

CRYONICS

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Please address all editorial correspondence to ALCOR, 12327 Doherty Street, Riverside, CA 92503 or phone (800) 367-2228 or (714) 736-1703. FAX #: (714) 736-6917.

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EDITORIAL MATTERS

This month's Cryonics may be a little monotonous to those not inclined toward the issue of money in cryonics. The behemoth article which consumes a fair hunk of this issue, "The Cost Of Cryonics," while perhaps not riveting reading, is nonetheless important. Alcor is confronting a difficult transition time: the change over between an all volunteer suspension team to a hybrid one of volunteers and professionals.

The Editors of Cryonics and the management of Alcor urge each and every one of our Suspension Members and prospective Suspension Members to read this article. The issues discussed in it are of potentially profound importance to all of you.

Also, mathematician Dr. Mike Perry has generated an equation relating Patient Care funding, interest rates, storage costs, and other variables to estimate funding requirements. His article follows "The Cost Of Cryonics."

Errata

In the June issue of Cryonics we announced the availability of archival storage for documents and records. An error was made in that it was not mentioned that such storage is available only to fully signed up Alcor Suspension Members. We can only offer this service to suspension members for a variety of reasons, but chief amongst them is the inventory/control system used to archive the material.

Also, it should be pointed out that no material should be sent to Alcor until an Alcor inventory form has been requested and completed, and an authorization to send materials has been received from Alcor! Members wishing more information on the availability of archival document storage should contact Mike Darwin in writing.

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SUSPENSION MINIMUMS TO RISE

At the August 5th Alcor Board meeting a resolution was passed which will raise suspension minimums for Suspension Members joining Alcor after January 1, 1991. The new minimums are:

Neurosuspension: \$41,000
Whole Body Suspension: \$120,000

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Those persons who submit their \$300 sign-up fee postmarked to Alcor before January 1, 1991 will be "grandfathered in" at the old rates of \$35,000 for neurosuspension and \$100,000 for whole body suspension. Existing Suspension Members will not be required to increase their funding minimums (i.e., they will not have suspension coverage canceled if they do not increase their level of funding to meet the new minimums).

Please note that Suspension Funding Minimums are just that: minimums. We recommend that you provide as much funding as possible. The safety margin calculated for the minimum level of funding is a slim one, and does not really address costs such as those that may be associated with the need to relocate in an emergency, pay for revival, and so on.

It was necessary to raise the Minimums due to increases in costs in almost every area of the program over the nine years since the Minimums were last raised. Inflation alone has added 36% to the cost of living since 1982, when the Minimums were adjusted up from \$25,000 and \$60,000 for neurosuspension and whole body suspension, respectively.

Mike Darwin presents a fuller discussion of the reasons for the cost increases in his article "The Cost Of Cryonics," which appears beginning on page 15 of this issue.

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NON-MEMBER SUSPENSIONS SURCHARGED

Due to the extra expense, extra difficulties, and marked extra risks associated with last-minute, non-member suspensions, the Alcor Board of Directors voted at its July, 1990 meeting to apply a \$25,000 surcharge to all such nonmember suspensions. Thus, whole body suspension for nonmembers will check in at \$125,000, with neurosuspension at \$60,000 (\$145,000 and \$66,000 as of January 1, 1990).

Having done three non-member suspensions in less than a year, we are rapidly becoming acquainted with the tremendous extra workload associated with

them. Legally, financially, and otherwise we are tasked to perform in a few days what normally we would do over the course of many months. And the attendant risks present in such situations are such that we need to design cost protocols and legal mechanisms to protect ourselves.

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Such a surcharge is only fair to Suspension Members. Suspension Members have paid (often for decades) for emergency responsibility, and have helped to defray the costs of Alcor's readiness to respond. They have also provided the extensive legal and financial preparation required to minimize the legal and financial risk to Alcor and insure that their suspensions go smoothly. Not only have non-members done none of this, but also they present risks associated with such problems as informed consent, authority to act, and so on.

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ANN LANDERS STRIKES OUT

We won't even try to paraphrase this one, we'll just let you read it for yourself:

LIFE SPAN OF 170 YEARS MAY BE GREAT FOR RATS, BUT NOT PEOPLE

Dear Ann Landers:

If you have any clout with scientists, will you please tell them to lay off? Up till now they've been fairly sensible, but there's such a thing as going too far and I think they have done it.

I read about some double-dome experts who have discovered that when the calorie intake of rats is sharply reduced, they live a great deal longer. Translated into human terms, the scientists say, if people did this they might expand their life expectancy to 170 years.

Sound wonderful? Well, think it through and you will conclude that it would be a nightmare without end. For example:

For Christmas dinner, you would have to include not only your in-laws but a couple of sets of grandparents, great-grandparents, great-great-grandparents, and great-great-great-grandparents. Your dining room couldn't possibly accommodate that crowd, so you would have to rent a hall.

If you were 170 years old, you would have to buy gifts for your grandchildren, great-grandchildren, great-great-grandchildren, and great-great-great-grandchildren. This would be quite a financial burden, especially for a person who hasn't been employed for 100 years.

And where, please tell me, would these 120-, 130-, 140-, 150-, 160-, and 170-year-old people live? Today it's not easy to find a good nursing home for less than \$30,000 a year. And don't forget that you'd have to take care of not only your aged parents but their parents, their parents' parents and their parents' parents' parents. Sound frightening? Wait,

there's more.

How would you like to pay alimony for 100 years or more? If science doesn't stop coming up with "remarkable discoveries," it just might happen.

And what about Social Security? Forget it. There wouldn't be any. No system could accommodate the financial burden.

While the laboratory rats were in pretty good physical condition when they reached what in rat terms was 170 years, what about their mental faculties? How do you give a rat an IQ test? Most people become forgetful in their late 60's. What would life be like with millions of people loose for an added 100 years who can't read a road map or remember their own telephone number? And the post offices would be in for major bedlam. Can you imagine what the handwriting of these 170-year-olds would look like?

How would you like to see politicians running for a 15th term? With people, living beyond 150 years of age, you can be sure that those who are interested in elective office would hang around as long as they had a pulse.

I am a 60-year-old woman who had a face life 10 years ago and I still look pretty good. Ann, I don't want to think what I will look like if I should live another 100 years. I enjoy life, but enough is enough.

-- Realist in Virginia

Dear Va.:

I'm with you! Thanks for a wonderful letter.

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For a dazed moment we wondered what on earth made these women write this? Then, we realized! It was the recent spate of media coverage of the work of Roy Walford and his associates at UCLA on calorie restriction which accompanied the publication of Weindruch and Walford's most recent book Retardation of Aging and Disease by Dietary Restriction, (Charles C. Thomas; Springfield, Illinois; 1990).

It just so happens that one of the leading workers in calorie restriction is one Steve Harris, M.D., no stranger to the readers of Cryonics, who also just happens to work in Roy Walford's lab. A call to Steve was placed and he was urged to respond to Ms. Landers -- and he did so. We thought we'd wait a tasteful interval to see if his letter would get published. No surprise, it didn't! So, herewith, we reproduce the Landers column and suggest that you, our readers write her. And write her, and write her.

Ann Landers is NOT stupid. And she has done much to help medicine in the past. She single-handedly raised large amounts of money to put artificial kidney machines in hospitals everywhere, and she was one of the few courageous media voices who was around when the critics were saying that dialysis would never be practical. And, unlike her sister "Dear Abby" (Abigail Van Buren), she has taken a courageous stand for animal research. She is also not afraid to admit she is wrong, including 'fessing up to some unethical behavior a few years ago wherein she re-ran columns from many

years before and passed them off as "fresh" (her readers caught it and nailed her to the wall).

Millions of people read Ann Landers every day (including one of your editors, who wishes to remain anonymous). Write her. Do it in a positive way, and make it emotional. Dry facts don't, in case you haven't noticed, sell newspapers.

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Here is Steve's letter to Landers. You might note editorially that such letters are more effective if they do not come from a full blown rabidly immortalist viewpoint; we must learn to walk before we learn to run. c.f. Marc Stiegler's story "The Gentle Seduction."

July 5, 1990

Dear Ann Landers:

Recently you ran a letter from a woman who had read of aging experiments in which lab animals lived the human equivalent of 170 years. The reader was disturbed by the social implications of the research, and thought scientists should stop looking for aging treatments, lest we wind up with a world full of old, demented people who refused to die.

As one of the gerontologists (researchers in aging) who does the very experiments your reader complained of, I thought you might want to hear the other side.

Ann, believe me, nobody is interested in having people live an extra 100 years in a nursing home. Instead, we want to extend the middle years in which people are most healthy. Aging has its downside -- all of us have known people who no sooner got their kids raised and were beginning to enjoy life for themselves, than they found their future plans ruined because their bodies had suddenly begun to fall apart. Would it be a medical crime to keep this from happening for a while longer?

Lab animals on an anti-aging diet live much longer in good health before developing diseases at the very end of their lives. In human terms this would translate to a much longer time of being healthy and vigorous, with no increase in the number of years of chronic illness at the end. How can we object to that? Besides the personal benefits of an anti-aging treatment, the benefits to society as a whole would be great, because the

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most economically productive part of life would be lengthened. Those who chose treatment might have to work longer before retiring (a mixed blessing), but they'd also have a much longer, healthier retirement.

You have a proud history of vigorous support of medical research on killer diseases, Ann, but consider this: many of today's big killers (cancer, heart disease, stroke) are strongly related to, and no doubt partly caused by, the aging process (20 year-olds don't get Alzheimer's Disease!). Because of this, hoping to treat these diseases without some attention to the aging process itself would be like rearranging deck chairs on the Titanic -- or in other words, would be ignoring the main problem. For example, a cure for all cancer would increase life expectancy by only 5% in the U.S., because most cancer victims are oldsters who would be expected to die soon of other age-related diseases, even if cured. Slowing

aging in lab animals, however, not only increases life expectancy by up to 50 %, but it does it partly by preventing cancer. What if we could do that with people? A treatment for aging would be the world's best preventative medicine.

So have pity on us gerontologists. Eight times more money is spent on cancer research than aging research, and as a result aging research is going slowly. I don't want to detract from the fine job cancer researchers are doing, but I do hope that your readers may decide that what we gerontologists are doing is also worthwhile. Donations to aging research are gratefully accepted. Please give generously; the nursing home admission you delay may be your own.

Steven B. Harris, M.D.

(Ann -- for those interested, donations to animal aging research at our lab may be made out to The Regents of the University of California, and can be addressed to the Roy Walford, M.D. Laboratory, Dept. of Pathology, Center for the Health Sciences, University of California at Los Angeles, Los Angeles, California 90024. Dr. Walford's books, and his interviews on aging in papers such as the New York Times recently, are no doubt the source of the articles your reader mentions. Donations to aging research in general can be sent to the National Institute on Aging, c/o National Institutes of Health, 9000 Rockville Pike, Bethesda, MD 20892.)

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AWARD WINNING CRYONICS MAGAZINE?

"Factsheet Five" is a bimonthly review magazine for small offbeat and counterculture periodicals such as Cryonics. It is widely read, and widely respected, and its editor, Mike Gunderloy, is known for his honest, hard-hitting reviews. We've never seen anything quite like Factsheet Five before, but we sure found it interesting. We're telling you a little bit about it here because Cryonics got selected as a "Publisher's Choice," along with "Goat Gap Gazette" and "Story Comix," among others.

Don't laugh. Appearing in "Factsheet Five" has done more to boost our circulation than any other single "advert" we've ever had. And besides, it's hard to make Gunderloy's "Publisher's Choice" page, particularly when you consider we had over 700 competitors.

So I guess we deserve a little pat on the back. Even if it is the first award we've won in nine years of publication!

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ALCOR LIFE EXTENSION FOUNDATION

Press Release

ALCOR VS. THE HEALTH DEPARTMENT

Los Angeles, CA (Aug. 20, 1990) -- The longstanding legal battle between Alcor and the California Department of Health Services (Alcor v Mitchell, Case No. C 697 147) is expected to be resolved at a hearing in the courtroom of Judge Aurelio Muoz (Dept. 17) to be held at 9 AM on

Thursday, Aug. 22 at the Superior Court of the State of California, 11 North Hill Street in downtown Los Angeles.

Alcor's lawsuit against the Health Department was filed in 1988 in response to the fact that the Health Department had stopped issuing Death Certificates and Disposition Permits for patients placed into cryonic suspension, had started telling everyone who asked (including the media) that cryonic suspension is illegal, had asked the District Attorney of Riverside County to file criminal charges against Alcor, and arbitrarily declared cryonic suspension to be unscientific.

Today in August, 1990 -- after many twists and turns -- the Health Department has come to the conclusion that individuals have the right to be cryonically suspended (as ruled by the courts in three recent cases), but that Alcor (or any other cryonics organization) is not eligible to receive their bodies under the Uniform Anatomical Gift Act (UAGA).

