

CHILLING LEGALITIES OF CRYOPRESERVATION

Abhinandan Pandhi

Advocate, Hon'ble Punjab and Haryana High Court

abhi.pandhi@gmail.com

Death is an imminent truth of life, which is uniformly applicable on every living being. Immortality which is a matter of fiction restricted to mythology or imagination was never a perceivable surety. However, the challenge seems to have been accepted by the scientists and progress in technology has taken leaps, which has slingshot us into the future, where everything which was fantasy has been molded to an actuality.

This paper touches that particular area of technology, which still being in the process of development, has started affecting the moral and legal aspects of society. This technology of cryopreservation where a chance is offered to a person/patient to cure a terminal illness, has shaken the ground of medical ethics, morality and legality of it. The science of cryopreservation being not absolute has raised various issues qua its procedure. The grey area that has arisen, is the meaning of "legally dead" which is needed to commence the procedure cryopreservation. There are numerous strings attached with the meaning of "legally dead" that there is a dire need to recognize the same with the support of law, by creation of statute or amending the present statutes.

No doubt cryogenics is still under development, yet a chance ought to be given so that new branch of science could be developed and terminal patients be given a chance to life.

This paper is an attempt to discuss the aforementioned aspects and touch the crucial facets of this technology and law applicable to it.

INTRODUCTION

"I don't want to die but I am going to...I want to live longer...I want to have this chance". These are the words of a 14 year girl, whose name has been described as JS, in the first of ever unique case presided over by Mr. Justice Peter Jackson in London High Court, Family Division. The uniqueness in this case is due to the involvement of new age science and technology of cryonics and cryopreservation. JS is suffering from a rare form of cancer with a definitive end to her life. Her sole wish and plea before the High Court, conjointly with her mother, was to incorporate the aforementioned novel form of technology to have a chance to save her life, when the cure for her disease arrives. The dispute between the parents of JS, was settled by the High Court,

not commenting on the merits and demerits of cryopreservation, or legalizing it, but granting the right to JS over her body. Thus, resultantly she lies frozen in a storage facility in the United States of America among couple of others.[1]

The High Court may have not entered into the domain of the appropriateness and suitability, however, the new scientific work has raised numerous questions towards the aspects of morality, ethics and legality of the science.

The present paper is an attempt to discuss the law and medical ethics of cryopreservation. It is an endeavor to open the door to another area of law, health and medicine pertaining to cryopreservation, which is a growing field and its impact on the International and Indian scenario.

MEDICAL ETHICS

Not very long ago medical ethics consisted of two supremely important commandments. They were: do not advertise and avoid relations with your patients. At about the same time as doctors were doing their best to obey these commandments, moral philosophers were more concerned with meaning of words than meaning of life. Slowly now, both health professionals and moral philosophers have converged on the same range of issues.[2] Now not just doctors but all health care professionals are interested in ethical questions as they relate to medical practice, and moral philosophers have once again become interested in and committed to trying to find out answers to the most fundamental and substantial moral questions.[3]

Ethics is equivalent to moral philosophy. It deals with what is right and what is wrong and as a dialectical principle in the field of medicine, examines what actions are appropriate for the doctor, what is good for the patient and what is acceptable for the society.[4]

Medical ethics find expression through physician Hippocrates (460-377 BCE) in whose name doctors take an oath to inculcate the qualities of good physician, with an emphasis on healing the patient. The history of medical ethics is long and eventful. Philosophers, ethicists and physicians have made medical ethics part of their profession. As far back as the Golden Age, the Hippocratic cult had a code of ethics that its members followed. Today every Medical Association in consonance with the Declaration of Geneva follow a set of ethical principles that apply to medicine.[5]

The ultimate question for medical ethics, indeed for any ethics is also in a sense the very first question that arises when we begin to grapple with moral problems.[6] The question is simply : what makes human life valuable and

in particular what makes it more valuable than other forms of life? There is of course no doubt that we do value human life supremely, however, the question may seem excessively abstract, a purely philosophical question, but too difficult and controversial to be of help in solving practical problems that every day health care professionals face.[7] There are plethora of theories at hand that are designed to help us to justify difficult decisions. Religion based theories have a clear sense of fundamental values. Many modern accounts of medical ethics are however, strangely silent as to the importance of religious theories of medical ethics- the element of surprise stemming from the fact that medicine and religion have been intertwined from the earliest times.[8]

The task of medical ethics and medical law is to balance the two in a way which enhances individual dignity and autonomy but which does not inhibit the exercise of discretion in the marginal case. The task for health care professional is to apprise him or herself of the full armory of ethical tools for appropriate decision making with respect to the interests and needs of the immediate patient.[9]

Technological advance, like economic progress, contains no inherent moral logic to guide it. To serve the betterment of human life, objective moral norms must serve as guideposts. This is why all social development must take place within a culture that defends human life—the only possible reason for either scientific or economic progress.[10]

If basic moral teachings don't always provide obvious answers in the most unusual medical cases, they at least orient us toward making ethical decisions based on a clear set of values. These choices have always confronted medical workers and always will.[11]

