



# SAFETY AT SEA

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## MEDICAL READINESS & RESPONSE



Daniel J. Carlin MD

# 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.

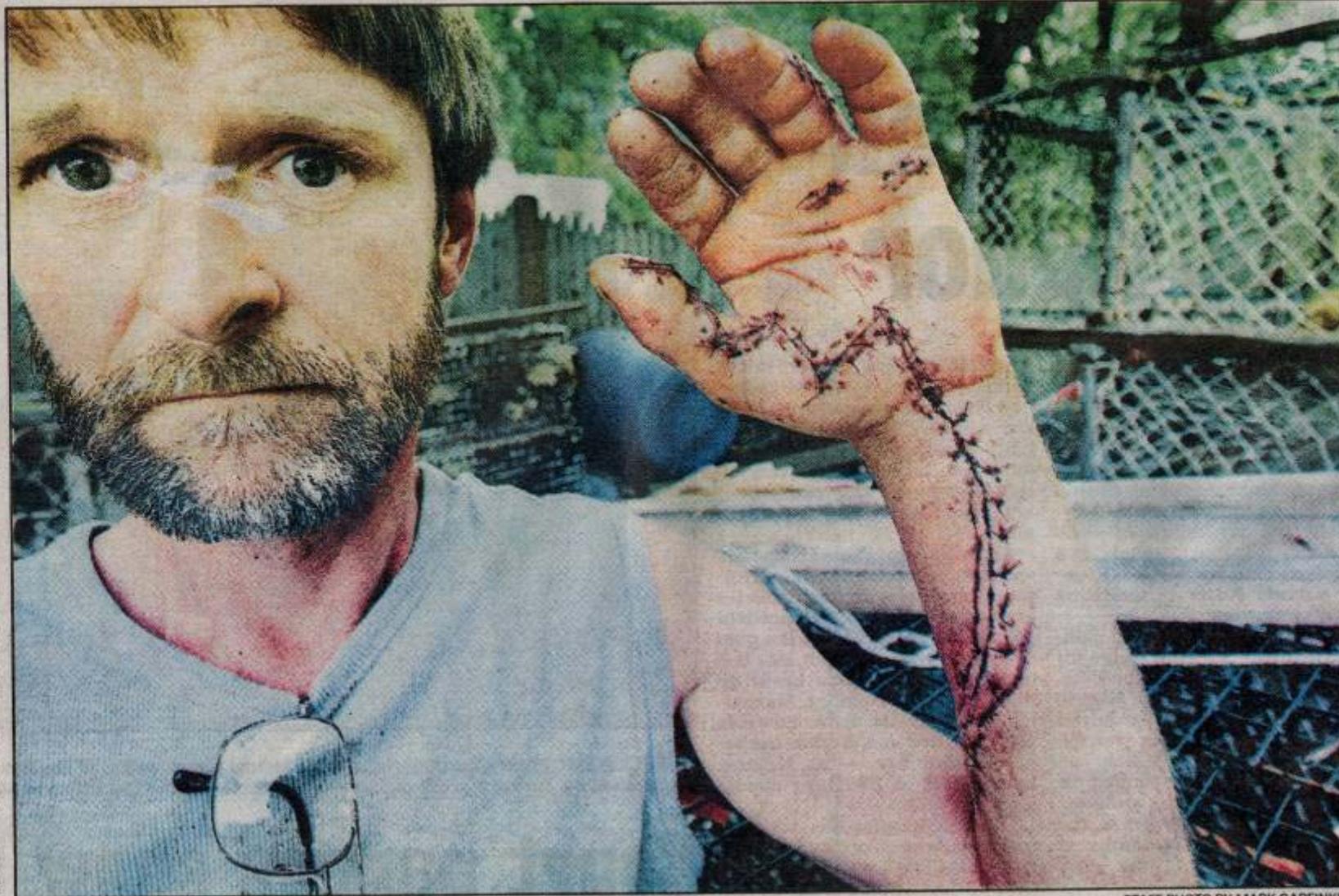
Doug Drew, a 42-year-old lifelong fisherman, was hauling in a net of flounder Sunday when he was stabbed in the thumb by a jagged fishbone. Doctors say the wound festered for hours and that a form of strep bacteria seeped in.

Feeling intense pain and noticing that his thumb had "ballooned," 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.



STAFF PHOTO BY MARK GARFINKL

**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.

gain use of his hand

killed him by overtaking his vital or-

The bacterial strain is similar to that

Drew's mother, Priscilla, e

■  
This lecture is dedicated to  
Adm. Jeremy Michael Boorda USN  
1939-1996



# Medical Readiness

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- ◆ Your Crew
- ◆ Your Vessel
- ◆ Your Destination





# Medical Readiness for The Crew

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- ◆ 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