This position is not only totally wrong, but represents an unconscionable attempt to deny U.S. citizens a constitutional right by seeking to destroy the only organizations willing to fulfill that right. The falseness of the Health Department's position can be seen by looking at the UAGA, which provides that a "gift" of all or part of a donor's body can be made to (among others) any "physician" or "storage facility" for "medical research" or for the "advancement of medical science." Since Alcor has licensed physicians on its staff and conducts medical research in a storage facility licensed as a research laboratory, there is no doubt that it is eligible under the UAGA to receive the bodies of its members.

Instead of accepting Alcor's eligibility under the UAGA, the Health Department has chosen to argue that the only way ALcor can qualify under the UAGA is as a licensed "procurement organization" that stores human bodies or body parts. What they have failed to inform the court, however, is that the only way for Alcor to obtain such a license would be from the Health Department itself, which not only does not issue licenses for this purpose, but claims it has no power to do so. This kind of deceitful "Catch 22" argument clearly has no place in a court of law.

The Health Department concludes by arguing that the storage of patients in cryonic suspension by Alcor is "an inappropriate public activity" because the legislature has not yet empowered Alcor to offer cryonic suspension. Such a position might be accepted in a totalitarian society, but it is outrageous in the U.S. where we are free to engage in activity not prohibited by law. It is especially egregious and absurd with regard to Alcor because the Health Department itself admits that Alcor's activities are entirely lawful.

We at Alcor hope that the media will cover this story in depth so that other government agencies will learn that the abuse of power displayed by the Health Department in its actions against Alcor simply cannot be tolerated.

POSTPONED UNTIL SEPTEMBER 27TH

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CRYONICS INSTITUTE PUBLISHES STORAGE UNIT
EFFICIENCY DATA -- SORT OF

"What we will have, then, is better storage, better than with any

commercially available units, the advantages being in reliability, and the feasibility of in-house repair if necessary."

-- Robert Ettinger, commenting on CI storage research in 1983.

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For over ten years the Cryonics Institute (CI) in Oak Park, MI has been pursuing a program of research to develop better storage containers for cryonic suspension patients. This is potentially very useful work, since efficiency of storage is likely to be one of the single biggest factors determining whether or not a patient will make it through to revival time, should such a time ever come. There are other important factors, to be sure, such as capital reserves, governmental stability, social tolerance, good luck, and so on. But efficiency of storage has to rank right up there near the top of the list. And more important, it's something we can affect ourselves, in a very direct and powerful way.

We have watched CI's program with interest, hoping that they would publish comprehensive numbers on the real costs involved (as we have repeatedly done with our systems), and also hoping that they would publish detailed technical disclosures of materials and methods. This has not happened. Consequently, this article cannot be what it should be: a detailed comparison and evaluation of the two patient storage systems currently in use.

Over the past several years, CI has published small amounts of information about the efficiency of their various storage units; we have attempted to gather this information and evaluate it. We consider this especially important because a large part of CI's marketing is its claim that they can perfuse, freeze, and store a patient for \$28,000. People ask us occasionally about the difference in prices between Alcor and CI, and we do our best to explain it.

Certainly a large part of the difference is the up-front costs. Alcor's charges for whole body perfusion and cooling to liquid nitrogen temperature (see "The Cost of Cryonics," elsewhere in this issue) are roughly the same as the \$28K that CI charges for perfusion, cooling, and indefinite long term storage. That's a good start in explaining the difference!

But leaving preparation of the patient aside, Alcor's required minimums for storage are still five times CI's. Why is this so, people ask us? Well, in large measure, that's the purpose of this article: to answer that question.

The classic reasons that CI has given as to why their storage charges are so low are as follows: better storage efficiency, lower capital costs for storage equipment, and volunteer labor. We want to examine each of these elements and see how they hold up.

First there is the issue of efficiency. In order to hold down costs and develop a highly efficient liquid nitrogen storage system, CI embarked on a program of in-house research and development, the stated goal of which was the production of storage vessels that would be more efficient than high vacuum, reflective barrier superinsulated units such as those that Alcor and Trans Time use to store patients in. Ettinger stated initially that he felt that foam-insulated units using a fiberglass shell would be at

least competitive with high vacuum units, while certainly cheaper to produce and maintain. CI constructed a pilot unit along these lines. The unit failed to meet expectations and the foam-alone approach was abandoned in favor of a soft vacuum approach using a more conventional perlite insulation.

The first unit they produced using this approach (placed into service in 1986) was a single-patient unit made from an outer shell of fiberglass that used commercial fiberglass "sump pipe" segments and an epoxy resin inner cylinder -- presumably fabricated from scratch -- perhaps using Crest Company's formulation 3170 cryogenic epoxy. This unit, christened the CI-HSSV-CP-1986 (for Cryonics Institute Hard Shell Soft Vacuum) performed very well, boiling off about 4.5 liters per day. Still, this was just at the performance edge of a commercial stainless steel high vacuum unit; our dual patient units boil off about 9 to 12 liters a day, very much in the ballpark of CI's 4.5 liters per patient per day.

The problem is, boiloff isn't the only measure of efficiency. Storage units cost MONEY. CI has never published detailed figures on fabrication or materials costs. The only figure we've ever seen in print was that the materials costs for the HSSV were in the \$4500 range. All of the labor was done in house at an unknown cost by Andy Zawacki, a relative of Bob Ettinger's daughter-in-law. It is important to note that before Andy Zawacki appeared on the scene, CI fabrication work was proceeding very slowly, with a number of reported setbacks, including the hiring of fabricators who were either incompetent or unreliable. This is mentioned to point up a very important fact that anyone who has ever had his car repaired will well understand: good help is hard to find. We are especially sensitive to this fact here at Alcor, since we are already stretched incredibly thin just doing the things that we can't possibly hire anyone else to do!

Because CI has never published comprehensive labor figures, it is difficult to compute these costs. Nevertheless, looking at the long time course over which CI has labored -- and the workmanship evident in pictures of the units they have produced -- it is apparent that there was a considerable learning curve, and that these units require significant amounts of time to build.

Another important factor in storage unit efficiency is durability. The good thing about stainless steel units is that, properly handled, they can last a very, very long time. With sane handling and protection from the elements, there seems to be no reason why the vacuum jacket of a stainless steel dewar cannot last for many decades, perhaps even for a century or more. The main cause of obsolescence with our storage units isn't age, but technological progress and economies of scale.

Something can be said about the durability of fiberglass units: at least in terms of vacuum integrity over the long haul the results haven't been good. There are probably several reasons for this, some of which will have relevance to CI's system and some of which may or may not.

One thing about fiberglass/epoxy resin is that it is not rugged. Ettinger set out to build units that, in his own words, "did not need to be mollycoddled." In this he appears to have failed. Reportedly, none of the CI units can be moved or loaded. All are made of burnable materials: a real drawback in the event of a fire. Another major problem is that all of the units apparently need episodic or continuous "hardening" of their

vacuum; this refers to the running of a vacuum pump to pull out accumulated gas from between the inner and outer cylinder.

This is a very undesirable thing to have to do not only because it exposes the unit to the risk of a complete vacuum failure in the event of a power failure (power-down

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shutoff valves sometimes don't work: take it from us, WE'VE BEEN THERE ALREADY), but also because it introduces complicated maintenance requirements, involving equipment, and the need for a supervising individual with a reasonable level of technical skill. This means greater storage costs.

Then there is the issue of space. Floorspace costs money. We have learned that the hard way. Failing to figure floorspace charges can be a real long-range disaster. The CI fiberglass, low vacuum units are bulky, particularly so when small numbers of patients are in storage.

We have tried to determine the volume of space consumed by the HSSV-2 (CI's dual patient unit) by using people and other objects in published photos of the unit for scale. Our ballpark estimate is that the HSSV-2 is approximately five feet in diameter and 10 to 12 feet long. Using high vacuum superinsulation technology, it would be possible to store 10 whole body patients in a dewar of comparable volume!

The most recent storage unit constructed by CI is the RSSSV (rectangular soft shell soft vacuum). The RSSSV uses a polystyrene foam board and wood framework to support a fiberglass shell. Holes in the foam board are filled with perlite or other powder-type insulation.

The HSSSV was designed to hold six patients when at capacity, and it can be expanded to hold more. When running at full capacity, the quoted LN2 cost per patient per year is \$1,064. Last we heard, CI was paying about 45 cents per liter of liquid nitrogen. At that rate, the SSV would boil off about 39 liters per patient per day as contrasted with the current boil-off performance of Alcor's Bigfoot, four patient dewar, of 3.2 liters per patient per day. This is a difference in efficiency of over 1200%!

Even without detailed analyses of the engineering costs and construction costs in terms of time and materials, these boil-off figures are prohibitive. Adding in the many drawbacks associated with in-house fabrication and testing such as learning curves, quality control, exposure to toxic materials, fabrication space requirements, etc., it's apparent that in-house units are still not even remotely competitive with custom commercial units. Further, we are at a loss to understand how such a program will result in cost-containment or cost reduction over a reasonable time course.

It would be interesting to see more details of the real costs in terms of labor and materials that CI is experiencing in the fabrication end of their storage operation. We invite them to publish such details, so that the cryonics community as a whole can evaluate their claims of more economical storage.

Finally, the issue of custodial labor needs to be addressed. This is a nontrivial problem. If patients are to be truly secure they need to be attended by human beings on a round-the-clock basis (at least until

automation gives us something a lot more flexible and capable of judgment than we have now). Cryonics is just too controversial and vulnerable to attack (particularly helpless suspension patients) for our facilities to be left unattended, even briefly.

But even not considering the round-the-clock custodial problem, the labor requirements involved in caring for 16 patients are substantial. Liquid nitrogen is not delivered by appointment, and with multiple units in service, there is the need for someone to be available to accept the delivery and pick-up of empty cylinders, whenever it comes, often several times a week. Patient dewars require daily logging, the alarm system requires regular checks, and the patient care bay requires cleaning and routine housekeeping. And of course, the dewars themselves need periodic topping off. The time

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involved in doing this is substantial. Even with volunteers carrying some of the load by helping with cleaning and "spotting" our caretaker when he needs to get away from the facility for a few hours, labor costs are not insignificant.

Dr. Mike Perry, Alcor's patient caretaker, is paid \$15.00 per hour and spends about eight hours per week taking care of patients. This works out to an annual expense of \$6,800 per year. It is critical that such costs be budgeted for when projecting long-term expenses for patient care. Reliance on volunteers where possible can help to contain costs and offset inflation, but it cannot be relied on as the mainstay of any operation. Failure to address these and the other costs detailed here could result in long-term disaster, and this cannot be pointed out too forcefully.

* * * * *

LATE FOR DINNER

by Hugh Hixon

I parked across the street from the building in Vernon, one of LA's little industrial municipalities, and walked in. Through a time warp.

Inside, Hollywood magic had created a cryonics facility from, say, the late 1950's, carried it forward to the present, and created a disaster.

The set was for "Late For Dinner," now in the editing stages and due to be released in 1991. No one at Alcor has seen the script (although Mike Darwin and Jerry Leaf did "technical consulting"* on it), but my rough understanding is that it is a comedy, with cryonics serving as a time travel vehicle to create the sense of discontinuity required to move the story along. The movie is the latest brainchild of highly successful Director Rob Reiner's Castle Rock Production Company. Other recent Reiner successes which you may recognize are "The Princess Bride," "Stand By Me" and Splash.

Off the set, the rest of a movie studio had been set up. Outside, the vans full of movie equipment, set dressing (drawers full of glasses from different eras, boxes of pills, the clutter of life from the last 50 years, all overseen by the Property Manager, a big affable packrat whose occupation put him in packrat heaven). Portable dressing rooms. Portable

rest rooms (out of order). Inside was a dining area, storage areas, sets, a first-aid station with medic, a workshop with both the conventional and the strange. (A big rotating drum, open on one side: fill it with water, rotate it, and a flood of water sweeps across the office, washing over the caretaker of this strange place, into a makeshift plastic drain leading to a plastic-lined holding tank where the flood would loiter before being pumped into the sewer.)

* According to Mike and Jerry, technical consulting for Hollywood films consists of the following: 1) A group of earnest, very sincere production people show up to talk with you and "get a feel for what a real cryonics facility is like." 2) They assure you vigorously and with real passion that technical accuracy is all they care about and all they crave. 3) You start to tell them what a real, believable technical angle to their story line would be. 4) They can't have the perfusate be honey-colored; the Art Director pipes up "Oh, it can't be yellow, not dramatic enough! Let's make it fluorescent orange like auto antifreeze. . . . 6) It goes downhill from there. 7) You make them promise NOT to list you in the credits for technical consultation. 8) They go away very happy feeling that "they've got it right." 9) You shake your head and walk away, a little wiser about how Hollywood works and how "film reality" comes into being.

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** PHOTO SPACE **
** CAPTION --

"Bo Brundin, Brian Wimmer, and Peter Berg, in "Late for Dinner."