CRYONICS IN MODERN MEDICINE

Technology is creating hindrances for death, making a reality of definitional problems at the end of life that had previously only been considered in mythology, fantasy or philosophy.[12] Technology has not created but extended the grey area of "life" and "death". There are a variety of processes involved in being born or dying, processes involved in the illusion of continuous self-identity. The lines that get drawn have mostly to do with the politics, economics, culture and technology of those doing the drawing. This is the position adopted by Robert Ettinger, back when he wrote his 1965 manifesto for the cryonics movement, *The Prospect of Immortality*. He proposed freezing the body, and more to the point, the brain, of people right after their death. If the freezing preserved enough identity-critical neural information, some future technology might be able to repair the tissue

damage and make the frozen live again. Ettinger, and subsequent cryonicists, have argued that the frozen are not dead, but should be seen as living patients waiting for their treatment.[13]

Cryonic suspension or low temperature anabiosis, refers to preservation of either a "living" or a "dead" human body by freezing or super cooling. When it becomes possible to freeze a patient before clinical death by perfected methods which allow reanimation at will, he will be in "suspended animation". If the patient is frozen after clinical death, as several already have been the frozen storage may be referred to as "cryogenic interment".[14] In either case whole of new legal problems arise. The present stage of cryonic suspension hinges on both the shortcomings and the promise of cryobiology (low temperature biology) and general medical art.[15]

SCIENCE OF CRYONICS

The scientific justification for the practice of cryonics is based on several key concepts: (1) low temperature can slow metabolism. Sufficiently low temperatures can virtually stop chemical changes for centuries; (2) ice formation can be reduced or even eliminated by the use of vitrification mixtures; (3) legally dead does not mean "irreversibly dead". Death is a process, not an event, and the process takes longer than is commonly believed; (4) damage associated with low temperature preservation and clinical death that is not reversible today is theoretically reversible in the future.[16]

Pronouncement of legal death is necessary before cryonics procedures can begin because cryonics is not yet a proven, recognized medical procedure.[17] Following legal death, a cryonics team can begin preservation procedures immediately. Cryonics preservation procedures are intended to protect the tissues of cryonics subjects while cooling them to temperatures below 120°C with minimal alteration of tissue structure after cardiac arrest. In the first stage of cryopreservation, the circulation and respiration of the cryonics subject is mechanically restored, and the subject is administered protective medicines and is rapidly cooled to a temperature between 10°C and 0°C. The subject's blood is washed out and a significant amount of body water is replaced with a cryoprotectant mixture to prevent ice formation. The subject is cooled to a temperature below 120°C and held in cryostasis. When and if future medicine has the capability, the subject will be re-warmed, the cryoprotectant will be removed, tissues will be repaired, diseases will be cured, and the subject will be rejuvenated (if required).[18]

ETHICS AND MORALS OF CRYONICS

The quest for longevity appears to have been a recurrent theme in the history of human societies because the possibility of extending life has persistently disturbed and provoked human consciousness. In both fact and fiction, humans have long been pondering questions about longevity and happiness. Although the problems of death and survival have occupied human imagination throughout human history, the question-can we live forever? has a distinctly modern resonance, since modern medicine holds out the actual rather than merely fantastic promise of survival without infirmity.[19]

Part of modern medicine, cryonics which is a practice of an experimental science or the practice of cultist fad, it is considered or hypothesized a route to immortality. Arguably, the motivation which lies behind the cryonics movement is the human desire for life extension.[20] The extension of life and scientists playing God and acting against the concept of nature is a controversial topic.

In a world where over 90 percent of the people hold religious views of the afterlife, cryonics could become a noteworthy global civil rights issue. Religious arguments would claim that only God has the right to decide when and how we die, as He was the one who gave us life. Ethical and theological opinions of cryonics tend to pivot on the issue of whether cryonics is regarded as interment or medicine. If cryonics is interment, the religious beliefs about death and after life may come into consideration. Resuscitation may be deemed impossible by those with religious beliefs because the soul is gone, and according to most religions only God can resurrect the dead.[21]

The logic of cryonics is therefore a little like Pascal's Wager. The 17th-century French philosopher Blaise Pascal argued that we don't know whether God exists but, if He does, a pious life can earn you infinite reward in heaven in return for a relatively small investment in this world. Similarly, cryonicists admit that we can't know for sure that medical science will become as all-powerful as they hope, but a relatively small financial investment in cryonics will at least buy you a shot at immortality, whereas spending your spare money on a nicer car or a bigger house promises only certain death.[22]

Apart from religious considerations there are other ethical and moral aspects to it as well. In 'The Wives of the Cryogenically Frozen', Vanhemert puts forward the following consideration: "To spend a family fortune in the quest to defeat cancer is not taken, in the American context, to be an act of selfishness. But to plan to be rocketed into the future " a future your family either has no interest in seeing, or believes we'll never see anyway " is to begin to plot a life in which your current relationships have little meaning. Those who seek immortality are plotting an act of leaving, an act...of

betrayal and abandonment." [23] This quote highlights an important criticism of the cryonics movement; that in going ahead with cryonic preservation, we devalue the meaning of our current relationships.[24] The patient, in signing up for cryonics, with the full knowledge that his family and/or friends have no interest in doing so, would effectively be saying that his own preservation means more to him than the relationships he currently holds. Such cases would have serious impacts both on the life you are currently living (possibly leading to divorce and the abandonment of your friends/ family), but also, the possibility of not being able to form new social relationships in a future society.[25]

LEGAL ASPECTS OF CRYONICS

Cryopreservation involves a great deal of up-front legal risks. Cryonics organizations require that the people they cryopreserve have proven intention & financial capability well before death as part of the sign-up process & paperwork a formal cryopreservation agreement is signed and notarized along with other paperwork, such as anatomical donation. Most people finance cryonics through life-insurance. It is too late to obtain insurance after one has cancer, AIDs, etc., which is another reason why sign-up should be done well before death. Insurance is cheap for a healthy young person, but extremely expensive for a diseased and/or elderly one.[26]

Further, Cryopreservation can only begin after legal declaration of death by a physician or nurse.[27] However, the grey area begins to appear as the cryonic patients are clinically dead at the start of the procedure, instead of legally dead.

