Effective, Polyvalent, Affordable Antivenom Needed to Treat Snake Bites in Nepal

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Epidemiology of Snakebites Based on Field Survey in Sindhuli District, Nepal

(Presented in IST 2017, Haikau, Heinan, PR Chaina)
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Project Updates: November 2017 (KGH)

Save SNAKES: Save NATURE
Happy Nagpanchami
Save Snakes Save Nature
Snake, Snakebite and Snake Conservation Awareness Program

Date: 28/07/2017 Time: 11:00 Am
Venue: Mandala Theatre Nepal, Anamnagar

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Save Snakes
Save Nature

Snake, Snakebite & Snake Conservation
Education & Awareness Campaign
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**Why Should Snakes be Conserved?**

**Ecological importance:**
- Snakes play a vital role in the ecosystem. Some species of snakes are ecological indicators and presence of these species indicates a healthy and balanced ecosystem.
- Snakes eat small insects, fish, frogs, birds and their eggs, lizards, mammals and other snakes. Snakes and their eggs are also being eaten by some of the fish, frogs, birds, mammals and other snakes. In this way, snakes play the important role of being both predator and prey and are an integral part of nature’s balance.
- Most of the people try to control the pests of the crops with chemicals due to which our environment get polluted. Snakes provide natural pest control service. The removal of the snakes could directly/indirectly affect the crop production as well as the environment.

**Religious and Cultural Importance:**
- There are many scriptures and folk tales in Nepalese culture and traditions regarding snakes. Many people worship snakes in the snake festival Naagpanchami believing that snakebite can be avoided and peace and prosperity will occur in their lives.

**Medical Importance:**
- Snake venom is used to prepare the Anti-Snake Venom Serum (ASVS) which in turn used to treat the snakebite victims.
- Venoms are also used for the preparation of other life saving drugs.
- Medicines derived from neurotoxins are used to treat brain injuries, strokes, mental distress and as a pain killer.
- Medicines derived from haemotoxins are used to treat heart attacks and blood disorders.

**How Can You Contribute in Snake Conservation?**
- Participate in any educational and awareness programs related to snake, snakebite and snake conservation and try to know the species of snakes that are venomous and non-venomous in the area you live.
- Differentiate the misconception, myths and facts about snakes and share the knowledge with your colleagues.
- If you encounter snakes inside/outside your residence, don’t kill them, instead call a rescue centre.
- Due to the rapid increase in urbanization, industrialization and deforestation, there is a loss of habitat of snakes and as a result they enter into cities, encounter with human which increases human-snake conflict. Make your efforts for habitat preservation and nature conservation.
- Inform nearest Forest Department or DFO or Police Department or Snake Information Centre or Animal Rescue Centre or any related department, if you come across any of the illegal activities such as; hunting, killing, poaching of wildlife, snake charmers and other showmen using wild animals.
- Raise your hands to run “Save Snakes Save Nature” campaign nationwide and internationally.

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**Photo Reference:**

Front picture: www.dailytelegraph.com.au - king-cobra
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Picture 3-4-5-6-7-10-11-12 belong to campaigner’s research work

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Why do Snakes Bite People?

Most snakes are not venomous. Snakes bite humans only in self defence. The main sources of food for snakes are rodents, frogs, insects etc. but not humans. Snakes only attack when they feel threatened. If a person accidentally steps on a snake, they may be bitten as the snake will assume it is being attacked. The majority of snakebites occur when people try to catch or kill them. Snake do not watch us and plan attacks; they prefer to avoid people as much as possible.