**

I still have not come to terms with the art and technology that transformed a large bay of the building into a gritty, industrial-style patient storage area; all raised up so the place could be flooded with several feet of water. On any but the closest inspection, the crafting of the (wooden) steel beams, the (plaster) bricks overlaid with a hundred coats of paint and grime and grubby stenciled warning signs, the raised false floor that responded to my boots like the concrete it imitated, was impeccable.

Later, things got more (un)real as the crew came back from lunch. Under the direction of the cinematographer ("He's from Prague."), the aftermath of a cable reel falling from a truck and plunging off an elevated freeway, through a skylight, and into the storage area was enacted. (The skylight was real. The freeway was somewhere "imaginary.") The video monitor replayed the previous seconds of the disaster (filmed the previous day), with Hollywood pyrotechnics substituting for industrial 880 volt power broken loose to create an electrical hell, resulting in a Frankenstein-like shocking of the stored patients to life. Instructions were shouted to turn the flooding on and off, and the property man scooped up the stuffed rat from the water and artfully replaced it on the end of a tipped-over dewar.

I was there because Alcor and Cryovita Labs had rented equipment to the movie. Cryovita's Marquardt heart-lung machine, one of the first of its kind, and which had served us well in perfusing Alcor Suspension Patients until less than a year ago, was rigged with a full panoply of tubing, filled with Hollywood blood and fluorescent Kool-Aid, and returned

temporarily to the era of its birth. Other equipment from Cryovita, like the heater/cooler unit, and the electrocautery which also had seen action in real cryonic suspensions was also present: taking a last bow in a cryonics laboratory that never was, in a flash of film fakery.

Other anachronisms: vertical patient dewars, with rusty, pop-riveted sides, standing

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or tipped off their bases. We had rented the old Cryocare dewar, that had once held James Bedford, but there was no sign of it -- perhaps we had cleaned it up too well. And then there was Alcor's phoenix logo; someone had cut a crude but recognizable stencil copy of it, and the Alcor phoenix decorated these strange, antediluvian capsules.

I talked with someone about costs (It turned out he was the producer, and recognized me from a visit to Alcor.) The movie has a \$14,000,000 budget. The set that fooled me cost about \$150,000. This means that at least 30 million people will have to see it for it to make a profit. This evoked a number of emotions in me: A sigh for that much money spent on entertainment and a continuing resolve not to tell people how to spend their money. And besides, while I would never spend \$14,000,00 for entertainment, I might well plunk down \$5. And after all, that's what capitalism is all about, isn't it.

I wonder if that's what the future will be like. You wander from place to place, always expecting to turn a corner and find the back side of the set, back in 1990. I can deal with it.

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MEMBERSHIP STATUS

Alcor has 175 Suspension Members, 418 Associate Members, and 16 members in suspension.

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LETTERS TO THE EDITORS

Dear Editors:

In perusing the June issue of Cryonics I noticed, in Carlos Mondragon's piece on the need for an Emergency Responsibility Dues increase, that the ER dues are subject to a 50% student discount.

What a welcome piece of news this was! Unfortunately, being unaware of this beneficent Alcor policy, I have failed to take advantage of it. I wish to remedy this.

I would like to officially request that I be granted student status and that my future Emergency Responsibility Dues reflect this status. Included with this letter is a copy of my Fall, 1990 tuition bill which I offer as evidence of my matriculation.

By the way, thanks for sending out advanced notice of Alcor's
appearance on the

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Donahue Show. I hadn't previously seen Alcor "in action." It was
interesting.

Best Regards,
Michael Barbisch
Austin, TX

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Dear Friends:

I am writing specifically to thank you for the cover illustration on
the May Cryonics magazine. That cover is elegant in its simplicity and
directness. Those of us who have only some informal knowledge of organic
chemistry, molecular biology, or physics can benefit greatly from scale
drawings.

It might be useful to see some similar illustrations in a future
article or two.

Again, thank you.

Very truly yours,
Ed Sutherland, Jr.
Uniondale, NY

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Dear Mike:

I enjoyed your article in the July issue of Cryonics a great deal. An
emphasis on cryonics as conservative medicine, and criticism of the
contemporary "quasi-definition" of death, both are excellent ideas. (I say
"quasi-definition" because, as you yourself know, with DNR [Do Not
Resuscitate] orders and their kin becoming accepted practice in hospitals,
even the notion of "cessation of heartbeat and brain activity" has become
an unreal charade.)

I was not in the United States at the time and can't speak to your own
experience directly. However as I remember my own advocacy of cryonics in
Australia, years ago, my major problem was simply that I was never allowed
to speak for myself as a cryonicist. Always a reporter (with much less
understanding of biology than I had then, even at the beginning of my
interest in the area) would come around and interpret our viewpoints to the
outside world. I never really got to speak to the public directly, except
for a few small groups.

That situation of course creates great confusion about cryonics. And
no matter what I said to the reporter, I would always end up advocating the
freezing of the "dead" when my message came out of the reporter's other
end. So I am not confident that you or I, or any advocate of cryonics,
could really have done better at that time.

I also think that cryonicists must learn patience (though it is a

terribly hard lesson). Conservative or not, we are advocating an idea which is very new compared to most of the movements and ideas circulating around us. If someone feels a need for a group in support of women's rights to abortion, such a group will form almost instantly. That's not so with cryonics at all. The reason is that the ground has been very long prepared and ready for advocates of women's rights -- this other cause (What did you say? Freezing the dead? For what purpose?) just hasn't had enough slots prepared in most people's minds. No one has taught them, nor do they have any models, of how to respond,

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either positively OR negatively.

Of course the same remains true if we compare cryonics to any other public or private "cause" (many of which, incidentally, still get tarred as "radical"). All these other "radical" causes have been around since 1850 or even 1750. They've all grown gray with age. That is exactly why people understand them.

That was one message I tried to send with my article in the June issue about exponential growth of cryonics. If you start small, then you must expect to remain very small for some time. Do you want to raise the exponent and grow even faster? You remember yourself how you tried to get the message out 10 (or even 20) years ago, and tried for cryonics to grow faster. Every attempt to do that is part of the exponential growth, not separate from it at all.

But of course, we are riding an up escalator. Now the July issue tells us there are 171 Suspension Members. Onward to 4000!

Thomas Donaldson
Sunnyvale, CA

* * *

Cryonics:

American poet Joyce A. Kilmer's most famous poem "Trees" (1914) begins "I think that I shall never see a poem lovely as a tree," and ends "But only God can make a tree." Mike Darwin ("But only God can make an enzyme," (Cryonics, 11(7), 18 (July, 1990)) attributes the line to Ogden Nash. Doubtless Mike was subconsciously influenced by Nash's two-line take-off on Kilmer, which goes:

I think that I shall never see a billboard lovely as a tree.
Indeed, unless the billboards fall, I'll never see a tree at all.

Knowing How You Strive for Accuracy Down There At Alcor,
Steve Harris
Los Angeles, CA

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THE COST OF CRYONICS

by Mike Darwin

NOTE: These views are my own, and do not necessarily reflect those of other Alcor Officers or Directors. Special thanks to Dave Pizer, Mike Perry, and Hugh Hixon, for assistance in gathering numerical data for inclusion in this article, and to Carlos Mondragon, for patiently explaining the concept of "the cost of money" -- several times. -- MD

Introduction

Two of the most frequently asked questions about cryonics are "What does it cost?" and, "Why does it cost so much?" In 1982, Steve Bridge and I tried to address those issues in a two-part article entitled "The High Cost of Cryonics" (Cryonics (Jan-Feb, 1982)). I do not intend to cover ground already covered in the previous articles. Many of the issues discussed eight years ago are still issues today, although in some instances answers now appear to be closer. Certainly much has changed in eight years, and it seems fair to say that we are now much closer to understanding the basic costs of offering cryonics services, at least from the technical standpoint. The more complex issue of assessing the costs associated with staying in business from a legal and social standpoint are also somewhat clearer, but by no means as well understood as the more mundane costs associated with physically preparing a patient for suspension and caring for him thereafter.

This article will not be comprehensive and will not tackle all the issues that we dealt with in the 1982 article. I simply intend to lay out a rational, carefully documented basis for where Alcor's minimum funding levels should be set for whole body suspension and for neurosuspension. I will also offer some discussion of the issues raised by these numbers, and some suggestions as to what the new minimums for suspension funding might be.

Clearly, the most basic determinant of what to charge for cryonic suspension is the marginal cost of doing one. In other words, what are the costs incurred by Alcor in carrying out a suspension? How much do things like transportation, perfusion supplies and services, cryogenic dewars, etc., actually cost Alcor? I'll examine all of these issues closely, as well as the complex and difficult tradeoffs that go into determining minimum costs.

It is a peculiarity of cryonics that the person purchasing the service has never before been able to see the itemized bill. I think it is very important that both Suspension Members and prospective members see the bill, that they understand exactly what they are getting and why we charge what we do. Such disclosure not only builds confidence in and loyalty to Alcor in members and prospective members, but also it engenders helpful feedback from a broad cross-section of people, feedback that may prove very valuable in terms of helping us contain our costs and/or structure our program in ways most suited to our members needs.

Some Background

When Steve Bridge and I wrote "The High Cost of Cryonics" in 1981, the recommended minimum for cryonic suspension with Alcor was \$60,000 for whole body and \$25,000 for neurosuspension. The rates were raised to \$100,000 for whole body and \$35,000 for neurosuspension in 1982, where they have remained ever since.

At that time, we budgeted about \$20,000 for preparation of the patient, \$80,000 for

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long-term whole-body care, and \$15,000 for long-term neuro care. In practice we often did considerably better than this, since we charged no or very little labor to each case and basically billed supplies at cost, with virtually no mark-up to cover administration, stocking, spoilage, and other associated costs of doing business. Thus, the typical charge for performing a neurosuspension (i.e., up-front costs, including perfusion and cooling to liquid nitrogen temperature) was in the \$6,000 to \$7,000 range, while for whole body patients it was in the \$10,000 to \$12,000 range; well within budget.

This rate of charge was both acceptable and desirable, given our size and needs. The Patient Care Fund was small, there were several unfunded patients for whom we had accepted responsibility, and we had a ready pool of volunteers to draw on. Since we were doing only one case every year or two, we were able to accumulate disposable supplies at a fraction of their new purchase cost. We kept our eye out for "remaindered" purchases, and frequently took advantage of "expiration sales," where medical products would be deeply discounted because they were about to expire and thus could not be sold to the mainstream medical community.

We were also able to purchase used equipment at a tiny fraction of the new purchase price. To some extent we are still able to do this, but we have been forced to become far more careful about the situations where we can safely deploy some of this equipment, due to reliability problems.

Over the past several years, Alcor's suspension case load has begun to rise sharply. We are now doing an average of four cases a year, and recently we did three cases in a period of a little more than a month. In addition to completed suspensions, we are dealing with far more "last minute" cases -- terminally ill people -- than we have at any time in the past. Not all of these people make it through to suspension, but they nevertheless greatly increase the workload.

Rising Expectations

Another major change since 1982 is that people expect more of us. Our members expect more and the families of non-members who we place into suspension also expect more. We know from contacts with our members and our experience with recent suspensions that a much higher level of service is expected now than was a decade ago. Our members know from reading suspension case histories in the magazine that beginning the suspension procedure within two to six minutes of the pronouncement of legal death is not just desirable, it is also now possible. There is thus a growing expectation that this level of service will be available to every member.

From the suspension team's standpoint, there can be no doubt that offering a high level of service and starting suspension promptly yields superior results. Tissue enzyme levels, organ viability, and the general response of the patient to cryoprotective perfusion are all tightly lock-stepped with the quality of post-legal-death support the patient received. Thus, there is great incentive to do the best job possible and to minimize injury every step of the way.

There is no comparison between the patient who rolls in the door clotted, having been simply packed in ice after cardiac arrest and air shipped hours later, and the patient who was promptly resuscitated, medicated, and treated with Viaspan blood washout in the field. The former patient perfuses (circulate) poorly, has large unperfused areas, experiences massive edema (swelling), and demonstrates evidence of serious injury on every level during perfusion. By contrast, the patient treated promptly with the best transport protocol we can offer has no clotting, perfuses well, reaches the desired level of

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cryoprotection, and has viable organs (by current criteria!) when suspension begins.

The Situation Today

It has taken us many years and much effort to develop such a transport system. It has cost an enormous amount in both time and money in research, equipment, and training. Added improvements during cryoprotective perfusion have also raised the cost, although not nearly as much as providing in-field transport of the patient in a way that minimizes ischemic injury.

Also, the days of an all-volunteer staff are long gone. People cannot be asked to take off work without pay three or four or more times a year, often for several days at a

** TYPIST'S NOTE: THIS SPACE CONTAINED
A LETTER TO MIKE PERRY AT ALCOR FROM AIRCO,
IN REGARD TO LIQUID NITROGEN PRICES. **

stretch. For over five years Alcor has had a full-time administrative staff, and we are now approaching the point where we will be in need of a full time suspension staff. Indeed, a big part of the reason this magazine is late in reaching you is that the administrative staff was diverted to doing three suspensions and handling the large volume of fallout work associated with them, instead of putting out Cryonics.

