

# Alcor A-3755

## Case Report



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## 1. Summary

*Information was derived from multiple sources and was all converted to Mountain Standard Time (MST). For de-identification, dates are not shown. T-0 represents the date of cardiac arrest, T-X represents occurrences before T-0, and T+X represents occurrences following T-0.*

A-3755 was a 70-year-old member with whole-body, third-party cryopreservation arrangements. This was a postmortem notification. No autopsy was required. The death certificate stated the cause of death as cardiopulmonary arrest subsequent to hypertension.

The time of cardiac arrest was not recorded by the attending medical personnel. The member was pronounced legally deceased in California at 17:41 hrs on T-0 days in November of 2024. This was a cryopreservation without cryoprotection (a straight-freeze procedure).

After recovery from the funeral home, the patient was driven to Alcor where cryogenic cooldown would be performed. The cryogenic cooldown was initiated on T+2 days at 16:46 hrs and terminated on T+7 days at 16:24 hrs. The patient was transferred to long-term care at liquid nitrogen temperature on T+10 days at 11:21 hrs.

## 2. Member Assessment

### T-0 days

An Alcor member contacted Alcor at 22:26 hrs seeking whole-body cryopreservation for another family member, who had gone into cardiac arrest approximately five hours earlier at a hospital where employed. For this report the estimated time of cardiac arrest is 17:00 hrs on T-0 days.

The patient was not an Alcor member but had expressed interest in cryonics. Contracts were planned for signing the following morning, and a straight freeze procedure was confirmed. Deployment was tentative pending contract confirmation.

## 3. Patient Recovery and Transport to Alcor

### T+1 days

The Alcor Deployment and Recovery Team (DART) confirmed that the contracts were being finalized at 08:45 hrs, the Alcor Board of Directors was approving the membership, and deployment could proceed. Coordination with a funeral home began.

Warm ischemia occurred from the time of cardiac arrest (approximately T-0 days, 1700 hrs) until the patient was placed in a hospital morgue cooler (T+1 days, 00:00 hrs), an estimated duration of eight hours. Hospital morgue coolers are typically maintained at temperatures between 2°C and 4°C. The patient remained in the hospital morgue cooler until being transported by a funeral home to its facility. Although the funeral home was requested to place ice around the patient, this request was not fulfilled. The patient was then held in the funeral home cooler, which is also typically maintained between 2°C and 4°C. Dry ice was ordered at

12:35 hrs and delivered from a city approximately 40 minutes away. The delivery arrived just prior to DART's arrival (see below).

At 12:34 hrs, the DART team prepared to deploy. The DART team landed near the member's location at 15:23 hrs. A rental van had been reserved in advance for the team to use to transport the patient back to Alcor. The team picked up the rental van and drove to the funeral home, arriving at 17:00 hrs, and immediately packed the patient with the dry ice that had just recently been delivered.

Thermocouples were placed in the patient's nares at approximately 17:10 hrs and surrounded with wax to prevent ice and water from entering the nares and affecting the temperature readings. Initial body temperatures were: Left nasopharyngeal temperature (LNPT) 22°C, right nasopharyngeal temperature (RNPT) 24°C.

DART then proceeded to build the insulated transport container while the patient was cooling (see the Discussion section). Once built, they placed the member in the transport container and replenished the dry ice.

Cooling with 200 lbs. of dry ice was initiated at 17:15 hrs while sourcing alternatives for the Ziegler case. At 20:15 hrs, a burr hole was placed in the patient's skull and a thermocouple was placed in the burr hole. The patient's temperatures at approximately 20:18 were: LNPT 12°C, RNPT 13°C, BHT 15°C (see the Discussion section).

The patient was placed in the dry ice shipper with insulation and an additional 100 lbs. of dry ice for transport.

The DART team departed the funeral home at 21:00 hrs to drive the member to the California/Arizona border to await the death certificate and the transit permit that would be forwarded to them.

#### T+2 days

The patient's temperatures at 07:00 hrs were: LNPT -4.3°C, RNPT -2.1°C, BHT -2.4°C.  
The patient's temperatures at 10:00 hrs were: LNPT -22°C, RNPT -17°C, BHT -19°C.

The transit permit was forwarded to the team at 11:48 hrs. The team immediately proceeded to cross the border and drive the patient to Alcor. At 13:44 hrs patient's temperatures were: LNPT -31.7°C, RNPT -36.7°C, BHT -35.4°C.

#### 4. Cooling to Liquid Nitrogen Temperature

The DART team arrived at Alcor with the patient at 16:08 hrs on T+2 days. The patient's temperatures were: LNPT -42.7°C, RNPT -38.3°C, BHT -41.0°C.

Computer-controlled cryogenic cooldown was initiated at 16:46 hrs on T+2 days, plunging to -80°C and descending thereafter at -1°C/hour to liquid nitrogen temperature. On T+7 days at 16:24 hrs, an uneventful cooldown was terminated. On T+10 days at 11:21 hrs, the patient was transferred to long-term care at liquid nitrogen temperature.

