

CRUISING CLUB OF AMERICA
FLEET SURGEON'S MEMORANDUM FOR OFFSHORE PASSAGES
February 2010

Medical skills, first aid equipment and communication are the essentials of managing a medical emergency offshore. Significant medical conditions of individual crew should be on record and known to the medical officer before departure. The 2012 Newport Bermuda Race requires that two members of each crew have valid First Aid and CPR certificates (see 2012 Newport Bermuda Race, Notice of Race, 6.05.2 Medical Training).

The Injury and Illness Survey of the last six Bermuda Races lists the extremities, especially fingers and toes, as most at risk for injury. Spine, face, abdominal and head injuries also occurred, none of a life-threatening nature. Sea sickness and sunburn were common. Infections, migraine, diabetic dehydration, urinary retention and airway obstruction requiring a Heimlich maneuver were encountered. Pre-race seminars stress the importance of avoiding hypothermia, dehydration, fatigue and seasickness.

Conditions not reported in the race surveys must also be considered. The incidence of malignant melanoma, a highly lethal condition, as well as other skin disorders, has increased alarmingly among sailors. Asthma, life-threatening allergic reactions, heart attacks, strokes, seizures and surgical emergencies can be added to the list of things one might have to deal with on an offshore passage. Anticoagulants (blood thinners), which are used to treat recurrent venous thrombosis or cardiac conditions such as atrial fibrillation, can turn a minor knock on the head into an untreatable and fatal intracranial hemorrhage. .

A culture of caution and prevention is the best way to minimize the risk of injury. It is a culture that may be in conflict with that of high profile racing programs. Falling overboard or being hit on the head by the mainsheet or boom during an accidental jibe may be fatal despite one's best efforts, but such accidents are avoidable, by always wearing a harness, in the case of the former, and by a permanently installed and always engaged preventer, in the case of the latter. The commonest medical conditions encountered offshore, judging from the surveys of the Newport Bermuda Race, are injuries to the fingers, toes, arms and legs. Burns have also occurred and a variety of medical conditions.

Acknowledging that not every medical situation can be handled safely and successfully at sea, a single person, the **Medical Officer**, not necessarily a medical professional, has the responsibility of preparing the vessel and the crew for any likely medical emergency, being sure there are on board the following:

1. information from each crew member about significant medical conditions, allergies and necessary medications;
2. medical and surgical skills appropriate to the voyage;
3. appropriate medical supplies - reference books, a medical/surgical kit and medicines (addenda 1-3), appropriate to the level of medical training on board;
4. an appropriate emergency communication system (see addendum 4).

Medical training to improve the skills of a lay person who has become a yacht's medical officer is available in a number of commercial programs aimed at the wilderness venturor. Such skills are important because although there are rescue services available in many places, even in the best of coastal cruising situations on a small boat there is no "911" as we have come to know it and expect it.

For Limited Passages

Advanced First Aid Afloat, by Peter F. Eastman, M.D., Fifth Edition: Cornell Maritime Press, Inc, Centreville, MD, 21617, 2002. ISBN 0 87033 524 3

Sailing and Yachting First Aid, by John Bergan, M.D. and Vincent Guzzetta, M.D., prepared for the United States Sailing Association, Portsmouth, RI

First Aid at Sea, by Douglas Justins and Colin Berry, Adlard Coles Nautical, A&C Black(Publishers) Ltd, 35 Bedford Row, London, WC1R 4JH, 1999 ISBN 0 7136 4922 4

The Onboard Medical Handbook, by Paul G. Gill, Jr., M.D., International Marine, Camden, ME 1997 ISBN 0 07 024274 7

A Comprehensive Guide to Marine Medicine, by Eric A. Weiss, MD and Michael Jacobs, MD, Adventure Medical Kits, Oakland CA 94624, 2005 ISBN 1-9659768-2-3

For Extended Passages

The Ship Captain's Medical Guide, 22nd edition. Crown Copyright 1999. Obtainable from Her Majesty's Stationary Office, e-mail book.orders@tso.co.uk, fax – 44 (0)870 600 5533; tel – 44 (0)870 600 5522.

