Health Law—New Method of Bone Marrow Transplantation Not Considered Transfer of Human Organs—Flynn v. Holder, 684 F.3d 852 (9th Cir. 2012)

Leah Ligotti*

The National Organ Transplant Act ("NOTA") bans valuable compensation for the transfer of human organs through interstate commerce. When Congress passed NOTA in 1984, the definition of "human organs" included bone marrow. In Flynn v. Holder, the United States Court of Appeals for the Ninth Circuit considered the constitutionality of banning compensation for bone marrow extraction through the new and less invasive peripheral blood stem cell apheresis ("apheresis") procedure under NOTA. The Ninth Circuit determined that NOTA did not bar compensation for acquiring bone marrow from donors through apheresis for use in transplants.

* J.D. Candidate, Suffolk University Law School, 2013; B.A., cum laude, Northeastern University, 2010. Ms. Ligotti may be contacted at lmligotti@suffolk.edu.

1 Public Health Service Act of 1944, 42 U.S.C. § 274e(a) (2006) (outlawing payment for organs). It shall be unlawful for any person to knowingly acquire, receive, or otherwise transfer any human organ for valuable consideration for use in human transplantation if the transfer affects interstate commerce. Id.


3 684 F.3d 852 (9th Cir. 2012).

4 Id. at 855. The old method of obtaining bone marrow by donors was through aspiration, a very painful procedure involving serious risks. Id. at 856. The new procedure utilizes apheresis, which is substantially less intrusive and less painful for donors. Id. at 857.

5 Id. at 862-63. This advanced new procedure of acquiring bone marrow is similar to the method employed to obtain blood donations. Id. Therefore, the court held that NOTA did not bar compensation for bone marrow transplants by the new procedure. Flynn, 684 F.3d at 862-63. There is no ban on compensating blood donors. Id. at 863. The Secretary of Health and Human Services has the authority to include blood in the definition of organs under NOTA, but has not done so. Id. at 865. See also Glenn Cohen, Selling Bone Marrow: Flynn v. Holder, 366 NEW. ENG. J. MED. 296, 297 (2012) (summarizing the holding and implications of Flynn v. Holder).
Several plaintiffs (collectively “Flynn”) filed suit against the Attorney General of the United States challenging the constitutionality of the criminal statute prohibiting compensation for bone marrow donations. Flynn sought declaratory and injunctive relief to allow for compensation to donors after their hematopoietic stem cells (blood stem cells) were harvested for donation. Flynn’s main contention is that donors undergoing apheresis should be permitted to receive compensation for hematopoietic stem cell donations in order to incentivize bone marrow donations.

6 Id. at 855. The plaintiffs included:

[P]arents of sick children who have diseases such as leukemia and a rare type of anemia, which can be fatal without bone marrow transplants. Another plaintiff is a physician and medical school professor, and an expert in bone marrow transplantation. He says that at least one out of five of his patients dies because no matching bone marrow donor can be found, and many others have complications when scarcity of matching donors compels him to use imperfectly matched donors. One plaintiff is a parent of mixed race children, for whom sufficiently matched donors are especially scarce, because mixed race persons typically have the rarest marrow cell types. One plaintiff is an African–American man suffering from leukemia who received a bone marrow transplant from his sister. She was an imperfect match and, though the transplant saved his life, he continues to suffer from life-threatening and disabling complications on account of the slight genetic mismatch.

Id. at 855-56. See also supra note 1 (introducing the criminal statute); infra note 24 (discussing the criminal statute).

7 Flynn, 684 F.3d at 855. Hematopoietic stem cell is defined as: “an actively dividing cell that is the source of blood cells.” MOSBY-YEAR BOOK, INC., MOSBY’S MEDICAL, NURSING & ALLIED HEALTH DICTIONARY 742 (5th ed. 1998). Stem cells are unspecialized cells that can turn into a more specifically differentiated cell through division of the mother cell. Id. at 1539. Hematopoietic stem cells, however, only convert into blood cells. Flynn, 684 F.3d at 856 (discussing hematopoietic stem cells). Humans and other large mammals constantly produce these blood cells in “vast numbers.” Id. at 856; see infra notes 30-31 (describing the process of obtaining hematopoietic stem cells).

8 Flynn, 684 F.3d at 858. Matching donors to recipients is both extremely important and extremely difficult. Id. There are millions of bone marrow cell types and matches depending on how varied the person’s genetic history is. Id. at 857. Genetic compatibility is crucial to bone marrow transplants because imperfectly matched blood stem cells produce white blood cells that attack the recipient’s body. Id. When the body attacks itself like this, it is called “graft-versus-host disease.” Id. “All donations from another person, except for one’s identical twin, produce at least some graft-versus-host disease in the recipient.” Flynn, 684 F.3d at 857. Matching is extremely important because a strong genetic match minimizes the effects of the disease. Id. A plaintiff’s physician explained that twenty percent of his patients die because they do not have a good match and others who must receive imperfectly matched cells suffer complications. Id. at
Flynn first filed suit in 2009 in the Los Angeles Division of the United States District Court for the Central District of California. The Attorney General promptly filed a motion to dismiss for failure to state a claim. The district court granted the Attorney General's motion, finding that the complaint failed to state either an equal protection claim or a due process claim, and Flynn appealed. The United States Court of Appeals for the Ninth Circuit distinguished between types of bone marrow donation procedures, finding that while the ban on compensation for bone marrow extraction by the highly invasive aspiration procedure was constitutional, bone marrow extraction by apheresis was not subject to the same ban. The court reasoned that the ban on

855. The plaintiff corporation proposed to offer three thousand dollar gifts in the form of scholarships, housing allowances, or donations to charities chosen by donors. Id. at 856. Because NOTA criminalizes compensation for organs and classifies bone marrow as an organ, the nonprofit corporation cannot commence this program. Id. at 858.


10 The defendants also filed a motion to dismiss for lack of subject matter jurisdiction, which was denied by the district court. London, supra note 9, at 479 n.20.

