

**NEPAL IS ALSO
KNOWN AS**

The country of Mount Everest



LAND OF HIMALAYAS: 8 OUT OF 10 WORLDS HIGHEST PEAKS ARE IN NEPAL



2nd RICHEST COUNTRY IN WATER RESOURCES



The Birth place of Gautam Buddha; Light Of Asia



The country of Great Warriors: Gorkhas



The Land of Kumari; The Living Goddess



Where is Nepal?

- Latitude and longitude 28°00' N and 84°00' E
- Nepal is a landlocked country in South Asia, bordered by India on 3 sides and by China on the north.



- It has an area of 147,181 square kilometers (54,363 square miles), a border of 2,926 kilometers (1,818 miles)- 93rd on size ranking.
- Government sources estimate a population of 28,618,668 (2010).



CULTURE AND HERITAGE



A Tharu dance



Himalayan Sherpa females (Sherpinis)



A hilly region wedding ceremony



A Newari jatra



Patan Durbar square



Indrajatra in Kathmandu



Boudhanath Stupa



The 5 storeyed Nyatapola in Bhaktapur

Livestock



A serological study in response to people at occupational risk of rabies virus exposure in Nepal

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Outline of Presentation

Introduction

- a. Human Rabies and vaccine in Nepal
- b. Animal Rabies and vaccine in Nepal

Study

- a. Objective
- b. Methodology
- c. Discussion
- d. Conclusion

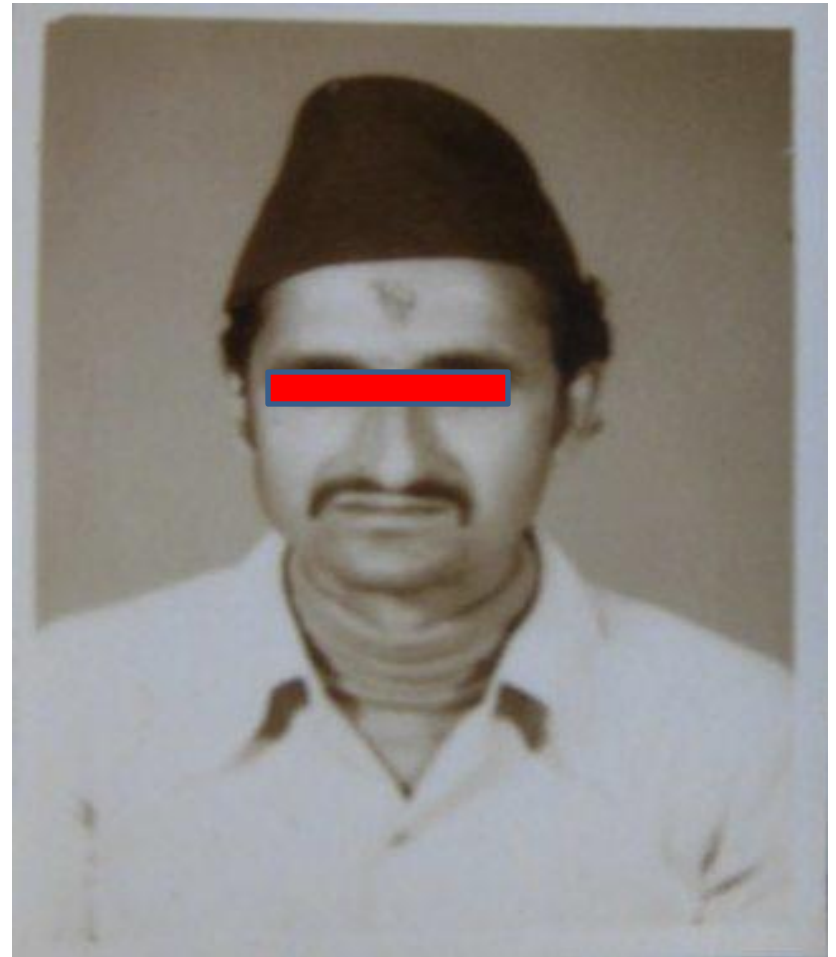
Human rabies in Nepal

- Rabies is endemic throughout the country and cases may occur in any season.
- 100-200 person die from rabies every year, mostly following dog bite (EDCD, 2010).
- Incidences reported in all age group and children are at high risk.
- Dogs have 92.2% and other animal such as cat, monkey, jackal and mongoose has 7.8% role in transmission rabies
- Arctic lineage was detected from human rabies virus (Pant *et al.*, 2011).

Cases of Rabies



12 yr school girl



53 yr health worker

Human Vaccination

- 35,000 people get post exposure vaccination every year.
- DOHS expends US\$ 1.5 million per year to buy rabies vaccine for post exposure treatment (EDCD, 2010).
- 334,737 doses of cell culture vaccine were purchased by health authority from July 2011 to June 2012 for free post exposure vaccination (EDCD, 2012)

Post-exposure rabies vaccination

Teku hospital for infectious diseases, Kathmandu, Nepal, 2013



People in queue for vaccination



Nurses injecting vaccine

Rabies in animals

- Prevalence of rabies was found 25.63% in dog, 35.29% in cattle, 28.57% in buffalo, 9.66% in goat and 0.84% in pig.
- Out breaks of rabies occurred throughout the year. Numbers of outbreaks were highest (36) in June and lowest (9) in September.
- Rabies has been reported in 44 districts (Out of 75) and numbers of outbreaks were highest (19) in Kanchanpur and highest cases were in Kailali (65) (*Pant, 2014*).