Exactly how the life/death line has attenuated can be seen by noting the various degrees of death that science recognizes. Traditionally, the moment when death occurred was marked by the cessation of spontaneous heartbeat and respiration. These criteria are known as the signs of "clinical death." "Biological death" can be described as the state of damage from which the whole person cannot be revived, even by the use of the most modern medical techniques. "Cellular death" refers to an irreversible degeneration of the individual cells of the body. Still another form of death is "brain death," that is, the cessation of brain activity as indicated by a flat electroencephalogram. To add to this confusion is the following statement concerning "legal death": Though the legal definition of death is important for determining legal rights, law defines death not by some dictionary definition but by scientific criteria used by physicians and accepted by the public. The definition of death is properly a medical rather than a legal problem.[28] If death is to be redefined, physicians must first agree on the applicable criteria. Medical professionals observe that subject must be deemed "legally dead" by a medical

professional, which denotes when the person's heart has stopped beating.[29]

In India for instance “deceased person” stands defined under Transplantation of Human Organs Act 1994, as a person in whom permanent disappearance of all evidence of life occurs, by reason of brain-stem death or in a cardio-pulmonary sense, at any time after live birth has taken place.[30] The said definition juggles between the concept of “clinical death” and “legal death”, meaning thereby when the patient would not return or be revived to the point where he can be resuscitated. Thus, there exists no exact definition of legal death qua cryopreservation in India.

Another legal aspect is the status of the patient who has undergone cryopreservation. Such patients are considered “dead”, however, the same is considered a label and the labels can be changed. This label of “dead” creates both problems and opportunities. Till date the technology pertaining to cryopreservation is still under development. Infact there exists no live example of revival of any human being from cryopreservation, thereby making the success of resuscitation from cryo-stage virtually impossible and hence the cryo-preserved humans cannot be termed as alive in any manner. However, despite the status under the law of the patients cryopreserved, they are morally considered alive by cryonist advocates. Thus, such a situation creates a state of ambiguity for patients who have undergone cryopreservation. In a place like India, where huge amount of problems come in association with death of person, pertaining to division of his property amongst the heirs, status of children and wife, loans, debts and liabilities etc. Suddenly when a person is considered legally dead, the color of aforementioned aspects undergo a sea change. One can imagine a situation that can create confusion and puzzlement, when a person who has been declared legally dead comes back to life. Leave alone societal implications, the legal implications of the same would be overreaching. For instance a situation, when the wife of a patient who has undergone cryopreservation, gets re-married and subsequently thereafter, the cryopreserved patient is resuscitated, what would happen to the second marriage that the wife has undergone. Can the patient who was cryopreserved seek his rights as a husband? Would the first marriage revive in such circumstance? What position would the second marriage hold in such a situation? What would happen to the property divided amongst his heirs as per Will or intestate division? All these complex questions remain unanswered and leaving the legal scenario uncertain.

Apart from the vagueness in the legal aspects, there arises a situation where corruption creeps in. As human nature is a mixture of complex of emotions, there always exists a significant probability of human nature being

corrupted and tainted. Medical ethics comes into play when doctors work hand in glove with relatives or friends of the person undergoing cryopreservation, who seek to benefit from the clinical death of the patient. The entire procedure of cryopreservation entails huge preparation and signing of waiver through cryo preservation agreement, wherein, malicious minds can most definitely lead to covertly causing the death of the person undertaking the procedure and getting rid of him/her for good. In such a situation no fingers would be raised at either the organization facilitating the cryo preservation or at the next of kin agreeing to that treatment.

Other aspects that can raise from cryo preservation are that cryonics organizations can be a source or basin of organ trafficking in many countries or to many countries like China, India, South Africa, Brazil etc. The demand for organs whether legitimate or illegitimate, are extremely high. Around 11,000 organs were obtained on the black market in 2010 according to WHO. The poorest slums of the world supply kidneys, for instance, to donors in the U.S., Europe, Israel, and Canada. The UN is even looking into reports that ISIS, the wealthiest terrorist group ever, may be in the business of selling its victim's organs. According to Nancy Scheper Hughes, a professor of Anthropology and director of program in Medical Anthropology at University of California at Berkeley, suggests that some of the topmost medical facilities have been caught with illegally trafficked organs. Scherper-Hughes has tracked organs to hospitals and medical centers in New York, Los Angeles, and Philadelphia, among other places. At one point, she found herself across the table from a group of organ transplant surgeons at a top Philadelphia hospital.[31] Since organized crime syndicates work stealthily behind the scene and have varied methods, the cryo preservation of patients would give a boost to such crime and make it more tricky to keep a surveillance on the same.

