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Donation After Cardiac Death: Halakhic Perspectives

Virtually all halakhic decisors agree that donating life saving organs after death is certainly permissible; most view it as appropriate and commendable. While the Torah proscribes desecrating a corpse, this prohibition, like almost all others, is set aside in the context of life saving. Taking a life-sustaining organ from a living person, however, would kill the donor, and even though done for the noble purpose of *pikuah nefesh*, murder is an exception to the general rule. Murder is never permitted, regardless of the reasoning or rationale. We are thus left with harvesting life-sustaining organs only from the dead.

Most transplanted organs are harvested from brain dead patients, with the assumption being that a brain dead patient is dead. While accepted by US law, the halakhic status of brain death is debated.[1] Since vital organs are in high demand but short supply, efforts are also being made to harvest transplantable organs from patients declared dead by the traditional cardiopulmonary criteria (when the heartbeat and respirations irreversibly cease). These efforts have spawned various dona-

1 The interested reader is directed to this author's *Defining the Moment: Understanding Brain Death in Halakhah* (New York: Shoresh Press, 2012) for a more in depth discussion.

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tion after cardiac death (DCD) protocols, which try to balance a proper moral and ethical determination of death with the transplant viability of harvested organs. The scientific, ethical, and legal frameworks for DCD protocols, in both controlled (cDCD) and uncontrolled (uDCD) settings, were examined by R. Bardos. This article will analyze some of the halakhic aspects and questions involved in donating organs after cardiac death.

Reversibility

Almost all halakhic decisors incorporate irreversibility in their criteria for determining death.[2] A person cannot be declared dead by virtue of his heart stopping and cessation of breathing when these functions can return. Death is definitionally final and can only be determined when respiration and cardiac function irreversibly cease. This is not a modern notion. Rambam already notes that before starting burial preparations, one must "wait a short while (*yishheh me'at*) for fear that the person has merely fainted."[3] *Hatam Sofer* explains that Rambam was concerned that while a person may appear to currently not be breathing, this does not necessarily mean that respirations have irreversibly ceased. It is very possible that they might return, and a definitive determination of death must wait until sufficient time has passed to rule out that possibility.[4]

Determining what "irreversibility" means may enormously influence the practical determination of death. What must not be reversed and in what timeframe? Must irreversibility be practical or merely theoretical? These questions play a major role in analyzing the halakhic parameters of donation after cardiac death protocols.

2 Cf. *Teshuvot Ateret Paz* (1 vol. 3, *EH* 9), however, who discusses the potential ramifications of viewing resuscitation as revival from the dead.
3 *Hilkhot Avel* 4:5.
4 *Teshuvot Hatam Sofer*, *YD* 338.

Uncontrolled Donation After Cardiac Death

Uncontrolled donation after cardiac death (uDCD) protocols apply to a person who has just suffered a cardiac arrest and for whom emergency medical technicians (EMTs) have attempted resuscitative measures but were unfortunately unsuccessful. After CPR has stopped and death is declared, the uDCD protocol may come into effect. EMTs can contact an organ preservation unit, whose purpose is to try to maintain the transplant viability of the organs of the recently deceased patient. The mechanisms of preserving the organs include forcing blood to continue to circulate within the dead body by attaching a "thumper" to the person's chest, which mechanically and repeatedly presses on the chest, forcing blood out of the heart throughout the circulatory system. Oxygenation is also provided artificially through a bag valve mask (Ambu bag) or a mechanical ventilator in order to allow the blood flow to contain necessary oxygen. R. Bardos discussed some of the ethical issues involved in stopping CPR, obtaining consent, and initiating the organ preservation methods. The following analysis will relate specifically to some of the halakhic aspects of determining this patient's death and preserving his organs; the halakhic analysis of these other issues is beyond the scope of this paper.

A. Death by Irreversibility – Tried and Failed Resuscitation

In uDCD, the question of whether or not the patient is dead is not overly complicated. Once resuscitative efforts have been deemed to have failed, the patient's heartbeat and respiration can certainly be described as having irreversibly stopped; there is no chance that this patient will ever breathe again on his own or that his heart will ever beat again. If that possibility existed, we can assume that they would have already returned with proper resuscitative measures. Since they have not recovered, it is clear that they have both irreversibly failed. Only after this determination do the EMTs initiate the organ preserving

measures, including attaching a thumper to the patient's chest and connecting the patient to an oxygen source.

It is important to emphasize that even though the organ preserving techniques manage to circulate oxygenated blood throughout the body, the patient is still dead. In uDCD, circulation is completely artificial; using a thumper is no different than tilting a corpse back and forth and letting the blood flow as it will. If one were to bang a corpse's hands together, no one would claim that the corpse is clapping! Similarly, the circulation of oxygenated blood in this case is not indicative of continued life, since the patient cannot and will never regain the ability to circulate blood on his own. The combination of a thumper with a ventilator allows for minimal gas exchange in the lungs (oxygenating the blood and allowing for the removal of carbon dioxide), thereby forming and circulating oxyhemoglobin and providing a continuing source of energy to help preserve the renal cells. Nonetheless, gas exchange itself and the formation of oxyhemoglobin are not relevant halakhic parameters for defining life and determining death, even according to those halakhists who normally define a living person as one who maintains an effective circulation.[5]According to these positions, it is not the physical flow of oxyhemoglobin in the blood that defines life, but rather the person's **natural** capacity and ability to effectively circulate oxygenated blood – something that is lacking in all uDCD donors.

