



STANDBY MANUAL

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Welcome to the Cryonics Institute Standby Manual. Our intention is to provide a quality step-by-step guide that individuals and standby groups can refer to for planning and setting up their local standby efforts.

This open-source manual is the result of contributions from many members of the world-wide cryonics movement, to whom we extend our sincere thanks for their input. As an open source document, this manual is not intended to be the final word on standby, but rather a starting point and a work in progress. Please refer to the revision number on each page to be sure you have the most current version available, as we expect this manual will grow with future suggestions and contributions from the cryonics community.

For details on how to purchase a pre-built BASIC or INTERMEDIATE Standby Kit from CI, please send an email to CIHQ@aol.com. Suggested prices for the kits are \$400 for the Basic Kit, and \$4,000 for the Intermediate Kit, plus shipping and handling.

Please note, we do not currently offer an Advanced Standby Kit, however, this manual does offer a suggested list of equipment. This kit is in development, and based on interest, we plan to provide an Advanced Kit and / or detailed instruction series in the future.

Local Cryonics Standby Simplified

by Dennis Kowalski

INTRODUCTION

The purpose of this manual is to help people who are signed up for cryonics to prepare and plan for the standby phase of cryonics so that they, or their friends and loved ones, can receive the best possible care when the need arises.

The entire process of cryonics can be broken up into three phases.

1) PLANNING & STANDBY

- Records and Documentation
- Local resources (doctors, coroners, etc.)
- Standby Preparation & Training
- Performing Standby Procedure
- Transport

2) LONG-TERM STORAGE

3) REVIVAL

The first is the planning phase, of which standby is an integral part. The second is the long term cryonic storage phase and the third is the final, or reanimation phase. In reverse order, there is little we can do about the revival phase at present, other than to achieve the most optimal suspensions possible today, and continue working to educate the public about cryonics. We can also seed the money to support research that we hope will someday enable us to reanimate patients, but there

is little doubt that this critical last phase will evolve over time via vast amounts of money and the efforts of global industries that may not even exist yet. We have the least control over phase three, so we must simply wait and anticipate the coming of the hospital of the future that will have the means to revive cryonics patients.

The next phase is the long term cryonics storage that most of us recognize as our contract with the Cryonics Institute. As members, we can do much more to affect phase two. We pay attention and vote for our leadership. We donate time and money to make our organization stronger and more viable. We make sure that CI stays on mission and doesn't stray too far into uncharted territory or enter into risky or expensive ventures. As ambassadors of cryonics, we do much to represent cryonics to the public and to our families who we wish to persuade in the great arena of ideas.

Finally, we are left with phase one: Planning. On a personal level, this phase is really the most important if we wish to accomplish our goals and have a viable chance to see the future.

Many people find it hard to really get involved in the planning phase, especially when it comes to planning about death. Is it any wonder that 43% of people in the United States who have a compelling need for life insurance don't have any, much less an adequate amount? 55% do not even have a will. It is clear that people do

not like to face death and there are likely deep psychological reasons for this. Even among cryonics advocates there is a strong tendency to procrastinate, and many members wait years or even decades before they even sign up with a cryonics organization. Once signed up, some members get complacent again and do little to plan or begin preparing for adequate local standby. It is easy to believe that you can pay a little extra and have a turnkey, or fully comprehensive cryonics standby unit, ready to respond from some remote location. This may work for some people, depending on distance, but for others it often results in a false sense of security. While it is certainly better to have some planning with a professional remote long distance standby team than not, the first and most important planning must be done *locally*. Logistically, the most likely place you will be in your first moment of cardiac arrest is somewhere local near your home or work.

Standby can best be thought of as planning in layers. The more layers of protection, the better, but you will always want to consider the logistics of your personal situation, including distance, health, age and other factors and determine the options that best suit you.

It is critically important to begin cooling and standby as soon after cardiac arrest as possible! There are basically three ways you can deanimate or fall into cardiac arrest. The first is that you may go into a slow, but planned or terminal witnessed arrest. This is very common in people who have terminal illnesses such as cancer or end stage heart, lung, or brain disease. While not a pleasant way to die, this type of death can sometimes be a mixed blessing because of the advance notice it gives to local or remote standby teams. Conversely, dy-

ing this way with brain disease can also be a curse if we lose the very neural structure we are trying to preserve.

The second way to arrest is sudden but simple witnessed arrest. In this case, you may not have the logistical luxury of a remote standby due to constraints of time and distance. You are forced to rely on the person who witnessed your cardiac arrest to notify interested parties and begin to carry out your local standby wishes and arrangements. Hopefully that person is a relative or friend who is aware of, and prepared for what needs to be done immediately.

The third way to arrest is alone or unwitnessed. In this case, you are in dire straights, indeed. Simple fate and the length of time until you are found will determine your suspension outcome.

*Note** There is strong evidence that wearable patient alert devices will be available in the not-too-distant future to facilitate early notification and thus early cooling of an unwitnessed arrest. It will be wise to pay attention to these technological developments as they come to market.

It is clear in both types of arrest, witnessed and even unwitnessed, that a degree of local planning makes a world of difference in the quality of the suspension a member might receive. Simply put, a close layer of protection means timely early cooling, which means better suspensions. We have a great deal of control over our fate if we choose to seize that control. It is the aim of this document to urge all cryonicists to take control of their own fate rather than leave their fate to random chance.

Ironically, some of the most crucial work that can be done by a member wishing to set up his/her own local standby is also the least time-consuming and most inexpensive. The worst things you can do are to be reclusive, private or complacent about your cryonics and local standby needs. Let's face it, many of us have had a hard time dealing with the negative myths and misconceptions from not just the public, but even from those closest to us. Unfortunately, it's no wonder that some people choose to avoid the topic of cryonics and their personal involvement with it both publicly and privately among friends and family. However, it is a terrible mistake to keep your cryonics wishes secret from those who are most likely to be close by when you finally arrest. We are not asking members to proselytize or recruit the world into the cryonics fold. In fact, there is strong evidence that **too aggressive** an approach to selling the idea of cryonics can drive people away. This is especially troublesome if you are driving away the very family or professionals you will need to facilitate your quick suspension.

We need to discuss cryonics with our friends and family, but the question is how to approach the topic.

THE APPROACH

When it comes to talking about cryonics and communicating our ideas, we have to understand that there are many approaches and that not all approaches are appropriate for all situations. What we are proposing is, by all definitions, outside of conventional wisdom and sometimes we have to accept the fact that we are not going to change people's minds about cryonics overnight. What seems obvious to us is absurd to many people who are

approached with the concept of cryonics. Many cryonicists feel it is their duty to convince the public, and those around us, that cryonics is a rational and logical enterprise. After all, we don't want to be alone when we revive and would also like to rescue our loved ones from permanent death with us. The problem is that no matter how persuasive and logical our arguments, we are inevitably going to cause a disconnect from some people, and may even create tension and hostility by trying to *sell them on the idea of cryonics*.

However, what's important to recognize is that *we do not always need to sell people on the validity or soundness of cryonics when seeking help*. It may surprise you to know there are many people who have helped and worked with the cryonics movement who have no belief in the concept whatsoever! However, those people did exactly what was asked of them to assist in the process, in spite of their own personal beliefs about cryonics as a viable concept or not. Therefore, when it comes to standby preparations, it might be better to have fully committed cryonics advocates at your side, but it is not always practical or even necessary for people to be "true believers" in order to receive their full cooperation to help you with your standby and preservation.

We simply need people who are willing to honor what they understand to be "your last wishes," whether they personally agree with them or not. It is much easier to get a doctor or funeral director to wrap his or her head around the simple concept of honoring someone's final wishes rather than trying to successfully debate them on the great philosophical argument of whether cryonics is the right thing to do. The simple concept of "honoring someone's last wishes" is a powerful argument

with a long history and a strong moral precedent. It is rooted as a universal tradition among most cultures and is seen as the right thing to do by most people.

