Initial Assessment of a Snakebite Victim

All patients presenting with snakebite should be admitted to hospital for assessment, observation and treatment if necessary.

If critically ill, in shock, resuscitate. Check:-

a) **Airway** – maintain a clear airway.

b) **Breathing** – assess and support: check the adequacy of ventilation. A weak cough signifies respiratory muscle paralysis and inadequate ventilation. Immediate intervention is mandatory –

See SNAKEBITE IN CHILDREN for notes on monitoring of breathing in children.

ventilate with Ambu bag and mask, or via endotracheal tube.

c) **Circulation** – Assess the state of the circulation by measuring the pulse rate and the blood pressure. Establish intravenous access and infuse with normal saline.

If there is circulatory inadequacy as indicated by hypotension and a rapid, weak pulse –

Give an intravenous saline push (isotonic saline 20 ml/kg body weight as an intravenous bolus); if still hypotensive, repeat the same dose once more.

Evidence of Envenoming?

Do a full clinical examination to determine if there are features of envenoming. Are there –

a) **local effects** – such as swelling, blistering, tissue necrosis?
b) **signs of neurotoxicity** – such as ptosis, external ophthalmoplegia, limb or respiratory muscle paralysis?
c) **signs of coagulopathy** – such as a bleeding tendency with spontaneous systemic bleeding?

ASSESS COAGULOPATHY BY PERFORMING THE 20 MINUTE WHOLE BLOOD CLOTTING TEST (20WBCT)

The presence of coagulopathy and neurotoxicity indicates systemic envenoming. The pattern of systemic effects (coagulopathy and neurotoxicity) together with local effects give an indication of the offending snake (see table *Summary of Selected Manifestations* below).

The presence of muscle movement pain and myoglobinuria (passing deep-red wine-coloured urine) indicates rhabdomyolysis, suggestive of envenoming by a sea snake or Russell's viper.

Abdominal pain, Nausea, Vomiting, Hypotension and Polymorphonuclear leucocytosis are early non-specific signs of systemic envenoming

Summary of selected manifestations			
	Local Effects	**Coagulopathy**	**Neurotoxicity**
Russell's viper	++	+++	+
Cobra	+++	-	++
Krait	-	-	+++
Saw-scaled viper	++	++	-
Hump-nosed viper	++	+	-
Green pit-viper	++	+	-
Sea snake	-	-	+/- (Muscle movement Pain +++)

Mild	+
Moderate	++
Severe	+++

Epidemiological and circumstantial scenarios help to establish the identity of a biting snake in the event a snakebite victim presents without the implicated snake and there is no clear description of it forthcoming —

Russell's viper : Paddy field or footpath; at dawn or dusk; bites on elbow and below, knee and below.

Cobra : Close to bodies of water, in and around houses; bites on elbow and below, knee and below.

Krait : Victims sleeping on the floor; at night; bites anywhere from head to toe. A high incidence in the dry zone, September to December.