B. Applying the Various Criteria for Death

Modern halakhists debate the proper criteria for determining death. Briefly, the various positions include: 1) the irreversible cessation of spontaneous respiration; 2) the irreversible cessation of "vital motion;" 3) the irreversible cessation of "vital motion" or the complete absence of the head/brain. According to all of these approaches, the uDCD patient is dead – he cannot breathe, has no heartbeat, and can perform no other "vital" (innate or natural) function.

5 See *Be-Ikvei Ha-Tzon*, no. 36; *Bi-Netivot Ha-Halakhah* vol. 3, 108, 120.

These are all functional parameters, and when the EMTs determine that resuscitative efforts have failed, they are fairly simple to ascertain. The only room for doubt would exist if the traditional parameters for death (cessation of respiration and/or circulation) do not actually define death, but are merely indicative of, or close approximations for, some other condition. Given today's advanced resuscitative techniques, especially in the case of uDCD in which artificial circulation and respiration are established, it is reasonable to question whether or not the traditional signs of death still indicate that the person has died.

In various contexts, R. Moshe Tendler has suggested that the only true halakhic determination of death is the modern diagnosis of brain death: "The classic 'respiratory and circulatory death' is in reality brain death. Irreversible respiratory arrest is indicative of brain death."[6] The same is true of cardiac arrest, "because this results in a failure to perfuse the brain, which produces total brain destruction. Thus, cessation of heart action is a cause of death rather than a component of its definition."[7] According to a precise understanding of R. Tendler's approach, the moment that a person's heart stops beating, he is not quite dead. The true definition of death, according to his approach, is when the brain no longer controls respiration and voluntary muscle control.[8] It is interesting to consider whether or not the uDCD patient's brain meets R. Tendler's parameters for death.

The current NYC protocol requires that after the patient is transferred to the hospital, "staff will repeat the screening examinations to ensure preservation procedures do not impede 'natural progression to irreversible brain death.'"[9] The concern

6 F. Rosner and M.D. Tendler, "Definition of Death in Judaism," *Journal of Halacha and Contemporary Society* 17 (1989): 27.

7 F.J. Veith, J.M. Fein, M.D. Tendler, et al., "Brain death: A status report of medical and ethical considerations," *Journal of the American Medical Association* 238 (1977): 1654.

8 http://goo.gl/SLFVY.

9 S.P. Wall, B.J. Kaufman, A.J. Gilbert, et al., "Derivation of the uncon-

is that through repeated chest compressions, ventilation, and eventual connection to ECMO (extra corporeal membrane oxygenation), brain perfusion might be reestablished, albeit artificially stimulated. Reperfusion would provide brain cells with the vital nutrients necessary for continued viability. Were this to happen, it may call into question a diagnosis of brain death (and therefore the death of the individual according to R. Tendler), as brain cells may still be viable.

The difficulties with the NYC protocol are twofold. First, although the EMTs performed a rudimentary brainstem assessment before beginning organ preservation techniques, it is possible that these very techniques reestablish cerebral perfusion. This is potentially a different state than existed during the earlier assessment and therefore demands a reevaluation. (In classic brain death diagnoses, cerebral perfusion patterns do not change after the diagnosis and there is therefore no reason to think that brain cell viability – and therefore potential function – has changed or been restored.)

The more important difficulty for this approach, however, is the subtle implication that even once death has been declared and the organ preservation methods initiated, the patient may not yet be dead. If the concern is that the preservation methods may "impede [the] natural progression to irreversible brain death," that means that when the preservation methods were initiated, the patient was decidedly not irreversibly brain dead quite yet. The likelihood is quite high that such a patient will progress to irreversible brain death, but at the point when the EMTs declare death, the patient's brain has not quite progressed that far. The protocol authors are even concerned that despite a negative rudimentary brainstem evaluation at that moment, since the brain has not yet progressed to irreversible brain death, the preservation techniques may actually prevent that progression. They therefore require a more traditional brain death exam when the patient arrives in the

trolled donation after circulatory determination of death protocol for New York City," *American Journal of Transplantation* 11 (2011): 1421.

hospital. Depending on how seriously we take this concern, it means that we cannot unilaterally declare the patient brain dead until a comprehensive brain death exam is performed in the receiving hospital.

This concern is completely irrelevant if death is defined as the irreversible cessation of vital motion; regardless of brain cell viability, the uDCD patient will never show signs of vital motion ever again. However, if the only true definition of death is brain death (with cardiopulmonary arrest merely a surrogate or an indicator of brain death), as R. Tendler argues, then regardless of whether this patient will ever experience vital motion in any capacity, he cannot be declared dead until his brain completely "dies." Therefore, if we take the protocol authors' concern seriously, R. Tendler could not declare the uDCD patient dead at the moment that organ preservation techniques are initiated. Since the patient may still be alive but dying, we should rightfully be concerned that any organ preserving techniques may inadvertently kill him sooner. Causing the death of any person, regardless of his physical condition, is prohibited as a form of murder; hastening death by even moments is absolutely forbidden.[10]

However, even according to R. Tendler's approach, there still may be no problem with the uDCD protocol. After all, if the patient is not brain dead (and therefore not dead according to R. Tendler), before the team connects the patient to the thumper and ventilator, he should be considered alive. If the concern is that these technologies may impede the natural progression to brain death, then perhaps it is possible to classify these technologies as supporting continued life. If the definition of death depends upon the viability of brain cells, then any means that promote (or may promote) the continued viability of brain cells should be rightfully described as life saving.

