

# SPIDER BITES

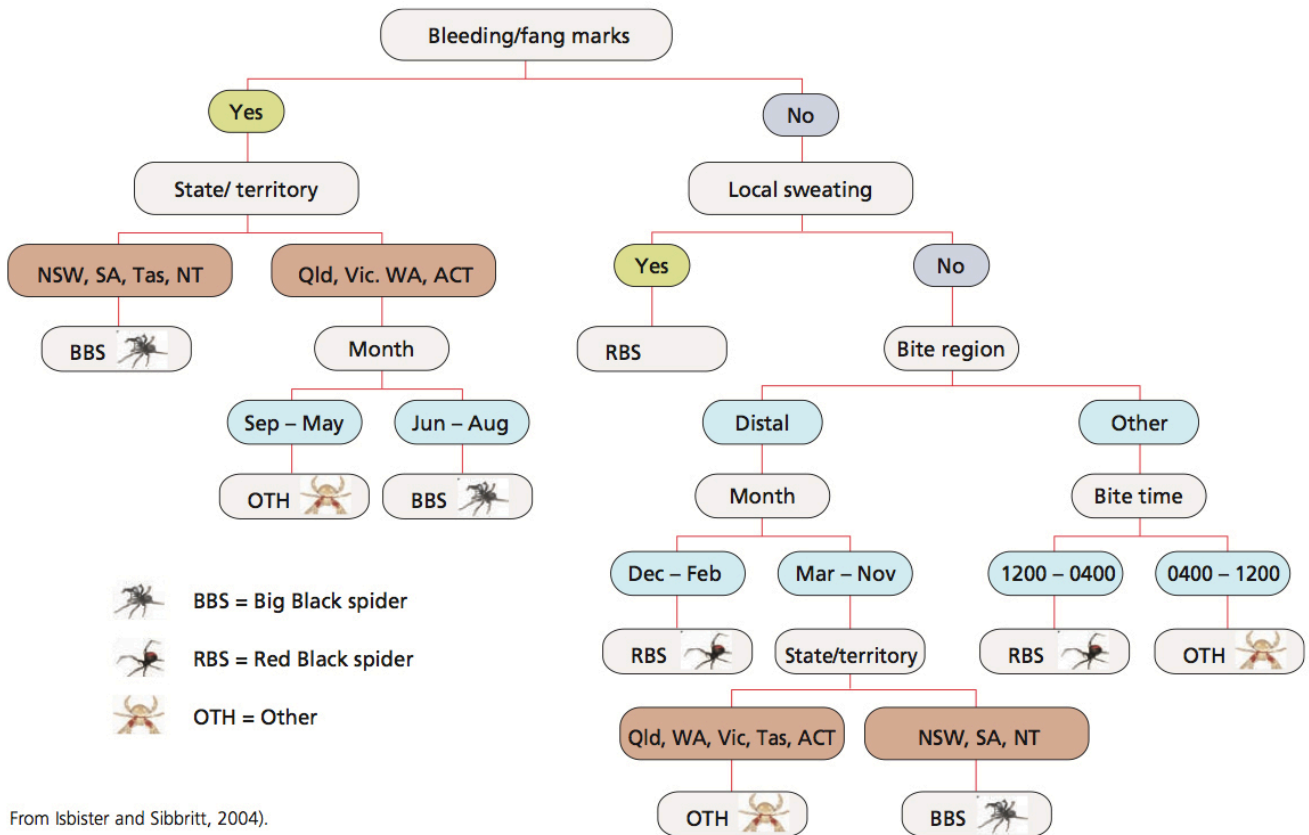
In Australia, spiders are incredibly common & their bites occur more frequently than snakebites. Luckily for us, spider-bites are usually trivial and require no treatment. There are however two groups of spiders that can cause significant envenomation;

1. Red Back Spiders
2. Funnel Web Spiders

## **FUNNEL WEB SPIDER**

Funnel Web Spiders are arguably the most deadly spiders worldwide, but are confined to the eastern coast of Australia. Creating a diagnostic dilemma is the fact that the potentially lethal Funnel-Web looks very similar to other *'big black spiders'* that can inhabit the same area. These include trap-door spiders and mouse-spiders.

The following decision algorithm was created (reference 1 & 2) to help differentiate between these spiders, classifying them into three groups; 1. big black spiders (which includes the Funnel-Web) 2. Red Back Spiders and 3. all others (which are generally unlikely to cause significant effects).



From Isbister and Sibbritt, 2004).

## Clinical Features.

The bite is usually witnessed and very painful. Fang marks are often visible.