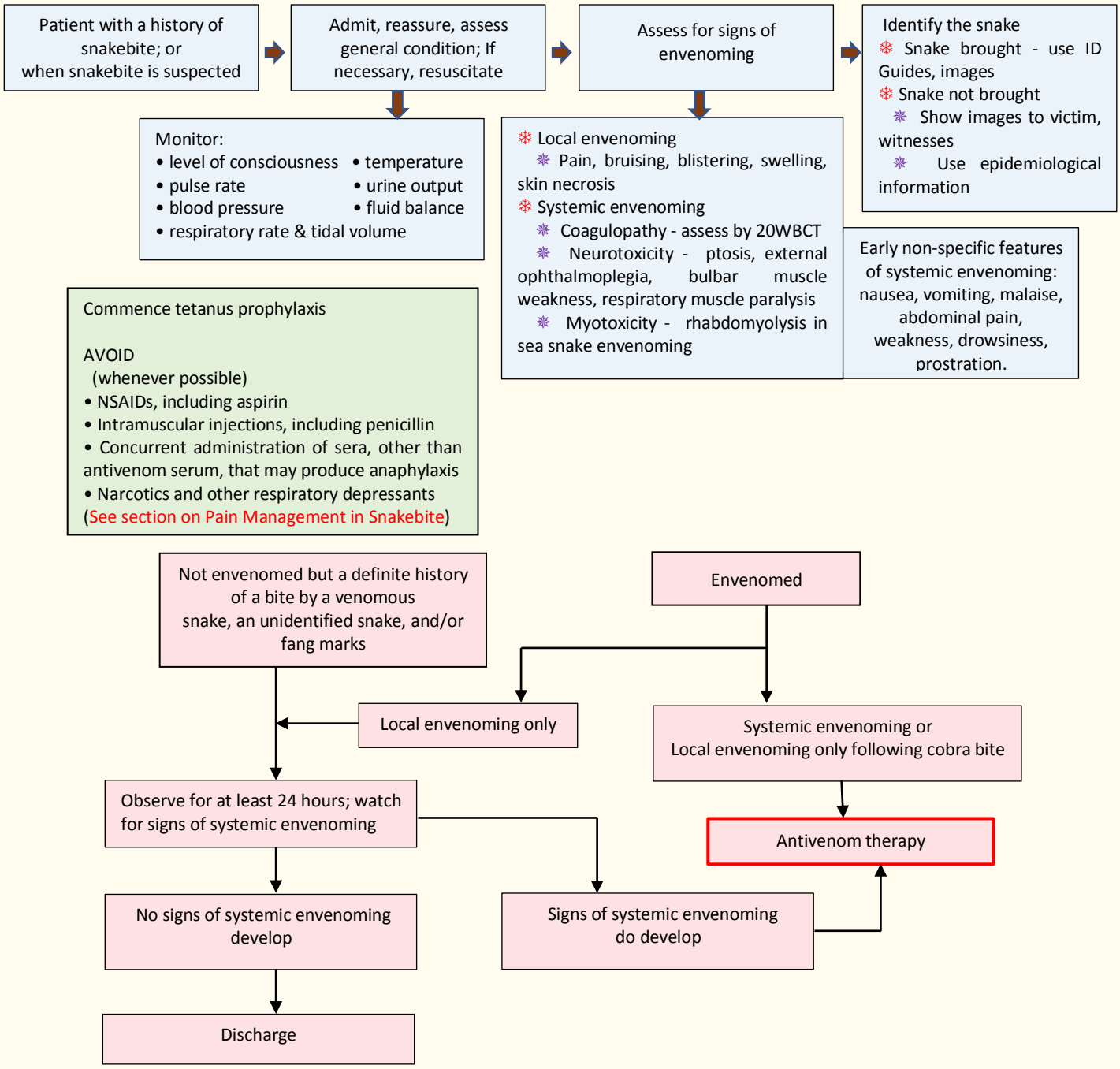
Hump-nosed pit-viper: Damp places around dwellings, sheds, in gardens, under leaf litter; bites on limb extremities.

Green pit-viper : Tea pluckers & other agricultural workers; bites on limb extremities

Saw-scaled viper : Sandy, arid coastal plains; Jaffna vegetable farmers, bites on limb extremities.

