ANNAPOLIS TO NEWPORT 2025
MEDICAL CARE AND PREPARATION

William White, MD

WAYS TO BE SICK UNDERWAY

- Seasickness
- Hypothermia
- Pass a kidney stone (or don’t pass it)
- Experience alcohol withdrawal
- Share the head with the crew-all with diarrhea
- Itch from a severe rash
- Unable to void (Urinary retention)
- Suffer from an infection e.g. Dental, Cellulitis, Abscess
- Experience chest or abdominal pain
- Inadequate treatment /pain management for trauma injury
- AND MANY MORE!!

MEDICAL CARE OFFSHORE

PRE-RACE PREP
- INDIVIDUAL MEDICAL CONSIDERATIONS
- MEDICAL KITS
- DITCH KITS
- CONSULTATION SERVICES

UNDER WAY
- SEASICKNESS
- HYPOTHERMIA
- INJURIES
- ILLNESSES
- WHEN TO ABANDON RACING

WHO IS COMING ON YOUR BOAT?

KNOW YOUR CREW!

- Their sense of humor might be sick, but they might be too.
- Know what meds they take
- Know their medical allergies
- Know their medical history
- Know their physical limitations
- HIPPA considerations

MEDICAL KITS

1.

2.

BASIC MEDICAL GUIDES

- Advanced First Aid Afloat
- First Aid Afloat
- Your Offshore Doctor

ADVANCED MEDICAL GUIDES

- The Ship Captain's Medical Guide
- The Ship's Medical Chest and Medical Aid at Sea

CCA Fleet Surgeon's Memorandum
https://cruisingclub.org/sites/default/files/2025%20Fleet%20Surgeons%20Memorandum.pdf

DITCH KITS

Medical kit

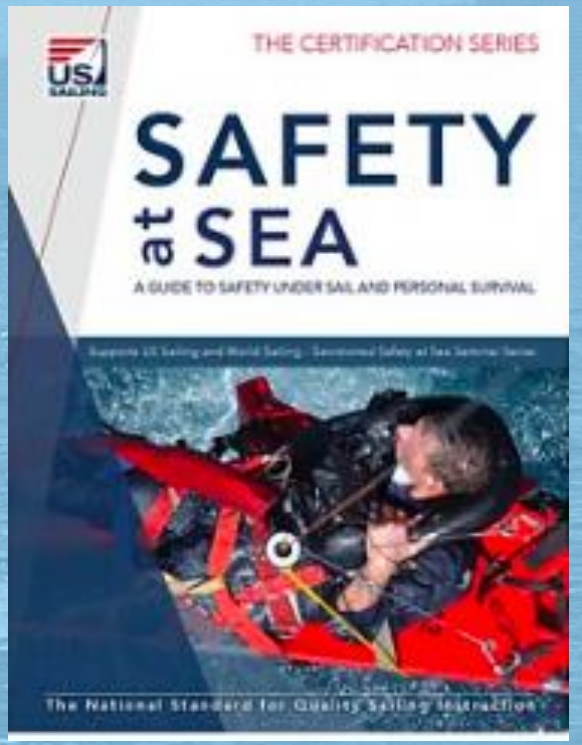
- Usually included in a life raft, but check to be sure
- Bandages, seasickness meds, high grade sun block (zinc oxide based), space blankets, antibiotic ointment, hydrocortisone cream, pain meds

Crew usual medications

- Some may need an ice pack e.g. insulin (don't forget syringes)
- Preloaded daily pill boxes. One for each crewmember if necessary

3. Educational Opportunities

1. Wilderness Medical Associates (www.wildmed.com)
    - Wilderness First Responder
    - Offshore Emergency Medicine
2. Marine Medical Training
    - Offshore Emergency Medicine
    - Medical Officer Ltd (medofficer.net)
    - 970-275-4999
3. Maritime Medical Guides
    - (maritimemedicalguides.org)
4. Safety at Sea courses



Arrange for a Medical Advisory Service
One example is GWU's Maritime Medical Access

https://gwdocs.com/specialties/emergency-medicine/maritime

WORLDWIDE
24/7 ACCESS

Seasickness

Seasickness: Mechanism

1-The brain's balance center receives sensory information from the eyes and inner ear (vestibular system) to estimate orientation of the head and body.

2- A sensory conflict is generated when data from these structures arrives in the brain in conflicting combinations.

3-This conflict activates the vomiting center in the brain

“INFLATABLE VOMITORIUM” WHY?

It’s a sensory conflict chamber!!

Seasickness: Early Signs

(the window of opportunity to prevent progression and offer early treatment)

- Yawning, Drowsiness/Lethargy/Apathy
- Salivation/Dry mouth/Belching/Passing gas
- Stomach awareness/ Mild nausea
- Dizziness, Headache
- Hyperventilation
- "I don't feel good"
- IT TAKES TIME FOR THE LINKAGE BETWEEN SENSORY CONFLICT AND NAUSEA/VOMITING TO DEVELOP

Seasickness- Late Signs

stomach emptying inhibited

- Hands and face sweat, feel cold and clammy
- Pallor
- Waves of nausea become stronger, vomiting
- Cycles of nausea and vomiting every 15-30 min.
- Anxiety/Depression
- Bad Seasickness: Think you're going to die
- Worse Seasickness: Wish you would die
- Worst Seasickness: Realizing you won't die

Prevention

Prior to Departure:

- Consider medication up to 6 hrs. before departure
- Start trip well rested, well hydrated, avoid alcohol
- Eat lightly, no special diet suggested
- Prepare personal gear, navigation, ship's stores
- Try powdered ginger root capsules (1gm 4X/Day), or Vitamin C 3-5gms.
- Try "Relief Band"
- Maintain positive attitude

Prevention

Other measures after Departure

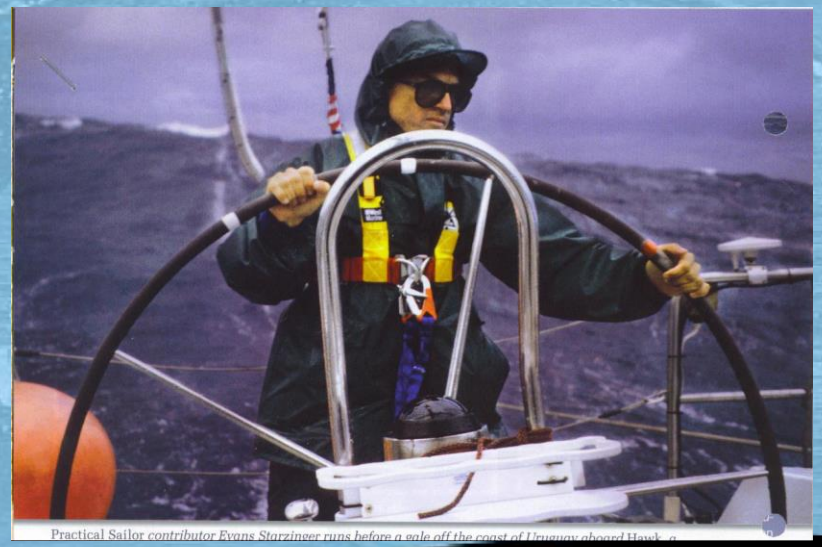
- Avoid areas with fumes & odors, stay on deck
- Avoid close-focused visual tasks-
- Take medication at regular intervals
- Sleep/nap- REDUCE sleep deprivation
- Snacks and fluids: trail mix, PBJ on crackers, string cheese, fruit, pop corn, energy bars, Gatorade- All fuel for muscles to be active for balance, strength, etc.
- Stay Warm!

Seasickness Prevention

Fight back and act quickly- Eliminate Sensory Conflict

1. **Take the helm – one of the best ways to feel better**
2. Obtain good view of horizon with good ventilation

Use **outside** reference frame



Practical Sailor *contributor Evans Starzinger runs before a gale off the coast of Uruguay aboard Hawk, a*

3. Wave Riding-"GIMBLE YOURSELF"

Balance, anticipate, and orient your body to the boats' motion to "ride the waves."

Keep your head and shoulders balanced over your hips and gain postural control gracefully.

Late Treatment

- Lie down, head still, “wedge” yourself in secure well ventilated bunk
- Close your eyes, try to sleep
- Frequent small sips of fluids, and candy
- Medication—suppositories, patch or injection
- Pray

Seasickness Medication:

ANTIHISTAMINES

• OTC Diphenhydramine	25-50mg liq./cap/chew	6-8 hrs.
• OTC Meclizine (Bonine)	25/50 mg tab/chew	8 hrs.
• *OTC Stugeron	15mg tabs	6-12hrs.
• OTC Dimenhydrinate	50 mg tabs	6 hrs.

ANTICHOLINERGIC

• Rx Transderm-Scop	1.5mg patch	2-3 days

ANTIDOPAMINERGIC

• Rx Phenergan	12.5,25,50 mg tab, suppository, deep IM injection	6 hrs.