The most important and most debated topic under cryopreservation is assisted suicide, which is often termed as euthanasia. It is admitted that the science of cryopreservation is still under developed. The technique has been tested on mammals but is has not worked yet. The person undergoing cryopreservation with merely the hope of revival and no proven record qua the same, would indirectly lead to killing of the person. Even otherwise to undergo the procedure of cryopreservation requires voluntary stopping of eating or drinking to hasten ones legal death without inviting autopsy, provided one has a recognized terminal illness. If water intake is stopped completely rather than tapered off, death is most certain within 16 days.[32] However, this procedure involves a more painful legal death, although the reaction depends from patient to patient. An alternative form adopted is to administer general

anesthetic and place the patient on heart-lung bypass to start cooling and cryoprotective procedure. Cardiac arrest would follow and the procedure of cryopreservation.[33]

However, both the procedures as well as the end result, leading to legal death of the person, would directly or indirectly lead to euthanasia, which presently stands banned in numerous countries. The method adopted by cryopreservation doctors would give the power in their hands to decide qua a patient's life. For instance in Netherlands in 1990 around 1000 patients were killed without their request and the same was not reported as well. Since legal death is the basis of cryopreservation, the autonomy of undergoing cryopreservation through assisted suicide would become the prerogative of the treating doctor.[34]

The aforementioned hypothetical situations are very well probable situations that can arise in near future or may be existing at present, as there exists no law to control and guide this new age technology. With new technology, the existing law needs to be evolved and demand of new law also enters. The said situations are not exhaustive but give a glimpse and urgent requirement of legal leash on the prospective unruly developments.

EXAMPLES OF LEGAL PROBLEMS[35]

In order to dispose of human remains, it is necessary to get a death certificate signed by a physician, and to get a certificate for the disposal of human remains from a local authority. Members of the Cryonics Society of New York (CSNY) discovered in 1974 that even these certificates were not adequate for their attempts to preserve the cryopreserved remains of three deceased persons. A letter from the State of New York Department of Public Health declared, "...we do not consider these bodies to be decently buried as required by section 4200 of the Public Health Law... You should note that violation of the Public Health Law is a misdemeanor. In addition, the Commissioner of Health may assess a penalty of One Thousand Dollars a day for each day you fail to comply with section 4200." The bodies of the three people were returned to their relatives, and CSNY ended its cryopreservation program.

The most dramatic clash between cryonics and legal authorities, however, occurred in the case of Dora Kent. Dora Kent was the 83-year old mother of Saul Kent, a man who has done much to promote life-extension and cryonics. In December 1987 Saul Kent moved his mother to the Alcor facility in Riverside, California where a cryopreservation team froze her. The cryopreservation team included a medical doctor who was not present in the facility when Dora Kent's heartbeat and breathing

stopped shortly after midnight. Although the physician signed the death certificate the next day, the cryopreservation team proceeded with the cryopreservation protocol immediately after Mrs. Kent's death. Because she was a neuro case, Dora's head was removed and cryopreserved.

Two weeks later, on January 7, 1988, Coroner's Deputies entered the Alcor facility with a search warrant, looking for Dora Kent's head. When the deputies discovered that the head had been removed, they handcuffed 6 members of the cryopreservation team and took them to the Riverside County Jail. Although the team was released, 5 days later the Alcor facility was attacked by a SWAT team and by UCLA police, who ransacked for 30 hours, confiscating Alcor's records, \$5,000 worth of medicines and 8 computers as well as other equipment. Alcor had purchased items from the UCLA Surplus and Excess Property Department, and some of these items still had the letters "UCLA" on them. Alcor was able to obtain a Temporary Restraining Order to keep the patients from being thawed.

Another example of the kind of legal problems cryonicists face is the case of Dick Clair Jones, the Emmy Award-winning producer-writer of "The Facts of Life" and "Mama's Family". When Jones was admitted to a Los Angeles-area hospital as a result of a life-threatening AIDS-related infection, the hospital declared that it would not co-operate with Alcor, or release Jones' body to Alcor after death. Moreover, the State of California Department of Health Services (DHS) took the position that "Alcor does not have the legal right to have or hold human remains", holding that state law authorized only four methods of disposal of remains: (1) cremation, (2) burial, (3) shipment out-of-state, and (4) donation for scientific purposes. The DHS declared that anything not specifically legal must be illegal. Dick Jones and Alcor filed suit against both the hospital and the DHS. A court order was obtained against the hospital, which cooperated with Alcor when Jones was suspended upon his death in December, 1988. Alcor fought the DHS in California courts, ultimately winning in June, 1992.

Dick Jones had been active in the cryonics movement for 20 years prior to his death. He had written promotional literature for Alcor, and was a good friend of Saul Kent, whom he named executor of the Jones Estate. The Estate plan consisted of two Trusts. One Trust left \$200,000 to his family, and the other Trust left the balance of his Estate (estimated in the millions) to Alcor. Fifty-six hours before Jones died, he signed a new Will and amended his existing Trusts to split his Estate between Alcor and his relatives. A legal battle ensued over whether Jones was legally competent to change his Will at that time, and whether his sister had induced him to do

so. The lawyers on both sides of the case earned as much money as the litigants before a settlement was achieved.