Therefore, according to R. Tendler, organ preservation may commence regardless of the patient's status. If the patient

10 *Hilkhot Rotzeah* 2:7.

is actually brain dead at that moment (and therefore dead according to R. Tendler), then preserving his body for potential organ harvest is permissible, and perhaps even laudable. Once death is declared, any procedures, preservation, and surgery necessary to harvest the organs cannot affect the declaration of death. Even if the patient is not actually brain dead (and therefore alive), organ preservation should still be permitted, since it may promote continued cerebral circulation and be considered life saving. Since it may extend the viability of the brain cells – the determinant of life and death according to R. Tendler – it is certainly permissible. While the intention of organ preservation is not to maintain continued brain cell viability (and hence life, according to R. Tendler), if it can accomplish this goal, it should be considered life saving regardless of the intention.

If, according to R. Tendler's approach, the patient is considered alive when the EMTs initiate organ preservation, the only question would be whether the preservation techniques (or anything else done to the patient) may actually shorten the patient's life. Such actions are considered tantamount to murder even in the case of a terminally ill patient.[11] Practically speaking, however, this is unlikely; as noted, what the protocol considers to be organ preservation may be life-extending, not life-ending. Even if this were not true and the organ preservation techniques do in fact present a risk to life, it is still only a potential risk presenting some chance of shortening life, what may be considered a *safek* (doubt), not an absolute (*vaday*), risk to life. As will be argued below, such activity may be entirely permissible.

Upon arrival in the hospital, a more thorough brain death exam is performed, with organ harvest contingent on this second negative exam. Therefore, even if organ preservation is permissible according to R. Tendler because it is considered life-saving, there is no concern that the organs will be harvested from a living patient, since prior to the harvest, the

11 Ibid.

patient must meet R. Tendler's own criteria for determining death (i.e., brain death).

It therefore appears regarding the question of determining death and ensuring that organs are only harvested from patients determined to be dead, Halakhah should endorse uDCD protocols. This should be true regardless of the approach taken to determine death, since according to all approaches organs are never harvested from living patients. Other concerns may exist, as R. Bardos indicated, such as determining when to stop CPR attempts and whether and how to obtain consent for organ donation, which may indeed be Halakhic concerns. But from the strict perspective of whether uDCD is compatible with Halakhah, the resounding answer is "yes."

Controlled DCD

Controlled DCD (cDCD), as described by R. Bardos, is a more carefully orchestrated procedure. From the technical planning perspective, the issues in this context appear simpler, but the questions that cDCD raises are more challenging, with far reaching implications.

Controlled DCD presents three halakhic challenges:

1. Withdrawing ventilation.
2. Administering heparin to a patient without intending to treat any condition from which he is suffering.
3. Initiating the organ harvest while the patient may still be halakhically considered alive.

The last challenge is clearly most significant, since if the cDCD patient is still considered alive at the time of organ harvest, then it is the removal of his vital organs that kills him. Since murder is universally forbidden – even when performed for "noble" intentions – it cannot be sanctioned under any circumstances whatsoever. This last question is also the most intriguing, as it questions the halakhic definition of death as it relates to the notion of irreversibility. Before dealing with this issue, which is both most fundamental to the entire process as

well as philosophically challenging, we will explore the first two questions.

A. Removing Therapy

Almost all halakhic authorities prohibit removing ventilation from any patient, equating withdrawing life-sustaining therapy to manslaughter or murder. Even those authorities that permit withholding certain treatments or not reinitiating treatments that are momentarily paused nonetheless forbid actively stopping therapies that are maintaining life. This issue has been dealt with elsewhere and will not be our current focus;[12] suffice it to say that the entire controlled DCD enterprise could halakhically not even get off the ground due to this problem.

Practically, then, cDCD cannot be halakhically sanctioned, since the prerequisite for the entire process – stopping ventilation to allow the heart to stop beating – presents an insurmountable halakhic obstacle. However, if this problem could even theoretically be avoided in some way, the latter two issues would also present interesting challenges. The answers to the questions presented by these issues may indeed have ramifications beyond cDCD, justifying an analysis in their own right even though they are practically irrelevant in this case, since Halakhah forbids the necessary prerequisites for them to come to bear on the issue.

B. Administering Heparin

Heparin or some other anti-coagulant is given to the potential donor to maintain the viability of his organs for transplant. The purpose of the heparin is to boost the transplant potential of the organs by preventing blood clotting within the organs when circulation ultimately stops. The medicine provides no physiological benefit to the potential donor and, as noted by R. Bardos, may in fact present certain risks. The halakhic question is whether it is appropriate to administer a

12 See this author's "End of Life Therapies," *Journal of Halacha and Contemporary Society* 56 (2008): 22-48.

medication to a patient that is intended entirely for the benefit of another person (the potential organ recipient) and not the patient himself.

The fact that the patient in question is imminently dying (described as a *goses*) makes this question even more poignant, since Halakhah forbids even casual movement of (and possibly even unnecessary contact with) a *goses*.[13] The Talmud compares the life of a *goses* to a flickering candle – while it will go out shortly on its own, placing a finger upon it will extinguish it immediately.[14] The concern is that even slight movements may induce minor stress that can tip the delicate balance for a patient so tenuously holding on to life, possibly shortening his life by mere moments. The *mishnah* goes so far as to describe a person who closes the eyes of a *goses* as a murderer ("*harei zeh shofeikh damim*").[15] Neither closing the eyes nor gentle movements can be considered absolute murder; there is only a chance, perhaps remote, that they may shorten a *goses*'s life, not an absolute certainty. Nonetheless, even that remote chance is sufficient reason to prohibit these actions, as doing something that may possibly shorten someone's life – meaning murder – cannot ever be sanctioned.