The professionals that are helping you may still see your ideas as kooky or fringe, but as long as they understand and believe that what they are being asked to do is **ethical and legal**, they are very likely to be willing to help. It is extremely important for the person asking for help to use the right approach by giving people compelling, logical, ethical and legal reasons to help you. Honoring someone's last wishes or their family's wishes in the time of great sorrow and pain associated with the loss of a loved one is seen as a noble duty and an act of benevolence — and that is good enough reason for most people to help. This ethical argument is a strong one and should be employed to obtain the help we need.

Once the question of ethics has been settled, it is important to back up our requests with the necessary legal paperwork to establish that what we are doing is approved by law, and especially that those helping will not get into trouble. It is important to offer any documentation not as a threat to force cooperation, but as further reason to convince that those who might help you that they won't suffer any legal or other consequences by doing so. It's easier to catch flies with honey than with vinegar, so use your legal leverage as positive reinforcement to support your case.

Documents that clearly state who has control over your body and how the remains will be handled are very useful, as is a Uniform Anatomical Gift Act, which also benefits your case as a long-standing precedent that hospitals and funeral homes are familiar and comfort-

able with. It is better to present these documents to relevant parties well before cardiac arrest if at all possible. No one likes getting handed a stack of legal papers last minute, especially in an emergency situation. If the professional on site receiving these documents feels that they are getting the bum's rush or being blindsided by complications they are unfamiliar with, they could easily put the brakes on everything. They are very likely to choose to slow down and take a minute, or worse, *a few days* to review the documents and mull over the ramifications. They may even stop completely in order to get a review from their legal department, causing critical delays that will jeopardize your chances for a successful suspension.

Finally, there is the simple fact that money talks. For some professionals, the bottom line of whether they will help you or not depends on what is in it for them. There have been several clever ideas about providing bonuses to doctors who pronounce death promptly and for funeral directors who expedite your wishes quickly. In fact, all planning should be set up to reward those who act fast on your behalf.

Some have even gone so far as to place penalties in their wills for those who stand in the way of ones suspension. i.e, a family member gets an extra \$1,000 if he/she notifies the Cryonics Institute within the first 10 minutes of pronouncement. Alternately, provisions can be added that a family member's \$100,000+ inheritance shrinks to \$1.00 if they stand in the way of my cryonics suspension or contest my will. There are many clever ways to structure your estate to remove any profit motive that could get in the way of your suspension.

In any event, one of the most important factors of standby is having the people around you on board and helping. They may think your ideas are nutty, but as long as they know they are acting ethically, legally and within the bounds of your last wishes, then they are likely to help. It certainly doesn't hurt for them to understand that they may profit from helping as well - or lose out if they don't.

If you don't have the people around you on board and willing to at least notify CI as soon as arrest starts or even before then, unfortunately, all the equipment and preparations associated with standby are worthless. You need an advocate to help and speak up for you when you can't. It doesn't matter if you have a large standby team made up of close friends who agree with your ideas or a spouse who deplores the idea of cryonics. You need to have them on your side and willing to act according to your wishes when it counts. You need to discover the correct approach, and for some people this means trial and error. It might mean finding a new doctor or a new funeral home. In some cases, it might even mean finding someone outside of your own next of kin to sign over the rights to your remains. If you do not have those around you on board, then you need to find an advocate who will be on board before moving forward with your other arrangements and plans. Equipment, contracts, and so forth mean nothing if there is no one locally to notify the right people and to exercise these plans on your behalf.

LOCAL MANPOWER

The most powerful asset you can have is a strong advocate willing to physically begin early standby, or at least to direct others to carry out your wishes in a time-

ly manner. Next of kin, family, or a close friend with the proper documentation, as you can imagine, carries much more weight with professionals than the word of some obscure official from a cryonics company who probably isn't even on site yet. While it is extremely important that early notification be made to the cryonics organization, the people closest to the "deceased" will be given greater latitude and will be heard with a far more sympathetic ear. Family and close friends should not be dismissed unless they are outright hostile to cryonics and your wishes. They are the key front line players in seeing that your plans are carried out. It is also important to note that professionals are used to dealing with persons advocating your wishes on your behalf after you've passed, which can avoid any miscommunications or confusion and save precious time when it matters most.

If, on the other hand, you have no cooperative family to help, you should have legally assigned someone else locally to assume the role of your advocate. This person advocating as a "close friend" would simply need to express to professionals that cryonics was your "final wish" and that you are cooled as soon as possible, preferably in ice water. That person would need to notify or assure that CI has been notified of your situation and provide contact numbers so that CI could contact the local professionals with further evidence of your "last wishes" along with directions to facilitate a good suspension. It is also a good idea to ensure your advocate has access to, or copies of pertinent documents related to your suspension wishes and arrangements to further convince involved parties everything is legal, ethical and on the level.

Obviously, this is the most basic and minimal of local cryonics planning, but you would be surprised at how many people have not taken the time to express and document their wishes thoroughly. One of the most common ways to not get suspended in a timely fashion is by not taking advantage of techniques to allow immediate notification of your wishes during an emergency.

See the next section, “Immediate notification for emergency response” for some tips on improving your odds of getting help when you need it.

IMMEDIATE NOTIFICATION TOOLS FOR EMERGENCY RESPONSE

1. Discuss your cryonics plans with family, friends and significant next of kin. Set-up a next-of-kin agreement or provide legal power of attorney to your personal advocate.
2. Provide your lawyer and funeral home with letters of intent and documentation of your wishes. If your health condition is terminal, providing a letter of intent to your hospice agency and/or Local Emergency Response Services, i.e. Fire and Ambulance, may also be helpful.
3. Purchase and wear Cryonics Bracelets and Necklaces (consider different designs and styles.)
4. Carry your cryonics wallet card and your driver's license with cryonics sticker on it with you at all times. (These are provided to CI's funded members free of charge.)
5. Utilize the File of Life for your home and automobile. (File of Life packets are provided to CI's funded members free of charge.)
6. Download and utilize the Cryonics Institute phone app.
7. Cryonics Patient alert system (yet to be developed). IE. Wrist watch like pulse sensor with GPS, blue tooth-Smart phone app to signal imminent cardiac arrest.

The next part of cryonics is the immediate cool down phase once a patient has been declared legally dead. It is useful to divide standby cooldown into three levels based on skills and equipment - these are Basic, Intermediate and Advanced. The separate procedures and equipment lists for all three types of standby follow. They are a colmination of the efforts and suggestions of many people, and are by no means the final word. These lists are an example or template to be used by cryonicists as a starting point to prepare and have a sense of readiness in case a cryonics emergency should arise.



BASIC STANDBY KIT



BASIC CRYONICS STANDBY INSTRUCTIONS

1. In a medical emergency, call 911 or your country's emergency services hot-line immediately. If the emergency is potentially life-threatening, contact CI and your local standby resources to prepare for a cryonics emergency.
2. In a cryonics emergency, make sure legal death has officially occurred before beginning cool down. Death can usually be declared by a medical doctor but in some cases can be declared by a hospice nurse or a paramedic working under the direction and protocols of a medical doctor.
3. Notify the Cryonics Institute at 1-866-288-2796 and additional resources - i.e. standby helpers, funeral home, etc.
4. Immediately after death or as soon as possible begin cool down of the patient with ice water, ideally using a full-body ice bath. If ice is limited, focus cooling to the head as a priority. Do not freeze the patient. * Make sure water doesn't cover the patient's mouth or nose. Water can compromise the patient's airway.
5. Immediately commence CPS (Cardio Pulmonary Support). This can be done manually with a pair of insulated water proof gloves on. If you have access to a Cardio Pump or ResQ Assist CPR Device this will help to make CPS more efficient.

Flip the red switch on the Impedance Threshold Device (ITD) connected to the Bag Valve Mask. The unit has a flashing indicator light that tells you when to squeeze the bag and provide a breath for the patient.

