



Living tissue and organ donation by minors: Suggestions to improve the regulatory framework in Europe

Medical Law International
2016, Vol. 16(1-2) 58–93
© The Author(s) 2016
Reprints and permission:
sagepub.co.uk/journalsPermissions.nav
DOI: 10.1177/0968533216660877
mli.sagepub.com



Kristof Van Assche

Research Group Personal Rights and Property Rights, University of Antwerp, Belgium

Kristof Thys

Department of Public Health and Primary Care, KU Leuven, Belgium; University Colleges Leuven-Limburg, Faculty of Health and Social Work, Research Unit Healthy Living, Genk, Belgium

Thierry Vanswevelt

Research Group Personal Rights and Property Rights, University of Antwerp, Belgium

Gilles Genicot

Faculty of Law and Political Sciences, University of Liège, Belgium

Pascal Borry

Department of Public Health and Primary Care, KU Leuven, Belgium

Sigrid Sterckx

Bioethics Institute Gent, University of Ghent, Belgium

Abstract

Whether living tissue and donation by minors is acceptable is the subject of considerable debate. In view of the vulnerable position of minors, the risks involved in the medical procedure, and the possible conflict of interests on the part of the parents, the legal approach in Europe has traditionally been very restrictive. However, this approach may raise concerns when a situation would arise where donation by a minor would still be in

Corresponding author:

Kristof Van Assche, Research Group Personal Rights and Property Rights, Faculty of Law, University of Antwerp, Venusstraat 23, 2000 Antwerp, Belgium.

Email: kristof.vanassche@uantwerpen.be

that person's best interests. Moreover, a very restrictive approach may be difficult to reconcile with the requirement to give due weight to the views of minors in accordance with their age and maturity. In the light of these considerations, this article examines whether there is room to improve the way in which living tissue and organ donation by minors is currently regulated across Europe. We first sketch the debate about the acceptability of using minors as living donors and explore its potential clinical need. Subsequently, we assess whether international legal instruments and guidelines offer any guidance to address the issues raised. This is followed by an analysis of the legal situation in the United States. Finally, we examine in detail the legal situation in Europe. To that aim, relevant regulations were compiled, translated, and analyzed in close cooperation with national legal experts. By way of conclusion, we compare the legal approach followed in the great majority of European countries with the one preferred in the United States and make suggestions to amend European transplant regulations to better protect the interests of minors.

Keywords

Comparative health law, living organ donation, living tissue donation, minors, transplant regulations

Introduction: Considering minors as living donors

Living donation is a lifesaving treatment option for patients suffering from end-stage organ failure or diseases such as leukemia, lymphoma, and sickle-cell anemia. Although, as a rule, only adults are considered as living donors, on occasion a minor may emerge as the most suitable tissue or organ donor for a close relative in desperate need of transplantation. Whether living donation by minors is ethically acceptable is the subject of considerable debate.

Critics warn that, in contrast to adults, minors often find themselves in a position of vulnerability that can easily be exploited.¹ Compared to adults, who have every right to decline donation even if they are the donor of last resort,² minors may find it almost impossible to refuse donation to a sibling if they are solicited by their parents. Similarly, concerns have been raised about the appropriateness of exposing minors to the considerable risks that may be involved, especially taking into consideration that this medical procedure is not to their own medical benefit.³ In this regard, donation of bone marrow or

1. K. Bonk, 'Minors as Living Organ Donors: Protecting Minors from Martyrdom', *Children's Legal Rights Journal* 28 (2008), pp. 45–73; M. Goodwin, 'My Sisters Keeper?: Law, Children and Compelled Donation', *Western New England Law Review* 29 (2007), pp. 357–404; B.A. Schenberg, 'Harvesting Organs from Minors and Incompetent Adults to Supply the Nation's Organ Drought', *Indiana Health Law Review* 3 (2007), pp. 319–359.
2. See, for the United States, the illustrative case of *McFall v. Shimp*, 10 Pa & C 3d 90 (July 26, 1978).
3. See, for instance, C. Cheyette, 'Organ Harvests from the Legally Incompetent: An Argument against Compelled Altruism', *Boston College Law Review* 41 (2000), pp. 465–515.

hematopoietic stem cells is generally considered quite unproblematic because of its capacity to regenerate and the very small risk of complications.⁴ By contrast, the risks of living kidney donation are more than minimal, with perioperative mortality estimated at 0.031% and serious morbidity as high as 7%.⁵ Recent evidence also suggests that living kidney donors are at increased long-term risk for developing end-stage renal disease.⁶ The risks involved in living liver donation are already very significant, with mortality approaching 0.1% for left lobe donation and 0.5% for right lobe donation and with an overall incidence of serious morbidity estimated at 15–20%.⁷

In the light of the vulnerable position of minors, the risks involved in the medical procedure and the severe conflict of interests if the decision is left to the discretion of the parents acting as surrogates for both the minor donor and recipient, we completely agree that a cautious approach is warranted. Whereas the use of minors as donors of bone marrow or hematopoietic stem cells is of less concern in view of the minimal risks involved, critics are correct to point out that living organ donation by minors may pose severe moral problems. Nevertheless, we do not advocate a statutory total ban on living organ donation by minors. Such a ban—which, as will be highlighted below, seems to be the preferred solution in Europe—should be rejected for a variety of reasons.

First, categorically refusing minors the possibility to donate may be unfair if this would mean that a genuine willingness to donate on their part would be uniformly disregarded.⁸ More specifically, an absolute prohibition is difficult to reconcile with the tendency to grant minors who can demonstrate maturity a high degree of

-
4. See D.L. Confer, 'Hematopoietic Cell Donors', in K.G. Blume, S.J. Forman and F.R. Appelbaum, eds., *Thomas' Hematopoietic Cell Transplantation* (Malden: Blackwell Publishing, 2004), pp. 538–549. However, according to more recent reports a small risk of fatalities and serious adverse events still exists. See, for instance, J. Halter, Y. Kodera, A.U. Ispizua, et al., 'Severe Events in Donors After Allogeneic Hematopoietic Stem Cell Donation', *Haematologica* 94(1) (2009), pp. 94–101.
 5. See G. Mjøen, O. Øyen, H. Holdaas, et al., 'Morbidity and Mortality in 1022 Consecutive Living Donor Nephrectomies: Benefits of a Living Donor Registry', *Transplantation* 88(11) (2009), pp. 1273–1279; D.L. Segev, A.D. Muzaale, B.S. Caffo, et al., 'Perioperative Mortality and Long-term Survival Following Live Kidney Donation', *Journal of the American Medical Association* 303(10) (2010), pp. 959–966.
 6. G. Mjøen, S. Hallan, A. Hartmann, et al., 'Long-term Risks for Kidney Donors', *Kidney International* 86 (2014), pp. 162–167; A.D. Muzaale, A.B. Massie, M.C. Wang, et al., 'Risk of End-stage Renal Disease Following Live Kidney Donation', *Journal of the American Medical Association* 311(6) (2014), pp. 579–586.
 7. See L. Kousoulas, T. Becker, N. Richter, et al., 'Living Donor Liver Transplantation: Effect of the Type of Liver Graft Donation on Donor Mortality and Morbidity', *Transplant International* 24(3) (2011), pp. 251–258; J.B. Otte, 'Donor Complications and Outcomes in Live-liver Transplantation', *Transplantation* 75(10) (2003), pp. 1625–1626; Y. Yuan and G. Mitsukazu, 'Biliary Complications in Living Liver Donors', *Surgery Today* 40(5) (2010), pp. 411–417.
 8. J.K. Robbennolt, V. Weisz and C.M. Lawson, 'Advancing the Rights of Children and Adolescents to be Altruistic: Bone Marrow Donation by Minors', *Journal of Law and Health* 9 (1995), pp. 213–245.

self-determination in medical decision-making.⁹ Although this competence does not generally extend to high-risk and nontherapeutic procedures, the opinion of mature minors is frequently considered of decisive importance in other interventions affecting them. Moreover, granted that minors may not have sufficient decisional capacity to autonomously decide to donate an organ, a strong desire to donate will still be a crucial factor in the assessment of surrogate decision makers as to the acceptable risk–benefit balance of the procedure.

Second, as will be pointed out in the discussion of United States case law, living organ donation may exceptionally be beneficial to the minor donor. This situation may arise where the minor is the only suitable donor for a loved one whose life is in imminent danger. Under such exceptional circumstances, living organ donation may result in psychosocial benefits to the minor that are substantial enough to significantly outweigh the medical risks involved. The minor may, for instance, derive important psychosocial benefits from having saved the life of a loved one and from growing up in an intact family.¹⁰ In this light, we argue that the door for such a practice should not be closed by legislators.

Third, a general prohibition of living organ donation by minors may lead to a situation where judges, petitioned to allow living organ donation by a minor, may, out of a sense of fairness, feel forced to reach a judgment that goes against domestic law. Such a legally complicated case emerged in 2007 in Spain, a country where living organ donation by minors is categorically prohibited. The case involved a 17-year-old girl, Gabriela, who wanted to donate a liver segment to her baby daughter. Since the baby was in a critical condition, it was impossible to wait until Gabriela reached adulthood. Therefore, Gabriela's mother applied to the Court of First Instance of Seville, which, taking account of the emergency situation and the overriding interests of Gabriela to save her daughter's life, gave judicial authorization for the liver donation, acknowledging that its verdict was contrary to national law.¹¹ Although the ruling was felt to be just, Spanish legal doctrine

-
9. L. Stultiëns, T. Goffin, P. Borry, et al., 'Minors and Informed Consent: A Comparative Approach', *European Journal of Health Law* 14 (2007), pp. 21–46.
 10. See N. Broeckx, 'Living Organ Donation and Minors: A Major Dilemma', *European Journal of Health Law* 20 (2013), pp. 41–62; R.W. Griner, 'Live Organ Donations between Siblings and the Best Interest Standard: Time for Stricter Judicial Intervention', *Georgia State University Law Review* 10(3) (1994), pp. 589–613; S. Month, 'Preventing Children from Donating May Not Be in Their Best Interests', *British Medical Journal* 312 (1996), pp. 240–241; S.L. Nygren, 'Organ Donation by Incompetent Patients: A Hybrid Approach', *University of Chicago Legal Forum* (2006), pp. 471–502; L.F. Ross, 'Moral Grounding for the Participation of Children as Organ Donors', *Journal of Law Medicine and Ethics* 21(2) (1993), pp. 251–257; B. Shartle, 'Proposed Legislation for Safely Regulating the Increasing Number of Living Organ and Tissue Donations by Minors', *Louisiana Law Review* 61(2) (2001), pp. 433–471; D. Steinberg, 'Kidney Transplants from Young Children and the Mental Retarded', *Theoretical Medicine* 25(4) (2004), pp. 229–234.
 11. A summary of the case (in Spanish) can be found at: [https://www.rexurga.es/download/J\[1\].Primera%20Instancia%20Sevilla%20%28984-07%29.pdf](https://www.rexurga.es/download/J[1].Primera%20Instancia%20Sevilla%20%28984-07%29.pdf) (accessed 17 June 2016). We wish to thank Professor Pablo de Lora Deltoro for drawing our attention to this case.

was deeply troubled by the fact that it was illegal in technical terms.¹² In order to preclude such a judicial–legislative conflict, we suggest that a complete legislative ban on living organ donation by minors should be avoided.

Clinical need for living donation by minors

Considering that living donation by minors may be ethically acceptable under exceptional circumstances, it is important to review its historical evolution and assess its current clinical need. The use of minors as living donors dates back to the early days of transplantation, when the survival of pediatric patients in need of a transplant depended upon the availability of a very close genetic match, ideally an identical twin.¹³

Due to considerations of urgency, the absence of alternatives and a positive risk–benefit balance for the minor donor, donation of bone marrow and hematopoietic stem cells by minors, especially to their siblings, became a relatively common procedure that is now performed worldwide. In this respect, it should be noted that the severity and rapid progression of diseases for which the transplantation of bone marrow or hematopoietic stem cells may be the only promising treatment frequently leave only a small window of opportunity to find a suitable donor.¹⁴ To reduce the likelihood that the transplant fails or the recipient develops severe complications such as graft-versus-host disease, close donor matches are essential. Since family members, and in particular siblings, offer the best chance of a match, minor siblings may often emerge as the preferred donors for children in need of transplantation.¹⁵ Given that donation does not entail more than minimal risk and, at the same time, will give the minor the opportunity to save the life of a sibling, the procedure is considered to be overall beneficial to the minor donor.