# Medical Readiness for the Crew

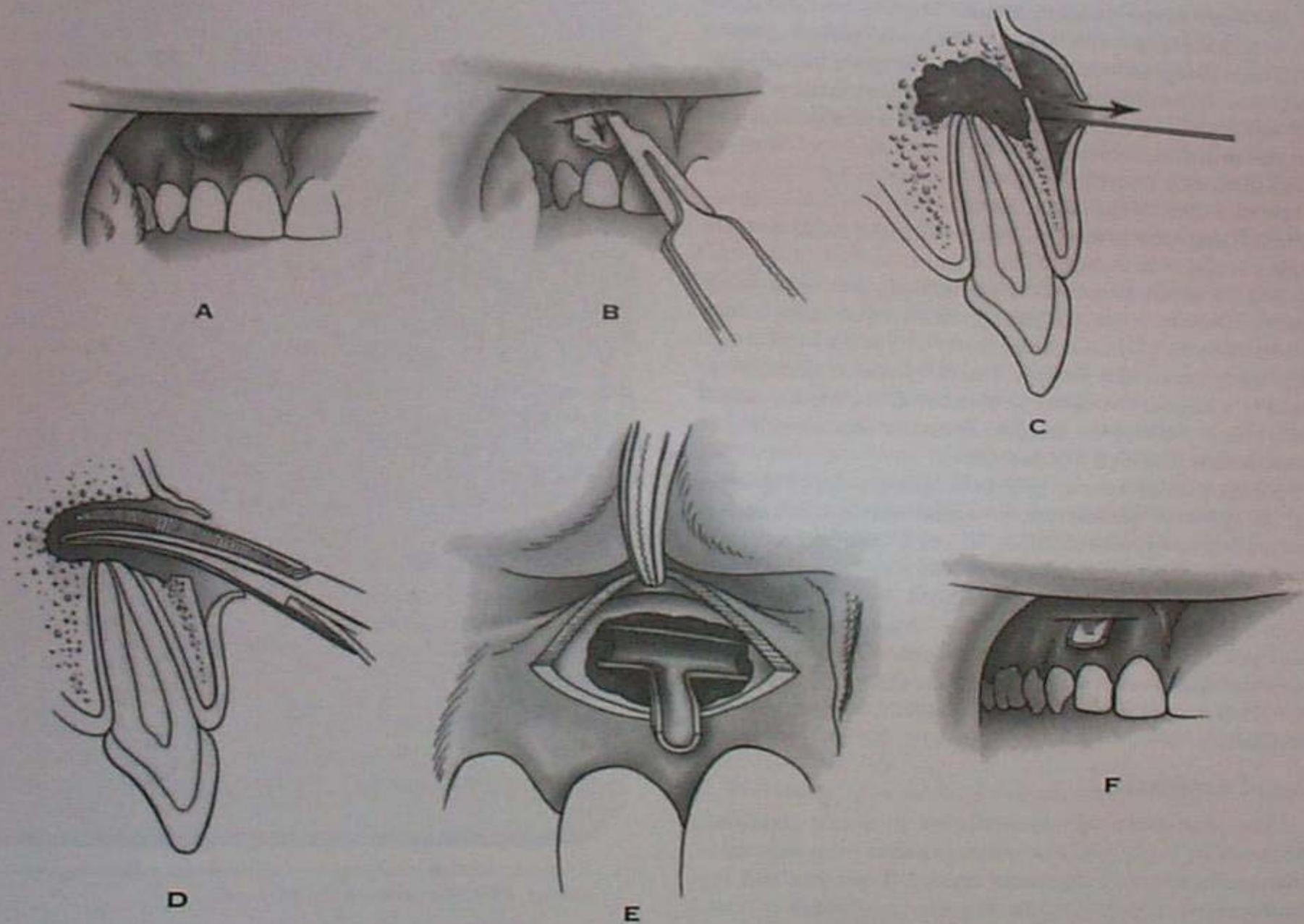
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◆ Men are at risk for:

1. Back injuries
2. Heart attacks
3. Prostate problems
4. High blood pressure
5. Kidney stones

◆ Women are at risk for:

1. Heart attacks
2. Urinary tract infections
3. Yeast infections
4. **Pregnancy**



**Fig. 13-16** Incision and drainage technique. **A**, Fluctuant abscess. **B**, Abscess incised with scalpel. Pus is expressed by suction or caught in gauze sponges. **C**, Cross section showing incision

# 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



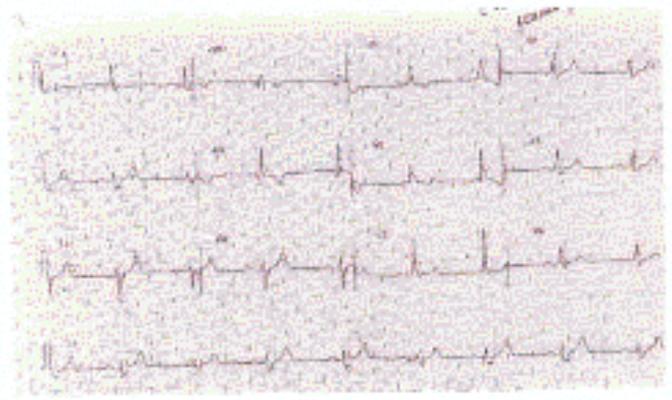
**Joseph H. Sample**  
Date of Birth: 09/27/1947

**Medical Conditions:**  
hypertension, hypercholesterolemia  
s/p angioplasty (1999)  
gout, L hip arthritis, seasonal rhinitis

**Medications:**  
Lipitor 10mg qd  
Atenolol 50mg qd  
Feldene 10mg qd

**Allergies:** Codeine: rash

For any medical problem, contact WorldClinic immediately:  
24/7 Hotline: +1-781-893-9111; e-mail: [ER@worldclinic.com](mailto:ER@worldclinic.com)



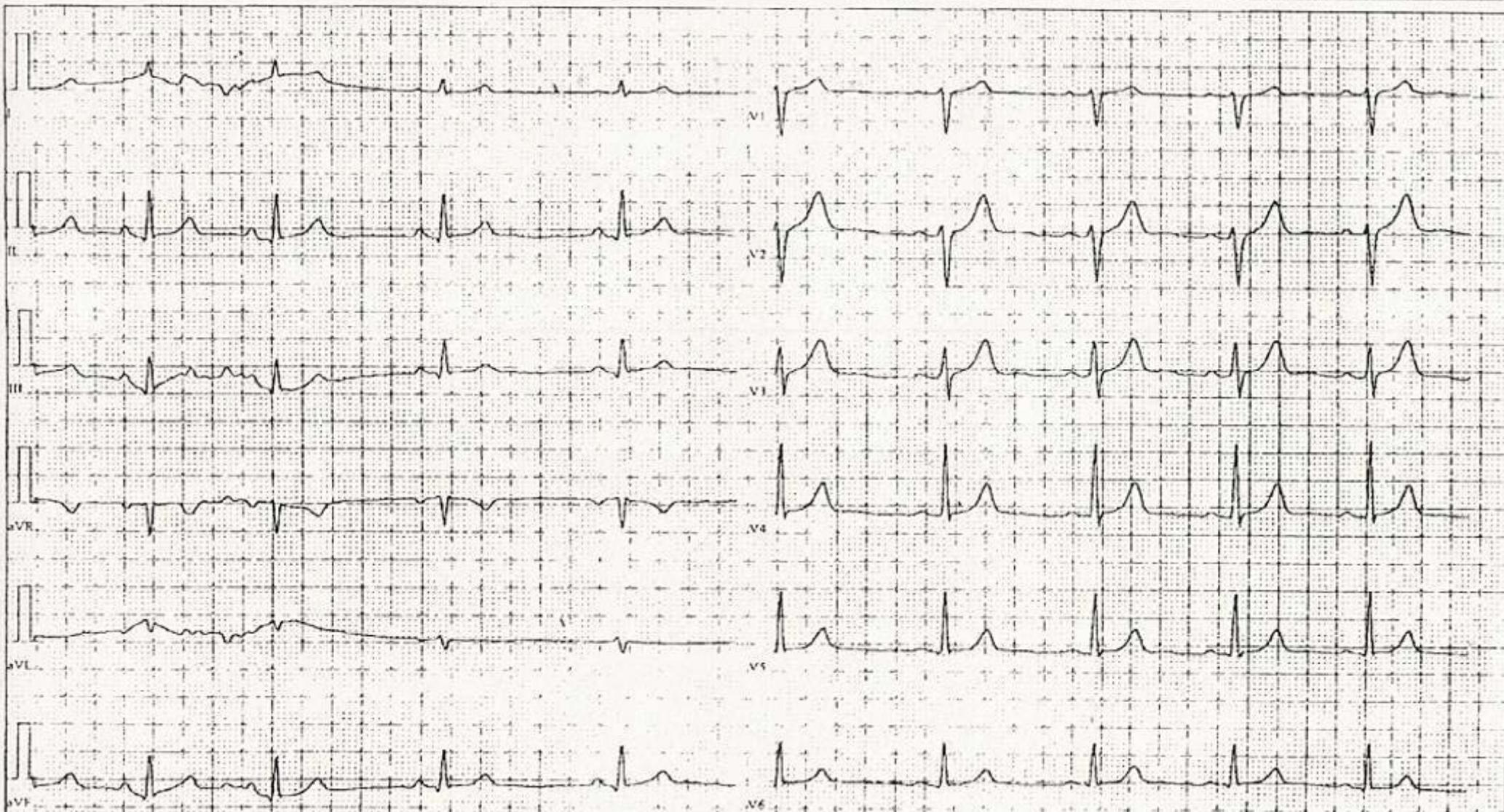
Name	Williams Cravens	Rate	58	BPM
ID	457909336	PR	172	msec
Sex	Male	QT/QTc	400/397	msec
BP	148/100 mmHg	QRSD	98	msec
Weight	160 lbs	P Axis	69	
Height	72 inches	QRS Axis	70	
Age	46 Years	T Axis	60	
Physician		Date of Report	13/08/98	16 11 02
Technician	Dombusch/Lyon/Lacey	Reviewed By		
History	Family history - significant	Review Date	13/08/98	16 12 35
Medication	Lorazem			