ZOFRAN (ONDANSETRON) DOES NOT WORK FOR MOTION SICKNESS

*CAUTION PARKINSONIAN SIDE AFFECTS WITH STUGERON

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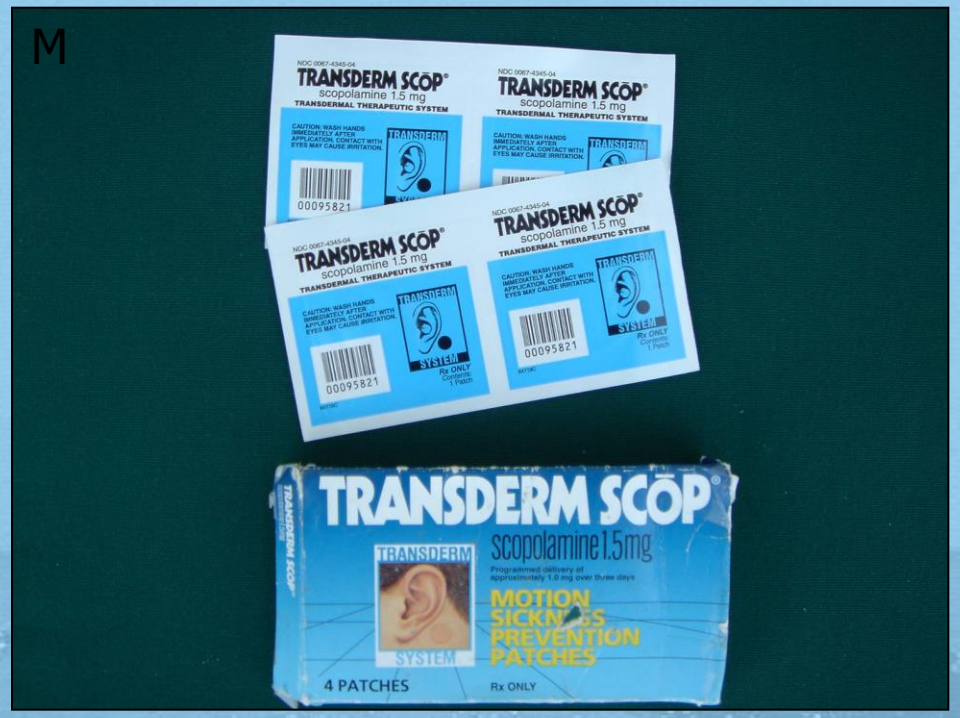
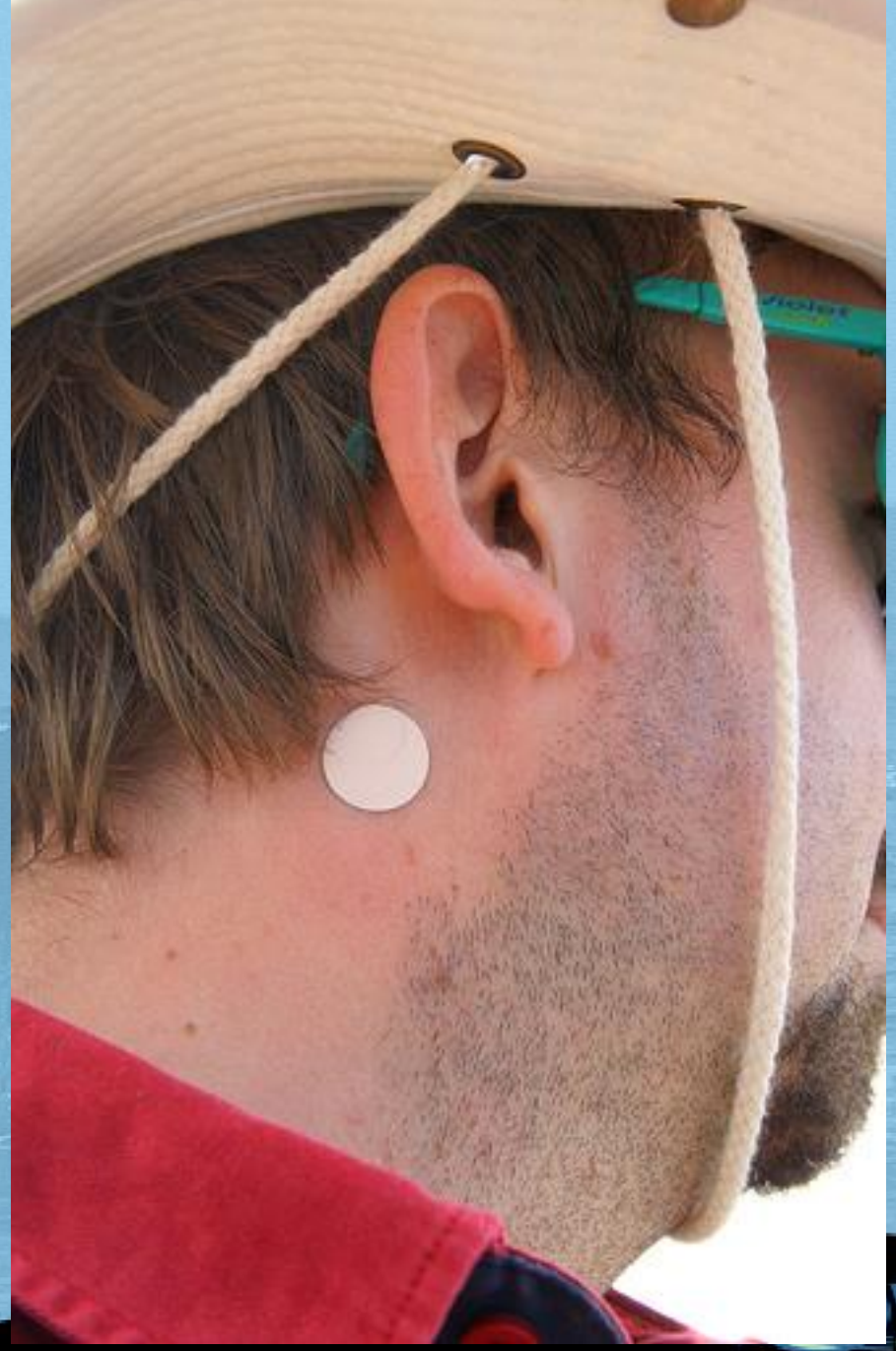
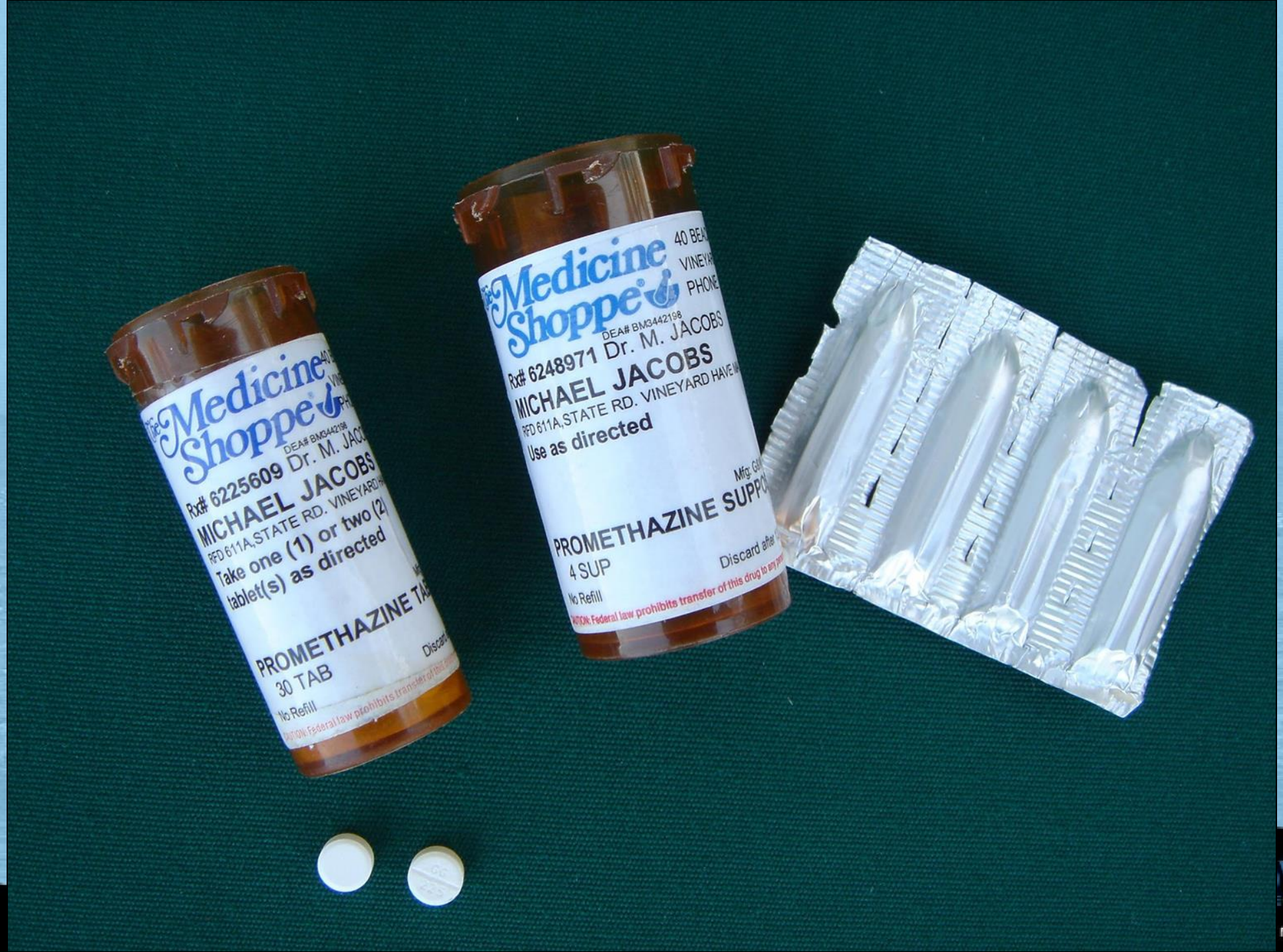


Urinary retention, dry mouth, drowsiness, blurred vision and mental status changes.