By contrast, through a combination of factors, the number of minors becoming living kidney donors dramatically declined over time. The discovery of immunosuppressant drugs reduced the need for a close genetic match, allowing the transplantation from deceased donors, parents, and other adult relatives. In addition, the advent of substitute treatments such as peritoneal dialysis and hemodialysis allowed potential minor donors

12. See, M. Navarro-Michel, 'Institutional Organisation and Transplanting the Spanish Model', in A.-M. Farrell, D. Price and M. Quigley, eds., *Organ Shortage: Ethics, Law and Pragmatism* (Cambridge, Cambridge University Press, 2011), pp. 151–170, where the case is mistakenly described as involving living kidney donation by a girl named Rocío.
13. N. Fost, 'Children as Renal Donors', *New England Journal of Medicine* 296(7) (1977), pp. 363–367; N.L. Tilney, 'Renal Transplantation Between Identical Twins: A Review', *World Journal of Surgery* 10(3) (1986), pp. 381–388.
14. F. Frassoni, M. Lapobin, R. Powles, et al., 'Effect of Centre on Outcome of Bone-marrow Transplantation for Acute Myeloid Leukaemia', *The Lancet* 355(9213) (2000), pp. 1393–1398.
15. R.S. Negrin, 'Donor Selection for Hematopoietic Cell Transplantation' (2015). Available at: <http://www.uptodate.com/contents/donor-selection-for-hematopoietic-cell-transplantation> (accessed 17 June 2016).

to mature into adulthood before being solicited.¹⁶ Finally, the recent establishment of policies prioritizing pediatric patients in the allocation of kidneys from deceased donors made it even less likely that a minor would be called upon to become a donor.¹⁷

Nevertheless, a situation may arise where donation by a minor is the option of last resort to save the life of a sibling suffering from end-stage kidney failure. For instance, transplantation may become urgent when the patient is doing poorly on dialysis or severe developmental problems occur due to increased duration of renal insufficiency.¹⁸ Despite pediatric priority on the waiting list, a deceased donor organ may not become available in time, especially taking into consideration requirements of organ size and relatively low donation rates by deceased minors.¹⁹ Moreover, living kidney donation by parents or other adult relatives may prove to be impossible because of unfavorable organ size, medical conditions, or immunological incompatibility. In particular when the minor patient has a highly sensitized immune system, an excellent immunological match will be required, which siblings offer the best chance.²⁰

For the same reasons, a minor might be the only suitable liver donor for a sibling, especially when that person suffers from acute liver failure. Compared to kidney transplantation, the transplantation of a liver lobe or segment is frequently more urgent because of much higher waiting list mortality rates and the absence of a meaningful substitute treatment.²¹ If no suitable graft from a deceased donor becomes available, patients may turn to living donation as a lifesaving procedure. However, despite the possibility of reduced-size liver transplantation, many potential living adult donors who step forward will be ruled out because of medical contraindications or histoincompatibility.²² Occasionally, a minor sibling might be the best or even the only match to an ailing brother or sister in need of a liver transplant.

As compared to living donation of bone marrow and hematopoietic stem cells by minors, the number of living kidney and liver donations by minors is very small. For instance, data for the United States indicate that since 1987 a total of 66 minors have donated a kidney. However, for reasons outlined above, these numbers are decreasing,

-
16. S.D. Marks, 'Editorial: Should Children Ever Be Living Kidney Donors?', *Pediatric Transplantation* 10(7) (2006), pp. 757–759.
 17. M.E. Olbrisch, J.L. Levenson and J.D. Newman, 'Children as Living Organ Donors: Current Views and Practice in the United States', *Current Opinion in Organ Transplantation* 15(2) (2010), pp. 241–244.
 18. P.F. Hoyer, '"Tie Breaker" for HLA Matching in Pediatric Renal Transplant Recipients?', *American Journal of Transplantation* 8(10) (2008), pp. 1790–1791.
 19. J. Brierly and V. Larcher, 'Organ Donation from Children: Time for Legal, Ethical and Cultural Change', *Acta Paediatrica* 100(9) (2011), pp. 1175–1179.
 20. Each sibling has a 25% chance of being a complete Human Leukocyte Antigen (HLA) match to a brother or sister.
 21. P. Dutkowski, O. De Rougemont, B. Müllhaupt, et al., 'Current and Future Trends in Liver Transplantation in Europe', *Gastroenterology* 138(3) (2010), pp. 802–809.
 22. J.F. Trotter, M. Wachs, G.T. Everson, et al., 'Adult-to-adult Transplantation of the Right Hepatic Lobe from a Living Donor', *New England Journal of Medicine* 346(14) (2002), pp. 1074–1082.

with only 6 living kidney donations by minors having been performed since 2000. Additionally, in the United States, 20 minors have donated a liver lobe or segment since 1987.²³ Cases of living kidney or liver donation by minors have also been recorded in a number of other non-European countries, including Brazil, Canada, Japan, and South Korea.²⁴ By contrast, in Europe these types of donation seem to be largely absent. Only three cases of living kidney donation by minors have been reported, all involving adolescents and occurring in the United Kingdom before 2006.²⁵ In addition, as has been highlighted above, one case of living liver donation has been reported in Spain in 2007.

In what follows, we will investigate whether these differences in clinical practice can be explained by diverging legal approaches and whether there is room to improve the way in which living tissue and organ donation by minors is currently regulated across Europe. In order to do so, we will first look at the guidance offered in international legal instruments and professional guidelines. Subsequently, we will analyze the legal situation in the United States. Finally, we will examine in detail the legal situation in Europe and compare it with the legal approach favored in the United States. By virtue of its unprecedented comparative scope and critical perspective, this study will be an essential contribution to the scholarly debate.

Guidance offered in international legal instruments and guidelines

International legal instruments and guidelines do not offer much guidance to address the issues raised by living tissue and organ donation by minors. In this regard, it should be pointed out that international standards for the protection of minors do not explicitly oppose these medical procedures. The Convention on the Rights of the Child, adopted by the United Nations General Assembly in 1989 states that, in all actions affecting children,²⁶ their best interests must be a primary consideration and

23. For the number of living kidney donations by minors we combined the data for the period 1987 until 2000 as provided in F.L. Delmonico and W.E. Harmon, 'The Use of a Minor as a Live Kidney Donor', *American Journal of Transplantation* 2(4) (2002), pp. 333–336, with the data for the period 2001 until 2015 provided by the US Organ Procurement and Transplantation Network. Available at: <http://optn.transplant.hrsa.gov/converge/latestData/viewDataReports.asp> (accessed 17 June 2016). For the number of living liver lobe or segment donations by minors we completely relied on the data provided by the US Organ Procurement and Transplantation Network.

24. N. Honda, S. Awata and H. Matsuoka, 'The Case of a Living Liver Donor Who Was Underage: Psychiatric Issues and Evaluation' [in Japanese], *Seishin Shinkeigaku Zasshi* 111(8) (2009), pp. 930–937; A.C. Tannuri, N.E. Gibelli, L.R. Ricardi, et al., 'Living Related Donor Liver Transplantation in Children', *Transplantation Proceedings* 43(1) (2011), pp. 161–164.

25. N.J.A. Webb and P.M. Fortune, 'Should Children Ever Be Living Kidney Donors?', *Pediatric Transplantation* 10(7) (2006), pp. 851–855.

26. A "child" is defined as a person under the age of 18 years, unless under domestic law majority is attained earlier.

that their views, when they are capable of forming them, should be given due weight in accordance with their age and maturity.²⁷ In line with these general rules minors could be considered as living donors if this would be in their best interests and their assent is sought.

In the wake of the United Nations Convention on the Rights of the Child protective standards for minors were developed in several legal instruments issued by European intergovernmental bodies. At the level of the European Union (EU), the principle that in all actions relating to minors, their best interests must be a primary consideration and their views must be taken into consideration in accordance with their age and maturity, is enshrined in the Charter of Fundamental Rights of the European Union, proclaimed by the European Parliament in 2000 but entered into force only in 2009.²⁸ Similar provisions can be found in legal instruments adopted by the Council of Europe.²⁹

These general principles do not offer much guidance as to whether, and if so how, living donation by minors could be allowed, but both the EU and the Council of Europe have also adopted binding legal instruments in the domain of transplantation. At the level of the EU, the most important legal instruments addressing organ and tissue donation are Directive 2004/23/EC and Directive 2010/53/EU. However, because their primary objective is to establish a framework for the quality and safety of organs, tissues, and cells, provisions relevant to donation by minors are very general, leaving it to the member states to decide whether minors should be allowed to donate tissues and/or organs.³⁰

By contrast, the Council of Europe offers specific guidance on the topic of living donation by minors. The Convention on Human Rights and Biomedicine, adopted in

-
27. United Nations. Convention on the Rights of the Child (1989), Articles 3 and 12. Available at: <http://www.ohchr.org/en/professionalinterest/pages/crc.aspx> (accessed 17 June 2016). Both principles are reiterated in other United Nations instruments, such as the World Declaration on the Survival, Protection and Development of Children, the Vienna Declaration, and the A World Fit for Children Declaration.
 28. European Union (EU). Charter of Fundamental Rights of the European Union (2000/2009), Article 24. Available at: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2010:083:0389:0403:en:PDF> (accessed 17 June 2016).
 29. Within the framework of the Council of Europe, the rights of minors in proceedings before a judicial authority are laid down in the European Convention on the Exercise of Children's Rights, adopted in 1996, their general social rights are elaborated in the European Social Charter, adopted in 1961 and revised in 1996, and their rights to participate in decision-making in all matters affecting them are spelled out in the (nonbinding) Recommendation CM/Rec(2012)2 on the Participation of Children and Young People under the Age of 18, adopted in 2012.
 30. Directive 2004/23/EC on Setting Standards of Quality and Safety for the Donation, Procurement, Testing, Processing, Preservation, Storage and Distribution of Human Tissues and Dells (2004), Article 13. Available at: <http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:32004L0023> (accessed 17 June 2016); Directive 2010/53/EU on Standards of Quality and Safety of Human Organs Intended for Transplantation (2010), Article 14. Available at: <http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:32010L0053> (accessed 17 June 2016).

1997, and its Additional Protocol on Transplantation of Organs and Tissues of Human Origin, adopted in 2002, contain detailed provisions on living organ and tissue procurement from minors.³¹ Emphasizing that a medical intervention on persons who do not have the capacity to consent is only allowed if it is to their direct benefit, both instruments prohibit them from being considered as living organ or tissue donors. However, exceptionally and under the protective conditions prescribed by domestic law, the Convention and its Protocol permit procurement of regenerative tissue, provided that several conditions are met: (1) no compatible donor is available who has the capacity to consent, (2) the recipient is a sibling of the donor, (3) the donation has the potential to be life-saving, (4) the representative or authority, person, or body provided for by law has given free and informed, specific and written authorization, in accordance with domestic law and approved by a competent body,³² and (5) the potential donor does not object.