However, as R. Moshe Feinstein points out, since these prohibitions merely represent concerns for possibly shortening life – concerns that he considers to be rather unlikely – they are not blanket, unilateral prohibitions, and they need not apply in each and every situation.[16] R. Feinstein uses this logic to explain why Rambam requires a short waiting period after a person has died before closing his eyes,[17] but neglects to mention this waiting period when permitting (and maybe even requiring) attempting a postmortem Caesarian section to try to save the life of a fetus whose mother has just died.[18] While

13 *Shulhan Arukh*, *Yoreh De'ah* 339:1.
14 *Shabbat* 151b.
15 *Shabbat* 23:5.
16 *Teshuvot Iggerot Mosheh*, *Yoreh De'ah* 2:174.
17 *Hikhot Avel* 4:5.
18 *Hilkhot Shabbat* 2:15.

doing something that will certainly or even likely cause death is prohibited under any and all circumstances, actions that may only possibly cause death are not necessary prohibited and are more properly described simply as risk taking.

This point is easily demonstrated by the fact that all of these prohibitions would be set aside if the goal was an attempt to save the patient himself. While the Talmud assumes that most *gosesim* will die,[19] it is clear that some, albeit a minority, will live. Thus, *Shevut Ya'akov* argues that all of these actions are permissible when done for the purpose of saving the *goses*'s life; while these actions pose a risk that is prohibited when done for naught, they are permissible when done for the sake of *pikuah nefesh*.[20] R. Akiva Eiger similarly argues that moving a *goses* is permissible, despite the attendant risks, when done for his own benefit.[21]

The relevant question thus becomes what these actions are trying to accomplish. While R. Feinstein describes closing a person's eyes as one of the needs of the deceased (*tzorkhei ha-meit*), as important as it may be, there is no specific requirement obligating its performance at a particular moment. Pushing it off for a little while to prevent even a possible risk to life indeed makes sense. It is therefore prohibited until death is certain and unambiguously determined. More pressing needs, however, may indeed permit taking on such a risk – needs such as those of saving lives.

In parallel, more mundane situations, many halakhic authorities permit taking risks in the hope of saving someone else from death. This is essentially the rationale allowing live kidney donation, in which some (albeit small) risk exists for the donor but which has the potential to be lifesaving for the recipient, significantly extending life for many years. Could the same argument be made in our present case? While heparin may indeed present certain risks to the potential donor's life,

19 *Shevu'ot* 33a.
20 *Shevut Ya'akov* 1:13.
21 Glosses of *Rabbi Akiva Eiger, Yoreh De'ah* 339:1.

most physicians do not believe these risks to be significant. We might therefore suggest that although heparin injections provide absolutely no benefit to the donor himself, and in fact may be dangerous to his health, the donor may elect to undertake such a risk in the hopes of saving someone else's life.

One caveat is important in this regard. Since accepting a risk for the purpose of saving life is permissible, but not obligatory,[22] this can only be done with the permission of the risk taker – in this case, the potential donor. After thoughtful consideration, a person is granted the license to choose such a risk; since risk taking is not mandatory, there is room for subjective assessment. In the case of live kidney donation, the donor makes his choice clear by indicating his willingness to undergo the procedure to the physician in charge. The case of cDCD is more complicated, since the patient is no longer capable of communicating. Were the patient to have made his wishes clear and known earlier in life, it would make sense to currently act on his previously expressed wishes, as if he was making the choice right now. However, when the patient has not made any such choice known, we are left with somewhat of a dilemma. Can we make this choice for him, and if so, how do we make the right choice?

R. Hershel Schachter has argued that accepting risks is a very personal matter and only the person involved can choose to accept them. Each person, in R. Schachter's view, has the right to choose what he or she considers to be *pikuah nefesh* for themselves, and no one else can make that decision on their behalf. When a person cannot make his own decisions and cannot actively accept such a risk, we cannot subject him to a risky therapy and must refrain from doing that which may possibly save his life if it entails danger. However, because this decision is meant to be reflective of the patient's overall attitude, if we could ascertain what he would have wanted – either through his previously clarified wishes or by talking with family mem-

22 *Teshuvot Iggerot Moshe*, *Yoreh De'ah* 2:174:4; *Teshuvot Yabia Omer*, *Hoshen Mishpat* 9:12.

bers with whom he may have held discussions – that can substitute for his current choice. In these cases, it is as if the patient is making that very decision right now.[23]

In contrast, R. J. David Bleich argues that just as Halakhah assumes that the *beit din* is considered *in loco parentis* for orphans (*avihen shel yetomim*), they should similarly be considered proxies for all people lacking decision making capacity. A *goses* who is unable to communicate needs somebody to speak and make decisions on his behalf regarding many issues – financial, health related, and otherwise – in much the same way that a parentless child does. In a time when rabbinical courts were both prevalent and effective, this is certainly a valid model. R. Bleich has suggested that perhaps in modern times, the same type of "constructive proxies" could be implemented by having the patient himself designate somebody to make decisions for him when he no longer can, or by having the family members or physicians select such a proxy on the patient's behalf. This is parallel to the standard health care proxy in US law.

If the *goses* has made his wishes known previously (as R. Schachter demands) or an appointed proxy makes such a decision on the *goses*'s behalf (as R. Bleich allows), it seems reasonable to permit administering heparin to the *goses*, even though it provides no benefit to him and even entails some measure of danger, in the hope of saving another salvageable patient. This assumes, of course, that there are no other objectionable problems with the cDCD protocol.