AVOID: IF GLAUCOMA, PROSTATE



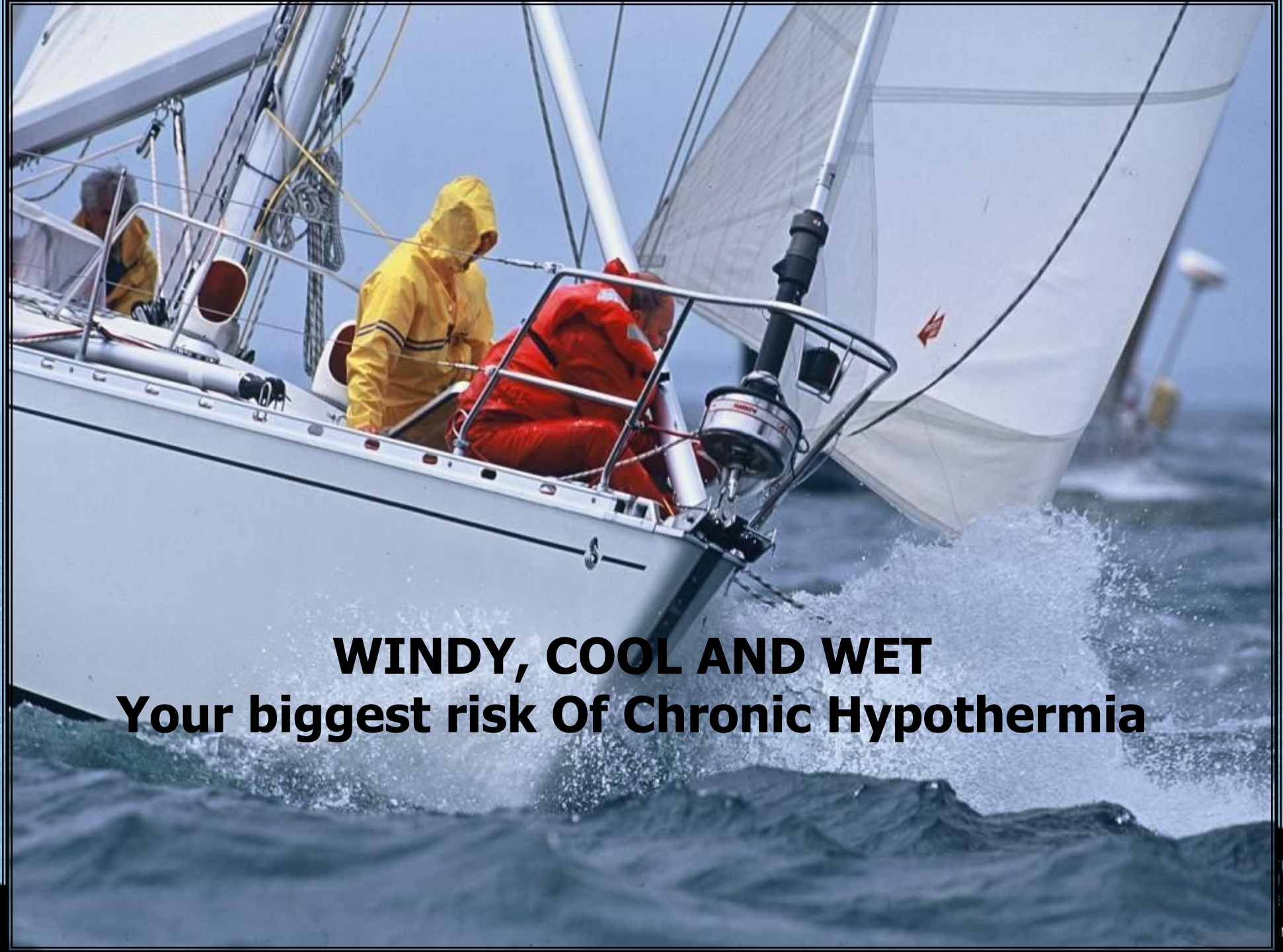


- The protection conferred by drugs is a matter of degree
- No drug or therapy can act as a magic bullet, preventing seasickness in everyone
- All drugs have side effects
- Know how a drug affects you before you use it offshore

Finally, if all else fails, follow Samuel Johnson's 18th century advice:

"To cure seasickness, find a good big oak tree and wrap your arms around it."

HYPOTHERMIA

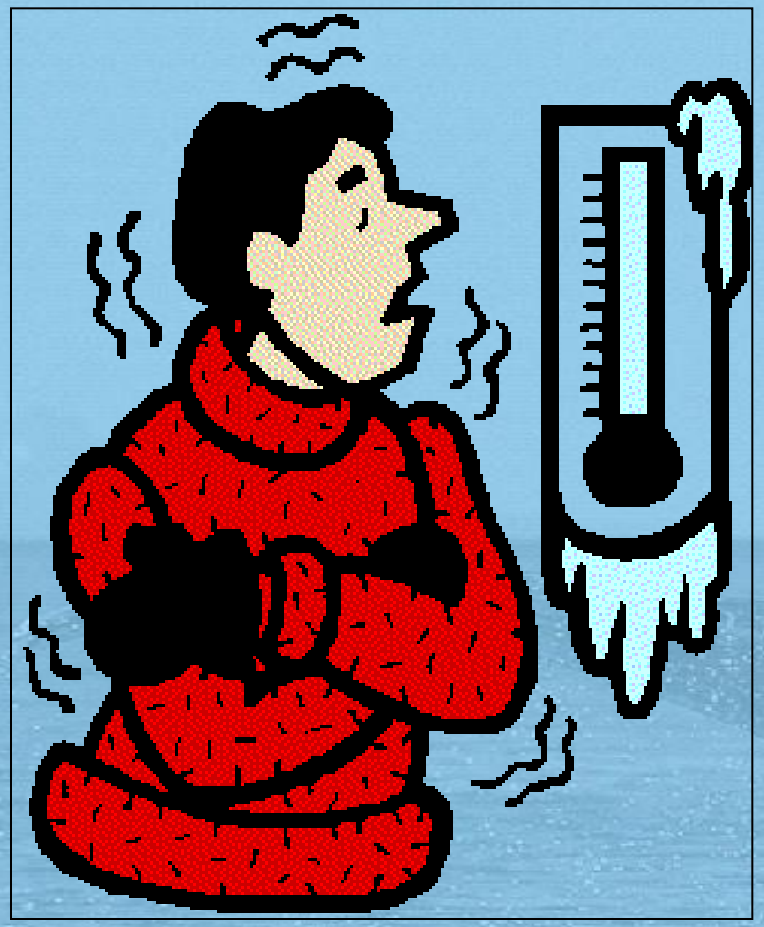


WINDY, COOL AND WET
Your biggest risk Of Chronic Hypothermia

Hypothermia Signs

STANDARD CLASSIFICATION BASED ON CORE TEMPERATURE

- **Mild** **95ºF-90ºF (35ºC-32ºC)**
  - **Mental Impairment**
  - **Physical Impairment**
  - **Shivering**
- Moderate **90ºF-82ºF** (32ºC-28ºC)
  - Shivering maximum, then less effective
  - Decreased Level consciousness
  - **86ºF(30ºC)** Shivering stops
- Severe **<82ºF**(28Cº) Deep Coma
  - Vital signs deteriorate
  - Cardiac arrest (VF, asystole)



A cold shivering person with a core temperature above **95ºF** is "**cold stressed**", <u>but not hypothermic</u>

How can you tell?

- The person is functioning, alert, able to care for themselves, but not incapacitated.

Rx: reduce heat loss, increase heat production

BOY SCOUT Rx

Hypothermia - Mild (Above 90ºF)

- Defense mechanisms still intact
- Normal Vital Signs,
- Peripheral Vasoconstriction
- Sustained Uncontrollable Shivering
- Change in fine motor coordination
- Loss of Strength
- Loss of Balance - ataxia
- Impaired Judgment, confusion
- FULLY CONSCIOUS

HYPOTHERMIA SIGNS: SHIVERING

- Shivering is the important dx sign
- Skin sensors trigger reflex shivering
- Starts early, before a drop in core temp.
- Shivering powers metabolic (muscle) heat production (5X resting)
- Once shivering stops, the body has lost the capacity to actively rewarm itself

THE "UMBLE" FAMILY OF SIGNS

Mental Status Changes

- MUMBLES
- GRUMBLES

Physical Changes

- STUMBLES
- TUMBLES
- FUMBLES

TREATING HYPOTHERMIA

First and foremost

PREVENTION

- Dress for the occasion – layers, foulies, watch cap, NO COTTON
- Stay dry
- Recognize being cold stressed and intervene early

COMMON SENSE TREATMENT

- If you're cold, get warm
- Reduce exposure to the cold – go below
- Remove wet clothing and replace with dry clothes such as fleeces
- Wrap like a burrito
- External warming: Yea or Nay?