Interpretation

S&W Thermal Plant Clinic

Sinus Bradycardia - With rate variation  
P:QRS: 1:1, Normal P axis, II Rate 58  
cx - 11  
WITHIN NORMAL LIMITS

Comments

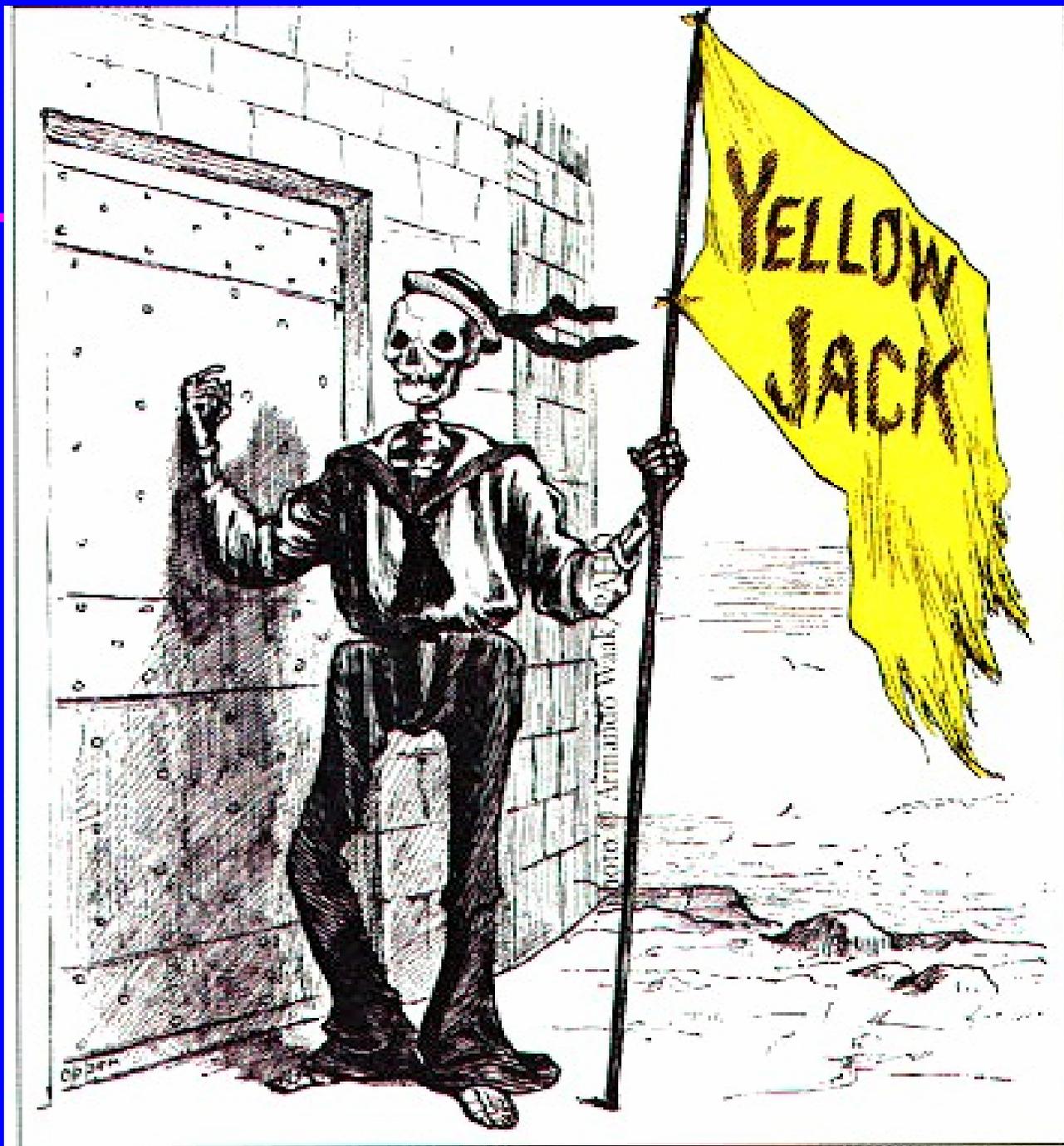


# Medical Readiness for Your Destination

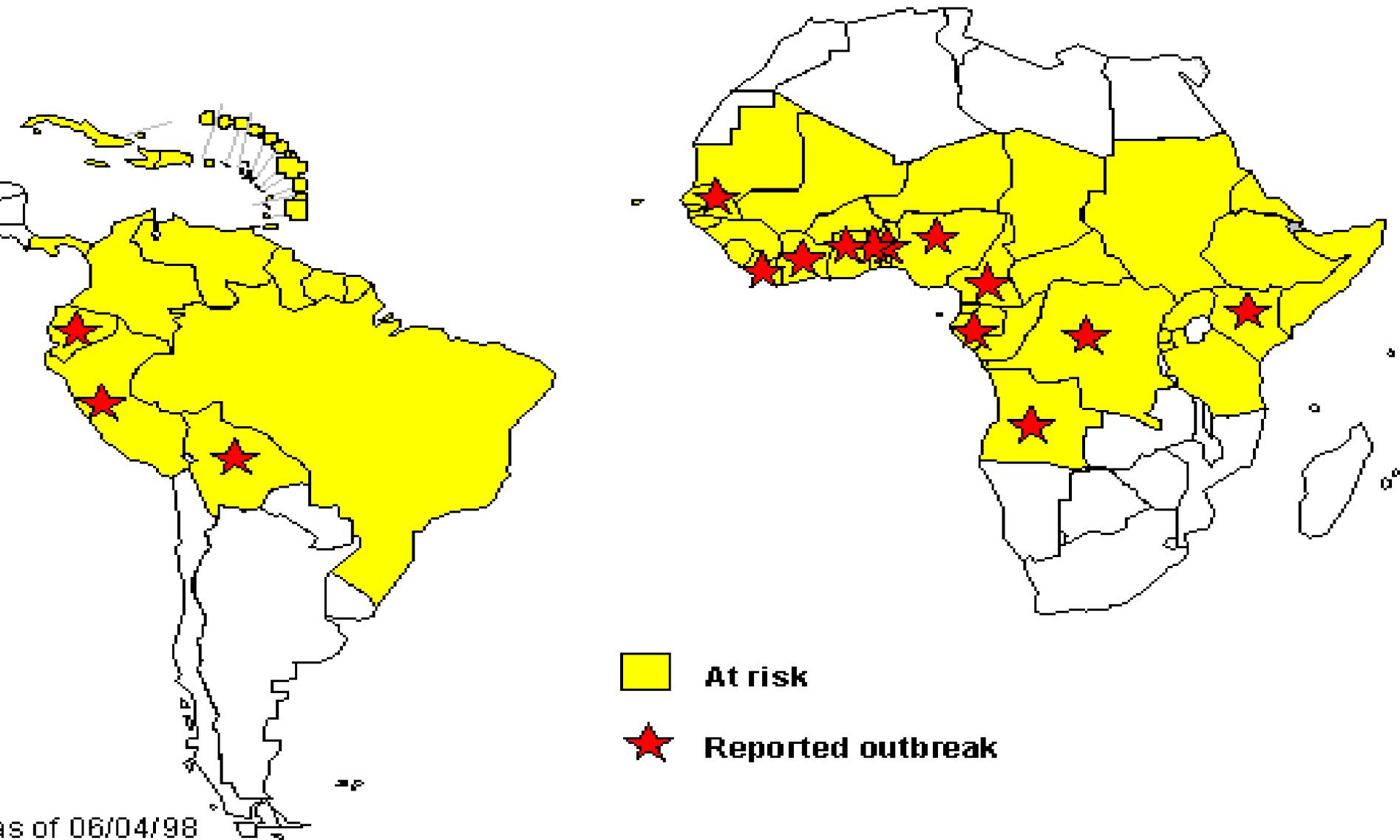
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- ◆ What immunizations do you need?
- ◆ What are the local disease risks?
- ◆ Is clean water and fuel available?
- ◆ Will they bar your entry if you have not had a yellow fever shot? Attention esp.. if you plan on transiting the Panama Canal.
- ◆ Malaria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

