This lecture is dedicated to the memory of all US Navy corpsmen who lost their lives in service to their nation.
Content:

1. Readiness
   Your Vessel
   Your Destination
   Your Crew

2. Medical Response
1. Readiness
Vessel Readiness
Medical Readiness for Your Vessel

- Secure Storage: Will anything fly if you suffer a knockdown?
- Do you have a preventer? If not, can you perform neurosurgery underway?
- Screens and repellants to keep the bugs out
- Secure harnesses and jacklines
- A comprehensive medical locker
- Communication Link: Primary and Secondary
Vessel Readiness: Medical Locker

- Prescription and Controlled Medications
- OTC Medications
- Bandages, Splints, Betadine
- Surgical Equipment
- Dental Kit
- Reference Book
- Crew Medical Records
- Duct Tape
- A Preventer
1998

2017

Dr. Daniel Carlin
USNA Safety at Sea
Dangerous High Seas Infection: Treated with Cipro and Tetracycline
Diflucan 100mg. tablet
Betadine: The antibacterial equivalent of duct tape
Random & Useful Stuff
Surgical tools: Use what you know
Training Resource:

Wilderness Medical Associates International

Destination Readiness
Medical Readiness for Your Destination

- What immunizations do you need?
- What are the local disease risks?
- Is clean water and fuel available?
- Will they bar your entry if you have not had a yellow fever shot?
  - Attention esp. if you plan on transiting the Panama Canal.
- Malaria
- Immunizations are not always safe in undeveloped countries. Do it before you go.
Coming Soon to a Marina Near You...

Chickingunya Fever...

.... ChikV

...Chimichanga, Chicken Gumbo
Chickingunya on the Move
Yellow Fever

https://www.cdc.gov/yellowfever/maps/
Crew Readiness
Medical Readiness for the Crew

- **Pre-existing medical problems**: the most common are hypertension, chronic back pain, heart disease and poor teeth.
- **Individual Medications**: Who takes what? Do they have an extra supply for the duration?
- **Serious Allergies**
- **Smokers and Drinkers**: (At sea is not the time to quit)
- **Seasickness**
- **A Summary Medical Record for Each Member**
Men are at risk for:
Back injuries
Heart attacks
Prostate problems
High blood pressure
Kidney stones

Women are at risk for:
Heart attacks
Urinary tract infections
Yeast infections
Pregnancy
Summary Medical Record

1. Your medical conditions requiring regular attention
2. Past surgeries and inactive medical problems
3. Medications and allergies
4. How to reach your doctor
5. Who to call in an emergency
6. A copy of an EKG
2. Medical Response
Medical Response: Common Illnesses and Injuries

- Seasickness / Dehydration
- Hypothermia
- Heat Exhaustion / Sun Sickness
- Lacerations and Contaminated Wounds
- Broken bones, injured backs, pulled muscles, wrist tendonitis
- Devastating Injuries: Head Trauma, Heart Attack, Major Burns
from my own career as a ship's medical officer. In 1980, I met a young man from Detroit who had joined the US Navy. His first assignment...
Medical Response: Seasickness

- Mismatch between what your middle ear feels and what your eyes see.
- Steer the boat for awhile. Do something on deck.
- Stabilize your neck with a c-collar or towel wrap.
- Lie down, neck stabilized, head slightly elevated, in the lowest center point.
- Meclizine (Bonine) is good before you go.
- Transderm Scopolamine: Test its use first.
- Phenergan suppository is good once symptoms start. Add a decongestant (Sudafed) if you are still queasy.
Seasickness through life:

From: "Motion Sickness Susceptibility And Behavior," C.S. Mirabile Jr., in Motion and Space Sickness, 1990
Medical Response: Hypothermia

- Starting with: shivering, euphoria, irritability, lethargy
- Proceeding to: stumbling, slurred speech, loss of memory
- Closing with: looking pale, breathing slowly, pulse weak, leading to collapse and unconsciousness
• Wind and being wet lead to **rapid** heat loss
• Obey the Ocean Dress Code: **Layer upon Layer!**
• Treat it by: Strip him, Dry him, Rack and Sack him, Hot Liquids
• Do **not** rub limbs, give alcohol or quit CPR
• **WARM THE CORE FIRST: THE LIMBS WILL WAIT**
Sun Sickness & Skin Cancer

• Sunblock: 50 SPF, waterproof, twice a day. Apply esp. to the ears and tip of your nose.

• Late stage Melanoma is lethal, so look for it first:
  - irregular speckled border
  - bizarre and inconsistent coloration
  - history of rapid growth

• Fair skinned folks should perform a mole check once a month.
Medical Response: Lacerations and Wounds

- Obey the 3 Rules of Managing Wounds:
  1. Open it till you see or feel the bottom.
  2. Clean the hell out of it.
  3. Make sure the rest of the limb still works.

- NEVER, EVER, CLOSE A DIRTY WOUND. Infection and death may ensue.

- If in doubt, clean it, pack it with clean gauze, and leave it open
Docs beat back bacteria

Man survives race against flesh-eater

By DAVE WEDGE

Just a month after a Marion fisherman died from a rare flesh-eating bacteria he picked up from his contaminated catch, a Marblehead fishing captain nearly lost his arm after he caught a similar infection.

Doug Drew, a 42-year-old lifelong fisherman, was hauling in a net of flounder Sunday when he was stabbed in the thumb by a jagged fishbone. Doctors say the wound featured for hours and that a form of flesh bacteria seeped in.