11 See id. at 479 n.20 (explaining the procedural history of the case).

12 Flynn v. Holder, 684 F.3d 852, 855 (9th Cir. 2012). The court was unsure whether Flynn was claiming the constitutional protection of compensation for all bone marrow transplants, or simply the new method. Id.; see also id. at 860-62 (discussing Congress' potential reasoning for banning compensation for bone marrow transplants through aspiration). The rational basis test is used to analyze a law under the equal protection clause to determine whether a challenged law has a reasonable relationship to a realization of a legitimate governmental objective. United States v. Carolene Products Co., 304 U.S. 144 (1938); STEVEN H. GIFIS, DICTIONARY OF LEGAL TERMS 422 (4th ed. 2008). The government filed a petition for rehearing arguing that Congress defined "bone marrow" to include cells contained in peripheral blood in another statute and NOTA should, therefore, be interpreted the same way. Flynn, 684 F.3d at 853. The court rejected this argument, reasoning that the definition the government is referring to is limited to the provisions of that specific statute and had the definition been extended, then compensation for blood donations would be prohibited and that was clearly not Congress' intent. Id. at 2-3. The old method of obtaining bone marrow from donors was through aspiration, a much more invasive procedure than apheresis. See Flynn, 684 F.3d. at 856-57. In aspiration, long needles thick enough to extract marrow from inside the bone are inserted into the donor's hipbone cavities. Id. at 856. Hipbones are sizeable bones with large central cavities full of marrow. Id. Aspiration requires the skin and bone to be perforated many times in order to obtain a sufficient amount of bone marrow for transplantation. London, supra note 9, at 482. The marrow extracted in this procedure is the "soft fatty material" contained in large bones. See Flynn, 684 F.3d at 856. Bone marrow allows individuals to produce new blood cells. Id. The bone marrow is processed after harvest to remove any flaws and is either given right to the patient or kept for later use. London, supra note 9, at 481. "Aspiration is a painful, unpleasant procedure for the
extraction by aspiration under NOTA passed the rational basis test, while extraction by apheresis was so strikingly similar to blood donations that compensation for donation was not banned.13

Common law does not clearly recognize the right to donate organs.14 However, as major strides have been made in medicine, organ transplantation is now an accepted and heavily relied upon treatment for many previously incurable illnesses.15 With the donor . . . and involves commensurate risks." Flynn, 684 F.3d at 856. The donor would need to be anesthetized. Id. 13 Flynn, 684 F.3d at 856-57 (explaining the new procedure's similarity to blood donation).

14 See REVISED UNIF. ANATOMICAL GIFT ACT prefatory note (amended 2006), 8A U.L.A. 48-49 (Supp. 2012). At common law there were no property interests in corpses. Brian Morris, Note, You've Got to be Kidneying Me! The Fatal Problem of Serving Rights and Remedies from the Body of Organ Donation Law, 74 BROOK. L. REV. 543, 546 (2009). "[A]s bodies and body parts . . . [became more valuable] to medicine and science[,] courts . . . [decided to bend the rule and to protect] the rights of the deceased by creating . . . quasi property rights which vest in the next of kin . . . [Courts also created] exceptions and acknowledged the property rights of scientists and researchers [who] lawfully obtained cadavers for . . . medical research." Id. at 547. However, courts still show "reluctance in granting a person property rights in his or her body parts." Kathryn E. Peterson, Note, My Father's Eyes and My Mother's Heart. The Due Process Rights of the Next of Kin in Organ Donation, 40 VAL. U. L. REV. 169, 182 (2005). In California, a plaintiff brought suit against his physicians and the hospital for conversion of his cells after he learned his physicians created a patent cell line from cells removed from his body. Moore v. Regents of the Univ. of Cal., 793 P.2d 479, 490 (Cal. 1990). The California Supreme Court held that there could be "no conversion claim for the appropriation of a human spleen and other tissues," and therefore, "no ownership interest in his own body part." Id. However, another California decision suggested that people have "a property interests in their bodily fluids." Hecht v. Superior Court, 20 Cal. Rptr. 2d 275, 280-81 (1993). The decedent "bequeathed fifteen vials of [his] sperm to . . . his longtime girlfriend" and his surviving children contested the will and the probate court ordered the vials be destroyed. Id. at 276, 279. The probate court's jurisdiction would only be proper if the decedent had a property interest in his vials of sperm. Id. at 281. Therefore, the court distinguished Moore and held that the unique characteristics "of sperm as reproductive material" and that the decedent had intended to "retain possession . . . [of the sperm] following [its] removal . . . sufficiently constituted property within the meaning of California law." Id. at 281, 283. Although individuals may not have a property interest in their body parts, at common law, "relatives of a descendant have a quasi-property interest in the body of a deceased relative for the purposes of burial and internment." Peterson, supra, at 185. Most states today have statutes providing "that the next of kin have a right to bury the decedent in an appropriate manner." Id. at 185-86. The right "is for burial and internment only. . . has no pecuniary value . . . [and] the holder of the right is not . . . [technically] the owner but . . . [rather a] guardian" to ensure proper burial. Id. at 186.

demand for organs vastly outweighing the supply, Congress first permitted organ donation by passing the Uniform Anatomical Gift Act ("UAGA") in 1968.\textsuperscript{16} Congress later amended the UAGA in 1987 to address the Act's inadequacies in encouraging organ donation, and failure to address the sale of human organs.\textsuperscript{17} The amended

Before organ transplants were successful, doctors and scientists faced some major obstacles, including the medical technology necessary to perform the basic operation, preserving the donated organs long enough to allow for a successful transplant, and to prevent and fight dangerous infections in the recipient caused by the presence of foreign materials. Gloria J. Banks, \textit{Legal \\& Ethical Safeguards: Protection of Society's Most Vulnerable Participants in a Commercialized Organ Transplantation System}, 21 AM. J.L. \\& MED. 45, 46 (1995). The development of immunosuppressant drugs in 1962 allowed for organ donation to be a "viable medical option" because these drugs prevented organ recipients from rejecting transplanted organs. See Peterson, \textit{supra} note 14, at 171-72. In addition, in the late 1960s a set neurological criterion for determining death was developed. See \textit{REVISED UNIF. ANATOMICAL GIFT ACT} prefatory note (amended 2006), 8A U.L.A. 49 (Supp. 2012). The criteria allowed people to be declared dead when their brain activity ceased. \textit{Id}. This criteria, along with the traditional method of determining death by cessation of respiration and circulation, was incorporated into the Uniform Determination of Death Act which states: "An individual who has sustained either (1) irreversible cessation of circulatory and respiratory functions, or (2) irreversible cessation of all functions of the entire brain, including the brain stem, is dead . . . A determination of death must be made in accordance with accepted medical standards." \textit{UNIF. DETERMINATION OF DEATH ACT} § 1 (1980), 12A U.L.A. 781 (2008); see \textit{REVISED UNIF. ANATOMICAL GIFT ACT} prefatory note (amended 2006), 8A U.L.A. 49 (Supp. 2012). Diseases that can lead to organ failure, thus requiring an organ transplant, include coronary heart disease, hypertension, hepatitis, cirrhosis, and cystic fibrosis. \\


\textsuperscript{16} \textit{UNIF. ANATOMICAL GIFT ACT} (1968), 8A U.L.A. 69-70 (2003); see \textit{REVISED UNIF. ANATOMICAL GIFT ACT}, prefatory note (amended 2006), 8A U.L.A. 49 (Supp. 2012). The most significant contribution of the UAGA of 1968 was that it created "the right to donate organs, eyes and tissue." \textit{Id}; Shelby E. Robinson, \textit{Organs for Sale? An Analysis of Proposed Systems for Compensating Organ Providers}, 70 U. COLO. L. REV. 1019, 1026 (1999). Advances in medicine have significantly impacted the organ shortage because the number of people surviving perilous illnesses and needing transplants has increased. \textit{Id}. at 1021-22. Organs for humans may come "from live donors or cadavers . . . but live donors are limited . . . because they can only provide 'non-necessary' organs or tissues, one of two healthy kidneys . . . or regenerative fluids . . ." \textit{Id}. at 1022-23. The main supply of transplant organs come from cadavers, and often times the "cadaver organs are not suitable for transplant." \textit{Id}. at 1023. Today, over 102,000 people in the United States are on a transplant list. Michele Goodwin, \textit{Meador Lecture Series 2007-2008: Empire: Empires of the Flesh: Tissue and Organ Taboos}, 60 ALA. L. REV. 1219, 1225 (2009). "By the 1960s, most states had adopted anatomical gift statutes" to address organ donation issues, however the laws were often "inadequate, confusing, and lacked uniformity" and did not address the growing need for transplantable organs. See Robinson, \textit{supra}, at 1025. In response to the organ shortage, the National Conference of Commissioners on Uniform State Laws created the UAGA of 1968. \textit{Id}.