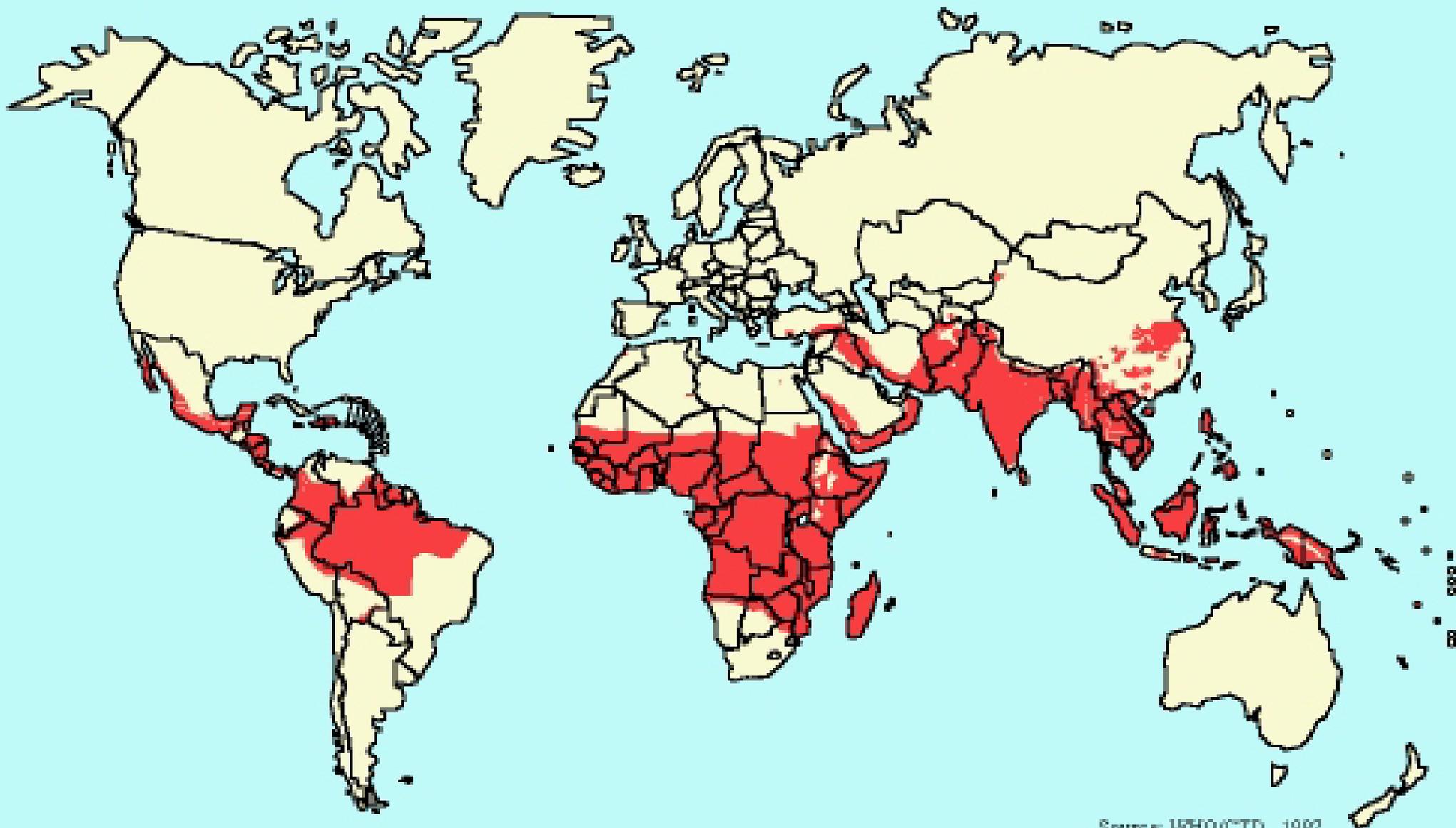




# Countries at risk for yellow fever and having reported at least one outbreak, 1985-1997



## MALARIA SITUATION



Source: WHO/CTD, 1997

# Medical Readiness for Your Vessel

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- ◆ Secure Storage: Will anything fly if you suffer a knockdown?
- ◆ Do you have a preventer? If not, can you perform neurosurgery underway?
- ◆ Secure harnesses and jacklines
- ◆ A comprehensive medical locker
- ◆ Communication Link: primary and secondary
- ◆ Tropical destinations: screening and repellants





**From:** SCHULMAN6 [schulman6@worldnet.att.net]

**Sent:** Tuesday, May 14, 2002 9:40 PM

**To:** [consults@worldclinic.com](mailto:consults@worldclinic.com)

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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.

# Vessel Readiness: Medical Locker

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



"Should be a requisite component of all boats' safety kit." —National Boating

# THE ONBOARD

## MEDICAL HANDBOOK

*First Aid and Emergency  
Medicine Afloat*

- SHOCK, CPR, INJURIES
- DENTISTRY, DERMATOLOGY,  
SUNBURN
- DROWNING, SEASICKNESS,  
DIVING MEDICINE
- DANGEROUS SEA LIFE
- PEDIATRICS, GYNECOLOGY
- A SHIP'S MEDICINE CHEST
- EMERGENCY RADIO

PAUL G. GILL, JR., M.D.

# Vessel Readiness: Medical Locker

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Essential prescription meds:

