

## Introduction

1. Rabbi Jason Weiner, *Deactivating a Total Artificial Heart*, J of Halacha and Contemporary Society #70 (Fall '15)  
One common technology currently used for such patients [with end stage heart failure - MT] is a "ventricular assist device" (VAD), which is essentially a mechanical pump. A VAD is usually connected to a ventricle (chamber of the heart that pumps blood out) on one side, and the aorta (the body's main artery) on the other... A "Total Artificial Heart" (TAH), on the other hand, is used for patients whose entire heart is failing. Whereas a VAD is connected to, and assists, one of the ventricles (usually the left), a TAH completely replaces both of the lower ventricles and serves as a mechanical substitute for the entire heart... A typical TAH thus differs from a VAD in that a TAH requires the removal of most of the patient's heart...

2. Rabbi J. David Bleich, *Artificial Heart Implantation*, Tradition 22:2 (Summer '86)

There are a number of practical corollaries to the theoretical question of whether or not the recipient of a mechanical heart is deemed to be a human being: (1) May the recipient's wife remarry without benefit of a get (religious divorce)? (2) Do his heirs immediately succeed to his estate? (3) If the recipient is not a human being, is he then a corpse requiring immediate burial? (4) Must the family immediately observe shivah and recite kaddish? To be sure, these questions constitute a reductio ad absurdum and evoke the intuitive reaction that the recipient is indeed a human being. Nevertheless, our intuitive response requires reasoned analysis and substantiation.

## 3. Cases

- (1) Jacob, age 54, is suffering from end-stage, irreversible, global heart failure. He is not deemed eligible for heart transplant. After evaluation, however, he is deemed eligible for clinical trials of a Total Artificial Heart as a destination therapy. Personally, Jacob would try anything. May he enroll in the trial?
- (2) Sarah is a cardiovascular surgeon in training, which requires competency in implanting Total Artificial Heart devices. Her Rabbi believes that Judaism's definition of death is based on cardiovascular function. May Sarah participate in this training program?
- (3) David received a Total Artificial Heart, but a stroke several weeks later resulted in the cessation of detectable neural function. He cannot be weaned from the ventilator. However, David's Total Artificial Heart is still maintaining blood pressure and circulation, with no evidence of circulatory compromise. May the device be turned off?

## Q1: May one take the risk of receiving an artificial heart?

4. The Obligation to Heal and Be Healed <https://www.yutorah.org/lectures/lecture.cfm/775945>

5. Rabbi Moshe Feinstein (20<sup>th</sup> century USA), Igrot Moshe Yoreh Deah 2:174 (1968)

שתילת הלב שהתחילו הרופאים לעשות בזמן האחרון הוא רציחת שתי נפשות ממש, שהורגין בידיים את מי שלקחו ממנו הלב כי עדיין הוא חי... וגם הורגים בידיים מחיים ממש של הרבה שנים ולפעמים אף עשרות בשנים את החולה במחלת הלב, כי ידוע שהרבה חולי הלב מאריכין הרבה ימים ושנים, ובוזה שנוטלין ממנו לבו ומשתילים בו לב של איש אחר הא כולם מתו בזמן קצר רובן בזמן של שעות, וקצתם מתו בימים מועטים, ואף האחד שבאפריקא שעדיין אף שעברו ערך ששה חדשים הוא חי, כבר הסכימו לפ"מ ששמעתי שא"א לו לחיות.

The heart transplants which doctors have begun to perform recently are actual murder of two lives. They actively kill the one from whom they have taken the heart, for he yet lives... And they also actively kill, from an actual life of many years, sometimes even decades, the patient with heart disease. It is known that many people with heart disease live long lives, and in taking his heart and implanting the heart of someone else, all of them die shortly, most of them within hours, and some of them die in a few days. Even the one in Africa who still lives even though about six months have passed, they have already agreed, as I have heard, that he cannot live [for long].

6. Rabbi Isser Yehuda Unterman (20<sup>th</sup> century Israel), Noam #13 (1970)

כשיבוא מי שהוא להוועץ עם רבני ישראל אם במקרה של מחלת לב כדאי להחולה להסכים להצעת רופא להשתלה, צריכים לומר לו "לא" בהחלט, כי בניתוח כזה ישנה סכנה קרובה הרבה יותר מאשר מניעת טיפול לגמרי...

