

Australian (& World) Marine Envenomation

A Basic Diagnostic And Treatment Guide

A/Prof Peter Fenner AM,
MB,BS, MD (London), FRGP, FRACTM

Confused?

Jellyfish?

Heat?

Vinegar?

Cold?

Marine animal?

Box Jellyfish (Chironex) - Deaths

- Occur in tropical / sub-tropical waters worldwide
- Australia – 73 deaths to date
- Deaths / serious stings:- (All Indo-Pacific) ...
 - Thailand – (Phuket / southern island resorts) -approx 10
 - Philippines – 20-50 per year
 - Malaysia / Langkawi – at least 6
 - Indonesia – especially “Borneo” – 4+
 - Solomon Is / PNG – 4+
 - Southern Vietnam – 1+)
 - India / Sri Lanka
 - USA – south east coast (Carolina to N Brazil) – 1
 - Hawaii – no deaths: multiple stings (after full moon)
 - ?

Irukandji – Severe stings

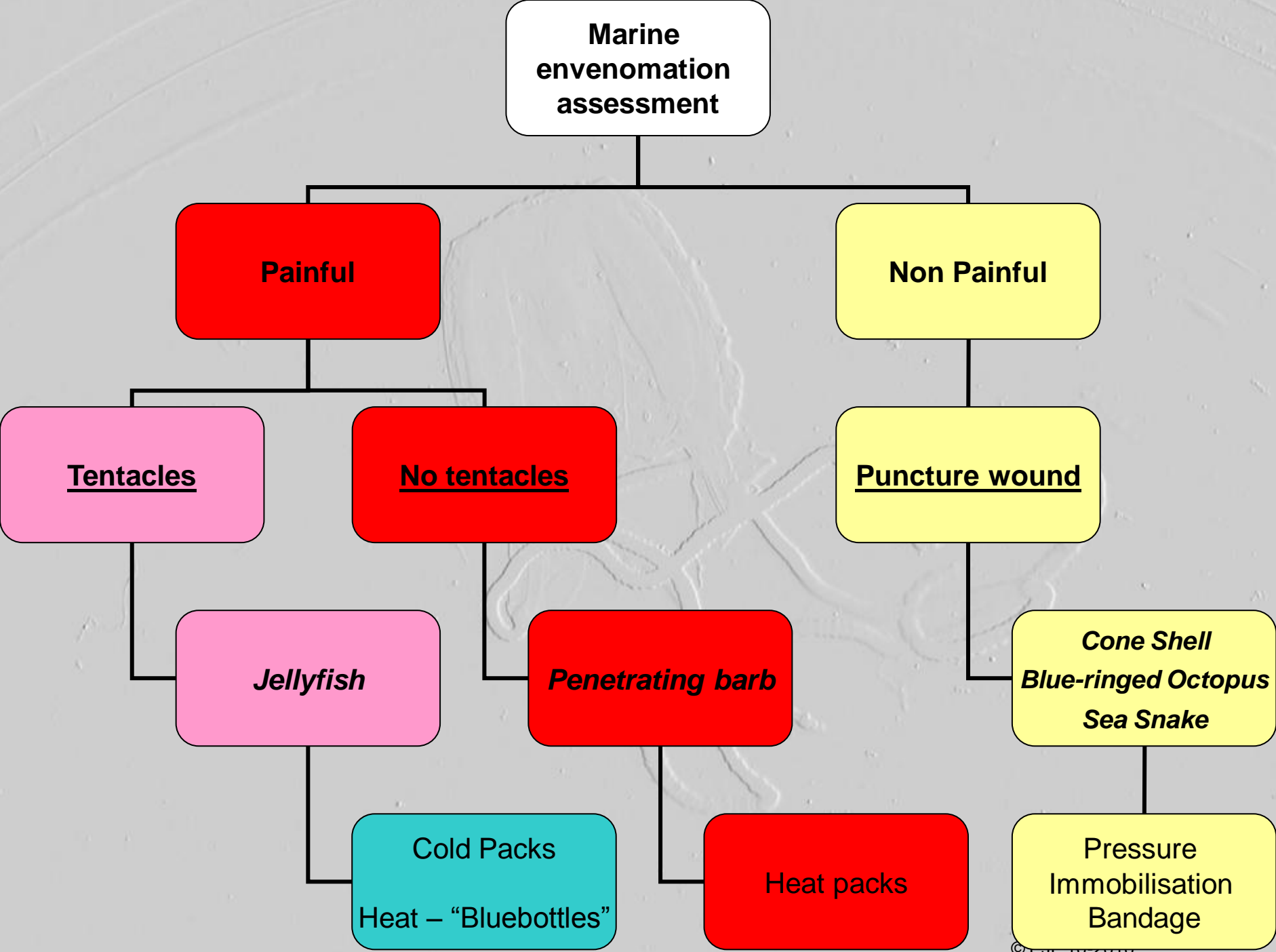
- Occur in tropical / sub-tropical waters worldwide
- Serious stings:- (All Indo-Pacific)
 - Thailand – (Phuket / southern island resorts)
 - Philippines – ??
 - Malaysia / Langkawi
 - Indonesia – ?
 - Solomon Is / PNG / Vanuatu
 - USA – south east coast (Florida)
 - Caribbean
 - West Central American region
 - Hawaii