Some cryonicists have participated in the political struggles to legalize euthanasia. Although cryonicists do not believe that cryopreservation is suicide, most support the "right to die" in the legal sense. In particular, Thomas Donaldson (a PhD in Mathematics) was concerned that his brain cancer would destroy too much of his memory & identity before killing him. Dr. Donaldson fought in the California courts for the right to be cryopreserved before his legal and natural death, but he lost his case. Other cryonicists would also prefer to be cryopreserved at a time of their choosing — to reduce suffering, to gain control of the moment of death and to eliminate the deterioration which often accompanies a slow death. Person's with Alzheimer's Disease have often allowed their cryonics coverage to lapse due to the deterioration in their mental faculties — again a threat to memory & identity

PERSPECTIVE AND CONCLUSION

The whole idea of cryopreservation is, that what hopefully killed people today—the diseases and so forth will be curable in the future and hopefully the freezing damage will be reversible and revival will be possible. What needs to be catered to at the moment is to attain a certain amount of surety while proceeding in the research of cryopreservation. Even if chemical damage is stopped, additional damage may be caused to the person by formation of ice during freezing. Various cryopreservation methods seek to prevent or limit the damage, but once the damage is caused, the same would be irreversible with the current technology.[36] The side effects of cryopreservation are still unknown. There is no guarantee that brain function could be completely restored or that people would be conscious, even less that they would retain memories and knowledge from their previous existence. The most feared side effects would be isolation, loneliness, depression and illness.[37]

Despite the numerous downsides prevalent at present due to lack of supporting law in its favour and grey areas that have originated, the apocalyptic version of cryopreservation as technology cannot solely be taken into consideration. With the advent of new technology there are also speculative ideas which may indeed be false. Speculative ethics are at the expense of addressing real moral issues. They reduce the potential of some current and emerging technologies to realize their benefits for society, and in this way diminishing the means available for addressing current problems.[38]

Cryopreservation technology can be overwhelmed by a weight of expectation that it is unable to match. A

realistic appraisal of current and future developments in science, and the promises made about science and technological development, is needed in order for it to receive the level of trust and support that it deserves, but also, and perhaps more importantly, to allow for the allocation of research resources to those areas of most (genuine) promise and moral relevance.[39]

In simpler terms, we need to understand cryopreservation as a concept of life similar to the one used for frozen embryos. Some people view frozen embryos as living, but others do not. As soon as they are implanted in a uterus, however, they are ultimately given life, which is the equivalent of human reanimation.

The bioethical question posed by this issue is whether a cryopreserved human being is entitled to rights. We can accept the cryonics patient as legally dead, or he/she can be regarded as a "potential person". We need to respect his/ her living will when opting for "reanimation" as we accept a "do not resuscitate" (DNR) decision.[40]

A moral premise of cryonics is that cryopreserving people is the right thing to do when there is no other hope, but the individual's autonomy should be respected, as it is when a person agrees to participate in a genetic experiment with germ stem cells. Some cryonicists believe, as a matter of principle, that anyone who would ordinarily be regarded as dead should instead be made a "permanent patient", subject to whatever advances the future might bring.[41] Cryonics does speak against a lot of deep-seated views. It is essentially naturalistic (if not necessarily anti-dualist) and would if it worked offer an alternative secular 'afterlife'. Somebody with a commitment to traditional religion would both think it was in error, and if it worked it might constitute a threat or even refutation to their own core beliefs. Whether expressed explicitly or not, these are powerful motivators for them to not accept cryonics. Given that their misgivings also occur within the critique-privileged religious sphere while cryonics is in the unprivileged rational sphere, they have a rhetorical and social advantage.[42]

The dream of escaping mortality is powerfully seductive. It is a worthy dream, but it will only come true if it is pursued on a cautious, skeptical rational basis. Attention to details high ethical standards, state-of-the-art techniques, continuing research, and impeccable financial management are indispensable if cryonics is to fulfill the promise which first excited public imagination more than twenty years ago. To fulfill the promise, scientific support for cryonics based on cytoarchitectural studies showing substantial preservation of brain cell structure and other vital organs.[43]

The movement towards cryopreservation has to be carried out cautiously. While the scientific arena progresses and makes advancements in this technology, if not new, but the present existing laws need to be evolved so as to protect the interests of society at large. For instance, British Columbia is the only State or Province known to cryonicists to have a law against cryonics. The Cemetery and Funeral Services Act, Bill 42, became law in British Columbia in April 1990. Under the heading "Arrangements Forbidden" is Part 5, Section 57: "No person shall offer for sale or sell any arrangement for the preservation or storage of human remains based on cryonics, irradiation or any other means of preservation or storage, by whatever name called, that is offered or sold on the expectation of the resuscitation of human remains at a future time."

The interpretation of Section 57 is the responsibility of the Registrar of the Cemeteries and Funeral Services Branch of the Ministry of Labour and Consumer Services. How Section 57 would be interpreted in a practical situation is still anyone's guess, but a previous Registrar expressed the opinion that a person making arrangements with cryonics organizations outside of British Columbia would have no problem. In practice, legal & medical authorities in British Columbia have responded to cryonics cases as if cryonics were strictly illegal.^[44]

There are no state or federal laws in the United States today that are specifically aimed at cryonics or which mention it by name. That doesn't mean that no laws apply to cryonics. In the State of California, there exists *California Health and Safety Code 7150-7157*, which gives an individual the ability and the right to donate his body or organs for medical research or for transplant. While the law does not state anything about cryonic suspension, cryonic storage facilities depend on the following language to act:

"7150.5 (a) An individual who is at least 18 years of age may make an anatomical gift for any of the purposes stated in subdivision (a) of Section 7153, limit an anatomical gift to one or more of those purposes, or refuse to make an anatomical gift."

and:

"7153 (a) The following persons may become donees of anatomical gifts for the purposes stated: (1) a hospital, physician, surgeon, or procurement organization, for transplantation, therapy, medical or dental education, research, or advancement of medical or dental sciences."