When someone comes to take counsel with the Rabbis of Israel as to whether, in a case of heart disease, it would be worthwhile for the patient to agree to the doctor's advice for transplant, they must say No decisively, for such an operation has more likely danger than avoiding all treatment...

7. Rabbi Dr. Lord Immanuel Jakobovits, *Jewish Medical Ethics*, Journal of Medical Ethics 9 (1983) pg. 111  
Jewish law insists, firstly, that no vital organ be removed from a donor until death is definitely established by the actual cessation of all essential life functions, including particularly respiration and pulsation, and not merely by what is termed 'clinical death', such as irreversible brain damage. It insists, secondly, that such operations must not be continued unless they have passed the purely experimental stage and offer recipients a reasonably hopeful prognosis.

8. Rabbi Mordechai Halperin, **האם מותרת השתלת לב על פי ההלכה?**, Assia 5 (1986)  
בניתוחים רגילים החולה נחשב כחי, והינו בחזקת חיים כל הזמן, אלא שהוא נכנס למצב סכנה במהלך הניתוח הרגיל. ואכן מותר לחולה להכניס עצמו בסכנה כאשר סיכויי הריפוי הם טובים.

In normal surgeries [unlike heart transplants] the patient is considered alive, meaning he has the ongoing status of 'alive' the entire time, but he enters a state of danger in the course of this normal surgery. But a patient may introduce himself into danger, when the chances of healing are good.

9. Rabbi Yaakov Reischer (17<sup>th</sup> century Prague), Responsa Shevut Yaakov 3:75  
בנדון זה, כיון שודאי ימות מניחין הודאי ותופסין הספק, אולי יתרפא. ומ"מ אין לעשות הרופא כפשוטו כן, רק צריך להיות מתון מאוד בדבר לפקח עם רופאין מומחין שבעיר ע"פ רוב דיעות, דהיינו רובא דמינכר שהוא כפל, לפי שיש לחוש לקלי דעת.

In this case, since he will definitely die, we leave the certainty and take the possibility that he might heal. Still, a doctor should not simply do this; he must be very patient, checking with expert local doctors based on the majority view, meaning a visible majority, two-thirds, out of concern for those who are careless.

10. Rabbi Chaim Ozer (20<sup>th</sup> century Poland), Responsa Achiezer 16:6  
ובדבר השאלה אשר שאל מעכ"ת בחולה והרופאים המומחים אומרים כי בלא אפערציאן/נתוח/ לא יחי' יותר משהיה חדים וע"י נתוח אפשר שיחי' אך הנתוח מסוכן מאוד וקרוב יותר שימות מהרה: לכאורה נראה מע"ז כ"ז דודאי מת מתרפאין דלחיי שעה לא חיישינן היכא דאפשר שיתרפא אף באופן רחוק כל שנתיאשו מרפואתו.

Regarding his honour's question about a patient for whom expert doctors say that without an operation he will not live beyond six months, and with surgery he might live, but the surgery is very dangerous and he is more likely to die soon: It appears from Avodah Zarah 27 that if he will definitely die [without treatment], we heal with this [dangerous means], for we are not concerned about loss of short-term life where he could be healed, even as a distant possibility, so long as they have not abandoned hope of healing him.

11. Rabbi Yaakov Emden (18<sup>th</sup> century Germany), Mor uKetziah Orach Chaim 328 **וכן אם רופא אמר**  
בחולי ומכה שבגלוי שיש לרופא ידיעה ודאית והכרה ברורה בהם, ועוסק בתרופה בדוקה וגמורה, ודאי לעולם כופין לחולה המסרב במקום סכנה

With an illness or visible wound, for which has a doctor has certain knowledge and clear understanding, and he prescribes a tested, complete treatment, we certainly compel a recalcitrant patient, if the alternative would be dangerous.

12. Rabbi Moshe Feinstein (20<sup>th</sup> century USA), Igrot Moshe Yoreh Deah 3:36  
כשהרוב הוא לחיים מסתבר שחייב כדכתב גם כתר"ה מסברא, אבל בספק השקול מסתבר שאין לחייבו, דאם הוא חס על חיי שעה שלו הודאין ואינו רוצה ליכנס בספק לאבד זה בשביל ספק שירויה עוד זמן ודאי רשאי...

