

THEME: JOINING HANDS FOR A RABIES FREE INDIA BY 2020



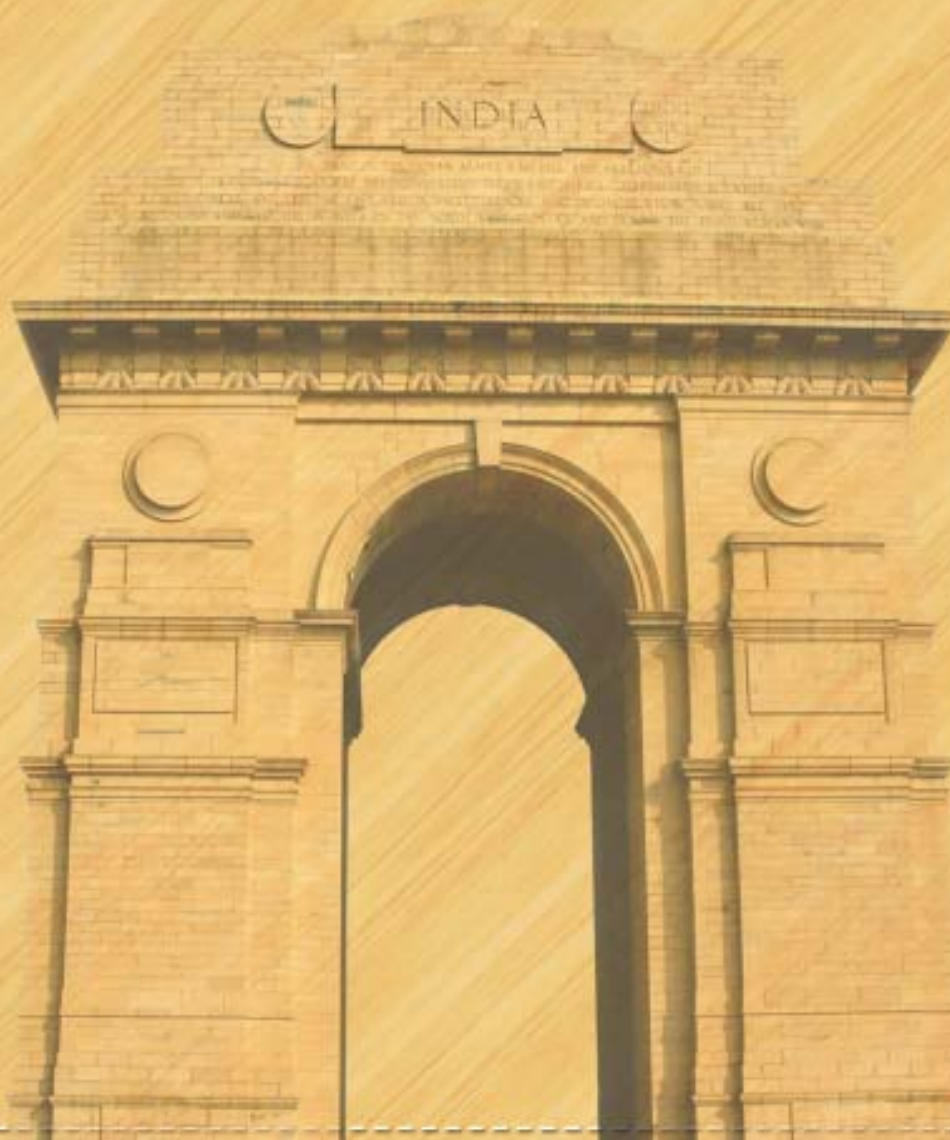
12th National Conference of
Association for Prevention
and Control of Rabies in India



Apricon 2010

N E W D E L H I

Venue : Silver Oak Hall, India Habitat Centre,
New Delhi on 3rd & 4th July 2010



SOUVENIR 2010

Apcricon 2010 N E W D E L H I

12th National Conference of
Association for Prevention and Control of Rabies in India

Theme :

“Joining hands for a Rabies free India by 2020”.

Venue & Date

India Habitat Centre, New Delhi
on 3rd and 4th July, 2010.





गुलाम नबी आज़ाद
GHULAM NABI AZAD



स्वास्थ्य एवं परिवार कल्याण मंत्री
भारत सरकार
निर्माण भवन, नई दिल्ली-110108
Minister of Health & Family Welfare
Government of India
Nirman Bhavan, New Delhi-110108

MESSAGE



I am very happy to learn that the Association for Prevention and Control of Rabies in India (APCRI) is organizing 12th National Conference in July 2010 at New Delhi with the theme of the conference "Joining hands for a Rabies free India by 2020".

Rabies has become endemic in India affecting approximately 20,000 people every year. The majority of people who die of rabies due to non-vaccination, belong to low-income group in rural areas.

Government is making all out efforts in ensuring the availability of anti-rabies injections in all Government hospitals. At the same time, efforts are being made to control the population of stray dogs through mass vaccination.

I am delighted to know that APCRI through the medium of such conferences is also taking initiatives to create mass awareness amongst medical fraternity as well as public, towards this ever increasing menace. I hope, this conference will be a further step forward in the direction of having "Rabies free India".

My best wishes to the organizers and to the Association for the Conference and for all their future endeavours.


(GHULAM NABI AZAD)



செ. காந்திசெல்வன்
S. GANDHISELVAN
एस० गांधीसेल्वन



MINISTER OF STATE
FOR HEALTH AND FAMILY WELFARE
GOVERNMENT OF INDIA
NIRMAN BHAVAN, NEW DELHI - 110108

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स्वास्थ्य एवं परिवार कल्याण
भारत सरकार
निर्माण भवन, नई दिल्ली-110108

MESSAGE



I am happy to know that the 12th National Conference of the Association for Prevention and Control of Rabies in India (APCRI) is being held on 3rd and 4th July 2010 at Delhi.

The theme of the Conference, "Joining hands for a Rabies free India 2020" is very apt as co-ordination among all the concerned sectors is important to control this dreaded disease in our country.

I wish the Conference all success and hope that the deliberations will strengthen the Government's efforts to control Rabies in India.