In addition, it is specified that the opinion of minors, who do not have the capacity to consent, has to be taken into consideration as an increasingly determining factor in proportion to their age and degree of maturity, and that the authorization provided on behalf of the minor may be withdrawn at any time in the best interests of that person. This implies that, as set out in the international standards for the protection of minors, the best interests of the minors must be a primary consideration when deciding whether or not to authorize tissue removal. Since the capacity to consent is defined by domestic law, the prohibition of living organ donation and the restrictions concerning living tissue donation do not apply to minors who, from a certain age onward, are under their domestic law accorded the capacity to consent to living tissue and/or organ donation.³³

Compared to the legal instruments enacted by the Council of Europe, international guidelines on living organ and tissue donation only contain general recommendations. For instance, the Guiding Principles on Human Tissue, Cell, and Organ Transplantation, endorsed by the World Health Assembly in 1991 and last revised in 2010, stipulates that no cells, tissues, or organs should be removed from the body of a living minor for the purpose of transplantation but that narrow exceptions may still be allowed under domestic law. More specifically, the Guiding Principles hint at the possibility of donation of regenerative tissue to a family member when no adult donor is available and to kidney transplants between identical twins. It is further required that, where domestic legislation would indeed allow living donation by a minor, specific protective measures should

-
31. Council of Europe. Convention on Human Rights and Biomedicine (1997), Article 6, para. 1, and Article 20, paras. 1 and 2. Available at: <http://conventions.coe.int/Treaty/en/Treaties/Html/164.htm> (accessed 17 June 2016); Council of Europe. Additional Protocol concerning Transplantation of Organs and Tissues of Human Origin (2002), Article 14. Available at: <http://conventions.coe.int/Treaty/en/Treaties/Html/186.htm> (accessed 17 June 2016).
 32. The Explanatory Report to the Convention on Human Rights and Biomedicine clarifies, in para. 129, that such a body might be a court, a professionally qualified body, an ethics committee, and so on. The Explanatory Report is available at: <http://conventions.coe.int/Treaty/en/Reports/Html/164.htm> (accessed 17 June 2016).
 33. See Explanatory Report to the Additional Protocol concerning Transplantation of Organs and Tissues of Human Origin, Addendum. Available at: <http://conventions.coe.int/Treaty/EN/Reports/Html/186.htm> (accessed 17 June 2016).

be put in place and, wherever possible, the assent of the minor should be obtained before donation.³⁴

The Statement on Human Organ Donation and Transplantation, adopted by the World Medical Association in 2000 and revised in 2006, similarly states that minors should not be considered as potential living donors, except in extraordinary circumstances and in accordance with established protocols or ethical review.³⁵ In its 2012 Statement on Organ and Tissue Donation, the World Medical Association reaffirmed the principle that persons who are unable to consent should not be considered as living organ donors, because they lack the capacity to understand and decide voluntarily. However, exceptions may be allowed in very limited circumstances and following legal and ethical review.³⁶

By contrast, the Consensus Statement of the Amsterdam Forum on the Care of the Live Kidney Donor, issued by the ethics committee of the Transplantation Society in 2004, emphasizes that minors should not be used as living kidney donors.³⁷ However, in its 2006 Ethics Statement of the Vancouver Forum on the Live Lung, Liver, Pancreas, and Intestine Donor, the same committee indicated that persons who are legally incompetent could in rare instances still be considered as living lung, liver, pancreas, or intestine donors, recommending that in such case an independent donor advocate should be appointed.³⁸

The legal situation in the United States

In the United States, the legal approach toward living tissue and organ donation by minors was already codified prior to the adoption of relevant international legal

34. World Health Organization. Guiding Principles on Human Cell, Tissue and Organ Transplantation (1991/2010), Guiding Principle 4. Available at: http://www.who.int/transplantation/Guiding_PrinciplesTransplantation_WHA63.22en.pdf (accessed 17 June 2016).
35. World Medical Association. WMA Statement on Human Organ Donation and Transplantation (2006). Available at: <http://www.wma.net/en/30publications/10policies/t7> (accessed 17 June 2016).
36. World Medical Association. WMA Statement on Organ and Tissue Donation (2012). Available at: <http://www.wma.net/en/30publications/10policies/o3/> (accessed 17 June 2016).
37. The Ethics Committee of the Transplantation Society, 'The Consensus Statement of the Amsterdam Forum on the Care of the Live Kidney Donor', *Transplantation* 78(4) (2004), pp. 491–492.
38. The Ethics Committee of the Transplantation Society, 'The Ethics Statement of the Vancouver Forum on the Live Lung, Liver, Pancreas, and Intestine Donor', *Transplantation* 81(10) (2006), pp. 1386–1387. For a systematic review of additional guidelines and recommendations of national and international expert committees and organizations on living kidney donation by minors, see K. Thys, K. Van Assche, H. Nobile, et al. 'Could Minors Be Living Kidney Donors? A Systematic Review of Guidelines, Position Papers and Reports', *Transplant International* 26(10) (2013), pp. 949–960.

instruments and guidelines. In the absence of statutory provisions, courts have been sporadically petitioned to authorize living donation by persons unable to consent, such as minors and mentally incompetent adults. In their attempt to balance the interests at stake, courts relied on two decisional standards. Under the doctrine of “substituted judgment,” the judges imagine themselves in the position of the minor in order to decide whether that person would consent to living donation if legally competent. By contrast, under the “best interests of the child” doctrine, the focus is on whether the benefits that will likely accrue to the prospective minor donor would exceed the potential risks involved.

The substituted judgment doctrine was first articulated in 1969 in the groundbreaking case of *Strunk v. Strunk*. In this case, the Court of Appeals of Kentucky authorized the removal of a kidney from mentally incompetent Jerry Strunk, who had a ‘mental age of a 6-year-old’, for the benefit of his older brother Tommy.³⁹ The Court extended the application of the substituted judgment doctrine, which was the standard for guardians’ decision-making in matters relating to the estate of their wards, to also substantiate the right to act for ‘incompetents’ in all matters touching on their well-being. More precisely, it was argued that the substituted judgment doctrine would in this case warrant kidney removal because this surgical intervention seemed to be in line with the desires and values of Jerry, who identified very strongly with Tommy, who was his role model and one of only a few people able to understand his speech. In 1972, the Superior Court of Connecticut followed the same line of reasoning in *Hart v. Brown*, when it allowed kidney donation by 7-year-old Margaret Hart to her identical twin Kathleen.⁴⁰ The Court recognized that Margaret had a strong identification with her twin sister and had repeatedly expressed the desire to donate a kidney so that Kathleen could return home. However, the substituted judgment approach has been deemed inappropriate when applied to such cases since the prospective donors have never been competent and sometimes might not even have the capacity to voice their preferences. Consequently, the doctrine has been disqualified as a legal fiction that allows the biases of the substitute decision maker to influence the decision.⁴¹

In the light of this criticism, it comes as no surprise that in most of the subsequent cases the courts refrained from applying the substituted judgment doctrine and instead relied on the best interests doctrine.⁴² In this respect, it should be noted that *Strunk v.*

39. *Strunk v. Strunk*, 445S.W. 2d 145 (Ky Ct App 1969).

40. *Hart v. Brown*, A. 2d 386 (Conn. Super. Ct. 1972).

41. T.G. Gutheil and P.S. Appelbaum, ‘Substituted Judgment: Best Interests in Disguise’, *Hastings Center Report* 13(3) (1983), pp. 8–11; L.E. Lebit, ‘Compelled Medical Procedures Involving Minors and Incompetents and Misapplication of the Substituted Judgment Doctrine’, *Journal of Law and Health* 7(1) (1992), pp. 107–130; J.A. Robertson, ‘Organ Donation by Incompetents and the Substituted Judgment Doctrine’, *Columbia Law Review* 76(1) (1976), pp. 48–78.

42. However, note that in *Nathan v. Farinelli*, No. 74-87 (Mass. Eq. July 3, 1974) (authorization of bone marrow donation by a 6-year-old girl to her brother), the Court explicitly rejected the substituted judgment and best interests standards and instead recognized the primary right of the parents for deciding the question.

Strunk and Hart v. Brown already incorporated an analysis of beneficence in their application of the substituted judgment standard by making the prevention of the negative effects of the intended recipient's death on the prospective donor their primary aim. However, by applying the best interests doctrine, courts would more objectively focus on the welfare of the minor or mentally incompetent adult.⁴³ On several occasions, courts declined a request to permit organ removal whenever donation would not serve any interests of the prospective donor or whenever the benefits of donation were too speculative.⁴⁴ These cases culminated in the landmark decision of *Little v. Little*, a case from 1979 where the Court of Civil Appeals of Texas authorized kidney donation by 14-year-old Anne Little, suffering from Down's syndrome, to her brother Stephen, on the basis of a best interests test encompassing a wide variety of factors that could influence the general well-being of the minor.

The Court pointed out that Anne and Stephen had a close relationship and a genuine concern for each other's welfare and that Anne would suffer greatly from the death of her brother. It was also established that donation by Anne was Stephen's only hope of survival, since there were no medically preferable alternatives to a kidney transplant, the chances of obtaining a suitable cadaveric organ were very remote and none of the adult relatives was medically acceptable as a living donor. In addition, the risks of the operation were deemed to be only minimal and there was no evidence that Anne would suffer psychological harm from the procedure. Moreover, the sacrifice that Anne would make would not be in vain because Stephen would probably benefit substantially from

-
43. See *Howard v. Fulton DeKalb Hosp. Auth.*, 42 U.S.L.W. 2322 (Ga. Super. Ct. 1973) (kidney donation by a 15-year-old moderately mentally retarded girl to her mother). Several other cases that were not published but have been reported in the literature followed broadly the same approach. See, for instance, *Masden v. Harrison*, No. 68651 (Mass. Eq. June 12, 1957) (authorization of kidney donation by a 19-year-old minor to his twin brother); *Huskey v. Harrison*, No. 68666 (Mass. Eq. Aug. 30, 1957) (authorization of kidney donation by a 14-year-old girl to her twin sister); *Foster v. Harrison*, No. 68674 (Mass. Eq. Nov. 20, 1957) (authorization of kidney donation by a 14-year-old boy to his twin brother) and other cases discussed in C.H. Baron, M. Botsford and G.F. Cole, 'Live Organ and Tissue Transplants', *Boston University Law Review* 55(2), pp. 159–193; W.J. Curran, 'A Problem of Consent: Kidney Transplantation in Minors', *New York University Law Review* 34 (1959), pp. 891–898; A. Garwood-Gowers, *Living Donor Organ Transplantation: Key Legal and Ethical Issues* (Aldershot: Ashgate, 1999), p. 122.
44. In *In re Richardson*, a case from 1973, the assertion that the intended recipient might well become the primary caretaker of the prospective donor, who was a mentally incompetent minor, was brushed aside as speculative by the Court of Appeals of Louisiana. Similarly, in *In re guardianship of Pescinski*, a case from 1975, the Supreme Court of Wisconsin declined a request to authorize kidney removal from a mentally incompetent adult for the benefit of his sister because it was of the impression that his family wanted to take advantage of him. See *In re Richardson*, 284 So. 2d 185 (La Ct App 1973); *In re guardianship of Pescinski*, 226N.W. 2d 180 (Wis Sup Ct 1975). In the much more recent case of *Curran v. Bosze*, the Supreme Court of Illinois denied bone marrow transplant compatibility testing on two 3-year-old twins in the absence of a close relationship with the intended recipient, their half brother whom they had only met twice. See *Curran v. Bosze*, 566 N.E. 2d 1319 (Ill Sup Ct 1990).

the transplant. Finally, Anne's parents consented to the organ donation and it was ascertained that Anne, who was aware of the nature of her brother's plight and of the fact that she was in a position to ameliorate his burden, had on several occasions spontaneously stated her willingness to donate.

Given the presence of all these factors, the Court was persuaded that the benefits that Anne would gain from kidney donation would far exceed the risks. Interestingly, in its assessment of the psychological benefits to Anne, the Court did not only consider the severe negative psychological and social effects on Anne that could be averted by allowing her to donate. The Court was of the opinion that, apart from preventing these detrimental effects, donation would also significantly increase Anne's personal welfare. In this respect, the Court referred to studies of kidney donors that had revealed "resulting positive benefits such as heightened self-esteem, enhanced status in the family, renewed meaning in life, and other positive feelings including transcendental or peak experiences."⁴⁵ Importantly, the wishes of little Anne and the relation-based benefits that she would likely receive if she could save Stephen's life, were used as important elements of the best interests test. By paying sufficient attention to the emerging preferences and altruistic tendencies of minors, the Court succeeded in incorporating one of the central tenets of the substituted judgment doctrine in its application of the best interests standards. This more hybrid approach was followed by other courts that were petitioned to authorize bone marrow, skin, or kidney donation by minors and mentally incompetent adults.⁴⁶

Little v. Little and subsequent rulings prompted the American Academy of Pediatrics in 2008 and 2010 to issue guidelines allowing transplant centers to assess the legal acceptability of living donation by minors without having to resort to court review. Building on earlier guidance from the American Medical Association and the US Live Organ Donor Consensus Group⁴⁷ and in line with the Convention on the Rights of the Child and the international guidelines that had been issued in the meantime, it

45. *Little v. Little*, 576 S.W. 2d 499 (Tex Ct App 1979).

46. Cf. *Hurdle v. Currier*, 5 Va. Cir.509 (Va Cir 1977) (authorization of bone marrow donation by a 16-year-old girl to her sister); *Matter of John Doe*, 481N.Y.S.2d 932 (App Div 1984) (authorization of bone marrow donation by a mentally incompetent man to his brother); *Cayouette v. Mathieu*, RJQ 2230 (Sup. Ct., 1987) (authorization of bone marrow donation by a 5-year-old boy to his brother); *In re S.C.*, Nos. 180564 & 180565 (Ala. Prob. Ct. Jan. 6, 2003) (authorization of skin donation by a 6-year-old girl to her twin sister).