Relating to a different case, R. Shlomo Zalman Auer-

23 *Be-Ikvei Ha-Tzon*, no. 34. It is interesting to consider how this approach would apply to children, who Halakhah generally assumes cannot make decisions for themselves. R. Schachter assumes that parents are granted a special right to make these decisions on their children's behalf, and children thus differ from other patients who lack decision making capacity. Interestingly, R. David Zvi Hoffman assumes that since the *mitzvah* ultimately devolves upon the physician, the physician should retain the right to decide whether to proceed in such a case. See *Teshuvot Melamed Le-Ho'il*, *Yoreh De'ah* 104.

bach touched upon some of these issues and seemingly came to the opposite conclusion.[24] R. Auerbach was asked about the theoretical case of a *goses* lying on a stretcher in the emergency room who is blocking the elevator. Another patient, who is critically ill and requires emergency life saving surgery, is then brought in, but to reach the operating room, he must be transported through the elevator currently blocked by the *goses*. May the physicians move the *goses* out of the way so that they may try to save the potentially salvageable patient? If moving a *goses* is tantamount to shortening his life, he may certainly not be moved; the *goses*'s life may not be sacrificed (or even shortened) to save someone else, even if he can certainly not survive and the other person stands a good chance of survival if properly treated. R. Auerbach argued that if the *goses* could be moved very gently, then it would be permitted to do so to allow the potentially salvageable patient to have his life saving surgery. He appears quite hesitant about the whole idea and repeatedly mentions that this must be done with exceptional care.

How can we understand R. Auerbach's position? Clearly, he did not equate moving the *goses* with murder; if he did, he would not have permitted it at all, even for the noble purpose of saving someone else's life. He must have understood that moving a *goses* presents a risk to his life – a possibility of shortening his life, but not absolute certainty. If this is true, however, why was R. Auerbach so hesitant in issuing a permissive ruling?

It is possible that R. Auerbach maintained that moving a *goses*, like any other risk to life, should be permissible when done for the sake of saving another person. He may have even felt that pushing a *goses* on a stretcher does not qualify as movement at all, since the *goses*, while placed in a new location, does not experience any movement with respect to his own body. However, R. Auerbach wished to establish a broader basis for his position by limiting his ruling in such a way so as to be permissible according to a variety of different perspec-

24 *Nishmat Avraham*, *Yoreh De'ah* (2nd ed.), 493.

tives. In explaining why Rema permits certain activities but forbids others to be done to a *goses*,[25] *Shakh* explains that only large, aggressive motions are prohibited, but not fine, gentle movements.[26] Perhaps R. Auerbach felt that gently pushing a *goses* on a stretcher qualifies as a fine, gentle movement, and according to *Shakh* it is always permissible. Therefore, R. Auerbach concluded, even if someone were to argue that moving a *goses* is forbidden even when performed to try to save someone else's life, gently pushing a stretcher may nonetheless qualify as a fine, gentle moment that *Shakh* would declare permissible in any event.

There is one differentiating factor between R. Auerbach's case and the "standard" case of accepting a risk to try to save somebody else's life – namely, the lack of choice. It is usually upon the person accepting the risk to choose to do so; when he does choose (and the danger is not certain), he may rightfully accept such a risk. Applying the more general criteria, were the *goses* on the stretcher to openly state that he is willing to accept the danger of movement so that the other patient could be saved, we would certainly permit moving the stretcher. Practically, however, the *goses* on the stretcher never gave his approval to be moved; he never made the choice. R. Auerbach may be arguing that we have no right to make that choice for him.[27]

25 Rema, *Yoreh De'ah* 339:1.

26 *Nekudat Ha-Kesef*, *Yoreh De'ah* 339, s.v. *ela*.

27 In a different but related context, R. Auerbach argues (*Nishmat Avraham*, *Yoreh De'ah* [2nd ed.], 461) that injecting any substance into a *goses*'s body – even one that is known to be completely benign – is far worse than simply moving one of his limbs and is certainly forbidden, regardless of rationale ("*hu harbeh yoter hamur mi-lehaziz ketzat et ha-guf… de-vaday asur*"), possibly because of the systemic effect that an injection has. R. Auerbach felt that injecting intravenous dye qualifies as "moving" the patient internally, even when using an already existing intravenous line (requiring no additional needle sticks), and he therefore summarily forbids the practice. He maintained this perspective on the prohibited nature of intravenous injections for a *goses* even while permitting gently moving a *goses* for the purpose of saving somebody else's life (ibid., 494). (One of the suggested

Accordingly, it could be argued that in R. Auerbach's view, a heparin injection is halakhically permissible, even though it represents taking a doubtful risk for the purpose of saving another person's life, if we can ascertain that the donor had previously consented to such a procedure (or if he had never discussed the matter, that we could extrapolate that this is the decision that he would have made under these circumstances).

C. Determining the Moment of Death

The most central issue of this entire endeavor is determining the moment of death precisely. Since the organ harvest would immediately end the life of a still living patient, it can only proceed once the potential donor has died. The question thus boils down to how to define the moment of death in a patient who retains the potential for resuscitation.

As noted by R. Bardos, cDCD protocols call for withdrawing ventilator support and waiting for asystole (flat line EKG). Once the heart has stopped beating, the team waits a specified amount of time (differing by institution); once this time has passed, the team immediately begins the harvest. The waiting period is meant to be long enough to account for any possibility of autoresuscitation. Also as already noted, most physicians assume that if instead of initiating an organ harvest, the physicians would instead attempt to resuscitate the patient, there is a good chance of reestablishing a heartbeat. Thus, at the moment that the harvest begins, the heart has not necessarily irreversibly stopped, since it may be still amenable to reanimation.

