

ALCOR LIFE EXTENSION FOUNDATION

CRYONICS

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THINKING ABOUT BRAIN
THREATENING DISORDERS
AND CRYONICS

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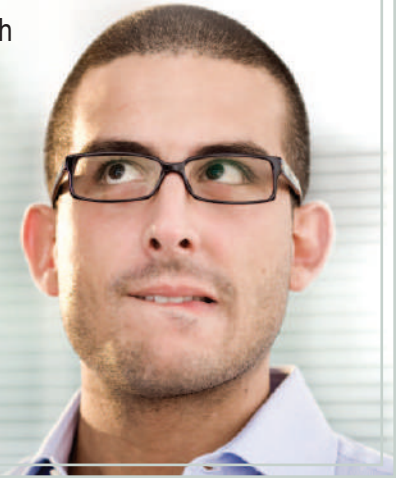
MEMBER PROFILE:
MAX MORE, PH.D., ALCOR CEO

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ALCOR LIFE EXTENSION FOUNDATION CRYONICS



Cover Photo:
Max More, Ph.D., Alcor CEO

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Member Profile:

Max More, Ph.D., Alcor CEO

Max More, Alcor's President since last January, is the choice this time for our member profile. Join us in his remarkable journey: youth in the United Kingdom, academic achievements in philosophy, first acquaintance with cryonics, contributions to transhumanism and human enhancement, and finally, his current position at the helm of our organization.

8 Thinking About Brain-Threatening Disorders and Cryonics

The editor of Cryonics provides a framework for thinking about one of the toughest problems in cryonics: the challenge of being faced with an identity-destroying brain disorder. From acute traumatic insults to late-onset dementia, strategies are outlined to prevent or deal with these situations.

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In this update of his first quarter 2010 Cryonics article, Mike Perry surveys the options for cryonics members who are faced with a brain-threatening disorder, including detailed discussions of legal options in US states and other countries.

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Securing more funding than the minimum amount required for cryopreservation ("superfunding") not only prevents future underfunding issues, it also makes perfect sense from the perspective of cryonics optimization.

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FROM THE EDITOR

It has been said that being cryopreserved is the second-worst thing that can happen to you. But surely, one of the most *tragic* things that can happen to you is having cryonics arrangements but having your identity erased by a brain disorder during your life. Or your cryonics arrangements (or funding) being cancelled by greedy or hostile family members when you are no longer capable of speaking up for your own interests. These scenarios are not hypothetical; these things have happened, continue to happen, and could increase in frequency as many Alcor members get older.

Alcor staff member Mike Perry and I have expended considerable effort to draw attention to the topic of brain-threatening disorders. This issue features two articles on this topic. In my own contribution, *Thinking about Brain-Threatening Disorders and Cryonics*, I distinguish between a number of different scenarios in which a person can be faced with the challenge of a brain-threatening disorder: acute traumatic brain insults, single-gene mutations, increased susceptibility, and actual diagnosis.

Mike Perry follows this piece with an article that surveys the options available to cryonicists faced with a brain-threatening disorder. Absent effective treatment to reverse the disease, the “optimal” solution would be to utilize cryopreservation as an elective medical procedure to stabilize and protect the brain before it is (irreversibly) destroyed by disease. There is no country in the world that presently recognizes cryonics as an elective medical procedure. But some countries and U. S. states have laws that allow a cryonics patient in such a predicament to control the timing of his own cryopreservation. A more challenging course of action would be voluntary self-denial of food and drink to hasten death.

With the exception of urging all members to ensure that they execute the right paperwork to provide that their cryopreservation wishes will be honored, the aim of these articles is to inform members of potential options, not to recommend them. Some members may think it advisable to just execute the right paperwork and otherwise hope for the best. The perspective in these articles should also be distinguished from unqualified (political) support for right-to-die legislation. Our aim in cryonics is to preserve life, not to terminate it. The best prospect for protecting people from identity-destroying disorders is to seek recognition of cryonics as an elective medical procedure.

Long-term Alcor member and Southern California organizer Russell Cheney contributes a succinct piece on why you should make efforts to “superfund” your cryonics arrangements. Next issue, we will be publishing an extensive review of life insurance options by Rudi Hoffman for members who want to ensure that they have adequate funding for their future cryonics arrangements.

As you are reading this editorial, Max More has been with Alcor for one year as our new CEO. This is the right time for a member profile. This profile is a source of recognition for those who have been involved with cryonics and human enhancement since the 1980s, and a fine introduction to Max's past activities and current interests for new members.

Aschwin de Wolf

CRYONICS MAGAZINE BACK IN PRINT

This is the first printed version of *Cryonics* Magazine that ALCOR has mailed out in a while. The Board had decided to go with an all-electronic format to save on postage and printing costs, especially since most members have computers.

The Life Extension Foundation made a generous offer to pay all costs associated with printing and mailing so we can resume sending out hard copy versions. We feel this is especially important in attracting new members who might not otherwise open up the email version.

As you will read in upcoming issues, the Life Extension Foundation is funding over \$3 million each year in intensive research aimed at perfecting brain and WHOLE-BODY vitrification. ALCOR benefits from these technological advancements under a special license.

An advertisement describing the benefits of membership in the Life Extension Foundation can be found on the back cover of this issue. I encourage those interested in cryonics to join the Life Extension Foundation as they contribute a significant portion of their proceeds to anti-aging research and to projects aimed at improving the quality of cryopreservation.



CEO Update

By Max More

By the time this issue of *Cryonics* is published, I shall have completed my first year on the job. If forced to pick a single word to describe it, it would be “challenging.” (Consider that the average tenure in this position is only 2.6 years—see sidebar.) The job is always engaging, frequently informative, often fascinating, sometimes exhausting, and occasionally frustrating and even infuriating. In case you’re wondering, the “infuriating” part is primarily due to relatives who, despite signing a Relative’s Affidavit, do not inform us when a member (legally) dies, making it impossible for us to cryopreserve them.

Alcor’s staff is a remarkable collection of people with whom to work. Not only does everyone work well on a regular basis, but everyone pitches in uncomplainingly when we have an urgent situation. I’m also fortunate to work with an enormously active and participatory board of directors with a diversity of views and approaches.

If you have been reading my updates here or in Alcor News, you will know what we’ve been up to over the last year. Here, in brief, are some of those things: We cryopreserved seven members; addressed the underfunding problem; improved financial controls; renovated the reception area and conference room and offices, and reorganized the operating room; made functional improvements to the database; implemented a new arrangement with Suspended Animation; represented Alcor at several conferences; built stronger and lighter ice baths; improved SOPs and documentation; enabled cost savings by in-

stalling new ceiling insulation; replaced the old security system with a far superior new one; and stepped up the activity of Alcor Speakers’ Bureau.

Travel, Talks, and Research

I can learn a lot about members’ concerns, ideas, suggestions, and questions through email and phone calls. But until technology enables far richer virtual interactions, physically-present in-person meetings remain invaluable. That’s why I’ve been doing a fair amount of traveling.

Since a large number of Alcor members reside in Southern California, I recently braved the LA area traffic to visit with several active members, including regional group organizers Michael Geisen and Peter Voss, with whom I discussed the future of Alcor’s regional teams, among other matters. I also visited chief medical advisor Dr. Steve Harris, and director and benefactor Saul Kent.

The visit was timed to allow me to attend a gathering in Newport Beach organized by David Kekich and his Maximum Life Foundation. Although quite a few Southern California-based cryonicists were present, this was not solely a CryoFeast, but a gathering for those interested in a range of approaches to extending healthy life. Plenty of people there seemed like they should be receptive to the idea of cryonics. David invited me to give an overview of cryonics so I gave an impromptu speech. Following that, I was surrounded by people asking questions and showing clear interest. I was introduced to Bob Nelson, of the ill-fated Cryonics Society of California. A

I salute my predecessors. Newer Alcor members should be aware of our history:

1. Linda Chamberlain took office 23 Feb 1972
2. Fred Chamberlain took office 16 Feb 1973
3. Linda Chamberlain returned to Alcor presidency Aug or Sep 1975
4. Allen McDaniels took office Aug or Sep 1976
5. Laurence Gale took office 12 Jun 1977
6. Mike Darwin (Federowicz) took office 12 Sep 1982
7. Carlos Mondragon took office 07 Feb 1988
8. Steve Bridge took office 23 Jan 1993
9. Fred Chamberlain took office 01 Feb 1997
10. Linda Chamberlain took office 01 Apr 2001
11. Jerry Lemler took office 09 Sep 2001
12. Joe Waynick took office 01 Jan 2004
13. Steve Van Sickle took office 28 Aug 2005
14. Tanya Jones took office 09 Jun 2008
15. Jennifer Chapman took office 28 Jan 2009

(This list compiled mainly by Alcor historian Mike Perry.)

movie is being made about this disastrous piece of cryonics history. Mr. Nelson said he had read the script and claimed that it was humorous and would be good for cryonics. (What, you find that unlikely?)

Another brief recent trip was to Portland. Although I enjoyed meeting several local cryonicists in a pub and renewing my acquaintance with others (including former Alcor president Carlos Mondragon), my primary goal was to meet with Ashwin and Chana de Wolf. The de Wolfs are highly intelligent, energetic, and productive Alcor members who produce *Cryonics* magazine, work on a manual of technical procedures in cryonics, and engage in research. Research was my concern on this trip. The de Wolfs showed me around the modest but expanding facilities of their organization Advanced Neural Biosciences.