\textsuperscript{17} The UAGA was intended to provide legal structure to the organ donation process. See
UAGA explicitly illegalized the sale of human organs for donative purposes.\(^{18}\) It also created a program of "routine inquiry and required request," and mandated that law enforcement officers, as well as medical and emergency personnel conduct reasonable searches for organ donation documentation if that person is "dead or near death."\(^{19}\) Many states decided not to enact the 1987 UAGA, prompting Congress to amend the Act again in 2006 to create uniformity among the states and to harmonize all state laws with federal law.\(^{20}\)

---

\(^{18}\) Section 10(a) of the UAGA of 1987 provides "[a] person may not knowingly, for valuable consideration, purchase or sell a part for transplantation or therapy, if removal of the part is intended to occur after the death of the decedent." UNIF. ANATOMICAL GIFT ACT § 10(a) (amended 1987), 8A U.L.A. 3, 62 (2003). "Part" is defined as "an organ, tissue, eye, bone, artery, blood, fluid, or other portion of a human body." UNIF. ANATOMICAL GIFT ACT § 1(7) (amended 1987), 8A U.L.A. 18 (2003). It gives priority to the wishes of decedent over family members by providing that if the desire to donate is not revoked by the donor before death, then the anatomical gift is irrevocable and consent of others, like family members, is not required after the donor's death. UNIF. ANATOMICAL GIFT ACT § 2(h) (amended 1987), 8A U.L.A. 25 (2003).

\(^{19}\) UNIF. ANATOMICAL GIFT ACT § 5 (amended 1987), 8A U.L.A. 44-52 (2003) (noting the program forces hospitals to ask patients or their families about donating organs); see also Robinson, supra note 16, at 1027. Upon admission to a hospital, the patient must be asked if he is an organ donor. ALEXANDER M. CAPRON & FRED H. CATE, TREATISE ON HEALTH CARE LAW § 21.02, at 2[b] (1993). If the patient is an organ donor, the hospital should request a copy of the organ donation documentation. Id. If the patient is not a donor, the hospital "should discuss with the patient the option" of becoming a donor. Id. If the patient is dead or near death and there is not documentation indicating the patient's preference, the hospital should reach out to the next of kin and ask them to consider donating the patient's organs. Id. The UAGA of 1987 met more resistance than the 1968 UAGA and many states have not adopted it. See Robinson, supra note 16, at 1027.

\(^{20}\) UNIF. ANATOMICAL GIFT ACT (1968), 8A U.L.A. 70 (2003); see REVISED UNIF. ANATOMICAL GIFT ACT, prefatory note (amended 2006), 8A U.L.A. 48 (Supp. 2012) (explaining that neither of the other acts were consistent with changes in federal law). "Neither of those acts comports with changes in federal law adopted subsequent to the 1987 Act relating to the role of hospitals and procurement organization in securing organs, eyes, and tissues for transplantation. And, both of
The UAGA, in all versions, only applied to organ donations from deceased individuals as the drafters felt living donations raised distinct legal issues that should be addressed separately. To address the UAGA's failure to regulate live donations, Congress passed NOTA in 1984 intending to alleviate the organ shortage by including provisions for live donations. NOTA also addressed contemporary issues concerning both fair organ allocation for patients on transplant wait lists, and the development of a black market for organs. Under NOTA, organ donors cannot accept any financial them have impediments that are inconsistent with a policy to encourage donation.” Id. Only twenty-six states adopted the UAGA of 1987, and therefore, there existed a significant variation between the states. Id. Like the other two versions of the UAGA, the 2006 version also included an “opt in” default rule, which allows an individual to become a donor only if that individual or someone acting on his behalf “affirmatively makes an anatomical gift.” Id. This donation process is unlike other countries that have a “presumed consent” system where the individual is presumed to be a donor unless he or another person acting on his behalf opts out. Id.

See REVISED UNIF. ANATOMICAL GIFT ACT (1968), 8A U.L.A. 70 (2003); see REVISED UNIF. ANATOMICAL GIFT ACT preface note (amended 2006), 8A U.L.A. 48 (Supp. 2012) (“Although recently there has been a significant increase in so-called “living donations,” . . . [they] are not covered in this [Act] because they raise distinct and difficult legal issues that are more appropriate for a separate act”); DAVID L. KASERMAN & A. H. BARNETT, THE U.S. ORGAN PROCUREMENT SYSTEM: A PRESCRIPTION FOR REFORM 11 (2002). The Act was meant to resolve the organ shortage by facilitating organ donations bequeathed before death, thereby expanding the amount of cadaveric donors. Id. Both the UAGA and NOTA distinguish between selling and donating organs. Joseph B. Clamon, Tax Policy as a Lifeline: Encouraging Blood and Organ Donation Through Tax Credits, 17 ANN. HEALTH L. 67, 80 (2008). While a person is alive, they may donate non-essential organs, and after they pass away they may donate all of their organs. Id. However, individuals may never donate or sell life essential organs while they are alive. Id.


See Thomas P. Dillon, Source Compensation for Tissues and Cells Used in Biotechnical Research: Why a Source Shouldn’t Share in the Profits, 64 NOTRE DAME L. REV. 628, 643-44 (1989). Congress intended to “limit health care costs, save lives, and clarify the current state of the law in regard to the sale of organs.” Id. A notorious incident of exploitation occurred in 1983 when Dr. H. Barry Jacobs established the “International Kidney Exchange, LTD” and invited hospitals in the United States to participate in his plan to broker the kidneys of indigent individuals. Kelly Ann Keller, Comment, The Bed of Life: A Discussion of Organ Donation, Its Legal and Scientific History, and a Recommended “Opt-Out” Solution to Organ Scarcity, 32 STETSON L. REV. 855, 879 (2003). Virginia enacted legislation that prohibited the sale of human organs and this company therefore never became went into operation. Id. Congress wanted to prevent this type of profiteering but also wanted to increase the number of organ donors through NOTA, and strived to make sure that organ donation and transplantation “retained its policy of altruism.” Id.
incentives for their donation.\textsuperscript{24} Fearful of exploitation of sick and desperate individuals, but hoping to increase the supply of organs, Congress established a Task Force of Organ Transplantation and Organ Procurement Organizations to report regularly on any discrepancies in the allocation of organs to vulnerable populations.\textsuperscript{25} A unified transplant network created the United Network for Organ Sharing ("UNOS"), a national organ transplant list of donation matches and centralized procurement information.\textsuperscript{26}

