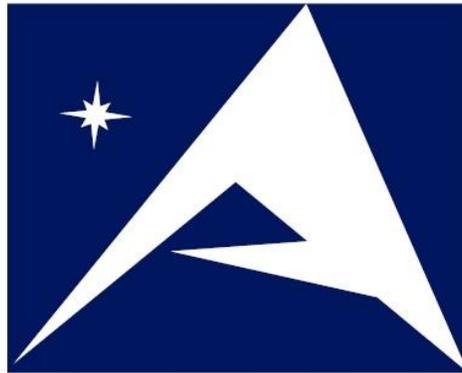


**Alcor A-2219
Michael Miller
Case Report**

ALCOR



LIFE EXTENSION FOUNDATION
The World's Leader in Cryonics

www.alcor.org

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Alcor A-2219 Case Report Contents:

1.	Overview	Page 3
2.	Personnel	Page 3
3.	Pre-Deployment Timeline	Page 4
4.	Patient Retrieval, Stabilization and Transport Timeline	Page 7
5.	Cryopreservation Events Timeline	Page 11
6.	Issues & Actions	Page 13
7.	Graphs	Page 13

1. Overview

Alcor Life Extension Foundation (Alcor) received emergency notification that a member, Michael Miller, had been found with absent vital signs, alone at home on December 3, 2009, in Tampa, Florida. A relative of his had become concerned with an absence of communication from him and requested assistance from local police to perform a welfare check. The family's worst fears were confirmed when authorities found the member, unresponsive, in cardiac arrest for possibly one or two days.

As the family was aware and supportive of Michael's desire to be cryopreserved, they notified Alcor. They also informed Alcor that police were taking Michael to the Medical Examiner (ME). An autopsy would be performed, due to the unexpected nature of the event and his relatively young age.

An Alcor representative contacted the ME's office to explain that he had legally donated his body to Alcor and that his release was a time sensitive matter. The Alcor representative thus instructed that the member needed to be kept as cold as possible. They explained that the member had previously stipulated that he not undergo an autopsy. Alcor was advised that a full, legal autopsy would likely take place the next day. Alcor representatives immediately began working with counsel to avoid or limit the autopsy, especially in relation to the member's brain. Alcor also petitioned for the member to be granted an expeditious release.

Alcor's President, Jennifer Chapman (JC) deployed their Transport Coordinator, Aaron Drake (AD) to Tampa, Florida, to begin logistical preparations and to maintain a presence on-site. The member's state was deemed suspicious, and after some consultation with the ME's office, Alcor's legal counsel warned that the only way to avoid autopsy would be to obtain a court order.

The legal pleading was filed, and an expedited hearing was held the following week. While court proceedings took longer than anticipated, the member was maintained in a cold environment for the duration. Specifically, he had been maintained at 34 °F (1.1 °C) in the morgue cooler. In the end, the ME's office fulfilled their own obligations by conducting a limited autopsy that did not include the member's brain, and then releasing him to Alcor thereafter.

Suspended Animation (SA) relieved AD in Florida, and assisted in the preparation and shipping of the member to Alcor, in Scottsdale, Arizona.

Michael Miller, Alcor member A-2219 thus became its 89th patient.

2. Personnel

Suspended Animation

- Catherine Baldwin, Suspended Animation (SA) Executive Director; Team Leader, known in the report as (CB).
- Kelly Kingston, SA Team Member [role unspecified], (KK).
- Piotr Ruc, SA Team Member [role unspecified], (PR).

Alcor Life Extension Foundation

- Jennifer Chapman, Alcor President, and Executive Director, (JC).
- Aaron Drake, NREMT-P, CCT, Alcor Transport Coordinator, (AD).
- Aschwin de Wolf, Alcor Team Member [role unspecified], (AdW).
- Hugh Hixon, Alcor Team Member [role unspecified], (HH).
- Bonnie Magee, Alcor Team Member [role unspecified], (BM).
- Steve Harris, M.D., Alcor Physician, (SH).
- Mike Perry, Ph.D., Alcor Team Member [role unspecified], (MP).
- Richard Cremeens; Alcor Team Member; Support, (RC).