Arizona's version of the Uniform Anatomical Gift Act is *Arizona Revised Statutes*, Public Health and Safety, 36-841 et seq., 1970, amended 1986, 1987.

The language that applies to a cryonics facility is somewhat different from the California version, but still gives plenty of room.

"36-843. The following persons may become donees of gifts of bodies or parts thereof for the purposes stated:

1. Any hospital, surgeon or physician ...
2. Any accredited medical or dental school ...
3. Any bank or storage facility, for medical or dental education, research, advancement of medical or dental science, therapy or transplantation."

Thus, from the above stated Statues, an example can be drawn and the existing statutes can be amended or evolved in other countries as well, so that cryopreservation can be welcomed with more open arms.

Lastly, as per my research and observation on the topic of cryopreservation and its legalities, in my considered opinion, I am not against cryopreservation as a technique to save life. Yes indeed it has its own pros and cons, but the technology and preservation methods would progressively improve and become better, making the revival of cryopreserved patients a more of surety. Every new form of technology or innovation meets its own set criticism, which is indeed needed, as criticism always helps in keeping a new system under check. Religion and customs are comparably too trivial issues, which lead irrationality creep in.

Every country in the world grants its citizens certain fundamental rights. The most fundamental being the right over one's own body, the right of choice, subject to certain exceptions. Thus, when a person who wishes to give his body for the purpose for experimentation or wishes to take a chance to cure his terminal illness and wishes to take a chance at life, ought to be allowed to do so. The procedure adopted for undergoing cryopreservation although includes a segment of form of euthanasia, the debate against which does not stand settled till date. Just like the advocates who support euthanasia and have always been pro the stand, that a right ought to be granted to the patient who is suffering from terminal illness to cease his pain, with the assistance of treating doctors, a similar opportunity ought to be granted to patients seeking cryopreservation. The patients seeking cryopreservation are slightly at a different footing than the ones seeking euthanasia, as the former have a will to live and not give up on life. The patients yearn and have a belief in evolution of science

and with free volition accept the consequences of cryopreservation.

As per my observation, with the arrival of new technology, our laws firstly need to be amended by especially redefining the word 'death' and entity of such patients who have been required to be legally dead before being frozen ought to be included in it, by making a separate category for them. A contingency ought to be added with respect to the revival of the patient in future. As brought forth in this paper, the concept of death in cryopreservation has severe ramifications and is compounded with variety of situations that might confront us. For the time being we ought to not consider death as a finality in the field of cryonics and we need to make an attempt to make legal provisions so as to prepare for situations that might come our way in the near future.