“I’ve very recently begun to move the development of research projects near the top of my priority list.”

I’ve very recently begun to move the development of research projects near the top of my priority list. I’m consulting with knowledgeable parties to gather a list of possible projects. That list can then be sorted and prioritized according to magnitude of likely benefits, cost, and time required for results. It’s not satisfactory for Alcor to depend entirely on other organizations (such as 21st Century Medicine and Critical Care Research) to advance the state of the art in all stages of the cryopreservation process. True, we don’t have much money to spare. But some research can be done on a tight budget. Besides, if promising projects are well defined and presented, I believe Alcor members will be willing to fund them.

Easily the most far-ranging of my recent trips was to Hong Kong in early December. The long round trip paid off by enabling me to speak at two different conferences in two days. The first event was TEDx Hong Kong – a regional version of the famous TED (technology, entertainment, design) conferences which limit speakers to a crisp 18 minutes. My talk,

“To Live Again”(see photo below), used personal narrative to fairly aggressively challenge the audience to see the absurdity of abandoning today’s critically ill individuals when cryopreservation is an option. I also directly tackled the fear of uncertainty and the unknown that deters many people from seeking to live again through cryonics. The response was (to my face at least) very positive. One person even said that the talk was “life changing” and that it shook up the way he thought. About 100 people attended TEDx HK, and the talks were streamed live.

The following day I gave a different talk at the Humanity+ conference at Hong Kong Polytechnic University in Kowloon, but continued to introduce the idea of cryonics to attendees. A handful of Alcor members now reside in Hong Kong for much or all of the year. There was clear interest in working out more reliably our ability to transport them to Alcor central. It was also suggested that the concentration of wealth in the region could make it a promising place to find new members and eventually to develop local storage capability. The respect for contracts and the rule of law may make Hong Kong a better option than mainland China, where we have also seen interest.

Celebrities and Cryonics

The public announcement by talk show host Larry King that he wants to be

cryopreserved after his death spurred several media inquiries, including the London *Times*’ monthly science magazine, *Eureka*, and *US* magazine. Reporters naturally wanted to know whether Mr. King had contacted Alcor. Of course I would neither confirm nor deny that. (Which means either that he had not contacted us, or that he had but requested confidentiality.) Many celebrities could easily bring us as many headaches as beneficial attention, but King’s expression of interest is probably good for cryonics overall since he is generally well liked.

Another celebrity recently (and repeatedly expressing personal interest in cryonics) is Simon Cowell. From our point of view, Cowell may be one of the best people in the entertainment industry to express an intention to be cryopreserved when the time comes, since he is renowned for his critical, hard-hitting judgment and for being an effective businessman. His support should carry more weight than the vast majority of his peers.

Rebuilding Alcor’s European Response Capabilities

Although Alcor’s membership is heavily US-based, we do have a significant number of members around the world. Even if we were entirely US-centric, Alcor should develop better international capabilities because US members travel overseas. Building capabilities for international



Alcor CEO Max More at TEDx in Hong Kong.

deployment, while desirable, involves additional obstacles. Initially, I intend to focus on the United Kingdom, followed by the rest of Europe, and only then apply lessons learned to other regions.

*“One of my concerns
has been to improve
Alcor’s security.”*

Our international response plan is currently in the early stage of gathering information and making contacts with all relevant and interested parties. These include UK-based cryonicists with whom we have had previous experience, Rowland Brothers, an embalming company in East Sussex, and some Europe-based cryonicists outside the UK. We need to check UK law possibly restricting cardiopulmonary support after declaration of legal death; update or replace equipment currently in the UK; look into contract paramedic agencies; and select a person to house a -20 deg C freezer and fridge and an ice bath. We are also planning field cryoprotection of neuros with an open-circuit perfusion of stepped concentrations of M22 followed by dry ice shipping.

The project to greatly improve Alcor’s ability to respond to members in England and other parts of Europe (and, later, in Australia and other parts of the world) and to ensure high quality standby, stabilization, and transport capabilities, including vitrification, is proceeding. I have been talking by Skype and email with a number of active cryonicists in Europe who are helping to gather information about existing capabilities and possible cooperative arrangements. At the same time, we are figuring out what equipment and supplies we would need to provide, who would house them, and who would use them (if Alcor were unable to send a team across the Atlantic in time).

Cost Control

The never-ending quest for cost reductions continues. A review of Alcor’s utility bills and an examination of the roof space made it clear that thousands of dollars per year have been avoidably incurred in the form of unnecessarily high air conditioning and heating bills. After gathering

bids from three companies, we have chosen one to improve insulation and install radiant barriers. Judging by the remarkable escalation in billing during the hotter months (in some units of the building more than others), the annual savings should make this investment pay off in a pleasingly short time.

We are still working on reducing our liquid nitrogen bills, to the benefit of the Patient Care Trust. Our supplier has steadily raised unit costs, delivery charges, and other fees over the past few years. It appears that we are locked into the contract for another year, but will certainly secure considerably lower prices when we can.

We have also reduced the size of the staff by one. This is again in pursuit of maintaining a balanced budget. We wish former equipment fabricator Randal Fry well, and thank him for his years of work and attention to detail.

Security

One of my concerns has been to improve Alcor’s security. It was clear that the existing (and quite antiquated) security camera system was ineffective. Not only is its coverage severely limited, its output was rarely observed. I put Steve Graber in charge of looking into a new system. Happily, prices have dropped dramatically since the existing system was purchased. The new system will provide vastly better coverage, including tilt and zoom viewing, constant recording, and output viewable (and cameras controllable) from the desktop.

*“We are also planning
field cryoprotection of
neuros with an open-circuit
perfusion of
stepped concentrations
of M22 followed by
dry ice shipping.”*

China

We had a visit from Chinese visitors who seem determined to start a cryonics organization in China, in the Beijing area. Over the course of a four-hour conversa-

tion, we discussed their plans for a location, business model, how Chinese culture affects cryonics, the logistics of transporting Chinese members to the US and the great advantage of relocating prior to legal death, and many other issues. On the cultural side, it’s clear that only the whole body option would be offered. Costs would also be higher because patients would be stored horizontally, and stacking would be unacceptable. Cryonics could be offered in China only to a relatively small and wealthy part of the population. We will continue to explore how we might assist with their effort, especially if this will generate new Alcor members (at least until their own organization is fully functional). This would *not* be a branch of Alcor, and we are *not* considering a joint venture due to the risks that would involve.

On the communications front, Barry Aarons is helping us deploy the Alcor Speakers’ Bureau to give talks to organizations in the area. A few weeks ago, we started this effort modestly with me giving a talk to the Midtown Lion’s Club. The goal is to build a reputation and have a voice in the influential local business groups. ■

THINKING ABOUT BRAIN THREATENING DISORDERS AND CRYONICS

By Aschwin de Wolf

Introduction

Many people who have made cryonics arrangements tend to think of it as a “back-up plan” in case hoped-for breakthroughs in rejuvenation will be too late to help them or as protection against lethal accidents. Their confident hope is that, if other work-arounds don’t pan out, they will die from an age-related disease or accident and be cryopreserved in great fixable shape, ready for an easy resuscitation when appropriate techniques are developed. We need to recognize that not all cryonics members are likely to be that “lucky.”

In this article I want to discuss one of the most dreadful scenarios of all: the occurrence of an incurable brain-threatening disorder. I will distinguish among four scenarios:

1. A member suffers an insult that produces *acute damage* to the brain.
2. A member has a *genetic mutation* that produces an early-onset brain threatening disorder.
3. A member is at *higher genetic risk* for a late-onset brain-threatening disorder.
4. A member is *diagnosed* with a brain threatening disorder.

Insults and accidents

Absent not being cryopreserved at all, one of the worst things that can happen to a person with cryonics arrangements is to

suffer an unexpected cerebral insult which produces instant brain damage and progressive neural death while the patient remains alive. Such insults could be caused by sudden cardiac arrest, severe strokes, or traumatic brain injury. In many circumstances, the patient is not aware of the insult and its consequences and is completely dependent on the paperwork he executed *before* the event and/or the judgment of legal representatives and medical professionals.

If cryonics were available as an elective medical procedure such cases would not present a major medical challenge. The patient could be stabilized at cryogenic temperatures in anticipation of more advanced treatment options, before delayed neuronal death could run its course. Currently, such an option is not available and there is great risk that a patient who has suffered a major cerebral insult will lose most of his identity-critical information in the days following the accident.

Forward-looking cryonicists can take measures to deal with such scenarios by executing paperwork that forbids medical professionals from instituting artificial life support after such events. Such paperwork can be complemented with a ‘Do Not Resuscitate’ order. To complicate matters, DNRs are a doubled edged sword for cryonicists because resuscitation can literally be a life-saver when a person suffers a brief period of cardio-respiratory arrest without comorbidities (for example, during surgery), but can also substantially increase

brain damage if resuscitation is attempted when progressive damage is likely to occur afterward (for example, after prolonged cardiac arrest or severe head trauma). The challenge is to design a legally valid DNR order that distinguishes between “good” and “bad” resuscitations.