It is logical to say that when most patients live, he is obligated [to undergo the treatment], but if the odds are even then it is logical to say we should not obligate the patient. If he is concerned for his definite, short-term life, and he does not want to enter into possibly losing that life for the possibility of gaining more time, he certainly is licensed...

### Is a doctor who removes a natural heart to implant an artificial heart guilty of murder?

13. Mishnah Oholot 1:6  
בהמה וחיה אינן מטמאין עד שתצא נפשם. הותזו ראשיהם אף על פי שמפרכסים טמאין כגון זנב של לטאה שהיא מפרכסת.  
Domestic and wild animals do not communicate *tumah* until their lives depart. If their heads are cut off, then they communicate *tumah* even if they still spasm, as in the case of a spasmodic [*mefarkese*] tail of a lizard.

#### 14. Talmud, Yoma 85a, with Rashi

תנו רבנן: "עד היכן הוא בודק? עד חוטמו. ויש אומרים עד לבו..." אמר רב פפא מחלוקת ממטה למעלה [אם צריך לבדוק עד החוטם], אבל ממעלה למטה כיון דבדק ליה עד חוטמו שוב אינו צריך.

**רש"י:** עד היכן הוא בודק - אם דומה למת שאינו מזיז איבריו, עד היכן הוא מפקח לדעת האמת?

**רש"י:** מחלוקת דהנך תנאי, דמר אמר עד לבו, ומר אמר עד חוטמו, מלמטה למעלה שמוצאו דרך מרגלותיו תחלה, ובודק והולך כלפי ראשו, דמר אמר בלבו יש להבחין אם יש בו חיות, שנשמתו דופקת שם, ומר אמר עד חוטמו דזימנין דאין חיות ניכר בלבו, וניכר בחוטמו.

Our sages taught: How far does he check? To his nose. And some say to his heart... Rav Pappa said: There is debate when checking from the bottom up [as to whether one must check to the nose], but when starting from the top down, then once one has checked the nose, there is no further checking required.

**Rashi:** "How far does he check" – If the person appears dead, not moving, how far does one check to know the truth?

**Rashi:** The debate of these mishnaic authors, one saying until his heart, one saying until his nose, is from bottom to top, when one finds his feet first and one checks toward the head. One says we can determine life at his heart, for his soul beats there, and one says until his nose, as sometimes one cannot detect life at his heart, but it is detected at his nose.

#### 15. Rabbi J. David Bleich, *Artificial Heart Implantation*, Tradition 22:2 (Summer '86)

The necessity for examination of the nostrils is based upon the assumption that it is possible for life to exist even though such life may be undetectable by means of examination of the chest for the presence of a heartbeat. Rashi succinctly comments that the first opinion maintains that examination of the chest is insufficient to determine whether or not life is present "for at times life is not evident at the heart but is evident at the nose."

#### 16. Rabbi Mordechai Halperin, *האם מותרת השתלת לב על פי ההלכה?*, Assia 5 (1986)

סברא זו [שיש רציחה בהחלפת הלב – מ.ט.] תלויה אמנם במחלוקת הפוסקים החולקים על החכם צבי, אך אם היא מתקבלת כהלכה אז לא רק השתלת לב אדם תאסר על פיה אלא גם השתלת לב בע"ח (בבון), וכן לב מלאכותי. אף על פי כן ברור שסברא זו איננה נכונה להלכה (או משום שאין ההלכה כחכם צבי או מסיבה אחרת). והראיה לכך כל ניתוחי הלב המסווגים כניתוחי לב פתוח, בהם מופסקת פעילות הלב (והריאות) לחלוטין למשך שעות מספר, ומכונת לב-ריאות מלאכותית מחליפה זמנית את האברים החיוניים הללו. לגבי ניתוחים אלו טרם שמענו הסתייגות הלכתית כלשהי, למרות שלפי סברת הגרא"י אונטרמן והגר"מ כשר זצ"ל היתה חייבת להיות הסתייגות כזו עקב פעולת הרציחה הודאית בנייתוק הפיזיולוגי של מערכת הזרמת הדם מהלב והריאות.