Begin 30 compressions to 2 ventilations as per the American Heart Association (AHA) recommendation for CPR. Use of a mask with one way valve to give ventilations is recommended but a bag-valve mask may be better.
6. Inject 40,000 units of heparin directly into the patient's heart. If you already have IV or IO access from EMS you can use these ports for vascular access to inject the heparin. Flush with 20cc of saline and circulate with CPS. If the patient has been in cardiac arrest for greater than 15 minutes skip this step and focus on cool down. Heparin is used to prevent blood clotting, so beyond 15 minutes the use of heparin is not recommended or useful.
- 6a. Note, if a Nasogastric Tube is in place, this may be used to inject antacids, such as Maalox®, to neutralize stomach acid.
7. Continue ice water cool down and CPR for approximately 1 hour. If available, use a pitcher or hose to facilitate water transfer. Replenish ice as needed. Use additional help and a mechanical device such as the CPR assist (if available) which features a light and voice prompts to assist in providing high-quality CPR.
8. At this point drain some of the water and back fill the ice bath shipping container (such as a Ziegler that the funeral director should be able to provide. Check this in advance) with patient and ice. Do not freeze patient. Deliver or send ice-packed patient to the Cryonics Institute immediately. Ensure that the patient is in a secure insulated container and has adequate ice to last the trip. If possible send an advocate with the patient to ensure prompt transport to the Cryonics Institute.

*A useful acronym is I.C.E (Immediate notification, Cool down and CPS urgently, Evacuation to the Cryonics Institute as fast as possible.

*Note if you are overseas then you will want your local funeral director or advanced standby group, such as Cryonics UK, to do a perfusion of CI-VM-1 if it is available in advance. Alternatively, a straight freeze with dry ice is recommended over regular ice. It can take up to 4 days to properly cool your body to dry ice temperatures. See CI's website or have advocates call for emergency instruction. **1-866-288-2796.**

BASIC CRYONICS STANDBY EMERGENCY KIT INVENTORY

1. Information Packet containing instructions for early notification and simple instructions.
2. Maps, contact phone numbers, and location of additional emergency resources and/or other useful documentation. It is up to you to make arrangements with funeral directors and friends in advance and to introduce them to this kit and guidebook. Your kit includes extra plastic sleeves to keep these materials with your binder.
3. Cooler or Coolers (not included with CI's Standby Kit) with a nearby source for ice. i.e. a stocked freezer or list of 24/7 ice vendors nearby. A source of cold water and a pitcher for ice water movement
4. Ice water containment for patient or Ice Bath. i.e. Body bag, inflatable shower basin for head, or access to a bathtub for cool down.
5. Basic CPR kit. Waterproof insulated gloves i.e. Ice fishing gloves for manual chest compressions. CPR Face piece with one way valve for ventilations. BVM (bag valve mask) may be better. A hand held CPR Res-Q-Assist device will facilitate much better CPR. Oral Airway may also help patient ventilation.
6. Heparin 40,000 units, Syringe and Cardiac Needle.

Additional useful items that you may want to add to your kit would include:

- Knee pads for kneeling on ground.
- Documentation supplies. i.e. note book, pen, stopwatch.
- PPE Personal Protective Equipment. i.e. safety glasses, sterile gloves, mask, hand sanitizer, Bleach wipes and trash bag.
- Wrist watch or stopwatch.
- Trauma Shears to cut away patient clothing.
- Flashlight.
- Thermometer and probe with ear plug to insert into patient's nostril to gauge brain temperature.
- Cellphone with pre-programmed phone numbers.
- Clearly marked equipment bag to contain kit.

Don't forget to check your kit every 90 to 180 days to ensure batteries are good and that everything is up to date and current with your equipment, with CI and with your local resources. (Local resources include Funeral Home, friends and family). It is also a great idea to open up and review your equipment and rehearse or quiz helpers on a regular basis. I also pay my funeral director an annual fee of \$100 for one hour of their undivided attention and cooperation.



1 Mega Mover Tarp

to move patient from one place to another such as to ice bath or ice filled bath tub.

2 Insulated Waterproof Gloves

for manual CPR.

3 ResQ Assist CPR Compression Device

to assist in CPR. Button activates light and voice to direct timing of CPR on patient in ice bath.

4 Inflatable Shampoo Basin

to be used to cool only the patient's head if ice is limited.

5 Heavy Duty Body Bag with handles

to be used as ice bath

6 Direct Cardiac Injection Kit

with heparin to be delivered directly into heart if IV or IO access is not already established by medical crews.

A: Jloop IV or IO connection port and short tubing.

B: Saline syringe for flushing medications in to the patient

C: Syringe for heparin injection

D: needle attaches to heparin syringe for direct injection or to draw up heparin for IO or IV injection.

E: Bandage

F: Heparin

G: Alcohol Pads

7. BVM Bag Valve Mask

for delivering breaths to patient

A: Oral airway to prevent tongue from blocking throat.

8. Digital Temperature Thermometer

to measure approximate brain temperature.

A: Temperature probe and wiring.

B: Ear plug to be inserted in nose to hold probe in place.

9. Backpack

to consolidate the entire basic kit. A large cooler or a travel bag will work fine as well.

10* Instructions

(cooler and ice not pictured)

* Ice cooler and ice supply are not included in this kit, but are an essential part of your standby preparations and planning. Please purchase a cooler locally and include it with your kit, including a list of 24-hour locations to get ice should you need it in an emergency situation. Another useful household item to have on hand would be a pitcher for transferring ice and water.

INTERMEDIATE STANDBY KIT



INTERMEDIATE

CRYONICS STANDBY INSTRUCTIONS

1. Make sure legal death has officially occurred before beginning cool down. Death can usually be declared by a medical doctor but in some cases can be declared by a hospice nurse or a paramedic working under the direction and protocols of a medical doctor.
2. A. Immediately notify Cryonics Institute and access additional resources. B. Open Informational Packet
3. Immediately after death, or as soon as possible, begin cool down of patient with ice water. If ice is limited focus cooling to the head as a priority. Do not freeze the patient.
4. Immediately commence CPS (Cardio Pulmonary Support). This can be done manually with a pair of insulated water proof gloves on. Use manual Ambu-Cardio Pump at 30:2 rate while someone else sets up Lucas 2 CPS machine. Use BVM with preconnected ITD to give ventilations. Do not stop until Lucas CPS Machine is in place and running. Continue with ventilations.
5. Obtain vascular access with IO Kit as first choice. If Patient has good veins and you have skilled IV technician then consider IV first. If no other access is obtainable use direct cardiac injection of medications. Also consider existing access such as a central line or pic line.
6. Inject A. 40,000 units of heparin as the first line drug. Flush with 20cc of saline and circulate with CPS. If the patient has been in cardiac arrest for greater than 15 minutes skip this step and focus on cool down. Beyond 15 minutes the use of heparin is not recommended or useful.
7. Continue ice water cool down and CPR for approximately 1 hour. If available, use a pitcher or hose to facilitate water transfer. Replenish ice as needed. Use additional help and a mechanical device such as the CPR assist (if available) which features a light and voice prompts to assist in providing high-quality CPR.
8. Place temperature probe in back of patients nasopharynx and secure with an ear plug. Turn on thermometer to monitor internal temperature.
9. While cooling and doing CPS - Quickly Administer additional medications in the following order. B. Epi 1:10,000 or Vasopressin C. Propofol D. Streptokinase. (Not included in kit.)
10. Setup and connect Lucas 1 CPS machine around patient's chest area. Start automatic compressions. Continue ventilations
11. Connect and flow chilled Normal Saline 1000ml in IV or IO port. You may run up to 2000 ml of cold saline. Saline should be as cold as possible above freezing point.
12. Place a King or Combitube Airway. Test unit, lubricate distal tip, insert down patient's oropharynx (throat). Inflate cuff and notice device back out of patient's mouth a few centimeters. Connect BVM and listen over epigastrium (stomach) and lungs to make sure of good placement. You should hear clear breath sounds in lungs when bagging patient. If not deflate, remove and start over. If positive placement is confirmed, draw up and administer antacid down esophageal portion of tube and into patients stomach. This will be the rear tube not covered by the BVM connection. Continue ventilations.