3. Pre-Deployment Timeline

**Note: Mountain Standard Time (MST) unless otherwise indicated.*

Thursday, December 3, 2009

- 15:35 hrs Alcor received an emergency TeleMed call that Member A-2219 was found with no vital signs after several days alone in his home, by his sister, in Tampa, Florida. The matter was in the hands of the police.
- 18:38 hrs Discussion was underway with JC, AD, SH, CB, the Tampa ME, a funeral director and Michael's sister regarding how to manage the situation.
- 19:26 hrs The decision was made to send AD to Tampa. He departed on a flight that evening at 22:52 hrs.
- 19:40 hrs JC left a request with the Tampa Police Department to speak with the responding officers.
- 19:59 hrs Efforts were made to locate the dry ice shipping manual, Department of Transportation (DOT) regulations, and prepare a DOT letter. From this time, until AD left for Phoenix Sky Harbor International Airport, (PHX) at 22:52 hrs, the team worked to assemble the necessary equipment for him to take.
- 23:17 hrs AD confirmed with the airline that the medications were cleared to enter as baggage.

Friday, December 4, 2009

- 06:53 hrs Alcor transmitted the dry ice shipping manual, DOT letter, and summary to the necessary mortuary by fax.
- 10:24 hrs JC spoke with AD to get a summary on a dry ice shipping matter. Also, the required documentation was sent to JC, specifically the ME's document "Permit for Release of Body." The ME was convening a special group to determine the need for an autopsy.
- 10:39 hrs The permit form was sent by e-mail to JC.
- 11:56 hrs The ME's decision was still unresolved. AD was notified that if necessary, Alcor would move for a court order.
- 17:00 hrs JC updated the team that the member's ex-wife had intervened in favor of an autopsy (which had been interrupted in the morning by Alcor's legal claim). Judgment was deferred until court on Monday, three days hence. There had been some indication that the member may have had a cardiac problem.
- AD reported that a particular airline would conditionally take up to 250 lbs of dry ice.

Sunday, December 6, 2009

- 10:50 hrs Setup was completed for the board meeting. AD returned the night previous at 21:00 hrs. All logistics were in place at that point, and the team was awaiting the legal decision v. the member's ex-wife.

Monday, December 7, 2009

- 09:10 hrs The legal decision was still pending regarding the performance of an autopsy.
- 09:41 hrs A discussion among the team members was underway which covered various suspension issues, including the need for a list and a kit for ship-only situations, and a DuaLogR. Of specific concern was ensuring that the DuaLogR would not enter into the dry ice.

Tuesday, December 8, 2009

- 14:15 hrs JC was in conference with Alcor's attorneys regarding the matter of preventing an autopsy.

Wednesday, December 9, 2009

- 13:39 hrs Alcor was advised that the member would be *frozen* intact, in accordance with Jewish custom.
- 19:41 hrs JC held a discussion with CB about how to assemble the dry ice shipper. She was advised that AD would be a better point person for this as he had already made all of the logistical arrangements.

Thursday, December 10, 2009

- 08:02 hrs The judge ruled against Alcor in the member's hearing. JC thus began planning and coordinating how to proceed further.
- 17:11 hrs JC called the team to request an order of 300- 400 lbs of dry ice for the member.

Friday, December 11, 2009

- 06:42 hrs The Alcor team was advised by JC that the member would be having a CT scan. The ME stated that they would, at least, open the member's skull to assess it visually.
- 10:20 hrs The ME agreed to perform only a limited autopsy that did not include the brain. Representatives from SA were in Tampa placing the patient on dry ice, and the patient would likely arrive sometime on Monday hence.

4. Patient Retrieval, Stabilization, and Transport**Timeline:**

**Note: Times are expressed in Eastern Standard Time (EST) to provide context to the narrative*

Friday, December 11, 2009

- 08:16 hrs The SA team landed in Tampa, Florida.
- 08:19 hrs A call was placed by CB to JC to receive instructions on where to obtain dry ice.
- 09:16 hrs SA arrived at the dry ice facility.
- 11:00 hrs SA arrived at the funeral home. They were advised that the patient would not be ready until mid-afternoon.
- 11:30 hrs JC notified CB that the patient was ready to be picked up.

