

Title: PREVENTION AND CONTROL PRACTICES OF HUMAN RABIES
IN SHIMLA CITY DUE TO DOG BITES: A QUALITATIVE STUDY

Author: Mazia S R1, Thakur A2, Kumar A3

1. Professor and Head.
2. Associate Professor.
3. Junior Resident
Department of Community Medicine, IGMCH Shimla, H.P.

Keywords Human rabies, dog bite. Animal birth control and Anti rabies Vaccine

Abstract India has approximately 30 million dogs out of which stray dog population is more than 80%. Stray dogs are responsible for 96% of human rabies in India. 15349 cases of dog bite were recorded in Shimla, in 2014. Stray dog menace is a major issue in Shimla which is the capital and only Municipal Corporation in Himachal Pradesh.

Original Article

PREVENTION AND CONTROL PRACTICES OF HUMAN RABIES IN SHIMLA CITY DUE TO DOG BITES: A QUALITATIVE STUDY

Mazta S R¹, Thakur A², Kumar A³

ABSTRACT

Introduction: India has approximately 30 million dogs out of which stray dog population is more than 80%. Stray dogs are responsible for 96% of Human rabies in India. 15349 cases of dog bite were recorded in Shimla, in 2014. Stray dog menace is a major issue in Shimla which is the capital and only Municipal Corporation in Himachal Pradesh.

Objectives of The Study

1. To study the practices for prevention and control of human rabies due to dog bites by a) Department of Health, b) Department of Veterinary, c) Department of Forest, under the Municipal Corporation Area in Shimla.
2. To identify the strengths and difficulties of the practices for prevention and control of human rabies due to dog bites.

Methodology: A qualitative study conducted in Municipal Corporation Area of Shimla city with effect from 1st January 2014 to 30th June 2014. Data collected from Health, Veterinary and Forest Department. Thematic analysis of data is done for interpretation of results.

Results: Human cases of dog bite occur very frequently in Shimla City. Correct and complete treatment of dog bite is not within the reach of primary health care. The availability of RIG and free vaccine is irregular, and the cost of treatment becomes high in Secondary and Tertiary Health Centre. Projects and strategies to control stray dogs are supported half heartedly. Health education and legislation is not in action to reduce indiscriminate disposal of waste food from clubs, hotels, hostels, hospitals and restaurants.

Conclusion: Treatment of dog bite is a matter of primary health care. Rabies vaccines and immune globulins should be procured through RKS and regular sensitization of Doctors. Waste disposal system to be implemented robustly. Beside Vaccination and Sterilization, Annual census and Adoption policy for stray dogs is required.

Key Words: Human rabies, Dog bite, Animal Birth Control and Anti Rabies Vaccine.

Introduction

India has approximately 30 million dogs out of which stray dog population is more than 80%.¹ Rabies is dreadful zoonotic disease and stray dogs are spreading near to 96% of Human rabies in developing countries.² It is transmitted to human and other animals through the saliva of rabid animal (bites, scratches, licks on the broken skin and mucous membrane). Rabies is 100% fatal but also 100% preventable if timely post exposure prophylaxis is given to the dog bitten cases. India has the highest incidence of rabies in the world because channels of rabies transmission are open.³

Unvaccinated stray dogs are in every town and village. These stray dogs fight for food and their habitat. These life struggle exercises lead to biting wounds frequently on their bodies. The rabid dogs also maintain circulation of rabies virus among them. Incidentally Human beings do suffer from dog bites and risk of rabies. In Himachal Pradesh 15349 dog bite cases were recorded in 2014.⁴ Shimla is the capital and only Municipal Corporation in Himachal Pradesh. Shimla is famous for its history and tourism but stray dog menace is a major issue. Around 4 to 5 cases of dog bites are reported on daily basis⁵. Recently in

¹Professor and Head, Department of Community Medicine, ICMC Shimla, H.P.

²Associate Professor, Department of Community Medicine, ICMC Shimla, H.P.

³Junior Resident, Department of Community Medicine, ICMC Shimla, H.P.

March 2015, 69 cases of human dog bite registered in six days as reported by Times of India.⁶

To treat human cases with vaccine is a costly affair and not a sustainable measure. Developed countries have reduced the rabies case to zero by eliminating the stray dogs.⁷ Such models have been initiated in most of the Indian cities (Municipal Corporation) including Shimla Municipal Corporation. This study intends to measure such effort in Shimla city.