13. Place ice water pump in bath near patient's feet. Connect and turn on pump. With gloved hand, direct ice cold water near patient's head. Continue ice water circulation, automatic CPS and ventilations until patient's brain core temp reaches between 0 and 10 deg C. Approx 1 hour's time with CPS and active circulation. Replenish ice as needed. You only want enough water to displace the air between the ice. A mostly ice wet slurry is best.
14. At this point drain most of the water and refill the ice bath shipping container with fresh ice. Do not freeze patient. Deliver or Evacuate ice packed patient to Cryonics Institute immediately. Ensure that the patient is in a secure insulated container by wrapping sealed container with blankets. Make sure funeral home travel team has adequate ice to last the trip and or knowledge of 24/7 ice resources along the way. If possible send an advocate with the patient to ensure prompt arrival to the Cryonics Institute.

*A useful acronym is I.C.E (Immediate notification, Cool down and CPS urgently, Evacuation to Cryonics Institute as fast as possible.

INTERMEDIATE CRYONICS STANDBY EMERGENCY KIT INVENTORY

1. Information Packet containing instructions for early notification and simple instructions.
2. Collect maps of your area, your contact phone numbers, and the location(s) of additional emergency resources and any other other relevant documentation for your location and add it to your kit.
3. Notebook, pen/pencil and stopwatch, watch for case documentation. Trauma Shears to cut away patient clothing. Flashlight and extra batteries for all equipment. Cordless screwdriver and manual screwdriver for Ziegler case screws.
4. Single or (preferable) multiple coolers and access to a nearby source of ice. i.e. a stocked freezer or 24/7 list of ice vendors nearby. A source of cold water. (Coolers and ice must be provided by the member.)
5. Ice bath. IE Ziegler case or rigid frame and waterproof liner for ice water and patient containment. In an emergency a bath tub can be used.
6. Movers' Blanket or Blankets for insulation or patient movement, Body bag for ice bath back up, Patient moving tarp with handles.
7. Manual CPR and Temperature kit, Waterproof insulated gloves, Ambu-Cardio pump, Thermometer and probe with ear plugs for nostril placement.
8. Airway kit BVM Bag valve mask for ventilation, ITD Impedance threshold device, Combi-tube or King Airway with air syringe and lubricant, Comfit to secure King Airway to patient's head. Oxygen and tubing not necessary for cryonics purposes.
9. Intravenous Fluids and tubing (Normal Saline) 1000ml. Chilled IV fluids can help facilitate patient cool down.
10. Cardiovascular Access kit to deliver medications and saline. 3 sub kits A. Direct cardiac access-60 CC syringe, Cardiac Needle, alcohol prep and band-aid. B. IO (intraosseous kit) Jamshidi IO needle, EZ-IO or Fast IO system. IO connection or IV extension link, 10cc Saline flush syringe, medical tape for stabilization and 4x4 sterile dressing. C. IV (intravenous kit) 2x 18,20, & 22gauge IV access needle catheter assortment, alcohol preps, tourniquet, Tagederm or medical tape, 10cc saline flush, IV extension or J-loop, 4x4 sterile dressing. Sharps Container for used needles - this could be as simple as using an empty plastic soda bottle clearly marked.
11. Automatic CPS device Lucas 1 or Michigan Thumper type compression device. Compressed air regulator to bypass need for medical grade Oxygen. 2 (Two) 1hour Carbon Fiber SCBA air tanks. Aluminum tanks can be used but they are heavier and bulkier. The draw back to the carbon fiber tanks is 15yr life span.
12. Ice water circulation pump and battery supply with hose and/or squid system. Additional power connections and cord for ease of use.
13. CI Medication Kit: Heparin 40,000 units, and Maalox for stomach acid neutralization. Assorted syringes for administration. *Recommended medications not included in the kit can be found in the appendix.
14. PPE Personal Protective Equipment. IE safety glasses, sterile gloves, mask, hand sanitizer, Bleach wipes and trash bag.

Additional Useful Items: Knee pad for kneeling on ground. Clearly marked equipment containers and bags to contain kit and sub kits. (provided)

Cellphone with pre-programmed phone numbers. Smocks with name tags for professional appearance. (not provided)



1) ZIEGLER CASE

Ziegler case- is a standard funeral service shipping container made of galvanized sheet metal with handles. It seals with 16 screws on the top and has a type of weather stripping on the lid to keep in fluids and form a tight seal etc.

Can be used as an ice bath for cryonics purposes and then for shipping of a patient to CI.

2) BLANKET

A blanket to be used to wrap up ziegler case and to provide insulation while absorbing condensation from cold ziegler.

3) MEGA MOVER TARP

Mega mover is a strong tarp with handles used to move patients efficiently

4) TARP

This tarp serves the purpose of covering or wrapping the Ziegler case It can also be used to move a patient or the ziegler by dragging etc.

5) BODY BAG

Can be used as a inexpensive ice bath or back up and as a means of moving patient and ice.

6) CARDIO PUMP & DIGITAL THERMOMETER

7) Ice Water Circulation Kit / Pump

8) Airway Kit

9) IV Fluids and Tubing

10) IV and IO Kits

11) Personal Protection Equipment / Misc.

12) Cryonics Medications

13) Lucas Compressor

SET-UP AND PATIENT TRANSPORT GEAR



ZIEGLER CASE

Once the Ziegler Case (used to store the standby kit) is unpacked, it is ideal for use as a portable ice bath and patient transport container.



TRAVEL COOLER(S) & ICE

Most likely several coolers for ice transport. Also create a list of 24/7 ice suppliers like gas stations nearby and/or a freezer already stocked with sufficient ice.



BODY BAG

Can be used as a inexpensive ice bath or back up and as a means of moving patient and ice.



BLANKET

A blanket to be used to wrap up Ziegler case and to provide insulation while absorbing condensation from cold ziegler.