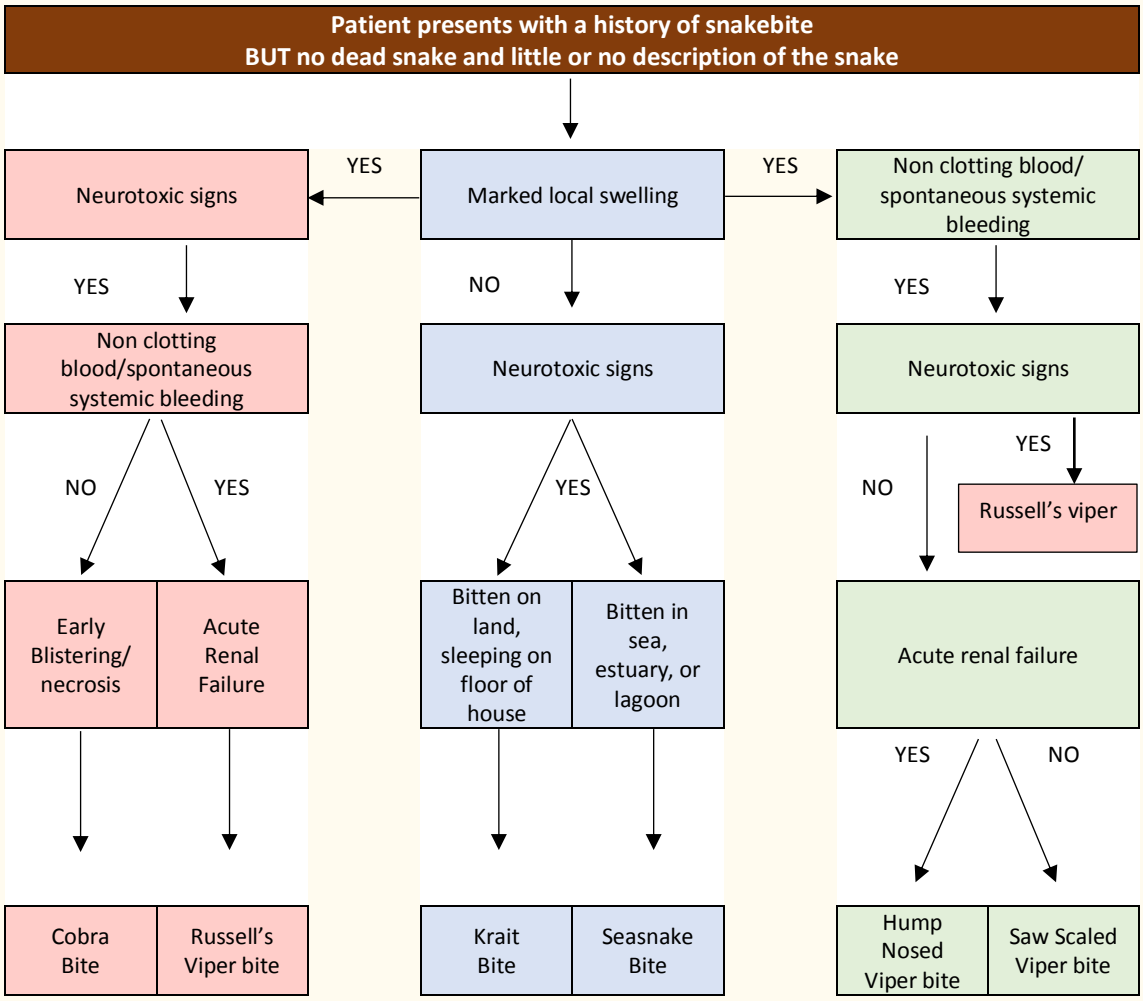
MANAGEMENT ALGORITHM

The Management Algorithm below summarises the steps that should be taken in assessing and managing a snakebite victim as outlined in the preceding pages.



If it has not been possible to establish the identity of the offending snake in an envenomed victim of snakebite in the initial stages, a syndromic approach using clinical data may be useful—as in the Syndromic Algorithm that follows.

Diagnosis of snakebite cases based on clinical data as a basis for antivenom treatment: A Syndromic approach



Adapted from:

Ariaratnam CA et al., (2009). Syndromic approach to treatment of snakebite in Sri Lanka based on results of a prospective national hospital-based survey of patients envenomed by identified snakes. Am J Trop Med Hyg. 2009 Oct;81(4):725-31.

Guidelines for the management of snake-bites, 2nd edition. World Health Organization, 2016: 187

November 2021