International Medical Guide for Ships, Second Edition, World Health Organization, 1988, reprinted 1994 ISBN -10 92 4 154231 4, order number 11502078 (go to publications at www.who.int)

The Ship's Medical Chest and Medical Aid at Sea, DHHS Publication(PHS) 84-2024 Government Bookstore, O'Neil Building, 10 Causeway, Boston, MA 02222 (telephone 617 565 6680) and www.fas.org/irp/doddir/milmed/ships.pdf. Comprehensive and contains an extensive list of medical references .

Merck Manual of Diagnosis and Treatment, 18th Edition, Editors Mark H Beers, Robert S. Porter, Thomas V. Jones, Merck Research Laboratories, Division of Merck & Company, Inc., Whitehouse Station, NJ 08889-0100, 2006

Wilderness, first aid and emergency medicine texts are also available.

Note: Medical kits must meet the objectives of the intended voyage and the abilities of the ship's medical officer. Commercially available medical kits vary in complexity and if used their contents should be reviewed to be sure they met the objectives of the voyage. The items below, or appropriate substitutes, are recommended.

Airway kit: Oral airways (small, medium and large), Ambu bag, CPR mask

Bandages/ Minor Trauma/ Burns:

- Adhesive tape 1"
- Sterile dressing sponges (4X4)
- Ice bags
- Band-aids
- Non-adhesive dressings (Telfa)
- Steri-strips (1/2")
- Roll Gauze (2" and 4")
- Ace bandages (2,4, and 6")
- Triangle bandages (for sling and swath)
- Large abdominal/ trauma dressing
- Finger splinting material (tongue depressors, aluminum splint)
- Xeroform gauze/ Vaseline impregnated gauze (large)

Surgical Kit/ Major Trauma:

- Laceration tray (1% lidocaine, syringe, needles (18 and 25 gauge), hemostat, needle driver, forceps, gauze sponge, iodine prep stick)
- Suture material – 5.0/ 4.0/ 3.0 nylon, 4.0 vicryl, 4.0 chromic
- Dermabond
- Skin Stapler
- Sterile gloves (7,7.5,8)
- Suture removal kit/ Staple removal kit
- Scalpel – 11 blade (incision and drainage kit – can use laceration tray)
- 14 gauge angiocath (3")

ENT/ Eyes/ Dental

- Sterile irrigation fluid for eye wash
- Nasal packing (merocel nasal tampons, 1 inch Vaseline gauze)
- Calcium hydroxide dental paste

Splints:

- Inflatable (or other) splints for arms, legs, tongue depressors, cervical spine collar

Catheter: Bladder catheterization kit

Exam tools: BP cuff, stethoscope, thermometer

Intravenous fluid administration kit

Revised with the help of: Barbara Masser, MD, Associate Director,
Department of Emergency Medicine
Beth Israel Deaconess Needham

Addendum 3: Suggested Medications

Note:

1. Medicines should be assembled with the help of a physician, and those selected will depend on the nature of the voyage, the type of vessel and crew and the expertise of the 'medical officer.'
2. *Prescription medications are in italics*; "over the counter" medicines in regular type.
3. Prescription medicines should be given only on the recommendation of a physician.
4. Know about a crew member's allergic or adverse reactions before giving medication.