47. Council on Ethical and Judicial Affairs of the American Medical Association, 'Report 3 – I-93. The Use of Minors as Organ and Tissue Donors' (1993). Available at: http://ama-assn.org/resources/doc/ethics/ceja_3i93.pdf (accessed 17 June 2016). This report was replaced by 'Report 5 – A-05. See Council on Ethical and Judicial Affairs of the American Medical Association, 'Report 5 – A-05. Transplantation of Organs from Living Donors' (2005). Available at: <http://www.ama-assn.org/resources/doc/code-medical-ethics/x-pub/215a.pdf> (accessed 17 June 2016); Live Organ Donor Consensus Group, 'Consensus Statement on the Live Organ Donor', *Journal of the American Medical Association* 284(22) (2000), pp. 2919–2926.

recommended that minors should only serve as living tissue or organ donors when this would be in their best interests, by requiring the fulfillment of several criteria.

First, the minor should be the donor of last resort. This requires that all other opportunities for transplantation should have been exhausted, no potential adult living donor is available, and, where organ donation is considered, timely and/or effective transplantation from a cadaver donor is unlikely. Second, transplantation should have a reasonable probability of success and should provide substantial benefit to the recipient. Third, the clinical, emotional, and psychosocial risks to the donor should be minimized and deemed reasonable in relation to the benefits expected to accrue to the donor and to the recipient. In this regard, it is suggested that the risks involved in living donation of a right liver lobe, a lung, or small bowel are currently too high to permit minors to donate these organs. Fourth, a degree of emotional intimacy should exist between the donor and the recipient that can justify the risks from the perspective of the minor donor. This implies that donations should be restricted to close family members, where the future psychological or emotional benefit to the minor donor is likely to be significant. The fifth and final condition is that parental permission and, where possible, the free and informed assent of the minor should be obtained. A donor advocacy team should be established that helps the donor understand the medical procedure, promotes his or her interests, and addresses potential conflicts of interests on the part of the transplant team and the parents.⁴⁸

As indicated above, on the basis of the aforementioned court rulings and the resulting professional guidelines, donation of bone marrow and hematopoietic stem cells by minors has become a routine procedure in the United States and living kidney and liver donations by minors have become a clinical reality. Within this well-established regulatory framework, a remaining point of contention concerns whether mature minors could under certain circumstances be considered capable of deciding for themselves whether to be a living tissue or organ donor. This possibility, advocated by the American Medical Association, was not explicitly endorsed in the guidelines of the American Academy of Pediatrics. In any case, in all court cases involving adolescents living donation was only authorized after the consent of the parents had been obtained. Interestingly, the issue of living donation by mature minors prompted three US states to enact legislation to supplement the framework developed by the aforementioned professional guidelines. As a result, in the state of Michigan, a minor 14 years or older may give effective consent to donate a kidney to a close family member with prior authorization by the court, in the state of Alabama a minor 14 years or older may give consent to bone marrow donation, and in the state of Wisconsin a minor 12 years or older may give consent to bone marrow donation to a sibling if a psychiatrist or psychologist has determined that the minor is capable of consenting.⁴⁹

48. L.F. Ross, J.R. Thistlethwaite and the Committee on Bioethics, 'Minors as Living Solid-organ Donors', *Pediatrics* 122(2) (2008), pp. 454–461; American Academy of Pediatrics, 'Policy Statement – Children as Hematopoietic Stem Cell Donors', *Pediatrics* 125(2) (2010), pp. 392–404.

49. Michigan: MI Comp L § 700.5105 (2015); Alabama: ALA Code § 22-8-9 (2012); WIS Stat Ann § 146.34 (2012). See also D.L. Coleman, 'Testing the Boundaries of Family Privacy: The Special Case of Pediatric Sibling Transplants', *Cardozo Law Review* 35 (2014), pp. 1289–1358.

The legal situation in Europe

As compared to the United States, living tissue and organ donation by minors is regulated in very heterogeneous ways in Europe. The focus of our analysis is on the 28 EU member states,⁵⁰ Norway and Switzerland.⁵¹ Since, with very few exceptions, no official English translations of national transplant regulations exist,⁵² we compiled national transplant regulations by consulting the websites of the relevant governmental agencies and translated and analyzed them with the help of legal experts in the countries under study.

Before proceeding to their analysis, it should be noted that several elements may account for differences in the national regulations under consideration. Even apart from the observation that at the national level living donation of tissues and organs may be governed by a wide variety of statutory and nonstatutory instruments,⁵³ the

-
50. Currently, the EU comprises 28 member states: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, and, at the time of writing, the United Kingdom.
 51. The study was extended so as to include Norway and Switzerland since both countries closely collaborate with EU member states in the field of transplantation.
 52. Note that the Global Database on Donation and Transplantation, established by the World Health Organization and maintained by the Global Observatory on Donation and Transplantation, does not contain a translation of domestic transplant regulations. The database can be accessed at <http://www.transplant-observatory.org/Pages/home.aspx> (accessed 17 June 2016). However, for several countries that have enacted transplant regulations prior to 1994, such as Norway, official translations can be found in World Health Organization. *Legislative Responses to Organ Transplantation* (Dordrecht: Martinus Nijhoff Publishers, 1994). At the level of the Council of Europe and the EU, no translations of transplant regulations of member states are collected. However, transplant regulations of EU member states were screened as part of the project on Living Organ Donation in Europe (EULOD), funded by the European Commission and resulting in L. Lopp, *Regulations Regarding Living Organ Donation in Europe: Possibilities of Harmonisation* (Heidelberg: Springer, 2013). In addition to verification by national legal experts in the countries under consideration, we also verified our analyses by consulting the academic literature that to some extent contains a comparison of transplant regulations, such as Lopp, 'Regulations Regarding Living Donor Organ Transplantation', and D. Price, *Legal and Ethical Aspects of Organ Transplantation* (Cambridge: Cambridge University Press, 2000) while taking account of possible amendments of transplant regulations having occurred since.
 53. Living donation is typically regulated by parliamentary acts which are supplemented by executive degrees. Frequently, additional guidance is offered by codes of practice or ethical guidelines issued by national health or transplant authorities, professional associations, or ethics committees. In Ireland and Malta, no legal instruments setting out the requirements for living donation have currently been adopted, whereas in Austria living tissue donation currently is not covered in a transplant act. In all other countries under consideration, the requirements for living donation are regulated in a legal instrument, either in the Health Code (e.g., Denmark and France), one Transplant Act (e.g., Germany and the Netherlands) or two acts dealing separately with tissue and organ transplantation (e.g., Belgium and Spain).

analysis of the domestic regulatory framework is complicated by the uneven ratification of the Council of Europe Convention on Human Rights and Biomedicine and its Additional Protocol on Transplantation. To this day, the Convention has been ratified by 29 Council of Europe member states, including 17 EU member states, Norway, and Switzerland.⁵⁴ Only 14 of the aforementioned Council of Europe member states have also ratified the Additional Protocol. These include eight member states of the EU and Switzerland.⁵⁵

In ratifying countries, the provisions of the Convention and, the case being, those of the Additional Protocol are directly applicable and to be given effect as national regulation.⁵⁶ However, the direct applicability of the requirements for living tissue and organ donation by minors do not need to imply that these exact conditions will apply in ratifying states. Indeed, citizens may always be granted a wider measure of protection, for instance, by simply prohibiting certain types of living donation by minors. In addition, ratifying states can make a reservation in respect of a particular provision to the extent that legislation in force in its territory is not in conformity.⁵⁷ As will be discussed, several ratifying states have indeed submitted a reservation that under their legislation tissue donation by persons unable to consent will not be restricted to donation to siblings.

European countries that allow minors to donate tissue but not organs

With the exception of Belgium, Ireland, Luxembourg, Norway, Sweden, and the United Kingdom, living organ donation by minors is prohibited in all countries under consideration. By contrast, living tissue donation by minors is allowed in all of them. Where the requirements for living donation are regulated in a legal instrument, provisions specify that minors may be considered as potential donors of bone marrow or hematopoietic stem cells. In Ireland, pending the adoption of the *Human Tissue Bill*, this possibility is provided by ethical guidelines. By contrast, in countries where no legal framework or ethical guidelines for tissue donation currently exist, such as Austria and Malta, the situation is more uncertain. According to legal doctrine, tissue donation by minors will likely be allowed under the general principles on the protection of minors, as long as it

54. EU member states that have ratified the Convention on Human Rights and Biomedicine are Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Greece, Hungary, Latvia, Lithuania, Portugal, Romania, Slovakia, Slovenia, and Spain. See <http://conventions.coe.int/Treaty/Commun/ChercheSig.asp?NT=164&CM=8&DF=18/02/2012&CL=ENG> (accessed 17 June 2016).

55. EU member states that have ratified the Additional Protocol on Transplantation are Bulgaria, Croatia, Estonia, Finland, Hungary, Romania, Slovenia, and Spain. See <http://conventions.coe.int/Treaty/Commun/ChercheSig.asp?NT=186&CM=8&DF=18/02/2012&CL=ENG> (accessed 17 June 2016).

56. Convention on Human Rights and Biomedicine, Article 1 and its Explanatory Report, para. 20.

57. Convention on Human Rights and Biomedicine, Article 36.

can be presumed that it will be in the minor donor's best interests to save the life of the recipient.⁵⁸

Countries where minors are not allowed to donate an organ have in large majority ratified the Convention on Human Rights and Biomedicine.⁵⁹ Most of these ratifying states have amended their transplant regulation to be in line with the Convention. In ratifying states that failed to amend their transplant law accordingly, such as Denmark and Latvia, the requirements set out in the Convention will still be applicable due to their self-executing nature.⁶⁰ Interestingly, even in those nonratifying states where minors are only allowed to donate tissue, the restrictions imposed by the Convention seem to be largely respected. In Germany and the Netherlands, for instance, the transplant law closely resembles the provisions of the Convention in this regard.

In sum, in countries where minors are only allowed to donate tissue, requirements are very similar and in conformity with the conditions set out in the Convention on Human Rights and Biomedicine and reiterated in its Additional Protocol concerning Transplantation. In these countries, living tissue donation by minors will only be allowed if, in addition to the requirements applicable to living tissue donation by adults, five protective conditions are fulfilled.

First, minors may only be considered as living tissue donors in the absence of a compatible donor who is able to consent. As clarified in the Explanatory Memorandum to the Convention, this implies that "within reasonable limits" efforts need to be undertaken to find a competent compatible donor.⁶¹ In the same vein, the French transplant regulation specifies that every effort should first have been made to find an adult donor who is sufficiently compatible.

Second, the envisaged donation must have the potential to save the life of the intended recipient. This condition is dictated by the consideration that a reasonable benefit–risk ratio should be guaranteed since, unlike competent donors, minors do not have the capacity to autonomously decide what benefit–risk balance would be acceptable. In practice, this means that living tissue donation by a minor may only be considered as a therapy of last resort for a person who is in mortal danger. Furthermore, the health risks to the donor should be reasonable. Although this condition also holds for competent donors, the

58. In this regard, see for Austrian legal doctrine: G. Aigner, 'Einwilligung Minderjähriger in eine Knochenmarkspende', *Recht der Medizin* (1998), p. 144; A. Kletecka, 'Einwilligung,' in G. Aigner, A. Kletecka, M. Kletecka-Pulker and M. Memmer, eds., *Handbuch Medizinrecht für die Praxis* (Wien: MANZ'sche, 2004–2009), pp. I/131–I/153.

59. Exceptions are Austria, Germany, Italy, Malta, and the Netherlands.

60. In accordance with the constitutional principle of priority of treaty law over domestic law or, in the absence of such constitutional clause, consistent with national and European jurisprudence and legal doctrine, provisions with the so-called self-executing character will have direct effect, over and above those provided for in national law. Provisions are self-executing when they do not merely impose obligations to the state but also confer unconditional, clear, and precise rights to citizens. See the Explanatory Report to the Convention on Human Rights and Biomedicine, para. 20.

61. Explanatory Report to the Convention on Human Rights and Biomedicine, para. 126.

Explanatory Memorandum hints that, where minors are considered, the maximum threshold of anticipated risk will have to be considerably lower to be acceptable.⁶²

Third, minors should only be considered to donate tissue when the intended recipient is a close relative. This restriction is prompted by the concern that the procedure should be in the minor's best interest and, consequently, should be to that person's psychological benefit. This requirement is made explicit in the Explanatory Memorandum to the Additional Protocol, indicating that an exception to the prohibition of tissue removal can be justified by "the principle of mutual aid between very close members of a family and the possibility for psychological benefits to the donor arising from donation."⁶³ According to this line of reasoning, minors are allowed to donate only when it can be assumed that their own interests would be severely compromised by the death of a person whom they are emotionally intimate with and in a position to save. The Dutch Transplant Law makes this explicit, by stating that minors who are unable to consent are only allowed to donate tissue if they have a keen interest in averting the mortal danger of the intended recipient.