Since such accidents are hard to predict, there is little proactive planning that a cryonics organization member can do except to optimize his legal paperwork and ensure that those who will make decisions have a strong interest in avoiding destruction of identity-critical information while the member is alive. On a more abstract level, it can still be argued that there is an element of prevention involved here, too. For example, unhealthy eating habits and dangerous recreational activities can be avoided to reduce the probability of such events.

Genetics

In medicine it is common to distinguish between genes that increase or decrease the probability of a patient developing a certain condition and single-gene mutations that invariably produce a certain condition. A good example of the latter is early-onset Alzheimer’s disease, which often runs in a family. Symptoms can start between the ages of 30 and 60. As with Alzheimer’s more generally, there are no known cures and treatment usually consists of assisting the victim and family members reactively as the disease progresses.

Prior to the availability of gene-testing, the existence of early-onset Alzheimer's (or any kind of debilitating heritable disease) could produce severe anxiety and uncertainty in affected families, such as excessive sensitivity to normal memory lapses. Gene-testing can eliminate this uncertainty by determining whether the particular gene has been inherited from one of the parents. Not all people prefer to know if they will get an incurable disease. Cryonicists, however, are in a different situation because they can use this knowledge to take steps aimed at preventing destruction of personhood by expediting clinical death through voluntary abstention from food and drink or, in some countries like the Netherlands, to utilize assisted-suicide laws during the early stages of the disease.

Early-onset Alzheimer's is not the only single-gene mutation heritable disease. Cryonics members with a family history of early-onset dementia, Parkinson's, cardiovascular problems, or accelerated aging would be well advised to have themselves genotyped or should request gene-specific tests to determine whether they are at risk too.

Susceptibility

The spectacular decrease in the cost of genome sequencing will bring whole genome sequencing within the reach of most cryonicists within 5 years. As we write, it is already possible to have yourself genotyped (though not fully sequenced) at a company like *23andMe* for around \$200. Customers will not only be able to learn

about common health risks and traits but such services can also be used for genetic genealogy and finding relatives. Since our ability to interpret all the results lags the amount of data that can be produced, even the most informed consumer is faced with a bewildering confusion of possibilities for certain diseases and traits.

Interestingly, a gene that is associated with susceptibility to late-onset Alzheimer's disease is one of the most robust findings in biomedical science. In short, there are three variants (alleles) of the apolipoprotein E (APOE) gene: APOE2, APOE3, and APOE4. The APOE3 gene is the most common variant among humans, followed in order by APOE4 and APOE2. Of the three alleles, APOE4 is associated with an increased risk of Alzheimer's disease and APOE2 is associated with a decreased risk. Since all people inherit one copy of the APOE gene from their father and one from their mother, the range of possibilities vary from E2/E2 to E4/E4 (nine combinations in all), with carriers of the former having the lowest risk and carriers of the latter having the highest risk. As a matter of fact, one recent review of Alzheimer's disease claims that there are no known cases of elderly autopsied E4/E4 humans without physical correlates of the disease, whereas these markers are virtually absent in people with E2/E2.

This does not mean that all people with high susceptibility will actually get the disease as they age. Medical examiners and researchers often find amyloid-beta

plaques and tau protein (common indicators of Alzheimer's) in autopsied patients who did not show evidence of impaired brain function during life. Presumably, the neurophysiological requirements for the development of Alzheimer's disease need to reach a certain threshold or can be inhibited by such features as structural organization, neuron count, the presence of "good" genes, etc. Nevertheless, the APOE gene has been found to be a reasonably good predictor for the susceptibility to late-onset Alzheimer's disease and cryonicists will benefit from knowing their status.

Diagnosis

As old as diagnosing disease is the propensity of humans to procrastinate in going to the doctor to obtain a formal verdict. In the case of brain-threatening disorders such procrastination could be equivalent to a death sentence for a cryonicist. Although a 100% accurate diagnosis of Alzheimer's disease can only be made upon autopsy, a combination of gene tests, mental tests, blood and fluid samples, and PET scans can now be used to render a positive Alzheimer's diagnosis in many cases. Such tests can also differentiate different kinds of (age-related) dementia. For people with a single-gene mutation, or APOE4 homozygotes, with a strong family history of Alzheimer's disease, it is prudent to have periodic mental and physical testing to detect very early manifestations of the disease.

Similarly, people who have a strong genetic and/or family history of traits and diseases that produce (acute) brain-threatening disorders can benefit from frequent testing.

Window of opportunity

From a cryonics perspective, the progressive nature of neurodegenerative diseases presents a "window of opportunity" to prevent (further) destruction of the brain. In reality such vigilance is rare. Most people who have stated that they would never allow themselves to be consumed by Alzheimer's disease ultimately succumb to it and end life in a vegetative state. For obvious reasons, cryonicists would strongly like to avoid such a fate.

There are a number of obstacles that prevent people from taking advantage of this window of opportunity. The biggest problem is lack of a formal diagnosis. This is not necessarily the result of fearing to see a doctor. In many cases, the disease

10 Warning Signs of Alzheimer's Disease

1. Memory loss that disrupts daily life
2. Challenges in planning or solving problems
3. Difficulty completing familiar tasks at home, at work or at leisure
4. Confusion with time or place
5. Trouble understanding visual images and spatial relationships
6. New problems with words in speaking or writing
7. Misplacing things and losing the ability to retrace steps
8. Decreased or poor judgment
9. Withdrawal from work or social activities
10. Changes in mood and personality

More detailed information on the website of the Alzheimer's Association:
http://www.alz.org/national/documents/checklist_10signs.pdf

has progressed enough to numb the level of analytical thinking and determination needed to seek a diagnosis. This is especially a risk for people who live alone. In a way, one could say that neurodegenerative diseases manifest themselves as the inability to clearly recognize the situation. For many patients this is not necessarily a bad thing because it still enables them to continue a meaningful life. For a cryonicist, such a scenario is a source of great fear as the outcome may annihilate the prospect of meaningful resuscitation of the original individual after cryopreservation (if cryopreservation is even attempted).

“The spectacular decrease in the cost of genome sequencing will bring whole genome sequencing within the reach of most cryonicists within 5 years.”

The personality changes that accompany brain threatening disorders can also be abused by family members and third parties who stand to gain from a person not being cryopreserved. For this reason, it is strongly recommended to ensure that relatives and third parties will not benefit if a person is not cryopreserved, irrespective of the condition of the patient or the quality of the cryopreservation. It should be obvious that for people with hostile partners and family members, brain threatening disorders can present an even a greater challenge.

Another obstacle to recognizing the window of opportunity is wishful thinking about treatments. One could easily imagine a life extensionist falling victim to a dangerous overoptimism. A person is diagnosed with Alzheimer’s disease but steadfastly believes that, for example, new stem cell treatments and pharmacological therapies will be able to halt or reverse the disease at a faster pace than the disease will progress. Undoubtedly, at some point in the future this will be the case, but is it prudent to believe it will happen to you?

Perhaps the hardest and most subtle problem is the tendency to delay action until the disease has progressed enough to

seriously impair the quality of life but not enough to prevent self-awareness of the disease, its consequences, and the need to take action. This is often not a deliberate process but generally will manifest itself as a conjunction of the instinct to survive and day-to-day rationalizations. In reality, such attempts to let the disease progress and settle for the perfect time for cryopreservation will often fail. One reason for this is that the commitment to the idea of cryonics progressively weakens as mental faculties fail.

Conclusion

The aim of cryonics is to preserve the identity-encoding information in the brain (and any other organs) when contemporary medicine is not able to maintain the patient in good health. The prospect of clinical death is not encouraging, but the biggest threat to a cryonics member, absent not being cryopreserved at all, it is to succumb to a brain threatening disease while still alive.

One of the biggest challenges a cryonicist can face is to have an acute brain-threatening insult without being able to respond to it. Such a scenario can be somewhat decreased by making sensible lifestyle decisions (no extreme sports or dangerous errands in the home) and diet decisions. Executing smart advance directives and appointing the right medical surrogate can make a world of difference.

Having a single-gene mutation that virtually guarantees getting a brain-threatening disorder such as Alzheimer’s disease has one “good” aspect: certainty about one’s fate (absent near-term cures). This allows for (long-term) planning and execution of the right paperwork. Cryonicists who have a documented family history of such diseases will benefit from medical testing, even if they have decided to let nature take its course and just execute the right paperwork to ensure that the disease will not lead to cancellation of their cryonics arrangements.

The most complicated predicament is having a higher susceptibility to one or more brain-threatening disorders. In the case of Alzheimer’s and Parkinson’s it is now possible to get yourself genotyped to quantify such risks. What distinguishes susceptibility genes from “deterministic” genes is the role played by such things as lifestyle, diet, gender, ethnicity, exercise, stress, exposure to toxins, etc. There is no scientific consensus on the most appropri-

ate diet or supplements to avoid dementia-inducing diseases, but this is an area where progress is conceivable. Elderly cryonicists who have a much higher susceptibility to brain-threatening disorders can benefit from routine testing.

Being diagnosed with a brain threatening disorder presents a concrete and actionable challenge. Not all cryonicists prefer to take heroic measures to ensure a timely cryopreservation, but for those who do, recognizing the existence of a window of opportunity and the dangers of procrastination is of great importance. ■

I conclude this article with four specific recommendations:

1. Consult Rebecca Lively’s article, “How to Protect your Cryonics Arrangements from Interference by Third Parties” (<http://www.alcor.org/BecomeMember/toprotectarrangements.html>), and make sure that you have executed the right paperwork.
2. Use genetic testing, genotyping, or whole genome sequencing to determine whether you have a single-gene mutation associated with a brain-threatening disease or increased susceptibility for late-onset brain-threatening disorders.
3. Familiarize yourself with the nature and progression of the major brain threatening insults and disorders and how they affect decision making and personhood.
4. Consult Mike Perry’s “Options for Elective Cryopreservation” (published in this issue) for your options in case of a brain-threatening disorder.