\textsuperscript{24} See 42 U.S.C. § 274e(a) (banning the exchange of valuable consideration for human organs). Any person who knowingly exchanges an organ for valuable consideration is subject to a fine of not more than $50,000 and/or imprisonment of not more than five years. See id. § 274e(b). "Valuable consideration does not include the reasonable payments associated with the [organ transplant procedure] or . . . travel, housing and lost wages incurred by the donor." See id. § 274e(c). The ban on financial incentives was a blow to doctors and those trying to profit from organ donations. Keller, supra note 23, at 880; see also supra note 1 and accompanying text. Sperm, blood, and ova are not included in the definition of human organs. Clamon, supra note 21, at 76; see also supra note 2 and accompanying text. Other than the exception of blood, sperm, ova, travel, lost wages, and transplant costs, the prohibition is absolute. Id.; but see Robert A. Katz, Precious Commodities: The Supply and Demand of Body Parts: The Re-Gift of Life: Can Charity Law Prevent For-Profit Firms from Exploiting Donated Tissue and Nonprofit Tissue Banks, 55 DePaul L. Rev. 943, 954 (2006) (noting that NOTA is rarely enforced by the United States Government).

\textsuperscript{25} See Pub. L. No. 98-507, 98 Stat. 2339 (1984) (codified as amended at 42 U.S.C. § 273 et seq. (2006)). Congress wanted a unified transplant network to be operated by a private, non-profit organization under federal contract, so it established the OPTN. 42 U.S.C. § 274 (2006). Congress intended to create a national procurement system to facilitate and encourage organ donation and education. Banks, supra note 15, at 69. The major pieces of NOTA included a 25-member task force, the creation of the OPTN for organ sharing, the outlawing of selling and purchasing organs, federal funding of specific non-profit, private organ procurement organizations, and the research and possible creation of a national bone marrow registry. Id. The Task Force compiled a detailed report of recommendations and safeguards for the poor and vulnerable participants in the organ donation industry, which strongly suggested the need for equity in organ procurement and allocation. Id. The recommendations also included limiting the use of live donors, encouraged prohibition of "monetarily motivated" and unrelated donors (both cadaver and living), greater educational and regulatory guidelines to be put in place to enforce organ donation agencies and the creation of a single national network for organ sharing. Id. at 69-70. The first contract to operate OPTN was given to The United Network for Organ Sharing ("UNOS"), and it continues to control the network today. Clamon, supra note 21, at 77. Non-profit companies, called Organ Procurement Organizations ("OPOs"), which are statutorily regulated, are paid fees to recover organs from donors. Id. OPOs are paid by hospitals for matched organs and the procedure costs fall on the patients. Id.

\textsuperscript{26} See 42 U.S.C. § 274 (2006). A national system was created to match organs with people on the transplant list, and also included information about individuals whose "immune system makes it difficult for them to receive organs." See id. § 274(A)(ii). In addition, OPTN was instructed to create and maintain a twenty-four hour hotline to facilitate organ matches, to assist OPOs in fairly distributing organs to patients and transporting the organs to transplant centers, to conduct
Despite the legislative attempts to increase the number of bone marrow donations, patients are still often unable to find adequate matches. Bone marrow transplants, like other organ transplants, are based on an altruistic system, and those in favor of allowing compensation for bone marrow donors have challenged this system. Advances in medicine permit bone marrow donors undergoing apheresis to have similar experiences to blood donors, in that there is neither permanent harm nor significant risk and publish data relating to organ donation, and to work actively to increase the supply of organs. See id. § 274 (C)-(D), (I), (K). "UNOS, a non-profit, charitable organization that unifies the transplant industry, operates the process of procurement and distribution of organs for transplants." Keller, supra note 23, at 880-81. UNOS is contracted by the U.S. Department of Health and Human Services. Id. at 881. It operates and maintains a national organ transplant wait list and constantly matches organs with recipients on the list. Id. Every OPO is required to participate in UNOS and every individual who needs an organ transplant must be on the UNOS list to receive one. Id. "Data and information on every solid-organ transplant performed since 1986" is included with scientific and medical information in UNOS. Id. See Margaret Bichler, Book Review, Lesson Learned: Why Federal Stem Cell Policy Must be Informed by Minority Disadvantage in Organ Allocation, 27 B.C. THIRD WORLD L.J. 455, 461 (2007). Mixed race individuals are "genetically dissimilar in immune system antigens and blood types," which often prevents them from becoming genetic matches. Id. at 460-61. Because Caucasians are more likely than African Americans to become organ donors, Caucasians have a greater chance of a successful match and in less time than it would take for an African American to be matched. Id. at 461. The chance that two randomly selected Caucasian American patients will be genetically matched if they are unrelated is less than 1 in 10,000, but the chance of two African Americans matching is less than 1 in 100,000. Ted C. Bergstrom et al., One Chance in a Million: Altruism and the Bone Marrow Registry, 99 AM. ECONOMIC R. 1309 (2009). A Caucasian American has a less than ten percent chance of failing to find a match in the registry, but African Americans have about a forty percent chance. Id. at 1310. See London, supra note 9, at 489-90 (arguing that compensating bone marrow donors will increase the supply); Allan J. Jacobs, Is State Power to Protect Health Compatible with Substantive Due Process Rights?, 20 ANN. HEALTH L. 113, 145-46 (2001) (discussing some of the benefits of compensating bone marrow donors); Julia D. Mahoney, The Market for Human Tissue, 86 VA. L. REV. 163, 219 (2000) (arguing that compensating donor's would lessen the feeling of being faced with "a constrained set of options" when deciding to donate); Bergstrom et al., supra note 27, at 18-19 (discussing empirical evidence regarding compensating bone marrow donors); Ilya Shapiro & Chaim Gorden, Statement by Ilya Shapiro and Chaim Gorden of the Cato Institute, TRANSPLANT NEWS, Dec.1, 2011, at 4 (arguing the ban on compensating organ donors is "misguided"). But see IJ's Lawsuit Challenging NOTA Ban on Compensating Bone Marrow Donors Drawing Mixed Reviews, TRANSPLANT NEWS, Feb. 1, 2010 (listing statements made by organizations and individuals on the pros and cons of compensating bone marrow donors); Robinson, supra note 16, at 1031-35, 1039-44 (discussing non-compensatory systems of organ procurement and arguments against compensating organ donors); Maurice McGregor, Pragmatic Altruism, 160 CAN. MED. ASS'N. J. 5, 91 (1999), available at http://www.canadianmedicaljournal.ca/content/160/1/91.full.pdf (arguing that even compensation for blood donors should not be allowed because "[t]he need for money is a disincentive to honest disclosure, a disincentive whose force will increase with the strength of the need").
to the donor, a stark contrast to the donor’s experience when undergoing extraction through aspiration. During apheresis, the donor receives medication to increase the production of blood stem cells, and then blood is drawn from the vein. The blood is then filtered through an apheresis machine to obtain bone marrow blood stem cells for donation and the rest of the blood is circulated back into the donor’s veins. Notwithstanding these advances in safely and non-invasively extracting bone marrow, courts have yet to address whether NOTA prohibits compensation for hematopoietic stem cells acquired through apheresis.

