**YD 336.2026a**
**Rabbi Daniel Nevins**

# Human Organ Procurement with NRP[1]

*Approved on May 5, 2026, by a vote of 18-0-5. Voting in favor: Rabbis Aaron Alexander, Adam Baldachin, Pamela Barmash, Emily Barton, Chaya Bender, Suzanne Brody, Nate Crane, David Fine, Daniel Nevins, Matthew Nover, Micah Peltz, Joel Pitkowsky, Marcelo Polakoff, Rachel Safman, Robert Scheinberg, Miriam T. Spitzer, Stewart Vogel, Raysh Weiss. Voting Against: None. Abstaining: Rabbis Aviva Fellman, Joshua Heller, Amy Levin, Avram Reisner, Karen Reiss Medwed.*

## שאלה (Question)

Is the organ transplantation protocol known as normothermic regional perfusion (NRP) following determination of circulatory death (DCD) permitted according to halakhah?

## תשובה (Response)

### Introduction

Over 100,000 people wait on the organ donation list in the United States, with about 13 dying each day for lack of a compatible donor.[2] Global statistics are difficult to ascertain, but it is estimated that only 10% of demand for human organ donation is being met.[3]

Numerous efforts to augment donations have been tried, such as Spain's "soft opt-out" system in which every person is by default assumed upon their death to be an organ donor, though families have the final word to approve the procedure.[4] These protocols have had a substantial effect in increasing donations, but have also been criticized for compromising the end-stage medical care of potential donors.[5]

There have been promising advances in xenotransplantation, where genetic modifications are made to animals such as pigs to allow successful transplantation of their organs into humans, but these methods remain experimental and are criticized by some advocates of animal rights.[6]

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[1] The Committee on Jewish Law and Standards of the Rabbinical Assembly provides guidance in matters of halakhah for the Conservative movement. Individual rabbis, however, are authorized to interpret and apply halakhah for their communities.

[2] Organ Donation Statistics | organdonor.gov.

[3] Global Organ Shortage and Ethical Solutions.

[4] Organ donation: lessons from the Spanish model - The Lancet.

[5] "Ethical Issues in Organ Transplantation: A Position Paper From the American College of Physicians" by Kari L. Esbensen, Matthew DeCamp, Elliot J. Crigger, and Lois Snyder Sulmasy, *Annals of Internal Medicine* (Oct. 25, 2025).

[6] Kasra Shirini, Joseph M. Ladowski, Raphael P. H. Meier, "Xenotransplantation Literature Update July–December 2024," *Xenotransplantation* (Volume 32, Issue1, January/February 2025). Shai Cherry, "Xenotransplantation," Committee on Jewish Law and Standards (CJLS) YD 336.2024. For links to the

The prospect of 3D- printed synthetic organs being implanted into humans to replace failing organs is exciting but still far off.[7] Such experimental solutions do not risk the lives of human donors, but they raise other halakhic concerns with animal suffering and social equity given their great expense. In any event, they are still experimental, and the need for human organ donations is urgent and vast.

This crisis of medical scarcity creates a moral challenge for societies committed to saving lives, and a halakhic one for Jews who are commanded, "לֹא תַעֲמֹד עַל־דַּם רֵעֶךָ" Do not stand idly by as your neighbor bleeds [to death]" (Levit. 19:12). Rabbinic law exalts the value of פִּיקּוּחַ נֶפֶשׁ, saving lives, raising this ethical imperative over nearly all other obligations.[8] We are witness to the extraordinary miracle of successful organ donations, which are truly the gift of life. Nevertheless, one of the few mitzvot to supersede the positive obligation to *save* lives is the negative obligation not to *take* lives, known by the halakhic principle, "אֵין דּוֹחִין נֶפֶשׁ מִפְּנֵי נֶפֶשׁ," we must not take one life to save another" (M. Ohalot 7:6; see below). How then may we fulfill our obligation to save the lives of organ recipients while avoiding the violation of other moral and halakhic obligations such as not precipitating the deaths of organ donors?

Of course, there are established methods for human organ donation which meet both general ethical and halakhic requirements. The donation of blood, bone marrow, and other regenerative tissue is not only permitted by halakhah but potentially commanded.[9] Living donation (e.g., of a kidney, or a segment of liver, pancreas, or lung) is an especially righteous act which is worthy of praise, but uncommon outside of family units. Cadaveric donations to save another human life either directly by transplantation, or indirectly through medical research and education[10] are broadly supported yet yield far fewer viable organs than are needed.

Recent attention in public media has demonstrated the unsettled nature of general organ donation practices, at least in the American context. *The New York Times* reported in the summer of 2025 on numerous cases in which transplant teams pressured donors and their families to disregard signs of life and proceed with organ procurement. They cited a federal investigation in Kentucky that "found that the state's procurement organization had ignored signs of increasing consciousness in 73 potential donors."[11]

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xenotransplantation ethics discourse see the site of an ethics work group on which I served at NYU Langone. For a forceful critique, see Jeff Sebo, "Against Human Exceptionalism" *Aeon*, May 5, 2022.

[7] Guofan Zang, *et al.*, "A Roadmap for the Implementation of 3D-printed Organs in Healthcare" *Device* (July 16, 2025).