<u>AILMENT or PROBLEM</u>	<u>MEDICATION</u>
Allergic Reactions	Benadryl, <i>prednisone (oral), EpiPen (adult and jr)</i>
Antihistamines	Benadryl, Claritin
Antiseptic Solutions	Betadine, Alcohol, Hibiclens
Asthma	<i>Albuterol inhaler, prednisone</i>
Burns	Bacitracin ointment, <i>Silvadene cream</i> , Vaseline
Cardiovascular/ ACLS	<i>EpiPen, Sub-lingual nitroglycerin</i> , Aspirin (325mg)
Constipation	Dulcolax suppository/ oral, Fleets enema, Colace
Cough	Robitussin DX
Diarrhea	Immodium, Kaopectate, Oral rehydration solution
Diabetic Emergency	<i>Glucagon 1mg IM</i> , oral sugar solution
ENT/ Dental	<i>Corticosporin Otic Suspension</i> , Sudafed, <i>Calcium Hydroxide dental paste</i> , Afrin nasal spray
Eyes	<i>Erythromycin ophthalmic ointment, Ocuflax Ophthalmic drops, tetracaine ophthalmic</i> , Artificial Tears
Gastritis	Maalox, Zantac, <i>Prilosec</i>
Hemorrhoids	Preparation H, tucks pads
Infections:	
Urinary Tract	<i>Ciprofloxacin, Bactrim DS</i>
Respiratory	<i>Azithromycin, Levofloxacin</i>
ENT/ Dental	<i>Augmentin, Clindamycin</i>
Skin/ soft tissue	<i>Keflex</i>
Gastrointestinal	<i>Flagyl</i>

Essential antibiotics: Cipro, Azithromycin, Keflex, Augmentin

Intravenous Antibiotics	<i>Ceftriaxone (2gm)</i>
Intravenous Fluids	Normal Saline (sterile 0.9% saline), D51/2 NS
Inflammation/ Pain	Tylenol, Ibuprofen
Local Anesthetic (injectable)	<i>Lidocaine 1% with and without epinephrine)</i>
Narcotic pain medication	<i>Oxycodone 5mg, Vicodin 5/500</i>
Skin/ Rash	<i>triamcinolone acetonide 0.1%, Nystatin topical</i> Hydrocortisone 1% ointment
Sea sickness	<i>scopolomine hydrobromide transdermal</i> Dramamine, Stugeron (cinnerrazine, which is over the counter in UK, Spain, Bermuda, Ireland, etc)
Sleeping	Benadryl, <i>lorazepam 1mg</i>
Sunburn	Topical aloe, solarcaine

List of essential prescription meds

Prednisone (10mg tabs)

Epi-pen

Oxycodone or vicodin

Ciprofloxacin

Scopolomine hydrobromide

Sub-lingual nitroglycerin

The help of Barbara Masser, MD, Associate Director, Department of Emergency Medicine, Beth Israel Deaconess Needham, in updating this memorandum is much appreciated.

**A. The 2012 Newport Bermuda Race -Satellite Phone Requirement
(Satellite phone range varies with service provider)**

The NOR for the 2012 Newport Bermuda Race requires all boats to be equipped with a satellite phone with a permanently installed external antenna and that can run off ship's power, be operated down below, and is always turned on. It must use a service for voice communication that has universal coverage over the race course on a continuous, uninterrupted basis. This recognizes that some satellite phone systems have restricted ranges of geographic coverage and restricted time periods when there is no voice communication. The Race requires continuous uninterrupted voice capability for each participating vessel so that at any time it can call the Race authorities, the USCG or Bermuda Harbour Radio to request emergency assistance. It also allows the race authority to contact any vessel on the race course at any time to distribute emergency information, to assist distressed vessels deemed to be nearby (according to tracker information), or in an emergency to initiate group communications within the fleet over VHF ch 16. VHF ch 16 is to be monitored continuously during the race. A formal communications protocol will be distributed at some time before the race.

B. Emergency Telephone Numbers USCG Rescue Coordination Centers (RCCs)

<u>RCC</u>	<u>Location</u>	<u>Area of SAR Coordination Responsibility</u>	<u>Telephone Number</u>
Atlantic SAR Coordinator (RCC COMLANTAREA)	Portsmouth, VA	Boston, Norfolk, Miami, San Juan, New Orleans and North Atlantic out to 40° W	757 398 6700
RCC Boston	Boston, MA	New England to Northern New Jersey	617 223 8555
RCC Norfolk	Portsmouth, VA	Mid Atlantic States to N-S Carolina border	757 398 6231
RCC Miami	Miami, FL	SE states to FL panhandle, N Caribbean	305 415 6800
RCC San Juan	San Juan, PR	SE portion of the Caribbean Sea	787 289 2042