This shift, from unpaid suspension team volunteers to a core of full-time paid staff with a volunteer component, will be a difficult one. It will also be costly and it will not happen all at

once. The transition period will have to be bridged with careful planning and heavy reliance on a core of initially underpaid staff and unpaid volunteers. It is my belief that volunteers will, for a long time to come, be a significant part of our oper-

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ation and an important factor in containing costs (look at both profit and nonprofit hospitals for a similar model; both rely to a significant extent on volunteer labor to contain costs).

Another factor is inflation. The cost of living -- as measured by the Consumer Price Index (CPI) -- has risen 36% since December of 1982. The medical costs fraction of the CPI has risen even more -- a whopping 59% -- since 1982 (Source: Consumer Price Index Detailed Report, April 1990, U.S. Department of Labor, Bureau of Labor Statistics). These factors also (and inherently) touch the cost of cryonics. A direct result of this is the letter copied on the previous page, announcing a substantial increase in the cost of LN2. [This price increase was received after this article was written, and it and its effects are omitted in this article. -- Eds.]

Also, we are "growing up." While we are far from Humana Hospitals, we are now continually, vigorously, and often confrontationally in both the public and the governmental eye. We are being held to a higher standard than ever before. Because what we do involves many of the same risks to the community that medicine does, we must have a medical director and be regulated to protect the public health from infectious disease. Because we are dealing with a broader cross-section of people, both members and non-members, we must be more reliable and more careful. Gone are the days when we knew each and every Suspension Member intimately. We are now faced with a (comparatively) rapidly growing population of members who are more heterogeneous and who expect more of us: more professionalism, more technical sophistication, etc. We are, in short, becoming more like any other medium- to large-size organization, and thus somewhat less like a family. This, inevitably, is one of the prices to be paid for growth and success.

Ultimately, growth will help us to contain our costs. In some areas it already has. Storage costs for whole body patients have declined by nearly 50 percent, and the same will likely happen soon for neuropatients, solely as a result of the economies of scale associated with growth. However, it is important to note that it will be a while, perhaps a decade or longer at current rates of growth, before we start to experience economies of scale in the transport and perfusion parts of the procedure.

A Few Words About The Numbers

Accompanying this article are the current Alcor charges for both whole body suspension and neurosuspension. Just about every item that we have been able to identify that goes into placing a patient in suspension has

been listed -- and priced.

There are a number of caveats about this billing. First of all, to my knowledge it is a "first." We have never seen anything like this from any other cryonics organization. It represents a real -- albeit very preliminary -- attempt to comprehensively call out the costs. This was not an easy task. We knew that we were losing money from the Operating Fund on suspensions because we were not "charging" the Suspension Fund enough, but we did not know the details of why. Until we identified what our expenditures were, we had no way of accurately billing the patient for the charges.

So, the first caveat is that this billing is preliminary. You can expect that we've missed some important elements. Also, be advised that we may have made some unrealistic assumptions.

One of those assumptions is the very low rate of "mark-up" on equipment use and supplies: 20 percent. We have kept this markup so low (40 percent is the usual) because we are still in the process of determining what our real costs are in these areas. We

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simply don't have enough experience to know what our administrative overhead, re-stocking charges, spoilage, etc., are adding to the basic cost of the supplies we use. We also do not yet have an accurate feel for future costs of professional servicing of equipment and sophisticated instrumentation (although we are quickly getting such an idea, and it is not encouraging!). That we need such servicing is now an accepted fact here; we have one or more consultants/repairmen in the building dealing with one or more equipment problems at least twice a month.

The second caveat is that the labor figures quoted in the billing are unrealistically (some would say ridiculously) low. The rate at which most labor is billed is \$15.00 per hour. Exceptions to this are the \$2,000 fee to our physician, who comes from San Diego, two hours away, day or night, and stays, usually for 24 hours straight (a real bargain at \$2K), and our perfusionist/surgeon, who averages \$20.00 per hour for his services.

These labor charges are not realistic, and would probably be at least twice this if we were paying anything approaching "market rate." Consider that a licensed Registered Nurse obtained through a Nursing Registry will cost about \$40.00 an hour. A skilled surgical nurse would likely cost more. We intend to get our Transport Training course back on track and get more volunteers trained so that we can hold down our labor costs. Additionally, the growth in membership has resulted in the appearance of more skilled volunteers willing to give of their time, and this may further hold down costs. But there are no guarantees, and it may well be that rising labor costs will be a major factor in increasing suspension costs over the next few years.

Determining Safety Reserves For Long-Term Care

When we first set the suspension rate minimums, we reasoned as follows: start with the capital required to generate sufficient interest to provide the marginal cost of caring for the patient, multiply that number by four to cover unforeseen and unknown costs (such as the cost of reanimation), and then add that amount to the anticipated suspension

preparation costs (transport, perfusion, cooling, etc.).

Selecting a factor of four by which to multiply the marginal capital amount was somewhat arbitrary. Clearly some additional money held in trust is needed to provide for contingent costs such as moving the patients, moving Patient Care Fund (PCF) money overseas in the event of inflation, and covering the costs of revival. In 1985, the Alcor Board of Directors considered the matter of reserves and adopted a less demanding requirement than the 4x previously used. To generate the necessary funding through impending interest on capital, we implemented a Patient Care Fund Policy that set the minimally acceptable working capital base at 50 times the annual projected patient care expenses (or, 2x the amount of principal required to generate the marginal costs of patient storage). This is because the historical cost of money -- deducting for inflation -- is 2 to 3 percent (any interest that we get beyond that just covers risk factors). As a safety factor, the long term care fund which we require as a minimum should be double (100x our yearly storage costs).

The doubling allows for uncertain and contingent costs such as the need to relocate, legal problems, etc. Consider that after 100 years of interest on a whole body patient's reserve of \$83,464, the fund would only be \$338,017 (in constant dollars). Setting the minimums to allow for interest to accumulate at equal to the marginal cost of yearly storage seemed the least that should be done to provide for unknown contingencies.

There is also the 10 percent rule, wherein 10 percent of all incoming revenue is diverted to the PCF. This was put in place to help defray the cost of revival and to

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guard against untoward possibilities during the long-time storage period we are likely to confront.

Key Questions

So where does all of this leave us? What does each element of the program cost and what are the tradeoffs? Should Alcor restructure its fee schedule to include at least a bare bones budget for Remote Standby, since most members seem not just to want but to expect this service? How do we soften or eliminate the impact of cost increases on existing members who may not be able to purchase added insurance or otherwise generate the capital? These are questions I'll try to deal with. None of the questions, not even the "simple" ones that deal with determining realistic marginal costs, are easy to answer.

The Problem of Standby

The bare bones cost of suspension, which includes eight hours of local standby (even though Alcor is not obligated to provide any standby), perfusion, and cooling to liquid nitrogen temperature, checks in at \$27,469.67 for whole body patients and \$18,928.76 for neuropatients. The operational words here are bare bones. Historically, this is the way that we have figured suspension minimums. If you look at your suspension contract ("Cryonic Suspension Agreement"), you will note that the base figures quoted in it DO NOT include remote or local standby of any kind. Standby is extra.

The problem is, none of us understood just how much extra until Alcor started doing standbys. Alcor has done four standbys recently: three remote and one local. The average cost of a Remote Standby was about \$10,000, and the average cost of a local one about \$2,000. Obviously, looking at the basic rate of charge for Transport and Cryoprotective Perfusion, we do not have any surplus to address these kinds of costs within the framework of our current suspension funding minimums. Indeed, as it stands now, our suspension minimums are too low to cover even the basic costs of perfusion, freezing, and storage. Thus, every time we carry out a suspension, the Operating Fund in effect makes up the shortfall. If members want this standby as part of the package, they are going to have to pay for it. This may not be easy or even possible in some circumstances.

A brand new cost to Suspension Members is the cost of round-the-clock nursing care in a home or hospice setting. It is becoming increasingly difficult to die in a hospital in these days of medical cost containment. And in most cases it is by no means easy to get hospitals to cooperate -- or even refrain from interfering with -- cryonics personnel. Thus, an increasing number of people are dying in a "home hospice" setting, attended by relatives and one or more hospice nurses who visit the patient regularly and are on-call to come and pronounce legal death once it occurs. Unfortunately, such hospice nurses will usually not be available to sit with the patient round-the-clock and then pronounce legal death so that suspension can start right away. This means that registry nursing staff have to be brought in to provide such standby, often at tremendous cost.

It is also very important to point out that the charges given in this billing for such terminal nursing care and standby, both remote and local, are actually "middle of the road," and may in fact be low. Consider the case of Arlene Fried, an Alcor member placed into suspension in June of this year. A team of three people was dispatched to standby, due to what appeared to be her imminent legal death. But Arlene did not deanimate as expected; rather, she hung on for ten more days. Six days before her legal death, she began developing cardiac irregularities and a decreased level of consciousness that was

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felt by those attending to put her at an increased risk of sudden death.

An attempt was made to get round-the-clock nursing staff at a cost of \$37.50 per hour (market rate), so that someone duly authorized by the State of California would be available to pronounce legal death, allowing the suspension to start without the 20 to 40 minute delay that would have occurred while the on-call hospice nurse drove over to pronounce legal death. Fortunately for Arlene and her daughter and son-in-law, Fred and Linda Chamberlain, nursing personnel were not obtainable for three more days, or the bill for her round-the-clock nursing care would have been \$6,000 instead of \$3,000!

Some people will be able to avoid the high cost of round-the-clock RNs by being fortunate enough (or unfortunate enough, depending upon your point of view) to experience legal death in a hospital or nursing home. This still leaves the problem of basic Remote Standby charges, which are in the vicinity of \$360 per day for a team of three people, plus other possible charges for food, lodging, and local transportation of up to \$150 per day, and a possible air transport bill for the team and equipment of up to \$2800. Remote Standby can get very expensive very quickly.

A number of solutions to the problem of Remote Standby have been put forth. Providing extra funding in the form of life insurance is a good place to start, since if Alcor: a) knows the money is there to pay for it, and; b) is confident that you are imminently terminal, then we are far more likely to respond by deploying a team and standing by.

The problem of remote standby is a lot stickier in cases where we are not sure that you are going to experience cardiac arrest soon. People -- even so-called terminally ill or dying people -- often surprise everyone and live longer than expected. In Alcor's own experience this has happened every time we have done standby. Sometimes people who are terminal and who are not expected to make it through an episode of acute illness rally and go on to live for a few more weeks or even months. A mistake in judgment about when to come in such a situation (either too soon or too late) would be a disaster.

Alternately, we could offer a Remote Standby Option (as opposed to Remote Standby Insurance) as part of our dues package. Members wishing to purchase this option would pay increased dues and would be guaranteed a specified level of Remote Standby providing that certain objective medical criteria were met. They would also be required to cover part of the cost of Standby (perhaps 20%) out of pocket either via their suspension fund (if they were suspended) or via their personal funds, if they recovered, and there would be a waiting period of 1 to 2 years from the time of application until the time coverage was issued. These latter two requirements would prevent abuse of the system by people who would wait until they were terminally ill to purchase standby coverage or who would call out standbys every time they were having a wart removed.

Unfortunately, defining objective medical criteria to predict when someone is likely to deanimate is not easy. This is why physicians are so notoriously cagey about predicting when someone is going to die. Nevertheless, we -- myself and others in Alcor -- are giving some thought to this, with the goal in mind of coming up with a fairly comprehensive set of guidelines which would allow such a program to be implemented.

Discussion

As for neurosuspension patients, our minimums are currently set at \$1016 more than would be required both to pay up-front costs and to generate two times the annual expenses for storage in interest. Thus, it might seem reasonable to leave the required level of

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funding at \$35,000 for neurosuspension.

In the case of whole-body patients the situation is considerably worse, with the difference between the desired levels of funding for both up-front and long-term care being \$11,000. Thus, whole body minimum funding levels would have to be increased to \$111,000 to satisfy current PCF requirements.

I should also note that in 1982, when the current minimums were set, a generous allowance was made for anticipated increases in the cost of perfusion and cooling to liquid nitrogen temperature. Such increases were anticipated to be in the areas of labor, inflation, and technological upgrades. Providing such a "safety factor" has proved very wise, allowing

us to do as well as we have. The new suspension funding minimums proposed above do not reflect such an allowance for future increases in the cost of perfusion and cooling. It seems likely that labor costs will continue to increase disproportionately and that inflation also will continue to be a significant cause of cost increase. Thus, it would be prudent to consider providing for future cost increases when examining a potential increase in suspension funding minimums.

This safety factor was also put in place because it is an administrative catastrophe to have members adjust their insurance upwards every time costs rise. It is also not easy on the member to purchase more insurance in 1K or even 2K or 3K increments. Since the storage safety reserves are so modest and the costs of revival and other contingent expenses almost unknown, such a reserve for anticipated expenses seemed reasonable. I would recommend that if suspension minimums are adjusted now, a similar "fudge factor" to cover anticipated cost increases should be factored in. In 1982, the fudge factor for preparation charges was set by adding 1/3rd of the current marginal preparation costs to the total up-front charge. Thus, if the same is done for our current up-front marginal charge, we would need to raise the suspension minimums to \$120,000 for whole body and \$40,000 for neurosuspension.