[8] Bavli Yoma 82a, שְׁאֵין לְךָ דָּבָר שֶׁעוֹמֵד בִּפְנֵי פִּקּוּחַ נֶפֶשׁ, חוּץ מֵעֲבוֹדָה זָרָה וְגִילּוּי עֲרָיוֹת וּשְׁפִיכוּת דָּמִים, "For there is no [value] greater than saving [human] life other than [avoiding] idolatry, sexual crimes, and murder." See, *et al.*, MT *Yesodei HaTorah* 5:2, SA YD 157:1.

[9] Joseph H. Prouser, "*Chesed* or *Chiuv*: The Obligation to Preserve Life and the Question of Post-Mortem Organ Donations," CJLS YD 336.1995, and Joel Roth, "Organ Donation" CJLS YD 336.1999.

[10] Pamela Barmash, "Donating One's Body to Medical Education and Research," CJLS YD 336:1.2024a.

[11] Brian M. Rosenthal and Julie Tate, "A Push for More Organ Transplants Is Putting Donors at Risk," *New York Times* (July 20, 2025). See also Brian M. Rosenthal, "Doctors Were Preparing to Remove Their Organs. Then They Woke Up," *New York Times* (June 6, 2025). There are also ethical concerns regarding the allocation of organs, with some recipient hospitals and wealthy or well-connected patients given improper priority on the waiting list. Critical attention may have improved transplantation protocols. See Brian M.

While such reports of ethical failures are atypical, they erode public confidence and suppress organ donor registrations. This situation calls for greater attention to the protocols for organ donation, and for consistent approaches to ethical concerns surrounding the transplantation industry. Halakhists are responsible to inquire into the evolving technology and to advocate for protocols that address both general ethical and our particular Jewish concerns so that the "gift of life" can be given and received with confidence.

**Recent Developments in Organ Donation**

Most organs suffer ischemic injury and lose viability for transplantation within minutes of death, even if they are perfused externally (*ex situ*). Experts have worked in recent years to establish methods to maximize successful organ procurement by maintaining perfusion inside the donor's body (*in situ*) until the organ has been evaluated and the surgical team and recipient are ready.

A broad consensus supports the dead donor rule (DDR).[12] It is essential that organ recovery does not precede or cause the donor's death for ethical, practical, and halakhic reasons. Medical ethics includes the principle of *nonmaleficence*, that a physician should not harm their patient by, say, killing them ("first, do no harm").[13] Enrollment forms for registering as an organ donor give permission for organ transplantation "after death" without providing further information about its determination.[14] This is not a situation in which the patient has requested medical assistance in dying, a separate subject of ethical, legal, and halakhic controversy.[15] On a

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Rosenthal, "Increased Scrutiny Leads to an Improved Organ Transplant System," *New York Times* (Jan. 23, 2026).

[12] First articulated by John A. Robertson, "Delimiting the Donor: The Dead Donor Rule" in *The Hastings Center Report* 29:6 (Nov./Dec. 1999) 6-14, this "rule" is an ethical norm, not a legal statute, although it may have legal implications for physicians accused of malpractice. DDR has been revised and contested ever since, with some transplant physicians arguing that it should be relaxed or even eliminated, for example to allow organ procurement from patients who have lost higher brain functions. See Robert D. Truog, et al., "The Dead Donor Rule and the Future of Organ Donation" in *New England Journal of Medicine* 369:14 (Oct. 3, 2013), and more recently, "Donor Organs Are Too Rare. We Need a New Definition of Death," by Sandeep Jauhar, Snehal Patel, and Deane Smith, *New York Times* (July 30, 2025). The reader comments associated with the latter article demonstrate the horror that it (and other reporting about transplantation mishaps, see prior note) evoked, with many announcing their revocation of registration as organ donors. Such proposals are considered fringe in the medical ethics literature and are clearly forbidden within a halakhic framework.

[13] On nonmaleficence, see Basil Varkey, "Principles of Clinical Ethics and their Application to Practice," *Medical Principles and Practice* (Jun 4, 2020) 30(1):17–28. The expression "first, do no harm," is attributed to the ancient Greek physician Hippocrates in his work, "Of the Epidemics," but is not included in the Hippocratic oath. While the principle seems reasonable, in truth many medications and procedures (surgery, radiation, chemotherapy, etc.) cause harm, or at least involve risk. See Robert H. Schmerling, "First, Do No Harm," *Harvard Health Publishing* (June 22, 2020).

[14] For example, the NYS Donate Life form states, "You consent to donate organs and tissues in the event of your death." Donors are allowed to specify conditions, but these are not listed or prompted by the form.

[15] When people register as organ donors, they are not informed of the possibility that their heart may be beating independently at the time of donation, and that the removal of organs could arguably be their cause of death. For CJLS discussions of physician assisted suicide, now called medical aid in dying (MAiD), see Elliot N. Dorff, "Assisted Suicide," YD 345.1997a; "[CJLS] Statement on Assisted Suicide," YD 345.1997b; and Dorff, "Assisted Suicide/Aid in Dying Reconsidered," YD 345.2020. I voted against the latter paper. See

practical level, organ donation requires *trust* from potential donors and their families that the patient will have received all appropriate efforts either to heal them or to provide palliative end of life care, and will have truly died prior to the removal of vital organs. Halakhic sources establish that one may not kill a person even to save the life of another: *ein doḥin nefesh mipnei nefesh.*[16] For these three reasons, there must be no doubt that a patient has died before their vital organs are removed for transplantation.