With the above background, this study was undertaken with the following objective:

Objectives Of The Study

- To study the practices for prevention and control of human rabies due to dog bites by a) Department of Health b) Department of Veterinary c) Department of Forest under the Municipal Corporation of Shimla city.
- To identify the strengths and difficulties of the practices for prevention and control of human rabies due to dog bites.

Materials and Methods

Type of Study: Community based qualitative study.

Place of Study: The present study was undertaken to study the dog bites, to observe the practices of preventions and control of human rabies in Shimla city of Himachal Pradesh, India. The Municipal Corporation area of Shimla was selected for this study.

Duration of Study: Six months, 01.01. 2014 to 30.06. 2014.

Study Sample: The researchers selected the sample from the concerned departments as:

- In the Municipal Corporation there are 20 Primary Health Centres, 1 Secondary (Distt. Hospital) and 1 Tertiary health care centre (Indira Gandhi Medical College and Hospital). Selecting the secondary and tertiary institutions in all, the researchers selected 2 Primary Health Centers randomly.

(b) State Veterinary hospital and M. C. Veterinary hospital.

© Official of wild life department.

(d) Corporation Health Officer from Municipal Corporation.

Methodology:

The present qualitative study is based on the descriptive research method. The researchers collected and provided the type of information of what exists with respect of variables or conditions in a selected area. The researchers preferred and used the method, keeping in view the objectives and nature of the study.

Study subjects were stakeholders from Health, Veterinary and Forest departments under Municipal Corporation Shimla. Permission and consent was taken from the related stakeholders to visit the institutions for the study. Perfect rapport was built up with all the persons included in the sample for conducting the in depth interview.

Data Collection Methods: In depth interview and observation.

Analysis: The thematic analysis of data is done to identify the common issues that recur, and identify the main practices that summarize all the

Table 1:
Institution-wise Summary Of Observation
Made And Interview Taken In The
Department Of Health

Sr. No.	Type of Data	Type of Institution		
		Primary	Secondary	Tertiary
OBSERVATION MADE				
1	OPD Slips	2	8	4
2	Record Registers	1	1	1
INTERVIEW TAKEN				
3	Patients	2	8	4
4	Doctors	2 M.O. In Charge	2 General OPD M.O.	2 Casualty M.O.

taken interviews and observations made in the study.

Results And Discussion:

Department Of Health

Table 1 shows the institution-wise detail of observation made and interview taken in the

department of Health. From the document it is found that human dog bite patients attend primary health care centre to tertiary health care centre. Dog bite patients come frequently to each level of health care centre as evident from the analyzed registration records from 1st Jan 2014 to 30th June 2014. In primary and Tertiary health centre Record register was found incomplete in respect to identification, Type of bite and Treatment.

In secondary health care centre there is Anti rabies clinic. Separate animal bite register in rabies clinic is maintained showing the Complete Identification treatment and, follow up. Rabies clinic record revealed that cases of dog bite were not only from the city but also coming from different parts of district Shimla.

General prescription pattern containing the notional name Dog bite without the description of site and extent of bite. Treatment was limited to ARV and T. Toxoid. Treatment for pain and other associated infections of dog bite patients was also not present in most of slips. A few dog bite cases (licks and minor scratches) are managed at PHCs provided patients are ready to pay for vaccines. Cases with severe bite that need immunoglobulin

purchase the vaccine and Immunoglobulin from his own pocket at any level of health institution. It is observed that there is no IEC material presents in health institutions to inform the people about this fatal disease.

According to Medical Officers Dog bite cases are treated at all the health centers. One Medical officer said "Training and workshops are not organized routinely on rabies as for other diseases" (Causality Medical Officer).

"ARV is not available in the PHCs. For immunoglobulin patients are referred to Secondary health centers. Those patients who cannot purchase the ARV are also referred to Secondary health centre." (MO PHC).

Department of Veterinary

Table II deals with institution-wise detail of observation made and interview taken in the department of veterinary. The documents from the register of Dog house shows that stray dogs are sterilized and vaccinated on three days a week. Animal Birth Control/ Anti Rabies Vaccination of Stray Dogs in Shimla and the surrounding villages Project was started on 17/10 /2006 with the objective to make Shimla Rabies free. ⁴ Record register shows it was stopped in 2011 then it again started in 2013.

A school boy was brutally bitten by dog in Shimla city. He received a compensation of Rs one lakh from Municipal Corporation on the direction of Hon'ble High Court Shimla for his treatment. High Court ordered MC Shimla to make city stray dog free.⁵

Stray dogs are Sterilized and vaccinated in Dog house situated in Shimla city. A mark of notch is made on the Right ear after vaccinating and sterilizing the dog. Pet dogs are sterilized and vaccinated in the state veterinary hospital. IEC material for prevention and control of rabies was not seen in any of the veterinary institution.