As to the nature of the acceptable relationship between the minor donor and the recipient, considerable variation exists. In line with the Convention, all countries allow living tissue donation by a minor for the benefit of a sibling. Some countries that have not ratified the Convention have broadened the acceptable categories of recipients. For instance, in Germany and the Netherlands, minors may also donate to a parent or, when they are parents themselves, to a child. In addition, some ratifying states have submitted a reservation to the applicable provision of the Convention by stating that under their national law donation will not be restricted to siblings. For instance, Croatia and Denmark also allow living tissue donation by minors when the recipient is a parent, Switzerland when the recipient is a parent or child, and France when the recipient is a first cousin, uncle, aunt, nephew, or niece.⁶⁴ Surprisingly, several ratifying countries that did not make such a reservation, have also opted to extend the possibility of living tissue donation to recipients other than siblings, mostly by including parents and children but sometimes also by including more distant relatives.⁶⁵ Although donation to parents and children may possibly be regarded as still in compliance with the spirit of the Convention, because they are relatives of a closer degree of consanguinity than siblings, allowing donation to more distant relatives will presumably give rise to a conflict of law.

62. *Op. cit.*, para 127.

63. Explanatory Report to the Additional Protocol concerning Transplantation of Organs and Tissues of Human Origin, para. 83.

64. The list of reservations can be consulted at <http://conventions.coe.int/Treaty/Commun/ListeDeclarations.asp?NT=164&CM=8&DF=27/04/2014&CL=ENG&VL=1> (accessed 17 June 2016).

65. In Bulgaria, such donation is allowed also when the recipient is a parent, child, or spouse; in Cyprus when the recipient is a relative up to the third degree; in Estonia when the recipient is a descendant, spouse or de facto spouse, parent, grandparent, or their descendant; in Finland when the recipient is a close family member or other close person; in Lithuania when the recipient is a parent, a foster parent, or a biological child of a foster parent; and in Romania when the recipient is a relative up to the fourth degree.

Fourth, minors are only allowed to donate tissue after all consent or authorization requirements in force in the country concerned have been met. In some countries minors above a fixed age limit are presumed to have the capacity to consent to health-care procedures or, alternatively, they may on a case-by-case basis be considered to be competent to do so. However, only very few countries have extended this approach to the context of living tissue donation. For instance, in Denmark and Slovenia the fixed age limit defined in the *Health Act* also applies to the transplant law. Consequently, consent for living tissue donation will need to be obtained from minors above the age of 15. Other countries have established a lower cut-off age for consent. For instance, in Poland minors aged 13 years and older will have to give their consent before procurement may take place, in Greece and the Netherlands this age limit has been set at 12, and in Romania even at 10. Alternatively, in some countries a case-to-case assessment of the maturity of the minor will need to be performed. For instance, in Germany and Switzerland, the consent of the minor will need to be obtained if that person is considered able to recognize the nature, significance, and consequences of the donation and to express his or her will.

Technically, minors who are able to consent are not subject to the requirements for living donation by persons unable to consent as laid down in the Convention. However, the regulations in all of the 24 countries that only allow living tissue donation by minors make the same conditions applicable to all minors regardless of their ability to consent. Consequently, the situation of all minors is analogous, more particularly because even in countries where some minors are deemed competent to consent, they don't have the power to autonomously decide to donate. Regardless of the minor's own competence, parental authorization will always be required.

In addition to the consent of the competent minor and parental authorization, final approval by an independent competent body is also mandatory. In some countries, such as Croatia and Romania, permission has to be obtained from a pluridisciplinary living donor committee at the level of the transplant hospital.⁶⁶ In other countries, such as Estonia and Poland, final decision-making authority is delegated to a judge.⁶⁷ In still other countries, including Bulgaria and Portugal, a professional body at the national level will need to be petitioned.⁶⁸

Fifth, tissue removal from a minor may not be carried out if that person objects. Where minors are competent to consent, their refusal to do so will be decisive. Minors who according to domestic law are not competent to consent should as far as possible be consulted. They should receive appropriate and tailored information about the nature, purpose, and consequences of donation and their opinion should be obtained. As indicated in the Explanatory Memorandum to the Convention, if they express opposition, in

66. Other countries include the Czech Republic, Hungary, and Slovakia.

67. Other countries include France, Germany, Greece, the Netherlands, and Switzerland. In Switzerland, it is up to each canton to establish the independent body. The power to grant final approval has in most cantons been delegated to the civil court, but some cantons have instead entrusted the Guardianship Supervisory Authority.

68. Other countries include Cyprus, Finland, and Slovenia.

whatever form, this must be observed.⁶⁹ In several of the countries under consideration, transplant regulations do not explicitly state that an objection from a minor who is unable to consent will preclude living tissue donation. However, as prescribed by international standards for the protection of minors, their indication of refusal will have to be taken into consideration as an increasingly determining factor in proportion to their age and degree of maturity. It will be the task of the independent competent body to assess whether possible resistance on the part of the person concerned qualifies as an objection that would rule out tissue procurement.

European countries that allow minors to donate both tissue and organs

By contrast, living organ donation by a minor is allowed in six European countries only. This is the case for Norway, Sweden, Belgium, Luxembourg, Ireland, and the United Kingdom. In what follows the regulations in these countries will be examined more in-depth.

Norway

In Norway, living tissue and organ donation by minors is regulated by the Transplant Law of 1973. A new transplant law is currently being debated but no major changes to the provisions on the requirements for living donation are envisaged. The Transplant Law differentiates between minors younger than 12 and minors who are 12 years and older. Minors who have not yet reached the age of 12 are only allowed to donate tissue. In line with the Convention on Human Rights and Biomedicine, which has been ratified by Norway, the Transplant Law lists the five cumulative requirements that need to be fulfilled before living tissue donation by a minor of that age may be considered.⁷⁰ However, Norway has submitted a reservation to the Convention, indicating that tissue donation is allowed not only for the benefit of a sibling but also for the benefit of a child or a parent or, in special cases, another close relative of the minor. What would constitute a special case has to be considered in the light of the closeness of the relationship with the recipient and the urgency of the procedure.⁷¹ The intervention is subject to authorization by

69. Explanatory Report to the Convention on Human Rights and Biomedicine, para. 130.

70. Law No. 6 of 9 February 1973 on Transplantation, Hospital Autopsy, Donation of Bodies, Etc. § 1 [Lov 1973-02-09 nr 06 om transplantasjon, sykehusobduksjon og avgivelse av lik m.m.]. The official translation can be found in World Health Organization, 'Legislative Responses to Organ Transplantation', pp. 276–278.

71. See the information contained in the report on the draft Norwegian transplant law: 'When Death Serves Life. A Proposal for New Legislation on Transplantation, Autopsy and Donation of Bodies' (2011): 178 ['Når døden tjener livet. Et forslag til nye lover om transplantasjon, obduksjon og avgivelse av lik']. This report (in Norwegian) is available at: <http://www.regjeringen.no/pages/36553050/PDFS/NOU201120110021000DDDPDFS.pdf> (accessed 17 June 2016).

the County Medical Officer who should decide on the basis of the minor's best interests.

Minors 12 years and older are allowed to donate tissues and organs if they are capable of understanding the nature, significance, and consequences of the donation and consent in writing.⁷² By limiting organ donation to minors with the capacity to consent, the Norwegian Transplant Law is still in conformity with the Convention. Consent may only be granted "when special circumstances so warrant" and requires the approval of the person with parental custody of the minor and final authorization by the County Medical Officer. Whether "special circumstances" exist depends on the urgency of the donation, the closeness of the relationship with the intended recipient and the intrusiveness of the surgical procedure. As indicated in the preparatory works, the reason to allow organ donation by mature minors is to permit them to help a close family member where the interdiction to donate would put them under a severe mental strain.⁷³ The law sets no limits on who could receive tissues or organs from a mature minor. However, in practice only donation to recipients who are relatives or close friends would be accepted.⁷⁴ Nonetheless, no case of living organ donation by a mature minor has yet been reported in Norway.

Sweden

In Sweden, living tissue and organ donation by minors is regulated by the 1995 Transplant Law.⁷⁵ Living donation by minors is only allowed if the minor is related to the intended recipient and if no compatible competent adult donor has been found. Regardless of their age or cognitive faculties minors are not considered competent to consent to living donation. Therefore, such procedure may only be performed on the basis of an authorization by the parents or guardian and if the minor does not object. In addition, the Law also requires final approval by the National Board of Health and Welfare, which may grant permission only if the intervention has been endorsed by the donor's transplant surgeon. It is not necessary that the envisaged donation has the potential to save the life of the intended recipient. However, living organ donation should only be approved "if exceptional reasons make it appropriate."⁷⁶ In this regard, guidelines issued by the National Board of Health and Welfare clarify that serious danger to the recipient's life or health may constitute an exceptional reason.⁷⁷ Considering that the National Board has

72. Law No. 6 of 9 February 1973 on Transplantation, Hospital Autopsy, Donation of Bodies, Etc. § 1.

73. 'When Death Serves Life' (2011): 96.

74. Op. cit., 100.

75. Law of 8 June 1995 on Transplantation, Etc. [Lag om transplantation m.m. 8 juni 1995]. No official translation exists but a list of legal requirements can be found in NordForsk. *Legislation on Biotechnology in the Nordic Countries* (Oslo: NordForsk, 2015), p. 19.

76. Law of 8 June 1995 on Transplantation, Etc. § 8.

77. SOSFS 2009:30 National Board Regulations on the Donation and Procurement of Organs, Tissues and Cells, Chapter 6, §§1-2, [SOSFS 2009:30 Socialstyrelsens föreskrifter om donation och tillvaratagande av organ, vävnader och celler]. Available at: http://www.socialstyrelsen.se/sosfs/2009-30#anchor_5 (accessed 17 June 2016).

to decide on the basis of the minor's best interests, it may be presumed that it will only permit living organ donation as a last resort to save the life of a close relative. Up until now no case of living organ donation by a minor has been reported.

Belgium

In Belgium, living donation is regulated by the Law on the Removal and Transplantation of Organs, enacted in 1986. With the adoption of the Biobank Law in 2008, tissue donation was excluded from the scope of the Transplant Law, although it lasted until 2012 before the latter instrument was amended accordingly. Restricting the scope of the Transplant Law to the donation of organs had major consequences. Before, the Transplant Law stipulated that living tissue and organ donation by minors was allowed where this normally could not have severe consequences, involved regenerative tissues and organs only and would benefit a sibling. From minors 12 years and older prior consent was needed. Minors who had not yet attained the age of 12 had to be given the opportunity to express their opinion. Parental authorization and, the case being, consent from the mature minor, had to be given in writing and in the presence of an adult witness whose signature was also required. The consent form had to be presented to the transplant surgeon who was only allowed to proceed after a pluridisciplinary committee at the level of the transplant hospital had given approval.

After the restriction of the scope of the Transplant Law, the provisions on living donation by minors remain largely the same but now only apply to organs.⁷⁸ By removing tissues from the scope of the Law, the possibility for minors to donate regenerative tissues or organs, which had previously been interpreted as pertaining only to bone marrow and hematopoietic stem cells, was reinterpreted to only refer to liver segments or lobes. Parliamentary proceedings demonstrate that Belgian legislators explicitly had the donation of a liver lobe or segment in mind and were of the opinion that medical developments in the field indicated that this type of donation entailed risks which had become sufficiently acceptable to allow donation by minors.⁷⁹ Admitting that the risks were not negligible, it was deemed inappropriate to allow minors younger than 12 to donate a liver lobe or segment.⁸⁰ Consequently, the requirements for living organ

78. Law on the Procurement and Transplantation of Organs, Article 7 [Wet betreffende het wegnemen en transplanteren van organen/Loi sur le prélèvement et la transplantation d'organes]. Available at: http://www.ejustice.just.fgov.be/cgi_loi/change_lg.pl?language=nl&la=N&table_name=wet&cn=1986061337 (Dutch) and http://www.ejustice.just.fgov.be/cgi_loi/change_lg.pl?language=fr&la=F&cn=1986061337&table_name=loi (French) (accessed 17 June 2016).