But how do we establish that the potential donor is truly dead? The 1981 Uniform Determination of Death Act (UDDA) required "either (1) the irreversible cessation of circulatory and respiratory functions, or (2) irreversible cessation of all functions of the entire brain."[17] Yet this act has been broadly criticized for its misalignment with accepted neurorespiratory standards.[18]

Within rabbinic discourse, criteria for the declaration of death are complex, as I examined in my 2004 responsum on brain death.[19] In that paper, I presented the l*ocus classicus* in rabbinic literature for determining death, Bavli Yoma (83a-85a *passim*), as well as other rabbinic discussions of major trauma to the head, neck, and spine, which together establish the halakhic perspective of death as following the cessation of respiration. I concluded that the determination of death by neurological criteria (=brain death) is permissible according to halakhah so long as the patient's permanent incapacity for spontaneous respiration has been demonstrated. This position has been established by the CJLS, and is similar to the view of Israel's Chief Rabbinate and Israel's Knesset in its 2008 Brain Respiratory Death Act.[20]

DBD, *donation after brain death,* yields viable organs, however, relatively few patients are declared brain dead while remaining candidates for organ donation. Another protocol is known as cDCDD, *controlled organ donation after circulatory determination of death*, or DCD

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also Sherwin, Byron, "A View of Euthanasia" in Elliot N. Dorff & Louis E. Newman, eds., *Contemporary Jewish Ethics and Morality* (New York: Oxford UP, 1995).

[16] M. Ohalot 7:6; B. Sanhedrin 72b; MT Rozeaḥ 1:9; SA ḤM 125:2. An exception to this rule is permission defensively to kill a *rodef*, a person who is threatening the life of another, even unintentionally as in the case of a person whose life is endangered by their pregnancy, in which case the fetus is deemed a *rodef*.

[17] Completed by the Uniform Law Commissioners in 1980, in cooperation with the American Medical Association, the American Bar Association and the President's Commission on Medical Ethics, the UDDA was subsequently adopted by most American states. Many other nations have adopted similar definitions which equate either whole brain or brain stem death with circulatory death.

[18] For one of many calls to revise the UDDA, see Adam Omelianchuk *et al.*, "Revise the Uniform Determination of Death Act to Align the Law With Practice Through Neurorespiratory Criteria" *Neurology* (Mar 29, 2022). For competing positions on whether death should be defined by the irreversible cessation of circulation, or only by its permanent cessation (potentially reversible with medical intervention), see Andrew McGee and Dale Gardiner, "Should the Criterion for Brain Death Require Irreversible or Permanent Cessation of Function? Permanent," *Neurology* (June 23, 2023) vs. Ari R. Jaffe, "Should the Criterion for Brain Death Require Irreversible or Permanent Cessation of Function? Irreversible," *Neurology* (June 25, 2023).

[19] Daniel S. Nevins, "*Ad Heikhan Hu Bodek?* -- Contemporary Criteria for the Declaration of Death," CJLS YD 370:1.2004. Revised version in Nevins, *Torah and Technology: Circuits, Cells, and the Sacred Path* (Izzun Books, 2024), chapter 8.

[20] Daniel Sperling, "Israel's New Brain-Respiratory Death Act: One Step Forward or Two Steps Backward?" in *Reviews in the Neurosciences*, 20: 299-306 (2009).

for short. Here, life-support systems are removed from a ventilator- dependent patient with the expectation that their heart will soon stop, after which they are declared dead. Following a brief waiting period of 2-5 minutes, their organs are removed and transplanted into a recipient. This waiting period is intended to rule out the possibility of autoresuscitation of the heart, but in its ambiguity leaves room for ethical concern. There are also cases of *uncontrolled* DCD, where a patient dies in the field or upon arrival in an emergency department. In such cases artificial respiration will not have been started, only CPR, yet there may be challenges in gaining timely consent for organ donation from family and even from law enforcement.[21]

One fraught aspect of DCD is the withdrawal of life-sustaining treatment (WLST), which is controversial in Jewish law because it may be viewed as hastening or even causing death.[22] Indeed, Israeli hospitals are barred from the use of *controlled* DCD given its method of removing patients from life support. This has led Israeli hospitals to focus on augmenting organ procurement from uncontrolled DCD, where victims suffer circulatory death in the field.[23]

Another concern with DCD is that this person's death may be *permanent*, but not necessarily *irreversible*. That is, the patient's heart and circulation will have stopped, and enough time will have elapsed to preclude spontaneous revival, so they are expected to be permanently dead. However, since it is still possible that circulation could be restarted with resuscitative efforts, it is premature to declare that the death is irreversible.[24] Nevertheless, DCD has become a standard procedure for organ procurement internationally, saving an increasing number of recipient lives.[25]

DCD was studied for its halakhic compatibility by Rabbi Dr. Leonard Sharzer, and he permitted it with certain conditions in a responsum approved by the CJLS in 2010.[26] However,

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[21] Jeremy R. Simon, *et al.*, "Donation After Cardiac Death and the Emergency Department: Ethical Issues," *Academic Emergency Medicine* (2014; 21:79-86).

[22] Rabbi Moshe Feinstein allowed for the cessation of artificial ventilation for a person who is incapable of spontaneous respiration (*Iggerot Moshe*, YD III:132). Rabbi Shlomo Zalman Auerbach was reported to have opposed withdrawal of life-support based on the traditional caution surrounding touching a *goses*.