With regards,

(S.Gandhiseivan)

प्रो० किरण वालिया
Prof. Kiran Walia



स्वास्थ्य एवं परिवार कल्याण
महिला एवं बाल विकास और भाषा मंत्री
राष्ट्रीय राजधानी क्षेत्र दिल्ली सरकार
MINISTER OF HEALTH & FAMILY WELFARE
WOMEN & CHILD DEVELOPMENT
AND LANGUAGES
GOVT. OF NCT OF DELHI

D.O.No. MOHLWCD
Date Despatch No. 2967
Date.....11/6/10

MESSAGE



I am happy to know that APCRI is organizing 12th National Conference of Association for Prevention & Control of Rabies in India 'Apricon2010' on 3rd and 4th July, 2010 at Silver Oak Hall, Habitat World, India Habitat Centre, Lodhi Road, New Delhi on the theme of "Joining Hands for a Rabies Free India by 2020".

I am told that nearly 200 delegates from all over the country and abroad are expected to attend the conference and eminent scientists in the field of Medicine, Public Health, Veterinary Medicine and Vaccinology will be delivering guest lectures during the conference.

I wish all success to APCRI for this venture.

Kiran Walia
(Prof. Kiran Walia)



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GOVERNMENT OF INDIA
MINISTRY OF HEALTH & FAMILY WELFARE
NIRMAN BHAVAN, NEW DELHI - 110011

MESSAGE



It gives me immense pleasure to know that the 12 National Conference of the Association for Prevention and Control of Rabies in India, is being held at Delhi on 3rd and 4th July 2010. The importance of preventing this disease lies in the fact that it is 100% fatal once a patient gets Hydrophobia. Most of the victims of Rabies are from the rural areas. Timely and proper post exposure prophylaxis is useful in preventing Rabies in a person exposed to an animal bite.

I would like to use this opportunity to remind all of you regarding the importance of inter sectoral coordination in controlling this disease in our country. I am happy to know that APCRI has been supporting the initiatives of the Government in controlling this disease. I hope this Conference will be an ideal platform to launch a coordinated effort by all the major stakeholders. Let us work together to make our dream of 'Rabies free India' by 2020 a reality.


(K. SUJATHA RAO)



National Rural Health Mission



Dr. R.K. SRIVASTAVA
M.S. (Ortho) D.N.B. (PMR)
DIRECTOR GENERAL

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25th June 2010
Date.....

MESSAGE



I am happy to know that the 12th National Conference of Association for Prevention & Control of Rabies in India (APCRI) is being organized at New Delhi on 3rd & 4th July, 2010.

Rabies, known to mankind from time immemorial, is now a major public health problem in our country. In spite of the availability of vaccines and immunoglobulin in our country, nearly 20,000 patients are succumbing to rabies every year. Factors responsible for this include not taking any treatment at all, or delay in seeking treatment, or indigenous remedies instead of modern effective Post-Exposure Prophylaxis (PEP) and treatment.

Public awareness has to be increased so that patients take timely post-exposure prophylactic measures. Another important aspect which needs urgent attention is control of canine rabies as most of the patients seeking PEP and most of the human rabies deaths are following dog bites. Controlling the disease in the main reservoir of infection i.e. dogs is, therefore, essential to prevent human rabies.

I hope the deliberations during the Conference will help in evolving strategies to effectively control animal and human rabies in our country.

I wish the Conference all success.

(Dr. R K Srivastava)



J. P. Singh
I.A.S.
प्रधान सचिव
Principal Secretary

स्वास्थ्य एवं परिवार कल्याण विभाग
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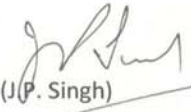
दिनांक/
Date



MESSAGE

I am delighted to know that the 12th National conference of the Association for Prevention and Control of Rabies in India is being held at Delhi on 3rd & 4th July, 2010. This is an important conference for all who are working in the field of Rabies control. The Government of Delhi is committed towards control of this deadly disease in the State and the co-operation of all concerned is important in this regard.

Rabies Vaccine and Immunoglobulins have been made available in all the major hospitals in Delhi. However, we still have a long way to go to achieve our goal of a "**Rabies free India by 2020**". APCRI has always supported the Government in this venture and I take this opportunity to congratulate the organizers of this workshop, and welcome all the delegates of the Conference to Delhi and wish the Conference all success in its deliberations.


(J.P. Singh)



Dr.M.K.Sudarshan, MD [BHU], FAMS, Hon.FFPH[UK]
Dean/Principal and Professor of Community Medicine
President, Rabies in Asia Foundation
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E Mail : mksudarshan@gmail.com

RABIES IN ANIMALS: THE BLIND SPOT OF RABIES IN INDIA



Human rabies in India is now better understood following the APCRI / WHO survey of rabies in 2003. However, efforts to obtain information about rabies in animals has often encountered difficulties due to paucity of funds, poor documentation, low priority of the disease in the animal husbandry, etc. But any efforts to prevent rabies in man needs a simultaneous approach to control of rabies in animals, particularly in dog population. As dogs account for over 97 % of rabies in humans in

India, management of dog population and control of rabies in dogs assumes public health importance. The much acclaimed Animal Birth Control [ABC] programme for management of stray dog population in urban areas is now being claimed by many animal welfare organizations as successful in reducing human rabies burden! This is illogical and misconstrued and APCRI as a professional body must undertake studies to verify this claim. Lastly, APCRI must bring in more veterinarians into its fold and ensure a proper balance and focus in its endeavors for prevention and control of rabies in both humans and animals.

1st July, 2010

M.K. Sudarshan
Dr.M.K.Sudarshan



Dr B J Mahendra
International Coordinator,
Rabies In Asia Foundation

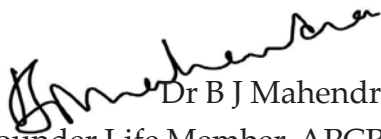
MESSAGE



I am very happy to note that APCRI is hosting its 12th annual conference at Delhi. I am sure that the organizing committee will leave no stone unturned to ensure the success of the conference. The conference assumes significance as it comes at a time when there seems to be a flood of newer vaccines entering the Indian market, the theme "Joining hands for a rabies free India by 2020" seems appropriate in this context.

I take this opportunity to wish the organizers all the very best and the participants the best of deliberations. I hope that this conference will provide concrete and feasible direction to rabies prevention activities in the country.