Irukandji Syndrome - Classic

- Severe low back pain
- Excruciating and incapacitating cramping muscle pains limbs, abdomen and chest
- Sweating
- Anxiety / Restless
- Severe headache
- Nausea / vomiting
- Tremor - shaking
- SVT ("Palpitations")
- "*feeling of impending doom*"

Marine Envenomation.....

Assessment



**Marine
envenomation
assessment**

Painful

Non Painful

Tentacles

No tentacles

Puncture wound

Jellyfish

Penetrating barb

***Cone Shell
Blue-ringed Octopus
Sea Snake***

**Cold Packs
Heat – “Bluebottles”**

Heat packs

**Pressure
Immobilisation
Bandage**

**MARINE
ENVENOMATION
TREATMENT**

```
graph TD; A[MARINE ENVENOMATION TREATMENT] --> B[Prevention of Further Envenomation]; A --> C[Treatment of Pain / symptoms];
```

A flowchart with a central title box at the top, connected by a vertical line to a horizontal line. From this horizontal line, two vertical lines lead down to two separate boxes. The left box is light blue and the right box is red. The background features a faint, light-colored illustration of a jellyfish.

**Prevention of
Further
Envenomation**

**Treatment
of Pain / symptoms**

Marine Envenomation.....

Treatment

Basic First Aid Treatment

Prevention of further envenomation: -

- Vinegar – for all box jellyfish stings (only) - e.g. *Chironex* / Irukandji – but world-wide
- Pressure immobilisation bandaging – Bites (snakes / sea snakes), Cone shells, Blue-ringed octopus
- DRABC !!!

Treatment of pain

- Cold packs or (wrapped in bag) for most jellyfish stings (except “Bluebottle”)
- Heat (hot water) for “Bluebottles” only & penetrating spiny injuries (fish barbs etc)

**MARINE
ENVENOMATION
TREATMENT**

**Prevention of
Further
Envenomation**

**Treatment
of Pain**

**Pressure
Immobilisation
Bandage**

Sea Snakes
Blue-ringed Oct.
Cone Shell

VINEGAR

De-activation
stinging Cells

– Box Jellyfish

COLD PACKS

Stops skin pain

jellyfish stings

HEAT

Penetrating
spiny injuries

Stonefish/Stingray
“Bluebottles”

Painful?

```
graph TD; A[Painful?] --- B[Tentacles (Jellyfish Sting)]; A --- C[No Tentacles (Marine animal)];
```

Tentacles
(Jellyfish Sting)

No Tentacles
(Marine animal)