[23] Jonathan D. Cohen, *et al.*, "Outcome of Kidney Transplantation in Israel Following Uncontrolled Donation after Cardiocirculatory Determination of Death," *IMAJ*, Vol. 25 (June 2023) 434-437.

[24] I thank Dr. Simon for his personal communication clarifying these matters.

[25] For global statistics, see the World Health Organization's "Global Report on Organ Donation and Transplantation Activities 2023," published in Dec. 2024.

[26] Leonard Sharzer, "Organ Donation After Cardiac Death," CJLS YD 370:1.2010. Sharzer concludes: "Protocols for Organ Donation following declaration of death by cardio-respiratory criteria (controlled non-heart-beating donation) are halakhicly permissible provided that: 1) All ante-mortem interventions are deemed by the treating physician not to hasten or cause the death of the donor. 2) Following cessation of respirations and cardiac activity, a sufficient waiting time, as defined by current medical standards, is observed prior to removal of organs for transplantation which, according to medical science, renders autoresuscitation impossible and the success of external resuscitation extremely unlikely. The currently accepted waiting time is between two and five minutes. 3) The treating physicians prior to the declaration of death and the physicians certifying death not be members of the transplant team. 4) The donor or his/her surrogate has given informed consent for donation including any ante-mortem interventions. 5) Standards of end-of-life care, including relief of discomfort for the patient, and sensitivity to the family's need for comfort and closure be observed. 6) *Kibbud Ha-met*, treating the deceased with respect, be observed in all respects following donation. 7) Organs be removed

DCD alone is not an ideal protocol for transplantation since organs removed after circulatory death suffer warm ischemic injury–they do not receive oxygen for an extended period before they can be cooled and/or perfused *ex situ* and may be rendered unsuitable for transplantation, or have inferior outcomes for the recipient.

Given the severe shortage of human organ donations, some patients, families, and physicians are eager to identify new protocols for organ procurement. The financial incentives for the transplantation industry are also significant. For example, the average bill in the United States for a heart transplant in 2025 was estimated at $1,918,700.[27] The scarcity of lifesaving and lucrative organs has led to the development of a protocol for organ donation known as DCD-NRP, *normothermic regional perfusion after declaration of circulatory death*. This protocol began in Europe, where it is broadly practiced, and was introduced in 2020 in the United States, where it remains controversial given unresolved ethical concerns, as I will discuss below.[28]

**Understanding NRP**

What is NRP? This is a mechanical system for taking over the functions of the heart and lungs so that oxygenated blood continues to circulate in the body. The word *normothermic* indicates that blood circulation is maintained at a normal body temperature; *regional* identifies the area(s) of the body where organs are supported in this way, excluding areas which are blocked from receiving blood flow; *perfusion* refers to the supply of oxygen and nutrients, and the removal of carbon dioxide, that are together necessary for cellular functioning. Here is a recent academic description of NRP from the journal *Transplantation*,[29] followed by my own less-technical synopsis:

> NRP mitigates ischemic injury by using extracorporeal membrane oxygenation [ECMO] technology to perfuse organs with oxygenated blood after death determination. Although abdominal NRP (A-NRP) only perfuses organs in the abdominal cavity, thoracoabdominal NRP (TA-NRP) perfuses organs in both the thoracic and abdominal cavities and can restore spontaneous cardiac function and native circulation. After the

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only if they have a significant likelihood of survival in the recipient. If these conditions are met, a person may direct that his or her organs be used for transplantation; a surrogate may give permission for retrieval of organs from the deceased; physicians may render care before death according to these protocols, declare death by CR criteria, and remove organs for transplantation.

I voted in favor of this responsum, and continue to support its conditional permission.

[27] Nick Ortner and Hannah Holzer, "2025 U.S. Organ and Tissue Transplants: Estimated Costs and Utilization, Emerging Issues, and Solutions," *Milliman Report* (February 13, 2025). This report estimates about 4,109 heart transplants in the USA in 2025.

[28] For a concise overview of such concerns, see Robert D. Truog, "Normothermic Regional Perfusion—The Next Frontier in Organ Transplants?" *JAMA* (June 27, 2023) 329:24. See also "Defining Death in Donation after Circulatory Determination of Death: Medical Controversies," by Anne Dalle Ave, David Shaw, James Bernat, *Ethical Challenges of Organ Transplantation: Current Debates and International Perspectives*, (2021) 117-132.

[29] "Ethical Issues in Normothermic Regional Perfusion in Controlled Organ Donation After Determination of Death by Circulatory Criteria: A Scoping Review," by Nicholas Murphy, *et al.*, *Transplantation* 109(4):p 597-609, April 2025.

> initiation of NRP, perfusion continues for variable periods until organ procurement is performed in a manner similar to donation after neurologic determination of death.
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> Because cDCDD donors may retain some neurologic function before death determination, resumption of brain activity or limited function is theoretically possible during NRP through the return of intracranial blood flow. Both forms of cDCDD-NRP therefore involve surgical interventions that aim to prevent intracranial flow through ligation, transection, or occlusion of the major arteries to the brain, isolating circulation to target regions of the body. In A-NRP, circulation is blocked at the diaphragm; in TA-NRP, circulation is blocked at the level of the great vessels supplying the brain arising from the aortic arch.
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> On the basis of retrospective, nonrandomized studies, NRP may improve the quality and quantity of organs recovered compared with alternative organ preservation and reconditioning techniques used in cDCDD, such as static cold storage and *ex situ* machine perfusion. Furthermore, TA-NRP can facilitate cardiac donation by reducing ischemic time.

