprehend by those with less than college-level education [70]. This process can be improved and standardized. It has been recommended that the national regulatory organizations should develop a uniform and easy to understand donor consent form to be used by all centers [71]. This form should include all the information mentioned above in simple language, must be reviewed in detail with the donor, and satisfactory comprehension of its contents by donor should be determined. Ideally, donor and recipient consent forms (the latter including information on the privacy rights of the donor) should be signed by the respective persons before work-up for LDKTx is begun.

## 9. Summary and conclusions

This review presents the evolution of thinking regarding the ethical issues in LDKTx over the past several decades. The 5 case vignettes presented should make it clear that ethical problems are common in this field. The transplant team should be aware of the many ethical dilemmas posed by LDKTx, avoid being overly paternalistic and judgmental in evaluating LD-recipient pairs, inform the donor fully about all aspects of LDKTx, ensure that donation is altruistic and coercion-free, and strive to protect donor and recipient privacy during the entire transplantation process.

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