This view [that there is murder in a heart transplant] depends, in truth, on the position of those who disagree with the Chacham Tzvi. But if this view would be accepted as law, then it would prohibit not only human heart transplants, but also transplant of animal hearts (baboon), and artificial hearts. Still, it is clear that this view is halachically incorrect (whether because the law does not follow the Chacham Tzvi or for another reason). The proof is in all of the various kinds of heart surgeries, like open heart surgery, when the function of the heart (and lungs) is halted entirely for several hours, and an artificial heart-lung machine temporarily functions in place of these vital organs. We have yet to hear any halachic resistance to these surgeries, even though within the view of Rabbi Unterman and Rabbi Kasher there must be such resistance because of the certain murder in physiological severing of the flow of blood from the heart and lungs.

#### 17. Rabbi Tzvi Hirsch Ashkenazi (17<sup>th</sup>-18<sup>th</sup> century Europe), Chacham Tzvi 74

מעשה בריבה אחת שפתחה בטן תרנגולת להוציא בני מעיה בשפת השלחן וחתול א' עומד למטה אצלה עומד ומצפה לאכול ממה שיפול ארצה ואמרה הריבה שלא מצאה לב בתרנגולת ואמה בעלת התרנגולת אמרה שמא או קרוב לודאי הושלך הלב לארץ ואכלו החתול העומד שם מוכן לאכול הנופל... דבר ברור הוא לכל אשר לבו לב חכם בקרבו ומוח בקדקדו שא"א לשום נברא בעולם לחיות אפי' שעה אחת בלא לב ויהיה כאחד הבריאים...

A young girl once opened the belly of a chicken to remove its innards, on the edge of a table. A cat was standing below beside her, anticipating the chance to eat whatever would fall down. The girl said she did not find a heart in the chicken, and her mother, owner of the chicken, said perhaps, or almost certainly, the heart had fallen down and the cat, waiting to eat whatever would fall, had eaten it... It is clear to all who have a wise heart and a brain in their skull that no creature can live, even for a *sha'ah*, without a heart, and be like a healthy creature...

#### 18. Talmud, Chullin 32b-33a

אמר רבי שמעון בן לקיש: שחט את הקנה ואח"כ ניקבה הריאה כשרה אלמא כמאן דמנחא בדיקולא דמיא...

אמר רב אחא בר יעקב ש"מ מדרשב"ל מזמנין ישראל על בני מעיים ואין מזמנין עובדי כוכבים על בני מעיים. מאי טעמא? ישראל דבשחיטה תליא מילתא כיון דאיכא שחיטה מעלייתא אישתרי להו, עובדי כוכבים דבנחירה סגי להו ובמיתה תליא מילתא הני כאבר מן החי דמו.

Reish Lakish said: If one cuts the trachea and then the lung is punctured, it is kosher. We see that [the lung] is as though it were placed in a basket...

Rav Acha bar Yaakov said: We see from Reish Lakish that one may invite a Jew to eat the innards, but one may not invite a non-Jew to eat the innards. Why? For Jews, [*kashru*] depends on *shechitah*, and since there was a good *shechitah*, it is permitted for them. Non-Jews suffice with killing it, and it depends on death, and these [innards] are like organs from a living creature.

#### 19. Talmud, Gittin 70b

שחט בו שנים או רוב שנים ורמז ואמר כתבו גט לאשתי הרי אלו יכתבו ויתנו.

If they cut two [trachea and esophagus] or most of them, and he hinted or said, "Write a *get* for my wife," they should write and give it.

#### 20. Rabbeinu Nisim (14<sup>th</sup> century Spain), Chiddushei haRan to Chullin 32b

ואינו מחוור לי לומר בלב "וכמאן דמונה בדיקולא דמי", דאי הכי הרי הבהמה מתה לגמרי. והיאך יתירנה אח"כ שחיטת הושט?!

Saying "it is like it was placed in a basket" is not clear to me. If so, the animal is entirely dead! How could cutting the esophagus afterward permit the animal?!

#### 21. Rabbi J. David Bleich, *Artificial Heart Implantation*, Tradition 22:2 (Summer '86)

Rabbenu Nissim apparently reasons that recognition that the animal has, in fact, not died, as evidenced by the fact that the heart continues to pump blood through the circulatory system, logically entails acceptance of the position that the heart is not already "in a basket" but continues to function as an integral part of the organism. Hence, in the opinion of Rabbenu Nissim, so long as the heart remains attached to the body and functions as the animating force of the circulatory system, it is deemed to be an integral [part - MT] of the body even though it is no longer attached to the body by means of the trachea. According to Rabbenu Nissim, the heart cannot be deemed to have been "placed in a basket" so long as the circulatory system is operative.