Paying For Standby

Failing to consider the issue of standby, both local and remote, may be a very serious error. We may be doing a real disservice to ourselves by not increasing our minimums to accommodate what we know are likely to be realistic charges for this service. This is a difficult decision to make, since each time we raise the minimums we know that some people, particularly the elderly and the already terminally ill, will be excluded.

The addition of standby charges with a reasonable margin for "error" would result in a figure of \$15,000 being added to the base cost for both whole-body suspension and neurosuspension. This would yield adjusted minimums of \$55,000 for neurosuspension and \$155,000 for whole body suspension.

These are substantial increases in the minimums. Worse still, about 40 percent of our members are unlikely to need remote standby, since they live in the greater Los Angeles area, although they are likely to need at least some local standby time.

In my opinion, the best solution to this problem would be to offer "Standby Insurance," wherein those who want and need the service can purchase it or not as they choose. Additionally, the risks of needing the service could be assessed on a case-by-case basis, with rates adjusted accordingly, thus eliminating adverse selection and allowing the service to be offered without a "weeding out" time delay. Offering insurance is not an easy thing to do. Insurance is a moderately regulated industry and there are many regulatory requirements which we would have to meet. I believe it of critical

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importance that as soon as possible we evaluate these regulatory requirements and determine if we can meet them, or structure a standby program which would not use an insurance-based mechanism.

Clearly, as a minimum we need to begin returning to the operating fund the real costs of doing cryonic suspensions, including reasonable labor charges. We also need to pay careful attention to cost containment and to be very thoughtful about the cost/benefit ratio of costly new technology.

Grandfathering and the 10% Rule

Another major area that needs to be addressed is the issue of "grandfathering-in" existing members at the current rate structure. As the numbers show, this could rapidly become a costly proposition, particularly if costs rise not only due to technological improvements, but also to increases in the CPI, which also affect our operations. Keep in mind that the new funding minimums tendered in this article do not in any way take into account the costs of providing suspension at a loss to long-time members.

There has been some discussion lately of modifying or abandoning altogether Alcor's policy of diverting 10% of incoming revenue to the Patient Care Fund. The desire to do this seems to be motivated by a (healthy) growing awareness of the shortfall in operating capital Alcor will confront when income from the Jones estate drops off sharply over the course of the next few years.

I believe that we should give careful consideration to the contingent costs of grandfathering before we abandon the 10% rule, in view of these numbers and the likely consequence to existing members (some of whom may well be those of us signed up now) some years downstream. It is vitally important that we try to establish how much we expect charges to rise in the coming years, based on past experience. Having a set of upper and lower boundaries to guide us will help us to plan intelligently how large a sinking fund we need to cover the liability of grandfathered members. Until this is done, I strongly urge the Board to defer any modification or elimination of the 10% Rule. The cost of grandfathering in existing members may be very high, and unless we plan to drop suspension coverage for long-time members who find themselves excluded by rising costs, the problem will only get worse. A prudent savings plan into the PCF -- such as the 10% Rule -- may well be the difference between life and death for such members.

A word also needs to be said about what has been left out of this analysis: the issue of training, particularly for Coordinators. This is a costly proposition that we need to address either by shifting more of this cost to local groups or by implementing a Remote Standby Program featuring increased dues, some of which can be diverted to pay for training, equipment in the field, and the general high level of readiness and redundancy in emergency response that we currently maintain.

Summary

There are no easy answers. The Alcor Board will not make these decisions lightly. Input from members would be much appreciated.

Finally, I need to emphasize the need for patience and understanding on everyone's part. These are rough transition times for us. The more help that we get from you, our members, in terms of volunteer hours and volunteer dollars, the more we'll be able to hold down costs, and the more we'll be able to offer.

WHOLE BODY SUSPENSION AND
NEUROSUSPENSION CHARGES (REMOTE)

TRANSPORT:

Transport Equipment and Supplies

Quantity	Item	Extended Cost:	
		Whole Body	Neuro
1 ea	Sodium Pentobarbital, 2.5 gm	22.00	22.00
4 ea	Desferal, 500 mg	30.89	30.89
1 ea	Solu-medrol, 1 gm	120.88	120.88
2 ea	Nimodipine, 5 mg	40.00	40.00
3 ea	Potassium Chloride, 60 mEq	5.00	5.00
7 ea	Sodium Citrate, 1.2 gm	70.00	70.00
1 ea	Trolox, 6 gm	85.00	85.00
9 ea	Ascorbic Acid, 1 gm	27.00	27.00
1 ea	Chloropromazine, 200 mg	30.34	30.34
1 ea	Dextran 40, 500 cc	48.18	48.18
1 ea	Hespan, 500 cc	68.00	68.00
1 ea	Heparin, 40,000 IU	8.69	8.69
1 ea	Mannitol, 20%, 500 cc	56.95	56.95
1 ea	THAM, 0.3 Molar	87.50	87.50
4 ea	Gentamicin Sulfate, 20 mg	12.00	12.00
1 ea	Bactrim, 10 cc	11.00	11.00
1 ea	Maalox, 60 cc	3.00	3.00
20 ea	Swabs, Alcohol	2.00	2.00
5 ea	Saline, 0.9%, 30 cc	5.00	5.00
1 ea	Medication Addition Sticker	.25	.25
10 ea	Needles, Hypodermic, 18 gauge	1.20	1.20
15 ea	Needles, Hypodermic, 20 gauge	1.80	1.80
2 ea	Syringes, Hypodermic, 60 cc	1.20	1.20
7 ea	Syringes, Hypodermic, 35 cc	2.10	2.10
6 ea	Syringes, Hypodermic, 20 cc	.96	.96
12 ea	Syringes, Hypodermic, 12 cc	1.44	1.44
6 ea	Syringes, Hypodermic, 3 cc	.24	.24
1 ea	Syringe/Needle, Insulin	.10	.10
1 ea	Syringe, Irrigating, 60 cc	1.00	1.00
1 ea	I.V. Administration Set, Vented	5.00	5.00
3 ea	I.V. Administration Set, Unvented	3.00	3.00
1 ea	I.V. Administration Set, Microdrip, Vented	7.00	7.00
1 ea	Tube, Gastric	.75	.75
1 ea	Angiocath, 16 gauge, 2"	2.65	2.65
1 ea	Angiocath, 18 gauge, 2"	2.65	2.65
1 ea	Sampling Site Coupler	1.25	1.25
8 ea	Betadine Preps, 1" x 1"	.24	.24
1 ea	Band-aids	.05	.05
12 ea	Vacutainers, Tiger Stopper	1.20	1.20
1 ea	Vacutainer, Purple Stopper	.10	.10
3 ea	Needle, Vacutainer, Multidraw	.75	.75
6 ea	EKG Electrodes	3.00	3.00
1 ea	Surgilube, 5 cc	.35	.35
1 ea	Esophageal Gastric Tube Airway Use Charge	12.50	12.50
1 ea	Suction Catheter, Yankauer	4.25	4.25

1 ea	Tape (Durapore, J&J Plastic, etc.)	3.50	3.50
1 ea	Suction Set-Up (connecting tube, catheter with basin, etc)	10.00	10.00
1 ea	Heart-Lung Resuscitator (HLR), High Impulse, Use Charge	50.00	50.00
1 ea	Respirator Hose, HLR, Disposable	5.00	5.00
1 ea	End Tidal C02 Detector	19.00	19.00
2 ea	Oxygen, 20 cubic ft. (E-cylinders)	30.00	30.00
2 ea	Oxygen, 240 cubic ft. (H-cylinders)	30.00	30.00
1 ea	Portable Ice Bath Use Charge	35.00	35.00
1 ea	Battery Use Charge	25.00	25.00
2 ea	Bags, Zip-Loc, 1 gallon, 15 ea.	5.00	5.00
1 ea	Air Shipment Container, Patient, Use Charge	65.00	65.00
1 ea	Body Bag, Use Charge	3.00	3.00
1 ea	Ice, 500 pounds	62.00	62.00
1 ea	General (unitemized) Equipment Use Charge	200.00	200.00
Subtotal:		1,330.96	1,330.96
+20%:		266.19	266.19
TOTAL:		\$1,597.15	\$1,597.15

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Representative Transport Labor, Personnel and Equipment Transportation Charges

Quantity	Item	Extended Cost:	
		Whole Body	Neuro
	Transport Tech. x 48 hours x \$15/hr	720.00	720.00
	Standby Time 2 persons, EMT Level, x 10 hours x \$15.00/hr	300.00	300.00
	Transportation @ Cost (Ground)	150.00	150.00
	Air Transport for 3 Persons at Cost	2,100.00	2,100.00
	Equipment Shipment (Air, Round-trip)	700.00	700.00
	Perfusionist Standby/Labor, 48 hrs at \$20/hr.	960.00	960.00
	TOTAL:	\$4,930.00	\$4,930.00

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Transport Infectious Waste Management

		Extended Cost:	
Quantity	Item	Whole Body	Neuro
2 ea	Bag, Waste, Infectious	1.00	1.00
1 ea	Sharps Container/Disposer, Isolyzer	12.50	12.50
Subtotal:		13.50	13.50
+20%:		2.70	2.70
TOTAL:		\$16.20	\$16.20

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REMOTE TOTAL BODY WASHOUT

Total Body Washout Equipment and Supplies

Quantity	Item	Extended Cost:	
		Whole Body	Neuro
1 ea	Tubing Pack	150.00	150.00
12 ea	Securing Ties, Tubing	1.20	1.20
1 ea	Cutdown Tray, Femoral, Use Charge	35.00	35.00
1 ea	Prep Kit, Surgical	8.00	8.00
3 ea	Drapes, Surgical, Disposable, 18" x 26"	1.74	1.74
1 ea	Saline, Irrigating, 250 cc	1.25	1.25
1 ea	Oxygenator, Wm. Harvey 1500	275.00	275.00
1 ea	Cannula, Venous, Type 1967	16.00	16.00
1 ea	Cannula, Arterial Perfusion	13.00	13.00
1 ea	Intracath 12"	5.75	5.75
1 ea	Connector, 3/8," w/port	1.75	1.75
1 ea	Stopcock, 2-gang	5.20	5.20
2 ea	Stopcock, Cobe, 3-way	5.76	5.76
3 ea	Gloves, Surgeon's	7.35	7.35
12 ea	Gloves, Exam	4.00	4.00
1 ea	Connector, 3/8"- 1/2'	1.50	1.50
1 ea	Connector, 1/2," w/port	1.75	1.75
1 ea	Monitoring Line, 2 ft.	1.63	1.63
1 ea	Monitoring Line, 8 ft.	2.95	2.95
1 ea	Dome, Pressure Monitoring, Trantec	5.00	5.00
2 ea	Drape, Plastic, Adhesive	8.35	8.35
5 ea	Caps, Surgeons	.75	.75
1 ea	Ties, 0 Silk	3.75	3.75
1 ea	Scalpel Blade, #10	1.17	1.17
1 ea	Scalpel Blade, #11	1.17	1.17
1 ea	Filter, Arterial, 20 micron	64.00	64.00
1 ea	Filter, Pall, Perfusate, 0.2 micron	32.00	32.00
1 ea	Suction Setup	5.00	5.00
10 ea	SHP-1 Perfusate	160.00	160.00
6 ea	Swabs, Alcohol	.60	.60
2 ea	Sponges, Gauze, 4" x 4,"	4.00	4.00
3 ea	Towels, Paper, Roll	2.70	2.70
1 ea	pH supplies (buffers, sample cups)	5.00	5.00
4 ea	Viaspan Solution, 1 liter	800.00	800.00
1 ea	Insulin, Regular	6.00	6.00
1 ea	Dexamethasone, 80 mg	5.50	5.50
1 ea	Heparin, 20,000 IU	2.00	2.00
1 ea	Dextrose, 50%, 50 cc	2.50	2.50
2 ea	Saline, 0.9%, 30 cc	2.00	2.00
1 ea	Keflex, 1 gm	3.50	3.50
1 ea	Cryovita Equipment Charge	300.00	300.00
Subtotal:		1,953.82	1,953.82
+20%:		390.76	390.76
TOTAL:		\$2344.58	\$2344.58

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Representative Transportation and TBW Professional Services

Quantity	Item	Extended Cost:	
		Whole Body	Neuro
	Local Mortuary (includes facilities use and local ground transportation)	683.00	683.00
	Nursing Standby to promptly pronounce legal death 37.50/hr x 80 hours	3,000.00	3,000.00
	Air Shipment	968.00	968.00
	Perfusionist	300.00	300.00
	Surgery	200.00	200.00
	TOTAL:	\$5,151.00	\$5,151.00

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CRYOPROTECTIVE PERFUSION

Cryoprotective Perfusion Equipment and Supplies (Surgical)

