Physicians take a Hippocratic Oath to observe medical ethics. Complying with the same basic philosophies is a priority for cryonics.

Adherence to Medical Ethics

People in general are under no obligation to reveal their ethical beliefs, and most probably choose to keep them private. In the medical profession, however, ethics are distinctly public and, to a degree, standardized. Although cryonics is not subject to the rigorous standards of the practicing medical community, we understand their importance and attempt to comply with the same basic philosophies.

For instance, every person who contacts a cryonics organization for information about the procedure is informed that a cryopreservation is currently irreversible; that it causes damage through multiple mechanisms, not the least of which are cryoprotectant toxicity, ischemic injury, and low-temperature fracturing; and that there are no guarantees that re-vival will be possible. By being truthful about the limitations we face, we are clearly adhering to a primary ethical tenet of medical research: honest disclosure of the risks.

We make no effort to compel people to join in this experiment and do little marketing at this time, instead providing extensive information on cryonics, so that people can make up their own minds. In this, we respect autonomy, a person’s right to choose their own fate, which is in alignment with industry standards for anatomical donations.

Unfortunately, because a cryonics procedure is not currently reversible, we cannot claim to entirely adhere to the medical edict of “first do no harm”. However, our philosophy mirrors that of the medical community in that we favor pursuit of the “greater good” in the interest of saving a life. Harm done in the preservation process, which stabilizes tissue as long as may be necessary to reverse the process, is potentially less than the harm of not acting at all. Similar decisions are made in medicine when doctors choose the toxicity of chemotherapy or the trauma of surgery over the greater harm of death due to inaction.

With close examination of the basic principles of medical ethics, it appears that cryonics adheres fairly well to them; but ethics are a moving target. Refinement of general medical ethics into a more specific framework became necessary in recent history, because fundamental human rights were being violated in serious ways.

Human Experimentation

Cryonics is scientific research involving human subjects. Even though the law currently recognizes cryopreserved individuals as deceased, Alcor sees them as potentially viable, potentially living "patients". Therefore, we feel it is important to heed the historical lessons of human experimentation and the resulting guidelines.

One of the most notable instances of ethical abuse in medical research occurred during World War II at Nazi concentration camps. Harmful research was carried out on prisoners without their consent and without offering means for refusing to participate. The Subsequent Nuremberg Proceedings, the war crime trials after WWII, were instrumental in the development of formal guidelines for ethical human experimentation.

In 1947, the World Medical Association (WMA) was founded initially to address the perception that medical oaths and ethics had been
marginalized over time. Starting from the classic Hippocratic Oath, a modernized version was developed. The Declaration of Geneva was accepted in 1948 and an international code of medical ethics in 1949. Both have become an established part of the international medical community.

Ethics, with respect to research involving human subjects, was reexamined by the WMA, which issued the Declaration of Helsinki in 1964. Guidelines were added to ensure that research on humans was done in accordance with generally accepted scientific practices; protocols were carefully designed and subjected to an independent ethics review; only qualified personnel were involved; and patient confidentiality was respected, to name just a few of the expanded elements. Written consent forms were recommended for the first time.

In 1972, the world learned of the Tuskegee Syphilis Study, which was an investigation into the disease course of untreated syphilis. This study was performed without the consent of the participants, placebos were given in place of medication, and patients were actively prevented from receiving appropriate treatment. This led to the formation of a National Commission for the Protection of Human Subjects in Biomedical and Behavioral Research in 1974, and the commission prepared a report on ethical principles and guidelines entitled, The Belmont Report. Their findings declared that medical research on human subjects requires respect for persons, beneficence and justice.

All of these ethical applications, and the many more that exist, attempt to reconcile conflict between the need to respect individual choice and the need to perform research on human subjects. Participants should be fully informed of the risks and potential benefits and be free from coercion in their decision-making process. Medical ethics consistently demonstrate the unchanging elements of respect for human life and the sanctity of patient choice. Following these precepts is a priority in cryonics.

**Organ Donation Standards**

When discussing the ethical standards of care in cryonics, the standards followed by the organ donation industry may be seen as more pertinent than medical practice. As with organ donation, Alcor’s authority to act on an anatomical donation is only bestowed after the donor is declared deceased. Historically, death was declared with the cessation of heartbeat and breathing. The concept of brain death was introduced with the advent of advanced life support techniques, like respirators. Brain death may be diagnosed when there is an irreversible lack of response to stimuli, like pain or light, and no evidence of electrical activity in the brain in absence of factors known to suppress activity.