REFERENCES

1. Best, Benjamin P., *Scientific Justification of Cryonics Practice*, Rejuvenation Research, Volume 11, Number 2,(2008)
2. Best, Ben, Cryonics: The Issues <https://www.benbest.com/cryonics/cryiss.html>
3. Best, Ben, *Cryonics Protocol -- A Summary*, <https://www.benbest.com/cryonics/summary.html>
4. Bostrom, Nick, *Why I want to be Posthuman when I grow up*, 'Medical Enhancement and Posthumanity', eds. Bert Goriijn and Ruth Chadwick, 107-137 (2008)
5. Capron, Alexander Morgan, *Euthanasia in the Netherlands--American Observations*, Hastings Center Report 31. (March, April 1992)
6. Castel, J.G., *Legal Implications of Biomedical Science and Technology in the Twenty-First Century*, Canadian Bar Review 51.1, 119-136 (1973)
7. Cave, Stephen, Frozen dead guys: Is cryonics an ambulance into the future or the latest twist on our ancient fantasy of rebirth?, May 8 , 2013 <https://aeon.co/essays/is-it-rational-to-think-we-can-cheat-death-with-cryonics>
8. Cohen, Claudio, Bioethicists must rethink the concept of death: the idea of brain death is not appropriate for cryopreservation, Clinics (Sao Paulo), 67(2): 93-94, Feb 2012
9. Cron, Rebekah, *Is Cryonics an Ethical Means of Life Extension?*, University of Exeter (2014)
10. Donaldson T., *Neural Archeology*,Cryonics (Alcor Life Extension Foundation) 24-33(1987)
11. *Ethics: a general introduction*, BBC archived from the original on Oct 28, 2013 https://web.archive.org/web/20131028131348/http://www.bbc.co.uk/ethics/introduction/intro_1.shtml
12. Harris John, *The Value of Life: An Introduction to Medical Ethics* xv (2006)
13. Herring Jonathan, *Medical Law and Ethics*, Oxford University Press (2010)
14. Henderson Curtis & Ettinger, Robert C.W., *Cryonic Suspension and the Law*, 15 UCLA L. Rev. 414, (1967-1968)
15. Hughes, J. James, *The Future of Death: Cryonics and the Telos of Liberal Individualism*, Journal Of Evolution And Technology, Volume 6 (2001)
16. Jain, Sanjeev Kumar & Mongia, *Shashi Munjal, Cryonics: A step towards immortality Anatomical, Medicolegal and Ethical Implications*, JIAFM (2007)
17. Kannan, K. *Medicine and Law*, Oxford University Press, (2014)
18. King Michael, Whitaker Maja and Jones Gareth, *Speculative Ethics: Valid Enterprise or Tragic Cul-De-Sac?* , Bioethics in the 21st Century (2011)
19. Laurie Graeme, Harmon Shawn, Porter Gerard, Mason and McCall Smith's Law and Medical Ethics 4 (2013)
20. Lee Ellie, *Abortion Law and Politics Today* 189 (1998)
21. Mason, J.K., et. al., *Law & Medical Ethics* 5 (2002)
22. Perry Philip, *What You Need to Know About Human Organ Trafficking* (2016) <http://bigthink.com/philip-perry/what-you-need-to-know-about-human-organ-trafficking>
23. Perry, R. Michael, *Options for Elective Cryopreservation*, May 2014 <http://www.alcor.org/Library/html/ElectiveCryopreservation.html>
24. Rayner Gordon, Finnigan Lexi & Bodkin Henry, *Girl, 14, who died of cancer cryogenically frozen after telling judge she wanted to be brought back to life 'in hundreds of years'*, The Telegraph, Nov 18, 2016 <http://www.telegraph.co.uk/news/2016/11/18/cancer-girl-14-is-cryogenically-frozen-after-telling-judge-she-w/>
25. Robert Rev., Sirico A., *Medical Technology, Medical Ethics, Religion & Liberty: Volume 7, Number 6*, July 20, 2010
26. Robert Rev., Sirico A., *Pro & Con: Medical Technology, Medical Ethics, Public Policy: Technology & Ethics*, July 10, 1997
27. Rohrer, Jameson, *Want to Live Indefinitely Again After Death? Try Cryonic Freezing!*, Jul 9, 2013 <http://indiafuturesociety.org/want-to-live-indefinitely-again-after-death-try-cryonic-freezing-part-2/>
28. Roxby, Philippa, *What are the ethics of cryonic preservation?*, BBC News, Nov 18, 2016
29. Sandberg, Anders, *Freezing critique: privileged views and cryonics*, Practical Ethics, Ethics in the News, University of Oxford (2014)
30. Sanders and Dukeminier, *Medical Advance and Legal Lag: Hemodialysis and Kidney Transplantation*, 15 U.C.L.A. L. Rev. 357, 409 (1968).
31. Sharpe Lynne, *Creatures Like Us?: A Relational Approach to the Moral Status of Animals* Section 4 (2015)
32. Silva-e-Rocha Mauricio, *Clinics*, Volume 67, Number 2, February 2012
33. Smith, Chris A., *Into the Deep Freeze: What Kind of Person Chooses to Get Cryonically Preserved?*(2015) <https://alumni.berkeley.edu/california-magazine/summer-2015-confronting-future/deep-freeze-what-kind-person-chooses-get>

