Snakebites in India

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Snakebites in India: A Call for Action

Context : The Union Health Ministry has urged states to classify **snakebites as a notifiable disease**, requiring all private and public hospitals to report cases.

What is a Notifiable Disease?
Diseases that can cause outbreaks, result in fatalities, or need urgent public health action are classified as notifiable. Common examples include **tuberculosis, HIV, cholera, malaria, dengue, and hepatitis**.

Snakebites in India: An Overview

Statistics

- Snakebites pose a major public health issue in India, with **3-4 million cases annually** and **58,000 deaths**, according to the **2020 Indian Million Death Study**.

National Action Plan

- The government launched the **National Action Plan for Prevention and Control of Snakebite Envenoming (NAPSE)**, aiming to **halve snakebite deaths by 2030**.
- NAPSE advocates making snakebites a **notifiable disease** to improve reporting and management.

Medically Significant Snakes

- India has **310 snake species**, of which:
  - **66 are venomous**, and **42 are mildly venomous**.
  - The "Big Four" snakes are responsible for the majority of fatal bites:
    - **Indian cobra**
    - **Common krait**
    - **Russell's viper**
    - **Saw-scaled viper**
- Commercial antivenom is effective against these four species, covering **80% of snakebites**.

Why Snakebites Should Be a Notifiable Disease

1. **Improved Surveillance:**
    - Accurate data on snakebite cases and deaths can help in **resource allocation** and identifying high-risk areas.
2. **Better Clinical Management:**
    - Enhances training for healthcare workers in snakebite treatment.
    - Strengthens the supply of **antivenoms** in vulnerable regions.
3. **High-Risk States:**
    - States with the highest incidence include **Bihar, Jharkhand, Madhya Pradesh, Odisha, Uttar Pradesh, Andhra Pradesh, Telangana, Rajasthan, and Gujarat**.

Challenges in Snakebite Treatment

1. Treatment Gaps

- **Delayed Healthcare Access:** Victims often rely on faith healers or cannot reach healthcare facilities in time.
- **Training Deficiency:** Healthcare workers frequently lack adequate training.
- **Lack of Diagnostic Tests:** Confirmatory tests for snakebites are not widely available.

2. Antivenom Limitations

- **Venom Sources:** Most venom used to produce antivenom comes from snakes caught by the **Irula tribe** in Tamil Nadu, Karnataka, and Kerala. However, venom composition varies by geography, complicating antivenom efficacy.
- **Potency Variations:** Venom toxicity can differ with the snake's age (e.g., neonatal Russell's viper venom is more toxic).
- **Ineffectiveness:** Commercial antivenom does not work against some local species, such as the **banded krait, monocled cobra, and green pit viper** in Northeast India.
- **Adverse Reactions:** Antivenom itself can cause severe reactions.

3. Artificial Interventions

- Researchers are developing **artificial antibodies** and **peptides** to neutralize venom toxins across multiple snake species.

4. Venom Collection Issues

- Experts suggest **zonal venom collection banks** to account for regional venom variations.
- However, the **Wildlife (Protection) Act, 1972** restricts access to snakes, complicating venom collection efforts.

Conclusion

Classifying snakebites as a **notifiable disease** is critical for improving **data collection, clinical**

management, and antivenom distribution. Addressing challenges in treatment, training, and venom collection can significantly reduce snakebite-related deaths and complications, especially in high-risk states.