Interpretation: Once a person's heart has stopped, and a waiting period is completed (typically five minutes), they are declared dead by circulatory criteria. With NRP, the transplant team uses ECMO (extracorporeal membrane oxygenation) to artificially oxygenate and circulate blood to sustain the target organs. ECMO perfuses whole organs *in situ* so that they remain viable and can be evaluated prior to transplantation. Although the process is entirely different, from a transplant perspective there is some similarity to brain death since in that situation, the patient's heart may continue to beat for some time with artificial ventilation even without brain function, keeping their organs viable.

However, with NRP the patient has not been examined for brain death. They are unconscious, possibly comatose, but their declaration of death is based solely on the arrest of spontaneous heartbeat and circulation. Indeed, ECMO technology may allow their body to auto-resuscitate, especially with thoracic NRP–their heart is expected to resume function, and they could regain neurologic functions and even consciousness.

To prevent the latter outcome, during NRP surgeons block the flow of oxygenated blood to the brain by placing a balloon in or ligating the carotid and vertebral arteries. Blocking these arteries may be insufficient to prevent intracranial blood flow, as the basilar artery also supplies posterior regions of the brain, including the brainstem, cerebellum, and part of the cerebrum. Researchers have proposed a solution of "draining the aortic arch arteries to atmosphere," and this seems to have become standard practice.[30]

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[30] Alex Manara, *et al.*, "Maintaining the permanence principle for death during *in situ* normothermic regional perfusion for donation after circulatory death organ recovery: A United Kingdom and Canadian

Additional motives for the blocking of blood flow to the brain are that bypassing the brain makes more oxygenated blood available for other organs, and it prevents toxins released by the dying brain from affecting other organs.[31] In this way, recipients have the best chance for successful transplantation.

There are two versions of NRP: *Abdominal NRP* (A-NRP) perfuses only the organs of the abdomen (kidneys, liver, pancreas, small intestine), bypassing not only the brain but also the heart and lungs. *Thoracoabdominal NRP* (TA-NRP) also perfuses the organs in the thorax (lungs and heart). The latter version, which is more common, is also more problematic in that it allows the patient to be weaned from ECMO, so that they once more sustain their own circulation (albeit with the assistance of artificial respiration).[32]

When transplant teams seek to procure a heart or lung with TA-NRP, standard practice is to wean the donor (who had been declared dead according to CDCD) off ECMO so that their heart and lungs resume independent circulatory functions. As one recent study explained, "Typically, with the commencement of TA-NRP, heart function experiences prompt recovery, enabling the gradual weaning of TA-NRP."[33] *This means that the original basis for the declaration of circulatory death has been reversed, and the "dead" patient is again circulating their own blood.* While blood flow to the brain will have been surgically occluded, there will not have been an examination for brain death. Recalling the UDDA, neither definition of death may be satisfied at the time that vital organs are removed.

**Ethical Concerns**

The essential ethical issue with TA-NRP: was the donor truly dead before this intervention, or did NRP kill them by blocking circulation to their brain, followed by the removal of their beating heart? In addition to this core concern about the dead donor rule, broader issues have been raised with this procedure regarding justice and transparency with donors and their families.

The American College of Physicians published a statement of concern related to NRP in 2021. They wrote that NRP, "is more accurately described as organ retrieval after cardiopulmonary arrest and the induction of brain death."[34] The ACP statement lists four ethical concerns, which I shall summarize:

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proposal," *Am J Transplant* (Jan 27, 2020) 20(8):2017–2025. Thanks to Dr. Lydia Dugdale of Columbia University Medical Center for this reference and her general insights about transplantation ethics.

[31] I thank pediatric neurologist Dr. Matthew Kirschen of The Children's Hospital of Philadelphia for this explanation, and direct reader attention to his article, "Beyond the Final Heartbeat: Neurological Perspectives on Normothermic Regional Perfusion for Organ Donation after Circulatory Death" *Annals of Neurology* (2024 Jun;95(6):1035-1039).

[32] According to a 2024 survey published by JAMA, TA-NRP accounted for 69% of procedures, A-NRP for 31%. See Marty T. Sellers, *et al.*, "Normothermic Regional Perfusion Experience of Organ Procurement Organizations in the US," *JAMA Network Open*, Vol. 7, No. 10.

[33] Mario Royo-Villanova, *et al.*, "Overcoming Lung Challenges in TA-NRP Assisted Heart Recovery in Donation After the Circulatory Determination of Death," *Transplant International* (Nov 19, 2024) 37:13526.

[34] Ethics, Determination of Death, and Organ Transplantation in Normothermic Regional Perfusion (NRP) with Controlled Donation after Circulatory Determination of Death (cDCD): American College of Physicians Statement of Concern. Approved by the ACP Board of Regents, April 17, 2021.

1) NRP violates the dead donor rule because the circulatory criteria used to declare death are quickly reversed, and the prevention of blood flow to the brain actually *causes* brain death.
2) A justice concern is raised by the fact that many organ donations using the DCD after NRP protocol come from victims of drug overdose, which is an underserved and stigmatized population.
3) Involvement of the transplant team with the dying donor's care would pose a conflict of interest. There are further concerns regarding transparency with the family of the donor, who may not realize that the heart may resume function, and that blood flow to the brain will be surgically blocked to prevent the patient from regaining consciousness.
4) E*x situ* methods are available to rapidly cool and reperfuse organs outside of the body which do not involve the risk of reanimating the patient or require active measures to prevent blood flow to the brain. These alternative methods deserve further study (and will be discussed below).