I am grateful for the suggestions and edits made by Mike Perry and Chana de Wolf.



Alcor Member Forums

Discussion board of the Alcor Life Extension Foundation

Discuss Alcor and cryonics topics with other members and Alcor officials.

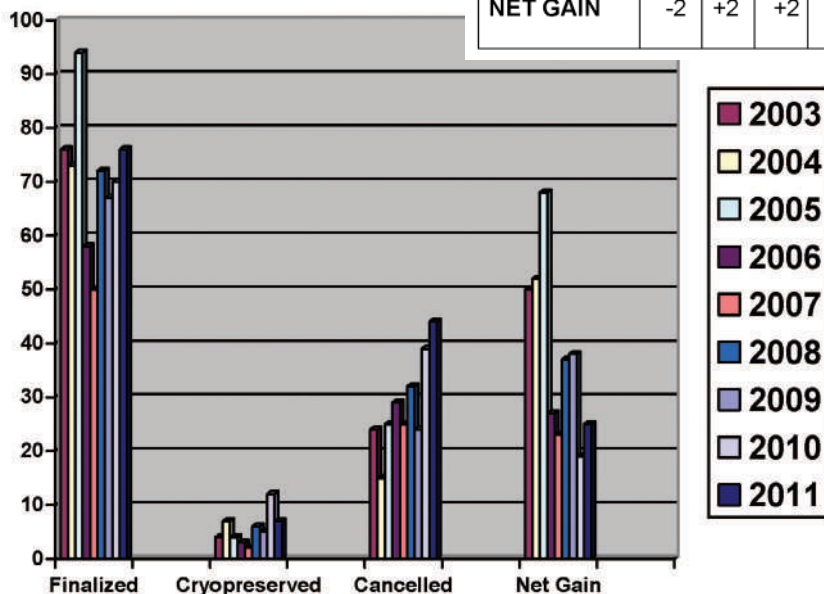
- The Alcor Foundation
- Cell Repair Technologies
- Cryobiology
- Events and Meetings
- Financial
- Rejuvenation
- Stabilization

Other features include pseudonyms (pending verification of membership status) and a private forum.

<http://www.alcor.org/forums/>

Membership Statistics

2011	01	02	03	04	05	06	07	08	09	10	11	12	
TOTAL	930	932	935	943	945	948	955	944	947	951	958		958
FINALIZED	3	7	8	10	4	6	10	4	4	6	7		69
REINSTATED	1	2	0	0	2	0	0	0	0	1	1		7
CANCELLED	6	7*	4	2	3	2	3	14	1	2	0		44
CRYO-PRESERVED	0	0	2	0	1	1	0	1	0	1	1		7
NET GAIN	-2	+2	+2	+8	+2	+3	+7	-11	+3	+4	+7		+25



On November 30, 2011, Alcor had 958 members on its Emergency Responsibility List. Sixty-nine (69) memberships were approved during the first eleven months of 2011, seven (7) memberships were reinstated, forty-four (44) memberships were cancelled and seven (7) members were cryopreserved. Overall, there was a net gain of twenty-five (25) members this year to date.

The chart to the left displays the year-end monthly average net gain since 2003.

OPTIONS FOR ELECTIVE CRYOPRESERVATION

By R. Michael Perry

[Update of an article that appeared in *Cryonics*, 1st Q. 2010.]

Introduction

As cryonicists we want to be cryopreserved with mental faculties intact. Prospects for this are threatened if one has a brain disorder such as malignancy or Alzheimer's disease—or simply advancing old age, with its usual risk of strokes and other brain damage. To best counter such a physical threat, one wishes to have cryopreservation performed electively, that is, undergo proactive legal death, when by reasonable biomedical criteria the time is right. But there are complications. Though cryonicists see cryopreservation as a medical procedure, legally it qualifies as “disposal of a dead body” (or other remains). With a normal medical operation, one might be anesthetized and the operation performed without much fanfare, even if success or survival of the patient is not guaranteed. With cryonics the procedure can be started only after the patient is legally dead (possibly barring a few jurisdictions, which have not been used). A cryonicist wishing immediate cryopreservation thus must induce a state of cardiac and respiratory arrest or clinical death—suicide in the eyes of the law—before the procedure can begin. Such an act would create an additional impediment to good preservation, in that cases of suicide are normally subject to mandatory autopsy which is highly damaging to the preservation process.

So what are we to do? A number of strategies are possible, ranging from simple advance planning to interventions, some of a more conventional nature, some of them untried thus far. Different jurisdictions offer different possible options, some of them especially favorable to cryonics, for

example, states or countries where assisted suicide is legal, or where otherwise mandatory autopsy can be mitigated by using nondestructive scanning in place of dissection. In what follows I first consider preliminaries—what can be done in advance of any problem, then interventions to be used when physical symptoms of varying severity occur.

Preliminaries

Cryonics arrangements themselves are the basic preliminary for addressing the problem of one's clinical death, whatever might be involved. At the time arrangements are made some thought should be put into the possibility that intervention may be needed to escape damage to the brain, or that mental impairment may occur despite any efforts to avoid it. Stating one's wishes and preferences in writing is a good starting strategy which can be worked out with one's cryonics service provider. Among the desirable choices is for a durable power of attorney to make decisions in case one is incapacitated. Saving personal information in such forms as notes, diaries, photos, and audio or video clips is also highly advisable as a way to allow reconstructions of memory in case the brain is inadequately preserved. (It is expected that a level of future technology capable of reanimating a well-preserved brain and restoring it to a healthy, functioning state could probably also accomplish such tasks as restoring or reconstituting lost memories and other features from preserved records and reasonable deductions. Thus, for instance, it is unlikely that a resuscitated person will have disabilities such as paralysis

or speech aphasia, regardless of how much damage may need to be addressed. Indeed, as noted below, there are significant options even with only a cell sample of the physical remains.) If possible, one should choose one's associates to be sympathetic and understanding of the intentions and procedures of cryonics. A friendly, supportive community of fellow cryonicists will help ensure the best results.

Some discussion is in order about philosophical issues. Resuscitation from cryopreservation is a subject that has many divergent points of view even among those who accept the basic idea of cryonics. Most agree that with good preservation resuscitation is a worthwhile goal that might be achievable someday if technological advances continue. The question then becomes whether the preservation will, in fact, be good enough to be worthwhile to the individual concerned, and what measures are reasonable to take in anticipation of problems that may arise.

Not everyone will agree that a certain measure is worthwhile, for example, separately storing a cell sample in case something should happen to one's cryopreserved remains. (In this way a clone of oneself might be produced, which could then be “programmed” with memories and other personality elements captured in data files. A version of oneself could then emerge that would be very similar in thoughts and behavior to the original, and from some but not all points of view would qualify as a bona fide resurrection of that individual.) With this in mind I mention that a number of options exist for indefinitely storing both digitized or other recorded data and

genomic samples. Some organizations that are strongly sympathetic to cryonics are the Society for Venturism (<http://www.venturism.org>), the Society for Universal Immortalism (<http://www.universalimmortalism.org>), and Terasem. As of this writing, the Society for Universal Immortalism would be amenable to storing both digital or other recorded information and genomic samples at room temperature (resin-embedded for example). The Society for Venturism is a “maybe” on both counts, though perhaps stronger on “digital” than “genomic.” Terasem at present is both “digital” and “genomic,” with years’ worth of practice and expertise. Their CyBeRev project (<http://www.cyberev.org>) stores “mindfiles” and other personal data; their LifeNaut project (<http://www.lifenaut.com>) stores cell samples at cryogenic temperatures. They hope to recreate individuals from these sources, if no other data about them survives. Genome sequencing, which would replace the physical genome with a digital file containing its information, is rapidly becoming cheaper and may cost less than \$1,000 in the near future, making it affordable to many.

Other possibilities for information storage exist but all are presently underdeveloped and underutilized for the purpose of backing up cryopreservations or as standalone sources; feedback from interested parties is needed.

Brain Disorders: Dealing with Symptoms

Dementias, malignant brain tumors, and other such threats to one’s personal identity are of very frequent occurrence as one ages and call for as much preparation as possible. Very often the cryonics member has advance warning. A diagnosis is made that provides a time window before serious impairment can be expected. A reasonable course would be proactive legal death before such has occurred, though again one must avoid an autopsy which often is mandatory. A simple, straightforward approach in the case of a brain malignancy might be voluntary stopping of eating and drinking (VSED) until clinical death occurs. This can be accomplished with hospitalization or hospice care, as has occurred with some Alcor cases witnessed by the author.

One public case of this sort was Arlene Fried who was cryopreserved (as a neuro or head-only, the rationale being that

future technology could very likely create the missing rest of the body) at Alcor’s facility in Riverside, California in June 1990.¹ Ms. Fried, who is Linda Chamberlain’s mother, had the loving, attentive support of her daughter and her son-in-law Fred Chamberlain, two cryonics pioneers who well understood and sympathized with her views and what she was attempting. Ms. Fried, terminally ill with cancer that had metastasized to the brain, was cared for during approximately 10 days while her VSED was in progress, receiving only some moistening of her lips and mouth from time, and very limited amounts of fluid internally. She persevered and accomplished her mission of proactive legal death and cryopreservation, escaping both the ravages of the tumor in her head and the autopsy that would have followed had she chosen an easier “exit.”