The Funnel Web produces a venom that contains potent *neurotoxins* which prevent inactivation of sodium-channels and lead to a massive increase in autonomic activity and neuromuscular excitation.

Systemic envenomation develops rapidly (30-120 mins) and features include:

- *General* (agitation, irritability, vomiting, headache and abdominal pain. Decrease LOC & coma can occur)
- *Autonomic* (Sweating, piloerection, lacrimation, salivation)
- *CVS* (Tachycardia, hypertension [alternatively hypotension & bradycardia can occur], pulmonary oedema.
- *Neurological* (muscle fasciculation [esp. tongue], oral tingling, muscle spasm & coma).

Consider the diagnosis in a young child who presents with sudden severe illness with inconsolable crying, salivation, vomiting & collapse.

It is important to note that other BBS's do not cause significant CVS, autonomic and neurological features. An important DDx is that of Red Back envenomation, which is heralded by the triad of *local pain, sweating & piloerection*. Again, it does not cause coma, fasciculations or pulmonary oedema.

## Evaluation & Management.

### *Prehospital / First Aid.*

- Application of pressure immobilisation bandage

### *Hospital (General).*

- Do not remove first aid until ready to treat
- Allocation to acute/resuscitation area capable of cardiorespiratory monitoring
  - Monitor closely, IV access (x2)
  - Bloods (FBC, Electrolytes, renal function, CK, Coags)
- Preparation for management of respiratory failure, hyper or hypotension, pulmonary oedema & coma.
- Relevant History:
  - Was spider seen? (description of spider)
  - ?multiple bites
  - *Where* (geographic place) *and when* (elapsed time)?
  - Timing of first aid
  - Details of symptoms
- There is no venom detection available for spider-bites.

### *Hospital (Specific).*

- If there are *any symptoms of systemic envenomation*, give 2 vials of CSL Funnel Web Spider Antivenom IV.
- In *severe envenomation with dyspnoea, APO or altered LOC*, give 4 vials of CSL Funnel Web Spider Antivenom IV
- In *cardiac arrest* administration of undiluted antivenom via rapid IV push may be life saving (at least 4 vials should be given).

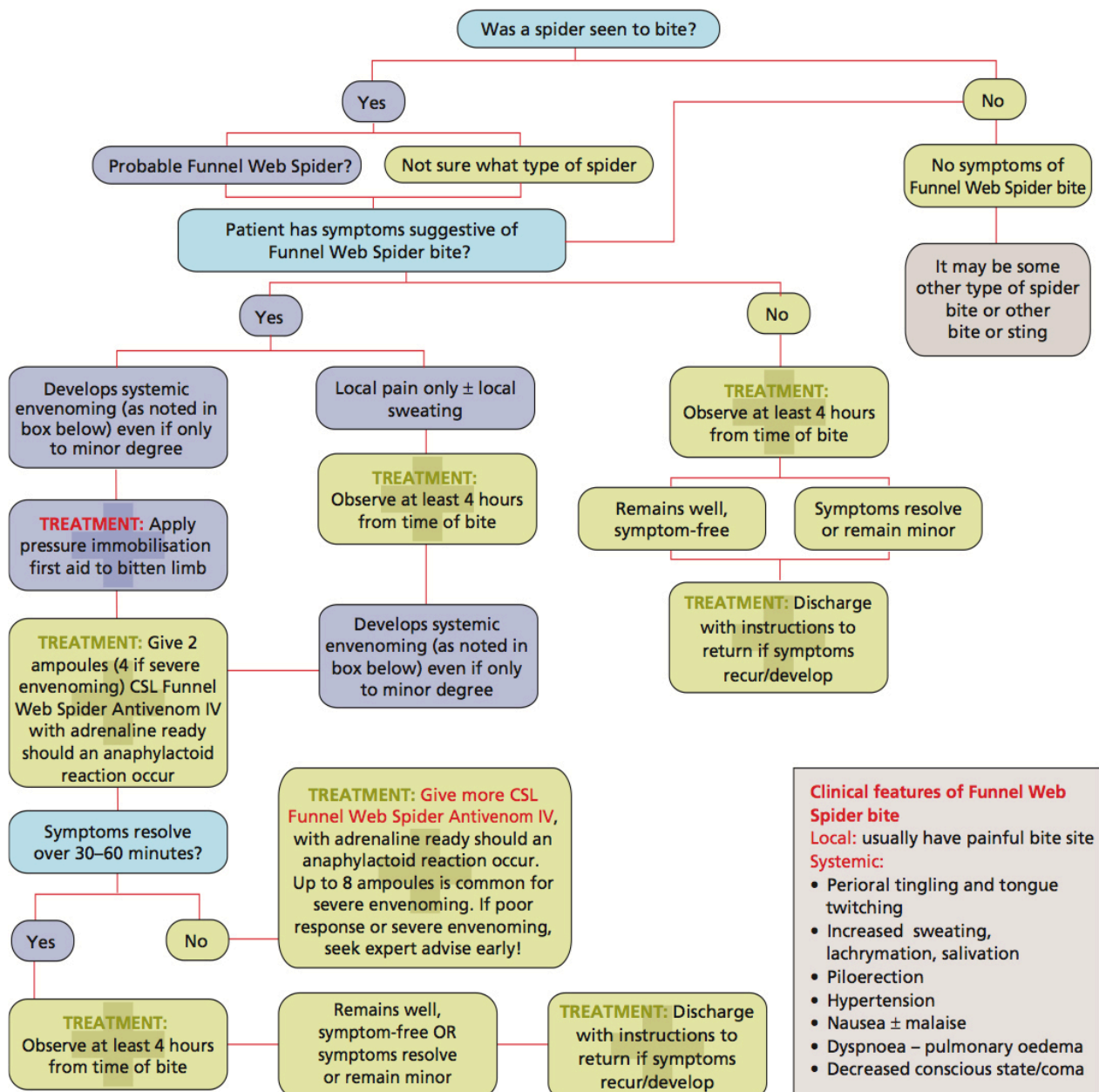
- Be prepared to give more !! 8 vials is a common dose.