Regards,


Dr B J Mahendra
Founder Life Member, APCRI
Past President, APCRI

प्रो. देवकी नन्दन

डाक्टर होनोरिस कौसा-ओडेसा स्टेट मेडिकल युनिवर्सिटी
एम.डी., एफ.ए.एम.एस., एफ.आई.ए.पी.एस.एम., एफ.आई.पी.एच.ए., एफ.आई.एस.सी.डी.

Prof. Deoki Nandan

Doctor Honoris Causa-Odessa State Medical University
MD, FAMS, FIAPSM, FIPHA, FISCD

निदेशक/Director



राष्ट्रीय स्वास्थ्य एवं परिवार कल्याण संस्थान
National Institute of Health and Family Welfare



MESSAGE

Rabies with a case fatality rate of 100%, is a major public health problem, especially in India, with more than 20,000 deaths being reported each year. The WHO-APCRI National Survey revealed interesting facts about the disease burden in the country. There is an urgent need for effective combination between prevention and control measures aimed to eliminate rabies from both animals and humans.

The 12th National conference of the Association for Prevention and Control of Rabies in India is being held at Delhi on 3rd & 4th July, 2010. I extend a very warm welcome to all the delegates attending this conference to give your valuable inputs.

I hope that this Conference will provide an opportunity to assess the state of prevention, control, and surveillance techniques for this dreaded disease. The need of the hour is to work together to combat this problem. I take this opportunity to congratulate the organizing committee, who have worked tirelessly to make this a memorable experience for all and hope that this conference will fulfill its objective of promoting partnerships in tackling Rabies.

(Deoki Nandan)

Chairperson

APCRICON 2010

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ALL INDIA INSTITUTE OF MEDICAL SCIENCES

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MESSAGE



I am glad to know that the Association for Prevention and Control of Rabies in India (APCRI) is organizing the 12th National Conference of Association for Prevention and Control of Rabies in India in New Delhi between 3rd and 4th July, 2010.

I am happy to note that the central theme of the Conference would be "Joining Hands for a Rabies free India by 2010". I appreciate your efforts in focusing the attention on such a disease which has become a major health concern.

Rabies is seen more among poor people living in rural areas due to bites by rabid dogs. In normal circumstances medical resources are unreachable at such levels. This is a major public health issue especially affecting the rural community.

The situation should be discussed at national level, regional and international health forums in order to get adequate attention to the poor victims affected by this neglected disease. I am sure the Conference will attract attention of the Government, media and other international agencies.

I wish the Conference a grand success.

Prof (Dr). Chandrakant S. Pandav
President, Indian Public Health Association

APCRI PRESIDENT'S MESSAGE



I would like to extend my personal greetings to all of you and welcome you to the 12th National Conference of APCRI, which is being conducted, for the first time, at Delhi, the Capital of India.

Over the past few years, by working together, we have managed to reach several milestones on the path to a "Rabies free India". When APCRI was formed 12 years ago by a group of 17 medical professionals, the replacement of NTV by CCV in India was a distant goal. Yet this monumental achievement has become 'old' news today.

The changes which have occurred over the past 12 years were achieved through the vision and hard work of professionals, many of whom are APCRI members, with the help of Government agencies.

The Multi-Centric National Survey on Rabies conducted by APCRI in co-operation with WHO has given many experts and professionals a more realistic understanding of the situation in India. The Survey report has served as an invaluable tool for everybody working in the field of Rabies.

Implementation of IDRV has become a reality in many states in the country and has enabled more animal bite victims to take the full course of vaccine at no extra cost to the exchequer. The visit of Dr.F.X.Meslin to Kerala to study the implementation of IDRV has given encouragement to all of us who are working in the field of rabies prevention.

Looking towards the future there are many issues to be addressed, some of which are:

Increasing the usage of Rabies Immunoglobulins, Monitoring the administration of IDRV especially at suburban and rural centers, Increasing the awareness among medical professionals about providing correct PEP to the patients, Increasing the awareness among the general public and patients about seeking proper treatment on time, Exchange of views and data among professionals working in various centers offering PEP and Improving the facilities available for treatment of patients admitted in Rabies wards of ID Hospitals.

A big obstacle in our path towards a "Rabies free India" is lack of effective control of dog population. The ABC program is not having a significant impact in many cities and towns. Newer strategies are needed to reduce the stray dog population and thereby reduce the number of exposures. Our colleagues from the Veterinary sector have to play an important role in this regard.

Friends, all of us should come together and solve the problems being encountered in achieving the goal of a "Rabies Free India". I hope the Conference will serve as a platform for more effective co-ordination among all the stakeholders in preventing animal and human Rabies in our country.

A handwritten signature in black ink, appearing to read 'G. Sampath'.

Dr.G.Sampath,
President, APCRI

WELCOMEand thanks!



It is indeed a great honor to welcome you all to 12th Annual National Conference of APCRI, APCRICON 2010. This time, APCRI has tookup the challenge to make its presence felt at the national capital. We are overwhelmed by the warm welcome we have received here from Govt. of NCT of Delhi, Municipal Corporation of Delhi, New Delhi Municipal Council and Directorate of Health Services, Delhi. The dream of a conference in Delhi became real only by the academic inputs from NCDC under the leadership of Dr.R.L.Ichhpujani (Director, NCDC and Advisor, APCRI) and administrative support from NIHFW under the leadership of Dr.Deoki Nandan (Director, NIHFW, founder member, APCRI and chairperson, APCRICON 2010) and Dr. C.S. Pandav (President, IPHA) and Central Council Members of IPHA.

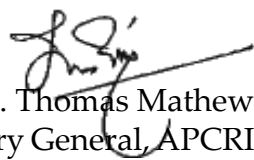
I am deeply indebted to the good offices of Sri.Ghulam Nabi Azad, Honorable Union Minister for Health and Family Welfare, Government of India; Sri.S.Gandhiselvan, Honorable MOS, H&FW, GOI; Dr. Dinesh Trivedi , Honorable MOS, H&FW, GOI; Smt. Sheila Dixit, Chief Minister of Delhi; Prof: Kiran Walia, Minister of H&FW, Government of NCT of Delhi; Smt.K.Sujatha Rao, Secretary, H&FW, GOI.; Dr.R.K.Srivastava, DGHS, GOI and Sri.J.P.Singh, Secretary, Health and Family Welfare, Government of NCT of Delhi and Dr. Sampath K. Krishnan, WHO Country office for India.