Painful?

```
graph TD; A[Painful?] --- B[Tentacles Jellyfish Sting]; A --- C[No Tentacles (Marine animal)]
```

Tentacles
Jellyfish Sting

No Tentacles
(Marine animal)

**THE
TRAVEL
CLINIC**



TRAVEL CLINICS AUSTRALIA TM

Jellyfish Stings



Jellyfish Stings

Tropical

Non Tropical

Pain –

Tentacles present

No initial pain –

NO tentacles

Skin Pain

Tentacles sometimes

Large area

Delayed severe systemic pain

Heat

**DRABC
Vinegar
Hospital**

Hospital

Jellyfish

```
graph TD; A[Jellyfish] --- B["( Tropical )"]; A --- C["Non-tropical  
- can occur anywhere"]
```

(Tropical)

Non-tropical

- can occur anywhere

Non-Tropical Jellyfish Stings - Australia

Mild – Strong Skin Pain – Usually “Bluebottles” (*Physalia*)

-

“Bluebottles” (*Physalia*) – “Pacific man-o’- war”



Non-Tropical Jellyfish Stings - Australia

Mild – Strong Skin Pain – Usually “Bluebottles” (*Physalia*)

- No Threat to Life!!
- Wash off possible tentacles in SEA water (or pull off with fingers)
- Heat – 45°C !! For 20 minutes !! (Japanese Hot Baths 42-43°C)
- Accurately controlled showers only
- 46°C causes scalding! (careful control essential)
- (?normal pain history of sting)
- Large percentage refused!!
- Cold – “not as effective”

```
graph TD; A[Jellyfish] --- B[Tropical]; A --- C["( Non-tropical )"]
```

Jellyfish

Tropical

(Non-tropical)

Tropical Jellyfish

Painful

- Tentacles present

Chironex Box Jellyfish

Immediate severe skin pain
May be life-threatening

“Non-Painful”

i.e – no/little skin pain

- NO tentacles

(Irukandji) ...

Chironex fleckeri – Chironex Box Jellyfish



- 30 cm bell diameter
- 15 tentacles 15-300cm
- 4 corners
- 180m tentacle contact
- Death from 1.2m!

Symptoms / Signs – *Chironex* Box Jellyfish



- Immediate intense pain
- Large stings >50% one limb may cause:
- Breathlessness
- Heart – bradycardia / akinesia / asystole
- Death - within 3 mins!

Treatment



- Bystander EAR / CPR
- Vinegar – prevent further stinging 30 seconds minimum
- Ambulance – antivenom carried in Tropical Queensland
- Analgesia (Penthrane / Entenox - little help)



Chironex Box Jellyfish



Severe skin damage



- severe scarring

Tropical Jellyfish

Painful

- Tentacles present

(Chironex Box Jellyfish)

“Non-Painful”

i.e – no/little skin pain

- NO tentacles

Irukandji

Delayed

Severe Muscle Cramps

Life-threatening

systemic symptoms

**THE
TRAVEL
CLINIC**



TRAVEL CLINICS AUSTRALIA™

The Irukandji...

The Irukandji - A Dangerous Tropical Jellyfish



A Small
Box-jellyfish

- 1 tentacle
each corner
- 12 - 20mm
bell width

Irukandji – Initial Sting



- Mild skin pain
- **No tentacles on skin**
- Faint round pink mark (Australia)
- Can be severe burn marks (Asia)
- 10-30 minutes delay - "syndrome"