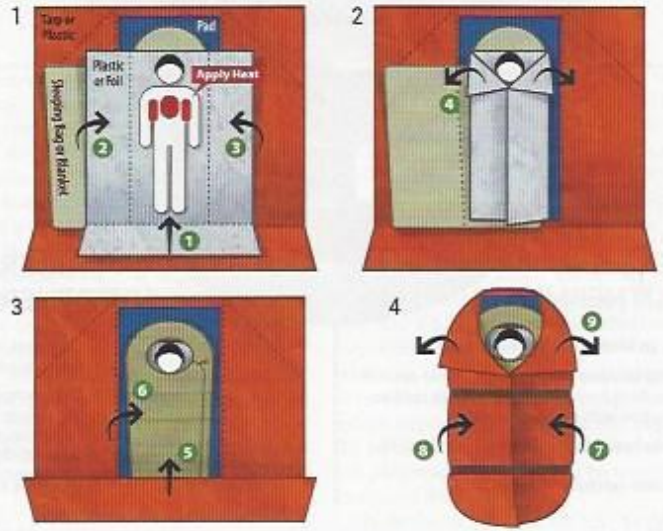
CARE FOR COLD PATIENT

SUGGESTED SUPPLIES FOR SEARCH/RESPONSE TEAMS IN COLD ENVIRONMENTS:

- 1 - Tarp or plastic sheet for vapour barrier outside sleeping bag
- 1 - Insulated ground pad
- 1 - Hooded sleeping bag (or equivalent)
- 1 - Plastic or foil sheet (2 x 3 m) for vapour barrier placed inside sleeping bag
- 1 - Source of heat ***for each team member*** *(e.g., chemical heating pads, or warm water in a bottle or hydration bladder),* or ***each team*** *(e.g., charcoal heater, chemical / electrical heating blanket, or military style Hypothermia Prevention and Management Kit [HPMK])*

INSTRUCTIONS FOR HYPOTHERMIA WRAP "The Burrito"

1. *Dry or damp clothing:* *Leave clothing on*
2. *Very wet clothing:*
   - ***IF*** Shelter / Transport is ***less than*** 30 minutes away, *THEN Wrap immediately*
   - ***IF*** Shelter / Transport is ***more than*** 30 minutes away, *THEN Protect patient from environment, remove wet clothing and wrap*
3. *Avoid burns: follow product instructions; place thin material between heat and skin; check hourly for excess redness*



Sources: BICOrescue.com; Zafren, Giesbrecht, Danzl et al. Wilderness Environ Med. 2014; 25:S66-85.

bit.ly/2BbBKEV

Figure 1. Continued.

Moderate/Severe hypothermia

Cold water immersion

Prolonged exposure

- Not shivering
- All vital signs profoundly depressed
- Altered level of consciousness:

  Progressive decline on AVPU scale
- Unable to walk/stand
- Bizarre behavior if conscious

Rx: Evacuate

SAILING RELATED INJURIES

- Soft tissue upper and lower extremity injuries are the most common injuries
- Hands and fingers always exposed in a "high threat environment"
- Injuries include sprains and strains, contusions, lacerations, concussions, and fractures

Mechanism of Injury N = 1,226

Cause of Injury

- Trips/Falls 30%
- Hit by object★ 21%
- Lines /Halyards 22%
- Operating a winch 8%

★Boom, spinnaker pole, sail clew, collisions with fellow crew member

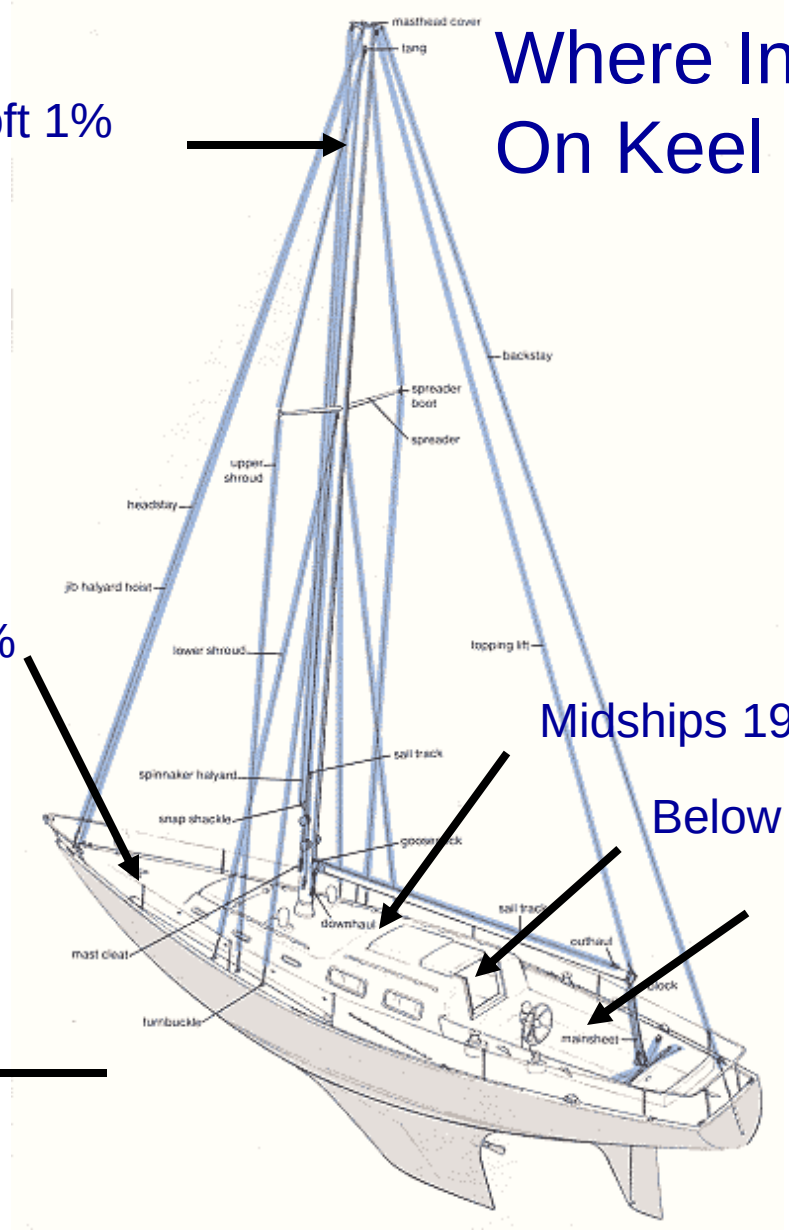
Contributing Factors/activity

- Heavy Weather 23%
- Tacking* 17%
- Jibing* 13%
- Sail Change* 12%
- Repetitive Stress 7%
- Fatigue /Crew Error 5%
- Equipment Failure 4%

* Crew coordinated sailing maneuvers

Nathanson AT, Baird J, Mello MJ: "Sailing Injuries: Results of an Internet-based survey" *Wilderness and Environmental Medicine* 2010;21:291-97

Where Injuries Occur
On Keel Boat N = 1,080



Aloft 1%

Foredeck 26%

Midships 19%

Below Deck 2%

Cockpit 46%

Off Boat 4%

HEAD TRAUMA
75% caused by a “flying boom”

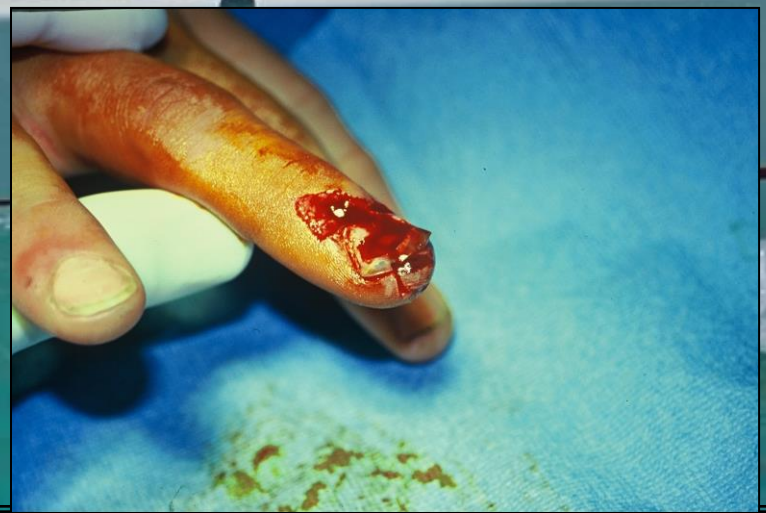
Boom related injuries are responsible for 80% of deaths!

PREVENTION MEANS-

PREVENTOR

USE IT !!

Figure 10-3. Improper way to add wraps to a winch.

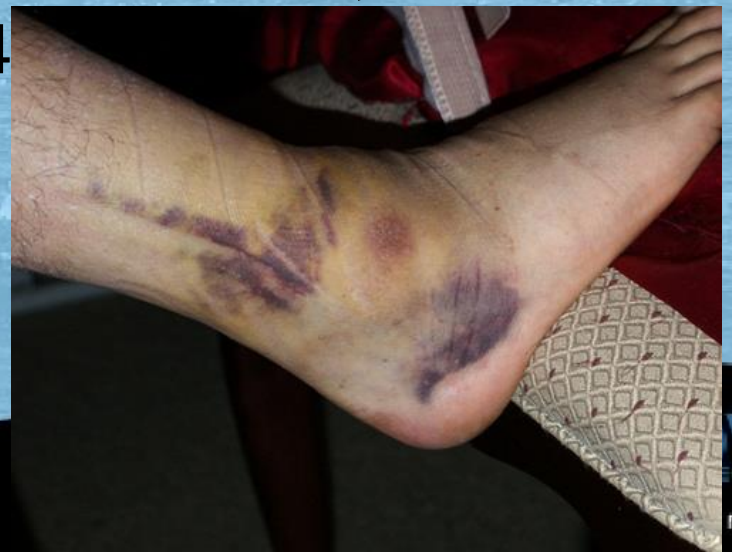


Sprains, Strains, Contusions
"Stable injuries"

No <u>immediate</u> loss of function; may progress over first 24 hrs.