Proponents of NRP responded to the ACP statement of concern, claiming that several of its conclusions were flawed.[35] They argued that the dead donor rule is observed in NRP given the cessation of circulation and waiting period, that this procedure honors the wishes of both donors and their families, and is well-respected in Europe. Others note that care is taken in most centers to delay any contact by the transplant team until after the donor's death has been declared. There are also efforts underway to improve patient education about transplantation protocols so that better informed consent may be achieved. Yet there are recent reports of pre-mortem interventions in Europe such as the administration of heparin and cannulation to improve donation outcomes even before the donor has experienced circulatory death.[36]

A comprehensive review article focused on ethical concerns related to NRP in the journal *Transplantation* found no consensus on the core questions, especially those related to the dead donor rule.[21] The authors wrote,

> Unfortunately, not all debates are amenable to empirical resolution. For example, some arguments relating to the DDR ultimately rely on views of death and causation that are inherently debatable. That proponents contend there is no ethical dilemma posed by NRP, whereas others say it amounts to killing, is illustrative of the polarity of views on this issue. Although some capitalize on the contentious conceptual implications of NRP for death determination to argue for a relaxation of the DDR, this proposal does not seem to

[35] Brendan Parent, Arthur Caplan, Nader Moazami, Robert A. Montgomery, "Response to American College of Physician's statement on the ethics of transplant after normothermic regional perfusion," *American Journal of Transplantation* (Jan. 24, 2022). See also Brendan Parent, et al., "Ethical and Logistical Concerns for Establishing NRP-cDCD Heart Transplantation in the United States" *Am J Transplant.* 2020;20:1508–1512.
[36] Jan Roman, et al., "ECMO-Assisted In-Situ Normothermic Perfusion for Donation After Circulatory Determination of Death Kidney Transplantation: A Narrative Review," *Medical Science Monitor* (Jan. 6, 2026).

be widely supported in the donation and transplantation communities, meaning achieving consensus on the compatibility NRP with the DDR will be critical for the future development of NRP.

The Hastings Center Report published an extended ethical analysis of NRP in 2024, concluding that this procedure is, "neither ethical nor prudent," and arguing instead for a protocol called NMP, *normothermic machine perfusion*. In this procedure, the patient's death is likewise established by the cessation of circulation and a waiting period, and death is declared, but then their organs are removed and perfused *ex situ* to reverse ischemic damage and improve outcomes for organ recipients.[37] This approach avoids the ethical problems of restarting circulation within the body and often restarting the heart while clamping off the brain. *Unlike NRP, with NMP criteria for the declaration of death are never reversed, and the donor's death is truly permanent.*

Some research hospitals have banned NRP, while others have embraced the protocol.[38] Given the unsettled state of this conversation, ongoing disagreements about the dead donor rule, and public distrust of the motivations of medical professionals, there is need for inquiry and input by rabbis and other scholars of religious ethics, in addition to the observant Jewish community's own requirement for halakhic resolution.

## Halakhic Analysis

Rabbi Dr. Jason Weiner of Cedars-Sinai Hospital in Los Angeles analyzed halakhic approaches to NRP in a 2024 lecture.[39] His sources include most of the major Orthodox *poskim* who have addressed medical ethics in the past 50 years, primarily in relation to earlier discussions of brain death and organ donation in the 1980s. Drawing on numerous rabbis, he establishes that there is no obligation to resuscitate a person who has died,[40] and that signs of life must be generated spontaneously by the person's own body, not by machines.[41] Given this, one might argue that DCD establishes a person's death, and that perfusion by NRP does not make them alive again. Yet AT-NRP often does resuscitate the heart, meaning that the person who has designated their

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[37] Adam Omelianchuk, *et al.*, "Neither Ethical nor Prudent: Why Not to Choose Normothermic Regional Perfusion," *The Hastings Center Report* (May 24, 2024). NMP is still an emerging technology, but is already showing significant success in kidney and liver transplants, though not with the heart or lungs. See *Precedence Research*, "Normothermic Machine Perfusion Market Size, Share and Trends, 2025 to 2035."

[38] Kari Esbensen and Kenneth Prager, "Organ Procurement Using Normothermic Regional Perfusion," *JAMA* (Oct 10, 2023) 330(14):1389-1390.

[39] Jason Weiner, "Normothermic Regional Perfusion (NRP) Organ Procurement in Halacha," posted on *YU Torah Online* (Aug. 29, 2024).

[40] Certainly, if a person suddenly collapses, then bystanders have a moral and (if Jewish) halakhic obligation to attempt CPR under the biblical mandate of *lo ta'amod* (Levit. 19:16). Still, that obligation could be because the person is not certain to be dead, and may indeed have a faint pulse that can't be detected in the field. In a hospital setting there are more accurate ways to determine cardiac arrest, and more likelihood that a *do not resuscitate* order has been completed. If so, there would be no moral or halakhic obligation to resuscitate. I thank Dr. Jeremy Simon for clarifying this distinction.