See Young, supra note 17, at 1214-15 (explaining that both the newer and old bone marrow donation procedures and the risk, harm, and recovery of donors); Kate Shatzkin, Two Needles, Two Hours, BALTIMORE SUN (Jan. 27, 2000), http://articles.baltimoresun.com/2000-01-27/news/0001270201_1_blood-platelets-apheresis-donor-platelet-donors (describing apheresis); infra notes 32-37 and accompanying text (discussing the old and newer methods of bone marrow transplants). See also Andrew Wancata, Note, No Value for a Pound of Flesh: Extending Market-Inalienability of the Human Body, 18 J. L. & HEALTH 199, 223 (2003) (explaining the “blurry line” existing between organ donation and blood donation); Radhika Rao, Property, Privacy, and the Human Body, 80 B.U. L. Rev. 359, 406-07 (2000) (discussing the theory that medical advances can have an effect on the value of the human body). Bone marrow is a type of regenerative tissue, similar to sperm and blood in that the body quickly produces more once it is donated. Young, supra note 17, at 1209 (discussing how bone marrow is regenerative and levels return to normal within four to six weeks after a donation).

Flynn v. Holder, 684 F.3d 852, 857 (9th Cir. 2012). “Apheresis” is defined as “a procedure in which blood is temporarily withdrawn, one or more components are selectively removed, and the rest of the blood is reinfused into the donor.” MOSBY-YEAR BOOK, INC., supra note 7, at 114. The new procedure requires injections of a “granulocyte colony-stimulating factor,” into the donor’s blood for five days prior to the donation. Flynn, 684 F.3d at 857. This medication quickens the production of blood stem cells which allows more stem cells to enter the bloodstream with a higher number of immature stem cells. Id.

These stem cells are seeds from which white blood cells, red blood cells, and platelets grow.” Id. at 856. These stem cells are not embryonic stem cells, which are “pluripotent” and can turn into any kind of cell. Id. Sedatives are not needed for the procedure, and because the new method is so similar to blood donation, the complications are rare. Id. at 857.

See Duckwitz v. Gen. Am. Life Ins. Co., 812 F. Supp. 864, 865-67 (N.D. Ill. 1993) (holding that taking bone marrow from a patient before cancer treatment and subsequently transplanting it back into the patient after treatment is not considered an organ transplant for insurance purposes); see also Coyote Publishing Co. v. Miller, 598 F.3d 592, 603 (9th Cir. 2010) (citing NOTA regarding the state’s interest in preventing commoditization of human bodies or parts); Newman v. Sathyavagiswarm, 287 F.3d 786, 794 (9th Cir. 2002) (citing NOTA in regards to Congress attempting to increase organ supply); Calon v. Apfel, No. 98-3190, 1999 U.S. App. LEXIS 7955, at 9 (10th Cir. Apr. 26, 1999) (citing NOTA in regards to the plaintiff wanting to sell his organs to pay for his euthanasia).
In *Flynn v. Holder*, the Court of Appeals for the Ninth Circuit redefined the legal meaning of bone marrow transplants involving extraction by apheresis. The court first reviewed the aspiration procedure and compared it to apheresis. The court employed a rational basis standard to analyze the issue and noted that, although bone marrow is a regenerable tissue like blood, the statute cannot be construed to mean that compensation is prohibited only for organs that do not regenerate. The court reasoned that the liver is a regenerable organ, yet it is undisputedly included in the definition of "human organ" under NOTA. The court concluded that NOTA passed the rational basis test on the issue of aspiration.

---

33 Flynn v. Holder, 684 F.3d 852, 862-63 (9th Cir. 2012) (noting that the new procedure is not legally the same as obtaining bone marrow through aspiration). "It may be that 'bone marrow transplant' is an anachronism that will soon fade away, as peripheral blood stem cell apheresis replaces aspiration as the transplant technique, much as 'dial the phone' is fading away now that telephones do not have dials." *Id.* at 865. The court reviewed the case de novo because the lower court dismissed the case on a 12(b)(6) motion. *Id.* at 859; Barker v. Riverside County Office of Education, 584 F.3d 821, 824 (9th Cir. 2009) (stating that a lower court's dismissal of a claim based on a 12(b)(6) motion is reviewed de novo); Fed. R. Civ. P. 12(b)(6).

34 See *Flynn*, 684 F.3d at 859-63. Flynn's complaint was unclear as to whether they were only challenging the ban in connection with transplant by apheresis or the ban in its entirety. *Id.* at 859. The court understood the complaint to suggest that donors being compensated should have the choice between the two methods, and therefore, analyzed the procedures separately. *Id.*

35 Id. at 858. This was a constitutional challenge to a statute not involving a protected class of individuals or an infringement on a fundamental right. *Id.* Flynn argued that allowing compensation for donors of sperm, eggs, and blood lacks a rational basis because bone marrow can now be donated in an almost identical manner as blood and the body will regenerate the donated cells very quickly. *Id.* at 858-59. Flynn felt that even though the level of scrutiny is low, there was no rational basis and the statute, therefore, violated the Equal Protection Clause. *Flynn*, 684 F.3d at 858-59. The Attorney General responded by arguing that the plain language of the statute prohibited compensation for certain organs, that bone marrow was explicitly listed by Congress as one of those organs, and that there are many policy reasons for doing so. *Id.; see Kahawaiolaa v. Norman*, 386 F.3d 1271, 1277-78 (9th Cir. 2004) (discussing the levels of scrutiny and explaining that when there is no "suspect" class involved and a fundamental right is violated, the level of review is by rational basis). The court looked to the legislative history of NOTA and found it irrelevant that some regenerating tissues were viewed as standing outside the scope of the definition of a "human organ." *Flynn*, 684 F.3d. at 860; see *S. REP. NO. 98-382*, at 16-17 (1984), *reprinted in* 1984 U.S.C.C.A.N. (98 Stat. 2339) 3975, 3982 (omitting from the act "blood and blood derivatives," which can regenerate and be donated without compromising the health of the donor).