TREATMENT: **PRICE** for 3-4 days

- **P**rotect- splint as needed
- **R**est-reduce inflammation and pain
- **I**ce - 15-20 minutes every 1-2 hours x 24 hrs, then every 4 hours for the next 24
- **C**ompression-elastic bandage
- **E**levation above the heart



FRACTURES and DISLOCATIONS

"Unstable Injuries"

Inability to move, use, or bear weight immediately after the injury

Signs:

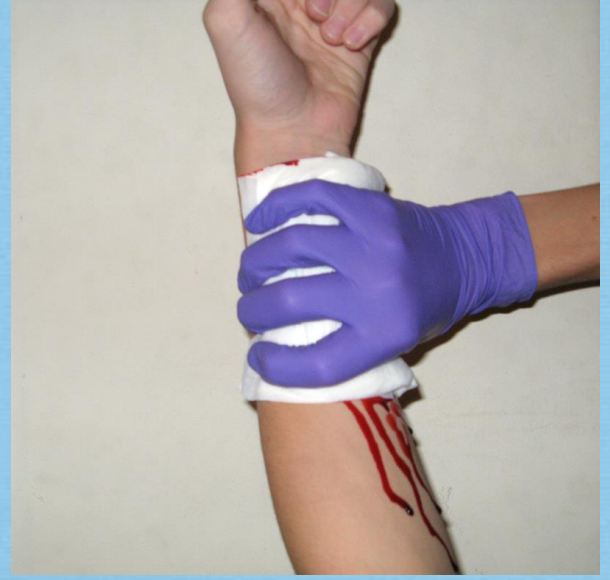
Deformity Angulation Instability Pain

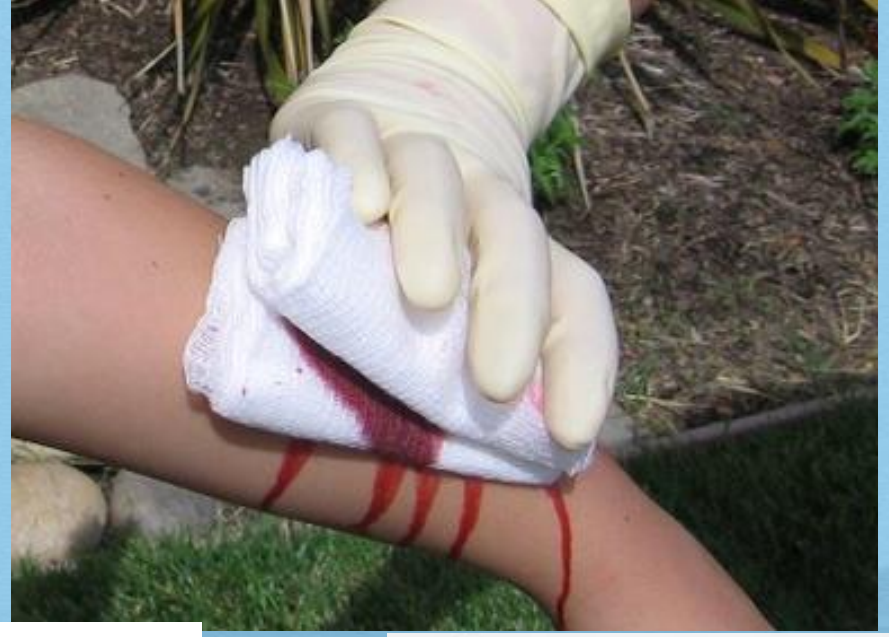
Adrenaline can decrease the mind's and the body's immediate reaction to an injury:

In layman's terms,"shock"

Wound Management goals
Lacerations, cuts, and punctures

1. Stop Bleeding
2. Prevent Infection
3. Promote Healing
4. Reduce discomfort





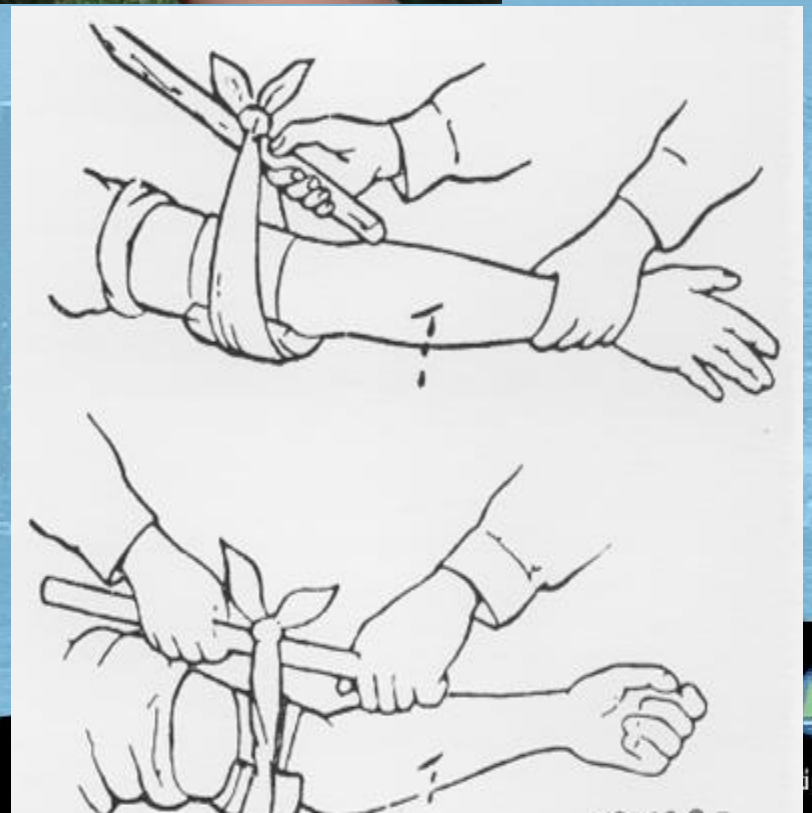
RULE OF 2s

2”

2 TOURNIQUETS

2 HRS.

Celox



DISINFECTING SOLUTIONS

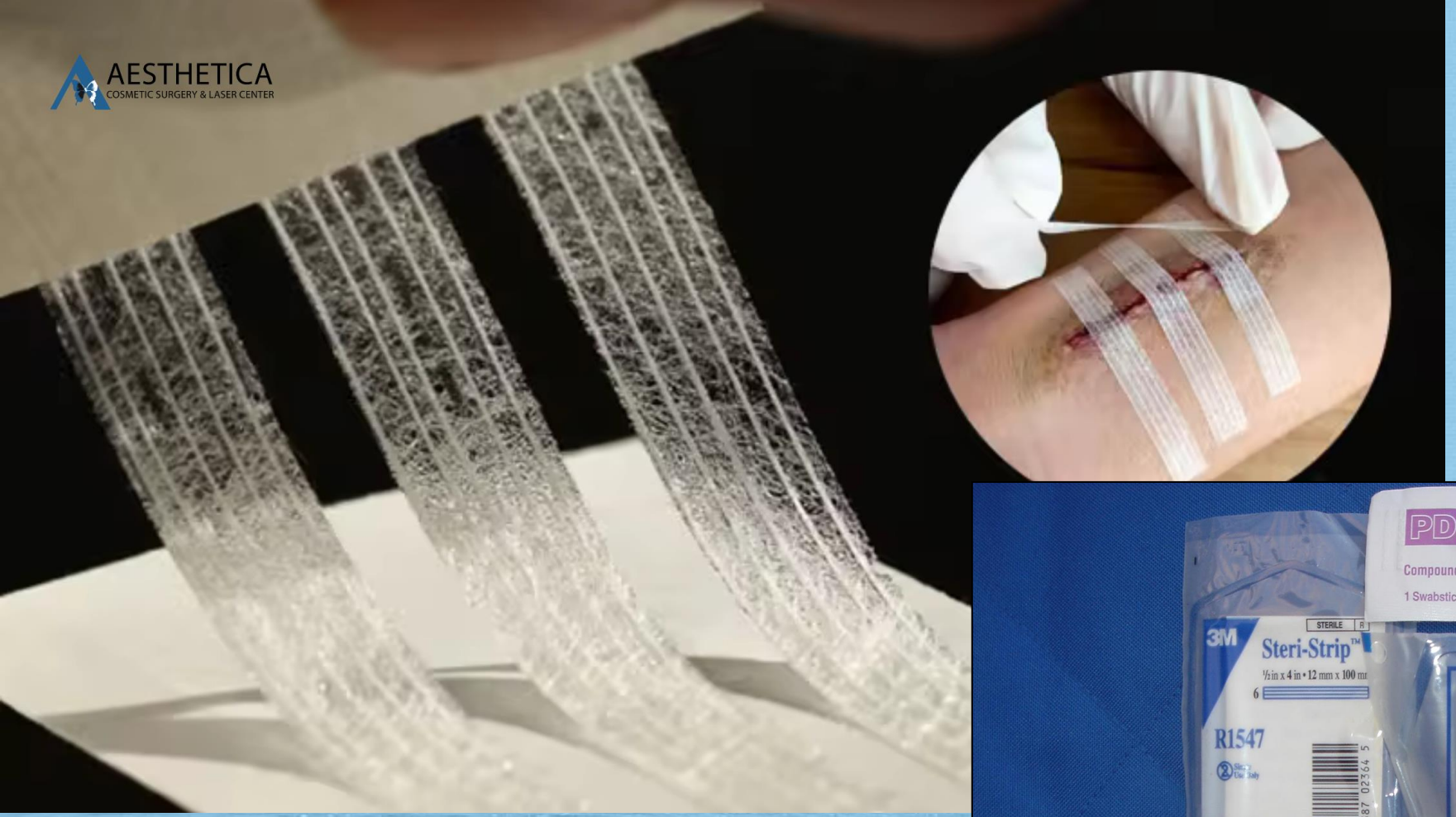
- 1: Plain tap water ≠ boat tap water
- 2: Boiled tank water
- 3. Reserve a gallon of "spring water"

