

2014 CCA Fleet Surgeon's Memorandum, January 14, 2014

This memo is directed to the serious offshore amateur yachtsman contemplating a transatlantic or similar passage. Prevention is the key element in minimizing health risks among crew. It must take into account the construction of the boat, its layout, the established safety practices on board and the skill and ability of the crew. The memo is based on the experience gained from 5 transatlantic passages, one in an OC-39 and four in a Morris 46. The crew were amateurs, 5 or 6 in number (for maximum rest), mostly over 50 years of age, and included 1-3 surgeons, depending on the trip. On board safety practices evolved over the years. It became standard to wear pfd and harness clipped on 24/7 in the cockpit or on deck. The boat set-up included, in addition to Bermuda Race requirements: a permanently-installed preventer controlled at the helm and always engaged; roller furling genoa; removable inner forestay with hanked-on storm jib and sheets in place; storm trysail rigged on a separate track; single-line reefing managed entirely from cockpit; fanny bars at the mast.

In all the trips the only injury was a lacerated finger that was sutured. One older crew member developed swelling of the legs later determined to be from deep vein thrombosis, a potentially fatal condition. Sea sickness was not uncommon and was self treated by the crew, usually with cinnarizine (Stugeron) from a basic first aid kit available to all, kept in the head and stocked also with aspirin, ibuprofen, sun block, band-aids, and antibacterial ointment.

The offshore medical problem:

1. Truly life threatening injuries or medical problems are unlikely to be treated successfully off shore even with a physician on board. A Heimlich maneuver for upper airway obstruction is one exception.
2. Evacuation of injured or sick crew, if possible at all, is always delayed.
3. Managing or evacuating a sick or injured crewmember puts the crewmember, rest of the crew, and the safety of the entire boat, potentially at risk.
4. Seasickness and trauma to the extremities are the commonest medical problems offshore and trauma to almost any part of the body, including the head and spine, is possible, according to the Bermuda Race Injury and Illness reports.
5. Sea sickness, dehydration, hypothermia and sleep deprivation act cumulatively and compromise brain function (i.e. judgment), creating risk to the crew and to the boat.

Recommendations:

1. A medical kit for simple trauma (cuts and suspected fractures), sea sickness, allergic reactions, and pain. Most items can be obtained "over-the-counter" but help from a physician will be necessary.
2. Crew training with basic first aid or wilderness medicine courses.
3. First aid reference books, one or more, for the crew to consult.
4. Communications: VHF and single sideband radios, satellite phone securely installed and well tested.
5. Recognize and address sea sickness, hypothermia, dehydration and fatigue in the earliest stages.
6. Avoid medical conditions among the crew that could be fatal if medical treatment not readily available: seizure disorders; insulin-dependent, brittle diabetes; blood thinners; significant heart conditions and pacemakers.
7. Crew to bring adequate supply of all their regular medications.

The following addenda are examples modified from the Morris 46, *DIVA*. They are individualized and are not prescriptions. If used for reference, or as a guide, a skipper should customize and update them appropriately.

Addendum 1: Communications (New England Coastal)

(with the help of CCA member Dick York and communications officer, USCG, Castle Hill, 2014)

A. United States Coast Guard

<u>Station</u>	<u>System</u>	<u>Number/Channel</u>	<u>Monitor 24/7</u>	<u>Range</u>
Castle Hill	land line ¹	401 846 3676	Yes	Satellite/cell
Sector SE New England S&R	land line ¹	508 457 3214	Yes	Satellite/cell
USCG Castle Hill, Pt. Judith ²	VHF ²	ch 16, 21	Yes	approx 40 mi ³
All USCG Stations	VHF ²	ch 16	Yes	approx 40 mi
USCG CAMSLANT4 Virginia	SSB HF ⁴	4125.0	2300Z-1100Z	long distance ⁵
	SSB HF ⁴	6215.0	Yes	
	SSB HF ⁴	8291.0	Yes	
Commercial Vessels at sea ⁶	VHF	16, 13	Yes	approx 20 mi.

B. Bermuda Harbour Radio (19 Fort George Hill, St. George's GE 02, Bermuda)

<u>Station</u>	<u>System</u>	<u>Number/Channel</u>	<u>Monitor 24/7</u>	<u>Range</u>
Bermuda Radio	land line ¹	(441) 297-1010 ¹	Yes	approx 40 mi
Bermuda Radio	land line fax	(441) 297-1530 ¹	Yes	approx 40 mi
Bermuda Radio	VHF ⁷	ch16,27	Yes	approx 40 mi
Bermuda Radio	SSB HF	2182.0	Yes	long distance
	SSB HF	4125.0	Yes	
Bermuda Radio	Inmarsat C telex	(581) 431010110		
	Inmarsat C telex	(584) 431010120		

Notes:

1. These numbers via satellite phone are the best way to contact the USCG or Bermuda Radio and ensure the fastest response if rescue is needed. They will connect to the USCG S&R system anywhere.
2. USCG does not monitor VHF ch 13, the ship to ship Channel.
3. Antenna at Martha's Vineyard
4. USCG no longer monitors 2182.
5. CAMSLANT has high sight towers down the East Coast, range depends on atmosphere conditions
6. Commercial vessels at sea often monitor only VHF ch 13

Comment:

Satellite phones provide point to point contact and are particularly good for contacting a specific shore location. Permanent installation and a masthead antenna are essential. The server must be reliable and have universal coverage without geographic gaps. **Email**, through single sideband or satellite phone, casts a wide net but depends on a sent email being opened and responded to. **Single sideband and VHF radio** create immediate direct contact and if it does, can establish a "net" of responders who can monitor a situation and potentially offer assistance if satellite phone contact fails.