79. See Belgian House of Representatives. Draft Law Amending the Law of 13 June 1986, Explanatory Memorandum, 19 April 2012, p. 26 [Belgische Kamer van Volksvertegenwoordigers. Wetsontwerp tot wijziging van de wet van 13 juni 1986, Memorie van toelichting/Chambre de représentants de Belgique. Exposé des motifs]. Available at: <http://www.lachambre.be/FLWB/pdf/53/2158/53K2158001.pdf> (Dutch and French) (accessed 17 June 2016).

80. Op. cit., pp. 26–27.

donation were slightly amended so as to only allow donation by minors 12 years or older who are capable of expressing their will and have given prior consent. However, it should be noted that contrary to legislative opinion, Belgian legal doctrine thinks that the risks involved in liver lobe or segment donation are still too high to allow the involvement of minors.⁸¹ Notwithstanding the on-going debate, no case of living donation of a liver lobe or segment, or for that matter, of any other organ, by a minor has yet been reported in Belgium.

With the adoption of the *Biobank Law* in 2008, the conditions for living tissue donation by minors were considerably relaxed as compared to its regulation under the Transplant Law.⁸² Henceforth, it is no longer required that donation would have to benefit a sibling. In fact, no restriction of acceptable categories of recipients has been retained, with minors in theory being allowed to donate to total strangers. Similarly, the consent and authorization procedure was changed drastically. Written consent needs to be obtained from minors who, in accordance with the Law on Patients' Rights, are considered capable of a reasonable assessment of their interests. For incompetent minors parental authorization is required. These forms have to be presented to the surgeon responsible for the removal of the bone marrow. Moreover, compared to the previous regulation, consent no longer needs to be given in the presence of an adult witness whose signature on the consent form is required and final approval from a pluridisciplinary committee at the level of the transplant hospital is no longer needed.

Luxembourg

In Luxembourg, organ donation is governed by the Law Regulating the Procurement of Substances of Human Origin of 1982. According to this Law, living organ donation by minors is allowed if they are capable of judgment and consent in writing, the organ will be transplanted into a sibling and authorization is obtained from the parents and a

81. See, for instance, the Belgian Advisory Committee on Bioethics's Opinion No. 50 of 9 May 2011 (2011) ['Advies nr. 50 van 9 mei 2011'/'Avis n° 50 du 9 mai 2011']. Available at: <http://www.health.belgium.be/eportal/Healthcare/Consultativebodies/Committees/Bioethics/Opinions/index.htm> (accessed 17 June 2016); N. Broeckx, 'Orgaantransplantatie', in T. Vanswevelt and F. Dewallens, eds., *Handboek Gezondheidsrecht*. Volume II (Antwerpen: Intersentia, 2014), p. 1185.

82. Law on the Acquisition and Use of Human Biological Material for the Purpose of Medical Applications to Humans or Scientific Research, Article 10 [Wet inzake het verkrijgen en het gebruik van menselijk lichaamsmateriaal met het oog op de geneeskundige toepassing op de mens of het wetenschappelijk onderzoek/Loi relative à l'obtention et à l'utilisation de matériel corporel humain destiné à des applications médicales humaines ou à des fins de recherche scientifique]. Available at: http://www.ejustice.just.fgov.be/cgi_loi/change_lg.pl?language=nl&la=N&table_name=wet&cn=2008121944 (Dutch) and http://www.ejustice.just.fgov.be/cgi_loi/change_lg.pl?language=fr&la=F&cn=2008121944&table_name=loi (French) (accessed 17 June 2016).

pluridisciplinary committee consisting of at least three experts, including two physicians.⁸³ No case of living organ donation by minors has been reported yet.

Tissue donation is regulated by the Law on Human Tissues and Cells Intended for Human Applications, adopted in 2007. As compared to living tissue donation by adults, minors may only be considered if several additional requirements are fulfilled, which are in line with the approach taken in the Convention: no other therapeutic solution or compatible adult donor is available, the recipient is a sibling, written parental authorization is obtained, the minor does not object, and a pluridisciplinary committee consisting of at least three experts, including two physicians, has granted approval.⁸⁴

Ireland

In Ireland, organ and tissue donation is currently not dealt with by legislation.⁸⁵ Pending the adoption of the Human Tissue Bill, the requirements for living tissue and organ donation by minors are spelled out in ethical guidelines drafted for the Irish Living Donation Program. Both types of donation are subject to the same set of severe restrictions. As is the case for living donation by competent adults, donation is only allowed for the therapeutic benefit of an intended recipient and if no organs or tissues from a cadaveric donor or therapeutic alternatives of comparable effectiveness are available. Several additional requirements need to be fulfilled where minors are concerned. For instance, donation may only proceed if no competent adult donor is available and if donation would entail only minimal risk and discomfort to the donor and is expected to be of great benefit to the recipient. With regard to the nature of the relationship between the donor and the recipient, it is specified that donation is only acceptable for the benefit of a recipient with whom the minor has an intimate relationship (i.e. a sibling or a parent). Other criteria focus on the decision-making procedure to be followed. In addition to parental authorization, the assent or, where competent, the consent of the minor

83. Law of 25 November 1982 Regulating the Removal of Substances of Human Origin, Article 2 [Loi réglant le prélèvement de substances d'origine humaine]. Available at: <http://www.legilux.public.lu/leg/a/archives/1982/0098/a098.pdf#page=2> (accessed 17 June 2016). An overview of the law but no official translation of it can be found in World Health Organization, 'Legislative Responses to Organ Transplantation', p. 256.

84. Law on Human Tissues and Cells Intended for Human Applications, Article 8 [Loi relative aux tissus et cellules humains destinés à des applications humaines]. Available at: <http://www.legilux.public.lu/rgl/2007/A/2750/A.html> (accessed 17 June 2016).

85. Statutory instruments mainly concern the establishment of a national framework for quality and safety of human organs and tissues. As a result, they contain few and only general requirements for living organ and tissue donation. Notwithstanding their general wording, these provisions already indicate that organ and tissue procurement from a person who is unable to give consent may be allowed in Ireland. See European Communities (Quality and Safety of Human Tissues and Cells) Regulations 2006, Regulation 11, para. 3. Available at: <http://www.irishstatutebook.ie/2006/en/si/0158.html> (accessed 17 June 2016); European Union (Quality and Safety of Human Organs Intended for Transplantation) Regulations 2012, Regulation 22, para. 1. Available at: <http://www.irishstatutebook.ie/2012/en/si/0325.html> (accessed 17 June 2016).

will need to be obtained and approval by the High Court should be sought. It is further stipulated that donation may only be authorized when all decision makers involved are convinced that donation would be in the best interests of the minor.⁸⁶

Notwithstanding these ethical guidelines, considerable uncertainty currently exists as to the legal status of mature minors. Similar to corresponding provisions in other European countries, the Non-Fatal Offences Against the Person Act 1997 allows minors who have attained the age of 16 years to consent to surgical, medical, or dental treatment without requiring parental authorization.⁸⁷ In contrast to the United Kingdom, the scope of these provisions has not yet been judicially considered in Ireland. With regard to intrusive procedures which might not easily be characterized as treatment, such as living tissue or organ donation, the question arises as to the limits of the mature minor's autonomy, especially in the light of the extensive rights that under the Irish Constitution are awarded to parents.⁸⁸ Not surprisingly, a cautionary approach is advocated in professional guidelines, as reflected in the ethical guidelines mentioned above.⁸⁹

However, as indicated during the consultation procedure regarding the general scheme for the future Human Tissue Bill, a few submissions proposed to give due consideration to the autonomy of the mature minor even in the context of living tissue and organ donation.⁹⁰ Consequently, although the initial scheme of the Bill did not provide for this possibility, the current version differentiates between minors depending on whether they have attained the age of 16. Minors who are younger than 16 will only be allowed to donate if the requirements applicable to competent living donors are fulfilled, there is no compatible donor who has the capacity to consent, the recipient is a sibling and the donation is potentially lifesaving for the recipient. In addition, the potential donor's assent needs to be obtained, as well as authorization from the parents and the High Court, which should decide on the basis of the best interests standard.

By contrast, minors who have attained the age of 16 will, for the purposes of the Human Tissue Bill, be considered as adults, in line with the rule on mature minors laid down in the Non-Fatal Offences Against the Person Act 1997. Given the strong constitutional rights of the family in Ireland, the medical staff is advised to petition the High

86. We would like to thank Dr. Sióbhán O'Sullivan for providing this information.

87. Non-Fatal Offences Against the Person Act 1997, Section 23(1). Available at: <http://www.irishstatutebook.ie/1997/en/act/pub/0026/sec0023.html> (accessed 17 June 2016).

88. D. Madden, *Medicine, Ethics and the Law* (Bloomsbury: Haywards Heath, 2011), pp. 513–514.

89. Similarly, the Guide to Professional Conduct and Ethics for Registered Medical Practitioners, published by the Irish Medical Council in 2009, states that, although minors aged 16 and over are entitled to give their own consent to treatment, this entitlement does not apply to areas such as tissue or organ donation. See Irish Medical Council. Guide to Professional Conduct and Ethics for Registered Medical Practitioners, 2009, para. 43.2. Available at: <https://www.medicalcouncil.ie/News-and-Publications/Publications/Information-for-Doctors/Guide-to-Professional-Conduct-and-Ethics-for-Registered-Medical-Practitioners.pdf> (accessed 17 June 2016).

90. Report on the Public Consultation on Proposals for the General Scheme of the Human Tissue Bill (2009), p. 5.

Court when the parents would object to the donation. As of now, no case of organ donation by a minor has been reported. However, a proposed kidney donation by a 12-year-old girl suffering from Down's syndrome to her 8-year-old brother was withdrawn at the last moment when a compatible donor was found.⁹¹

United Kingdom

In the United Kingdom, with the exception of Scotland,⁹² living organ and tissue donation is governed by the Human Tissue Act 2004. According to the Act, the removal or use of "transplantable material" from a living person for the purpose of transplantation is only allowed when the conditions as specified in the regulations issued by the Secretary of State are complied with and the Human Tissue Authority (HTA) is satisfied that these conditions are fulfilled.⁹³ The relevant Regulations are the Human Tissue Act 2004 (Persons who Lack Capacity to Consent and Transplants) Regulations 2006, which define transplantable material as "an organ or part of an organ if it is to be used for the same purpose as the entire organ in the human body" and, as far as incompetent persons are concerned, also bone marrow and peripheral blood stem cells.⁹⁴

91. Communication by Dr. Sióbhán O'Sullivan.

92. In Scotland, living organ and tissue donation by minors is regulated in the Human Tissue (Scotland) Act 2006 and the Human Organ and Tissue Live Transplants (Scotland) Regulations 2006. According to these instruments, removal of tissues is allowed if there is no competent adult who could act as a donor, the removal involves at most a minimal foreseeable risk and discomfort, and the person concerned has not indicated an unwillingness to be a donor. Where these requirements have been fulfilled, the person concerned needs to be referred to an independent assessor and final decision-making authority is delegated to the Human Tissue Authority. Removal of an organ from a minor is allowed only as part of a domino organ transplant operation (i.e. a transplant procedure during which an organ is removed from the recipient which in turn may prove suitable for transplantation into another person). Since this form of donation is not regulated by the Human Tissue Act, the procedure is not subject to approval by the Human Tissue Authority but is instead covered by the common law. It should be noted that under Scottish legislation a person becomes an adult when they reach the age of 16. See Human Tissue (Scotland) Act 2006. Available at: www.opsi.gov.uk/legislation/scotland/acts2006/asp_20060004_en_3#pt1-pb3 (accessed 17 June 2016); Human Organ and Tissue Live Transplants (Scotland) Regulations 2006. Available at: www.oqps.gov.uk/legislation/ssi/ssi2006/ssi_20060390_en_1 (accessed 17 June 2016).

93. Human Tissue Act 2004, S. 33. Available at: http://www.legislation.gov.uk/ukpga/2004/30/pdfs/ukpga_20040030_en.pdf (accessed 17 June 2016). The Human Tissue Authority is an executive public body of the Department of Health, established to ensure that human tissues are used safely and ethically. It regulates the organizations involved in the removal, storage, and use of tissues, approves living organ and bone marrow donation, and issues Codes of Practice laying down standards for the sectors it regulates. Available at: <http://www.hta.gov.uk/aboutus.cfm> (accessed 17 June 2016).

94. Human Tissue Act 2004 (Persons who Lack Capacity to Consent and Transplants) Regulations 2006, R. 10(1). Available at: http://www.legislation.gov.uk/uksi/2006/1659/pdfs/uksi_20061659_en.pdf (accessed 17 June 2016).