Dogs are sterilized and vaccinated thrice a week. There is lack of manpower and Finances to reach the target. Stray dogs from peripheral villages enter

Table II:
Institution-wise Summary Of Observation
Made And Interview Taken In The
Department Of Veterinary

Sr. No.	Type of Data	Type of Institution	
		State	Veterinary
OBSERVATION MADE			
1.	Olds	1	1
2.	Sterilized and vaccinated dogs	4 Pet Dogs	11 Stray Dogs
3.	Disasters	1	2
INTERVIEW TAKEN			
4.	Veterinary Officer	1 (Senior Veterinary Officer) 1 Pathologist	2 (Veterinary Public Health Officers)

are referred. Some patients from the referred cases leave the idea of vaccination and take traditional treatment. Expenditure of treatment for rabies prophylaxis is borne by Ragi Kalyan Smiti in the secondary and tertiary hospitals during day time. Patients in emergency and odd hours have to

Table III:
Summary Of Observation Made And
Interview Taken In The Department
Of Forest

OBSERVATION MADE	
Urban Forest Area Department	Near ISBT, Shimla 1
INTERVIEW TAKEN	
Official of Wildlife	1

in the city easily.

"Census of stray dogs was last done in 2006. Also ABC-AR project was stopped in 2011 due to financial crisis" as told by veterinary Officer during interview.

Department of Forest

As per government of Himachal notification forest department compensates the loss of crop and human from wild animals. Compensation is given in the city for monkey and dog bite after a medical certification on the basis of severity of bite¹⁹.

"Today there is less space between wild animals like monkeys and where people live. Monkeys and dogs find it easier to eat garbage around home towns and cities, than to stay in a shrinking or

Table IV :
Summary Of Observation Made And
Interview Taken In The Main Block
Municipal Corporation

OBSERVATION MADE	
Municipal Area Department	Stray dog Habitat and Kitchen Waste 3
INTERVIEW TAKEN	
Corporation Medical Officer	1

crowded forest. Therefore, there are a growing number of monkeys and dogs coming into human localities. Some places like temples and tourism sites encourage the feeding of especially monkeys for sake of pilgrims obtaining blessing and for entertaining tourists" it was told by the Official of Wild Life (HP).

Main Block Of Municipal Corporation

Table IV is concerned with the detail of observation made and interview taken in the main

block of the municipal corporation. To reduce stray dogs and monkey menace in Shimla city MC notification waste management bye laws 2006 were enforced⁶ Shimla Environment, Heritage Conservation and Beautification (SEHB) Society was registered in 2009 under the Societies Registration Act 2006. This society is responsible for the door to door collection from households under the supervision of Commissioner and Health Officer. There is primary collection, transportation and finally the main collection centre is established in city. Groups of stray dogs have developed their habitat around the Hotels, Restaurants, clubs, hostels and hospitals. Dustbins are placed in the city. These dustbins are either broken or doors of the dustbins are always seen open. Dogs enter inside the dustbin around eat there. Stray dogs, pet dogs and wild animals are observed by the researchers fighting for food. Even most of the households feed stray dogs with their waste food.

"All the suspected four dead animals from Shimla city which were sent diagnosis were positive for rabies in CRI Kasaul" it was said by Corporation Medical Officer. There was no monitoring and check on people who throw waste and feed the dogs.

Identified Strengths And Difficulties Of The Practices For Prevention And Control Of Human Rabies Due To Dog Bites

The researchers identified the strengths and difficulties of the practices for prevention and control of human rabies due to dog bites during the observations made and interview taken. These are given as follows.

Strengths

- Institutions right from primary, secondary, and tertiary care attend human cases of dog bites as medical emergencies.
- Dog birth control and rabies vaccination: Stray dog birth control society was registered in January 2005 in Shimla Municipal Corporation. This society started work in

November 2006 with a trained team. Dog sterilization activities are ongoing procedure now. Dogs are spayed, castrated and vasectomy done as the case require. The state Veterinary Hospital is giving service to pets with minimal user charges from the pet owners. Success of ABC-AR programme can be seen in Madras, Jaipur and Kalimpong in which rabies cases have reduced to Zero and stray dogs are reducing.¹⁷

- Municipal Corporation has started house to house collection of solid waste since 2009, with an intention to reduce open eating points for stray dogs and monkeys. To develop streets free from these animals and minimize the cases from dog and monkey attacks in the town.
- State government extends monetary compensation in case of injury or loss of human life, crops and live stock due to wild animals through department of forest. In case of simple injury to human being such as monkey bites as per actual cost of medical treatment. There is a monkey sterilization program to reduce the monkey menace in Shimla city.