### Antivenom Therapy.

- Two vials is minimal dose
- *Children require the same dose as adults.*
- Further doses are often required and should be given until all significant symptoms and signs have resolved.
- TWO IV lines are recommended (one for antivenom, one for potential anaphylaxis treatment).
- No premedication is required.
- Reconstitute the freeze-dried antivenom in 10mL sterile water
- Dilute two ampoules into 100mL N.Saline.
- Start infusion very slowly & observe for reaction (aim to have dose in within 15-20mins).

The majority of cases will be less obvious, and the patient is well with no apparent envenomation. The following flow chart (taken from the NSW Health's Snakebite &

**Start here** → **Patient presents with possible Funnel Web Spider bite**



Spiderbite Clinical Management Guidelines) demonstrates a guide to observing and evaluating the various presentations of *big black spider* bites !

An envenomed patient treated with antivenom can be discharged at 12 hours if clinically well, however its best to not discharge them at night.

Essentially, if the patient is asymptomatic and has no clinical evidence of envenoming, then observe them for a minimum of *6 hours* after the removal of first aid.

## **RED BACK SPIDER**

Red Back Spider bite is the *most common envenoming in Australia*. ~5000-10000 human bites annually.

The Australian Red Back Spider, *Latrodectus hasselti*, is a member of the world-wide *widow spider* group, envenoming by these spiders being known as “latrodectism”. The venom contains *excitatory neurotoxins*, which stimulate the nervous system rather than cause paralysis.

The venom, *alpha-latrotoxin*, acts pre-synaptically to open cation channels (including calcium) and stimulate the release of multiple motor end-plate neurotransmitters.

### Clinical Features.

Red back bites are not immediately painful, and possibly 50% are minor resulting in either minimal or no symptoms (and do not require antivenom). Death is extremely unlikely in untreated cases of latrodectism.

*Intense pain* develops 5-10mins after the bite and is followed by *sweating & piloerection* within an hour.

- Pain spreads proximally (involving draining lymph nodes which become swollen & tender), eventually causing generalised pain, localised & generalised sweating, hypertension & malaise.
- *Generalised truncal pain may involve chest, abdomen, neck or head*
  - This may mimic acute coronary syndrome or an acute abdomen.
- There is often little to see at the bite mark.