[41] Moshe Feinstein, *Iggeros Moshe* YD 2:174, 3:132, and 4:154.

organs for donation may indeed be showing independent signs of life. Are they still dead? Are they alive but in a new state of being?

Early in the lecture, Rabbi Weiner considers the possibility that a person who dies and then is resuscitated might be considered a new person, based on the Talmudic legend (B. Shabbat 88b) that at Sinai the people of Israel were so overwhelmed that their "souls flew off," and they had to be revived. Does this mean that their marriage ties had been severed? Apparently not, since God tells Moses to command them, "Go back to your tents" (Deut. 5:27), which is taken by the rabbis to imply the resumption of marital relations (B. Beitza 5b; see Resp. Tzitz Eliezer 16:24:9). Here too we would say that a person who has regained circulation is once again alive, and remains the same person.

In a fascinating section (minutes 24-38), Rabbi Weiner discusses an essay written by Rabbi Hershel Schachter in which he argues for the circulatory definition of death (rejecting brain death), but then muses about various categories of people who in a legal sense "have no blood" (אין לו דמים), such as a home intruder, or a killer who leaves the city of refuge and is slain by their victim's avenger.[42] Rabbi Schachter offers these and other examples in which killing a person is not deemed as murder, including a case in which one person asks another to kill them, or sacrifices themselves to save others. Such killings might not be considered murder, and could theoretically be justified under the rubric of *pikuaḥ nefesh* in order to save other lives through organ donation:

> אולי יש להציע, שאם הרשה הטריפה לתרום ממנו אבריו - בשעה שהיה טריפה, ע"מ להחיות לאריכת שנים לאדם אחר, דיש להתיר ג"כ כנ"ל, דאולי י"ל אף בכה"ג דאין בהרשאה זו משום בטלה דעתו אצל כל בנ"א, וממילא אין ברציחתו משום לאו דרציחה אלא רק משום איסורא דאך את דמכם, וממילא י"ל דזה אפשר לדחות מטעם פיקו"נ.
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> We might suggest that if the terminal patient (*treifah*) authorizes the donation of their organs since they are already dying, so that another person could live a long life, that one might even permit this. For one might say that in such a case this person's permission [to hasten their own death] is not nullified by the views of most people, and therefore the killing of such a person [by removal of their vital organs] would not be deemed murder, but only the [lower] ban of "I will require your blood,"[43] and then one could say that this ban is superseded by the obligation to save life.

Rabbi Weiner wondered if Rabbi Schachter would on the same basis permit NRP. If the patient whose heart has stopped is considered a *treifah* or even a *goses* (actively dying person), and if they have previously requested that their organs be transplanted to save another's life, then

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[42] Hershel Schachter (צבי שכטר), *B'ikvei ha'tzon* (Jerusalem: Flatbush Yeshiva, 1997) #36, p.248. My translation.

[43] Genesis 9:5. In rabbinic literature this verse is understood to forbid killing another human (or oneself) even in cases that would not be ruled as murder, but rather something akin to manslaughter. See B. Sanhedrin 57b; Beit Yosef YD 157:3; Mishnah Berurah 618:1:5.

removing their organs and causing their death might not be considered murder and could arguably be justified to save other lives. Of course, the donor's intention in authorizing recovery of their organs was likely limited to the occasion of their death, and it is far from obvious that their permission extended to situations where they are maintaining independent circulation.

Rabbi Weiner contacted Rabbi Schachter to see if he would apply his paragraph from decades ago to the new NRP protocol. Rabbi Schachter clarified that his speculations were theoretical, and that one may not kill such a person even to save the lives of others. Indeed, the consensus within his community is not to permit organ donation even from patients who have been declared brain dead, and all the more so from those who have resumed independent heartbeat.

The CJLS has, in contrast, permitted organ donation following brain death, on condition that permanent incapacity for spontaneous respiration has been proven, and also the DCD protocol, on condition that incapacity for spontaneous heartbeat and circulation has been proven.[16, 21] *However, with TA-NRP, there will have been no demonstration of brain death, and the basis for the declaration of circulatory death will likely have been reversed. In such a situation, the NRP protocol will itself cause brain death, and potentially also circulatory death, if the donor's beating heart is removed.*

Rambam cautioned that before touching an apparently dead person (e.g., closing their eyes, or washing them) one should "wait a while lest they have fainted" ( [44].(יִשְׁהֶא מְעַט שֶׁמָּא נִתְעַלֵּף Rabbi Weiner cites various modern rabbis who have debated the application of Rambam's vague words. How many minutes is "a while"? Twenty? Thirty? But the essential point that Rambam makes remains exigent–declarations of death require caution, lest signs of life return. We should do nothing to kill a person who is almost dead, but not quite.

In his 2010 responsum, "Organ Donation After Cardiac Death," Rabbi Leonard Sharzer conditions his permission of DCD on, among other items, "Following cessation of respirations and cardiac activity, a sufficient waiting time, as defined by current medical standards, is observed prior to removal of organs for transplantation which, according to medical science, renders autoresuscitation impossible and the success of external resuscitation extremely unlikely."[21] This protocol remains defensible on ethical and halakhic grounds, within the conditions stipulated by Rabbi Sharzer, and additional precautions indicated by subsequent clinical experience. In contrast, during AT-NRP the resuscitation of heart and lung function is not unlikely, but is rather to be expected. It therefore does not fall within the parameters established by Rabbi Sharzer. Once the donor's body resumes independent circulatory functions, they should not be considered dead. The surgical occlusion of blood flow to their brain, and the removal of their vital organs is at least potentially considered murder, and should be forbidden.