I express my sincere gratitude to all members of our organizing committee especially Dr.M.K.Sudarshan, Dr.N.K.Yadav, Dr.Madhu Jain, Dr.Sumit Poddar, Dr.P.K. Sharma and Dr. Sanjay Gupta and his team from NIHFW.

I considered myself blessed to have Dr. G Sampath as my co-office bearer of APCRI. He has shouldered me in the thick and thin of arranging this conference at the national capital.

I also express my heartfelt thanks to all the corporates who have supported us and all those who have consented to present papers and chair the sessions in this conference.

Last but not the least; I am grateful to the people who have worked to make this Souvenir a reality including Dr.Sairu Philip, Dr.Mohammed Asheel, Mr. Praveen lal and Mr. Abhilash.


Prof (Dr). Thomas Mathew
Secretary General, APCRI
& Organizing Secretary,
APCRICON 2010

THEME ARTICLE

JOINING HANDS FOR CONTROL OF RABIES IN INDIA



Dr. R L Ichhpujani*
Director NCDC

**WHO Collaborating Centre for Rabies Epidemiology,
National Centre for Disease Control,
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Dr. Veena Mittal*
Consultant (Microbiology) & Head Zoonosis Division

Dr. Mala Chhabra*
Joint Director NCDC

Introduction: Rabies is the disease where a person sees his own death. The certainty of death and the uncertainty of the hour of death are most grievous. Ironically, the person is tormented with thirst and fear of water at the same time. Rabies is not a new disease, it is neither emerging nor re-emerging, it is as old as our civilization. In this era of skyscrapers, computers and nuclear power plants, it still continues to kill estimated 55000 people globally. Rabies geographically encompasses all continents except Antarctica. Over 95% of the total human deaths due to rabies are contributed by Asia and Africa. (1,2)

Indian scenario: 2.1 Epidemiology: In India, cases of rabies occur throughout the year and in all parts of the country with the exception of water locked islands of Lakshadweep and Andaman and Nicobar. Both sylvatic and urban rabies have been present in this country since ancient times. Urban canine rabies is responsible for significant mortality, morbidity and economic harm due to loss of precious life stock. It is estimated that about 20,000 people die of rabies in India every year. This figure may not be exact, as there is no organised system of surveillance of rabies cases and hence lack of reliable data. There is no reliable data on animal bites in the country; however, estimates suggest that 17.5 million animal bites occur annually (3). Dogs inflict more than 95% of bites. Monkeys, cats, cattle, mongoose, are some of the other animals which bite human beings forcing them to undergo post exposure treatment. Based on vaccine utilization 3.0 million elect to receive Post Exposure Prophylaxis. The sheep brain vaccine was being produced in country in 9 centres. Although reactogenic, this vaccine carried a risk of post vaccine neuroparalytic accidents at the rate of 1:4000 to 1:11000. Hence, based on WHO recommendation, the production and use of NTV was stopped in the country in December, 2004. Currently Cell Culture Vaccines are being used for Post Exposure Prophylaxis (PEP). These are being produced/imported in the country, however are expensive. (4)

2.2 Intra-dermal Inoculation of CCVs: Recently, economical, safe and effective, intradermal (ID) route of inoculation (5,6) of anti-rabies vaccines has been approved by regulatory authorities. This makes PEP cost effective and enables to provide wider coverage in available quantity of vaccine. To aid implementation of ID and bring out uniformity in animal bite management National Centre for Disease Control, in collaboration with WHO, published and widely disseminated the national guidelines on Rabies Prophylaxis and Intradermal Inoculation of Cell Culture Vaccines. Thirteen States have implemented ID route of inoculation in major anti-rabies centres in the country. (4)

Control of Rabies: Tools for prevention and control of rabies have expanded substantially in recent years. The goal of rabies control focuses on prevention of human deaths due to rabies, control of dog rabies and maintaining rabies free areas free.

Attempts were made to formulate National Rabies Control Programme (NRCP) during X Five year Plan. However, due to lack of consensus on strategy in reservoir animals NRCP was not approved. But, in 11th Five Year Plan a pilot project on prevention and control of human rabies has been approved as a 'New Initiative' in January 2008.

3.1 Experiences on Pilot Project on Prevention & Control of Human Rabies

The project was initially approved for a period of 2 years (2008-10) with the total allocation of Rs 3.26 crores. However, it has been extended for further one year (2010-11) to gain implementation experience in peri-urban & rural areas. The project is being carried out in five cities viz Ahmedabad, Bangalore, Delhi, Pune & Madurai with National Centre for Disease Control (NCDC), Delhi as the nodal agency for project implementation.

The main objective of the project is to prevent human deaths due to rabies.

3.1.1 Pilot Project Strategy

- Improving the management of animal bite cases
 - Training of health professionals
 - Operationalisation ID route in selected centres
 - Ensuring availability of rabies vaccines and Immunoglobulins (RIG)
- Enhancing awareness in general community regarding timely and appropriate Post exposure treatment
- Strengthening diagnostic capabilities
- Establishing interface with animal husbandry department
- Strengthening surveillance

3.1.2 Results, achievements & outcome analysis of the pilot project are outlined in Table 1.

3.1.3 Some of the highlights are as follows:

3.1.3.1 Improving management of animal bite cases

- All animal bite victims are receiving appropriate animal bite management in all the project cities as per the national guidelines.
- Wound washing facility, which did not exist in most, has been strengthened in all the centres.
- Although safety & efficacy of intradermal route was well known and it was approved for use in the country, none of the city was using it. Implementation of ID route with appropriate training during the project has made Post Exposure Prophylaxis (PEP) economical and has enabled wider coverage of PEP in the available quantity of vaccines.
- None of the pilot project city (except Delhi) was procuring rabies immunoglobulins (RIG). The life saving RIG was being used sparingly in the cities. Health professionals were apprehensive to use immunoglobulins because of the fear of anaphylaxis. There has been increased and appropriate use (local Infiltration in the wound) of immunoglobulins in all the pilot project cities following training of health professionals and provision of funds for procurement of RIG in the project budget.
- In Ahmedabad, Bangalore and Pune, new centres have been identified and strengthened as anti rabies centres making PEP within reach of people.