34. Spector, Daniel R., *Legal Implications of Cryonics*, 18 Clev.-Marshall L. Rev. 341, (1969)
35. Sullivan, Ryan, *Pre-Mortem Cryopreservation: Recognizing a Patient's Right to Die in Order to Live*, Quinipiac Health Law Journal, Vol. 14, No. 49, (2010)
36. Tarantola, Andrew, *Why Freezing Yourself Is a Terrible Way to Achieve Immortality*, April 04, 2014 <http://gizmodo.com/why-freezing-yourself-is-a-terrible-way-to-achieve-immo-1552142674> Turner, Bryan S., *Can We Live Forever?: A Sociological and Moral Inquiry 1* (2009)
37. The Transplantation of Human Organs Act, 1994
38. Vanhemert, Kyle, *The Wives of the Cryogenically Frozen*, September 09, 2010 <http://gizmodo.com/5583220/the-wives-of-the-cryogenically-frozen>
39. Vasudevan, Vinod, *In the Hope of Life After Death*, The Indian Express, Nov 28, 2016
40. Veatch RM, A Theory of Medical Ethics, XI, 387 (1981)
41. Wade, Andrew, *Cryonics case highlights ethical puzzles of technology*, Nov 18, 2016 <https://www.theengineer.co.uk/cryonics-case-highlights-ethical-puzzles-of-technology/>
42. Woolfe, Sam, Top of Form
- Bottom of Form
 - *Cryonics and the Definition of 'Death'*, June 26, 2013 <http://thebackbencher.co.uk/cryonics-and-the-definition-of-death/>
- [1] Rayner Gordon, Finnigan Lexi & Bodkin Henry, *Girl, 14, who died of cancer cryogenically frozen after telling judge she wanted to be brought back to life 'in hundreds of years'*, The Telegraph, Nov 18, 2016 <http://www.telegraph.co.uk/news/2016/11/18/cancer-girl-14-is-cryogenically-frozen-after-telling-judge-she-w/>
- [2] Lee Ellie, *Abortion Law and Politics Today* 189 (1998)
- [3] Harris John, *The Value of Life: An Introduction to Medical Ethics* xv (2006)
- [4] *Ethics: a general introduction*, BBC archived from the original on Oct 28, 2013 https://web.archive.org/web/20131028131348/http://www.bbc.co.uk/ethics/introduction/intro_1.shtml
- [5] Veatch RM, A Theory of Medical Ethics, XI, 387 (1981)
- [6] Sharpe Lynne, *Creatures Like Us?: A Relational Approach to the Moral Status of Animals* Section 4 (2015)
- [7] *Id.* at 7
- [8] Laurie Graeme, Harmon Shawn, Porter Gerard, Mason and McCall Smith's Law and Medical Ethics 4 (2013)
- [9] Mason, J.K., et. al., *Law & Medical Ethics* 5 (2002)
- [10] Robert Rev., Sirico A., *Medical Technology, Medical Ethics*, Religion & Liberty: Volume 7, Number 6, July 20, 2010
- [11] Robert Rev., Sirico A., *Pro & Con: Medical Technology, Medical Ethics*, Public Policy: Technology & Ethics, July 10, 1997
- [12] Hughes, J. James, *The Future of Death: Cryonics and the Telos of Liberal Individualism*, Journal Of Evolution And Technology, Volume 6 (2001)
- [13] *Id.*
- [14] Castel, J.G., *Legal Implications of Biomedical Science and Technology in the Twenty-First Century*, Canadian Bar Review 51.1, 119-136 (1973)
- [15] Henderson Curtis & Ettinger, Robert C.W., *Cryonic Suspension and the Law*, 15 UCLA L. Rev. 414, (1967-1968)
- [16] Best, Benjamin P., *Scientific Justification of Cryonics Practice*, Rejuvenation Research, Volume 11, Number 2,(2008)
- [17] Sullivan, Ryan, *Pre-Mortem Cryopreservation: Recognizing a Patient's Right to Die in Order to Live*, Quinipiac Health Law Journal, Vol. 14, No. 49, (2010)
- [18] *Id.*
- [19] Turner, Bryan S., *Can We Live Forever?: A Sociological and Moral Inquiry 1* (2009)
- [20] Cron, Rebekah, *Is Cryonics an Ethical Means of Life Extension?*, University of Exeter (2014)
- [21] Sandberg, Anders, *Freezing critique: privileged views and cryonics*, Practical Ethics, Ethics in the News, University of Oxford (2014)
- [22] Cave, Stephen, *Frozen dead guys: Is cryonics an ambulance into the future or the latest twist on our ancient fantasy of rebirth?*, May 8, 2013 <https://aeon.co/essays/is-it-rational-to-think-we-can-cheat-death-with-cryonics>
- [23] Vanhemert, Kyle, *The Wives of the Cryogenically Frozen*, September 09, 2010 <http://gizmodo.com/5583220/the-wives-of-the-cryogenically-frozen>
- [24] Bostrom, Nick, *Why I want to be Posthuman when I grow up*, 'Medical Enhancement and Posthumanity', eds. Bert Gorijn and Ruth Chadwick, 107-137 (2008)
- [25] Cron, Rebekah, *Supra* note 20
- [26] Best, Ben, *Cryonics Protocol -- A Summary*, <https://www.benbest.com/cryonics/summary.html>
- [27] Cohen, Claudio, *Bioethicists must rethink the concept of death: the idea of brain death is not appropriate for cryopreservation*, Clinics (Sao Paulo), 67(2): 93-94, Feb 2012
- [28] Sanders and Dukeminier, *Medical Advance and Legal Lag: Hemodialysis and Kidney Transplantation*, 15 U.C.L.A. L. Rev. 357, 409 (1968).
- [29] Tarantola, Andrew, *Why Freezing Yourself Is a Terrible Way to Achieve Immortality*, April 04, 2014 <http://gizmodo.com/why-freezing-yourself-is-a-terrible-way-to-achieve-immo-1552142674>
- [30] The Transplantation of Human Organs Act, 1994, Section 2
- [31] Perry Philip, *What You Need to Know About Human Organ Trafficking* (2016) <http://bigthink.com/philip-perry/what-you-need-to-know-about-human-organ-trafficking>
- [32] Perry, R. Michael, *Options for Elective Cryopreservation*, May 2014 <http://www.alcor.org/Library/html/ElectiveCryopreservation.html>
- [33] *Id.*
- [34] Capron, Alexander Morgan, *Euthanasia in the Netherlands--American Observations*, Hastings Center Report p. 31. (March, April 1992)
- [35] Best, Ben, *Cryonics: The Issues* <https://www.benbest.com/cryonics/cryiss.html>
- [36] Vasudevan, Vinod, *In the Hope of Life After Death*, The Indian Express, Nov 28, 2016

- [37] Roxby, Philippa, *What are the ethics of cryonic preservation?*, BBC News, Nov 18, 2016
- [38] King Michael, Whitaker Maja and Jones Gareth, *Speculative Ethics: Valid Enterprise or Tragic Cul-De-Sac?*, Bioethics in the 21st Century (2011)
- [39] *Id.*
- [40] Silva-e-Rocha Mauricio, *Clinics*, Volume 67, Number 2, February 2012
- [41] Donaldson T., *Neural Archeology*, Cryonics (Alcor Life Extension Foundation) 24–33(1987)
- [42] *Supra* Note 21
- [43] Jain, Sanjeev Kumar & Mongia, *Shashi Munjal, Cryonics: A step towards immortality Anatomical, Medicolegal and Ethical Implications*, JIAFM (2007)
- [44] *Supra* Note 35