

NSW Hospital antivenom stocks

7.1 Antivenom stock recommendations

Antivenom stock recommendations are based on a review of risks, facilities, past usage and other practical considerations. Each hospital has been evaluated separately as each has its own unique characteristics. Thus one hospital with very limited resources may be recommended to stock antivenom, while a similarly resourced hospital elsewhere may not be recommended to stock any antivenom at all. Such differences will reflect degree of isolation and risk.

Recommended antivenom stock levels are based on:

- Geographic location and degree of isolation
- Local snake and spider distribution
- History of envenomation
- Local Emergency Department role delineation facility level
- Referral role of regional rural and metropolitan hospitals
- Whether the initial dose should provide just for early intervention to commence therapy, or if it should be definitive.

Only some hospitals will hold optimal stocks to fully treat one, let alone two cases of major envenomation by a given type of snake or spider. It is essential that **stocks are sufficient to at least commence treatment**, while further stocks and/or retrieval are being sought. For those hospitals with stock levels below the ideal starting dose for Brown Snake or Tiger Snake type envenoming, it is expected that available stocks will only be used where there is an immediate threat to life, while awaiting supplemental stocks from another hospital and medical retrieval. For small country hospitals with limited resources and no access to on-site laboratory testing, the decision to stock any antivenom must be based on distance to a more major hospital versus risk and local resources.

A generic approach was used depending on the category each hospital was assigned:

- Rural early intervention antivenom dose for towns close together, that is less than 30 minutes by road

which would allow for additional antivenom stocks to be accessed and transferred in from nearby hospitals (eg. Brown Snake = 2 to 5 ampoules definitive dose, however early intervention dose would be 2 ampoules which would take up to approx. 20 min to give, during which time the additional ampoules can be obtained).

- Rural definitive management AV dose for isolated towns needing to provide the full first dose (eg. Brown Snake = 2 to 5 ampoules therefore 5 are stocked).
- Rural referral and metropolitan regional centres (ED Level 4 and 5) that can provide definitive antivenom management and provide supplementary antivenom doses to a number of local hospitals on request (eg. Brown Snake = 10 ampoules).
- Metropolitan definitive management antivenom for Level 6 ED (e.g. Brown Snake = 10 ampoules) which receive primary rural transfers via medical retrieval for tertiary care to manage severely envenomated patients with ongoing serious complications and multi-organ failure, they also provide back-up to local smaller facilities.

Westmead Hospital holds the state stocks of Death Adder and Taipan antivenom as the incidence of envenomation from these species are rare and the initial antivenom therapy in these cases can be either polyvalent or the specific monovalent. Arrangements would need to be made through the **Aeromedical & Medical Retrieval Service on 1800 650 004** to have the specific monovalent antivenom transported to the patient and/or the patient transported to an appropriate facility. This is only indicated for severe envenomation cases.

It was determined that all hospitals across the state should have the definitive dose of Red Back Spider AV due to its widespread distribution, and historical envenomation pattern.

It is critically important in assessing a case of suspected snakebite to be able to determine degree of systemic envenoming in all four major risk areas: neurotoxic flaccid paralysis; coagulopathy; myolysis; renal damage. While the first, paralysis, is principally assessed clinically,

the other three rely on laboratory testing. Because of this, it is always preferable to manage snakebite cases in hospitals with full laboratory facilities. This will exclude most country hospitals. However, the use of a glass test tube to conduct whole blood clotting time testing will allow meaningful initial assessment to be commenced.

7.2 Storage and handling of antivenom

- When transporting antivenom (or venom detection kits) it is essential that the “cold chain” be maintained, as any significant rise in temperature may adversely affect the potency of antivenom.
 - Equally, freezing of antivenom may also adversely affect potency.
 - Use of a simple icebox or if available, car fridge, is usually the most appropriate means of maintaining temperature during transport.
- When using an icebox, ensure the placement and number of any cold packs used to keep the temperature low do not cause excessive cooling or freezing of the antivenom.
 - Keep each vial of antivenom in its original box.
 - Always ensure arrangements are made to receive the antivenom at the treating hospital, so that it is not left unattended.
 - As soon as possible, transfer all antivenom to a holding fridge, until ready for use. Do not leave antivenom near the bed, awaiting possible use.
 - It is recommended that stocks be rotated between hospitals with few presentations and those with higher numbers to reduce expiration of stock. This could be facilitated through the Area Drug/Pharmacy Service.