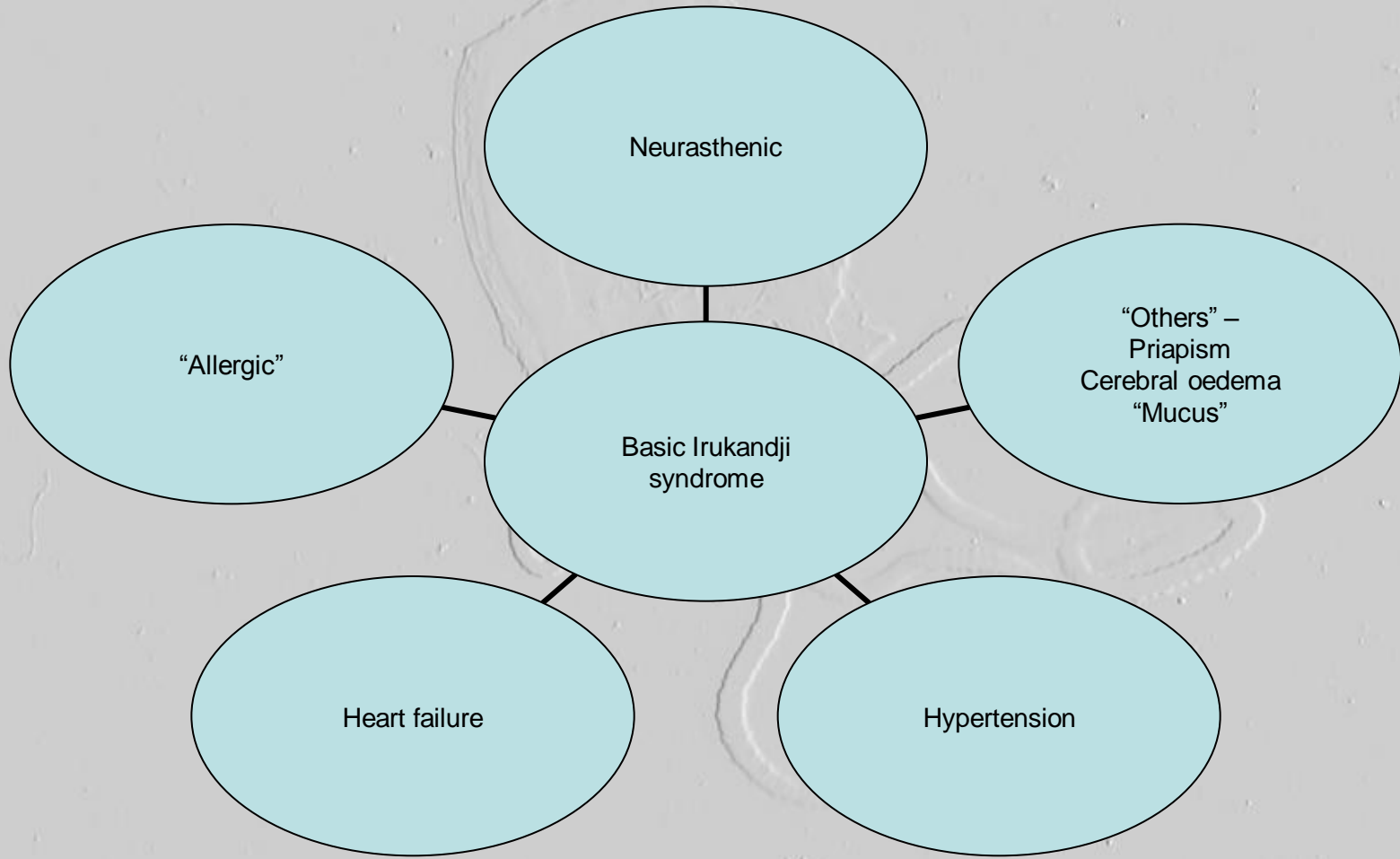
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Irukandji - Severe Syndrome

- Hypertension – may be severe (300/180) - 1986
- Acute pulmonary oedema / toxic heart failure
- Cerebral oedema - 1981
- “Allergic-type facial swelling and wheezing – 1999
- Neurogenic pains
- “Bizarre” (Priapism / “Mucus” / Weakness / Bladder and Bowel effects)
- 2 Deaths in 2000-2001 season - ? more

Severe Syndrome



First Aid Treatment?