3.1.3.2 Enhancing awareness in general community regarding timely and appropriate PEP

Prior to initiation of the project available data was analyzed which indicated that many people do not seek post exposure treatment after animal bites leading to high mortality. General community related rabies to "Dog-bites" only. None of the pilot project cities was carrying out awareness campaigns to create awareness in general community. The prototype IEC material was developed at NCDC, the pilot project cities translated the same and disseminated it adopting innovative methods to create awareness in general community. For example, in Pune radio jingles are played in between the popular programmes, messages are displayed on the rear side of the public buses. In Ahmedabad, scroller machines, with important messages scrolling on them, are placed in strategic location. Similarly, in Bangalore pamphlets are distributed frequently with the daily newspapers with the addresses of anti-rabies centres. Stickers with simple pictorial messages have been pasted in public transport buses and in public places in Madurai. Hoardings have been put in all the pilot project cities. Post-

ers have been displayed in schools and antirabies treatment centres. After the initiation of the project there is enhancement in awareness regarding animals transmitting rabies and timely and appropriate animal bite management in general community as indicated by increase in attendance at ARCs and reporting of animal bites other than dogs also.

3.1.3.3 Strengthening diagnostic capabilities

One laboratory in each city has been strengthened to undertake ante-mortem and post-mortem diagnosis of rabies. Pilot project cities are in the process of standardizing the tests in respective laboratories. This will help in strengthening laboratory based surveillance.

3.1.3.4 Surveillance

- Liaison has been developed and regular complete data from pilot project cities (except Delhi) is being received.
- Data indicates increase in attendance at ARCs
- There is no shortage of Vaccines.
- Procurement & use of RIG has started.
- Categorization of wound is now available. This will help in calculating the requirement of vaccines and RIG. Data on hydrophobia cases is being evaluated.

Data on biting animal species is now available.

Experience gained from the pilot project indicates that training of doctors on appropriate animal bite management and implementation of ID route, PEP has shown marked improvement. There is enhanced awareness in general community as indicated by increase in attendance at ARCs.

The components in the strategy adopted in the pilot project on prevention and control of human rabies are acceptable, feasible, reproducible and implementable on wider scale.

3.2 Control of rabies in dogs

Dog rabies continues to be major public health problem across much of Asia & Africa, due to the low priority given to control (2). However, encouraging results have been demonstrated by some countries such as Srilanka & Philippines in control of canine rabies (7). The control programmes incorporate three basic elements, with priorities varying according to the prevailing social, cultural and economic factors. The basic elements are:

- Mass vaccination
- Dog population control and
- Epidemiological surveillance

3.2.1 Vaccination of Animals: Srilanka and Philippines adopted mass vaccination of both stray & owned dogs as main control strategy adopting different implementation methods. In Srilanka, vaccination of owned dogs is carried out at pre-arranged temporary vaccination posts while stray dog vaccination is carried out using a special device called "Auto Plunger". Percentage of dog vaccination has reached from 3.2% in 1977 to 49% in 2008. While in Bohol, Philippines, community has been mobilized to work for themselves and are nearly going to attain 70% canine rabies vaccination. Similarly, massive national mass vaccination campaign in Brazil has brought down human rabies cases from 173 in 1980 to one case in 2009 (7).

3.2.2 Dog Population Management: Several challenges exist in implementation of dog population management including assessing the dog population of the locality, assessing the sufficient proportion to be targeted, method of intervention, implementation of the methods on wider scale etc. Dog destruction alone is not effective in rabies control. Elimination of stray dogs had been carried out in Srilanka since 1975 and was abandoned by 2005. It is replaced by surgical & chemical birth control methods of both stray & owned dogs, however the rates are low. (7)

3.2.3 Indian scenario on canine rabies control

There is at present no comprehensive consensus implementable strategy for canine rabies control in the country. Various organizations viz Municipal Corporations/Committees, Cantonments, Non Governmental Organizations are carrying out control activities without desirable intersectoral coordination hence no substantial results have been achieved so far.

However, success stories have emerged from some cities viz Chennai, Jaipur (8) where they followed a sustained ABC - AR programme. Between November 1994 and December 2002, in Jaipur, 24,986 neighbourhood dogs were caught humanely, sterilized surgically, vaccinated against rabies and released in the same locality. Human rabies cases declined from 10 to zero during this period.(9)

Sterilization & Immunization programme is also on going in Delhi since 2003-04 and till 2009-10 Municipal Corporation of Delhi has sterilized and immunized 163248 dogs with the help of NGOs (10). However, human rabies cases continue to occur in Delhi. Probably the canine rabies control programme has not been conducted in real time and breeding has been faster than control.

The need of the hour, for our country, is to develop consensus strategy for canine rabies control which is acceptable and feasible addressing some of the following issues:

- Baseline data on dog census
- Organization of mass vaccination campaigns

- Achievement of desirable level of immunization and sterilization in real time to make a dent in dog population and disease transmission in a locality
- Method of identifying dogs that have been sterilized and vaccinated
- Pre-exposure and post-exposure immunization schedule
- Methodology for annual immunization of dogs
- Vaccines to be used in mass campaigns
- Methods & modalities of campaign
- Licensing of pet animals and certification of vaccination
- Training of professionals & community awareness
- Involvement of NGOs
- Feasibility of use of microchips in dogs etc.

4. Joining Hands - Intersectoral Coordination for "One Health" approach

Control of rabies involves multiple sectors viz. health, veterinary, agriculture, wild life and environment, animal husbandry, local civic bodies, Ministry of broadcasting and advertisement, NGOs, Community etc. These sectors need to come on the common platform and adopt "One Health" approach to control rabies. There needs to be both intra-sectoral coordination as well as inter-sectoral coordination for effective implementation of strategy (Table 2). Effective coordination should be developed with international organization to share experience. International projects aim to prevent human rabies through the control and eventual elimination of canine rabies, creating a paradigm shift for human rabies prevention in Asia and Africa. (2)

4.1 Efforts initiated by Government of India to promote Intersectoral coordination

4.1.1 Government of India is making multiple efforts to establish intersectoral co-ordination. Standing Committee on Zoonoses (SCZ) under the chairpersonship of Director General of Health Services has eminent members from various disciplines viz. Health, Veterinary, Animal husbandry, Wild Life, Vaccine production institutes and Directorates of Health from States. The Pilot Project on Prevention & Control of Human Rabies was discussed in the meeting of SCZ. Consensus recommendation emerged that efforts should be made to establish effective intersectoral coordination for formulation of NRCP.