#### 5. Timeline and Time Summaries

##### Timeline

T-0	17:00	Estimated time of cardiac arrest
T-0	17:41	Time of legal pronouncement
T-0	22:26	Notification of legal death
T+1	17:00	Patient recovered (LNPT=22°C, RNPT=24°C)
T+1	17:00	Start of dry ice cooling at funeral home
T+1	20:15	Patient temps (LNPT= -12°C, RNPT= -13°C, BH= -15°C)
T+1	21:00	Patient left funeral home for CA/AZ border
T+2	16:08	Arrival of patient at Alcor
T+2	16:46	Start of patient cryogenic cooldown
T+7	16:24	End of cryogenic cooldown
T+10	11:21	Transfer to long-term care in LN2

##### Time Summaries

Event Duration hr:min		days	time	
00:41	From: Till:	T-0 T-0	17:00 17:41	Estimated time of cardiac arrest Time of legal pronouncement
24:00	From: Till:	T-0 T+1	17:00 17:00	Estimated time of cardiac arrest Start of dry ice cooling at funeral home
47:08	From: Till:	T-0 T+2	17:00 16:08	Estimated time of cardiac arrest Arrival of patient at Alcor
00:38	From: Till:	T+2 T+2	16:08 16:46	Arrival of patient at Alcor Start of patient cryogenic cooldown
47:46	From: Till:	T-0 T+2	17:00 16:46	Estimated time of cardiac arrest Start of patient cryogenic cooldown

## 6. Discussion

### Patient Recovery

When the DART team arrived at the funeral home, it was learned that the funeral home did not have a Ziegler case available for shipping the patient. Due to the last-minute nature of the case, DART was en route via air when the funeral home was sourced. Funeral homes do not usually have a stock of Ziegler cases. Without a Ziegler case, there is no base upon which to construct a shipper per the current instructions provided by Alcor. The DART team, rather than waiting for a Ziegler case to be shipped from Arizona, took the initiative and innovation to purchase and build an insulated whole-body shipper that could hold the patient and dry ice needed for cooldown while driving. A draft of what was built is being made so that future DART team members may use the model for future cases if no Ziegler case is available.

While the patient had been stored in the hospital and the funeral home coolers for at least part of the time before DART's arrival, the initial patient temperatures were not as low as would normally be seen upon placement of the temperature probes. The reason for this is unknown.

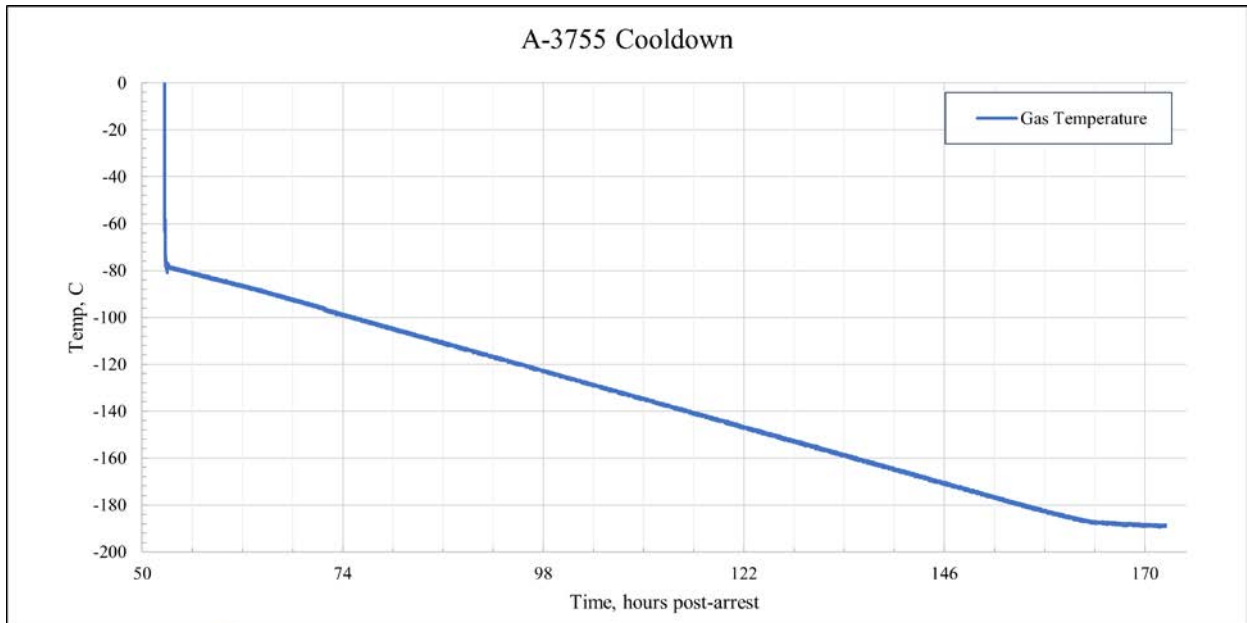
The batteries in the drill were not charged when needed for the burr hole. The purchase of the battery was done while shopping for the supplies needed to build the shipper. This resulted in a delay in making the burr hole of approximately 3 hours. The team members have been instructed that things like batteries for equipment in the kits should be checked before each deployment. It is also now standard to pack a charging station for all rechargeable battery-operated devices.

The staple gun had only one staple and there were no refills. The MRD has purchased disposable staple guns that do not require refills, save money, and eliminate the risk of not having staples in the gun during a deployment.

The airline taken by the team to deploy to the patient's location charged a fee for the kit being over their maximum weight. The kits are being completely reorganized to meet the weight requirements of the airlines.

The collaboration between the Alcor staff and DART helped make a difficult case as good as it could be under the challenging circumstances.

### 7. Cryogenic Cooldown Graph



### 8. CT Scans

#### Cryoprotectant Distribution (Post-cryopreservation CT scan)

Because this was a straight-freeze procedure, no CT scans were obtained.