- No first aid treatment for pain
- Nitro-lingual spray – reduced BP from 240/130 to 160/95 after 3rd puff – 1 every 5 mins till BP settled
- Probably reduces chance of fatal CVA
- Side effects None really (Viagra) ...

In-Hospital Treatment

- Analgesia – Morphine / Fentanyl infusion
- Phentolamine – for “adrenergic” effects
- GTN infusion – effective for blood pressure and cardiac chest pain

“New” Treatment

MAGNESIUM INFUSION

- 10mmol bolus dose & 5mmol/hr (app 40mm/hr)
- Usually highly effective for pain and ALL symptoms
- “Instantly” effective – “magic bullet”
- Trials at present for further information – some failures -
?under-dosing
- Monitor on reflexes

```
graph TD; A[Marine Animals] --- B[Painful]; A --- C[Not Painful];
```

Marine Animals

Painful

Not Painful

Stonefish



- Mud and estuarine varieties

East coast Australia

- Difficult to see

13 spines on back

Stonefish



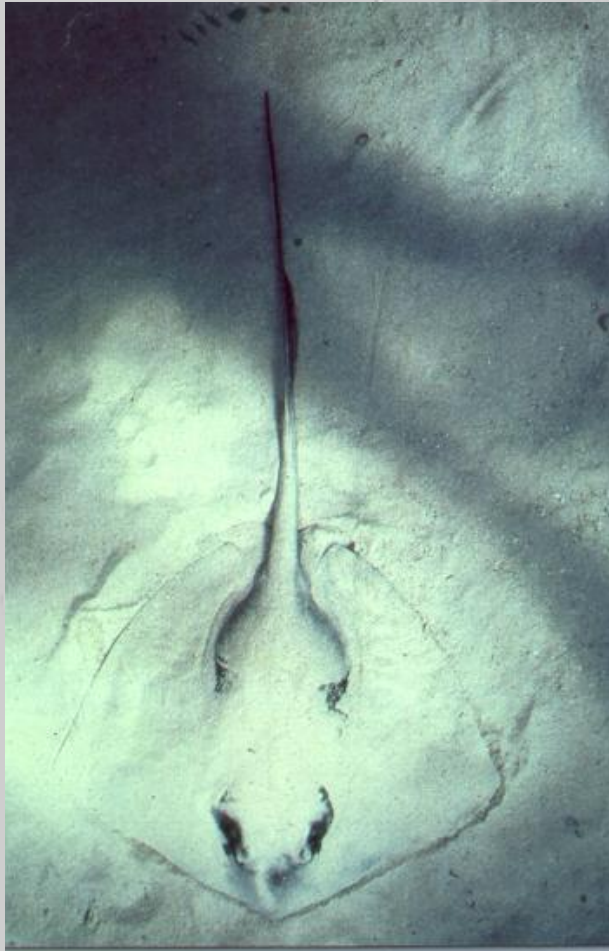
Severe pain relieved by heat

Test water first!

local "nerve block"

Antivenom available

Stonefish



- Buried in sand – reflex “whip” of tail from compression
- Severe pain
- Relieve pain with hot water
- No antivenom
- Severe morbidity
- 3 Australian deaths

Stingray Morbidity



- Barb – sheath with venom – muscle necrosis
- Chronic infection, including bone - osteomyelitis
- Ex-sanguination

Painful –
Penetrating Barbs
Hot Packs

Stingray

Stonefish

Any Barbed Fish

Weeverfish
Bullrout etc

Marine Animals

```
graph TD; A[Marine Animals] --- B["( Painful )"]; A --- C[Non-Painful]
```

(Painful)