When living donation of such material by an incompetent minor is considered, the matter should be referred to the HTA by a medical practitioner who has clinical responsibility for the donor. The Authority's decision has to be made by a Transplant Approval Team in cases of living bone marrow or hematopoietic stem cell donation and by a panel of no fewer than three members in case of living donation of an organ or part of an organ used for the same purpose as an organ. The HTA must be satisfied that no reward has been given and that the removal is consensual or otherwise lawful.⁹⁵ In reaching its decision, the Authority has to take account of a report submitted by an HTA-approved independent assessor.⁹⁶ Although the Human Tissue Act and the Regulations do not contain additional requirements, the HTA has issued Codes of Practice, recommending that, in accordance with common law and the Children Act 1989, court approval should be obtained before organ removal and, if there is any doubt as to best interests of the minor, also before the removal of bone marrow or hematopoietic stem cells.⁹⁷ Both Codes emphasize that a court ruling should be in place before the case is even referred to the Authority.⁹⁸ The applicable court will be the Family Division of the High Court or the Court of Protection, which will have to determine whether donation would be in the best interests of the minor, by considering the "welfare checklist" set out in the Children Act 1989.⁹⁹

When living tissue donation by competent minors is considered, the procedure may differ considerably, since they are treated as competent adults.¹⁰⁰ Living donation of

95. Op. cit., R. 11(2) & (3) and 12(1) & (2).

96. The independent assessor is a professional attached to a hospital transplant unit, with the responsibility to assess whether the requirements of the Human Tissue Act and Regulations 2006 have been met. The assessor conducts interviews with the donor and the person who has parental responsibility, ensuring that there is no evidence of duress or coercion and that parental consent has been given freely and on the basis of complete and intelligible information. See Human Tissue Act 2004 (Persons who Lack Capacity to Consent and Transplants) Regulations 2006, R. 11(6)-(9).

97. Human Tissue Authority Code of Practice 2 – Donation of solid organs for transplantation, para. 47. Available at: <http://www.hta.gov.uk/legislationpoliciesandcodesofpractice/codesofpractice/code2donationoforgans.cfm> (accessed 17 June 2016); Human Tissue Authority Code of Practice 6 – Donation of allogeneic bone marrow and peripheral blood stem cells for transplantation, para. 33. Available at: <http://www.hta.gov.uk/legislationpoliciesandcodesofpractice/codesofpractice/code6donationofbonemarrow.cfm> (accessed 17 June 2016).

98. Human Tissue Authority Code of Practice 2, Appendix A, para. A10; Human Tissue Authority Code of Practice 6, para. 33.

99. Children Act 1989, S. 1(3). Available at: <http://www.legislation.gov.uk/ukpga/1989/41/section/1> (accessed 17 June 2016).

100. However, it should be noted that, whereas the consent of competent minors is sufficient for the living tissue donation to be carried out and whereas the objection of competent minors categorically rules out their use as living tissue donors, competent minors who do not express consent nor objection may, in accordance with the Human Tissue Act 2004, S. 2(3)b and the common law doctrine of concurrent rights of consent, still be used as living

bone marrow or hematopoietic stem cells can be carried out on the basis of the free and informed consent of the competent minor, without requiring approval of the HTA. However, the Code of Practice states that it would be good practice to consult the person with parental responsibility and to involve them in the decision-making of the minor, although the decision to consent must be the minor's alone.¹⁰¹

The procedure to be followed for living organ donation by competent minors is similar to the one involving incompetent minors, with the exception that the consent of the person concerned will suffice. Although no additional requirements are prescribed in the statutory instruments, the Code of Practice recommends that involvement of the person with parental responsibility should be sought and court approval obtained before proceeding to organ removal from a competent minor.¹⁰²

The Human Tissue Act itself offers no guidance as to when a minor is to be considered competent to consent to living tissue or organ donation. In fact, whether minors can be sufficiently competent to do so is a matter of considerable debate. In this context, it is important to note that the Family Law Reform Act 1969 gives minors of 16 and 17 years of age the right to consent to "any surgical, medical or dental treatment," with their consent being as effective as that of an adult.¹⁰³ However, treatment may not cover every medical procedure and it seems unlikely that tissue or organ donation can be classified as treatment.¹⁰⁴

An alternative approach to the maturity of minors in the health care setting has been developed under common law. In the famous 1986 Gillick case, it was accepted that a minor who has sufficient understanding and intelligence to understand fully what is proposed can provide legal consent for a medical procedure.¹⁰⁵ Since the level of maturity needed will depend on the severity of the issue in question, the applicability of the concept of Gillick competence may be limited in the context of tissue and organ donation.¹⁰⁶ During the Parliamentary debate of the draft Human Tissue Act and in the Explanatory Notes to the Act, it was pointed out that the capacity of the minor should

tissue donors on the basis of parental consent or court authorization. We would like to thank the anonymous reviewer for pointing this out.

101. Human Tissue Authority Code of Practice 6, para. 75. See also D. Price, *Human Tissue in Transplantation and Research: A Model Legal and Ethical Donation Framework* (Cambridge: Cambridge University Press, 2010), p. 31.
102. Human Tissue Authority Code of Practice 2, paras. 84–85 & Appendix A, para. A10.
103. Family Law Reform Act 1969, S. 8. Available at: http://www.legislation.gov.uk/ukpga/1969/46/pdfs/ukpga_19690046_en.pdf (accessed 17 June 2016).
104. This line of reasoning inspired the Court of Appeal in *Re W (A Minor)* to state obiter that the Family Law Reform Act 1969 would not apply to donation because, "so far as the donor is concerned, these do not constitute either treatment or diagnosis." See *Re W (Minor: Medical Treatment)*, 4 All ER 627 (C.A. 1992); *Re W (A Minor) (Medical Treatment)* 3 WLR 758(C.A. 1992).
105. In this case, the House of Lords followed the claim of the Department of Health and Social Security that a physician could provide contraceptive advice to a minor without consulting her parents. See *Gillick v West Norfolk and Wisbech Area Health Authority*, AC 112 (1986).
106. For instance, in the abovementioned case of *Re W* Lord Donaldson regarded it as highly improbable that a minor would be considered as being sufficiently competent to be able to consent to such an intrusive procedure as kidney donation. For a discussion of this

indeed be determined by reference to the common law.¹⁰⁷ Similarly, the Codes of Practice note that minors who can show that they are Gillick competent may consent to the proposed donation.¹⁰⁸ However, as indicated, the Codes suggest a cautionary approach by recommending that, regardless of whether a minor would be considered Gillick competent, court approval should be obtained.

A final point of contention is whether living tissue and organ donation by a minor could be in that person's best interests if a case would come before the High Court or the Court of Protection. Since, according to the welfare checklist of the Children Act 1989, the court should in particular have regard to the ascertainable wishes and feelings of the minor concerned, the fact that a minor who is Gillick competent consents to the procedure will weigh heavily in favor of granting approval.¹⁰⁹ However, the situation of persons who are not Gillick competent is more uncertain. It is submitted that the donation of bone marrow or hematopoietic stem cells can be in the incompetent minor's best interest, in particular when it would have the potential to save the life of a sibling or another close family member.¹¹⁰ However, whether organ donation could ever be in the best interests of an incompetent minor is less certain.¹¹¹ Since, as of yet, no cases have arisen, it is unclear whether circumstances could exist in which organ donation by an incompetent minor would be adjudicated to be in that person's best interests. Nevertheless, as indicated above, cases that have come before court in the United States suggest that this might be possible.

reasoning, see Price, 'Legal and Ethical Aspects', pp. 341–342; S. Pattinson, *Medical Law and Ethics* (Andover: Sweet & Maxwell, 2014), p. 449.

107. Pattinson, 'Medical Law and Ethics', p. 450.

108. Human Tissue Authority Code of Practice 1 – Consent, para. 140. Available at: http://www.hta.gov.uk/legislationpoliciesandcodesofpractice/codesofpractice/code1consent.cfm?faArea1=customwidgets.content_view_1&cit_id=652 (accessed 17 June 2016); Human Tissue Authority Code of Practice 6, paras. 71–76.

109. See J. Herring, *Medical Law and Ethics* (Oxford: Oxford University Press, 2016), p. 453.

110. See Herring, 'Medical Law and Ethics', p. 454; E. Jackson, *Medical Law. Text, Cases, and Materials* (Oxford: Oxford University Press, 2016), pp. 635–636; G.T. Laurie, S.H.E. Harmon and G. Porter. *Mason and McCall Smith's Law and Medical Ethics* (Oxford: Oxford University Press, 2016), p. 590. This suggestion is also made in the Code of Practice, where reference is made to the emotional, psychological, and social aspects of the donation of bone marrow or stem cells as compared to the very small medical risks. See Human Tissue Authority Code of Practice 6, para. 78. Furthermore, this line of reasoning is supported by the ruling in the case *Re Y* where bone marrow donation by an incompetent adult for the treatment of her sick sister was authorized on the grounds that this would be in the social and emotional interests of the incompetent. See *Re Y (Mental Patient: Bone Marrow Donation)*, Fam 110 (1997).

111. In the case *Re Y*, Justice Connell stated obiter that, although he had authorized bone marrow donation by the mentally incompetent person, it would be doubtful that cases involving more intrusive surgery, such as organ donation, could also be in an incompetent person's best interests.

Concluding remarks

Our study, which is the first in-depth comparative analysis of the regulations on living tissue and organ donation by minors in Europe, paints a heterogeneous picture (see Table 1). Living tissue donation by minors is allowed in all 30 countries under consideration. In 27 of them, the restrictions as laid down in the Convention on Human Rights and Biomedicine are largely respected.¹¹² Although only 19 of these countries are bound by the Convention, it is clear that its provisions have also greatly influenced the regulation in several nonratifying states. The main differences concern the type of independent body which should be solicited to grant final approval and the types of permissible relationship between donor and recipient. With regard to the latter, it was observed that several countries that have ratified the Convention go beyond its restriction which allows donation only to sibling, without, however, having submitted a reservation in this regard. By contrast, Belgium, Sweden, and the United Kingdom have opted for a different approach. The Swedish and British regulations do not contain detailed provisions for living tissue donation by minors but leave it to the independent body to decide in the minor's best interests. In Belgium, only minimal requirements are stipulated and no approval from a competent independent body even needs to be obtained.

Living organ donation by minors is currently only allowed in Belgium, Ireland, Luxembourg, Norway, Sweden, and the United Kingdom. By limiting organ donation to minors with the capacity to consent, the Norwegian regulation is still in conformity with the Convention which it has ratified. As in Sweden, where also organ donation by incompetent minors is allowed, living donation by minors in Norway is only permitted under exceptional circumstances and subject to approval by an independent body that has to decide on the basis of the minor's best interests. In Ireland and the United Kingdom, a clear differentiation is made between competent and incompetent minors. Although competent minors are allowed to consent to living organ donation, uncertainty exists as to the need to obtain a court order and, in Ireland, additional authorization from the parents. In Belgium, only minors 12 years or over who are capable of expressing their will are allowed to donate an organ, if they consent to the procedure and a pluridisciplinary committee at the level of the transplant hospital has given approval. The Belgian law only allows these competent minors to donate a part of their liver.

Compared to the United States, the legal approach taken in most European countries is markedly more restrictive. As we have indicated above, we completely agree that a cautious approach is warranted in view of the risks that may be involved in the donation, the conflict of interests that may exist on the part of the parents, and the position of vulnerability of minors who are solicited to become living donors. However, we consider the dominant approach in Europe to be unnecessarily strict. It could even be argued that this dominant approach is difficult to reconcile with the central tenet of the Convention on the Rights of the Child that, in all actions involving children, their best interests must

112. This is the case for Austria, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, and Switzerland.

Table 1. Regulation of living tissue and organ donation by minors across Europe.