Species of Snakes:

More than 3,500 species of snakes are found throughout the world; only 600 species (Chippaux 1998) of them are reported as venomous. In Nepal, different authors list around 79 to 82 (Shah and Tiwari 2004, Kästle et al., 2013) species of snakes among which 18 medically relevant venomous snakes have been reported till now (Sharma et al., 2013). The distribution of snakes varies sharply from Terai (100m) to high mountains (4800m) in Nepal. The venomous snakes of Nepal belong to the families Elapidae, Viperidae and Colubridae. The family Elapidae contains highly venomous snakes like Cobras, Kraits and Coral snakes, which contain neurotoxic venom. Ophiophagus hannah (King Cobra or Rajghuma) is the largest venomous snake in the world and is also known to occur in Nepal. Viperidae includes Russell’s viper and Pit vipers which contain haemotoxic venom. Colubridae includes Rhabdophis species as venomous snake. All the Nepalese non-venomous snakes are represented by families; Typhlopidae, Boidae/Pythonidae and Colubridae. Pythons are the largest non venomous snakes in the country. Out of 20,000 snakebite cases, about 1,000 people die annually mainly in the Terai region in Nepal (WHO 1987). About 25 districts of the tropical lowland of Nepal are at high risk of venomous snakebite (Shah et al., 2002).

How to Prevent a Snake Bite

- Do not try to catch snakes and avoid any direct contact with them.
- Clean all the favorable environment for the snakes such as the piles of logs, bricks, stones, grasses, bushes, birds’ nest etc. around the houses where snakes can hide themselves.
- Close holes in the ground or walls in or around the house.
- Children should be taught to be cautious when playing in fields and open areas.
- Wear safety gloves/boots (if possible) while walking/working in the agricultural fields.
- Use torchlight or other light sources while walking in the dark.
- Avoid sleeping in the grounds. Sleep on a cot with a covered mosquito net.
- Keep homes free of rodents, which can attract snakes.
- Make yourself familiar with the description of the species of snakes that are venomous and non-venomous in the area you live.

DOs

- Reassure the victim, most are terrified and apprehensive.
- Allow the victim to lay down in a comfortable and safe position.
- Do remove any constrictive clothing or jewelry.
- Immobilize the bitten limb or hand with a splint or sling.
- Apply Pressure Immobilization Bandaging (PIB) method or Local Compression Pad Immobilization (LCP) method, according to the situations.
- Immediately transport the victim to the nearest treatment centre, where the treatment facility with ASVS is available.

DONTs

- Do not waste time.
- Do not try to capture or handle a snake/dead snake.
- Do not move the hand or limb and do not run.
- Do not tie a tourniquet.
- Do not attempt to cut/burn/suck the wound.
- Do not create an incision on the bite site.
- Do not drink alcohol.
- Do not ingest chilies.
- Do not apply the cloaca of the chickens/ snake stone/ ice on the bite site.
- Do not apply any type of lotion/ointments/herbal pastes over the wound.
- Do not use Potassium permanganate.
- Do not use electrical therapy.
- Do not use any herbal medicines or drugs that are not prescribed by the doctors.
- Do not take the patient to a traditional healers and snake charmers.
- Do not wait to see if symptoms occur.
- Do not delay transportation to a better hospital where ASVS is available.
- Do not use antisnake venom in all patients.
- Do not delay antisnake venom treatment, if needed.
- Do not delay ventilation and dialysis, if needed.
Save Snakes Save Nature
Conservation through Education

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The Rufford Foundation
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Pressure Immobilization Bandaging (PIB) method or Local Compression Pad Immobilization (LCPI) method

- In the PIB method, a bandage is applied tightly around the limb, restricting blood flow and reducing swelling.
- In the LCPI method, a compression pad is applied directly to the limb to immobilize it.

### Snakes

- Elapidae, Viperidae & Colubridae
- Cobras, Kraits & Coral snakes

- **Elapidae**
  - **King Cobra** - Ophiophagus hannah
  - **Viperidae**
    - **Russell's viper**
    - **Pit vipers**
- **Colubridae**
  - **Rhabdophis**
  - **Typhlopidae, Boidae/Pythonidae**

WHO 1987

- Sharma et al., 2003

Shah and Tiwari 2004, Kästle et al., 2013

Sharma et al., 2013