36 See *S. REP. NO. 98-382*, at 16 (1984), *reprinted in* National Organ Transplant Act, Pub. L. No. 98-507, 1984 U.S.C.C.A.N. (98 Stat. 2339) 3992 (stating that "the term 'human organ' is not intended to include replenishable tissues such as blood or sperm"); *Flynn*, 684 F.3d at 860. The court noted that the drafters of NOTA had to have known that the liver was a regenerative organ and that the donor's liver would grow back after partially donating it. *Flynn*, 684 F.3d at 860.
transplants by offering several policy and philosophical reasons for including bone marrow in the category of organs for which compensation is banned.\textsuperscript{37}

Next, the court addressed the issue of bone marrow donation through apheresis.\textsuperscript{38} The court first noted that the plain language of NOTA did not explicitly prohibit compensation for donating marrow through apheresis since the procedure did not exist at the time of enactment.\textsuperscript{39} The court reasoned that hematopoietic stem cells extracted through apheresis needed to be distinguished from bone marrow, which it deemed to mean the "soft, fatty substance in bone cavities," and not "the red liquid that flows through the veins."\textsuperscript{40} The court held that the ban on compensating donors

\textsuperscript{37} Id. at 859-61. The court noted that Congress did state some of the reasons for including bone marrow in NOTA, but that it was not obligated to do so to pass the rational basis standard. \textit{Id.} at 860; \textit{Kim v. United States}, 121 F.3d 1269, 1274 (9th Cir. 1997) (explaining that the government is not required to state a reason for its actions, but a potential legitimate reason is sufficient). The court explained that Congress may have been worried that wealthy recipients could induce the poor to sell their organs, even though the transplant through aspiration is accompanied by serious medical risks and pain for the donor. \textit{Flynn}, 684 F.3d at 860. On the other hand, there was the concern that sick patients requiring transplants would spend all of their money trying to obtain an organ or that the market for obtaining organs by force or fraud might be nourished with the prospect of paying customers. \textit{Id.; see also H.R. REP. NO. 98-1127, at 17 (1984) (Conf. Rep.), reprinted in 1984 U.S.C.C.A.N. (98 Stat. 2339) 3989, 3993} (noting that because matching bone marrow donors and recipients is extremely difficult, matched donors may "represent a last resort" for patients); \textit{National Organ Transplant Act: Hearing on H.R. 4080 Before the Subcomm. on Health of the H. Comm. On Ways & Means, 98th Cong., 2d Sess. 26 (1984) (statement of Rep. Waxman).} If selling organs is allowed, "I believe our efforts to promote voluntary organ donations would collapse, and health risks to transplant patients would greatly increase. Human organs should not be treated like fenders to an auto junkyard." \textit{Id.} The court noted some of the philosophical reasons for including bone marrow under NOTA, such as the fact that the removal of body parts to be used by another instinctively repulses people, as does treating it as commerce. \textit{Flynn}, 684 F.3d at 861.

\textsuperscript{38} Id. at 862 (noting that bone marrow donation through peripheral blood stem cell apheresis was the focus of Flynn's argument).

\textsuperscript{39} Id. (explaining that since there is no Congressional intent to include apheresis in the statute, the court needed to look at the plain language of the statute and the statute's implication regarding this method).

\textsuperscript{40} Id. at 864. The court stated that red cells, white cells, platelets, stem cells, and other material make up the bloodstream and as a whole, and the red liquid is called "blood," not "bone marrow." \textit{Id.} The court reasoned that Congress could not have intended "bone marrow" to mean anything other than its ordinary usage, which does not include "blood." \textit{Id.} The Attorney General argued that the hematopoietic stem cells in the bloodstream are a "subpart" of bone marrow and should, therefore, be included in the compensation prohibition. \textit{Id.} at 863. However, the court rejected this argument because "red and white blood cells that flow through the veins come from the bone marrow, just like hematopoietic stem cells." \textit{Flynn}, 684 F.3d at 863. Since red and white blood cells are not considered a subpart of the bone marrow, the court
undergoing aspiration was constitutional because there was a legitimate reason for the prohibition, but further held that donation of hematopoietic stem cells from apheresis is not a transfer of a human organ, but is essentially the same as donating blood, thereby excluding it from the definition of "organ donation" under NOTA.  

The Ninth Circuit properly determined that NOTA does not ban compensation to bone marrow donors undergoing apheresis.  When Congress enacted NOTA, bone marrow was categorized as a "human organ" and donations required the donor to undergo aspiration, a seriously painful and risky procedure. Apheresis is an entirely different and distinct procedure that is logistically more akin to an ordinary blood donation than to traditional organ donation. Further, the procedure is not exclusively 

decided that hematopoietic stem cells acquired through apheresis should also not be considered a subpart.  

The court explained that meeting the rational basis standard does not mean that the reasoning must be "persuasive to all," but merely rational, and the reasoning behind the prohibition on compensating bone marrow donors was rational. 

The legitimate reasons for banning compensation for bone marrow transplants through aspiration include preventing exploitation of the poor, sick, or desperate and maintaining the notion that human body parts should not be considered commodities. 

The court equated apheresis with donating blood. 

The court did not attempt to include either in the definition. 

NOTA was enacted in 1984; however, apheresis was not a possibility at that time. 

Young, supra note 17, at 1216-17. There was no way for Congress to have predicted such a less invasive method for obtaining bone marrow for transplantation, and we do not know if bone marrow would have been included under NOTA had Congress considered apheresis. 

See id. (arguing that NOTA may need to be reexamined if the invasiveness of the procedure is what caused bone marrow's inclusion in the act as an organ).

See Flynn, 684 F.3d at 857 (discussing the major differences between the procedures and
used to obtain bone marrow and is often used for other purposes, such as collecting plasma. In this way, it is only logical to distinguish bone marrow donation by apheresis from donation by aspiration and to place it into the category of blood – the category in which it best fits.

The Ninth Circuit’s decision can have both positive and negative effects on those in favor of compensating bone marrow donors. A determination that

comparing apheresis to blood donation); Shatzkin, supra note 29 (describing the apheresis process). Live organ donations are performed through surgery and generally require painful invasion into the donor’s body and organs, or parts of organs, are actually removed. Living Donation Procedures, TRANSPLANT LIVING, http://www.transplantliving.org/livingdonation/procedure/default.aspx (last visited Mar. 29, 2013). Apheresis does not involve surgery of any kind, but merely requires a needle to be inserted into the vein to collect blood. Flynn, 684 F.3d at 857. The main component of apheresis and ordinary blood donation is the same – a needle is inserted into the vein and blood is withdrawn. Id. at 856-57; Shatzkin, supra note 29. Blood donations are very easy and common and usually take about ten minutes. Shatzkin, supra note 29. Apheresis takes longer and the donor must sit for a couple hours in a recliner while their blood is withdrawn and processed. Id. Draining blood from the vein completes both procedures. Id.; Flynn, 684 F.3d at 857. The prominent differences are that apheresis begins with the donor receiving five days of medication to increase stem cell production and the drawn blood is filtered to collect the bone marrow cells and then returned to the body. Flynn, 684 F.3d at 857. Filgrastin is the drug given to the donors in the days before the donation. London, supra note 9, at 482. It quickens the production of blood stem cells so that more of them enter the blood stream. Id. Donors undergoing apheresis have two needles inserted into them, one in each arm. Shatzkin, supra note 29. One needle removes the blood from the vein and the blood is filtered through the apheresis machine to remove the desired blood component. Id. The other needle is placed into the other arm and it replaces the unneeded blood back into the donor's body. Id.