	Council of Europe, Oviedo Convention		Council of Europe, Additional Protocol		Minors		Comments
	Convention	Additional Protocol	Organ	Tissue	Organ	Tissue	
Austria	–	–	–	–	–	?	¹ In Austria, no legal framework or professional guidelines for tissue donation currently exist. According to Austrian legal doctrine, tissue donation by minors will be allowed under the civil code principles on the protection of minors.
Belgium	–	–	X ^{1,2}	X ³	–	–	¹ Only minors who are 12 years or older and are able to give consent. ² Only liver lobes may be removed; the recipient needs to be a sibling. ³ No restriction of acceptable recipient categories.
Bulgaria	23.04.2003	30.10.2006	–	–	–	X ¹	¹ Although Bulgaria did not make a reservation to Article 20 of the Oviedo Convention, it also allows removal where the recipient is a parent, child, or spouse.
Croatia	28.11.2003	28.11.2003	–	–	–	X ¹	¹ Croatia made a reservation to Article 20 of the Oviedo Convention, also allowing removal where the recipient is a parent.
Cyprus	20.03.2002	–	–	–	–	X ¹	¹ Although Cyprus did not make a reservation to Article 20 of the Oviedo Convention, it also allows removal where the recipient is a relative up to the third degree.
Czech Republic	22.06.2001	–	–	–	–	X ¹	¹ Only where the recipient is a sibling.
Denmark	10.08.1999	–	–	–	–	X ¹	¹ Denmark made a reservation to Article 20 of the Oviedo Convention, also allowing removal where the recipient is a parent.
Estonia	08.02.2002	17.09.2003	–	–	–	X ¹	¹ Although Estonia did not make a reservation to Article 20 of the Oviedo Convention, it also allows removal where the recipient is a descendant, spouse or de facto spouse, parent, grandparent, or their descendant.

(continued)

Table I. (continued)

	Council of Europe, Oviedo Convention		Council of Europe, Additional Protocol		Minors		Comments
	30.11.2009	30.11.2009	30.11.2009	30.11.2009	Organ	Tissue	
Finland					-	X ¹	¹ Although Finland did not make a reservation to Article 20 of the Oviedo Convention, it also allows removal where the recipient is a <i>close family member or other close person</i> .
France	13.12.2011				-	X ¹	¹ France made a reservation to Article 20 of the Oviedo Convention, also, <i>in exceptional cases</i> , allowing removal where the recipient is a <i>first cousin, uncle, aunt, nephew, or niece</i> .
Germany	-				-	X ¹	¹ Only where the recipient is a sibling or a relative to the first degree.
Greece	06.10.1998				-	X ¹	¹ Only where the recipient is a sibling.
Hungary	09.01.2002		30.11.2006		-	X ¹	¹ Only where the recipient is a sibling.
Ireland	-				X	X	Pending the adoption of the Human Tissue Bill, the requirements for living tissue and organ donation are spelled out in the ethical guidelines drafted for the <i>Irish Living Donation Program</i> .
Italy	-				-	X	
Latvia	25.02.2010				-	X	
Lithuania	17.10.2002				-	X ¹	¹ Although Lithuania did not make a reservation to Article 20 of the Oviedo Convention, it also allows removal where the recipient is a <i>parent, a foster parent or a foster parent's biological child</i> .
Luxembourg	-				X ¹	X ²	¹ Only where the minor is capable of understanding and has agreed in writing. ² Only where the recipient is a sibling.
Malta	-				?	? ¹	In Malta, no legal framework or professional guidelines for tissue and organ donation currently exist. However, tissue donation by minors will likely be allowed under the general principles on the protection of minors.

(continued)

Table 1. (continued)

	Council of Europe, Oviedo Convention	Council of Europe, Additional Protocol	Minors		Comments
			Organ	Tissue	
The Netherlands	-	-	- ¹	X ²	¹ Although the Dutch transplant law allows the removal of "regenerative organs," the parliamentary proceedings indicate that this is intended to refer only to bone marrow and not to liver segments.
Norway	13.10.2006	-	X ¹	X ²	² Only where the recipient is a relative up to the second degree. ¹ Only minors who are 12 years or older and are able to give consent.
Poland	-	-	-	X ¹	² Norway made a reservation to Article 20 of the Oviedo Convention, also allowing removal where the recipient is a <i>child or parent, or in special cases, other close relatives.</i>
Portugal	13.08.2001	-	-	X ¹	¹ Only where the recipient is a sibling.
Romania	24.04.2001	20.04.2016	-	X ¹	¹ Only where the recipient is a sibling. ¹ Although Romania did not make a reservation to Article 20 of the Oviedo Convention, it also allows removal where the recipient is a relative up to the fourth degree.
Slovakia	15.01.1998	-	-	X ¹	¹ Only where the recipient is a sibling.
Slovenia	05.11.1998	19.01.2006	-	X ¹	¹ Only where the recipient is a sibling.
Spain	01.09.1999	-	-	X	¹ Only where the recipient is a sibling.
Sweden	-	-	X	X	
Switzerland	24.07.2008	10.11.2009	-	X ¹	¹ Switzerland made a reservation to Article 20 of the Oviedo Convention, also allowing removal where the recipient is a parent or a child.
The United Kingdom	-	-	X	X	

be a primary consideration and their wishes should be given due weight in accordance with their age and maturity. Indeed, we would suggest that the latter standard calls for allowing living donation by minors under circumstances that in most European countries would not be legally acceptable grounds for donation. As has been revealed in the relevant United States case law, exceptional circumstances may arise where the minor donor will likely accrue psychosocial benefits that significantly outweigh the risks involved. Categorically refusing to consider a minor as living donor even if this would under these extraordinary circumstances be in that person's best interests may fail to achieve the purpose of protection.

In this light, we suggest that European countries could benefit from the balanced approach advocated in the professional guidelines issued by the American Academy of Pediatrics. Alternatively, the conditions as laid down in the Convention on Human Rights and Biomedicine for living tissue donation by persons unable to consent could be made applicable not only to living tissue but also to living organ donation by minors. As a result, living donation by minors would be allowed when this exceptionally would be in their best interests subject to a range of very stringent safeguards.¹¹³ First, donation by the minor should be the solution of last resort. Second, there should be a high likelihood that the transplantation will be successful. Third, the foreseeable risks to the donor should be acceptable when compared to the expected benefits to the donor and the recipient. In this regard, living liver donation by minors will generally not be allowed.¹¹⁴ As highlighted in the Spanish case of Gabriela, an exception to this rule may occur in the context of minor parent-to-child donation, due to the enormous psychological benefits that parents will experience by saving the life of their child. Fourth, psychological benefits that are nonspeculative and highly significant should reasonably be expected to accrue to the donor. Fifth, the donor and the recipient should have a degree of emotional intimacy that would make these kinds of psychological benefits likely. As demonstrated by the position taken by many ratifying states of the Convention on Human Rights and Biomedicine regarding living tissue donation by minors, this implies that donation exceptionally would not need to be restricted to siblings but could also target other loved ones. Sixth, the minor should be involved to the greatest possible extent in the decision-making process and the removal should not be carried out if that person objects. Seventh and final, parental permission and, preferably, approval by a competent body should be obtained.

In view of the tendency to grant mature minors a high degree of self-determination in medical decision-making, we should also assess whether mature minors should be

113. Some of us have argued for a broadly similar solution as far as living donation by mentally incompetent adults is concerned. See K. Van Assche, G. Genicot and S. Sterckx, 'Using Mentally Incompetent Adults as Living Organ Donors: Widely Diverging Regulations in Europe', *European Journal of Health Law* 19(5) (2012), pp. 441–466; K. Van Assche, G. Genicot and S. Sterckx, 'Living Organ Procurement from the Mentally Incompetent: The Need for More Appropriate Guidelines', *Bioethics* 28(3) (2014), pp. 101–109.

114. For a more in-depth discussion, see L. Capitaine, K. Thys, K. Van Assche, et al. 'Should Minors Be Considered as Potential Living Liver Donors?', *Liver Transplantation* 19(6) (2013), pp. 649–655.

subject to less restrictive conditions. As we have seen, in countries where minors above a fixed cutoff age are deemed able to consent to living tissue or organ donation, they are still subject to the same conditions that govern living donation by immature minors. In this case, the only difference will be that the mature minor's consent will be needed, whereas from the immature minor assent will be sought. Parental authorization and, where a competent body needs to be petitioned, the approval thereof, will always also be needed. Only in the United Kingdom, and to a lesser extent in Ireland, does legal uncertainty exist as to whether, in the context of living donation, mature minors should be treated similarly to immature minors or to adults. However, as highlighted by the examples set by the US states of Alabama, Michigan, and Wisconsin, it can be argued that the mature minor doctrine should exceptionally also be extended to living donation.

If we are to determine whether minors from a certain age onward should be granted adult-like rights to proceed to living tissue or organ donation, instead of being held to the same protective regime as immature minors, we must ascertain whether they possess sufficient capacity to make this decision. In our opinion, the question as to whether some minors may have the capacity to consent for themselves will depend on the complexity and consequences of the particular decision-making process. This decision-relative interpretation of competence entails that the level of decisional capacity required from the minor will need to increase in accordance both with the challenges involved in reaching the medical decision at hand and with the risks involved in the resulting intervention. Although, as a rule, minors beyond the age of 14 display adult-like levels of cognitive maturity,¹¹⁵ adolescents do not yet possess levels of psychosocial maturity comparable to those of adults.¹¹⁶ Since they are more susceptible to social coercion, tend to underestimate the potential risks involved in their behavior, are inclined to disregard the long-term impacts of their decisions and are more prone to impulsivity, adolescents should only be considered sufficiently competent to make decisions that are not strongly influenced by any of these factors.

Consequently, to the extent that the particular context of living donation is likely to result in significant immediate and long-term risks and exhibits characteristics that increase the probability that social pressure occurs and an urgent decision is required, adolescents should not be allowed to make an autonomous decision. Due to the very limited risks involved, it could be convincingly argued that at least some adolescents may be sufficiently mature to independently decide upon the donation of bone marrow or hematopoietic stem cells. This line of reasoning lends support to the regulatory approach taken in Alabama and Wisconsin.

By contrast, it is reasonable to assume that many, if not all, of the above-mentioned factors feature prominently in a living organ donation decision. We should, therefore, demand a high level of psychosocial maturity in addition to cognitive maturity where

115. L.A. Weithorn and S.B. Campbell, 'The Competency of Children and Adolescents to Make Informed Treatment Decisions', *Child Development* 53(6) (1982), pp. 1589–1598.

116. L. Steinberg, E. Cauffman, J. Woolard, et al. 'Are Adolescents Less Mature than Adults? Minors' Access to Abortion, the Juvenile Death Penalty, and the Alleged APA "Flip-Flop"', *American Psychologist* 64(7) (2009), pp. 583–594.

living kidney donation is considered and an even higher level where living liver donation is contemplated.¹¹⁷ In this light, we have to conclude that the concept of mature minors is of limited applicability in the context of organ donation. Although living kidney donation is not as risky a procedure as living liver donation, it would still require a level of maturity which cannot readily be presumed in adolescents. In this respect, it should be recalled that, in the UK case of *Re W*, Lord Donaldson regarded it as highly improbable that a minor would be considered as being sufficiently competent to be able to consent to kidney donation. Consequently, as has been proposed in the relevant Code of Practice issued by the Human Tissue Authority in the United Kingdom, we would do well to adopt a cautionary approach and to not treat adolescents as adults in the context of living kidney donation.

In sum, taking into account the particularities of living donation and the fact that minors have important vulnerabilities as compared to adult donor candidates, a high standard of legal protection is required where living donation by minors is considered. However, although a cautious approach is absolutely necessary, minors should under exceptional circumstances still be allowed to donate where this would be clearly in their best interests. Therefore, we suggest that European countries that currently take a prohibitive approach would amend their regulations accordingly and consider legal harmonization that would be beneficial to potential minor donors.

Acknowledgements

For their invaluable assistance with the legal analysis of domestic transplant regulations, we would like to thank Herman Nys and the following legal experts: Jasper Bovenberg (the Netherlands), Giovanni Comandé (Italy), Horatiu Crisan (Romania), Bianka Dörr (Switzerland), Anne-Marie Duguet (France), Jaunius Gumbis (Lithuania), Thomas Gutmann (Germany), Mette Hartlev (Denmark), Louiza Kalokairinou (Greece/Cyprus), Graeme Laurie (Scotland), Sióbhán O'Sullivan (Ireland), Shaun Pattinson (England, Northern Ireland and Wales), André Pereira (Portugal), Mayte Requejo Naveros (Spain), Dula Rusinovic-Sunara (Croatia), Mike Schwebag (Luxembourg), Sirpa Soini (Finland), Karl Harald Søvig (Norway), and Doris Wolfslehner (Austria).

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

117. See, in this regard, also Capitaine, et al., 'Should Minors Be Considered as Potential Living Liver Donors?', pp. 651–653; K. Thys, *Should Minors and Young Adults Qualify as Potential Living Kidney Donors? An Ethical Analysis of the Arguments in Favour and Against* (Leuven, unpublished PhD manuscript, 2015), p. 83.