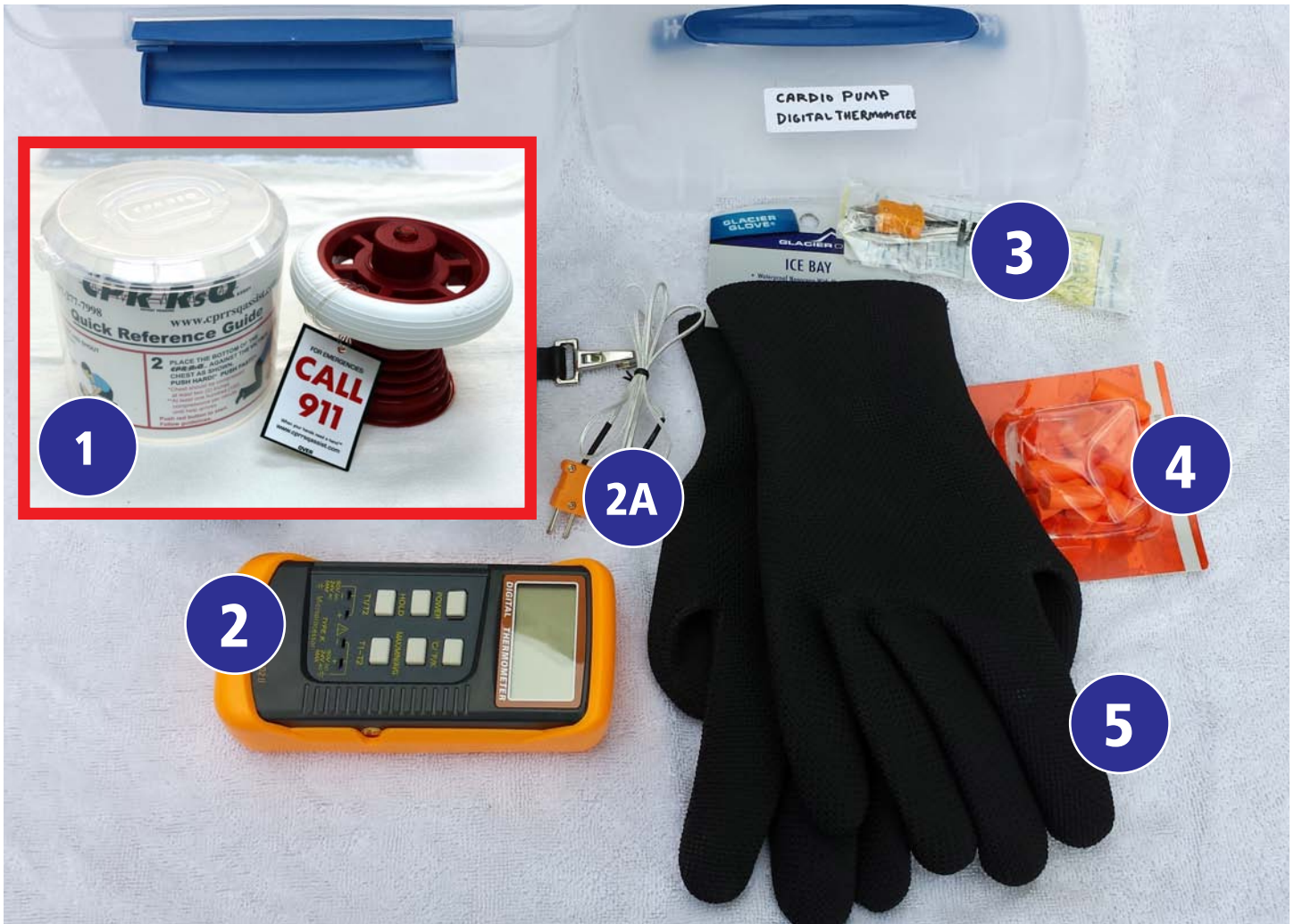


PATIENT MOVING TARP

MEGA MOVER TARP

Mega mover is a strong tarp with handles used to move patients efficiently

CARDIO PUMP & DIGITAL THERMOMETER



1) Cardio Pump

The ResQ Assist CPR Compression Device assists in high quality CPR. It pulls up on the chest helping to create negative thoracic pressure or helps to refill the heart before next compression.

2) Digital Thermometer

Digital readout to measure patient body or brain cooldown

2A) Temperature Probe: Temperature probe goes up patient nose or ear to provide brain core temperatures.

3) Temperature Probe

New Temperature probe sealed in wrapper

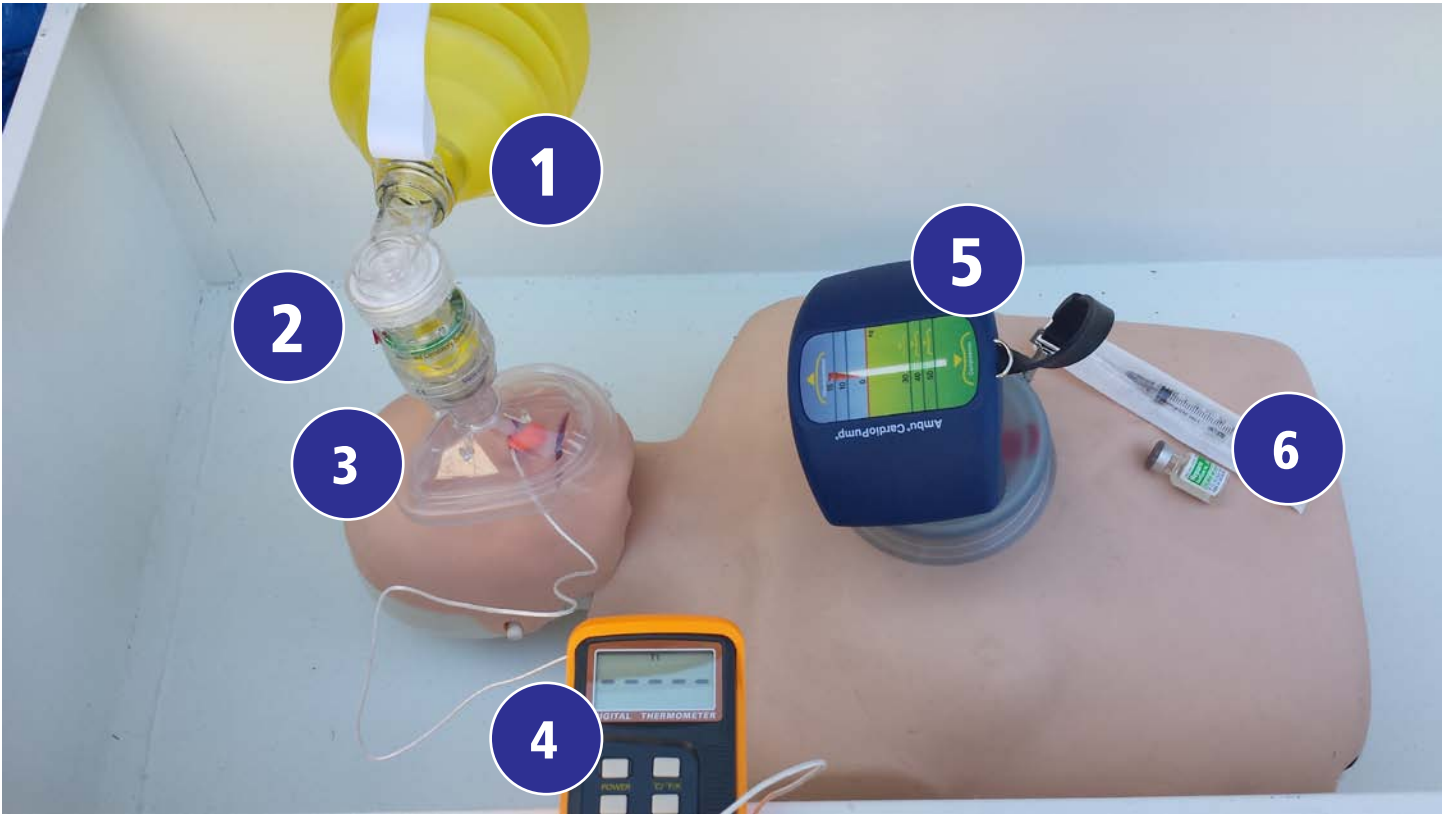
4) Earplugs

Ear plugs to hold temp probe in patient's nasal passage.