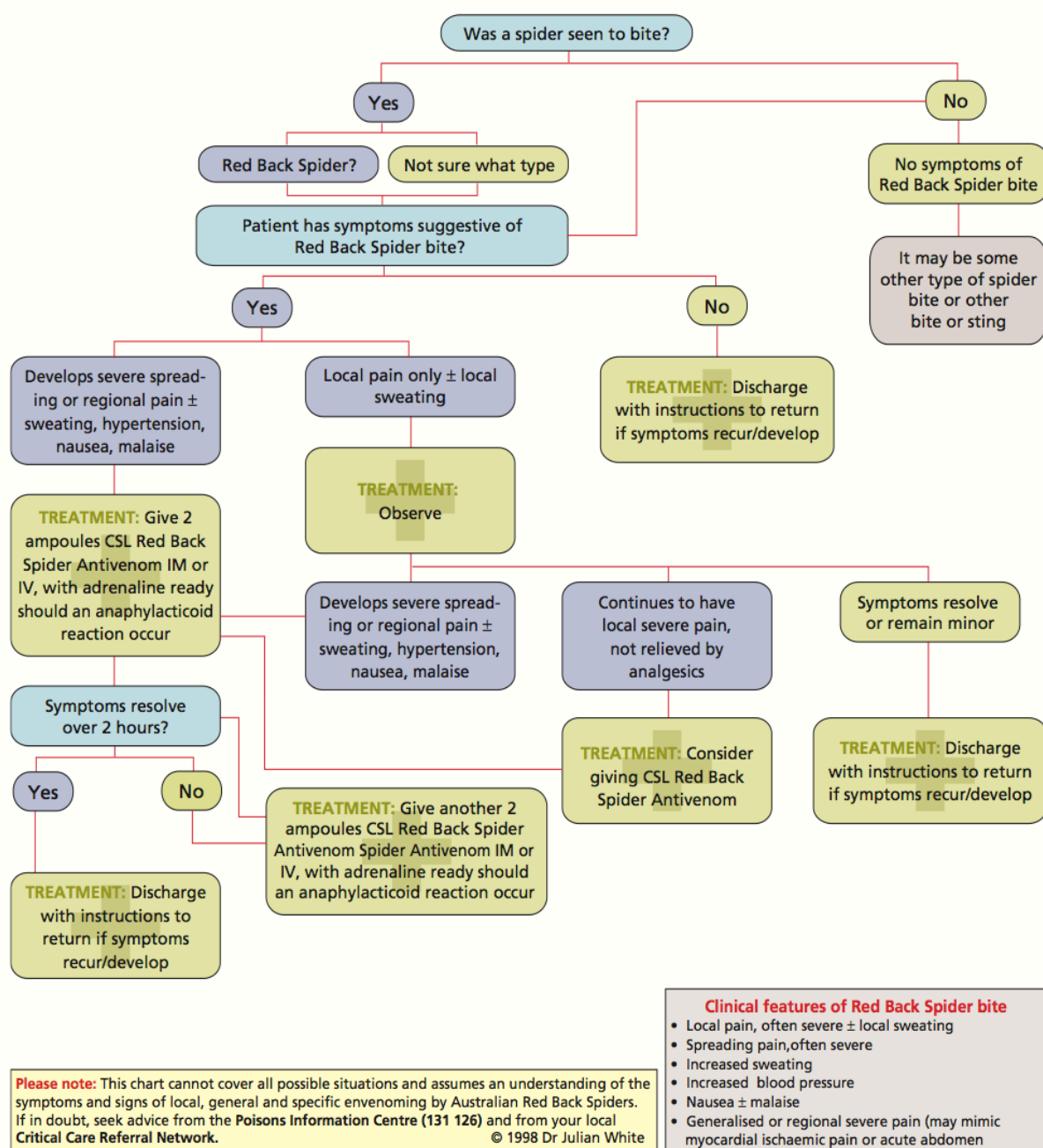
The triad of local pain, sweating & piloerection increasing over an hour is pathognomic of red back spider bite.

Untreated this syndrome follows a fluctuating course of 1-4 days !

### Management.

#### *Prehospital / First Aid.*

- Do not apply pressure immobilisation bandage (may make pain worse)
- Reassurance ++
- Ice pack
- Analgesia



### Hospital.

- Resuscitation is not needed.
- Laboratory studies do not assist in diagnosis or management
- Patients without clinical features of systemic envenoming or local pain do not require referral or ongoing hospital management.
- Antivenom should be given only if the clinical picture is consistent with severe envenomation and the severe local pain is unresponsive to analgesics.

### Antivenom Therapy.

- A refined horse IgG (~1.5mL per vial)
- Whilst recommended route is still IM (there is an increasing trend for IV).
- Give an initial *TWO* ampoules (IV or IM) (in 100mL N.Saline over 20mins).
- Always be prepared with resuscitation equipment and adrenaline (for risk of anaphylaxis).
- Wait 2 hours; if incomplete symptoms a further *TWO VIALS* can be given.
- Wait another 2 hours; if incomplete resolution of symptoms --> call Toxicologist. (*reconsider your diagnosis !!!*).