In her case the escape from autopsy was facilitated by the fact that her illness was legally “terminal.” Death by starvation/dehydration was classed instead as occurring from “natural” causes not mandating postmortem dissection. In addition to eliminating the autopsy, hospital personnel were sympathetic and beneficial to the course that was followed. More generally in cases of diagnosed-as-terminal, brain-threatening illness, death by VSED may be the best available means for the cryonicist to proceed. A slower-acting but still lethal brain malady such as Alzheimer’s disease is not similarly classed as “terminal” and victims may find it much harder to avoid autopsy, though an alternative, “virtual autopsy” that uses nondestructive means now exists (see below). It should also be kept in mind that although autopsy presents one of the most harmful prospects for a cryonics patient, the effects of progressive destruction of the living brain may be worse.

The ideal alternative to VSED would be to administer general anesthetic and place the patient on heart-lung bypass to start cooling and the cryoprotective procedure (introduction of agents which minimize damage to tissues during the deep cooling that follows). Cardiac arrest would follow, which would classify the procedure as euthanasia. Such a procedure would be disallowed in the U. S., however, even in jurisdictions that permit assisted suicide.

¹ Linda Chamberlain, “Her Blue Eyes Will Sparkle,” *Cryonics*, Dec. 1990, 16, <http://www.alcor.org/cryonics/cryonics9012.txt> (accessed 18 Dec. 2011).

States in which assisted suicide is legal (currently Oregon, Washington, and Montana) allow that a physician can prescribe lethal medication which then must be self-administered by the patient (rather than administered by another party). At best a cryonicist could self-medicate to clinical death before cryoprotection was started. To date no cryonicist has attempted to use the assisted suicide law of any of these jurisdictions to hasten legal death. It would arguably be very risky to do so, in view of the unconventional nature of cryonics, which might invite bureaucratic interference. In terms of public relations it is important to emphasize that a cryonicist who would make use of such laws is seeking an extension of his/her life, not an end to life. Although many cryonicists may be supportive of dying-with-dignity and related causes, an overriding aim of cryonics as a movement is to get cryopreservation accepted as an elective medical procedure.

Outside the United States

Outside the United States a few jurisdictions have legalized assisted suicide, in particular Switzerland, where citizenship in the country is not required. Physicians are not prosecuted for assisting a suicide, so long as they are not motivated by self-interest. Organizations have been set up to provide this service, the best known being Dignitas.² Founded in 1998 by Ludwig Minelli, a Swiss lawyer, Dignitas enables those with terminal illness or severe physical or mental illness to die assisted by qualified doctors and medical staff. Under certain conditions persons with mental rather than physical ailments are assisted to die; the patient’s condition must fulfill specifications of the Federal Supreme Court of Switzerland. In fact about one fifth of those dying through Dignitas do not suffer from a terminal or progressive illness but from “weariness of life.” The method of suicide is generally ingestion (swallowing) a lethal dose of the barbiturate Nembutal, though helium gas has also been used. It appears that the majority of cases are not autopsied but there is, of course, no guarantee of this.³

² “Dignitas (assisted dying organisation),” Wikipedia, the Free Encyclopedia, http://en.wikipedia.org/wiki/Dignitas_%28euthanasia_group%29 (accessed 18 Dec. 2011).

³ Silvan Luley, Dignitas, private communication 27 Dec. 2010.

Could Dignitas or a similar organization help cryonicists? Probably the answer is “yes” but there would be extra expense (maybe about \$10,000 overall) for an American using the service, plus the remains immediately after pronouncement would need to be handed over to a cryonics service provider such as Suspended Animation, Inc. for perfusion and initial cooling, an additional and no doubt considerable expense. The operation would be greatly facilitated, in some important ways, if there could be a Dignitas-type organization that catered to cryonics cases only. The liberal laws of Switzerland in regard to assisted suicide would seem to offer such a possibility, though it remains speculative. Another country that has legalized assisted suicide is the Netherlands,⁴ though apparently it is available only to citizens of the country, unlike Switzerland. Also unlike Switzerland, euthanasia (active participation of physicians in causing death) is legal in the Netherlands. The following conditions (“due care” criteria) must be met before a doctor can proceed:

1. The patient’s suffering is unbearable with no prospect of improvement.
2. The patient’s request for euthanasia must be voluntary and persist over time (the request cannot be granted when under the influence of others, psychological illness or drugs).
3. The patient must be fully aware of his/her condition, prospects and options.
4. There must be consultation with at least one other independent doctor who needs to confirm the conditions mentioned above.
5. The death must be carried out in a medically appropriate fashion by the doctor or patient, in which case the doctor must be present
6. The patient must be at least 12 years old. (Patients between 12 and 16 years of age require the consent of their parents.)

⁴ Except as noted, the portion on the Netherlands is summarized from “Euthanasia in the Netherlands,” Wikipedia, the Free Encyclopedia, http://en.wikipedia.org/wiki/Euthanasia_in_the_Netherlands (accessed 18 Dec. 2011).

The doctor must then report the cause of death to the local municipal coroner. A regional review committee assesses whether the due care criteria were met, and if so, the case is closed. It appears that autopsy in approved cases of euthanasia is generally not mandatory, though this needs further investigation.

People diagnosed with Alzheimer’s disease (not considered “terminal” in the U. S., thus off-limits for assisted suicide) are eligible to request euthanasia provided they are of sound mind and experiencing unbearable suffering.⁵ Exactly what constitutes “unbearable suffering” will vary from patient to patient, and could involve a perception that one is about to lose one’s mental faculties rather than severe pain. In many cases, the protocol involves assistance with lethal self-medication, not active euthanasia. Between 1998 and 2009 only 25 people made use of this option (about two or three cases per year), all with *early* stages of dementia (not limited to Alzheimer’s disease). More recently the numbers have increased (12 cases in 2009, 21 in 2010) due to more publicity for this option. Doctors refer to a “window of opportunity,” in which a patient diagnosed with untreatable dementia is still capable of understanding the disease, its progress, and the effects on the quality of life. A written euthanasia request is not required and a doctor is obliged to record verbal requests in the patient’s record. In principle it is legally permissible to act upon a written request during later stages of the disease when the patient is no longer competent, but in reality most doctors are reluctant to proceed at that stage. Recent advances in early diagnosis of Alzheimer’s disease through analysis of fluid samples and PET scans should enlarge the “window of opportunity” for euthanasia and thus may increase the use of this option in countries where it is permitted.

In 2010 a citizen’s initiative called *Out of Free Will* demanded that all Dutch citizens over 70 who feel tired of life should have the right to end it with professional help. Thus it would no longer be essential to claim unbearable suffering, something that could work in cryonicists’ favor, at least for those old enough. A number of

⁵ This paragraph, on euthanasia for cases of Alzheimer’s disease and other dementias, is based on “Euthanasie bij Alzheimer” (in Dutch), <http://www.alzheimercentrum.nl/professionals/aanmelden-van-patienten/> (accessed 18 Dec. 2011).

prominent Dutch citizens supported this initiative, including former ministers, artists, legal scholars, and physicians.

Cryonicists should be wary that assisted suicide far from a cryonics facility, especially overseas, would result in a greatly inferior cryopreservation to what can be achieved if legal death occurs near Alcor in Scottsdale, Arizona. This should be considered carefully in comparing assisted suicide to VSED if VSED is an option.

More About VSED⁶

In jurisdictions where physician-assisted euthanasia is not an option, as is generally the case today, other approaches must be used. In such cases, voluntary stopping of eating and drinking is possibly the best of currently available means to hasten one’s legal death without inviting autopsy or legal recriminations, *provided one has a recognized, terminal illness*. Otherwise an autopsy could still be mandated after VSED (as a friend of mine who wishes to remain anonymous confirmed by consulting with medical examiners in Arizona in 2009).

If water intake is stopped completely rather than tapered off, VSED takes about two weeks to cause death by dehydration; death is almost certain within 16 days. The discomfort involved is generally mild but will vary with individuals. Hunger usually disappears after a couple of days, and after a week of fasting, metabolic by-products generally cause a sense of well-being, even elation. Electrolyte imbalance (especially potassium loss) eventually causes cardiac arrest during sleep.

The bowels should be cleansed at the start of VSED to avoid gastric distress later on. The most important comfort measure is adequate mouth care. The mouth can be kept moist with small amounts of ice chips, sugar-free popsicles or gum, or saliva substitutes. VSED itself generally does not require pain medication but the patient’s other health problems may require it for palliative care. Benzodiazepines such as Valium may be prescribed for anxiety if needed.

⁶ The final two paragraphs of this section are based on <http://www.choicesarizona.org/files/Newsletter-2009-1.pdf>, 7 (accessed 18 Dec. 2011). This is a review by David Brandt-Erichsen of the book *A Hastened Death by Self-Denial of Food and Drink*, by Boudewijn Chabot, MD, PhD.⁶ The author, who in the book refers to the method as *STopping Eating and Drinking (STED)*, studied 110 cases of VSED in the Netherlands. His book is a practical guide to VSED for both patients and health care givers.