5) Waterproof Insulated gloves

Protection for hands while administering ice bath

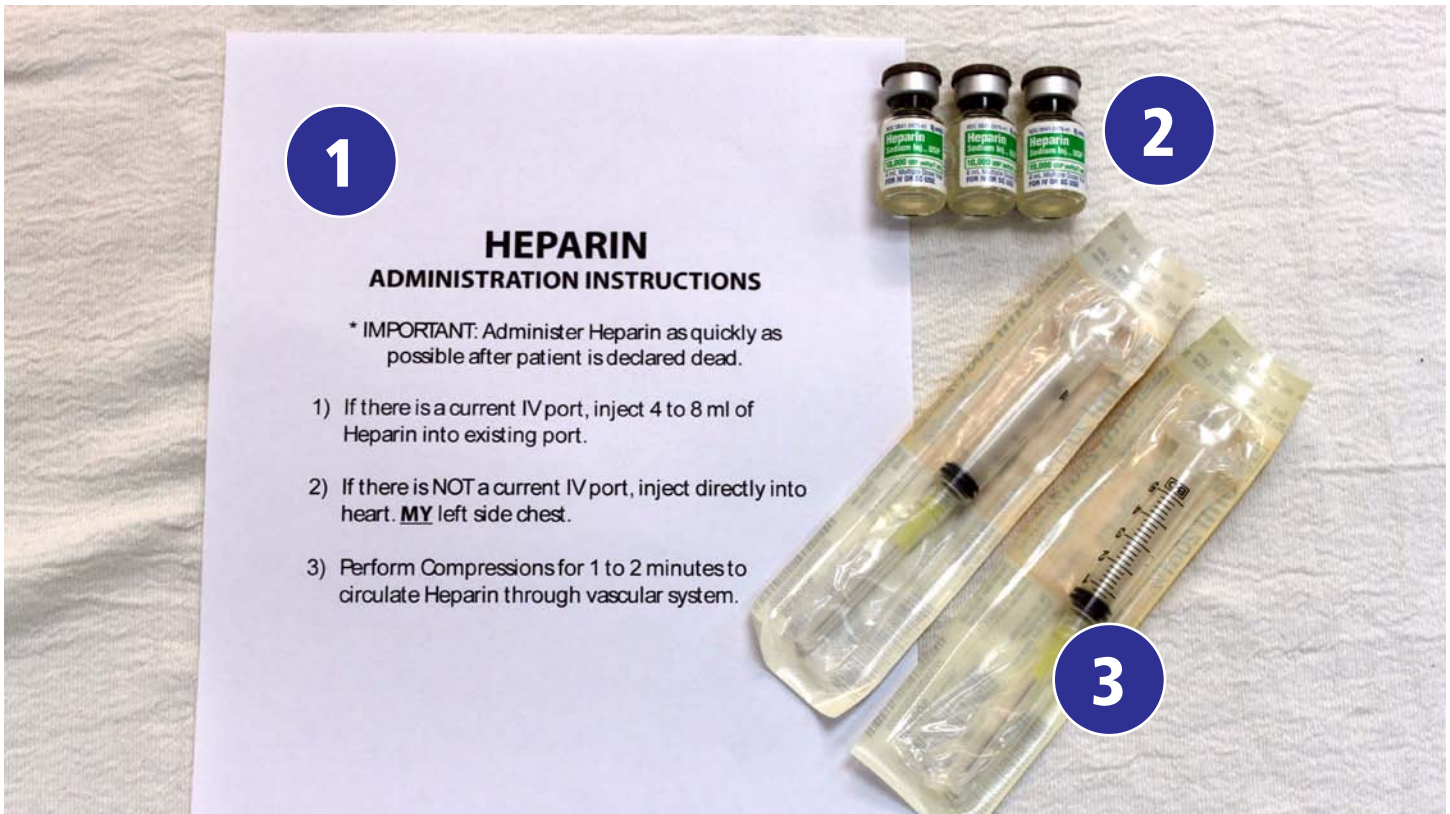
BASIC ICE BATH



Ideally, the CI Standby Kit's Ziegler case will be used for the patient ice bath. If the case is not available for whatever reason, a body bag or home bath tub can also be used.

- | | |
|--|---|
| <p>1) BVM bag valve mask
used to ventilate patient undergoing CPR</p> <p>2) ITD Impedance threshold device
It creates negative pressure to help refill the lungs and heart with return blood.</p> <p>3) Face mask for CPR</p> | <p>4) Digital Thermometer and Probe
Note earplug used to fasten probe in patient's nose</p> <p>5) Cardio Pump
Positioned over patient's chest</p> <p>6) Needle and heparin
For direct injection to heart</p> |
|--|---|

HEPARIN KIT



1) Instructions Sheet

Simple instructions printed and laminated

2) Heparin Supply

3) IV Needles

Special needles big enough for cardiac delivery

HEPARIN ADMINISTRATION INSTRUCTIONS

* IMPORTANT: Administer Heparin as quickly as possible after patient is declared dead.

- 1) If there is a current IV port, inject 4 to 8 ml of Heparin into existing port.
- 2) If there is NOT a current IV port, inject directly into heart. **MY** left side chest.
- 3) Perform Compressions for 1 to 2 minutes to circulate Heparin through vascular system.

HEPARIN

ADMINISTRATION INSTRUCTIONS

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AIRWAY KIT



1) BVM bag valve mask

used to ventilate patient undergoing CPR

2) Comfit Device

Comfit device used to wrap around patient's head and to secure the king airway so it doesn't fall out or get yanked out

3) Syringe

This is a syringe to inject air into king airway cuffs or balloons

3a) Lubricant

Lubricant to put on end of king airway before sliding down throat

4) King Airway Device

King airway to be inserted down esophagus

4a) This connects to BVM (Bag Valve Mask) under ITD in place of mask

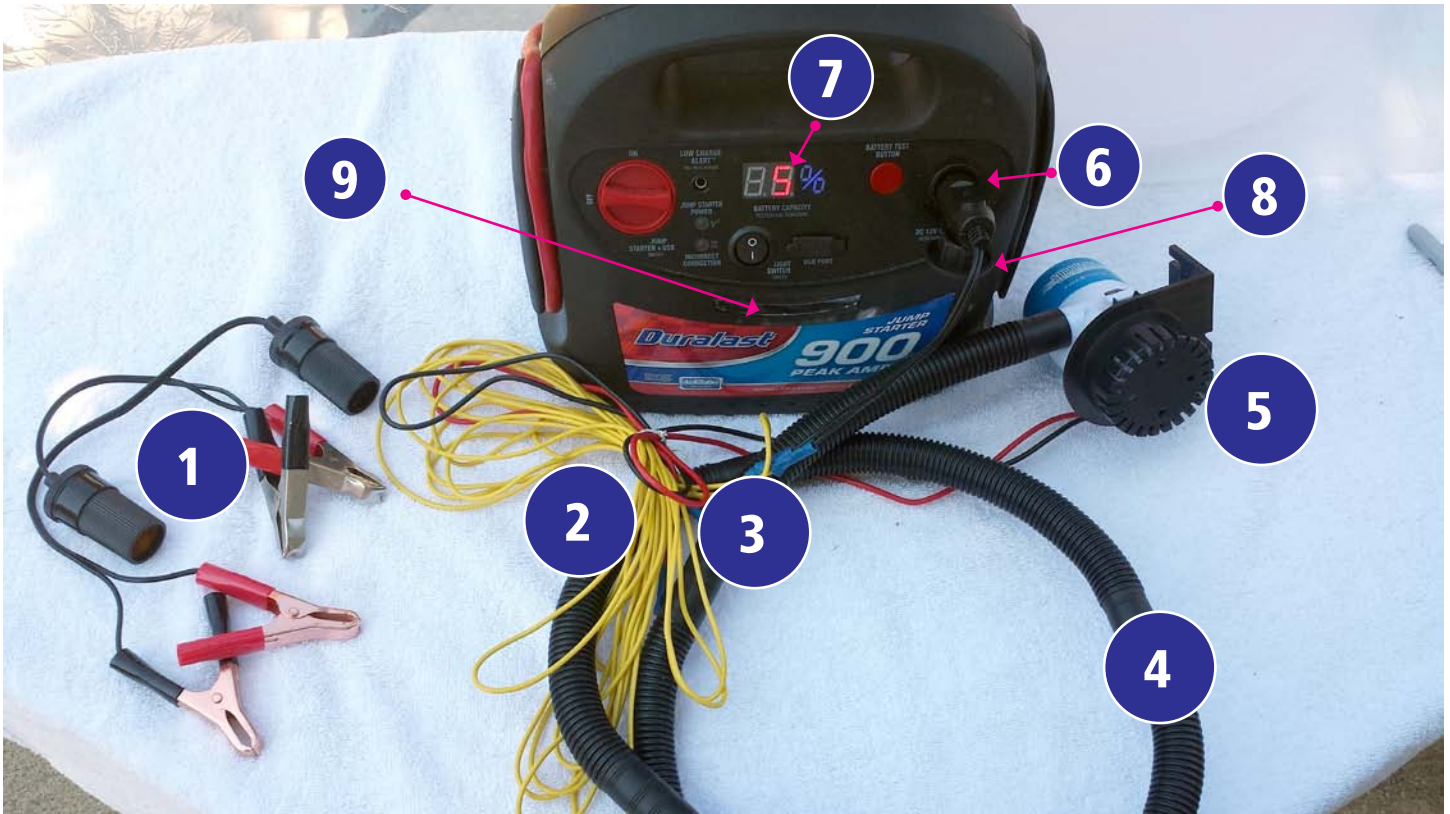
4b) Larger Balloon

4c) Cuffs or balloons are blue here

5) Tubing

Extra O2 Tubing - probably not needed, but good to have in case.