C. Bermuda Maritime Operations/ Rescue Co-ordination Centre

Telephone: (441) 297-1010 or 911 request Marine Rescue
 E-mail: operations@rccbermuda.bm (Duty Officer 24 hours)
 Telex: INMARSAT C (581) 431010110 RCCBX
 Telex: INMARSAT C (584) 431010120 RCCBX
 MMSI: 003100001 (MF and VHF DSC)
 SSB Radio: 2,182 kHz or 4,125 kHz USB
 MF DSC is operational only on 2187.5 kHz
 Marine VHF Radio Channels: 16 or 27

**D. VHF Radio Ch 16 Distress Frequency – USCG instructions
(VHF range is “line of sight”)**

1. Make sure radio is on and select channel 16 (same procedure for Single Side Band radio)
2. Press transmit button
3. Clearly say “MAY DAY, MAYDAY, MAY DAY’
4. Give – Vessel name and/or description
 Position and/or location
 Nature of emergency
 Number of people on board
5. Release transmit button
6. Wait for 10 seconds – if NO response, repeat the call

If your VHF radio is DSC-capable, programmed with an MMSI number and connected to GPS, press and hold the RED Emergency button five full seconds. This will alarm every DSC enabled radio within range.

E. EPIRB

It is appropriate to activate an EPIRB in any emergency, including a medical emergency, according to USCG District I command center (617 223 8555), After doing so, one should listen on VHF or SSB radio and have the ships satellite phone turned on if its number is on the EPIRB registration form under ‘Vessel Telephone Numbers.’ After receiving an EPIRB signal, the USCG calls the contact numbers on the EPIRB registration form to determine the ships likely location and then tries to contact the vessel by radio.

F. Single Sideband Radio *INTERNATIONAL DISTRESS, SAFETY AND HAILING* (SSB range varies with frequency and time of day)

The SSB Safety and Hailing simplex frequencies (transmit/receive on the same frequency) for the 2, 4, 6, 8, 12, and 16 MHz bands are listed below. They are all simplex and USB (Upper Sideband) only. Besides safety communications, simplex channels are used by cruisers to hail each other, switching to working simplex channels once contact is made, as vessels can communicate with each other only via simplex channels, whereas duplex (transmit/receive on different frequencies) only works between a ship and a shore station. **2182 kHz** is the primary *International Emergency Frequency* as well as the *Hailing Frequency* for the 2MHz band. Most cruisers are reluctant to use 2182 for hailing for fear of interference with an emergency, using 4125 kHz instead to hail other cruisers.

1. USCG Watch Keeping Schedule and Safety & Hailing Simplex frequencies

Yacht/Yacht or Shore (Simplex)		Approximate Range	NMN	NMF	NMG	NMA
TX kHz	RX kHz	Day / Night**	Chesapeake	Boston	N Orleans	Miami
2182*	2182*	150 / 250	---	24 Hrs	24 Hrs	24 Hrs
4125	4125	300 / 800	2300 -1100 Z	2300 -1100 Z	2300 -1100 Z	2300 -1100 Z
6215	6215	400 / 1000	24 hrs	24 hrs	24 hrs	24 hrs
8291	8291	500 / 1200	24 hrs	24 hrs	24 hrs	24 hrs
12290 **	12290 **	2000 / 800**	1100 – 2300 Z	1100 –2300 Z	1100 – 2300 Z	1100 –2300 Z

12290 is the **Day Frequency**, monitored 1100Z-2300Z; **4125** is the **Night Frequency**, monitored 2300Z-1100Z.

2. USCG duplex working channels (switch here once contact made on hailing frequency above)

The USCG maintains a Master Communication Station at Chesapeake, VA for the East Coast and at Pt. Reyes, CA for the West Coast. Regional CG stations are relayed into the Master Station, e.g. when you talk to NMG, New Orleans, or NMF, Boston, you are really talking to someone at NMN, Chesapeake.