Non-Painful

Non-Painful

Pressure
Immobilisation
Bandaging

Blue-
Ringed Octopus

Sea Snake

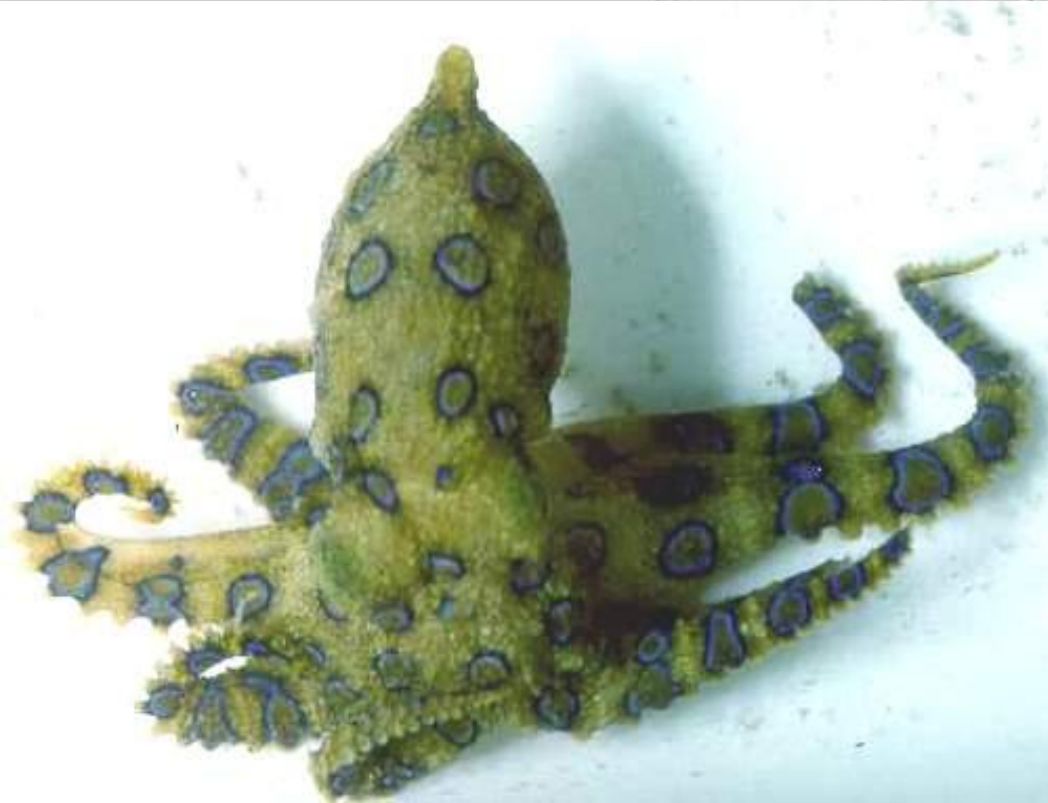
Cone Shell
(sometimes sting++)

Sea Snake



- Painless Bite
- Low envenomation rate
- PIB
- Antivenom available
- Deaths worldwide, not Australia