4.1.2 Experts from veterinary and animal husbandry department were invited in all the expert group meetings organized under the pilot project for sensitization and development of intersectoral coordination.

4.1.3 Courses on zoonoses (special reference to rabies) jointly organized by National Centre for Disease Control, Delhi and Indian Veterinary Research Institute, Izzatnagar with participation of both veterinary and health professionals are organized to sensitize on human and animal aspects of zoonoses and establish intersectoral co-ordination.

5. Strengths & Weakness

Our strengths include

- Abundance of technical expertise, both in health and veterinary sector
- In- house production and availability of vaccines & RIG
- Use of intradermal route of inoculation of cell culture vaccine
- Provision of free of cost anti-rabies treatment facility in public sector
- National guidelines on Rabies prophylaxis
- Trained health manpower for providing appropriate treatment
- Availability of diagnostic facilities
- On going pilot project on prevention and control of human rabies
- Two WHO Collaborating Centres working on rabies epidemiology & reaserch
- Development of interface with other sectors
- Active NGOs

Disease specific professional body (APCRI).

The weakest link is prioritising control of rabies both in human and animals and lack of intersectoral co-ordination.

After the experience gained and outcome analysis of the pilot project on prevention and control of rabies, the government set up has been sensitized that National Rabies Control Programme can be formulated as soon as we have consensus implemental strategy for both human & animal component.

6. Conclusion

Rabies is nearly cent percent fatal and cent percent preventable. Government of India has made significant efforts in terms training of health professionals, availability of biologicals, use of cost effective route of immunization, awareness in general community, strengthening of diagnostic facility, sensitization of various sectors etc. The need of the hour is to apply user friendly, quick, feasible and implemental methods in comprehensive and coordinated fash-

ion. Such a task can be more efficiently accomplished by supplemental role played by participation of community and professional body like Association for Prevention & Control of Rabies in India (APCRI). It is hoped that APCRICON 2010, is one such platform where in best professional minds will link up and strengthen the efforts made by Public sector in prevention and control of rabies.

References

1. WHO Expert Consultation on Rabies, 5-8 October 2004 TRS 931 WHO Geneva 2005
2. Meslin FX. A paradigm shift for human rabies elimination: The Gates Foundation- WHO Project. Conference Proceedings, RIACON, II International Conference of Rabies in Asia Foundation, 9-11th September 2009, Hanoi, Vietnam
3. Assessing Burden Of Rabies In India, WHO Sponsored, National Multi-Centric Rabies Survey 2003. Association of Prevention & Control of Rabies in India.
4. National Guidelines for Rabies Prophylaxis and Intradermal Administration of Cell Culture Vaccines, 2007. National Institute of Communicable Diseases, Ministry of Health & Family welfare, India
5. Chhabra M, Ichhpujani RL, Bhardwaj M, Tiwari KN, Panda RC, Lal S. Safety and Immunogenicity of the Intradermal Thai Red Cross (2-2-2-0-1-1) Post Exposure Vaccination Regimen in the Indian Population Using Purified Chick Embryo Cell Rabies Vaccine. Indian Journal of Medical Microbiology 2005, 23 (1):24-28
6. Madhusudana SN, Anand NP, Shamsundar R. Evaluation of two intradermal vaccination regimens using purified chick embryo cell vaccine for post exposure prophylaxis of rabies. Natl Med India 2001, 14(3): 145-147
7. Conference Proceedings, RIACON, II International Conference of Rabies in Asia Foundation, 9-11th September 2009, Hanoi, Vietnam
8. Chinny Krishna S. ABC Programme. <http://bluecrossofindia.org/abc.html>. June 2009
9. Reece JF, Chawala SK. Control of rabies in Jaipur, India, by the sterilization and Vaccination of neighbourhood dogs. The Veterinary Record 2006, 159, 379-383.
10. Report of Pilot Project on Prevention & Control of Human Rabies in Delhi. 2010

Table 1: Pilot project on Prevention and Control of Human Rabies: Progress and outcome analysis based on experience gained during 2008-2010.

Strategy	Progress	Outcome analysis
<p>Training of health professionals</p> <p>Target= 1000</p>	<p>37 core trainers were trained at NCDC, Delhi, who in-turn trained 1865 doctors and paramedical staff on appropriate animal bite management</p> <p>Achievement = 100%</p>	<p>All animal bite victims are being given appropriate animal bite management. This will reduce the chances of developing the disease.</p>
<p>Operationalisation ID route in selected centres</p> <p>Target = Operationalize ID route in major Antirabies Centres</p>	<p>54 centres in the pilot project cities have implemented use of ID route of inoculation of cell culture vaccines.</p> <p>Achievement= 100%</p>	<p>Implementation of ID route with appropriate training during the project has made Post Exposure Prophylaxis (PEP) economical and has enabled wider coverage of PEP in the available quantity of vaccines.</p>
<p>Procurement and use of Rabies Immunoglobulins (RIG)</p> <p>Target = Initiate use of RIG</p>	<p>All the project cities are procuring rabies immunoglobulins out of the funds allocated in the project and judiciously using it in category III bites.</p> <p>Achievement = 100%</p>	<p>None of the pilot project city (except Delhi) was procuring and using life saving rabies immunoglobulins. There has been increased and appropriate use of immunoglobulins in all the pilot project cities following training of health professionals and provision of funds for procurement of RIG in the project budget.</p>
<p>Enhancing awareness in general community</p> <p>Target = To create awareness in general community on timely & appropriate management of animal bites</p>	<p>Prototype IEC material was developed at NCDC. The pilot project cities have prepared and disseminated IEC material in local languages in form of hoarding, posters & Radio Jingles.</p> <p>Achievement= 100%</p>	<p>Prior to initiation of the project available data was analysed which indicated that many people do not seek post exposure treatment after animal bites leading to high mortality. General community related rabies to "Dog -bites" only. After the initiation of the project there is enhancement in awareness regarding animals transmitting rabies and timely and appropriate animal bite management in general community as indicated by increase in attendance at ARCs</p>
<p>Strengthening of diagnostic facilities</p> <p>Target: One laboratory in each city</p>	<p>One laboratory each in the pilot project cities (except Delhi) has been strengthened. They have procured fluorescent microscope & conjugate and will soon initiate diagnosis of rabies. Nine doctors and five paramedical staff from the pilot project cities have been trained on lab diagnostic techniques in rabies.</p> <p>Achievement = 80%</p>	<p>One laboratory in each city has been strengthened to undertake ante-mortem and postmortem diagnosis of rabies. Pilot project cities are in the process of standardizing the tests in respective laboratories. This will help in strengthening laboratory based surveillance.</p>