1. One month emergency supply of your daily meds
2. Levaquin, tetracycline, Flagyl
3. Lomotil, Immodium, and Gatorade powder packs
4. Phenergan suppositories and Transderm Scop
5. Sublingual nitroglycerin spray, aspirin, metoprolol
6. Vicodin and Valium
7. ANAKIT, Benadryl, and prednisone
8. Diflucan tabs and Clotrimazole creme

Levaquin: very expensive, very effective



# Dangerous High Seas Infection: Treated with Cipro and Tetracycline

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# Diffucan 100mg. tablet



# Valuable Medical Equipment



# Blisterpack your meds if possible



# Betadine: The antibacterial equivalent of duct tape

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# Random & Useful Stuff



# Surgical tools: use what you know

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# Vessel Readiness: Communications

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- ◆ Single Side Band: Voice / e-mail (Seawave LLC)
- ◆ SATPHONE: Globalstar, Iridium, Inmarsat-C
- ◆ Marine VHF: Fixed and Handheld
- ◆ Cellular Phone: effective to 20 miles offshore
- ◆ Worldwide e-mail: SailMail, MarineNet Radio
- ◆ Telaurus Comm.: the new high seas operator

\*Log a Voyage Plan, preferably on-line

The Internet is almost everywhere.



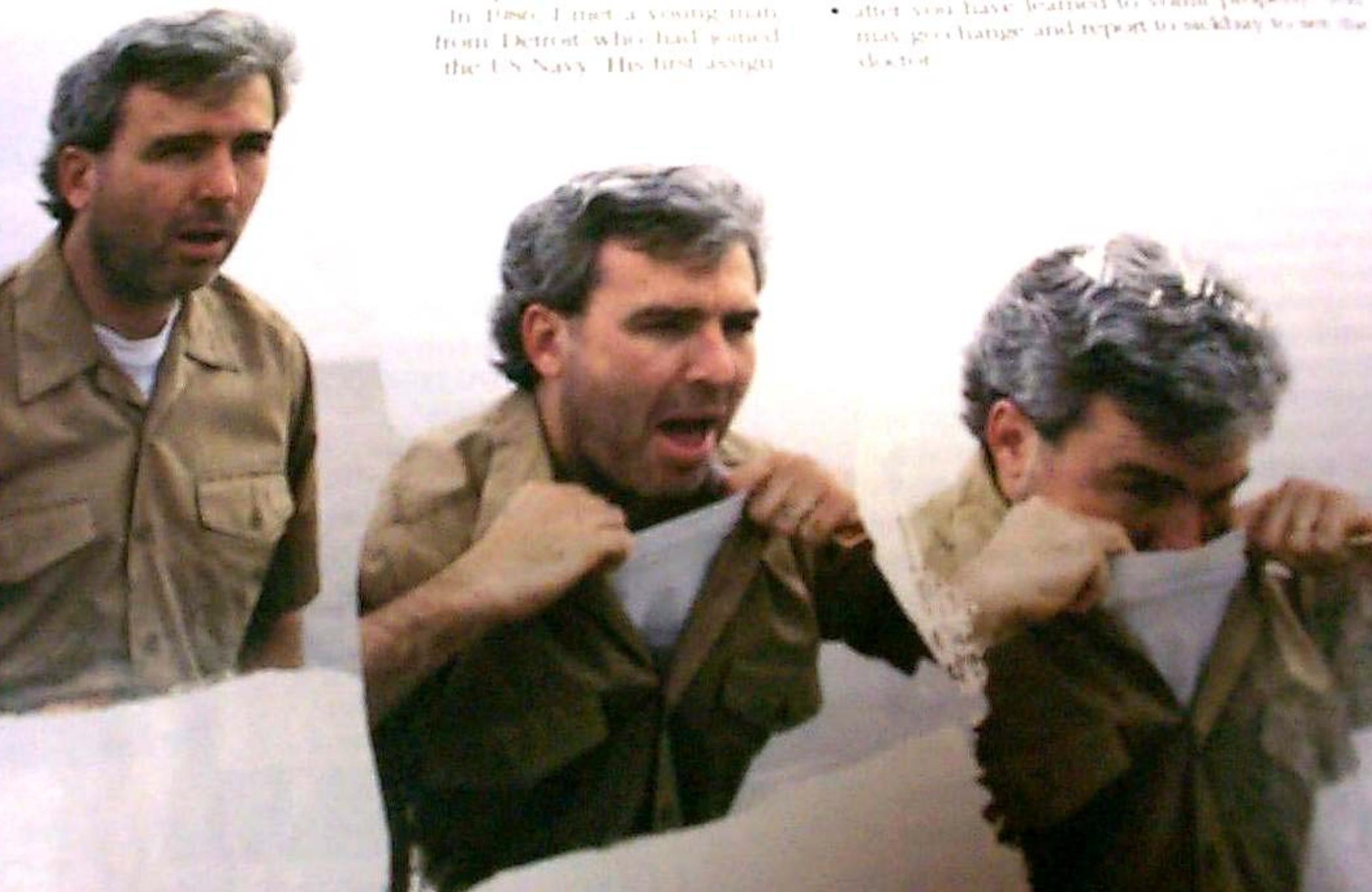
# Medical Response: Common Illnesses and Injuries