Virtual Autopsy as an Alternative to Postmortem Dissection⁷

If autopsy is mandated it still might be possible to use noninvasive, “virtual” procedures, particularly those based on computerized scanning techniques (CT, MRI scans) to non-destructively section parts of the body and satisfy the requirements of autopsy. (Here it should be noted that the delay and lack of patient support prior to the procedure could still be highly damaging; further discussion below.) Another possibility is to use a combination of invasive and noninvasive techniques, with the latter reserved for the head so that traumatic damage to the brain is still avoided. Virtual autopsy or “virtopsy” came about because, in the examination of crime victims, certain needs could not be met otherwise. For example, a close comparison between a skull indentation and a possible murder weapon might be needed. Using a combination of techniques including such 3D imaging technologies as CT and MRI scanning, a geometrically accurate representation of the body, both inside and out, could be projected on a screen and reversibly manipulated without having to disturb or touch the actual body, beyond the initial scanning. The scanning information itself would remain in a computer database where it could be accessed indefinitely for further study and analysis.

Virtopsy offers many advantages over physical dissection in postmortem examinations, including the possibility of turning back layers of muscle or other tissue like pages of a book to examine bullet tracks or other trauma, all in completely reversible fashion which can be redone according to different algorithmic strategies and goals. In some cases such as for embedded gas bubbles information will be preserved that would be irretrievably lost through dissection. At the same time there is much information that only dissection can adequately reveal, such as colors of tissue (important in assessing inflammation), what kind of tumor is present, and chemical data. A system for doing virtopsy is expensive, costing in the neighborhood of \$2 million or more. Virtopsy thus is unlikely to entirely replace the dissection of autopsy anytime soon (if ever), but clearly

offers forensic advantages when it is additionally available.

For a cryonicist, any autopsy, even a virtual autopsy, is a disaster if there is an intrinsic delay of many hours in absence of even basic stabilization medications, cardiopulmonary support, or cooling. Such an insult would degrade brain structure and jeopardize later cryoprotective perfusion, causing even more damage from freezing. Such delays are all-but unavoidable with dissections and may also be hard to circumvent with virtopsies. The hope is that, nevertheless, if an autopsy in some form is needed, a virtopsy will be sufficient. A virtopsy, in addition to being nondestructive, has the advantage of taking less time (as little as 30 minutes versus 2 hours or more). A long delay in arranging for the procedure in the first place can still occur, however, as happened in a recent Alcor case involving partial virtopsy, with nondestructive sectioning of the head [not a proactive legal death]⁸. In the case of proactive legal death, the virtopsy could even be done in advance of legal death, and other details worked out with officials to ensure that no question persists as to the cause of death so that dissection would be waived and further delay avoided. In this manner, then, cryopreservation could begin immediately after death is pronounced, as currently happens in the best of cases when clinical death occurs through natural causes.

Summary and Afterthoughts

In confronting the possibility of brain-threatening illness and mental impairment, cryonicists have two sorts of options, (1) preparation in advance, (2) intervention when symptoms appear, possibly leading to proactive legal death. Preparing in advance includes choosing someone to act as representative and decision maker if one is incapacitated, and also, storing information to be used in restoring damaged memory or other brain functions. Interventive strategies when symptoms of intractable brain illness appear include legal ways to hasten one’s legal death so cryopreservation can halt the destructive process. At present the safest such strategy, if one has a diagnosed terminal illness, appears to be voluntary stopping of eating and drinking. Clinical death is hastened in a way that is

considered “natural” and does not require autopsy, so that cryoprotective procedures can begin without interference.

Otherwise the problem is more difficult, and overall the situation is far from ideal. An improvement might result if a service such as Dignitas in Switzerland could be used. Legal death might proceed faster with fewer medical complications, particularly if a company would limit its services to cryonicists only. Better still would be to have cryopreservation treated as a medical procedure which could be freely chosen and started at any reasonable time. This appears to be a long way off, unless progress is made in a country such as the Netherlands where voluntary euthanasia under limited conditions is presently legal and public sentiment seems to favor its extension. Meanwhile cryonicists must work together to increase whatever options are feasible. The use of virtopsy, which could be done premortem or relatively quickly postmortem, is a possibility for obviating damaging dissection but, as in so many other areas, must be researched further and efforts made for useful implementations to occur. ■

Bibliography:

Boudewijn Chabot, *A Hastened Death by Self-Denial of Food and Drink*, Amsterdam, 2008, 64 pages; available from the Hemlock Society, email to fayegirsh@msn.com

My thanks to Cairn Idun, Hugh Hixon, and David Brandt-Erichsen for assistance in preparing an earlier version of this article, and to Aschwin de Wolf and Brian Wowk for assistance with the present version. —RMP

⁷ Summarized from <http://news.wikinut.com/Virtopsy-and-the-Traditional-Autopsy/uh4ay8/>, accessed 18 Dec. 2011.

⁸ <http://www.alcor.org/Library/pdfs/casereportA-1712DavidHayes.pdf>, accessed 18 Dec. 2011.

CONSIDERING APPROPRIATE CRYOPRESERVATION FUNDING

By Russell Cheney

“Not infrequently, the most difficult problems are the unexpected: the “unknown unknowns.” Supplemental funding can help resolve these problems.”

Once having set in place the necessary contractual and financial requirements for our cryopreservation, what can we as individuals do to increase our chances of the highest-quality cryopreservation and recovery?

Certainly the usual healthy life-styles can be of potential benefit, including a reasonable diet, exercise and medical considerations. Such life-styles can help maintain our enjoyment of our current life span, and can postpone cryopreservation to a future time with the probability of enhanced technology.

This article discusses some of the ways in which extra funding established with our cryonics organization (beyond contractual minimums), may be able to significantly help improve our chances of a successful cryopreservation and recovery.

Standbys

When a member is in medical need, as with a serious medical procedure, unexpected trauma, advanced disease, or a number of threatening emergencies, having additional funding in place can assist the standby management team to quickly provide all the skilled personnel over the necessary period of time to help guarantee the best care. Alcor of course has established its CMS (Comprehensive Member Standby) fund to address many of the usual situations, but circumstances arise where questions of enhanced expertise, standby duration, and air ambulance utilization may improve your peace of mind and improve your odds.

Grandfathering

As costs rise over time, due to the generally increasing consumer price index (CPI) as well as to improved medical and cryopreservation technologies (for example, vitrification), the up-front cost of cryopreservation has risen. These cost rises have historically been reflected in higher initial contractual costs for new cryopreservation members, but not retroactively applied to existing members. Since this history of grandfathering is not guaranteed contractually at Alcor, future events may differ from the historical. Therefore the protection of continuing full cryonic-membership can be guaranteed over longer periods of time via extra funding.

The Expected

What factors might be anticipated in the future to have an impact on related



costs? Some items under current discussion include “intermediate temperature” storage (cryopreservation storage at a temperature above that of current patients’ -196° C, to help prevent / reduce the incidence of cracking), higher-security storage facilities, enhanced vitrification technologies, enhanced emergency-response teams, and a large number of speculative interventions developed to address in-storage and recovery technologies). Just as many of these prospects may offer improved cryopreservation and recovery at the expense of higher costs, extra initial funding may be expected to aid these prospects even post-cryopreservation.

“For many decades, funding (above and beyond the minimum required at the time of initial cryopreservation contractual arrangements) was egregiously termed “overfunding.”

The Unexpected

Not infrequently, the most difficult problems are the unexpected: the “unknown unknowns.” Supplemental funding can help resolve these problems. One example from my six-year experience as the Alcor Southern-California Emergency Team Coordinator was the case of Eleanor Williams (no relation to Ted). Incidentally, Eleanor is one of our members who prefers that her name and cryopreservation be publically linked, because she felt that she would thus be under the umbrella of widespread public knowledge. Eleanor had arranged for well-enhanced funding for both her standby and for Alcor; we were thus able to bring an exceptionally strong Team for her final, and long, standby. When the

time finally came for her cryotransport, her family doctor unexpectedly delayed in signing the requisite papers for interstate transport. Due to Eleanor’s forethought in arranging the supplemental funding, the exceptional standby team was able to expeditiously arrange for unplanned medical procedures and an appropriate charter jet transport from San Francisco to Scottsdale, resulting in a high-quality cryopreservation procedure for Eleanor.

Foundation Enhancements

Supplemental funding can provide a member the distinct advantage of addressing specific areas for improvement within the structure of the organization and/or the techniques and protocol employed in the standby, transport, cryopreservation and storage functions. Directed funding can specify where funds are to be targeted.

Leveraged Impact

Because of the current modest size of cryonics membership, the impact that one individual may have on their own future, as well as that of their cryonics organization, can be unexpectedly high. Relatively modest additional funding toward one’s own cryopreservation, and toward the strengthening of their cryonics organization, may very well reap benefits far beyond the amount of the funding. An individual’s investment toward their own best interest will, in a high number of cases, result in serendipitous benefits to a large portion of all cryonicists and to strengthening the very cryonics organization on which their long-term survival and prosperity depend.

Loved Ones and Family

Many of us have given some considerable thought to our cryonics decision’s impact on those nearest to us. We would wish the best for them, and wish that we would not become a future burden to them. Supplemental funding can do just that, by providing now for future costs which our family and friends will not have to bear.