Addendum 2: Sample Medicine list

(updated with help from Barbara Masser, MD, Chair, Dept. of Emerg. Med. Beth Israel Deaconess, Needham)

Note:

1. Medicines should be selected and assembled with the help of a physician. A final list will depend on the type of voyage, the vessel and crew, as well as the expertise of the ‘medical officer.’
2. *Prescription medications are in italics*; "over the counter" medicines in regular type.
3. Prescription medicines have risk and 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/PROBLEM</u>	<u>MEDICATION</u>
	<i>(Prescription medicines in italics, remainder are over the counter)</i>
Allergic Reactions.....	Benadryl, <i>prednisone (oral), EpiPen (adult & 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
Ear, Nose, Throat/ Dental.....	<i>Corticosporin Otic Suspension</i> , Sudafed, <i>Calcium Hydroxide dental paste, Afrin nasal spray</i>
Eyes.....	<i>Erythromycin ophthalmic ointment, Ocuflax</i> <i>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>
<i>Desirable/Essential antibiotics.</i>	<i>Cipro, Keflex, Augmentin</i>
Intravenous Antibiotics	<i>Ceftriaxone (2gm)</i>
Intravenous Fluids.....	Normal Saline (sterile 0.9% saline), D51/2 NS
Inflammation/ Pain	Tylenol, Ibuprofen
Local Anesthetic	<i>Lidocaine 1% with and without epinephrine)(injectable)</i>
Narcotic pain medication.....	<i>Oxycodone 5mg, Vicodin 5/500</i>

Addendum 2 continued: Suggested Medications

Sea sickness.....	<i>Scopolomine hydrobromide transdermal</i> <i>Dramamine, Stugeron (cinnerazine**)-</i>
Skin/ Rash.....	Triamcinolone acetonide 0.1%, Nystatin topical Hydrocortisone 1% ointment
Sleeping	Benadryl, <i>lorazepam 1mg</i>
Sunburn	Topical aloe, solarcaine
<p><i>Highly desirable/essential prescription medicines:</i></p> <p style="text-align: center;"> <i>Prednisone (10mg tabs)</i> <i>Epi-pen</i> <i>Oxycodone or vicodin</i> <i>Ciprofloxacin</i> <i>Scopolomine hydrobromide</i> <i>Sub-lingual nitroglycerin</i> </p>	

*ACLS is an acronym for ‘Advanced Cardiac Life Support’

**Over the counter except in USA and Canada where it is unavailable

Addendum 3: Sample Medical Equipment List (from Morris 46, *Diva*)

PROBLEM or ACTIVITY	EQUIPMENT
Examination	BP cuff, stethoscope, thermometer
Airway, breathing	Airway kit: Oral airways (small, medium and large), Ambu bag, CPR mask
Urinary retention	Prepackaged, sterile Foley catheter tray with catheter
Eyes	Sterile irrigation fluid for eye wash
Nose	Nasal packing (nasal tampons, 1" Vaseline gauze)
Dental	Calcium hydroxide dental paste
Dehydration* *(intravenous fluid administration very difficult at sea)	IV administration set 19 and 25 gauge butterfly needles 0.9% (physiological) saline, 500cc sterile plastic bags 5% Dextrose and 0.9% saline, "
Fractures	Inflatable (or other) splints for arms, legs, Tongue depressors (finger fracture) Cervical collar
Simple cuts, burns	Wound dressing material: Band-aids, assorted sizes Xeroform or Vaseline gauze (12"x12" sheets) Sterile dressing sponges (4X4) Steri-strips (1/2") Non-adhesive dressings (e.g. Telfa) Roll Gauze (2" and 4") Ace bandages (2", 4", 6") Triangle bandages (for sling and swath) Large abdominal/ trauma dressing Adhesive tape 1"
Wounds requiring closure** **(advanced - should be customized by the experienced user)	Surgical Kit/ Laceration tray (pre-sterilized and packaged) iodine prep sticks (pre-packaged) 1% lidocaine, 5cc syringes, needles (18 and 25 gauge) 14 gauge angiocath (3") hemostats, needle driver forceps Scalpel – 11 blade Sterile dressing sponges (4X4), Suture material – 5.0/ 4.0/ 3.0 nylon, 4.0 vicryl Dermabond topical skin adhesive Skin stapler
	Sterile gloves (sizes 7.5,8)
	Headlight
Suture/staple removal	Suture removal kit/ staple removal kit

Addendum 4: Suggested Medical References (from Morris 46, *Diva*)

(Owner and crew should select books they can understand and use. Many suggested here are dated)

a. 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

b. 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.