Table 2: Possible role of different agencies for effective prevention & control of Rabies

Ministry of Health & Family Welfare Central & State Health Departments	Formulation & implementation of strategy for control of rabies in humans
Ministry of Agriculture Veterinary Animal husbandry Indian Council of Agriculture & Research (ICAR) Ministry of Environment & Forest NGOs	Formulation & Implementation of Canine Rabies Control Dog Census Mass Vaccination ABC
Local Civic Bodies Municipal Corporations/ Committees/ Cantonments NGOs	Implementation of Human & Canine Rabies Control Waste management
Ministry of Information & Broad casting Ministry of Health Ministry of Agriculture Ministry of Environment & Forest Local Civic Bodies NGOs	IEC Creating awareness in General Community
Professional Bodies	Training of Health & Veterinary Professionals through CMEs/ Seminars Conferences
Community Participation	Aid in implantation of canine & human Rabies control
Indian Council of Medical Research Indian Council of agriculture Research	Operational Research
Ministry of Law	Legislation

MODEL ANTIRABIES CLINIC - A RESOURCE CENTRE FOR RABIES CONTROL



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BACKGROUND: AntiRabies Clinics providing Post Exposure Prophylaxis was established in 5 Government Medical Colleges in the State right from the 70's. Cell Culture Vaccines were being used in the government sector from the 1990's. The implementation of IDRV becomes a land mark in the public health scenario of Kerala since the government is giving IDRV free to all. Thus - a hitherto crying need, for effective and economical antirabies vaccination, was met through the intradermal route of administration. The initiation of IDRV is a shining example of how a strong political will along with administrative support and academic backup can translate theory to policy to practice. The escalation of these services throughout the State and integration through existing health system to reach the needy in the remotest part is the biggest challenge. This requires single minded pursuit to remove administrative hurdles, managerial capabilities to coordinate at various levels instant trouble shooting and effective networking. State level guidelines and Government Orders issued for IDRV and a nodal officer for IDRV at State level has facilitated the processes at the district level.

Community Medicine Departments in Medical Colleges can play a pivotal role in bridging the gap between academic philosophy and the real situation in the field by health services. The supportive role of Community Medicine in programme implementation and disease control activities of district health services often can be a win-win situation where each partners synergistically accomplish their objectives.

ALAPPUZHA EXPERIENCE

The Antirabies clinic under Community Medicine Department of T.D. Medical College was renamed as Model Antirabies Clinic following initiation of IDRV in March 2009 with the following steps.

- Training to the M.O and health inspectors
- IDRV services provided on all days including Sundays
- Clinic made more patient friendly with infrastructural modifications
- Establishment of an IEC corner, with installation of Television, where patients could view film clips on rabies

EVOLUTION PROCESS OF THE CLINIC AS A NODAL CENTRE

Phase 1

- Initial CME organized by Medical College for doctors in administrative posts in 3 districts (Alappuzha, Pathanamthitta and Ernakulam) regarding IDRV. This sensitized them to the need of IDRV in their centers
- One day Training in IDRV technique for staff nurses in willing institutions at Model Antirabies Clinic, T.D.Medical College. (This included pretest, video session, and demonstration of IDRV technique by trainer followed by Hands on practice by trainees which was finally evaluated by trainer and certified.) Travel expenses of participants were met from their respective districts and local hospitality provided from the funds of Regional Epidemic and Infectious Disease Control Cell in Community Medicine department.
- Sensitization of doctors was done by conducting a mini CME in their own institution based on their convenience and at a time when maximum doctors could attend. These short sessions helped in doubt clarification and trouble shooting regarding hurdles in administrative process.

Following this phase, IDRV was implemented in General Hospitals of three districts

Phase 2

- Trouble shooting and addressing tooting problems in the institutions of districts where IDRV was implemented and helping them to establish data flow regarding IDRV.
- Training to Taluk level Hospital staff in IDRV implementation - 5 taluks in Alappuzha, 2 in Pathanamthitta and 6 in Ernakulam district.
- As of now 130 staff nurses from 16 institutions were trained at Model Antirabies Clinic and IDRV implementation has reached taluk level.
- IDRV is being reviewed at monthly District level conference of health services

OUTCOMES

- Antirabies Clinic has become Training cum Resource Centre and liaison has been built between Medical College and District health services.
- Quality improvement of the Clinic. Training centre automatically becomes vigilant of the quality of services rendered
- Boosting confidence and Skill building of personnel of the clinic.
- Venue for training students and interns in IDRV
- Research Opportunities . There are opportunities for innovations in training and generation of research ideas.

WAY FORWARD

The catalytic role of Medical Colleges in implementation of IDRV at district level has been an enriching experience. This could open the gateway for exploring opportunities for rabies control activities at the district/regional level involving all stakeholders.

- Community Medicine departments can take lead in initiating Rabies Control in the District level by coordinating with the Health Service Department, Animal husbandry and Veterinary department.
- The existing links with Panchayats in providing technical support in carrying out innovative public health projects may be utilized to build awareness and initiate Integrated Rabies Control at the Panchayat level.
- Support may be given to health institutions implementing IDRV regarding trouble shooting and data management.
- Monitoring, Supervision and Quality control of Antirabies Clinics in the districts with the help of District Health Services.
- Learning experience in programme implementation to interns and Post Graduates in Community Medicine may be provided by involving them in field level activities -an important goal in Rabies Control.

Thus if the Local Self Governments, Health Services, Medical Colleges & Department of Animal Husbandry could share a common platform, work together and chart a calendar of activities at district level for local specific realistic strategies in rabies control..... from 2010..... the dream of Rabies Control by 2020 will not remain an elusive goal.

ROLE OF VETERINARIANS IN MAKING RABIES FREE INDIA BY 2020

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Introduction: Amongst the various zoonotic diseases caused by viruses, rabies is of prime importance due to its incurable nature after the onset of clinical manifestation if the patient is not given timely prophylactic measures. The disease is not only transmitted to human but also to other domestic and wild species.