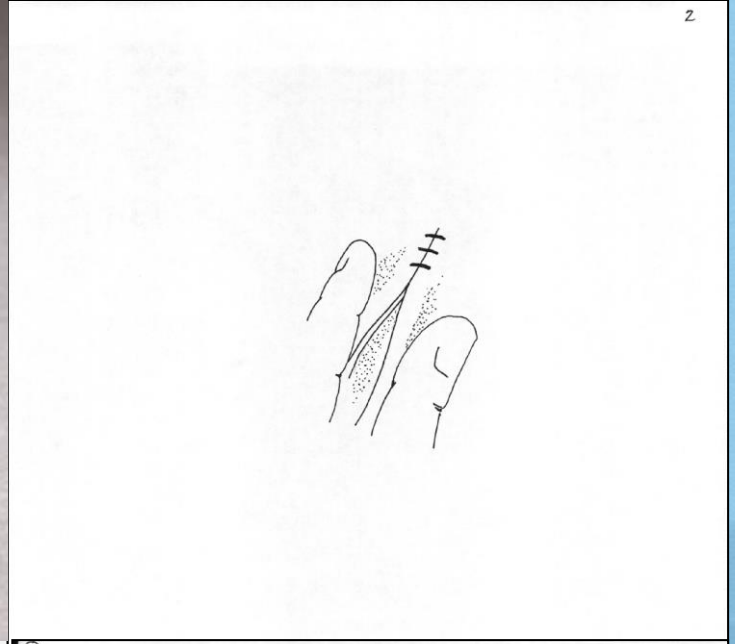
AVOID: Iodine, salt water, peroxide, alcohol, mercurochrome

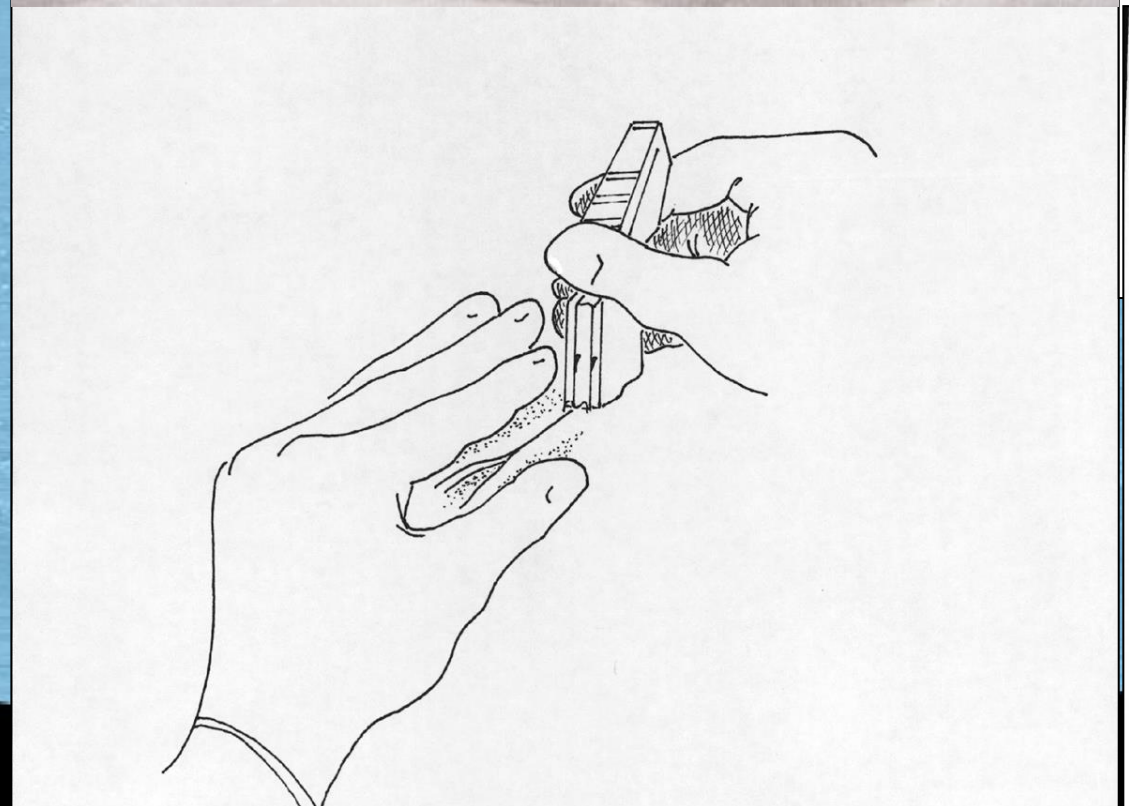
"SOLUTION TO POLLUTION IS DILUTION"

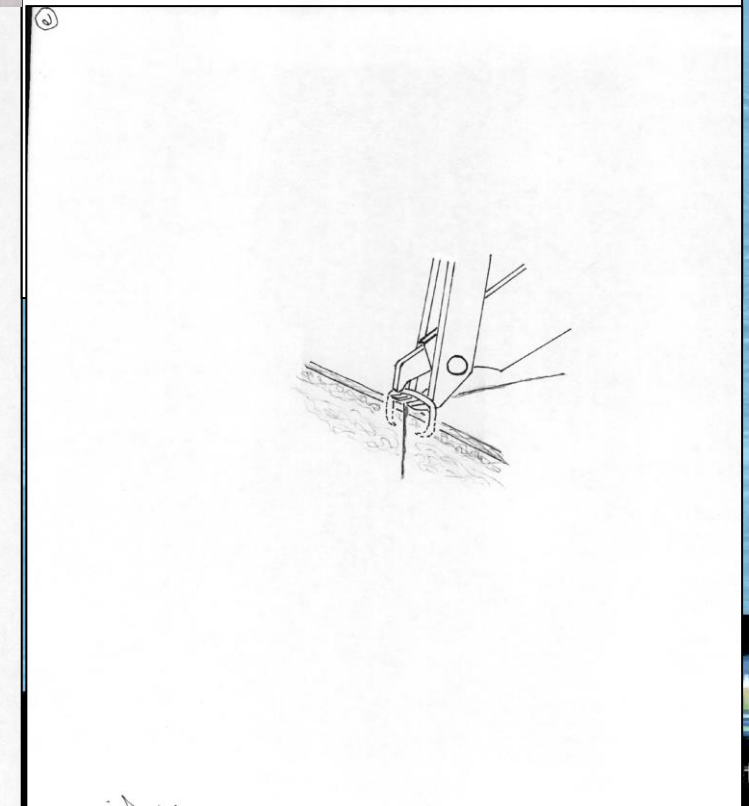
Irrigate with 50 ml's of Clean Water/cm of Wound

AESTHETICA
COSMETIC SURGERY & LASER CENTER









YOU CAN ALSO LEAVE THE WOUND OPEN

DO **NOT** CLOSE A WOUND IF IT IS A PUNCTURE, A BITE, OR IF IT IS GROSSLY CONTAMINATED AND YOU ARE UNABLE TO THOROUGHLY CLEAN IT

Evaluation of Head Trauma

No loss of consciousness

Awake & Alert

Acting normally

No amnesia

Normal neurological function

No headache

CONCLUSION: Low risk for brain injury;

r/o spine/other head injury

Evaluation of Head Trauma

- **With/without a Brief loss of consciousness** (1-2 min.)

  Altered mental status- “stunned”

  Amnesia, stable headache, vomiting once or twice,

  Off balance, Light sensitivity

- **CONCLUSION: Concussion** (minor brain injury):

  Diffuse traumatic injury to the brain.

  r/o spine injury/other head injury

  monitor for 24hrs for signs of ↑ ICP

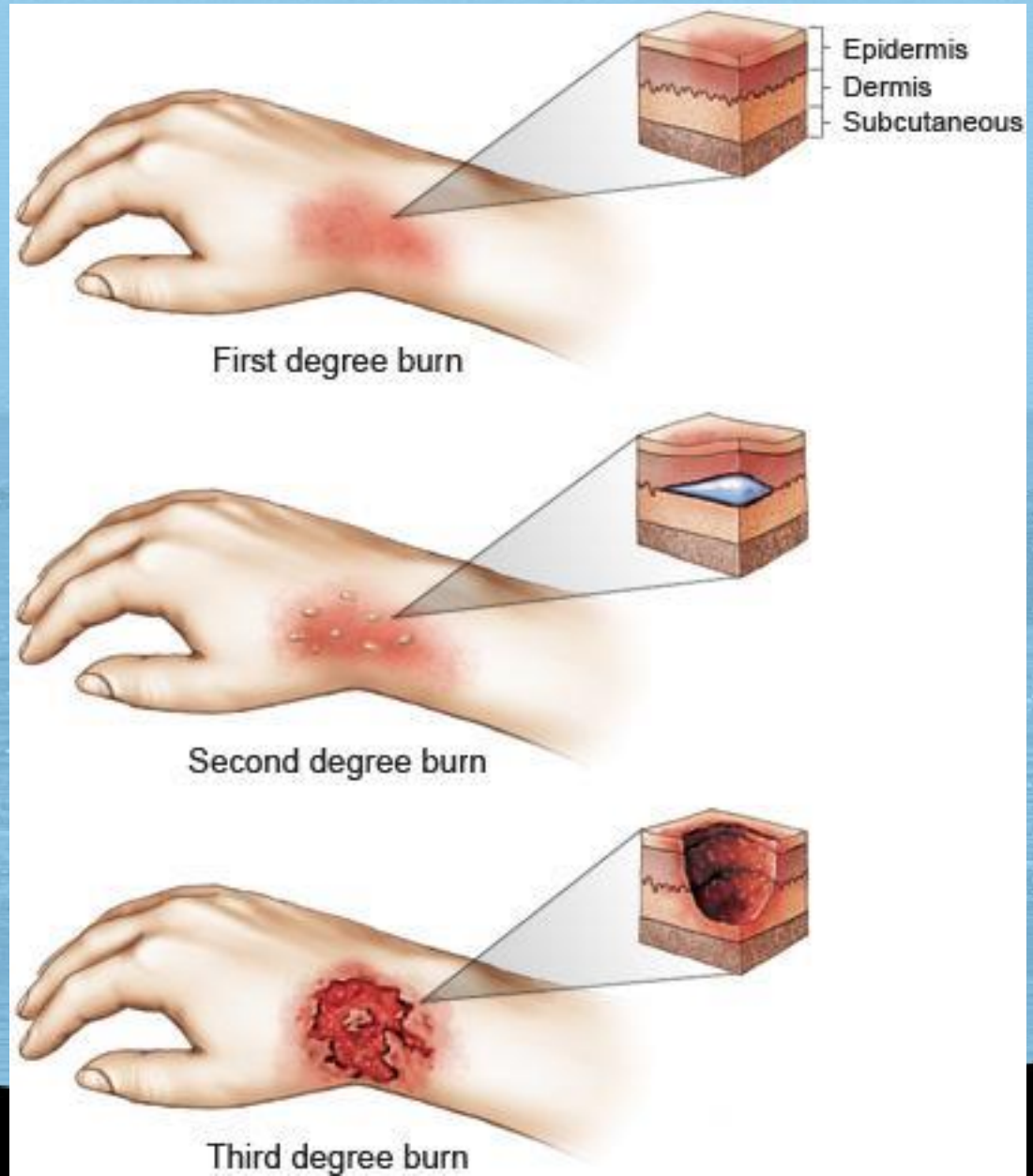
  Rest, Awaken every 4 hrs.