Blue-Ringed Octopus

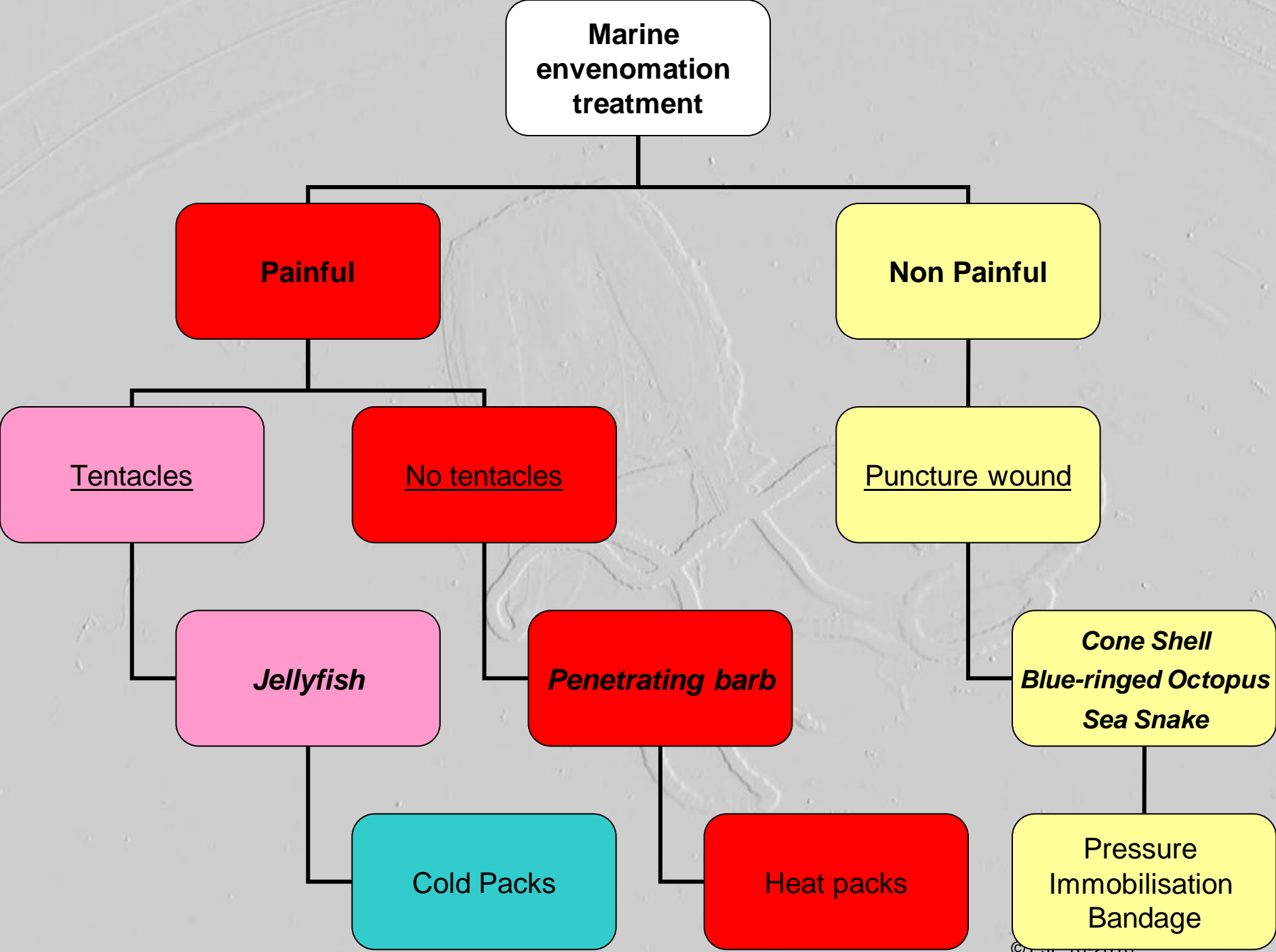


- Painless bite
- Usually children
- Never in Water!
- PIB
- EAR / Ventilate

Cone Shell



- Common species – many of them but few envenomations
- PIB – no antivenom
- EAR
- 1 Australian Death



**Marine
envenomation
treatment**

Painful

Non Painful

Tentacles

No tentacles

Puncture wound

Jellyfish

Penetrating barb

*Cone Shell
Blue-ringed Octopus
Sea Snake*

Cold Packs

Heat packs

Pressure
Immobilisation
Bandage

MARINE ENVENOMATION

Prevention of Further Envenomation

Treatment of Pain

PIB

Prevention further envenomation -
Sea Snakes
Blue-ringed Oct.
Cone Shell

VINEGAR

De-activation stinging Cells
– **Box Jellyfish**

COLD PACKS

Stops skin pain
in ALL
jellyfish stings

HEAT

Penetrating spiny injuries
Stonefish/Stingray



With Thanks



Family
Medicine
Mackay

To the Secretariat

Further information?

www.marine-medic.com.au

pjf@occupationalhealthmackay.com.au