#### 22. Rabbi Moshe Sofer (18<sup>th</sup> century Pressburg), Chatam Sofer Yoreh Deah 338

כל שאחר שמוטל כאבן דומם ואין בו שום דפיקה ואם אח"כ בטל הנשימה אין לנו אלא דברי תורתנו הקדושה שהוא מת.

After it lies there like a stone, without any beating, and then the breathing stops, we only have the position of our holy Torah, that he is dead.

#### 23. Re: Vital Motion, see Dr. Noam Stadlan

- [www.hakirah.org/Vol18Stadlan.pdf](http://www.hakirah.org/Vol18Stadlan.pdf) (Hakirah 18)
- [text.rcarabbis.org/problems-with-defining-death-as-the-irreversible-cessation-of-circulation-what-would-we-measure-and-why-by-noam-stadlan-md/](http://text.rcarabbis.org/problems-with-defining-death-as-the-irreversible-cessation-of-circulation-what-would-we-measure-and-why-by-noam-stadlan-md/)

#### 24. Rabbi J. David Bleich, *סימני מיתה*, HaPardes 51 (Tevet 5737 / Jan 1978)

שיש מקום לומר שאף פעולת הלב אינה סיבת החיות מצד עצמה אלא **מחמת שהלב דוחק ומזרים הדם תוך העורקים והורידים** וחיות תלויה היא בדפיקת הלב רק מחמת פעולתה זו וכל שהלב מתנועע חוץ לגוף ואינו מזרים הדם חשיב פירכוס בעלמא...

There is room to say that even cardiac activity is not an independent sign of life, but only because the heart presses and circulates blood in the arteries and veins. Life depends on the beating of the heart only because of this activity. As long as the heart beats outside of the body and does not circulate blood, it is just considered spasming...

#### 25. Rabbi Chaim Yosef David Azulai (18<sup>th</sup> century Israel, Italy), Birkei Yosef Even haEzer 17:1

ויש להסתפק אשת ר' זירא כי נשחט בעלה ומת, ודאי פקעי קדושה והותרה לשוק, וכי חיה למהר ר' זירא היה צריך לקדש לאשתו קדושין חדשים, דפנויה היא... או דילמא הא דהאשה קונה עצמה במיתת הבעל, היינו דוקא כאשר מת ונשאר מת...

There is room for doubt: The wife of Rabbi Zeira, when her husband was slaughtered and he died, certainly her marriage ended and she was permitted to marry anyone. When Rabbi Zeira was revived the next day, he needed to perform a new kiddushin, for his wife was single... Or perhaps, the fact that a woman acquires freedom when her husband dies is only when he dies and remains dead...

26. Talmud Yerushalmi, Gittin 7:3

מהו שתהא מותרת לינשא? ר' חגי אמר מותרת לינשא, רבי יוסי אמר אסורה לינשא - אני אומר נעשו לו ניסים וחייה.  
May she marry? Rabbi Chaggai said she may marry. Rabbi Yosi said she may not marry – I say perhaps miracles were performed for him, and he lived.

27. Rabbi Chaim Yosef David Azulai (18<sup>th</sup> century Israel, Italy), Birkei Yosef Even haEzer 17:1

נראה דהגם דבשמעו שמת לא חיישינן כלל למעשה נסים שיחיה, דזה לא שכיחא כלל... מ"מ למדנו מהירושלמי, דאם אחר שמת נעשו נסים וחי, אכתי אגידא ביה אשתו זאת, ולא מהניא לה מה שמת ודאי כיון דלבסוף חי...

Where we hear someone has died, we do not worry at all about a miraculous revival, for this never happens... But we learn from this Yerushalmi that if, after dying, miracles happen and he lives, his wife is still married to him, and his certain death does not matter, since in the end he is alive.