[44] MT Aveil 4:5. See Responsa Ḥatam Sofer YD 338:6; Responsa Iggerot Moshe YD 3:132, and 2:174:2.

**Conclusion**

The rabbinic version of the dead donor rule, *ein doḥin nefesh mipnei nefesh,* is considered one of the three cardinal rules of Judaism.[45] We have already determined the halakhic acceptability of DBD, the *declaration of brain death,* on condition that permanent incapacity for spontaneous respiration has been established, and of DCD, the *declaration of circulatory death,* likewise on condition that permanent incapacity for spontaneous heartbeat and circulation has been established. However, in NRP, *normothermic regional perfusion,* there is no indication of brain death. In the most common version, TA-NRP, clinicians expect that spontaneous heartbeat will return and restore circulation. Blood flow to the brain could likewise restore neurologic function, which is why surgeons in NRP block the arteries that supply the brain. This protocol undermines the prior declaration of death by restoring the very signs of life, and arguably causes true death by the occlusion of blood flow to the brain, and then the removal of vital organs.

While it is fascinating to consider if this form of killing a patient is less than murder given that their circulation did previously stop for five minutes before resuscitation with ECMO, and their expressed desire to donate organs, and therefore to permit such killing for the sake of saving others, I see no halakhic support for putting this into practice. *The fact that the medical team did not intend to save the life of the donor, only of their organs, does not cancel concerns that the criteria for declaring death have been reversed.*

This situation is different from a person who heroically sacrifices themselves to rescue others, for example a soldier who smothers a grenade with their body to protect their unit or bystanders. Physicians are obligated to tend to their patient's own needs, not to assist their self-sacrifice. TA-NRP could cause moral injury to medical practitioners who believe that it violates their professional and spiritual commitments. Other physicians may feel that refusing to use NRP will prevent fulfillment of their patient's desire to become an organ donor, and limit the number of lives saved. Nevertheless, our primary concern as halakhists is to prevent the killing of patients who do not meet either circulatory or brain death criteria at the time of their donation.

With TA-NRP, physicians are called upon to restore a person's circulation, thereby preserving their vital organs while blocking blood from reaching their brain, all in the hopes of saving other patients. The patient may even be weaned from ECMO during TA-NPR so that their body resumes spontaneous heartbeat and circulation without mechanical assistance. Given that there will not have been determination of the patient's incapacity for spontaneous respiration, the surgical occlusion of blood flow to the brain can be seen as the cause of brain death.

With A-NRP, only the abdominal organs are perfused, and there is no possibility of cardiac resuscitation. As such, the donor's death has been established using circulatory criteria that have not been reversed. This more limited form of NRP would be permitted under our prior ruling regarding donation after circulatory death. In contrast, TA-NRP violates the permanence requirement of DCD.

[45] B. Sanhedrin 74b; MT Yesodei HaTorah 5:2; SA YD 157:1.

Halakhic sources consider even touching a *goses* so that they die faster to be "bloodshed" (*shefiḥut damim*).[46] Contemporary application of this ancient norm is debatable, since medical teams and caretakers, whether in the ICU or hospice, regularly touch dying patients in providing comfort care and there is no evidence that this hastens death. Still, the occlusion of blood flow to the brain and the removal of vital organs from a patient whose death was determined by since-reversed conditions would seem to precipitate their true and final death. As the American College of Physicians argued in 2021, there are ways to perfuse organs *ex situ,* outside of the body. The more recently developed *normothermic machine perfusion* (NMP) protocol avoids the ethical and halakhic problems with NRP, at least for the abdominal organs.

The motivation to save lives through organ donation is noble and urgent, and I have witnessed extraordinary benefits for organ recipients and their families. Nevertheless, we must insist that the donor's death has been established through the permanent cessation of either their circulation or respiration before their organs are procured. Only such care will meet our ethical and halakhic obligations, build trust in the organ procurement system, and increase the number of lives saved.

***P'sak Din* (Ruling)**

The protocol known as thoracoabdominal normothermic regional perfusion (TA-NRP) is forbidden by Jewish law, because the criteria for declaring halakhic death have not been maintained. In this, the most common version of NRP, the donor's heartbeat spontaneously resumes and begins to perfuse their body, yet their brain is surgically blocked from receiving blood flow. This protocol undermines the original declaration of circulatory death and causes brain death.

The more limited protocol of abdominal NRP (A-NRP) does not restart the heart, and has been shown to be effective for improved outcomes with organ transplantation. This protocol for organ procurement is permitted, together with the DBD and DCD methods that we have previously approved, because they all demonstrate the permanent death of the donor before vital organs are removed to save another person's life.

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**Abbreviations**: MT=Mishneh Torah; SA=Shulḥan Arukh; YD=Yoreh De'ah; ḤM=Ḥoshen Mishpat; CJLS=Committee on Jewish Law and Standards; DBD=donation after brain death;

[46] SA YD 339:1.

DCD=donation after circulatory death; DDR=dead donor rule; NRP=normothermic regional perfusion; NMP=normothermic machine perfusion; TA-NRP=thoracoabdominal NRP; UDDA=universal declaration of death act; WLST=withdrawal of life-sustaining treatment.