ICE WATER CIRCULATION KIT / PUMP



Portable Water Pump and Power Source

- 1) Extra connections and clips for battery power
- 2) Extra wire to obtain different power sources for pump
- 3) Waterproof connections for wire
- 4) Tubing to circulate ice water
- 5) Marine style bilge pump to circulate ice water
- 6) Power unit can also be plugged into a ac outlet power supply if battery is low
- 7) Shows battery charge level and sounds an alarm when battery is too low
- 8) Input jack to connect to standard auto cigarette lighter or power supply
- 9) Work light

IV & IO KITS



1) IO Kit (Intraosseous infusion)

IO is used to deliver medications into the vascular system through the bone. IO is easier to use than an IV.

2) IV Kit (Intravenous Infusion)

IV provides the best access to the vascular system through a vein. However, this technique requires skill and knowledge in IV phlebotomy.

3) Direct Cardiac Syringe

In a quick pinch, a direct jab into the heart with a cardiac needle can quickly and effectively deliver medications to the circulatory system.

INTRAOSSEOUS KIT



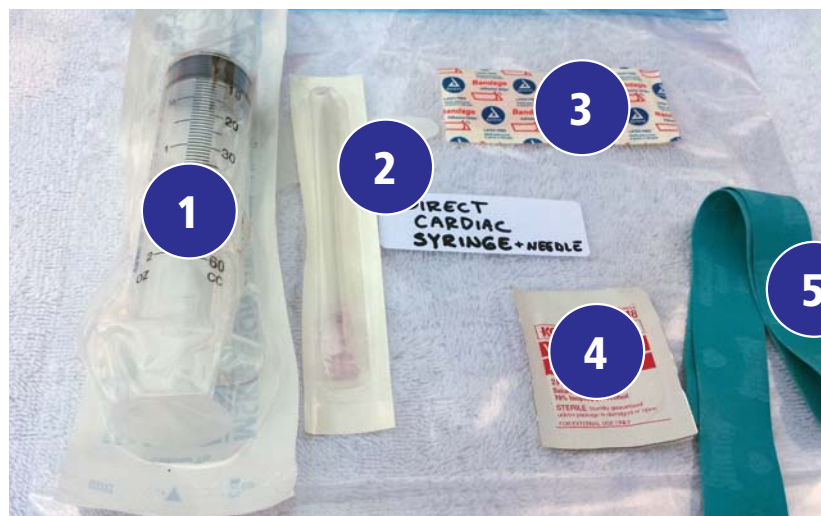
- 1) **Jamshidi IO needle/drill**
- 2) **4x4 gauze sponge**
to wipe blood around puncture hole
- 3) **Medical Tape**
to secure IO
- 4) **Flush**
Use to clear IO of bone and blood. Normal saline flush.
- 5) **J loop style IV/IO connector**
Attaches to the end of jamshidi needle/drill and connects to drug syringes or IV bag.

INTRAVENOUS KIT



- 1) **IV needles**
An assortment of different sizes.
- 2) **Tegaderm**
Used to secure IV catheter to the patient's skin.
- 3) **Alcohol Wipes**
Used to clean area before puncture.
- 4) **Tourniquets**
- 5) **J loop and saline flush**
- 6) **4 x 4 gauze sponge**

DIRECT CARDIAC INJECTION KIT



- 1) **Cardiac Syringe**
- 2) **Cardiac Needle**
- 3) **Bandaid**
Used to cover puncture hole
- 4) **Alcohol Prep**
Used to clean area
- 5) **Strap**
Used to wrap up kit.

IV FLUIDS AND TUBING KIT



1 IV tubing kit

...see other diagrams.

2 Connectors

This pokes into IV bag. Kit includes 2 connectors to enable use of 2 IV bags simultaneously.

3 Connector

This connection goes to the J loop connector or directly into IV or IO.

4 Air Bubble Chamber

traps air

5 Wheel Lock

To control IV drip rate or stop.

6 Medication Port

1 Liter of normal saline

Used to increase patient fluid volume and CPR pressure. Can be chilled before administration to help internal cooldown.

2 IV Tube Connection

Connector for IV tubing.

3 Medication Port

Use to add medications to solution.

LUCAS COMPRESSOR



1 Lucas 1 backpack carrying case

2 Dual 60 min SCBA tanks

(Self Contained Breathing Apparatus) Note, no "U" for "Underwater" like scuba.

3 Tank Opener

Opens carbon fiber scba tank.

4 Lucas compressed air regulator

5 Dual Tank Unit

This unit contains 2 carbon fiber tanks that last 15 yrs before expiration. Metal scuba tanks last longer but are much heavier.

6 Lucas air pressure hose

Delivers compressed air to Lucas cpr unit

7 CPR Compression Unit

Performs automatic CPR

8 Control Dial

3 positions

1 adjust plunger

2 lock plunger in place

3 commence pumping

9 Adjustment Handle

Handle to adjust plunger height.

10 Arm Straps

Holds Lucas unit in place.

11 Release Handle

Quick release to take the unit apart.

DOCUMENTING & KIT ORGANIZATION

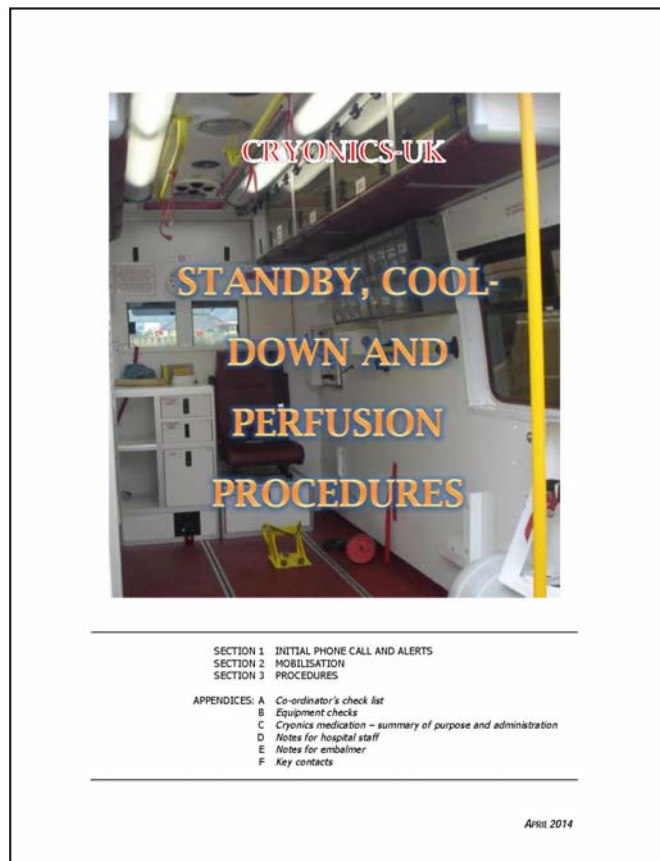
(PART OF MISC EQUIPMENT KIT)



- | | |
|--|--|
| 1 Velcro
velcro to help hold equipment in place like pump ect. | 6 Rings
rings for laminated instructions |
| 2 Clipboard
for case documentation | 7 Penlight |
| 3 Labels
for kits and equipment | 8 Pen / Pencil |
| 4 Rubber Bands or Twist Ties
to oragnize equipment | * Stopwatch or Wristwatch (add-on, not pictured)
Useful for documenting time and timing certain procedures |
| 5 Color Coded Labels
color coded stickers to help sort out kits sequence of operation. | * Tape Recorder / Voice Recorder (add-on, not pictured)
Hands-free way of documenting procedures and times |

ADVANCED AND OVERSEAS STANDBY

CI currently does not provide a pre-assembled equipment kit for advanced standby. For advanced standby instructions and a complete equipment list, we recommend the excellent advanced standby manual from Cryonics UK.