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protocols for diagnosing brain death – which, incidentally, is now part of the law in Israel – requires using a dye based test to assess cerebral blood flow, requiring injecting a harmless radioactive dye intravenously, making this point particularly relevant.)

R. Auerbach does not offer much in the way of explanation for his unique position. It is hard to know why he differentiated between gently moving a *goses* on a stretcher (when done for the purpose of saving someone else's life) but forbade otherwise benign intravenous injections.

Bioethicists argue that theoretical irreversibility is irrelevant in this case, since cDCD protocols require that potential donors sign a DNR (do not resuscitate) order, thereby forbidding any resuscitative attempts. Since these patients will practically not be resuscitated, the argument goes, their hearts can be considered permanently stopped, even if not theoretically irreversibly so. What is the halakhic perspective on this type of death determination? Essentially, the question is whether Halakhah determines death when the heartbeat irreversibly stops beating – meaning that it cannot be restarted – or when it stops beating and is not subsequently restarted, regardless of the reason.

A simpler question is more easily addressed: What is the status of a person whose heart stopped and through resuscitative measures regains a heartbeat (known as clinical death or *mavet kelini* in the halakhic literature)? Does Halakhah consider him to have died, with all of the various ramifications this entails, and then brought back to life? Almost without exception, halakhic decisors have declared that such a person is considered to never have died; since his heartbeat returns, it is clear that when it initially stopped, it was not irreversibly stopped. The unstated assumption is that only the irreversible cessation of heartbeat qualifies as death; when the heart stops temporarily, it is merely indicative of possible illness, but not of death.

This is highly intuitive. After all, each and every one of us stops breathing approximately 12 times each minute; nonetheless, we are not considered to have died and later revived, because it is clear that the cessation of respiration was not irreversible. The actual return of respiration or heartbeat indicates that when it stopped, it was only a temporary cessation, and because it was proven to be only temporary, it cannot be indicative of death.

Interestingly, it is only after respiration or heartbeat returns that we can state with definitive certainty that the person never died. While this may be "inconvenient" in practically dealing with a patient – since when his heart stops we will not

know if he is alive or dead until some time passes – the fact that his status can only be determined retroactively does not present any conceptual or fundamental difficulty. This "inconvenience" merely stems from our inability to determine whether or not the current stoppage of the patient's heartbeat is reversible or not; it is not a fundamental problem, but simply a practical one. If right after the heartbeat stopped, we were able to state with definitive clarity that it will never return – we could determine death at that moment. Given our human limitations, however, the passage of time is the most accurate means of making this determination, and the determination must therefore wait until that time has passed.

The real question arises in cases in which the heartbeat does not finally return. R. Eliezer Yehudah Waldenburg addresses this question in an interesting context.[28] He was asked to describe the status of a patient during open-heart surgery. During certain cardiac surgical procedures, the patient's heart must be completely still so that corrective measures can be made (such as replacing a valve). During that time, since the patient cannot breathe and has no heartbeat, he is connected to a cardiopulmonary bypass (heart-lung) machine that completely substitutes for the patient's innate respiration and circulation. Collecting blood from the right atrium just as it enters the heart and returning it directly to the aorta (the artery that exits the heart), the heart-lung machine bypasses the heart entirely to circulate oxygenated blood throughout the body. During open-heart surgery, even though the patient has no innate respiration or heartbeat at all, he is still considered to be alive, since when the patient comes off bypass, he will hopefully regain his intrinsic respiratory and cardiac abilities. Once the corrective part of the surgery is complete, the heart is restarted.

Sometimes, unfortunately, this is not possible. R. Waldenburg was asked how to determine the moment of death when the patient's heart cannot be restarted after taking him "off pump." Should we assume that so long as a person main-

28 *Teshuvot Tzitz Eliezer* 17:11.

tains the theoretical capacity for circulatory reversibility, he is alive and cannot be considered dead until the potential for reversibility disappears? In this case, this would mean that the patient was alive until some point in the middle of the surgery, when, for one reason or another, his heart was no longer amenable to reanimation. Or should death be determined when the heart practically irreversibly stops beating? For this patient, death would occur at the moment that the surgeon put the patient "on pump" and stopped his heart, since we retroactively know that at that point, the heart was irreversibly stopped (meaning, it never regained a heartbeat). Determining the precise moment of death is vital for various areas of Halakhah and carries with it significant ramifications, such as for the onset of ritual mourning, the transfer of inheritance, and engendering the ritual impurity of a corpse.

R. Waldenburg intuitively defines death as the point at which the heart can no longer be reanimated – at the moment when the theoretical potential (regardless of and in spite of any resuscitative efforts) for resuscitation vanishes. Assuming that a resuscitated patient is considered to be alive – since retroactively we know that his temporarily stopped heartbeat was not irreversible – R. Waldenburg explains that the only reason that resuscitation is possible, even theoretically, is because the patient is alive, even though temporarily without a heartbeat. There must be some *hiyyut* (life force) within this patient that allows the heart to restart and effectively "reestablish" life.

