



In the

2024–2025 clinical landscape, snakebite management has transitioned toward a **multimodal approach** that combines traditional antivenom with emerging small-molecule inhibitors (SMIs). Key actionable updates include the use of the **modified Snakebite Severity Score (mSSS)** for serial monitoring, a refined interpretation of the **20-minute whole blood clotting test (20WBCT)**, and the positioning of **oral varespladib-methyl** as a potential pre-hospital "bridge" therapy.

Detailed Management & Clinical Insights

1. Novel Pharmacological Adjuncts (Small Molecule Inhibitors)

The most significant shift in the 2024–2025 period is the clinical advancement of enzyme inhibitors. The World Health Organization (WHO, 2024) recently published **Target Product Profiles (TPPs)** for these therapeutics to guide pre-hospital and adjunct hospital use.

- **Varespladib-methyl:** An oral inhibitor of secretory phospholipase A2 (sPLA2), a toxin present in >95% of venomous snakes. The ****BRAVO Phase II trial**** demonstrated that while it did not meet the primary endpoint for overall severity reduction in the emergency department, a significant benefit was observed in patients treated within 5 hours of the bite.
- **Marimastat:** A metalloproteinase inhibitor targeting venom-induced tissue necrosis and coagulopathy. It is currently being evaluated in combination with varespladib to provide broad-spectrum neutralization (LSTM/Ophirex, 2024–2026).

2. Diagnostic & Monitoring Updates

Standardized observation is now prioritized over one-time assessments to capture the dynamic nature of envenoming.

- **Modified Snakebite Severity Score (mSSS):** Contemporary protocols (BUMCEM, 2024) mandate mSSS assessment at baseline, then **hourly for 6 hours**, followed by every 6 hours.
- **Dry Bite Observation:** Patients with suspected "dry bites" must be monitored for a minimum of **8 to 12 hours**. If no symptoms develop after this period and repeat labs are normal, discharge may be considered.^[2]

- **20WBCT Precision:** Recent evidence (PLOS, 2026) clarifies that "**partially clotted**" results should be interpreted as **normal (clotted)**. Only a completely "**unclotted**" result (fluid blood after 20 minutes) should trigger antivenom administration in resource-limited settings.

3. Management of Coagulopathy and Antivenom Reactions[1]

- **Venom-Induced Consumption Coagulopathy (VICC):** Antivenom remains the primary treatment. **Fresh Frozen Plasma (FFP)** or cryoprecipitate should generally be avoided unless active, life-threatening bleeding is present, as they may not speed recovery and can exacerbate VICC without neutralizing the underlying toxins (NSW Health, 2024).
- **Hypersensitivity Strategy:** For severe antivenom-induced anaphylaxis, a "**Shock control-Inflammation suppression-Volume optimization**" strategy is recommended. This involves immediate intramuscular/intravenous epinephrine, followed by dexamethasone and antihistamines for inflammation, and aggressive crystalloid resuscitation.
- **Pre-medication:** Prophylactic use of antihistamines and corticosteroids alone has been shown to have no benefit in preventing acute reactions (Ngwelezana Hospital/South Africa study, 2022/2024 updates).

4. Updated First Aid and Complication Management

INTERVENTION	STATUS	RATIONALE
Pressure Bandage (PBI)	Recommended (Neurotoxic)	Essential for Elapidae (kraits, cobras) to delay systemic absorption.
Tourniquets/Suction	Contraindicated	Worsens local tissue necrosis and provides no clinical benefit.
Fasciotomy	Discouraged	Compartment syndrome is rare; "pseudo-compartment" swelling usually responds to antivenom.
Antibiotics	Not Routine	Prophylactic antibiotics are not recommended unless evidence of secondary infection exists.

Regional Guideline Attribution:

- **WHO (2024/2026):** TPPs for novel small molecules and recombinant antibodies.
- ****Bhutan/India National Guidelines **:** Standardized 24-hour observation and weight-based antivenom dosing for pediatric patients.
- **Australia (NSW/WA Health, 2024):** Emphasis on clinical toxicologist consultation and discarding the use of wound swabbing/venom detection kits in many settings.

References (2)

[1]

[Severe mixed hypersensitivity reaction induced by antivenom: diagnostic challenges and precision management.](#)

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[2]

[Optimizing Anti-Snake Venom Strategies for Hemotoxic Envenomation in Northern India: Clinical Outcomes and Regional Challenge](#)

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