28. Rabbi J. David Bleich, *Artificial Heart Implantation*, Tradition 22:2 (Summer '86)

Similarly, when the halakhically posited criteria of death, including cessation of cardiac activity, are manifest but the patient is subsequently resuscitated it must be assumed that the patient was not dead during the intervening interval. See R. Moshe Sternbuch, *Kuntres Ba'ayot ha-Zman be-Hashkafat ha-Torah* (Jerusalem, 5729), chapter i, p. 9, and R. Shlomoh Zalman Auerbach, cited by R. Gavriel Kraus, *Ha-Ma'ayan*, Tishri 5729, p. 20. Thus, it is only irreversible criteria of death which establish that death has indeed occurred.

If a patient's brain has ceased detectable neural function, may a TAH be turned off? If not, when may it be turned off?

29. Rabbi Moshe Isserles (16<sup>th</sup> century Poland), Shulchan Aruch Yoreh Deah 339:1

אסור לגרום למת שימות מהרה, כגון מי שהוא גוסס זמן ארוך ולא יוכל להפרד, אסור להשמט הכר והכסת מתחתיו, מכה שאומרין שיש נוצות מקצת עופות שגורמים זה וכן לא יזיזנו ממקומו. וכן אסור לשום מפתחות ב"ה תחת ראשו, כדי שיפרד. אבל אם יש שם דבר שגורם עכוב יציאת הנפש, כגון שיש סמוך לאותו בית קול דופק כגון חוטב עצים או שיש מלה על לשונו ואלו מעכבים יציאת הנפש, מותר להסירו משם, דאין בזה מעשה כלל, אלא שמסיר המונע.

One may not cause a dying person to die quickly, such as where one is *goses* for extended time and he cannot separate – one may not remove the pillow or cushion from beneath him, for they say that the feathers of certain birds cause this state. And one may not move him from his place. And one also may not place the synagogue keys beneath his head, to cause him to separate. However, where something prevents the soul from departing, such as where there is the sound of knocking near the house, such as from a woodchopper, or there is salt on his tongue, and these keep the soul from departing, one may remove them. There is no deed in this, he is only removing an obstruction.

30. Rabbi Jason Weiner, *Deactivating a Total Artificial Heart*, J of Halacha and Contemporary Society #70 (Fall '15)

One situation in which many rabbinic authorities do permit extubation is in a case in which the patient shows definite clinical signs of already being deceased, and the respirator is the only thing keeping the body "alive". In such a case it can be argued that the respirator is preventing the soul from leaving the body, and it may thus be seen as an impediment that may be removed. Therefore, those rabbinic authorities who accept neurological criteria of determining death (brain death), would likely permit TAH deactivation once a patient is declared brain dead. (Personal correspondence with Dr. Abraham Steinberg (August, 2014).)

Even some of those authorities who do not accept brain death as a valid halachic definition of death may still permit deactivation once the patient is declared brain dead because at the very least such a patient may be considered a *Gosses* and the TAH could be seen as an impediment preventing the soul from leaving, as some rule regarding ventilators. (Indeed, Professor Avraham Steinberg reported to this author that R. Shmuel HaLevi Wosner ruled that although he opposed the brain-death criteria, in case of an artificial heart the combination of brain death with lack of a natural heart could be defined as the moment of death.)

31. Rabbi Jason Weiner, *Deactivating a Total Artificial Heart*, J of Halacha and Contemporary Society #70 (Fall '15)

Rav Asher Zelig Weiss has suggested that as long as a person is alert and able to function, despite not having a natural heart, they are obviously still to be considered alive according to Jewish law. On the other hand, if a person is completely unresponsive and shows all other signs of death, it seems that it should be permissible to deactivate the TAH. (R. Asher

Weiss in a currently unpublished responsum written to us in May of 2014.) The specific guidelines and criteria for this determination are yet to be worked out.

32. Rabbi Jason Weiner, *Deactivating a Total Artificial Heart*, J of Halacha and Contemporary Society #70 (Fall '15)  
As Rabbi J. David Bleich has ruled, a patient whose own heart has been removed and replaced with an artificial heart, and is sustained on a ventilator and incapable of spontaneous respiration, is considered dead by halacha only when incapable of any spontaneous motion whatsoever, including motion of internal organs, e.g., peristaltic action of the small intestine. Until then, such a patient must be treated, and it would be forbidden to deactivate their TAH. (Personal correspondence with this author, 8/12/14.)