R. Waldenburg explains that the alternative is simply unacceptable. He envisions the only other possible moment that may qualify as death as when the surgeon stopped the patient's heart and connected him to the bypass machine, the last moment that the patient's heart ever beat spontaneously. While this stoppage is retroactively deemed to have been only temporary in cases of successful surgery, when the patient's heart cannot be restarted, it becomes clear that when the surgeon initially stopped the heart to connect the patient to bypass, his heart was now irreversibly stopped; he is then considered dead

from that moment. The implication, argues R. Waldenburg, is that the surgeon effectively murdered the patient by stopping his heart irreversibly. While it was certainly an accident – as the surgeon assuredly was hoping that the patient's heart would eventually restart – the surgeon's action was the proximal cause of this patient's death. R. Waldenburg argues that this is conclusion is simply untenable.

In dealing with a different set of circumstances, R. Auerbach tends toward adopting a different approach.[29] He describes two theoretically identical patients. The first is visiting a friend in the local hospital's intensive care unit (ICU), while the second is alone at home. Both patients experience a heart attack at the same moment and collapse. Since the first patient is in the ICU at the time, the medical staff quickly comes to his aid and after 10 minutes manages to restart his heart. The second patient is alone at home, however, and no one is aware of his situation. Since no one comes to his rescue, his heart is never restarted. Because these are identical patients, however, even the second patient could have been saved (just like the first patient) if he would have received medical attention. In theory, at least, the second patient's heart was amenable to resuscitation for at least 10 minutes after it stopped beating. In this unfortunate case, however, no resuscitative attempts were made. Does that mean we should not consider him dead until at least 10 minutes passed after his cardiac arrest?

A simpler case would be when resuscitation was attempted after a heart attack but was unsuccessful in reestablishing a heartbeat. While the heart theoretically retains some capacity for reanimation, in this situation, resuscitation was tried but failed. Were the resuscitation potential real, it would have been actualized (assuming that it was performed properly). Since a heartbeat could not be reestablished, we retroactively know that when the patient's heart stopped initially, it was irreversible. The time of death is therefore defined as the moment of the initial heart attack.

29 *Shulhan Shlomo, Erkhei Refuah*, vol 2, 35.

The notion of autoresuscitation makes this point slightly more complex, although it still fits the same framework. The "Lazarus effect" describes the return of spontaneous circulation (ROSC) after resuscitative attempts have stopped. A rare phenomenon, the length of time between diagnosed asystole and ROSC varies considerably, and seems to be longer after a failed CPR attempt than when no resuscitative measures were taken at all.[30] When the heartbeat returns, it proves that when the heart stopped initially, it was only temporary. Death cannot be said to have been determined, since the cessation of circulation was not irreversible.

The complication in R. Auerbach's case is that resuscitation was theoretically possible, although not actualized. This patient retained the theoretical capacity for resuscitation for at least 10 minutes, and his heart therefore did not lose the potential for reversibility until some later point. Practically, however, in retrospect, when the heart stopped initially, it was irreversibly stopped, because ultimately, the heartbeat never returned. The question is therefore how to define irreversibility, which is part and parcel of any definition of death. Is death determined by the theoretical ability of the heart to be resuscitated or by the practical return of circulation? While R. Waldenburg favors the first approach, R. Auerbach seems to prefer the latter. R. Auerbach writes that were there to be a difference of a day between the initial heart attack and the point at which he could still be theoretically resuscitated, the *yahrtzeit* of the patient in question would be observed on the day that his heart initially stopped. It would initially appear that R. Auerbach would permit cDCD protocols, since according to his approach, the potential donor is considered dead once resuscitation will not practically occur. R. Waldenburg, however, would forbid the procedure, since the patient's heartbeat has not irreversibly ceased – R. Waldenburg's criterion for death – when the organ harvest begins.

30 K. Hornby, L. Hornby, S.D. Shemie, "A systematic review of autoresuscitation after cardiac arrest," *Critical Care Medicine* 38 (2010): 1246-53.

Practically, however, even R. Auerbach would have likely prohibited cDCD procedures on at least two different grounds.

First, he was unsure whether his novel ruling was correct. He writes that while he believes it to be likely, he cannot be sure that Halakhah does not follow R. Waldenburg's approach. Since what hangs in the balance is potential murder, R. Auerbach would certainly have prohibited the practice out of concern that the donor may still be alive.

Second, even if R. Auerbach presumed that his novel ruling were true, it seems to apply only retroactively, but not prospectively, thereby limiting its practical applicability. For R. Auerbach, death is determined when respiration and heartbeat cease in a situation in which they never return. Once we can be certain that they have not returned – even if it were theoretically possible, but we simply did not act on that possibility – we may then declare death at the moment that the heartbeat and respiration initially ceased. But determining death requires absolute certainty; it cannot be based on assumptions and guesstimates. In a patient who is potentially reversible, at the very moment that the heartbeat stops, we cannot be certain that it will not return. While this is certainly true during the short period of potential autoresuscitation, this doubt lingers so long as actual resuscitation is still possible. Since the person's heartbeat can still come back – even if only through aggressive resuscitative measures – his heart can only be described as having irreversibly stopped when in practice it was not reversed. This is a determination that can only be made when the "window for resuscitation" has come and gone and the heart has not restarted, regardless of whether resuscitative attempts were made.

The actual scenario of cDCD is slightly different, since all protocols demand that a potential donor sign a DNR order forbidding any and all resuscitative attempts. Once this patient's heart stops and the autoresuscitation period passes, it should be quite clear that his heart will not restart because it

can no longer do so on its own and no outside attempts will be made. Ethicists argue that with the DNR in place, the patient's heart should be described as permanently stopped even if not theoretically irreversibly so.