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- ◆ 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 1986, I met a young man from Detroit who had joined the US Navy. His first assign-

- you may never see him again on the ship
- after you have learned to vomit properly, you may go change and report to sickbay to see the doctor

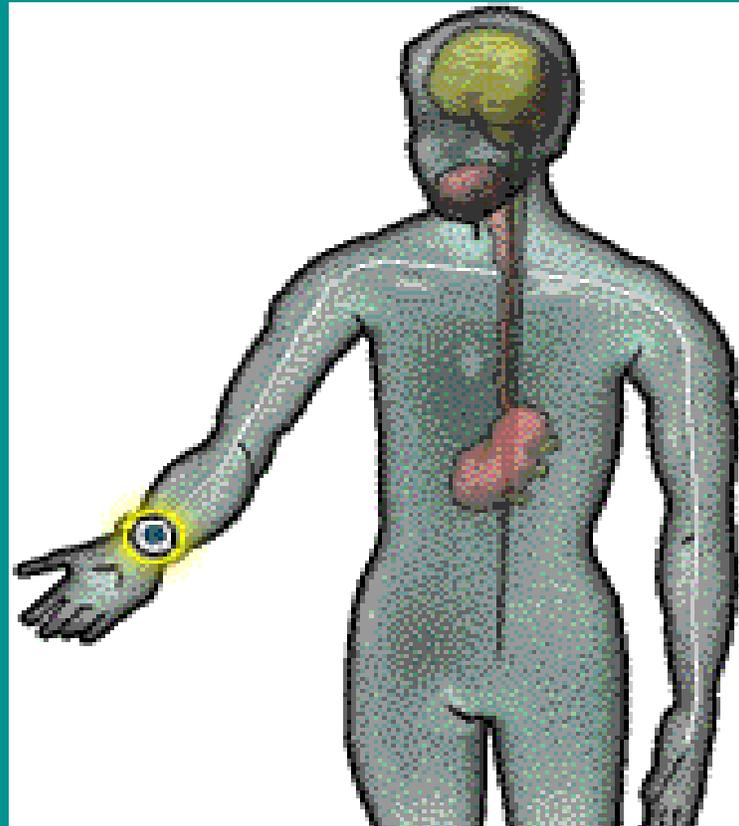


# Medical Response: Seasickness

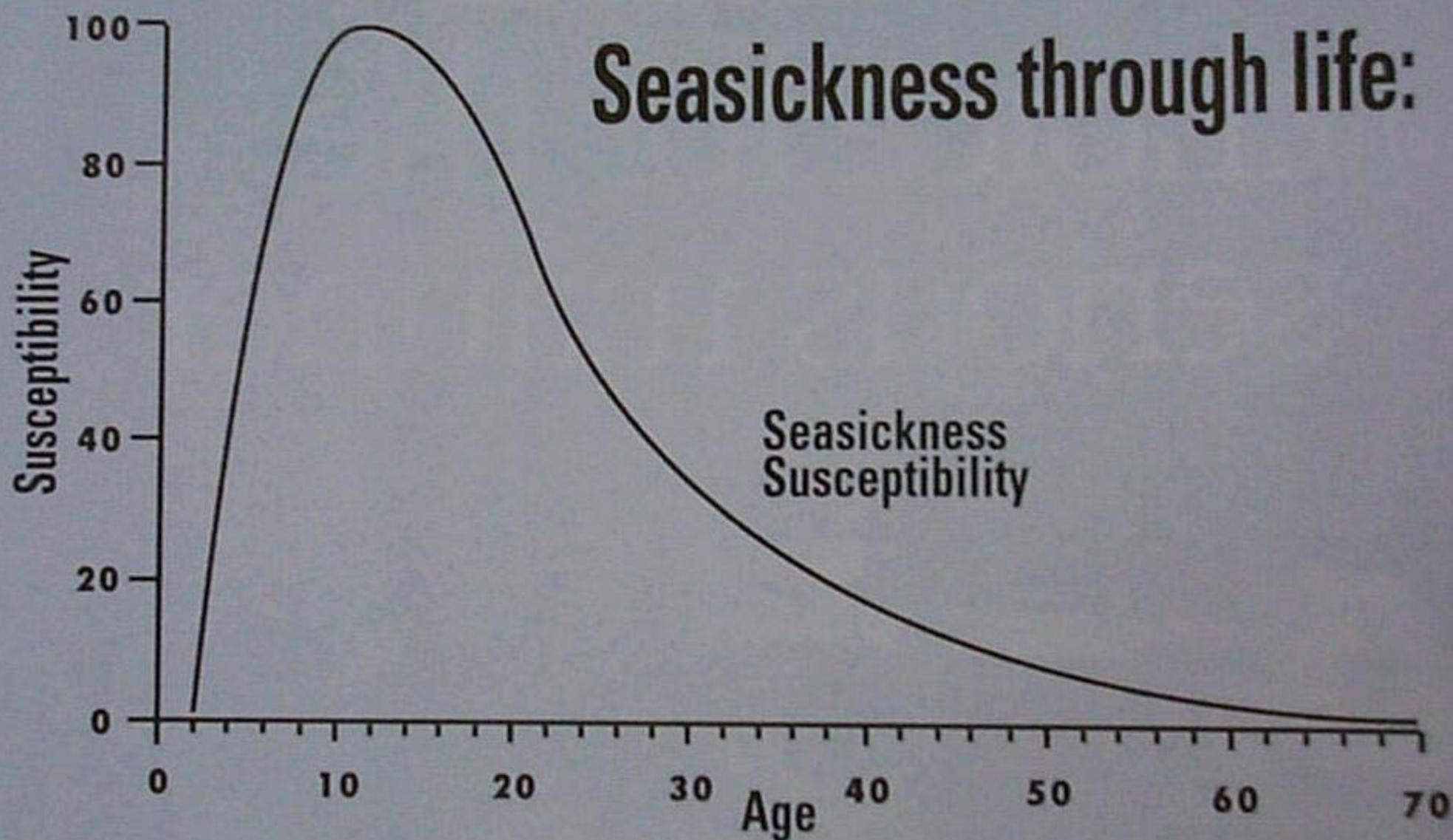
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- ◆ Mismatch between what your middle ear feels and what your eyes see.
- ◆ Steer the boat for awhile. Do something on deck.
- ◆ Stabilize your neck with a c-collar or towel wrap.
- ◆ Lie down, neck stabilized, head slightly elevated, in the lowest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