Difficulties

- **Human cases of dog bite:** Dog bite treatment is limited to wound care and vaccination at primary health care institutions in the city. Patients pay for vaccine and other drugs for their pockets. All blood oozing dog bites cases are referred. This referral is done because rabies immune globulins are not available locally, even if it is procured, primary health care staff including the doctors do not take risk to administer the equine rabies immune globulins. Reaction and its management is the fear responsible for this unnecessary referral. Most dog bites are minor injuries. All minor injuries are a matter of primary health care. It is possible to restore their skill and confidence with one day training or supportive supervision and on spot mentoring to handle the dog bite cases. There is a lack of awareness amongst medical

doctors and health professionals about the importance of wound-washing, appropriate use of anti-rabies vaccines and the utility of RIG in saving the lives of rabid dog bite victims. Passive immunization is insufficiently practiced even in cases of third-degree bites. Continuous education of medical and health professionals on PEP is necessary to provide quality medical services to dog bite victims.

- **Available vaccine schedule and their application :** Recently, economical and equally effective intra-dermal schedule of cell culture vaccine multi site regimen has been introduced at a secondary level health care zonal hospital, Shimla with state-wide advocacy. Vaccine and equine immune globulins are given free to all dog bite cases. Ragi Kalyan Samiti of zonal hospital bear the cost. Many dog bite cases from distant places of Shimla district come for this free treatment. But in real term this treatment turns very costly to patients. Patient with one attendant travelled and stayed at Shimla. Amount of travel, out station stay, and loss of man days is very high compared to the cost of vaccine.
- Most doctors at primary health care setting prescribe single site, intra muscular schedule of five dose regimens. Non availability of immune globulins in remote and rural area compels to refer dog bite cases that can easily be treated at primary health centers. Abbreviated multi site intra muscular schedule of three doses has been reported to produce early anti body response. This schedule may be particularly effective when post exposure treatment does not include administration of immune globulins. Medical officers are not prescribing this regimen even in dire need. Treatment of dog bite cases is continuing with tradition and trends. It is not practiced with rational knowledge and need of the patients.
- **Information and Education for rabies prevention:** In primary health care institutions

cases of dog bite appear sporadically. Medical officers do not remember post exposure management of dog bite precisely. A catalogue of post exposure treatment must be at every primary health centers as a ready reference. These catalogues may bring a great degree of precision in prescription but prescribing doctor of public sector does not explain the prescription to the satisfaction of the patient. A correct and complete rabies education printed pamphlet in local language should be handed to a case of dog bite at the first visit to adhere with complete schedule of vaccination¹⁷.

- **Control of stray dog and dog vaccination:** It is feared that current dog birth control and anti rabies vaccination project of Shimla city may not achieve its objectives of stray dog elimination. Annual stray dog number was not available along with vaccination and sterilization number. Vaccination is given with sterilization. Whereas stray dog counting and vaccination has been recommended to carry in annual campaign mode to reduce rabies (WHO, TRS-982). Municipal Corporation Veterinary Officers commented that though there is a reduction in the reproduction rate among city dogs. Stray dog entry is not monitored and restricted for Shimla city. Unwanted and excess of dogs enter in the city from surrounding areas. Stray dogs develop habitats in the city where solid waste collection, transportation and disposal are compromised.
- **Waste Management to decrease the number of stray dogs:** Municipal Corporation has started house to house collection of solid waste, yet people have not changed. Home waste still go outside the collection chain. People are religiously in the habit to feed stray animals in the open. The stray dogs have not vacated or reduced territories around clubs, hotels, hostels, street food joints and restaurants. That raises points on clubs, hotel, and restaurants people for not following correct chains of solid

waste transportation. Improper waste management has caused a 1:13 stray dog to human ratio in Srinagar, where 54,000 people were bitten by stray dogs in a span of 3.5 years. This compares to ratios of 1:31 in Mumbai and 1:100 in Chennai. The public has been protesting about this stray dog menace for months now but there are no waste management solutions in sight, only partial and short-term measures have been taken.¹⁷

- **Laboratory confirmation of rabies suspected animal deaths:** Suspected rabies death of stray or pet dog or live stock is not routinely sent for confirming the diagnosis in a laboratory. It is difficult to collect, preserve and transport the specimen to Central Research Institute Kasauli. But whatever samples were sent to them, all reports were confirmed positive for rabies from the institute. It indicates alarming situation of rabies among the stray dogs.