	Yacht Transmit	Yacht Receive	Approximate Range
ITU	TX kHz	RX kHz	Day/Night
	2670***	2670	150/250
424	4134	4426	300/800
601	6200	6501	400/1000
816	8240	8764	500/1200
1205	12242	13089	2000/800**
1625	16432	17314	4000/unreliable

NB: see notes next page for comments *, **, and *.**

*Due to the range limitation of the 2MHz band, a yacht more than about 150 miles away may be able to hear the USCG on 2182 kHz or 2670 kHz but not be able to respond. Use 4125 kHz, the next higher simplex frequency, when this occurs.

**At night the range for 12 MHz and higher frequencies decreases and becomes unreliable.

***The USCG continues to use 2670 kHz, a simplex channel, as a working ship to shore channel since it is ideal for short ranges while ITU 424, a higher frequency duplex channel, has a definite skip zone making shorter range communication difficult.

Herb Hilgenberg
5468 Hixon Ave, Burlington,
Ontario, Canada, L7L 3S2

Fixed HF Marine Land Station VAX498
<http://www3.sympatico.ca/hehilgen/vax498.htm>
hehilgen@sympatico.ca

Herb Hilgenberg has provided valuable North Atlantic weather and routing information over single sideband radio for decades. It is best to contact him directly before departure so that he will expect you and know your plans.

Herb Hilgenberg and the vessels that check-in and listen to his weather reports constitute a substantial radio net on SSB. Although dedicated to weather reporting, Herb and the net are reliably on the air during the designated times, can be communicated with on SSB if you can hear them and have been known to assist mariners in distress even though this not their responsibility or their primary purpose. .

Net operation is as follows (taken from Southbound II website <http://www3.sympatico.ca/hehilgen/vax498.htm>):

“ Herb provides a daily ship-routing/weather forecasting service as a hobby, on marine HF/SSB frequency 12359.0 (simplex) starting at 2000 UTC until completion of traffic. Alternate frequencies may be announced from time to time during the "NET" depending on and subject to propagation. Vessels are welcome to check in between 1930 and 2000 UTC and should then stand by until contacted once their area gets covered. New check-ins should provide a short description of their location on checking in for the first time.

At 2000 UTC Herb will acknowledge all readable check-ins. Once on the South Bound II log stations are encouraged to check in and stay in contact daily until completion of passage. .As part of the service each vessel should provide current latitude and longitude to the nearest minute when called back; also provide true wind speed and wind direction and other pertinent data such as changing barometric pressure, rough sea state and squalls. Each vessel will receive daily an extended four to five day route forecast including way points, as necessary, to assist in avoiding potentially unfavorable conditions.

Individual vessel forecasts are prepared in advance of airtime, utilizing and analyzing up to five numerical forecast models, incorporating other available data and products and then producing revised surface chart for detailed analysis and forecast preparation. Forecasts are provided as value added information, not as a re-broadcast of otherwise available official marine high seas forecasts.

NOTE: It is recommended that mariners on the High Seas regularly monitor marine text and voice forecasts as issued by the U.S. National Weather Service, the NHC and CFH Halifax for the Atlantic areas via Coast Guard or public broadcast stations. Computer generated facsimile charts and grib files downloaded via HF e-mail or satellite should be used with caution as they are unedited and based usually on only one model.

AREA OF COVERAGE

Primary area of coverage is the North Atlantic between the Eastern Seaboard and Europe, including the Caribbean Sea, the Bahamas Islands and the Gulf of Mexico. Limited coverage is available for the South Atlantic and the Eastern Pacific subject to HF propagation. Due to time constraints and the nature of the hobby forecasts are not available via E-mail, fax or telephone except in case of an emergency. This service is intended for extended offshore passages.“

In preparing this communications addendum the help of CCA members Walt Paul, Steven Thing and Ron Trossbach is greatly appreciated.