In the case of organ donations for transplant, such as kidneys or livers, organs may be removed following brain death in the presence of a beating heart. Care (e.g. respirators or circulatory support) can be provided until such time as a transplant surgical team is assembled, and then care can be removed. The onset of cardiac arrest can be timed with relative precision for optimal harvesting. The organs avoid significant ischemic injury, which in turn improves transplant survival rates. However, there is still a tremendous shortage of organs, with nearly a hundred thousand people in the United States waiting for organs, including 14 percent waiting more than five years. To address this, doctors are considering accepting donations after cardiac death (DCD), rather than after brain death.

Cardiac death is an easier criterion to satisfy than brain death, but are the results as effective? In one study at the University of Wisconsin, the results of kidney transplants in cardiac death cases were compared to brain death donors. Between January 1984 and August 2000, there were 382 renal transplants done after cardiac death and 1089 after brain death. The survival rates of either transplant method at 5, 10 and 15 years were comparable.

Even if it can be done, should it? The organ donation industry is already facing the potential for some ethical conflicts from DCD:

- Non-heart-beating organ donation opens the door for patients or families to forgo possibly beneficial treatment in order to provide organs.

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**Principles of Medical Ethics**

**Beneficence**
> acting in the best interest of the patient

**Non-malfeasance**
> “first, do no harm”

**Autonomy**
> allowing the patient to choose or refuse treatment

**Justice**
> deciding where medical resources may be deployed

**Dignity**
> ensuring a patient’s dignity (and the person treating the patient)

**Truthfulness and honesty**
> lying and withholding information from patients about their illness and treatment options.
In some cases, organ retrieval has gone one step beyond the simple declaration of one form of death or another, beyond the maintenance or removal of life support. A new technique has been occasionally deployed called extracorporeal interval support. This new method for securing organs for transplant can include systemic or localized administration of heparin and the placement of cannulae into the femoral artery and vein prior to the pronouncement of death to facilitate rapid extracorporeal support. Medications are administered to prevent accidental revival of the patient during the procedure. This represents a significant departure from conventional organ procurement methods, in that pre-mortem treatment is provided to ensure greater viability in the organs.

The debate surrounding DCD and extracorporeal interval support represents a major change in the end-of-life care decisions that individuals, families and health care providers face, as well as the definition of death, all of which has interesting implications for cryonics.

Impact on Cryonics

Might these kinds of care seen in the organ transplant industry converge with those in the cryonics industry? If extracorporeal interval support, a pre-mortem procedure, is used to ensure greater viability in organs, could it be applied to a cryonics patient and would the ischemic injury be significantly lessened in our patients? To know whether DCD is worth doing, we would have to compare our total body ischemic insult to the standards of these professional transplant teams.

As it evolves, organ donation after cardiac death may sound increasingly like the ideal cryonics stabilization. Cardiac arrest is rarely so well timed. Stabilization teams have typically been deployed days—and in some cases, weeks—prior to cardiac arrest. It is the rare case where a member’s condition has them on life support that may be withdrawn on the basis of written health care directives.

No one really knows right now whether these accepted organ harvesting protocols will eventually be accepted in cryopreservation protocols, and speculating would not be wise. Few articles have been published on this topic yet, and changes in this type of procedure could come to pass. But the present situation can still help the cryonics community in general, as these debates raise awareness of cardiac death as a potential element of anatomical donations and facilitates open discussions about the ethics involved.

Alcor would certainly require the involvement of a patient’s medical team to implement these protocols, since an Alcor stabilization team cannot be involved in pre-mortem care. Medical professionals already have an understanding of many of the practices of cryonics, especially cooling, medications, and cardiopulmonary support; and we can raise awareness of the fact that our donations are ideally enacted in a fashion similar to the transplant industry.

The debate about donation on cardiac death now going on in the medical community might also work against the needs of cryonics. In conventional medicine, there is concern that DCD procedures begin too quickly after death and maintain the viability of the brain, which might be considered unethical. A backlash against DCD that imposes longer waiting times to assure more brain injury could also result in the same restrictions being extended to cryonics. Waiting until ischemic brain injury passes certain thresholds may be ethically desirable for organ donations, but completely circumvents the point of cryonics.

References


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Conclusion

Modern medicine hasn’t given up yet on saving more lives, and neither will we. Ethics will always be a factor in this on-going evolution of medical and research practices involving human subjects. It is incumbent upon us stay informed of trends, of procedures that have been tried and discarded or tried and widely adopted while still tackling the challenges associated with improving the general circumstances under which our patients are preserved. Overall, cryonics can be perceived as an ethical practice, since we certainly respect the primary principles in medical ethics. Our protocols and procedures are starting to sound a lot like the cutting edge in anatomical gift practices. We can hope that one day, our cryopreservation patients will be preserved under ideal circumstances, no matter where those patients are; and we will be watching the resolution of this debate with keen interest, hoping that the debate ultimately resolves in a way that is conducive to the rapid implementation of a cryonics stabilization protocol.

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