Quantity	Item	Extended Cost:	
		Whole Body	Neuro
1 ea	Arterial Line Filter, 40 micron	64.00	64.00
1 ea	Housing, Filter, Seal Klean, Use Charge	20.00	20.00
1 ea	Filter, 0.2 micron, Pall, Seal Clean	40.00	20.00
1 ea	Pulsator, TPK	110.00	110.00
2 ea	Connectors, 1/4"- 3/8"	3.00	3.00
1 ea	Connectors, 3/8," w/port	1.75	1.75
1 ea	Connector 3/8"- 1/2"	1.50	1.50
1 ea	Oxygenator, Sci-Med 1.8 sq. meter,	350.00	350.00
1 ea	Tubing Pack	150.00	150.00
2 ea	Reservoirs charge	100.00	100.00
1 ea	Supplies, Pre-Operative Prep, Patient	6.75	6.75
3 ea	Gloves, Surgeon's	7.37	7.37
1 ea	Sci-Med Temp Cuvette	5.20	5.20
1 ea	Stopcock, 2-gang	5.76	5.76
1 ea	Monitoring Line, 8 ft.	2.95	2.95
2 ea	Monitoring Life, 6 ft.	4.80	4.80
3 ea	Stopcock, Cobe, 3-way	8.64	8.64
3 ea	Stopcock, 2-way	6.00	6.00
1 ea	Cannula, Venous Type 1967	16.00	16.00
1 ea	Cannula, Arterial	13.00	13.00
10 ea	Caps, Surgeon's	1.50	1.50
3 ea	Caps, Nurse	.30	.30
6 ea	Brushes, Scrub, Surgical	1.98	1.98
1 ea	Bone Wax	3.90	3.90
1 ea	Mattress, Egg Crate	22.50	----
1 ea	Table Top, Operating, Fluid Retaining, Use Charge	30.00	30.00
2 ea	Connector, "Y," 3/8"	4.00	4.00
1 ea	Tray, Instrument, Thoracic, Use Charge	50.00	50.00
1 ea	Saw, Sternal, Use Charge	50.00	50.00
1 ea	Tray, Instrument, Neuro, Use Charge	50.00	50.00

1 ea	Tray, Burr-Hole, DePuy, Use Charge	50.00	50.00
1 ea	Drape, Plastic, Adhesive Burr-Hole	3.10	3.10
1 ea	Drape, Plastic, Adhesive, Sternal	4.35	4.35
2 pkg	Drapes, Towel	4.20	4.20
1 ea	Vent, Left Ventricular	10.00	-----
1 ea	Catheter, Arterial Pressure Monitoring	8.25	8.25
6 ea	Sponges, Gauze, 4" x 4," 10/pkg	12.00	12.00
2 ea	Suture, 2-0 Polydek, Cardiovascular	8.40	8.40
1 ea	Suture, 3.0 Ticron, Cardiovascular	4.20	4.20
1 ea	Ties, 0 Silk	3.75	3.75
1 ea	Stapler, Skin Closure, Disposable	15.00	15.00
1 ea	Staple Cartridge	25.00	25.00
1 ea	Suture, Burr-Hole Closure	2.00	2.00
3 amp	Solution, Calibration, Radiometer	6.00	6.00
2 ea	Gas, Calibration, Radiometer	3.00	3.00
1 ea	Dome, Pressure Monitoring, Trantec	5.00	5.00
10 ea	Clothes, Scrub, Use Charge	10.00	10.00
1 ea	Stirrer & Stir Bar, Thermolyne, Use Charge	100.00	100.00
1 ea	Drape, Plastic, Adhesive, Abdominal	-----	4.35
2 ea	Drape, Sheet	22.00	22.00
1 ea	Ground Pad	5.25	5.25
1 ea	Catheter, Robinson	11.25	11.25
1 ea	Blade, Scalpel, #10	1.17	1.17
1 ea	Blade, Scalpel, #11	1.17	1.17
20 ea	Needle, Hypodermic	2.00	2.00
6 ea	Tubes, Nunc, cryogenic	----	.90
12 ea	Towels, Paper, Roll	10.80	10.80
1 ea	Linen, Misc., Use Charge	20.00	20.00
1 ea	Nitrogen or Oxygen, 240 cubic ft.	45.00	45.00
1 ea	Monitor Fee	100.00	100.00
1 ea	Photographer, Perfusion	164.00	164.00
1 ea	Film, Photographic	20.00	20.00
		Subtotal:	1,807.79 1,760.54
		+20%:	361.56 352.11
		TOTAL:	\$2,169.35 \$2,112.65

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Cryoprotective Perfusion Infectious Waste Management

Quantity	Item	Extended Cost:	
		Whole Body	Neuro
12 ea	Bags, Infectious Waste	6.00	6.00
2 ea	Containers, Sharps	8.00	8.00
1 ea	Infectious Waste Pickup	55.00	55.00
1 ea	Janitorial Supplies	7.00	7.00
		Subtotal:	70.00 70.00
		+20%:	14.00 14.00
		TOTAL:	\$84.00 \$84.00

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Cryoprotective Perfusion Labor and Professional Fees

Quantity	Item	Extended Cost:	
		Whole Body	Neuro
	Cryovita Labor and Equipment Use Fee (includes charges for use of heart-lung machine, surgical labor, recording, and miscellaneous O.R. equipment)	5,000.00	5,000.00
	Alcor Staff x 6 x \$15.00 per hour x 15 hours	1,350.00	1,350.00
	Physician	2,000.00	2,000.00
	TOTAL:	\$8,350.00	\$8,350.00
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Cryoprotective Perfusate Preparation Equipment and Supplies: 120 Liters Whole Body OR 40 Liters Neuro

Quantity	Item	Extended Cost:	
		Whole Body	Neuro
1 ea	Sucrose,	178.50	59.50
1 ea	Adenine HCL,	29.50	9.83
1 ea	D-Ribose,	12.40	4.13
1 ea	Sodium Bicarbonate 120 g	1.94	.64
1 ea	Calcium Chloride Soln.	15.00	5.00
1 ea	Magnesium Chloride Soln.	6.00	2.00
1 ea	Sodium HEPES	145.20	48.40
1 ea	Glutathione	210.00	70.00
1 ea	HES	300.00	100.00
1 ea	Glucose	4.00	1.33
1 ea	Heparin	5.00	1.67
1 ea	Water for Inj.	240.00	80.00
1 ea	Misc. Supplies (pipettes, weighing boats, etc)	40.00	13.33
1 ea	Glycerol	675.00	225.00
1 ea	Equipment Use (Osmometer, Refractometer, etc.)	40.00	20.00
36 ea	Bottle, Polypropylene, Use Charge	15.00	5.00
	Subtotal:	1,917.54	645.83
	+40%:	767.02	258.33
	TOTAL:	\$2,684.56	\$904.16
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(30)

Labor (prepackaging)

Quantity	Item	Extended Cost:	
		Whole Body	Neuro
	Labor (weighing, packaging and labeling) at \$15.00/hr	120.00	40.00

TOTAL: \$120.00 \$40.00

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LABORATORY EVALUATIONS

Clinical and In-House Laboratory Tests and Supplies

Quantity	Item	Extended Cost:	
		Whole Body	Neuro
22 ea	Laboratory Evaluations, Effluent, Chemzyme 26	500.00	500.00
1 ea	Sample Processing & Archiving:	175.00	175.00
40 ea	Vacutainers	7.70	7.70
22 ea	Tubes, Nunc, Cryogenic	3.30	3.30
1 ea	Pipettes	6.00	6.00
1 ea	Reagents	12.00	12.00
1 ea	Water, Distilled, 20 liters	7.00	7.00
1 ea	Kim-Wipes	1.00	1.00
1 ea	Laboratory Supplies, Misc.	15.00	15.00
Subtotal:		727.00	727.00
+20%:		145.40	145.40
TOTAL:		\$872.40	\$872.40
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Labor

Quantity	Item	Extended Cost:	
		Whole Body	Neuro
	In-House Tests 6 hrs x \$15/hr	90.00	90.00
TOTAL:		\$90.00	\$90.00

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(31)

TEMPERATURE DESCENT

Temperature Monitoring Equipment and Supplies

Quantity	Item	Extended Cost:	
		Whole Body	Neuro
1 ea	Probe, Thermocouple, Brain Surface	35.00	35.00
1 ea	Probe, Thermocouple, Rectal	15.00	-----
1 ea	Probe, Thermocouple, Esophageal	15.00	15.00
1 ea	Probe, Thermocouple, External Abdomen	15.00	-----
1 ea	Probe, Thermocouple, External Head	15.00	15.00
1 ea	Probe, Thermocouple, Ankle	15.00	-----
1 ea	Monitor, Temperature, Use Charge	10.00	10.00
Subtotal:		\$120.00	\$75.00
+20%:		24.00	15.00

TOTAL: \$144.00 \$90.00

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-79°C (dry ice) Cooling Equipment, Supplies and Labor

Quantity	Item	Extended Cost:	
		Whole Body	Neuro
3 ea	Towels, Paper, Roll	2.70	2.70
3 ea	Dressing, Kerlix	1.00	-----
2 ea	Bags, Polyethelene, 6 mil, Patient	12.00	-----
1 ea	Net, Patient Lifting, Use Charge	5.00	-----
1 ea	Oil, Heat Exchange, Silicone, Use Charge	200.00	20.00
1 ea	Oil, Heat Exchange, Reprocessing Fee	100.00	10.00
1 ea	Carbon Dioxide, Solid	147.00	100.00
1 ea	Cooling Unit, Use Charge	120.00	-----
Subtotal:		587.70	132.70
+20:		117.54	26.54
TOTAL:		\$705.24	\$159.24

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Labor

Quantity	Item	Extended Cost:	
		Whole Body	Neuro
	24 hrs at \$15.00/hr	360.00	360.00
TOTAL:		\$360.00	\$360.00

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(32)

Liquid Nitrogen Cooling Equipment and Supplies

Quantity	Item	Extended Cost:	
		Whole Body	Neuro
2 ea	Sleeping Bags, Intermediate Weather	180.00	-----
1 ea	Stretcher, Patient Storage	400.00	-----
1 ea	Neurocan	35.00	35.00
1 ea	Engraving, Neurocan	-----	25.00
1 ea	Neuropack	-----	8.00
1 ea	Lid, Cooldown, Use Charge	20.00	20.00
1 ea	Nitrogen, Liquefied,	250.00	56.00
2 ea	Tag, Identification, Stainless Steel, Patient	8.34	8.34
6 ea	Tag, Identification, Stainless Steel,		
	Temperature Probe	25.02	12.51
1 ea	Gloves, Low Temperature, Use Charge	7.00	1.00
1 ea	Dewar Slot	3935.00	500.00
1 ea	Alarm Sensor	75.00	27.00
1 ea	Internal Support, Dewar	35.00	-----
1 ea	Fill Line and Misc. Hardware, Dewar	200.00	200.00

1 ea	Photographer (encapsulation)	164.00	-----
1 ea	Film, Photographic, Assorted	20.00	-----
	Subtotal:	5,354.36	892.85
	+20%:	1,070.87	178.57
	TOTAL:	\$6,425.23	\$1,071.42

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Labor

Extended Cost:

Quantity	Item	Whole Body	Neuro
	Cooldown: 1 person x 24 hours x \$15.00/hr	360.00	-----
	Insertion: 6 persons x 4 hours x \$15.00/hr	360.00	60.00
	TOTAL:	\$720.00	\$60.00

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(33)

RECORD KEEPING

Patient Records Equipment and Supplies

Quantity	Item	Extended Cost:	
		Whole Body	Neuro
1 ea	Pix Folders	7.00	7.00
1 ea	Filer Folders (basket type)	6.80	6.80
1 ea	Duplicating	22.00	22.00
1 ea	Photoprocessing	75.00	50.00
1 ea	File Space	20.00	20.00
1 ea	Microfilming	125.00	125.00
	Subtotal:	\$255.80	\$230.80
	+20%:	51.16	46.16
	TOTAL:	\$306.96	\$276.96

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Labor

Quantity	Item	Extended Cost:	
		Whole Body	Neuro
	Administrative: 10 hrs x \$15.00	120.00	120.00
	TOTAL:	\$120.00	\$120.00

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POSSIBLE ADDITIONAL CHARGES

Remote Transport

Quantity	Item	Extended Cost:	
		Whole Body	Neuro
	Car Rental/Local Transportation	150.00	150.00
	Motel	200.00	200.00
	Meals	216.00	216.00
	TOTAL:	\$566.00	\$556.00
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Cryoprotective Perfusion

Quantity	Item	Extended Cost:	
		Whole Body	Neuro
	Radiologic Exams/Consults	500.00	500.00
	Dec clotting/Special Surgery	350.00	350.00
		\$850.00	\$850.00
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SUMMARY OF CHARGES FOR SUSPENSION