45 See Flynn, 684 F.3d at 857 (explaining that apheresis machines can be set up to filter plasma and platelets as well as bone marrow); Shatzkin, supra note 29 (discussing donating platelets through apheresis).

46 See Young, supra note 17, at 1216-17. The differences in solid organ donation and bone marrow donation through apheresis create different moral and legal issues, and they should, therefore, be addressed differently. Id. at 1217. The concerns regarding compensating bone marrow donors stem from the invasiveness of the old procedure. Id. Because invasiveness is not an aspect of apheresis, the law regarding bone marrow donation needed to be addressed. Id. Bone marrow donations require needles in both apheresis and aspiration. London, supra note 9, at 481-82. However, with aspiration, long thick needles are inserted into the hipbone to extract marrow. Id. at 481. With apheresis the needle is painlessly inserted into the vein to extract stem cells, rather than to extract the marrow itself. Id. at 482. There are inherent risks for a person that undergoes anesthesia, and aspiration and other organ donations mandate some type of anesthesia. Id. But apheresis does not involve this risk at all. Id. at 500.

47 See Shapiro & Gorden, supra note 28, at 4. The market for bone marrow transplants is basically unregulated now since most transplants are performed through apheresis. Id. There is a chance for exploitation of vulnerable patients waiting for donations. Id. However, the current registry does not permit contact between donors and patients, which is how unrelated patients receive
hematopoietic stem cells may be legally bought and sold can be viewed as a minor victory for organ donor compensation advocates, legally sanctioning a commercial market for hematopoietic stem cells.\textsuperscript{48} Despite its narrow application, receiving the green light to compensate bone marrow donors has the very realistic possibility of substantially increasing the number of donors.\textsuperscript{49} Thousands of Americans die each year from blood related diseases, many of which could be cured with matching bone marrow donations.\textsuperscript{50} Allowing compensation to bone marrow donors could potentially save thousands of lives.\textsuperscript{51}

\begin{flushright}
Id. Congress or the Supreme Court could change this decision. \textit{Id.}
\end{flushright}

\textsuperscript{48} See \textit{id.} A market for bone marrow, at least within certain parameters, is now legal. Cohen, \textit{supra note 5} at 297. Challenges to the ban on compensating bone marrow donors have been going on for a long time. London, \textit{supra note 9}, at 489-90. Prior to this decision, compensating bone marrow donors could result in a substantial fine or jail time. 42 U.S.C. § 274(e) (2006). Now, patients, donors, and facilitators do not need to worry about being criminally prosecuted for being involved with financially incentivizing donors undergoing apheresis. Flynn v. Holder, 684 F.3d 852, 864-65 (9th Cir. 2012). The ban on compensating bone marrow donors undergoing aspiration was found to be constitutional. \textit{Id.} at 859-60. The all-encompassing right to buy and sell body parts was not handed out by the court. Cohen, \textit{supra note 5} at 297. The only privilege granted was compensation for bone marrow donation through apheresis. \textit{Id.} The court did not extend its ruling to any other type of organ donation. \textit{Id.}; \textit{Flynn}, 684 F.3d at 865.

\textsuperscript{49} Mark F. Anderson, \textit{Encouraging Bone Marrow Transplants from Unrelated Donors: Some Proposed Solutions to a Pressing Social Problem}, 54 U. PITr. L. REV. 477, 489-90 (1993) ("For the right price, enough people could be added to the registry in a very short time. A registry . . . could be doubled or tripled almost overnight."). It is not illogical to think that compensating people for services will increase participants in that service. London, \textit{supra note 9}, at 489. Studies have shown that providing incentives for donations would increase the number of people joining the registry and donating when asked. \textit{Id.} Poorer people are likely to join the registries because they will be the ones who need the money. \textit{Id.} at 490. Because many minorities are also economically disadvantaged and could join the registry for compensation, this increased donor pool will benefit persons of mixed race who have an extremely difficult time obtaining a bone marrow match. \textit{Id.}

\textsuperscript{50} \textit{Flynn}, 684 F.3d at 857-58. Siblings have proven to be great bone marrow matches for each other, but identical twins are the best. Bergstrom et al., \textit{supra note 27}, at 1. Finding a stem cell match is considerably more difficult than finding a blood match. \textit{Id.} The probability that two randomly selected individuals are of matching type is no greater than one in ten thousand. \textit{Id.} In general, it is hard to obtain a bone marrow match, but for minorities it is exceptionally more difficult. Bichler, \textit{supra note 27}, at 460. Minorities are on waiting lists in larger numbers and for longer periods than Caucasians. \textit{Id.} People end up dying while waiting for transplants because they have not found a matching donor or are forced to receive an imperfectly matched donor which often results in complications. \textit{Flynn}, 684 F.3d at 855.

\textsuperscript{51} London, \textit{supra note 9}, at 489-90. Increasing the donor pool would also decrease donor deferral. \textit{Id.} at 490. A study on compensating organ donors found that monetary incentives would increase the number of willing donors and would decrease the number of people who die while waiting for organs. \textit{Id.} The United States allows compensation for plasma, and as a result
Nevertheless, there is still an opportunity for abuse. The result of this opinion could create an expectation of compensation that may adversely impact clinical decisions regarding the patient’s best interest. For example, although apheresis is the procedure frequently used for bone marrow donations, aspiration might be the best choice for the patient in some instances. Allowing compensation for one procedure and not the other could compromise patient care decisions. Not surprisingly, the debate continues half of the world’s supply comes from here. Countries that allow compensation for organs are more successful in increasing donations than those countries that ban it.

52 See NBMD Opposes Ninth Circuit Court Ruling on PBSC Donor Compensation, NATIONAL MARROW DONOR PROGRAM (Dec. 5, 2011), http://marrow.org/News/News_Releases/2011/NMDP_Opposes_Ninth_Circuit_Court_Ruling_on_PBSC_Donor_Compensation.aspx. The care concerns associated with compensation for organs include coercion of the poor and inequitable allocation or organs. Robinson, supra note 16, at 1040-41. The exploitation of minorities and low-income families is a serious concern because they are the people most likely to donate specifically for the money. Young, supra note 17, at 1228-29; Robinson, supra note 16, at 1040-41.


54 See Young, supra note 17, at 1214-15 (noting the prevalence of apheresis in bone marrow transplants); NATIONAL MARROW DONOR PROGRAM, supra note 52. The donor is ultimately the one who decides which procedure they are willing to undergo for the donation. NATIONAL MARROW DONOR PROGRAM, supra note 52. The optimal procedure varies from patient to patient and that decision should be made in the patient’s best interest and based on the judgment of the patient’s doctor. Id. Aspiration might be the best choice in some instances for sick patients that need a certain amount of bone marrow quickly.