The manual is available at cryonics-uk.org, under the “resources” tab (downloads and training resources) or via this direct link:

<http://cryonics-uk.org/download/Call-OutManual-2014%281%29-Apr.pdf>

APPENDIX

RECOMMENDED CRYONICS MEDICATIONS



Whenever possible, CI aims to simplify and streamline the process of cooldown while maintaining the best possible preservation at an affordable cost. Here is a simplified list of medications that we recommend depending on circumstance, availability and choice.

1 Heparin

100,000 IU as an anti-coagulate to prevent the formation of blood clots in the circulatory system.

2 Epinephrine

1:10,000 (1mg x 4 ever 5mins up to 5mg) as a vasopressor to constrict the circulatory system and increase cerebral perfusion during CPR.

3 Streptokinase

250,000 IU as a thrombolytic to break up existing blood clots in the circulatory system.

4 Maalox

300ml as a antacid to prevent damage to the bodies circulatory system via breakdown of the stomach lining.

5 Normal Saline

1000ml as a volume expander to increase circulatory pressure. This can be given Chilled to help facilitate internal cool down.

* These additional drugs could be considered secondary

1 Sodium Citrate 20%

(1 ml per kg patient's weight, up to 100 ml) As an additional anticoagulant in lower pH situations

2 Vasopressin

40 IU given x 2 As an additional vasopressor to increase perfusion pressure at lower temperatures

3 Propofol

200mg – To reduce cerebral metabolic demand

* NOTE: Availability of medications depends on suppliers.

***These drugs must be given immediately after cardiac arrest. After 15 minutes of arrest or at temperatures lower than -20c there is little benefit if at all by giving these medications. Many other drugs that have been proposed within cryonics have not been officially cleared by CI as beneficial. There remains no clinical cryonics evidence to suggest that many drugs used in cryonics infer benefit to patients within our very narrow parameters. There are many questions of drug metabolism and benefits vs risks. This area is

one of ongoing research that needs to be completed before we can add or update to this list. CI recommends that standby teams do not get too caught up in the medication administration other than heparin. The all important overriding goal should be to quickly cool the patient. This should remain the primary objective of any standby team because quick cooling is the very best protection a patient can receive.

PROPOSED

ADVANCED STANDBY RECOMMENDED EQUIPMENT

1. Information Packet containing instructions for early notification and simple instructions.
2. Maps, contact phone numbers, and location of additional emergency resources and/or other useful documentation. Note book, pen/pencil, stopwatch, Watch, for case documentation. Trauma Shears to cut away patient clothing. Flashlight and extra batteries for all equipment. Cordless screw driver and manual one for Ziegler case screws.
3. Cooler or Coolers with close by ice source. IE stocked freezer or list of 24/7 ice vendors near by. A source of cold water.
4. Ice bath. IE Ziegler case or rigid frame and waterproof liner for ice water and patient containment. In an emergency a bath tub can be used.
5. Covers-Blanket or Blankets for insulation or patient movement, Body bag for ice bath back up, Patient moving tarp with handles, Tarp to cover kit or patient container.
6. Manual CPR and Temperature kit, Waterproof insulated gloves, Ambu-Cardio pump, Thermometer and probe with ear plugs for nostril placement.
7. Airway kit BVM Bag valve mask for ventilation, ITD Impedance threshold device, Combitube or King Airway with air syringe and lubricant, Comfit to secure King Airway to patients head. Oxygen and tubing not necessary for cryonics purposes.
8. Intravenous Fluids and tubing (Normal Saline) 1000ml Chilled IV fluids can help facilitate patient cool down.
9. Cardiovascular Access kit to deliver medications and saline. 3 sub kits A. Direct cardiac access-60 CC syringe, Cardiac Needle, alcohol prep and band-aid. B. IO (intraosseous kit) Jamshidi IO needle, EZ-IO or Fast IO system. IO connection or IV extension link, 10cc Saline flush syringe, medical tape for stabilization and 4x4 sterile dressing. C. IV (intravenous kit) 2x 18,20, & 22gauge IV access needle catheter assortment, alcohol preps, tourniquet, Tegederm or medical tape, 10cc saline flush, IV extension or J-loop, 4x4 sterile dressing.
10. Automatic CPS device Lucas 1 or Michigan Thumper type compression device. Compressed air regulator to bypass need for medical grade Oxygen. 2 (Two) 1hour Carbon Fiber SCBA air tanks. Aluminum tanks can be used but they are heavier and bulkier. The draw back to the carbon fiber tanks is 15yr life span.
11. Ice water circulation pump and battery sup-

ply with hose and or squid system. Additional power connections and cord for ease of use.

12. CI Medication Kit Heparin 40,000 units, Epi 1:10,000, Vasopressin, Steptokinase, Propofol, and Maalox for stomach acid neutralization. Assorted syringes for administration. See more.
13. PPE Personal Protective Equipment. IE safety glasses, sterile gloves, mask, hand sanitizer, Bleach wipes and trash bag.
14. Perfusion Pump and canulation supplies
15. Washout solutions
16. CI-VM1
17. Refractometer
18. Dry Ice and ballast cool down with Ice packs (4 days core cool down)
19. Flight ready Dry Ice shipping container
20. Sleeping bag or cloth bag to wrap patient
21. Trained personnel to run perfusion pump
22. Airline and international funeral arrangements
23. Additional funding for shipment and extra arrangements

Additional useful Items- Knee pad for kneeling on ground. Cellphone with pre-programmed phone numbers. Clearly marked equipment containers and bags to contain kit and sub kits

SAMPLE ADVOCACY LETTERS

A signed and dated letter stating your cryonics intentions can be useful when the time comes to confirm and communicate your wishes to the professionals involved in a standby scenario. Two important persons to share such a letter with in advance include your attorney and your funeral director. If you are in a terminal situation, a similar letter would be appropriate for hospice or even hospital personnel.

In any event, a letter of intent or advocacy is something you should have prepared in advance and kept on file at CI as well as a copy with your personal cryonics records and an additonal copy with your designated advocate. When you are no longer capable of speaking for yourself, a signed and dated letter clearly stating your wishes can help present your case for you.

Another excellent idea is to create a short video that shows yourself clearly of sound mind and body speaking about your cryonics wishes. Video is an extremely powerful and effective tool for convincing people of your sincerity, so if you have the resources to produce such a video (a simple web camera, digital camera or even a phone that shoots video is sufficient) we recommend you do so and provide a copy to CI for your file, as well as a personal copy, and one for your advocate and / or lawyer. Should unforeseen conflicts arise with your suspension plans, this kind of video can significantly bolster your case.

SAMPLE ADVOCACY LETTER: Attorney

To whom it may concern,

10/5/14

My name is John Doe and I would like to express my wishes to be cryogenically suspended in the event of my death. I have contracted with the Cryonics Institute and taken the necessary legal and financial steps to ensure that my last wishes are carried out. In essence, I am a whole body donor to science under the Uniform Anatomical Gift Act. I also have agreements in place with my funeral director. I would like to enter into your record database my desires so that you, as my attorney, may help to advocate my wishes at a time when I am not able to do so for myself. I ask only that you do your best to ethically advocate my final wishes and do so with urgency in mind. I have included additional documents that support these wishes. Please review these and other information that I have included. Thank you in advance for your time and consideration.

Respectfully,

Johnathan Doe

DOB 01-01-1950

SSN 123-456-789

SAMPLE ADVOCACY LETTER: Funeral Director

To whom it may concern,

10/05/14

My name is John Doe and I would like to express my wishes to be cryogenically suspended in the event of my death. I have contracted with the Cryonics Institute and taken the necessary legal and financial steps to ensure that my last wishes are carried out. In essence, I am a whole body donor to science under the Uniform Anatomical Gift Act. I also have agreements in place with my attorney. I would like to enter into your record database my desires so that you, as my Funeral Director of choice, may help to advocate my wishes at a time when I am not able to do so for myself. I ask only that you do your best to ethically advocate my final wishes and do so with urgency in mind. I have included additional documents that support these wishes. Please review these and other information that I have included. Thank you in advance for your time and consideration.

Respectfully,

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