Conclusion:

Treatment of dog bite is a matter of primary health care. Rabies vaccines and immune globulins should be procured through RKS and regular sensitization of Doctors. Waste disposal system to be implemented robustly. Beside Vaccination and Sterilization, Annual census and Adoption policy for stray dogs is required. The researchers have given the following recommendations from the study.

Recommendations:

1. A robust solid waste management system is the main requirement to reduce stray dogs.
2. All physicians at primary health care institutions in Shimla city need orientation to do correct and complete treatment of a case of dog bite. It will reduce unnecessary referral and develop confidence to procure and inject immune globulins at primary health care settings.
3. Information, education and communication to save oneself from dog bite, reduce stray dogs,

eliminate stray dogs habitat and manage solid waste disposal in the city. Along with health education enforcement and strict legal action is needed to maintain the chain of solid waste management in the city.

4. Pet owner education on dog health maintenance and prevention the contamination with Wild Animals and stray dogs must be encouraged.

References :

1. Krishna, C. S. Success of ABC/AR Programme in India [Internet]. Dec 2010. Accessed on 27/05/2015. Available from: <http://www.strays.in/wp-content/uploads/2011/07/The-Success-of-the-ABC-AR-Programme-in-India-Dr-Chitry-Prakash.pdf>
2. Park, K. Epidemiology of communicable disease. Text book of Preventive and Social Medicine. Jabalpur:Banarsidas Bhansani,2014 p250-254.
3. Park K. Epidemiology of communicable disease. Text book of Preventive and Social Medicine. Jabalpur:Banarsidas Bhansani,2014 p250-254.
4. Integrated Disease Surveillance Programme,Nation Health Mission Haryana Pradesh. Accessed on 22/05/2015.Available from: <http://www.rtrindia.gov.in/content/integrated-diseases-surveillance-programme>
5. Doshi N. Stray dog rein terror in Shimla. The Times of India. Oct 25, 2014.
6. Tell me about it 06,The Times of India. March 26, 2015.
7. Prevalence of Rabies [Internet]. Cited on 1/9/2014. Available from http://www.en.wikipedia.org/wiki/Prevalence_of_rabies
8. Dick J. B. Qualitative Research,Principals and Practice of Medical Research. Jabalpur: Banarsidas Bhansani; 2015 pp. 80-92.
9. Animal welfare programme [Internet]. Accessed on 23/03/2014. Available from: http://www.shimlani.gov.in/files/odf/2011%2F9%2FABC_-_COVER_-_Prog.pdf
9. H W Shimla Bazaar. Make Shimla Stray dog free in 3 months-Haryana High court. Haryana Watcher. March 23, 2013.
10. Waste Management plan for Municipal Corporation Shimla [Internet]. 2012. Accessed on 25/03/2015. Available from: <http://www.shimlani.gov.in/files/odf/2012%2F9%2F985WMP-Final.pdf>
11. Government of Haryana Pradesh, Department of Forest [Internet]. March 2014. Accessed on 26/03/2015. Available from <http://pforest.nic.in/files/NOTIFICATION%2F92Forest%20%2F%2F06Feb14.pdf>
12. Krishna, C. S. Success of ABC/AR Programme in India [Internet]. Dec 2010. Accessed on 27/05/2015. Available from: <http://www.strays.in/wp-content/uploads/2011/07/The-Success-of-the-ABC-AR-Programme-in-India-Dr-Chitry-Prakash.pdf>
13. Arneja R. Demanding proper treatment- waste process in India [Internet]. Dec 20, 2014. Accessed on 28/03/2014. Available from: <http://www.isomni.co.uk/?p=3540>

ANNOUNCEMENT

The APCRI Newsletter is published every six monthly, in October and in April. APCRI members and the members of the Scientific Community are requested to contribute News Clippings, Photographs and Reports on Scientific activity on Rabies and Related matter for publication in the Newsletter.

Please Contact: Dr. Amlan Goswami, Editor, APCRI
28-A, Gariahat Road, 2nd Floor, Flat No: 2-A,
Kolkata- 700029, INDIA.
Phone: 91- 33-24405826, Mobile : 91- 9830212694.
E-Mail: amlan_kolkata29@rediffmail.com