Feeling intense pain and noticing that his thumb had "balled up," Drew rushed to Salem Hospital.

"Within a half-hour, I had a strap running up my arm and red lines up to my armpit," Drew of Marblehead, said yesterday. "It felt like somebody was running a sword up my arm. I can take a lot of pain, but this was too much."

When he complained of severe chest pains, panicked doctors slit open his hand and arm, revealing a fast-moving infection that had morphed into a flesh-eating bacteria.

Doctors worked feverishly to scrape off the bacteria from his muscles and tendons. After several hours, they were able to stop the infection in its tracks and save Drew's arm.

"He was on the edge of taking my hand off," Drew said. "They said they could watch it gain use of his hand."

"We're going to try to get him back to normal life," Drew said. "It was the most frightening experience of my life."

CLEANED OUT: Marblehead fisherman Doug Drew shows the arm that surgeons cut open to rid it of a rare flesh-eating bacteria he says he contracted when a fishbone stabbed him in the hand. A similar bacteria killed another Massachusetts man recently.

The bacterial strain is similar to that which causes strep throat or an ear infection and can become flesh-eating. Drew's mother, Priscilla, expressed relief that her son had been saved from "such a horrible flesh-eating bacteria."
Stingray spine to the thigh. Venom, salt water, spine sheath.
Boom to the back of the head. Shearing laceration. Low risk.
You must see the bottom of the wound
Rinse, Rinse, Rinse.
Staple/tape it together. Keep the edges up
That’s No Way to Accessorize...

Figure 2-2. Fishhook removal: the “push-and-snip” technique.
Medical Response: Muscles, Bones, and Backs

- The foredeck is where most injuries occur.
- An injured back is the complete loss of one able-bodied sailor for the duration.
- For all of the above: RICE IT
  - Rest it
  - Immobilize it with a splint.
  - Cold and Compress it.
  - Elevate it.
- Check and recheck the blood flow, strength, and sensation downstream from the injury.
Fractured toes. Buddy tape it.
Devastating Injury: Head Trauma, Heart Attacks, & Burns

- The most common traumatic death at sea is a head injury from a swinging boom.
- Anything more than a minor burn should be evacuated as soon as possible. Force fluids, cleanse gently, antibiotic ointment, cover.
- A heart attack is a failure to prepare adequately. If you are over 45, test your own pump before heading offshore.
A word of thanks to you Dr. Carlin.
A couple of weeks back I attended a safety at sea seminar at Annapolis. I found the entire experience great and tried to learn a little from each of the speakers. What I remembered from your presentation was the importance of preventers in decreasing the possibility of injuries caused by a swinging boom.

The week after the seminar, together with two of my sons, I brought a C&C 25 from Providence, RI to the Bronx, NY. At one point, out at the east end of Long Island Sound, rolling west in one of those short chops kicked up by 20ks from the SE, I looked over the boat and asked myself what was missing. I remembered your reference to a preventer, and quickly rigged one.

About a half hour later, while my son was steering, doing more talking than watching, and as I stood in the cockpit looking forward, I heard the swoosh of the main pulled over as the boat rolled the wrong way down a wave. As I looked back I realized that the talking helmsman steered us into an accidental jibe. To my good luck however, the preventer kept the boom from swinging into me, and me into either never, never land or the 50 degree water of the Sound.

I hope others at the seminar took away insights and tips as useful and life-saving to them as your reference was to me.

Martin Schulman, Woodside, New York

(By the way, the trip, which took three days with anchoring at night, was one of the best of my life. The sea and wind conditions were outstanding, just at the edge of uncomfortable but still exhilarating. The boat, a 25, sailed like a 30 footer, and all of us got along better at the end of the trip than at the beginning.)

Thanks again.
Classic Heart Attack Angina

Dr. Daniel Carlin
USNA Safety at Sea
(because what you can’t see or feel, can kill you)
Medical Response: Preventive Medicine on the High Seas

- Stretch out your back every time you leave your rack. Knee to chest and twist, switch legs
- Obey the Ocean Dress Code
- Did I mention the part about a preventer?
- Drink lots of fluids to help stabilize your core temperature and prevent dehydration
- If you are over 35… take a baby aspirin, take your meds, and look after your crew/spouse.
Medical Response: What to Do in an Emergency

- **Stay calm.** People rarely die suddenly.
- Move the patient to a secure bunk.
- Splint and immobilize the neck of anyone complaining of neck pain *before* you move.
- Find out *exactly* what happened.
- Call your medical resource: Report the situation clearly and calmly. Use a form.
- Clarify all advice you receive.
Medical Response: Radio Medical Advice Resources

The US Coast Guard
DH MEDICO on the SSB
Passing ships
Commercial Medical Advisory Services ($4-9k/year)
Medical Advisory Systems Inc. 301-855-8070
WorldClinic Maritime Membership

- 24/7 Immediate Access to WorldClinic Emergency Physicians
- Destination Medical Risk Briefs
- Portable Medical Kits
- Summarized Medical Records

$1,200/person/year
How to Die Underway

Drown: after falling overboard while urinating
Roast: hyperthermia
Freeze: hypothermia
Seasickness: leading to impairment of judgement
Injury: leading to loss of skipper at a bad time
Bad Heart: too far from land
Drive, esp. at night, in a developing country
“Twenty years from now you will be more disappointed by the things that you didn’t do than by the ones you did do. So throw off the bowlines. Sail away from the safe harbor. Catch the trade winds in your sails. Explore. Dream. Discover.”

—H. Jackson Brown