55 See NATIONAL MARROW DONOR PROGRAM, supra note 52. Donors might be more inclined to donate if they are compensated, but since undergoing apheresis is the only legal way to compensate donors, they may choose to donate that way even if aspiration would be the best way to help the patient. Id. Although apheresis is used a majority of the time, NMDP research shows that aspiration has increased each year over the last five years. Id. The donor registry believes that a system of volunteer donations is “far superior to one that focuses on self-gain.” Barnes, supra note 53.
as the Department of Justice also challenged the Ninth Circuit's decision. Regardless of how the courts ultimately rule, Congress has the power to amend the statute to exclude hematopoietic stem cells collected through apheresis at any time in the future.

Consequently, this decision could create a potential slippery slope regarding how medical advances may influence compensation for other organs. Advances in kidney transplants, for example, have already resulted in considerably less invasive extraction procedures. If the standard for allowing or prohibiting compensation for organs involves the procedure's invasiveness or similarity to another procedure, then

56 U.S. Seeking En Banc Review of Bone Marrow Ruling, METROPOLITAN NEWS-ENTERPRISE, Jan. 20, 2012, http://www.metnews.com/articles/2012/nota012012.htm; Barnes, supra note 53 and accompanying text. The Justice Department and the NMDP have asked the Ninth Circuit to rehear the case. Barnes, supra note 53. They argued that the court made important legal mistakes and the decision "threatens to disrupt current patient care and undermines Congress's clear policy of encouraging voluntary bone marrow donations." Id. The debate over whether the Ninth Circuits decision was proper also continues among academics. Recent Case: Health Law - Organ Compensation - Ninth Circuit Holds that Compensation for Blood Stem Cell Transplant Procedure Does Not Violate the National Organ Transplant Act. - Flynn v. Holder, No. 10-55643, 2012 W.L. 1001300 (9th Cir. Mar. 27, 2012), 125 HARV. L. REV. 2201 (June 2012).

57 Shapiro & Gorden, supra note 28, at 4 (stating that Congress may reexamine its stance on compensation for donors); Flynn v. Holder, 684 F.3d at 852, 865 (9th Cir. 2012) (noting that the Secretary for Health and Human Services has authority to define peripheral blood stem cells). This was a judicial interpretation of NOTA and the Department of Justice is asking for more judicial review. Barnes, supra note 53. Regardless of how the courts rule, Congress has the power to make a final decision. Shapiro & Gorden, supra note 28, at 4. However, it is unlikely and illogical that Congress would amend NOTA in this way because all blood drawn contains some hematopoietic stem cells and compensation for blood donations has been commonly accepted for decades. S. REP. NO. 98-1127, at 16 (1984), reprinted in 1984 U.S.C.C.A.N. (98 Stat. 2339) 3989, 3992 (stating that "the term 'human organ' is not intended to include blood"); Flynn, 684 F.3d at 862 (pointing out that compensation for blood donations has been allowed for a long time).

58 Young, supra note 17, at 1217. Advances in technology require changes and development of the law in order for our legal system to keep up. Id. at 1216. There is a possibility that this decision could affect how courts and the legislature view the ban on compensation for other organs. Id. at 1217. Advances in medicine increase the value of the human body. Rao, supra note 29, at 406. New technology has changed the value of the human body. Dillon, supra note 23, at 630-31. The law should obviously develop as well. Id. at 630. Markets for organs from living donors creates monetary value in those organs, which would not exist otherwise. Id.

59 Gary S. Becker & Julio Jorge Elias, Introducing Incentives in the Market for Live and Cadaveric Organ Donations, 21 J. ECON. PERSP. 3, 4 (2007). The traditional way to obtain a kidney for transplant was through open nephrectomy. Id. Technological development has allowed for the procedure to be completed laparoscopically. Id. Now that compensation for bone marrow obtained through apheresis is legal, there is a question of whether advances in kidney transplant will allow a change in the law to allow payment for them. Young, supra note 17, at 1217-18.
solid organs, like kidneys, may quickly become legally marketable. While bidding wars and auctions are unlikely to occur for bone marrow because of the slight chance of multiple donor matches, solid organ transplants do not require such stringent biological matches. Sick patients in desperate need of an organ transplant could easily be exploited if this decision opens the door for solid organ compensation, a circumstance that Congress specifically intended to prevent. However, the narrowness of this decision helps to limit the possibility of compensation for solid organs in the future.

In *Flynn v. Holder*, the Ninth Circuit addressed whether compensation for bone marrow donations through apheresis was prohibited under NOTA. The court properly determined that the bone marrow cells obtained through apheresis were not considered "bone marrow" as defined under NOTA and compensation for them was, therefore, not illegal. Although this decision will likely create a market for.


61 See Young, *supra* note 17, at 1231. Even though bidding competitions for bone marrow seem unlikely, it could be dangerous when there is only one potential donor demanding an extremely large sum of money for the donation, and exploitation can still occur. *Id.* Now that there is a legalized market for bone marrow, the government should step in to regulate it to prevent a monopoly or exploitation. *Id.*

62 See *Flynn*, 684 F.3d at 860. The court reasoned that compensation for bone marrow transplants through aspiration is constitutional because of Congress’s belief that the poor or vulnerable would be exploited. *Id.* Opponents of organ markets argue that desperate donors could take unacceptable risks such as manipulating medical records in order to receive payment for their bodies. London, *supra* note 9, at 493. They also argue that an inequitable system could be created in which only the wealthy have the resources to buy human body parts. *Id.*

63 See Cohen, *supra* note 5, at 297. This decision specifically differentiated between organs and blood in this decision and the privilege to receive compensation for organs, or the soft fatty tissue of bone marrow, was not granted. *Id.* at 296-97; *Flynn v. Holder*, 684 F.3d 852, 864-65 (9th Cir. 2012). If the possibility develops that organs, such as kidneys, can be grown from a donor’s stem cells and then transplanted into a donee, this decision might stretch to allow compensation for a procedure in this manner. Hank Greely, *Q: When is Bone Marrow Not an Organ Under The National Transplant Act? STANFORD LAW SCHOOL BLOG* (Dec. 2, 2011), http://blogs.law.stanford.edu/lawandbiosciences/2011/12/02/q-when-is-bone-marrow-not-an-organ-under-the-national-organ-transplant-act.

64 *Flynn*, 684 F.3d at 855.

65 See *id.* at 865; *supra* notes 41-46 and accompanying text (discussing reasons for distinguishing
hematopoietic stem cells, the scope of its reach will probably end there.66

66 See Flynn, 684 F.3d at 864-65 (categorizing bone marrow obtained through apheresis with blood and allowing compensation). A change in the law for bone marrow compensation is not likely strong enough to create such a slippery slope since there are crucial differences between bone marrow and solid organs. Banks, supra note 15, at n.14 (distinguishing regenerative human organs, including bone marrow, and solid organs); London, supra note 9, at 498-99 (noting that the rarity in marrow matches makes it harder for patients to "shop around" than it does for patients needing solid organs).