- 11:32 hrs The SA team left the funeral home and drove, following the mortuary's driver.
- 12:18 hrs The funeral director and the SA team arrived at the ME's office.
- 12:20 hrs The bottom of the Ziegler case was lined and the DuaLogR was prepared.
- 12:28 hrs The DuaLogR was logging but not yet in the patient.
- 12:30 hrs CB called JC for instructions about body bag removal.
- 12:35 hrs The patient was transferred to the Ziegler case. Nasopharyngeal probes were placed and were recording temperatures.
- 12:40 hrs The patient was loaded into the van.
- 12:43 hrs The patient was now en route to the funeral home.
- 13:23 hrs The van carrying the patient arrived at the funeral home.
- 13:28 hrs The air tray was set up.
- 13:56 hrs The patient was covered with 350 lbs of dry ice.
- 13:57 hrs The Ziegler case was secured with insulation.
- 14:17 hrs The Ziegler case was now completely secured with insulation and a cardboard top.
- 14:24 hrs CB notified JC that they were getting pushback from the airlines. CB was working on the matter. She also asked about how to handle the patient's personal effects.
- 14:50 hrs Two coolers were purchased to store dry ice.
- 15:00 hrs The team was advised by the airline that the maximum dry ice amount per package was 5 kg.
- 15:24 hrs An SA team member called the dry ice facility representative to ask if they could meet on Saturday (the next day) at 09:00 hrs to obtain another 200 lbs of dry ice.
- 15:26 hrs CB notified JC that they would have access to the funeral home after hours and would be able to get dry ice shipped over the weekend.
- 16:09 hrs AD informed CB that he reached another airline, confirming with them that 250 lbs of dry ice were allowed on their planes.

- 16:19 hrs CB contacted the airline's Human Remains Department, who explained that they could take 55 lbs of dry ice per package, with a total of 250 lbs per plane at maximum.
- 16:29 hrs This message was relayed to JC, who advised CB to find flights on this airline for Monday, and see if SA would have access to the patient during layovers.
- 16:39 hrs The airline called and they advised that SA would not have access to the patient during layovers unless they booked separate flights. This way the patient could be recovered at the layover and the dry ice could be topped off. Information was obtained about the Monday flights.
- 17:18 hrs The patient's nasopharyngeal temperature was -14.3 °C.
- 19:40 hrs JC e-mailed CB advise her team of the possibly of shipping on another airline.
- 20:00 hrs SA checked on their patient. His nasopharyngeal temperature was -28.8 °C. Another 100 lbs of dry ice were added.
- 20:09 hrs SA notified Alcor of the patient's status, including the addition of the dry ice. SA informed that a third airline would accept 200 *kg* of dry ice. The patient would be shipped on Monday, three days hence, out of Miami. CB would drive the patient on the coming Monday to Miami.

Saturday, December 12, 2009

- 08:30 hrs The SA team left the hotel for the dry ice facility.
- 08:50 hrs They arrived at the facility and were informed by the attendant that the door could not be opened, that someone had tried to break in overnight and that a locksmith was en route.
- 09:54 hrs Dry ice was obtained, and then the team left for the funeral home.
- 10:26 hrs The team arrived at the funeral home.
- 10:30 hrs The patient's nasopharyngeal temperature was -75.6 °C. 80 lbs of dry ice were added to the patient's container, which was found free of condensation.
- 12:20 hrs JC called CB to finalize the Miami flight and see if possession of the patient could be taken.
- 13:11 hrs Alcor called to inform SA that the patient could be taken and that he was booked on the 17:00 hrs flight on Monday, December 14, 2009.
- 14:00 hrs A truck was rented in Tampa to accommodate the patient transfer.

- 15:00 hrs CB notified JC that they were leaving the funeral home, and heading for SA.
- 15:10 hrs SA left the funeral home.
- 19:37 hrs The SA team arrived at their facility.
- 19:50 hrs The patient's nasopharyngeal temperature was -77.4 °C. He was topped off with more dry ice.

Sunday, December 13, 2009

- 10:15 hrs The patient's nasopharyngeal temperature was -77.0 °C. Condensation was noted at the bottom of the plastic and in the tray. The plastic sheeting was pulled down when the cardboard cover was placed over the assembly, exposing insulation. Very little sublimation was seen overnight. Dry ice still covered the patient completely and near the top of the Ziegler case. No additional dry ice was added. The plastic sheeting was taped in place. The cardboard cover was left off to dry. The DuaLogR was swapped out with a new one.

Monday, December 14, 2009

- 08:56 hrs The patient's nasopharyngeal temperature was -78.6 °C.
- 10:00 hrs 60 lbs of dry ice was added to the patient's case.
- 12:05 hrs Two SA team members leave for the Miami airport cargo area.
- 12:59 hrs Back at Alcor, the team was working on preparations for the patient transfer for most of the day.
- 13:30 hrs The team arrived at the address of record for the airline cargo office, which was incorrect. Directions were obtained from a local business.
- 13:47 hrs The team arrived at the airline cargo office. Their representative stated that there was no information on the airway bill that said that SA was transporting dry ice. The necessary paperwork was filled out. Matters were delayed because the airline did not have a dry ice label and had to search the warehouse to find one. It was found after over half an hour. The team was cleared to go with this airline.
- 15:01 hrs Two SA team members leave the airline cargo office to return the rental truck.
- 17:00 hrs The team arrived back at the SA facility.