Item	Extended Cost:	
	Whole Body	Neuro
Remote Transport		
Transport Equipment and Supplies	1,597.15	1,597.15
Transport Labor, Equipment and Personnel Transportation	4,930.00	4,930.00
Transport Infectious Waste Management	16.20	16.20
Remote Total Body Washout Equipment and Supplies	2,344.58	2,344.58
Transport Professional Services	5,151.00	5,151.00
TRANSPORT CHARGES TOTAL:	\$14,038.93	\$14,038.93

Cryoprotective Perfusion

Cryoprotective Perfusion Equipment and Supplies	2,169.35	2,112.65
Cryoprotective Perfusion Infectious Waste Management	84.00	84.00
Cryoprotective Perfusion Labor and Professional Fees	8,350.00	8,350.00
Cryoprotective Perfusate Preparation, Equipment, and Supplies	2,684.56	904.16
Perfusate Preparation Labor	120.00	40.00
CRYOPROTECTIVE PERFUSION CHARGES TOTAL:	\$13,407.91	\$11,490.81

Laboratory Evaluations

Laboratory Charges	872.40	872.40
Laboratory Labor Charges	90.00	90.00
LABORATORY CHARGES TOTAL:	<u>\$962.40</u>	<u>\$962.40</u>

Temperature Descent

Temperature Monitoring Equipment and Supplies	144.00	90.00
Dry Ice Cooling Equipment and Supplies	705.24	159.24
Dry Ice Cooling Labor	360.00	360.00
Liquid Nitrogen Cooling/Storage Equipment and Supplies	6,425.23	1071.42
Liquid Nitrogen Cooling Labor	720.00	60.00
TEMPERATURE DESCENT TOTAL:	<u>\$8,354.47</u>	<u>\$1,740.66</u>

Record Keeping

Patient Records Equipment and Supplies	306.96	276.96
Patient Records Labor	120.00	120.00
PATIENT RECORDS TOTAL:	<u>\$426.96</u>	<u>\$396.96</u>

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GRAND TOTAL:\$37,190.67 \$28,556.43

LESS REMOTE CHARGES AND NURSING FEES: -9,721.00 -9,721.00
(Note: this includes 8 hrs. of local
standby time.)

ADJUSTED GRAND TOTAL:\$27,469.67 \$18,908.76

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LONG TERM LIQUID NITROGEN STORAGE COSTS

Neuropatients

	Bigfoot*	XLC-1520**
Liquid Nitrogen Cost:	23.60	73.00
Floor Space Charge (@ 45 per sq. ft.):	2.50	2.50
Custodial Labor Cost:	10.00	8.00
Amortization of Dewar/Alarm System:	21.98	59.26
Administrative Charges:	3.00	3.00
Utilities and Other Overhead	5.00	5.00
TOTAL ANNUAL STORAGE COST PER PATIENT:	<u>\$66.08</u>	<u>\$150.76</u>

* Bigfoot Working Assumptions:

Neuropatient Storage Capacity: 54 patients (using current packaging).
Liquid Nitrogen Boil-off at 12.7 liters per day + 10% transfer losses.
Liquid Nitrogen Cost at 25 cents per liter.
Amortization of Bigfoot, alarm and associated hardware at a purchase

price of \$18,000 over 15 years.
 Floorspace Charge of 45 cents per square foot at 25 sq. ft.
 Labor Cost at \$15.00 per hour, 3 hours per month.

** XLC-1520 Working Assumptions:

Neuropatient Storage Capacity: 9 patients (using current packaging).
 Liquid Nitrogen Boil-off at 6 liters per day + 20% transfer losses.
 Liquid Nitrogen Cost at 25 cents per liter.
 Amortization of XLC-1520, alarm and associated hardware at a purchase price of \$8,000 over 15 years.
 Floorspace Charge of 45 cents per square foot at 36 sq. ft.
 Labor Cost at \$15.00 per hour, 3 hours per month.

* * *

As can be seen from the above numbers, using Bigfoot would result in a 56% reduction in costs for storing neuropatients. The minimum amount of capital required to generate \$66.08 in income at a 2% rate of interest would be \$3300. Multiplying by a factor of two for safety and for the generation of positive growth of the fund to cover reanimation and other unknown costs yields a total of \$6600 required for the trust fund.

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Using the XLC-1520 results in annual storage costs per patient of \$150.76. The minimum amount of capital required to generate \$150.76 at a 2% rate of interest is \$7538. Multiplying by two yields \$15,076 as the amount required for the long term care trust fund for each neuropatient.

* * * * *

Whole Body Patients

	Bigfoot*	XLC-1520**
Liquid Nitrogen Cost:	318.46	821.50
Floor Space Charge (@ 45 per sq. ft.):	33.75	24.30
Custodial Labor Cost:	135.00	270.00
Amortization of Dewar/Alarm System:	296.67	433.33
Administrative Charges:	3.00	3.00
Utilities and Other Overhead	67.50	135.00
TOTAL ANNUAL STORAGE COST PER PATIENT:	\$854.38	\$1,687.13

* Bigfoot Working Assumptions:

Whole Body Patient Storage Capacity: 4 patients
 (using cassette packaging).
 Liquid Nitrogen Boil-off at 12.7 liters per day + 10% transfer losses.
 Liquid Nitrogen Cost at 25 cents per liter.
 Amortization of Bigfoot, alarm and associated hardware at a purchase price of \$18,000 over 15 years.
 Floorspace Charge of 45 cents per square foot at 25 sq. ft.
 Labor Cost at \$15.00 per hour, 3 hours per month.

** A-9000M Working Assumptions:

Whole Body Patient Storage Capacity: 2 patients
 (using current packaging).
 Liquid Nitrogen Boil-off at 15 liters per day + 20% transfer losses.
 Liquid Nitrogen Cost at 25 cents per liter.
 Amortization of XLC-9000M, alarm, and associated hardware at a purchase price of \$13,000 over 15 years.
 Floorspace Charge of 45 cents per square foot at 9 sq. ft.
 Labor Cost at \$15.00 per hour, 3 hours per month.

* * *

As can be seen from the above numbers, using Bigfoot would result in a 49% reduction in costs for storing whole body patients. The minimum amount of capital required to generate \$854.38 in income at a 2% rate of interest would be \$42,719. Multiplying this number by a factor of two for safety and for the generation of positive growth of the fund to cover reanimation and other unknown costs yields a total of \$85,438 required for the trust fund.

Using the A-9000M results in annual storage costs per patient of \$1687.13. The minimum amount of capital required to generate \$1687.13 at a 2% rate of interest is \$84,357. Multiplying by two yields \$168,714 as the amount required for the long term care trust fund for each whole body patient.

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A MATHEMATICAL MODEL OF LONG-TERM STORAGE COSTS

by R. Michael Perry, Ph.D.

One of the main concerns of cryonicists is that we may have to remain frozen a long time, 100 years or more, before technology of the future is able to help us. A conservative assumption thus is to plan for indefinite storage. Usually a cryonic suspension is maintained by starting with a sum of money or principal that is made available at the time of freezing, investing it conservatively, and paying costs as necessary. The hope, of course, is that the interest income on the principal will be more than adequate to cover the costs of storage indefinitely. In this way the net amount of principal will grow with time and provide increasing security. One very important question thus is: How much principal must we start with to provide a reasonable assurance that costs can be met indefinitely? We must make reasonable assumptions about both the costs and the expected interest income, and we must provide a reasonable margin of safety.

We thus need a model of cost and income that is both simple and realistic. Such a model, I believe, is provided by assuming the following: (1) a fixed rate of compound interest on the invested principal, and (2) constant annual cost (assuming constant dollars). Thus we start with principal p , and cost c . We assume initially that c is paid from p , leaving the net principal,

$$p_0 = p - c. \quad (1)$$

We assume the net principal p_0 is then invested at a growth rate $a=1+0.01I$, where I is expressed as a percentage. Thus if $I=2$,

corresponding to 2% compound interest, then $a=1.02$. In general we shall assume $a>1$ (as indeed we must if we are to obtain income from the principal!). After a year, then, the net principal p_0 will have grown to

ap_0 . After paying the storage cost c , we obtain the net principal after one year,

$$p_1 = ap_0 - c. \quad (2)$$

More generally, the net principal after n years, p_n , is given recursively by

$$p_n = ap_{n-1} - c, \quad (3)$$

which, in view of Eq. (1) reduces to

$$p_n = a^n p_0 - c \left(1 + a + a^2 + \dots + a^{n-1} \right) = a^n \left(p_0 - c \frac{a^n - 1}{a - 1} \right) \quad (4)$$

Eq. (4) makes it easy to calculate the net principal after n years without having to iterate through n steps, and also reveals some interesting properties. Thus, the growth in net principal is approximately geometric, an approximation that improves with time, i.e., with increasing n . In fact, we obtain

$$\lim_{n \rightarrow \infty} \frac{p_n}{a^n} = p_0 - c \frac{a}{a-1}. \quad (5)$$

Of more immediate interest, however, is the break-even principal, p_B , at which the net principal neither shrinks nor increases with time. At least this much principal must be available at all times to maintain the suspension. We must have

$$a(p_B - c) = p_B, \quad (6)$$

or,

$$p_B = \frac{ac}{a-1}. \quad (7)$$

$$p_B = c \frac{a}{a-1}. \quad (7)$$

Thus, for a 2% growth rate ($a=1.02$) the break-even principal is 51 times the cost (corresponding to $a/(a-1)=51$), while for a 3% rate it is 34.33 times the cost. Although these amounts would theoretically suffice to maintain a suspension indefinitely under ideal conditions, in practice p_B should be multiplied by a safety factor to provide additional security and guarantee a near-geometric growth in the principal.

A slight refinement in the cost model can be obtained if we recognize that normally the entire cost for a year would not be paid all at once. Instead, suppose the year is divided into m equal intervals for which payments are made at the start of each (for example, $m=12$ for monthly payments). During any one such interval a principal p invested at the annual rate a will increase in amount to $a^{1/m} p$, while the cost that must be paid is c/m . To determine the amount of the net principal after n years, which is nm of the intervals, we merely apply eq. (4), treating each of the intervals as a "year," which means, in effect, that the growth rate is $a^{1/m}$ rather than a , and the cost is c/m rather than c . Thus, we obtain

$$p_n = a^n \left(p - \frac{c}{m} \frac{a^{1/m} - a^{-n/m}}{a^{1/m} - 1} \right). \quad (8)$$

The break-even principal is

$$p_B = \frac{c}{m} \frac{a^{1/m}}{a^{1/m} - 1} \quad (9)$$

If $m=12$ and $a=1.02$, for example, the break-even principal is 50.54 times the cost, rather than 51 times the cost as before, not a large difference for monthly vs. annual cost payments. Somewhat larger effects would occur over time. For example, suppose we have a starting principal p of \$85,000 (for a net principal p_0 of \$84,150) and annual cost \$850 (which might be

typical for a whole body patient). The value of the net principal after 100 years at 2% annual growth is \$344,238 for annual payments vs. \$355,480 for monthly payments, about a 3% difference. Again, this does not seem an important effect.

Eq. (4) and its analogue, eq. (8) reveal an interesting property, namely that the net principal p_n equals the cost c times a quantity that depends on the ratio p/c of original principal to cost, but not on p or c separately. Thus we can recast eq. (8) in the form

$$p_n = c \frac{p}{c} a^n \left(1 - \frac{a^{1/m} - a^{-n/m}}{a^{1/m} - 1} \right). \quad (10)$$

This result is useful in considering the following question: if both cost and starting principle were multiplied by a factor, say, 10, (which might happen in going from the neurosuspension or head-only option to the whole-body option), would there be a more-than-10 gain in the net principal p_n ? According to the above equation, the answer is no; that is, the

values of p_n are just uniformly multiplied by 10. Thus it makes sense to assume a starting principal that is a fixed multiple of the cost. (In practice $p \div 100c$ seems reasonable, so that p is about twice the value of the

break-even principal for a 2% growth rate.)

Using eq. (4) or (8) an expression can be derived for the "catch-up time" required for the principal under one set of assumptions to equal the value attained, after a fixed interval of time, under another set. For example, a recent calculation used $p=\$6,608$, $c=\$66.08$ for the neurosuspension case, while the corresponding parameters for the whole

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body case were $p=\$85,438$ and $c=\$854.38$. (Note that $p=100c$ in each case). Annual cost payments were assumed in both cases. After 100 years at 2% growth, the neurosuspension net principal was $\$26,761$. About 135 more years would be needed, under these assumptions, for the neurosuspension principal to equal the 100-year whole body value, which was $\$346,011$. These differences could be significant if there is a large cost associated with reanimation.

* * * * *

FLATLINERS

Movie Review by Ralph Whelan

No, I'm not going to ruin the movie for you.

This is a review, not a synopsis, and with it I hope to help you decide whether or not you want to see the movie. With that in mind, I should apologize for running this article some weeks after the movie's release. But then, would it be news if I told you that 12327 Doherty Street is a busy place?