- Signs of increased intracranial pressure (ICP) - **Early**
- Alterations in mental status: irritable, combative, disoriented
- Alterations in coordination or speech
- Worsening Headache, Persistent Vomiting, Lethargy
- Decrease in level of consciousness

- Signs of increased ICP- **Late**
- Obvious neurological deterioration: unequal pupils, seizures, paralysis, posturing, changes in vital signs, unconsciousness.

EVACUATE!!!

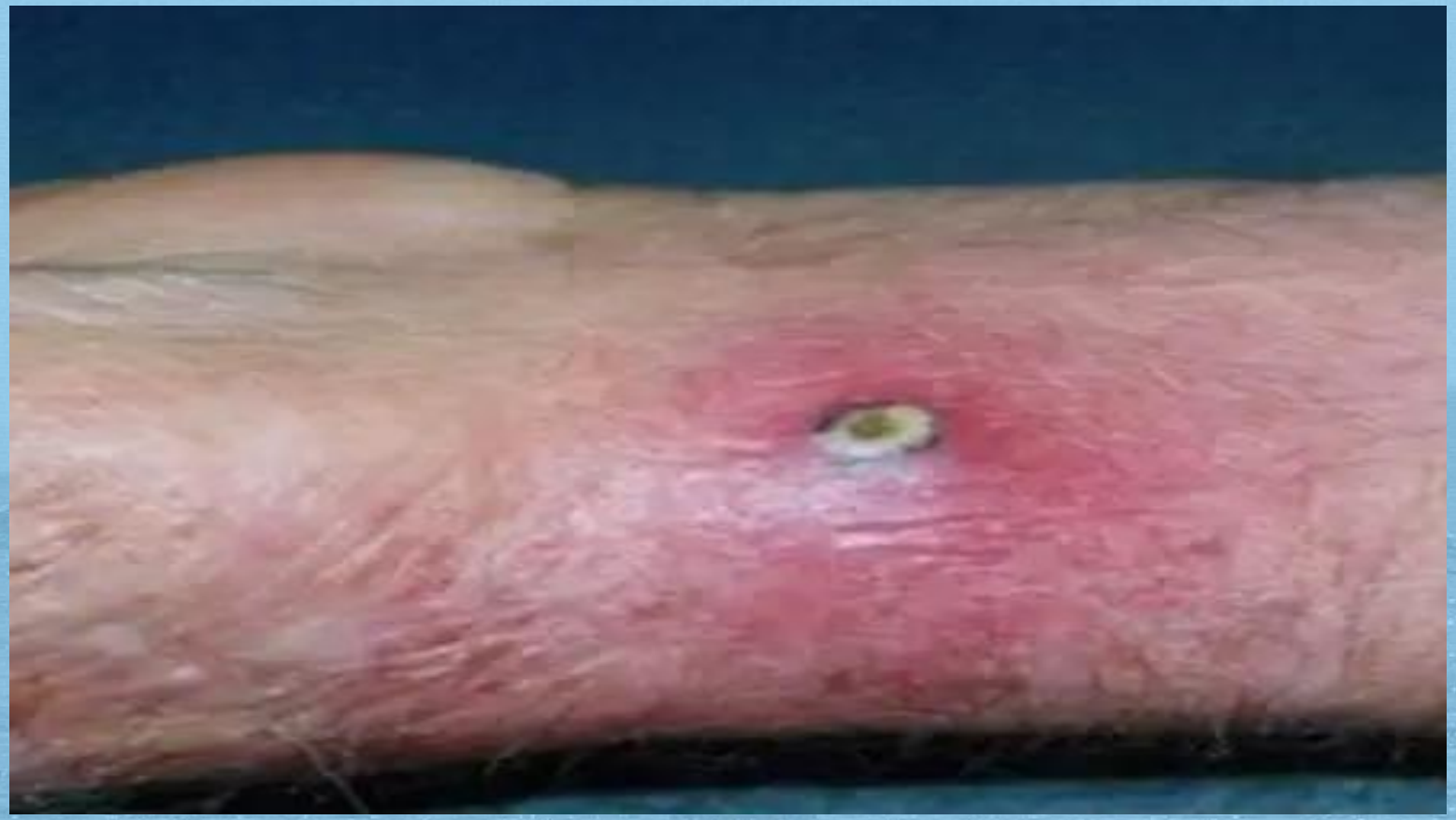
Burns: Hot liquids, hot engines, fire, electrical, rope, solar



TREATMENT

Cool wet compresses
Aloe Vera gel
Ibuprofen
Antibiotic Ointment: Yea or Nay?

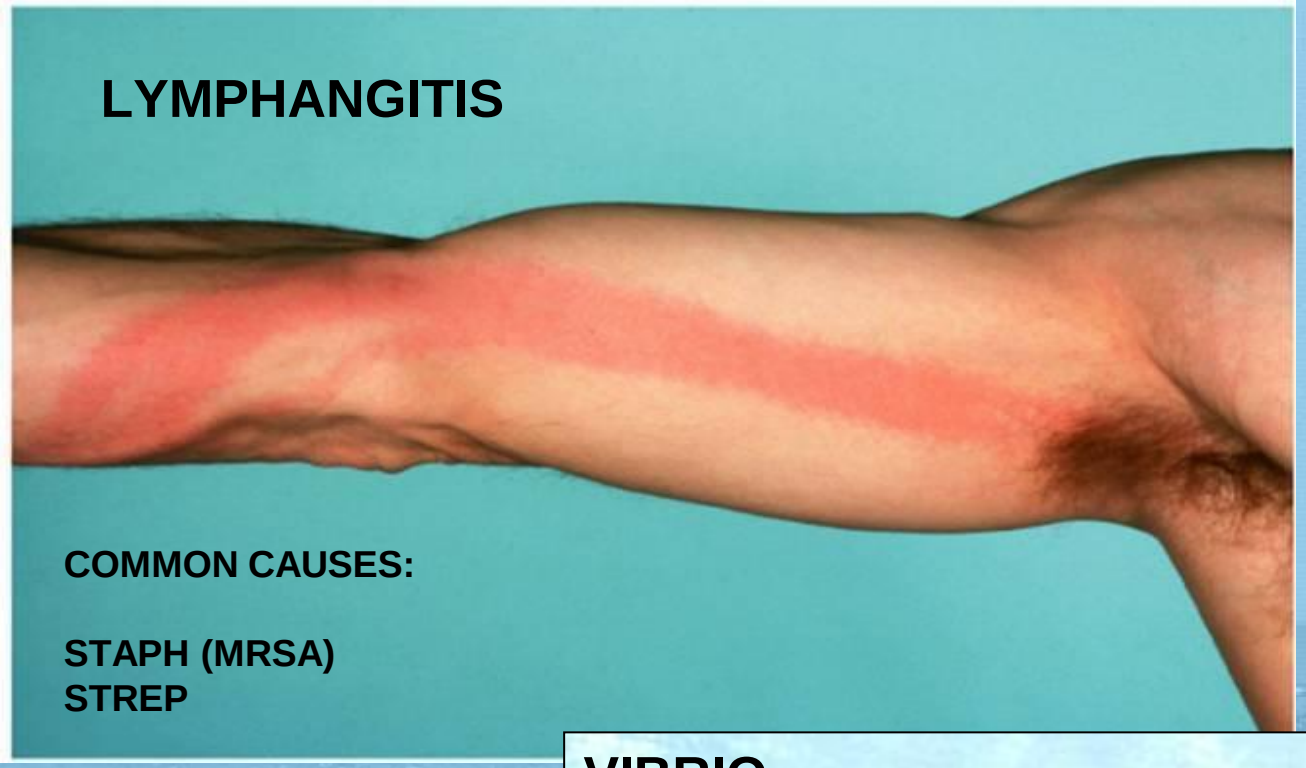
Remove dead skin
Do Not Drain Blisters
Hydrogel or other non adherent dressing



MRSA infection

Keep this wound clean and covered!