5. Cryopreservation Events Timeline

Monday, December 14, 2009

Note: Time zone expressed in Mountain Standard Time (MST)

Team Members Present:

- Aschwin de Wolf
- Hugh Hixon
- Richard Cremeens
- Bonnie Magee
- Steve Harris, M.D.

- 21:00 hrs The team was assembled in the patient care bay (PCB).
- 22:40 hrs Alcor patient A-2219 arrived at the facility. There was a problem at Air Cargo with the 560 lb shipment. [Unspecified]
- 22:42 hrs The Ziegler case was too heavy to lift out of the delivery van. Removal of the dry ice was suggested.
- 22:45 hrs Dry ice was removed from the Ziegler case. The case was then withdrawn from the van and rolled into the PCB on a furniture dolly.
- 22:48 hrs The pod was cooled with nitrogen vapor. The patient was lifted from the Ziegler case with a hoist.
- 22:51 hrs The patient was suspended over the pod; the dry ice and packing were cleared.
- 22:52 hrs The patient was observed to be frozen with his legs slightly separated. There was also evidence of scalp removal.
- 22:54 hrs The patient was placed into the sleeping bag with a neuro can over his head. He then was lowered into the pod with a hoist. There was some difficulty fitting the sleeping bag over his shoulders.
- 22:56 hrs The sleeping bag was now over the neuro can and patient, and the team was working on zipping it up.
- 22:59 hrs The sleeping bag was zipped up.
- 23:00 hrs Team members worked to strap the patient to the pod.
- 23:03 hrs The task of strapping was complete. The pod was cooled with liquid nitrogen (LN₂).
- 23:04 hrs The pod cover was in place and screwed down by team members.

- 23:07 hrs The pod cover bolts were tightened, and the hoist was attached to the pod.
- 23:08 hrs The pod was lifted with the hoist.
- 23:09 hrs The lift was now clear of the roof opening.
- 23:10 hrs The dewar was placed under the pod, and then the pod was lowered into the dewar with guidance.
- 23:11 hrs The pod touched down in the dewar. The hoist bar was removed.
- 23:12 hrs The fan/fill lid was placed onto the dewar.
- 23:13 hrs The edges of the dewar's lid were taped to the dewar.
- 23:17 hrs The taping was complete.
- 23:19 hrs The fill hose was attached to the dewar lid.
- 23:20 hrs The fill tank valve was opened.
- 23:22 hrs The fill was initiated from the computer (PC). The fan in the dewar was found to be making rattling sounds. A-2219 cooldown was started.
- 23:30 hrs The SA thermocouple was noted to have been left in the patient.
- 23:31 hrs PCB cleanup was underway.

Wednesday, December 16, 2009

- 12:03 hrs Patient A-2219's shipment temperatures were downloaded and plotted.

Thursday, December 17, 2009

- 12:57 hrs A cooldown check was performed on the patient.

Saturday, December 19, 2009

Cooldown was complete. Held for equilibrium and fill.

Sunday, December 20, 2009

- 15:37 hrs The cooldown and fill were now complete.
- 23:34 hrs The cooldown lid was removed.

Monday, December 21, 2009

17:45 hrs The cooldown data for patient A-2219 was downloaded and plotted.

Tuesday, December 22, 2009

11:15 hrs Patient A-2219 was transferred to BF1.

13:00 hrs The transfer was complete; cleanup underway.