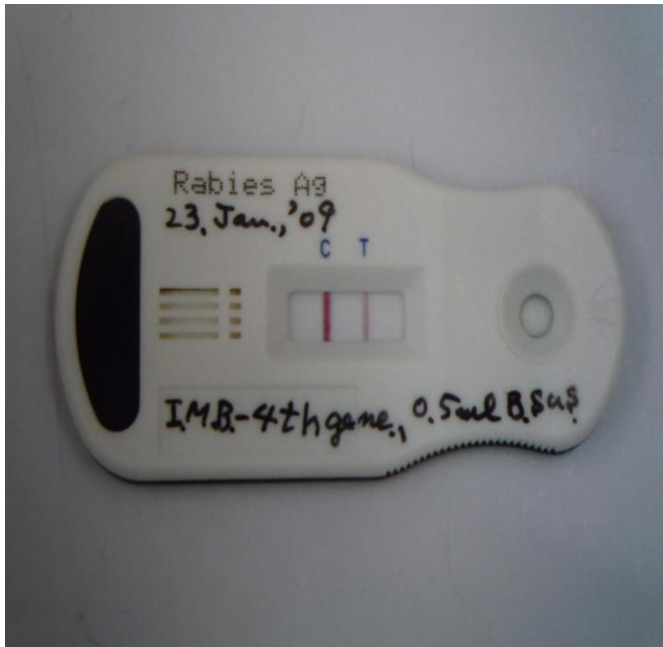
Rabies in Animal

- Rabies has been confirmed in dogs, cats, buffaloes, cattle, goats, sheep and mongoose.
- In 2014, 34 clinical samples were submitted to CVL for laboratory test and 16 were positive (CVL, 2014)
- A total of 88 outbreaks and 210 animal deaths reported in 2014 (VEC, 2014)
- Arctic and Indian subcontinent lineages in Nepal (Pant *et al.*, 2013)

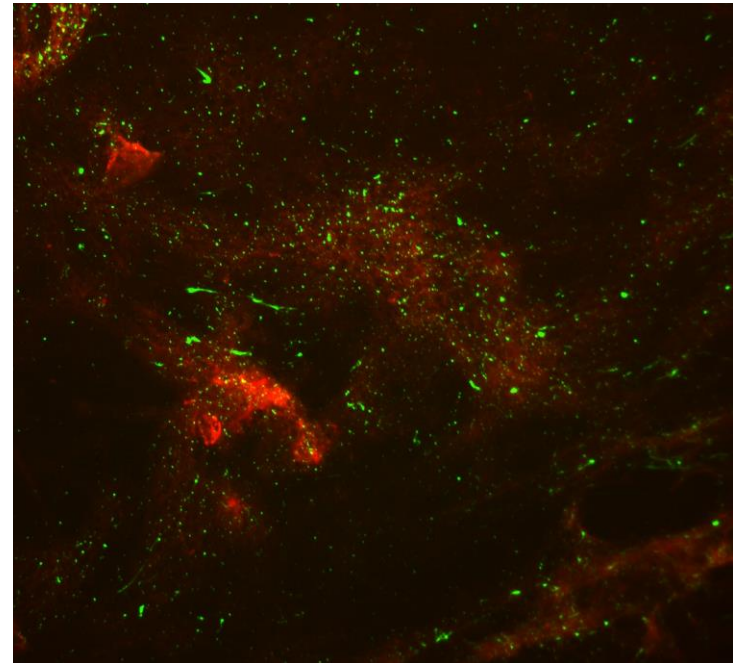
Laboratory facility in Nepal

CVL has Rapid antigen detection and FAT facilities.

Photograph 2, Rapid antigen detection test



Photograph 3, FAT positive sample



Laboratory facility in Nepal

- RVPL produces 50,000 doses of cell culture rabies vaccine (NeJaRab) for animal annually.



Laboratory facility in Nepal

- RVPL produced cell culture rabies vaccine for human use with 3.8IU/dose potency in 2012



Objective of Study

- To know the antibody titer against rabies virus in occupational risk group of people.

Methodology

A total 44 serum samples were collected out of which 21 samples were collected from medical professionals (working at Teku Infectious Hospital, Kathmandu) and, 23 were collected from veterinary professionals (working at Central Veterinary Hospital and Rabies Vaccine Production Laboratory, Kathmandu)

Cont.....

- Among the 44 samples, 4 were collected from unvaccinated persons.
- The other 40 people sampled were vaccinated.
- All samples were subjected to the Rabies Fluorescent Focus Inhibition Test (WHO Laboratory Techniques in Rabies, 1996) at CDC, USA .

Result

- The antibody level of 7 person was found to be less than the WHO recommended titer of 0.5 IU/ml.
- Highest titer was 3396 and lowest titer was 0.043IU/ml

Discussion

- Six medical professionals and one veterinary professional had a low rabies virus neutralizing antibody titer.
- The 4 samples collected from unvaccinated persons, and 3 collected from vaccinated persons (7.5%) had a titer below 0.5 IU/ml.
- 15.9% of tested group were at risk.

Conclusion

- The study showed that medical and veterinary professionals who are responsible to nurse or handle rabies patients, rabid animals or rabies virus are still at higher risk.
- This signifies the importance of recommendation for regular serological testing of occupationally at risk individuals and injecting rabies vaccine booster dose if necessary.

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- Sukraraj tropical hospital, Teku, Kathmandu
- The university of Liverpool, UK
- Organizer of Euro vaccine 2015

Thank you



Rhododendron