# relief band



# Seasickness through life:





# Medical Response: Hypothermia

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- ◆ Can be subtle, like dehydration, can impair judgement and performance
- ◆ 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
- ◆ **WARM THE CORE FIRST: THE LIMBS WILL WAIT**



# Medical Response: Hyperthermia

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- ◆ Heat exhaustion is just that, too tired, too hot. Left unchecked, it becomes.....
- ◆ Heat Stroke, a slowly frying brain
- ◆ Cool the core with cold fluids, cool the limbs with cold liquids and a fan



# Sun Sickness

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- ◆ Sunblock: 30 grade, 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.



# Get a Sunblock that sticks

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# Medical Response: Lacerations and Wounds

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- ◆ 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

Stingray spine to the thigh. Venom,  
salt water, spine sheath.

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Boom to the back of the head.  
Shearing laceration. Low risk

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You must see the bottom of the wound



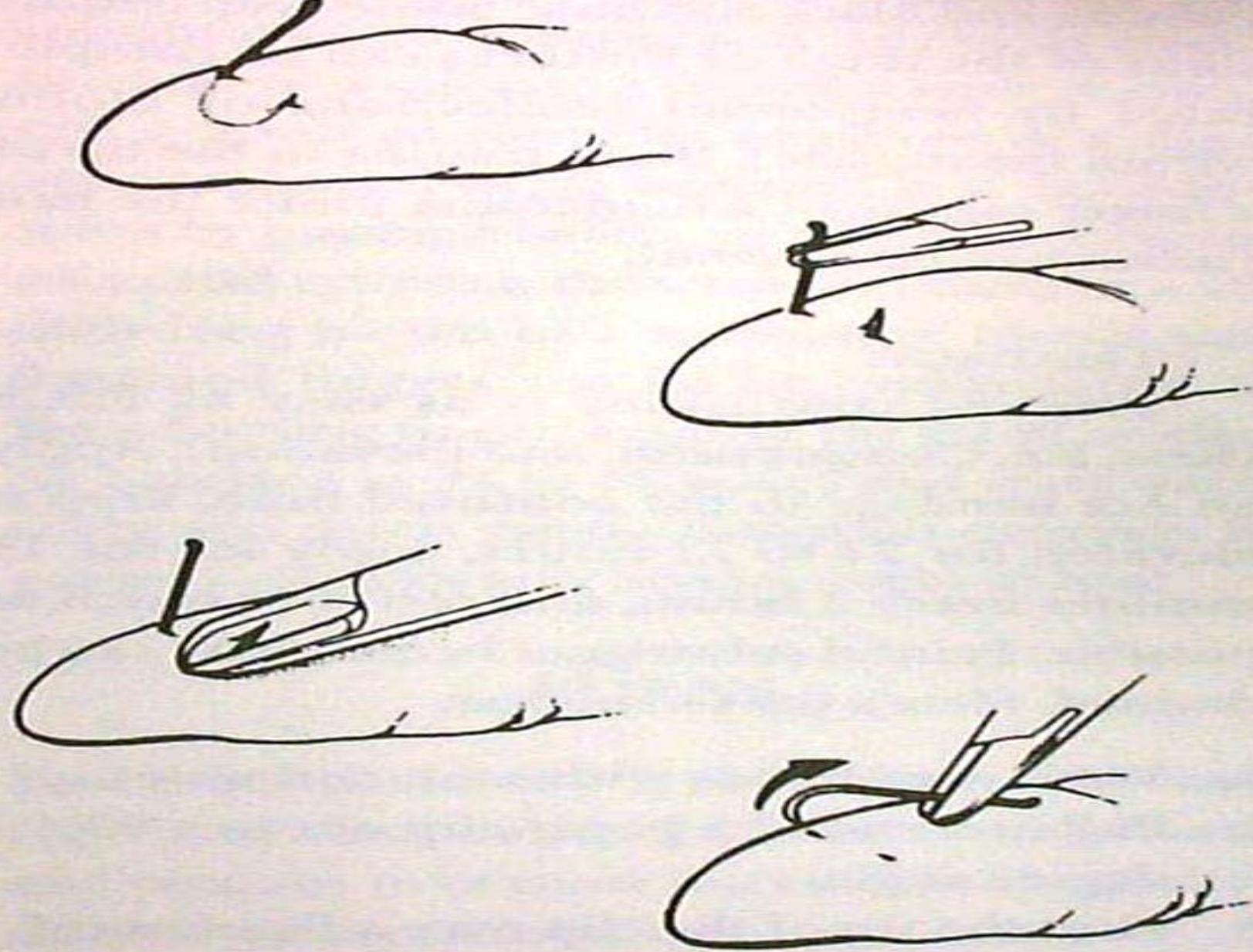
Rinse, Rinse, Rinse.



Staple/tape it together. Keep the edges up







*Figure 2-2. Fishhook removal: the "push-and-snip" technique.*



# Medical Response: Muscles, Bones, and Backs

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- ◆ 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
  1. Rest it
  2. Immobilize it with a splint.
  3. Cold and Compress it.
  4. Elevate it.
- ◆ Check and recheck the blood flow, strength, and sensation downstream from the injury.

Fractured toes. Buddy tape it.



Juno e-mail printed Thu, 19 Nov 1998 19:36:17 , page 1

From: 427310272@c-link.net

To: raceop@sac

Date: Wed, 11 Nov 1998 [REDACTED]

001 427310272 1111 3340.343S 00048.148E 08510 2154 G

WELL, THIS IS VIKTOR,

I DID IT, BUT IT WASD SOMETHINGU NEXPEKTED.

I COULD NOT STOP BLEEDING, LOST AT LEAST HALF A LITER.

PLACED TWQ SHOCK KORDS AS TIGHT AS POSSABLE BLEEDNG

THE SAME. AFTER BANDAGE T BECAME EASIER,

BUT NOW THREE HOURS LATER THE HAND CAN NOT GET THE S

IT FEELS HOT AND COLD BUT NO STRANGTH AT ALL.

PLEASE WHAT SHOULD I DO BEFORE TOO LATE.