Terminology

For many decades, funding (above and beyond the minimum required at the time of initial cryopreservation contractual arrange-

“Because of the current modest size of cryonics membership, the impact that one individual may have on their own future, as well as that of their cryonics organization, can be unexpectedly high.”

ments) was egregiously termed “overfunding.” This usage was unfortunate for several reasons. First, it was not accurate in the general sense; it was “over” the initial contract requirements, but virtually *never* over actual requirements. Second, it was misleading, implying that something which was intrinsically beneficial was unnecessary/bad. There are many examples in the English language of “over” having a negative meaning.

A more-fitting term might be “superfunding,” having the more accurate connotations of strength and benefit.

Win-Win

Your “Superfunding” can become a win for yourself and a win for your cryonics organization.

Methodology and Quantity

What approach is best for your individual circumstances? Considerations may include an existing or in-process estate plan, life insurance with growth benefits, existing and future funds, loved ones, and many other factors critical to your final decision. Discussion with Diane Cremeens, Membership Department Coordinator, and/or Max More, Alcor President and Chief Executive Officer, may be appropriate as part of your decision-making process to achieve the most suitable specific arrangements. ■

MEMBER PROFILE: MAX MORE

By Chana de Wolf



"Do you like living?" Max asks the attendees of TEDx Hong Kong as part of his presentation in December 2011.

Following an arduous search lasting many months, Alcor was pleased to hire long-time member Max More to the CEO position in January 2011. Max comes to Alcor with an extensive background as a writer, speaker, and philosopher of futurist topics and as an activist for life extension technologies, including cryonics. Readers of *Cryonics* magazine may have followed his quarterly CEO Reports with interest as he has outlined his vision to support Alcor's mission and plans to meet goals and overcome challenges in the years to come. But what of Max the man? After a year in the hot seat, it seems like a good time to learn more about Alcor's latest leader.

Max originally hails from England, where he lived and completed his education through undergraduate studies. Max didn't perform particularly well in school until he began studying topics that interested him – namely, economics and politics. By the end of his second year of A-Levels at Yeovil College in Somerset he had advanced from the bottom of his class to the top of the economics program, allowing him to apply to prestigious Oxford and Cambridge Universities. After acceptance to Oxford in 1984, Max worked diligently and obtained a degree in Philosophy, Politics, and Economics in 1987.

Max first heard about cryonics in a British children's television show called *Timeslip* in the 1970s. "Cryonics was part

of the second story of the series in an episode called "The Time of the Ice Box," he recalls. "Remarkably, the same story also involved a longevity drug and intelligence augmentation. It was set in the remote future of 1990!" Later on, he again came across the idea in Robert A. Heinlein's 1957 novel, *The Door Into Summer*. His first real-world exposure to cryonics was *Cosmic Trigger*, in which Robert Anton Wilson writes about the cryopreservation of his daughter's brain after she was murdered.

Such reading led Max to an early interest in radical life extension. By his mid- to late-teens he was committed to furthering progress in this area and cryonics seemed like a natural extension of that. "I started reading *Cryonics* magazine around 1984 or so," he says. "When I read an appeal for funds by Alcor... (in late 1985), I responded by sending a little money out of my tiny student bank account from England to California. Mike Darwin wrote to me, challenging me both to sign up and to start a real cryonics organization in England. I took him up on both challenges."

So Max joined Alcor as a member in 1986 at the age of 22. In the same year, he came to the U.S. for six weeks to visit Alcor and obtain some training and experience under Mike Darwin and Jerry Leaf. He went back to England with medications and some equipment to start Mizar, Ltd., the precursor organization to Alcor UK. As an initial foray into writing in this field,



Young Max stands proudly in front of his home in Bristol, England.

he and English cryonicists, Garrett Smyth and Michael Price, began publishing a small magazine called *Biostasis*.

Near the end of Max's undergraduate work, the University of Southern California began a campaign to recruit graduate students from England. Max jumped at the chance, and was able to come to the U.S. as a graduate student at the University of Southern California in 1987. In 1988, he and Tom W. Bell started publishing *Extropy: The Journal of Transhumanist Thought*. This brought together thinkers with interests in artificial intelligence, nanotechnology, genetic engineering, life extension, mind uploading, idea futures, robotics, space exploration, memetics, and the politics and economics of transhumanism. It was, in fact, the founding effort of transhumanist philosophy.

It didn't take long for news about *Extropy* to make a splash. It was soon advertised in *Factsheet 5* and highlighted in a review in *Wired* by Kevin Kelly. Before long, Max was bombarded by people who were surprised to find others who thought the same way about futurist topics.

Around the same time, Alcor suffered some difficult legal issues and the resulting politics and infighting deflected Max's attention away from cryonics for a while. He turned his attention to transhumanism and the development of the Extropy Institute, founded in 1991. He did still attend cryonics events, though, and even met his future wife, Natasha Vita-More, at a cryonics event hosted by Timothy Leary at his home in Beverly Hills in 1992.



Enjoying a favorite pastime, Max hits the slopes in December 2000.

The philosophy behind Extropy Institute was "to use current scientific understanding along with critical and creative thinking to define a small set of principles or values that could help make sense of the confusing but potentially liberating and existentially enriching capabilities opening up to humanity." The Institute published Extropy magazine, organized five conferences, and ran one of the longest-lived email lists on the net. As other organizations arose with similar aims, Extropy Institute closed in 2006.

While Max was still heavily involved with the Extropy Institute, he and Natasha decided to move from California to Austin, Texas, in 2002. There, they organized several local CryoFeasts and participated in at least one standby and stabilization training session. Then, in 2008, Alcor began actively recruiting for a new President/CEO. In 2010, Natasha suggested that Max apply for the position.

"At first I was reluctant, knowing that it would be a challenging job," Max admits. "But then I realized that it may be my last chance to make a difference. I had seen little progress in achieving major life extension over the past 30 years, so cryonics was coming to seem ever more crucial. I wanted a new challenge, as well. So I submitted my application and went through the selection process, ultimately getting hired."

As President and CEO of Alcor, Max wants to accomplish *kaizen*, the Japanese word for "improvement" or "change for the better." In his own words, Max explains the concept as always asking, "why? Why do we do things the way we do?" "We can't afford to be complacent," he explains. "Our lives are at stake. We must keep improving every aspect of cryonics protocols and practices. I'd like to improve the quality of Alcor's care, maintain standards, and keep our patients preserved."

Beyond that, Max is interested in getting Alcor to grow. "Membership growth gives us more resources to protect ourselves, fund our research, and more. [Cryonics] is a very long-term effort, and it requires us to set examples and to give people the right kind of feedback to encourage them along the way. An important part of this is to formalize our processes,

develop SOPs (standard operating procedures), etc.”

Max knows very well that there are many highly challenging aspects of cryonics. Technical progress, including improvement of standby, stabilization, transport, and cryopreservation, must be made to improve the chances that patients will be preserved in sufficiently good condition to eventually be resuscitated in good health. But financial and organizational challenges must be met first to ensure that Alcor continues functioning over a period of decades or longer. And, he adds, “another huge challenge is figuring out how to change the thinking of more people so they understand and at least seriously consider cryonics, rather than the practice being an option only for a tiny minority.”

The cryonicist motto that “cryonics is the second worst thing that can happen to you” has always resonated with Max. “With or without cryonics arrangements, I would do the best I could to maintain my health and my prospects for a long, healthy life,” he reports. “The idea of floating in a tank of liquid nitrogen unable to influence what happens to me is deeply unappealing. Even so, it is vastly preferable to ceasing to exist.” His arrangements also compel him to save for the long term and motivate him to gently encourage his friends to make cryonics arrangements and join him in the adventure.

“I have always been completely open about my arrangements over the past quarter-century,” Max maintains. And though his family has no interest in it for themselves, his mother is supportive of his choices and no one argues with him about it. Most of his friends are favorable to life extension and many support cryonics or at least see it as a reasonable choice. “Of course, there are those who don’t understand it or reject it,” Max acknowledges. “I find little to gain by arguing about it with those. I’ve almost never found any of their objections to be rational in nature.”

Outside of his job at Alcor, Max likes to exercise using weights and with interval training. He spends a little time keeping up to date on the healthiest diets, exercise, and other practices. Other hobbies include shooting, hiking, and skiing, but his current priorities at Alcor leave him little time for such pleasures. Though he doesn’t watch television, he does keep up with his favorite shows by DVD or download, including *Dexter*, *Mad Men*, *The Walking Dead*, and *South Park*. He also continues to engage in the transhumanist community and keeps up with reading and discussion on related scientific, technological, and philosophical topics.

As President and CEO, Max is interested in feedback from members and wants you to tell Alcor how to do better. His pri-

mary request is to “get your sympathetic friends and relatives to take ACTION and sign up with Alcor.” Lastly, he stresses the importance of taking care of your health – “especially the health of your blood vessels, so you minimize the chances of dying of a disastrous aneurysm and so you can be cannulated and perfused more effectively.” ■

*You can contact Max More by email at **max@alcor.org** to offer your feedback and suggestions as to how Alcor can provide better service and protection for its members.*



Hard at work, Max makes the most of his first visit to Alcor in 1986.

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The graphs on this page illustrate that one 400 mg vegetarian capsule per day of **Super Bio-Curcumin®** supplies the equivalent of 2,500–2,800 mg of commercial curcumin supplements.