So then:

"Flatliners" is not about cryonics. It is, however, very important to cryonics. It's another social readout in a burgeoning class of "Cryonics Barometers," the sundry telltales that warn of cryonics' impending. . . acceptance? Um, let's not push our luck. Interest? Well, perhaps the sort of morbid curiosity that draws gawkers to a hanging. Tolerance? I'll get back to you on September 27th. (Possible final ruling on the Alcor vs. California Department of Health Services case. -- Eds.)

So, irrespective of its plot, place, and people, the movie is good news for cryonicists. Anything that inures the public to cryonishock -- that is, any thing that makes the notion of life after life less foreign, anything that even indifferently suggests that clinical death is at worst a misnomer and at best synonymous with "very sick," we want.

A bit more good news is that Flatliners goes beyond indifferent suggestion. It assuages us with big chunks of respect for rationality and the scientific method early on in the movie, though it later forces these to break down and fall from consideration entirely

(and needlessly!).

But this is getting obtuse. Let me get more direct by outlining the basic subject matter. The movie deals with deanimation, with biostasis (albeit non-factually), with reanimation (ditto), and with morality. In short, we have a visionary med student (Keifer Sutherland)

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with a madcap idea: perhaps it's possible to cool, deanimate, rewarm, and reanimate a) himself, and b) his friends. Sounds too good to be true and is, so put the popcorn away and read on for a minute.

Problem Number One: He can't decided whether he's in it for the guts or the glory. He oscillates between condemning the reticence of his cohorts (Kevin Bacon, et.al.) for their lack of dedication to Scientific Inquiry, and lambasting their enthusiasm as encroachment on his impending fame. True, one could point out that his character is inherently unstable, perhaps flat crazy, and that this vacillation is psychologically consistent for him. But how can a contradiction this absurd be unnoticed/tolerated by his otherwise intelligent friends? (And an otherwise forgiving audience.)

But that's nothin'.

Problem Number Two: The supporting characters seem incapable of relating to each other consistently. The most prominent argument in support of this is that we watch first one, then another, then a third character make advances toward the female lead. When all is said and done (that is, when the credits roll), Character The Third has kissed her once, has slept with her at least Platonically and possibly Biblically (carnal knowledge is neither confirmed nor denied), and has then proceeded to forget all about any such relationship (in effect allowing us to do the same) for the remainder of the movie (a substantial period of popcorn munching).

My point? It was distracting and pointless. It did nothing to advance the plot, nothing to develop the characters, and nothing to engender viewer interest. The movie was long enough that it did not need inessential filler.

Loose ends. Anathema in movie-making.

Problem Number Three: Certain characters seemed incapable of effectively relating to the movie as a whole. To that end, I will point out that at least one character in the movie was entirely unnecessary. He did not flatline, which would have been fine had he advanced the plot or elucidated the theme or made any point at all by not flatlining. Worse, he easily could have made a point by not flatlining. For instance, effective writing might have had him risk nothing, experience nothing, and hence gain nothing by not flatlining. Instead he risks little, experiences slightly more, and gains a goodly amount in the bargain.

More loose ends. He should have been on the cutting room floor.

Problem Number Four: Keifer drops the bag. Well yes, we've already decided that our hero is a couple cans short of a six-pack, and that his

scientific integrity falls a bit to the left on the scale of Inconsistent to Unwavering. Now, however, he is to kick our suspension of disbelief in the teeth.

Indeed, you see, just as he comes to understand and believe everything that once-Atheist (now Confused) Kevin Bacon has been telling him, just when it's time for him to "come back into the fold," just when he needs their help most (and would certainly get it), he quite literally abandons them. Naturally they are left with no recourse but to rally and go to his aid.

Sorry, what?

Problem Number Five: The ontological roof caves in. If you're like me, this worst of problems will likely assail you as follows: about halfway through the movie, something

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will start to bother you in a vague, itchy sort of way. Something isn't quite clear. You'll put it off and put it off and put it off until suddenly you realize that the movie is over and nothing is clearing up at all, except maybe the theater seats.

Without giving anything away, the problem is this: after the characters die and come back to life, some peculiar things begin happening to them. These things are very peculiar, and it takes them a while to convince themselves/each other that what they are experiencing is genuine, and that it means what they think it means. (Still with me?) Upon convincing one another that indeed it does mean what they think it means, they abandon all scientific principle by refusing to show one iota of interest in finding out why dying and coming back to life causes this to happen.

Understand, please, that they don't simply not find out. No one even voices the question, "Why?" No one even speculates. Rationality is abandoned by all, mystic acceptance becomes the norm, and they incorporate this new operational fundamental into their worldviews, just like that.

This degrades my viewing enjoyment considerably. I'll believe seven unlikely things before intermission if they're important to the plot and on some level defensible. This was neither. The characters lost credibility, the movie suffered, and none of it was even necessary.

CONCLUSION

In light of the above points, and whatever you may have heard from your favorite movie critic, I hope that I won't discredit myself by saying that I enjoyed the Hell out of "Flatliners." Later, in the privacy and serenity of the Alcor facility (ahem), I was able to pontificate extensively (and rightly, I believe) on the movie's shortcomings. In the theater, however, I was riveted. The acting was very good and sometimes great. The directing was very good, and the production was absolutely top-notch. As a musician, I feel qualified to say that the film score was complementary when it wasn't excellent. Lastly, the special effects were never gaudy or superfluous, and often were breathtaking.

So there you have it. Whether or not you should go to see Flatliners

depends, I suppose, on why you go to see movies. Are you a plot person, an acting connoisseur, an amateur philosopher? Decide this, and you can probably decide from this article how much popcorn to buy. But let me also say this: if you think you have at least a modest historical interest in the depth to which "death," "life after death," and ultimately cryonics are seeping into our culture, this movie will certainly broaden your frame of reference.

Commentary on this commentary is welcome.

* * * * *

ARE YOU A TRANS-HUMAN?
by FM-2030

A short, irate review by John LaValley

No, he's not a radio station, honest. He is a noted (?) futurist whose book, "Are You A Trans-Human?" puts the reader through a battery of tests to determine how ready the reader is for the future. OK, sounds fair enough.

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Fair enough, that is, until the author's attitude begins to show. It's not actually stated in the text but rather in the wording of the tests, and the attitude is this: If You Do Not Agree With The Things In My Book, You Are Wrong.

And that just pissed me off. I invite any readers of this review to read the book and form their own opinions, of course. Borrow it from a friend, a library, or maybe steal it from a bookstore. Just so long as you don't reward the author by actually paying for it.

He starts off by telling us that we need to rearrange our symbols, e.g. change things like "test-tube baby" to "high-tech baby," as though it makes a difference. (What's wrong with just "baby"?) 2030 is constantly inventing awful new words with vague meanings, like "Unilang," then using them as buzz words throughout the rest of the book. And if you don't understand or agree, then baby, you ain't hip.

I won't hit every point he makes, but some do call for special attention.

On page forty-six he tries to justify having a short attention span, saying, "If an author cannot get it together in one or two hundred pages -- forget it. The author is not addressing today's world." Never mind that he is trashing everyone from Shakespeare to Heinlein; 2030's own book has two hundred and twenty-eight pages! Physician, heal thyself!

In test -- excuse me, "Monitor" number seven, he attacks opera, art galleries, concerts, and theatre as valueless compared with modern media. I don't know: IS a Madonna video on MTV inherently superior to Beethoven and the London Symphony? I'll take my Gilbert and Sullivan on the stage instead of the screen, thank you.

He despises the very idea of economic competition, stating that there is "no best anything." If so, then all similar products are inherently equal. A TI-30 calculator is as good as a Hewlett-Packard. Bullshit.

2030 speaks against the use of honorifics and titles. I'll agree that some people place too much emphasis on these things, but, as Heinlein tells us, "Sir" and "Mrs." and

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"Dr." and the like are the lubricants used in the imperfect machinery of human interaction. If 2030 wishes to forgo these lubricants, he can. We'll just see how long his machinery lasts.

FM-2030 shocked the hell out of me at one point by describing how the activities of Man are as "natural" as anything in nature. At last, a kernel of wisdom here! But then he went off the deep end again, saying how predator-prey relationships were not a balance of nature, but a "balance of violence," and we should try to change the diet of the predators. 2030 seems to be ignorant of the fact that an unchecked population of prey animals will overtax the land 'til ALL the animals in the area starve.

Besides, as an omnivorous human I'm at the top of the food chain, and I intend to stay there, so bugger off, pal!

He states, unequivocally, that there ARE no UFOs. I'm not a believer, myself, but how does he KNOW?

He says that there are no "eternal values." I guess that means that someday murder, rape, theft, and property damage will all be OK.

He goes on, but I think we've had enough. FM 2030's ideas are harmless -- well, mostly harmless -- as long as no one takes them too seriously. Kind of like "Mein Kampf."

Basically, 2030's problem, if I may be so bold, is that he places far too much emphasis on symbolism while at best glossing over essence. Picture, if you will, a worker digging a hole with a shovel. Next to him is an actor pantomiming the worker's every motion. The actor may appear to be the more clever and interesting, but a question remains. Who is really doing nothing, and who is moving the earth?

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MEETING SCHEDULES

Alcor business meetings are usually held on the first Sunday of the month. Guests are welcome. Unless otherwise noted, meetings start at 1 PM. For meeting directions, or if you get lost, call Alcor at (714) 736-1703 and page the technician on call.

The SEPTEMBER meeting will be held at the home of:

(SUN, 9 SEP 1990) Marce & Walt Johnson
(SECOND SUNDAY) 8081 Yorktown Avenue
 Huntington Beach, CA

Directions: Take the San Diego Freeway (Interstate 405) to Beach Blvd. (Hwy 39) in Huntington Beach. Go south on Beach Blvd. approximately 4-5 miles to Yorktown Ave. Turn east (left) on Yorktown. 8081 is less than one block east, on the left (north) side of the street.

The OCTOBER meeting will be at the home of:

(SUN, 7 OCT 1990) Virginia Jacobs
 29224 Indian Valley Road
 Rolling Hills Estates, CA

Directions: Take the Harbor Freeway (US 110) south to Pacific Coast Highway (State 1) and get off going west. Go along Pacific Coast past the Torrance Municipal Airport to Hawthorne Blvd. Turn left (south) on Hawthorne and go up into the hills past the Peninsula Shopping Center (Silver Spur Rd.). Hawthorne

takes a long curve around to the left. Indian Valley Road is a little over two miles beyond the Center, on the left. 29224 is about 0.2 mi up Indian Valley Rd., opposite Firthridge Rd.

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There is an Alcor chapter in the San Francisco Bay area. Its members are aggressively pursuing an improved rescue and suspension capability in that area. Meetings are generally held on the second Sunday of the month, at 4 PM. Meeting locations can be obtained by calling the chapter's Secretary, Arel Lucas, at (408) 978-7616.

The SEPTEMBER meeting will be held at the home of:

(SUN, 9 SEP, 1990) Ralph Merkle and Carol Shaw
 1134 Pimento Ave.
 Sunnyvale, CA

Directions: Take US 85 through Sunnyvale and exit going East on Fremont to Mary. Go left on Mary to Ticonderoga. Go right on Ticonderoga to Pimento. Turn left on Pimento to 1134 Pimento Ave.

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The OCTOBER meeting will be held at the home of:

(SUN, 13 OCT, 1990) Keith Henson and Arel Lucas
 1794 Cardel Way
 San Jose, CA

Directions: Take the 17 South (880) and get off going east on Camden. Stay on Camden as it turns south and go to Michon Dr. Turn right onto Michon and go to Harwood Rd. Turn left on Harwood and go south to Almaden Rd. (1st street on right). Turn right on Almaden and right again onto Elrose, then left onto Cardel. 1794 is near the end of the street, on the left.

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There two Alcor discussion groups in the Greater New York area. Details may be obtained by calling either:

Gerard Arthus, at (516) 474-2949,
or Curtis Henderson, at (516) 589-4256

The New York Cryonics Discussion Group of Alcor meets on the the third Saturday of each month at 6:30 PM, at 72nd Street Studios. The address is 131 West 72nd Street (New York), between Columbus and Broadway. Ask for the Alcor group. Subway stop: 72nd Street, on the 1, 2, or 3 trains.

The meeting dates are as follows:

SEPTEMBER 15	OCTOBER 20	NOVEMBER 17	DECEMBER 16
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The Long Island Cryonics Discussion Group of Alcor meets on the first Saturday of every month, at the home of Gerry Arthus. The address is: 10 Jefferson Blvd.; Port Jefferson Station, L.I., telephone (516) 474-2949.

The meeting dates are as follows:

SEPTEMBER 1	OCTOBER 5	NOVEMBER 3	DECEMBER 2
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There is a cryonics discussion group in the Boston area. Information may be obtained by contacting Eric Klien at (508) 663-5480 (work) or (508) 250-0820 (home). Tentative meeting dates are October 28 and December 30.

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Other Events Of Interest

-- There will be a European Cryonics Conference October 26-29 at Gatwick Airport (London). This will include a tour of Alcor, U.K.'s new facility. See the April, 1990 issue of Cryonics for details and contact Saul Kent at 16280 Whispering Spur; Riverside, CA 92503; USA for additional information.