VIKTOR,

# Devastating Injury: Head Trauma, Heart Attacks, Burns

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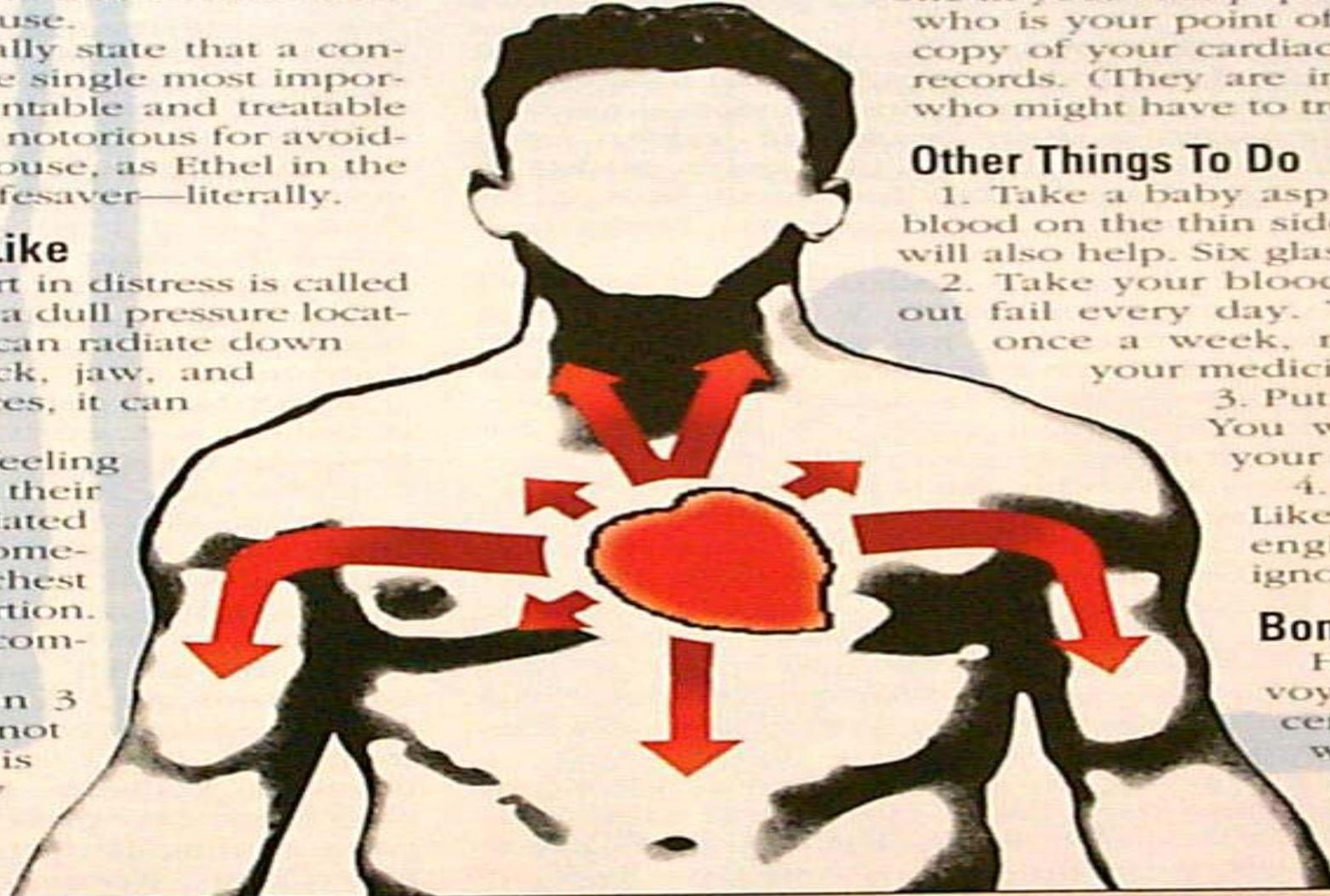
- ◆ The most common traumatic death at sea is a head injury from a swinging boom.
- ◆ Anything more than a minor burn should be evacuated as soon as possible. Force fluids, cleanse gently, antibiotic ointment, cover.
- ◆ **A heart attack is a failure to prepare adequately.** If you are over 45, test your own pump before heading offshore

ed spouse.  
tegorically state that a con-  
ably the single most impor-  
g preventable and treatable  
men are notorious for avoid-  
-sistent spouse, as Ethel in the  
n be a lifesaver—literally.

## Feels Like

our heart in distress is called  
lly, it is a dull pressure locat-  
um. It can radiate down  
our neck, jaw, and  
instances, it can  
arm.  
ibe it feeling  
ting on their  
s associated  
usea, some-  
nsset of chest  
ter exertion.  
also a com-

ger than 3  
enerally not  
t also is  
ted by  
athing.  
n per-  
s or



who is your point of contact at hor-  
copy of your cardiac test results to  
records. (They are invaluable to th  
who might have to treat you.)

## Other Things To Do

1. Take a baby aspirin each day to  
blood on the thin side. A glass of w  
will also help. Six glasses will not.
2. Take your blood pressure med  
out fail every day. Take your blo  
once a week, mornings before  
your medicines are best.
3. Put down the cigar  
You will not be abl  
your crew does not.
4. Be attentive to  
Like a funny nois  
engine room it  
ignored.

## Bon Voyage

Head out and  
voyage. Just reme  
center of your  
world's most  
pump.

Protect it, ma  
it will give yo  
trouble-free

## Cardiac Chest Pain

- dull ache, pressure sensation
- substernal, radiates to arms, neck
- not worsened by movement or respiration
- not affected by pressing on it
- not relieved by antacids
- lasts more than 3 minutes

## Non-Cardiac Chest Pain

- sharp, stabbing
- localized, non-radiating
- provoked with movement or r
- worse with pressing on it
- relieved by antacids
- short-lived, less than 30 second

(because what you can't see or feel, can kill you)



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# Medical Response: Preventive Medicine on the High Seas

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- ◆ 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

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- ◆ 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

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- ◆ The US Coast Guard
- ◆ Your hometown emergency room
- ◆ DH MEDICO on the SSB
- ◆ Passing ships
- ◆ Commercial Medical Advisory Services
  1. Medical Advisory Systems Inc. 301-855-8070
  2. Maritime Medical Access 202-994-3921
  3. Maritime Health Services 206-340-6006
  4. WorldClinic: 800-636-9186

# How to Die Underway

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- ◆ **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**



◆ “For the truth is that I already know as much of my fate as I need to know. The day will come when I will die. So the only matter of consequence before me is what I will do with my allotted time. I can remain on shore, paralyzed with fear, or I can raise my sails and dip and soar in the breeze. “

-Richard Bode

*“First You Have to Row A Little Boat”*