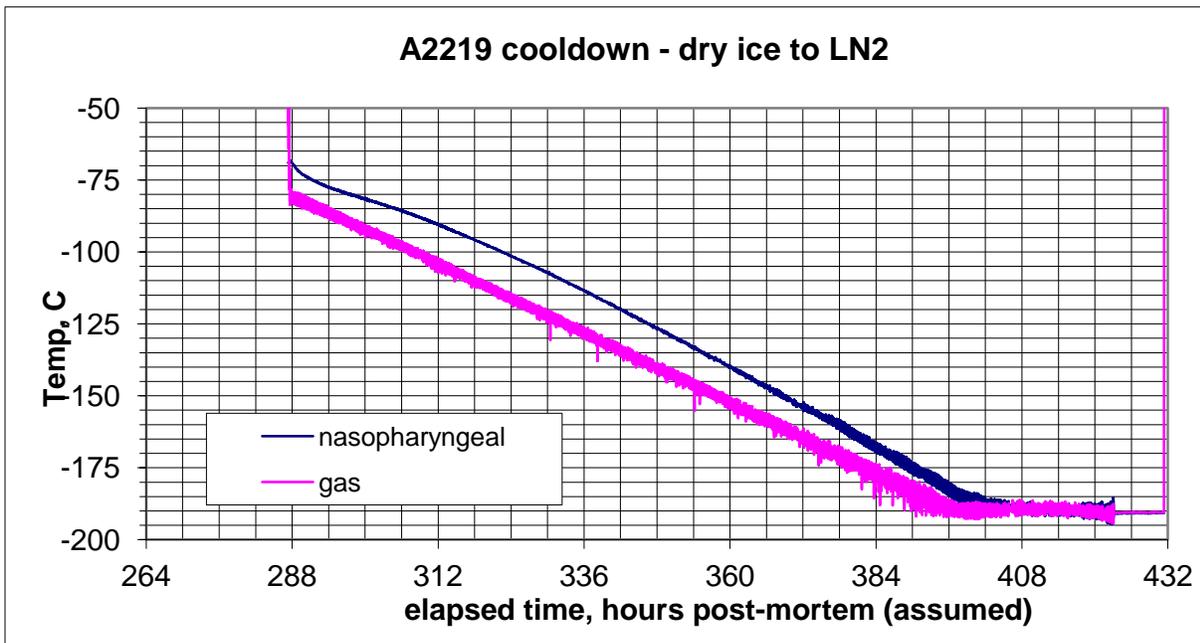
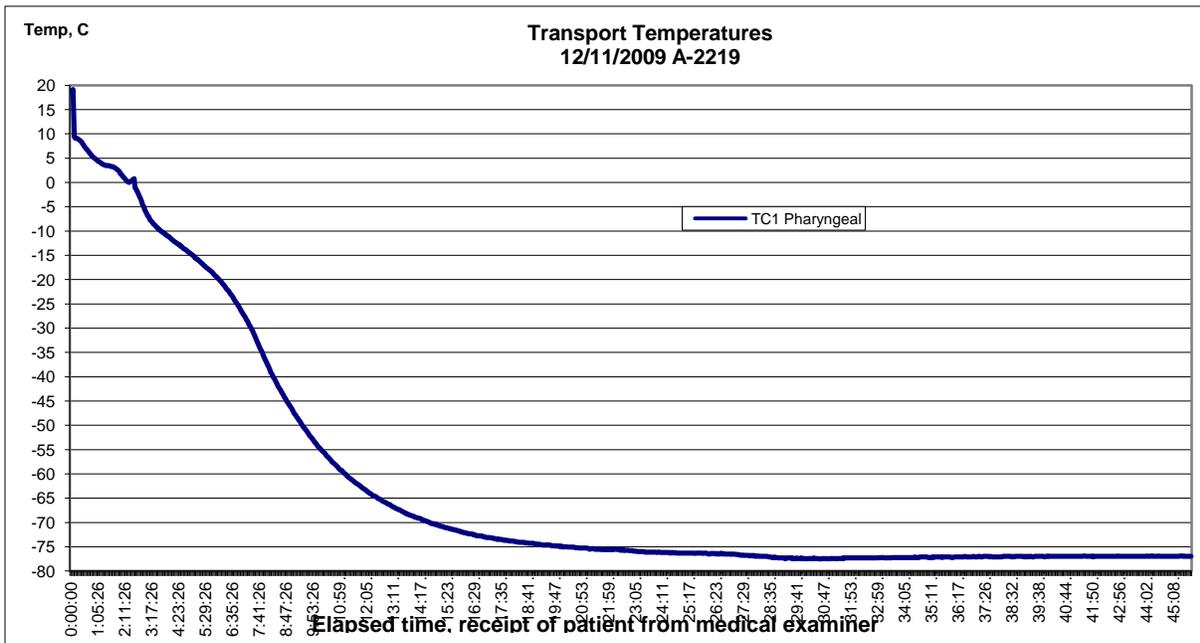
6. Issues & Actions

None provided

Note from Author:

This case report was written from all available data, on an atypical case where the standard protocols could not apply. Omissions or errors are a result of these conditions and the time span between when this was written and when the events occurred.

7. Graphs



--End of report--