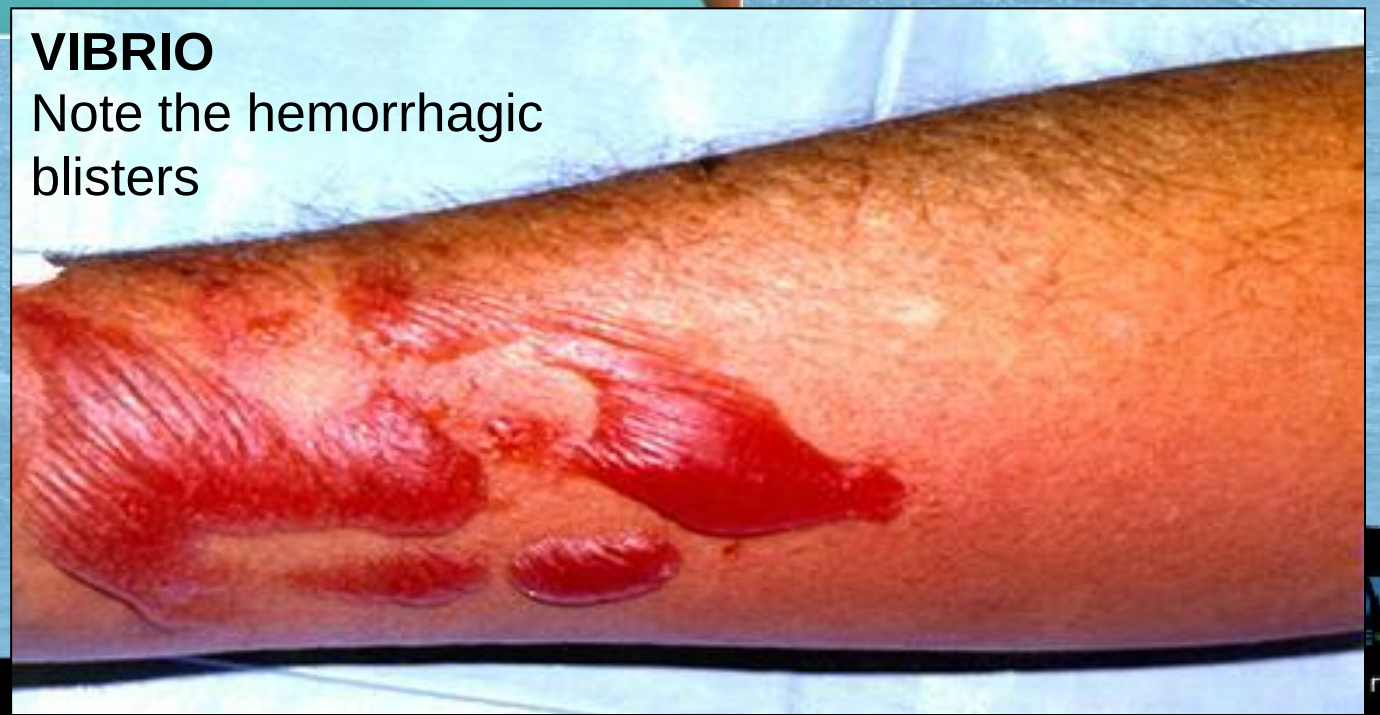
LYMPHANGITIS



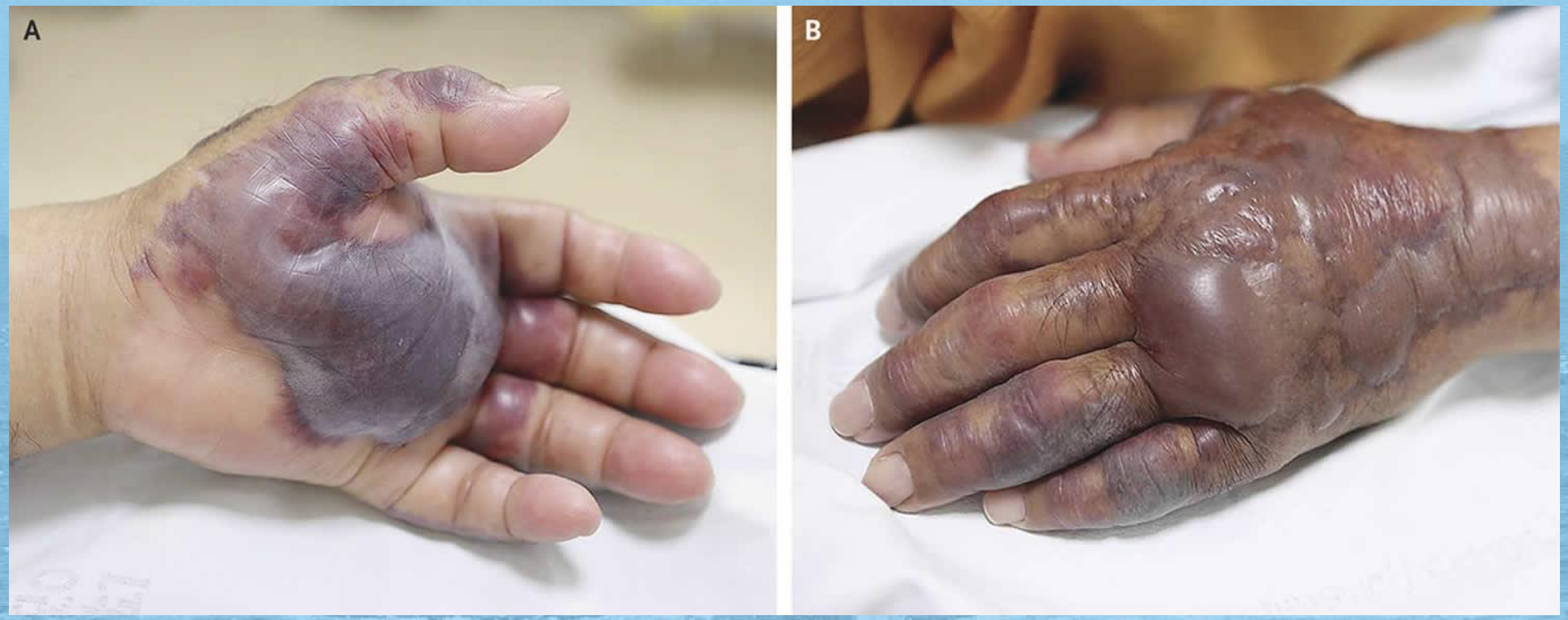
COMMON CAUSES:

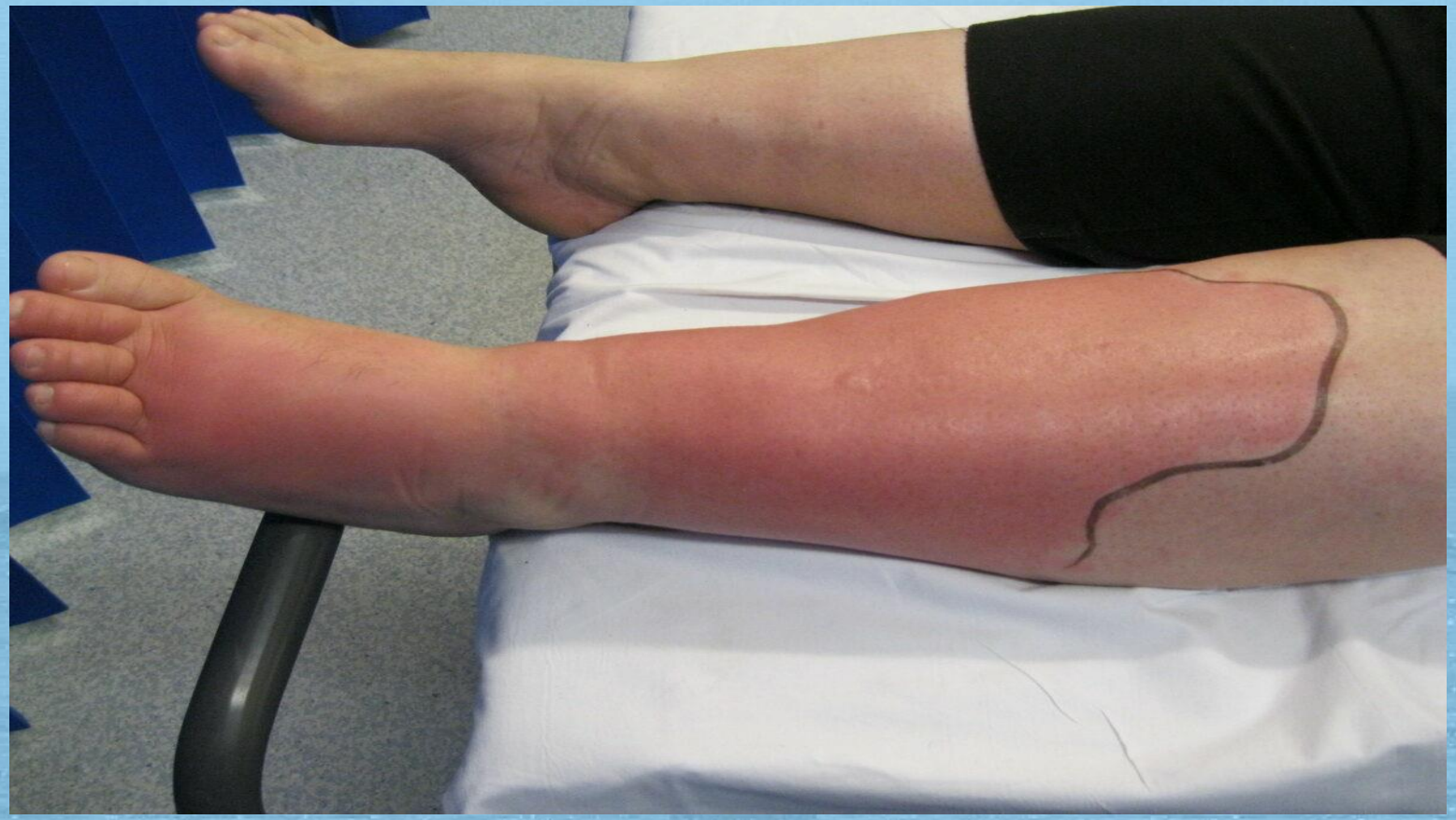
STAPH (MRSA)
STREP

VIBRIO
Note the hemorrhagic blisters



Vibrio vulnificus infection: Note the hemorrhagic blistering





Cellulitis

Note the skin marker showing the extent of redness. This can be used to help measure how rapidly the infection is spreading.