A bottle containing 60 vegetarian capsules of **Super Bio-Curcumin®** retails for \$38. If a member buys four bottles during **Super Sale**, the price is reduced to only **\$23.63** per bottle.

Contains rice.



Item #00407

References

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3. *Arch Gerontol Geriatr.* 2002;34:37–46.
4. *Indian J Pharm Sci.* 2008 Jul-Aug;70(4):445–9.
5. Bioavailability study of BCM-95® in rats. Orcas International Inc. 2006.

CAUTION: Do not take if you have gallbladder problems or gallstones. If you are taking anti-coagulant or anti-platelet medications, or have a bleeding disorder, consult your healthcare provider before taking this product.

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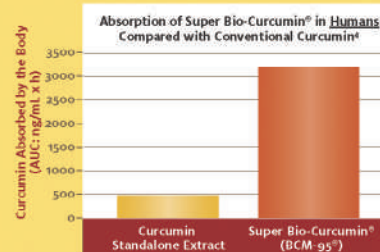


Chart 1. Super Bio-Curcumin® (BCM-95®) showed 6.9 times greater bioavailability (absorption and sustainability over 8 hours) in humans compared with conventional curcumin (as measured by the area under the curve [AUC] in a plot of blood levels against time, that is, the total amount of curcumin absorbed by the body over 8 hours).

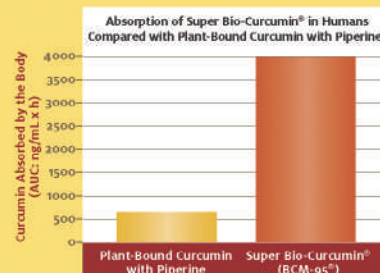


Chart 2. Super Bio-Curcumin® (BCM-95®) showed 6.3 times greater bioavailability (absorption and sustainability over 8 hours) in humans compared with plant-bound curcumin with piperine (as measured by the area under the curve [AUC] in a plot of blood levels against time, that is, the total amount of curcumin absorbed by the body over 8 hours).

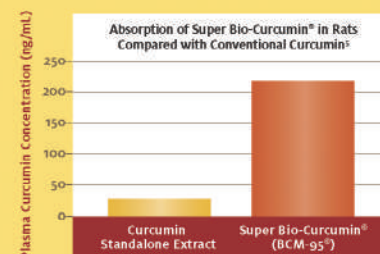


Chart 3. Bioavailability in rats fed with BCM-95® is 7.8 times higher than conventional curcumin.

MEETINGS

About the Alcor Foundation

The Alcor Life Extension Foundation is a nonprofit tax-exempt scientific and educational organization dedicated to advancing the science of cryopreservation and promoting cryonics as a rational option. Being an Alcor member means knowing that—should the worst happen—Alcor's Emergency Response Team is ready to respond for you, 24 hours a day, 365 days a year.

Alcor's Emergency Response capability includes specially trained technicians and customized equipment in Arizona, northern California, southern California, and south Florida, as well as many additional certified technicians on-call around the United States. Alcor's Arizona facility includes a full-time staff, and the Patient Care Bay is personally monitored 24 hours a day.

ARIZONA

Flagstaff:

Arizona without the inferno. Cryonics group in beautiful, high-altitude Flagstaff. Two-hour drive to Alcor. Contact eric@flagstaffcryo.com for more information.

Scottsdale:

This group meets the third Friday of each month and gatherings are hosted at a home near Alcor. To RSVP, visit <http://cryonics.meetup.com/45/>.

At Alcor:

Alcor Board of Directors Meetings and Facility Tours – Alcor business meetings are generally held on the first Saturday of every month starting at 11:00 AM MST. Guests are welcome. Facility tours are held every Tuesday and Friday at 2:00 PM. For more information or to schedule a tour, call D'Bora Tarrant at (877) 462-5267 x101 or email dbora@alcor.org.

CALIFORNIA

Los Angeles:

Alcor Southern California Meetings—For information, call Peter Voss at (310) 822-4533 or e-mail him at peter@optimal.org. Although monthly meetings are not held regularly, you can meet Los Angeles Alcor members by contacting Peter.

San Francisco Bay:

Alcor Northern California Meetings are held quarterly in January, April, July, and October. A CryoFeast is held once a year. For information on Northern California meetings, call Mark Galeck at (408) 245-4928 or email Mark_galeck@pacbell.net.

DISTRICT OF COLUMBIA

Life Extension Society, Inc. is a cryonics and life extension group with members from Washington, D.C., Virginia, and Maryland. Meetings are held monthly. Contact Secretary Keith Lynch at kfl@keithlynch.net. For information on LES, see our web site at www.keithlynch.net/les.

FLORIDA

Central Florida Life Extension group meets once a month in the Tampa Bay area (Tampa and St. Petersburg) for discussion and socializing. The group has been active since 2007. Email arcturus12453@yahoo.com for more information.

NEW ENGLAND

Cambridge:

The New England regional group strives to meet monthly in Cambridge, MA – for information or to be added to the Alcor NE mailing list, please contact Bret Kulakovich at 617-824-8982, alcor@bonfireproductions.com, or on FACEBOOK via the Cryonics Special Interest Group.

PACIFIC NORTHWEST

Cryonics Northwest holds regular meetings for members of all cryonics organizations living in the Pacific Northwest.

For information about upcoming meetings and events go to: <http://www.cryonicsnw.org/> and <http://www.facebook.com/cryonics.northwest> A Yahoo mailing list is also maintained for cryonicists in the Pacific Northwest at <http://tech.groups.yahoo.com/group/CryonicsNW/>.

British Columbia (Canada):

The contact person for meetings in the Vancouver area is Keegan Macintosh: keegan.macintosh@me.com

Oregon:

The contact person for meetings in the Portland area is Chana de Wolf: chana.de.wolf@gmail.com

Washington:

The contact person for meetings in the Seattle area is Regina Pancake: rpancake@gmail.com

ALCOR PORTUGAL

Alcor Portugal is working to have good stabilization and transport capabilities. The group meets every Saturday for two hours. For information about meetings, contact Nuno Martins at n-martins@n-martins.com. The Alcor Portugal website is: www.alcorportugal.com.

TEXAS

Dallas:

North Texas Cryonauts, please sign up for our announcements list for meetings (<http://groups.yahoo.com/group/cryonauts-announce>) or contact David Wallace Croft at (214) 636-3790 for details of upcoming meetings.

Austin/Central Texas:

We meet at least quarterly for training, transport kit updates, and discussion. For information: Steve Jackson, 512-447-7866, sj@sigames.com.

UNITED KINGDOM

There is an Alcor chapter in England. For information about meetings, contact Alan Sinclair at cryoservices@yahoo.co.uk. See the web site at www.alcor-uk.org.

If you are interested in hosting regular meetings in your area, contact Alcor at 877-462-5267, ext. 113. Meetings are a great way to learn about cryonics, meet others with similar interests, and introduce your friends and family to Alcor members!

WHAT IS CRYONICS?

Cryonics is an attempt to preserve and protect human life, not reverse death. It is the practice of using extreme cold to attempt to preserve the life of a person who can no longer be supported by today's medicine. Will future medicine, including mature nanotechnology, have the ability to heal at the cellular and molecular levels? Can cryonics successfully carry the cryopreserved person forward through time, for however many decades or centuries might be necessary, until the cryopreservation process can be reversed and the person restored to full health? While cryonics may sound like science fiction, there is a basis for it in real science. The complete scientific story of cryonics is seldom told in media reports, leaving cryonics widely misunderstood. We invite you to reach your own conclusions.

HOW DO I FIND OUT MORE?

The Alcor Life Extension Foundation is the world leader in cryonics research and technology. Alcor is a non-profit organization located in Scottsdale, Arizona, founded in 1972. Our website is one of the best sources of detailed introductory information about Alcor and cryopreservation (www.alcor.org). We also invite you to request our FREE information package on the "Free Information" section of our website. It includes:

A fully illustrated color brochure

- A sample of our magazine
- An application for membership and brochure explaining how to join
- And more! Your free package should arrive in 1-2 weeks. (The complete package will be sent free in the U.S., Canada, and the United Kingdom.)

Your free package should arrive in 1-2 weeks.

(The complete package will be sent free in the U.S., Canada, and the United Kingdom.)

HOW DO I ENROLL?

Signing up for a cryopreservation is easy!

Step 1: Fill out an application and submit it with your \$150 application fee.

Step 2: You will then be sent a set of contracts to review and sign.

Step 3: Fund your cryopreservation. While most people use life insurance to fund their cryopreservation, other forms of prepayment are also accepted. Alcor's Membership Coordinator can provide you with a list of insurance agents familiar with satisfying Alcor's current funding requirements.

Finally: After enrolling, you will wear emergency alert tags or carry a special card in your wallet. This is your confirmation that Alcor will respond immediately to an emergency call on your behalf.

Call toll-free today to start your application:

877-462-5267 ext. 132

info@alcor.org

www.alcor.org





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- Access to a toll-free phone line to speak with **knowledgeable health advisors**, including naturopathic doctors, nutritionists, and a cancer expert, about your individual health concerns. You can also receive help in developing your own personal life extension program.
- Discounts on prescription drugs, blood tests, and pharmaceutical quality supplements that will greatly

exceed your membership dues. You'll receive a directory listing the latest vitamins and supplements, backed by scientific research and available through a unique buyers club.

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