It is hard to argue, however, that any of this should make much halakhic difference. R. Auerbach's focus is on whether the heartbeat ever actually returns, and so long that it is still possible that it will do so, this cannot be stated with certainty. The agreement of those present at the patient's bedside to not engage in CPR – respecting the DNR – is not relevant to the question of whether or not this patient's heart will ever reverse until such time that it is cannot be restarted. The DNR's only effect is that (once the autoresuscitation period passes) the ultimate outcome is a foregone conclusion. It cannot, however, alter when that conclusion can be definitively stated. It is only when the heartbeat turns out to never have been reversed – when the time has passed that resuscitation is no longer possible – that we can declare the person to have died when his heart initially stopped. In R. Auerbach's view, when the heartbeat is not reversed, whether because resuscitation efforts failed or were not attempted in the first place, we may determine that the patient died when his heart originally stopped – but only retroactively, after the heart can no longer be restarted.

In summary, regardless of the conceptual approach to determining the ultimate moment of death when reversibility is possible but not actualized, from a practical perspective, cDCD protocols present insurmountable halakhic obstacles. Primary among them is the fact that the patient is still halakhically alive during the organ harvest and his death is caused by the removal of his vital organs.

One remaining issue that still must be explored is whether or not the *mitzvah* of *pikuah nefesh* applies to a patient during this critical period. Must bystanders actively intervene and try to resuscitate the patient, or may they stand by and let nature take its course? This relates to the more general question

of treating an end of life patient, a question that has been dealt with elsewhere.[31] Suffice it to say that most, but certainly not all, halakhic decisors would not obligate bystanders to initiate CPR.[32]

D. Philosophical Considerations

From a more conceptual perspective, these approaches raise some interesting questions. The following is not meant as a rigorous philosophical analysis, but rather just an outline that highlights some of the more interesting points.

Our means of determining reversibility and practically reversing halted respirations and heartbeats are far more advanced than those that existed in Talmudic times. If we adopt an irreversibility standard in death criteria – as R. Waldenburg explicitly does and, as argued above, is practically necessary for R. Auerbach as well – whose criteria should we employ? Should we rely on modern science and not declare dead by cardiopulmonary criteria any person whose vital functions may be amenable to resuscitation given modern technology? Relying on a Talmudic standard would create significant problems, since it would mean that anybody resuscitated by modern means (after a time lapse in which resuscitation methods in Talmudic times would have failed) is considered to have died and been subsequently resurrected. Conversely, applying a modern standard might mean that even 1,000 years ago, anyone who was amenable to modern resuscitative measures – even though they were unavailable at the time – was considered alive until a time in which modern techniques would have failed. This would mean that since determinations were routinely made given current realities, historically many people were declared dead who were actually alive!

One could simply accept that assertion and assume that death is only determined as irreversible based on a theoretical

31 See "End of Life Therapies."

32 See *Defining the Moment*, 189-90, for a further discussion as to whether or not the *mitzvah* of *pikuah nefesh* extends to reviving patients who would otherwise appear to be dead.

model. No matter how or by what futuristic means respiration and heartbeat could be reversed, a person cannot be considered dead until enough time passes that those efforts would be deemed futile. This would mean that death is universally determined – across all places and times – by the theoretical possibility for reversibility.[33]

Alternatively, perhaps reversibility should be determined in its historical context. This would mean that in each generation and with each advance in science, the question of determining death vis-à-vis reversibility must be reanalyzed. This would mean applying a different reversibility standard today than was applied in Talmudic times. This contention assumes that the question of reversibility is one of physical reality – a person is considered alive up until the moment until his vital functions cannot practically return. As a practical matter, it depends on the actual ability to reverse the respiratory and cardiac failure and resuscitate the patient.

However, adopting this approach leads to further questions. How do we determine the context? Do we measure reversibility by the theoretical ability of current science to resuscitate this person given all that modern medicine has to offer? Or are we more practically focused – are we interested in those advanced means currently available for this particular patient? Taking this line of reasoning to its logical extreme may result in employing a different reversibility standard in different places, since advanced medical technologies are not uniformly distributed throughout the world. The ability to resuscitate a patient in the ICU unit of a modern metropolitan US hospital is vastly superior to the means available in many third world countries. Further stretching this approach may even mean determining death differently on different floors of the same hospital, since

33 From a practical perspective, however, even while we are cognizant of rapidly advancing science that may improve resuscitative methods, in order to function in the real world, we must nonetheless rely on our (inherently inadequate) current abilities –"a judge must make a decision based on what is before him" (*Sanhedrin* 6b).

the technologies available for resuscitation are similarly not equally distributed. A person suffering a heart attack stands a better chance of resuscitation and survival if he collapses in the ICU unit than in the hospital lobby.

Conclusion

With near universal rabbinic agreement permitting, condoning, and often encouraging post-mortem organ donation, technologies and modalities aimed at expanding this potential are to be embraced. While we should certainly welcome all of these attempts, we must not forget our responsibility to continually ensure that each new method and protocol meets the highest ethical and halakhic standards. Simply because something can be done does not necessarily mean that it should be. This is true even when it comes to saving lives when what hangs in the balance is the sacrifice of other lives. This article tried to present some rudimentary thoughts and potential conceptual models applicable to the two types of donation after cardiac death. From this preliminary analysis, it would appear that controlled DCD presents insurmountable obstacles for halakhic acceptance – as it may possibly be murder –even while this method is becoming more and more prevalent. The less frequently utilized model of uncontrolled DCD seems to be more halakhically acceptable. Even though uDCD is as of now mostly limited to kidney donation, more than 85% of patients waiting for organs in the United States are in fact waiting for kidneys. Any and all halakhically acceptable medical advances that can promote organ donation will hopefully save lives.