Rabies encephalitis, in human and animals continues to plague this country even after introduction of preventive vaccine more than a century ago. According to latest WHO estimate, about 50,000 human deaths due to rabies are reported every year worldwide. Out of which 30,000 are reported from India alone. There ought to be many reasons for this. One important reason we can think of is the magnitude of dog menace in this country especially in metropolis and the suburbs and failure to implement modern WHO recommended post exposure prophylactic measures (PET) in human. Nearly 60 % of exposed people still depends on the outdated and highly reactogenic semple vaccine failure. Thus medicos, veterinarians and social organizations need to join hands to achieve the goal of rabies free India.

Rabies prevention depends on a wide variety and spectrum of dedicated individuals including veterinarian in educating peoples about proper behaviour around pets and stray animals; veterinarians and physicians working both in

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remote villages in canine rabies-endemic countries with limited access to rabies biologicals and in industrialised countries with access to the best rabies biologicals available; wildlife experts caring for indigenous animal species that are constantly threatened by extinction due to invasion and transmission of canine rabies; and high-ranking governmental and international health care professionals who continue to work on the development and implementation of national and international rabies prevention policies. These diverse groups of individuals continue to save humans and animals from rabies infection and death, often with limited access to financial and biological resources. [13]

Etiology: Rabies is a fatal zoonotic viral infection of central nervous system caused by neurotropic viruses causing encephalopathy and death. Although all mammalian species are susceptible, few are reservoirs of the disease e.g. terrestrial mammals like dogs, cat etc. including raccoons, skunks, foxes and coyotes. Virus belongs to the order Mononegavirales, viruses with a distinct nonsegmented, negative stranded RNA genomes. Within this group, viruses with a distinct "Bullet" shape are classified in Rhabdoviridae family, which includes at least three genera of animal viruses. Lyssa virus, Aphenemovirus and Vesiculvirus. Virus is 180 nm long and 75 nm wide, with two major structural components: a helical ribonucleoprotein core (RNP) and a surrounding envelop. The fusion of the rabies virus envelop to the host cell membrane (adsorption) initiates the infection process. The interaction of G protein and specific cell receptor may be involved. Adsorption is followed by penetration in host cell cytoplasm by pinocytosis. The virions aggregate in the large endosomes (Cytoplasmic vesicles). The viral membrane fuses to the endosomal membrane, causing the release of viral RNA into the cytoplasm.

Transmission: Any warm-blooded animal (including humans) may become infected with the rabies virus and develop symptoms (though birds have only been known to be experimentally infected [9]). Indeed the virus has even been adapted to grow in cells of poikilothermic vertebrates [2] though natural transmission has only been documented among mammals. Most animals can be infected by the virus and can transmit the disease to humans. Infected bats, monkeys, raccoons, foxes, skunks, cattle, wolves, coyotes, dogs, mongoose (normally yellow mongoose)[17] or cats present the greatest risk to humans. Rabies may also spread through exposure to infected domestic farm animals, groundhogs, weasels, bears and other wild carnivores. Rodents (mice, squirrels etc) are seldom infected.[3]

Pathogenesis: After a delay at or close to the site of inoculation during the incubation period of rabies, typically lasting weeks to months, rabies virus spreads to the central nervous system in peripheral nerves by retrograde fast axonal transport. Dissemination also occurs within the central nervous system in the same manner. The virus infects neurons in multiple brain regions and causes mild inflammatory changes, but under natural conditions rabies virus infection produces few degenerative neuronal changes and neuronal death is only infrequently observed histopathologically. The severe neurological disease associated with an absence of morphologic changes in most rabies virus infected

neurons has given rise to the idea that there is neuronal dysfunction in rabies, but the fundamental abnormality explaining this dysfunction has remained elusive despite many experimental studies. [8,10]

Symptoms: Rabid animals can appear to be either "furious" or "dumb." In the furious stage, the animal is aggressive and excited, snapping and biting at anything, and there may be foaming at the mouth. In the dumb stage, the animal often seems docile, almost tame. The dumb stage is especially dangerous because the infected animal is easily approached by unsuspecting humans.

The symptoms expand to slight or partial paralysis, cerebral dysfunction, anxiety, insomnia, confusion, agitation, abnormal behavior, paranoia, terror, hallucinations, progressing to delirium. [4,15] The production of large quantities of saliva and tears coupled with an inability to eat or swallow are typical during the later stages of the disease; this can result in hydrophobia, in which the patient has difficulty in swallowing because the throat and jaw become slowly paralyzed, shows panic when presented with liquids to drink.

Diagnosis: The reference method for diagnosing rabies is by performing PCR or viral culture on brain samples taken after death. The diagnosis can also be reliably made from skin samples taken before death.[5] It is also possible to make the diagnosis from saliva, urine and cerebrospinal fluid samples, but this is not as sensitive. Inclusion bodies called Negri bodies are 100% diagnostic for rabies infection, but are found in only about 80% of cases.[6] If possible, the animal from which the bite was received should also be examined for rabies.[11] Fluorescent antibody technique is another reliable method for diagnosis of rabies.

Use of vaccines and immune globulin: Currently, pre-exposure immunization has been used on domesticated and normal non-human populations. In many jurisdictions, domestic dogs, cats, and ferrets are required to be vaccinated. The human diploid cell rabies vaccine (H.D.C.V.) was started in 1967. Human diploid cell rabies vaccines are made using the attenuated Pitman-Moore L503 strain of the virus. Human diploid cell rabies vaccines have been given to more than 1.5 million humans as of 2006.

In 1984 researchers at the Wistar Institute developed a recombinant vaccine called V-RG by inserting the glycoprotein gene from rabies into a vaccinia virus.[19,12] The V-RG vaccine has since been commercialised by Meriel under the trademark Raboral. It is harmless to humans and has been shown to be safe for various species of animals that might accidentally encounter it in the wild, including birds (gulls, hawks, and owls).[1]

Twelve institutions in India were producing the nerve-tissue (Semple) vaccine in quantities necessary for use in humans (40 million mL) and animals (90 million mL) annually until 2003/04. Since then, the use of the nerve-tissue vaccine has been phased out and, as of 2008, replaced by modern tissue-culture vaccine. [11]] Most people received the vaccine at government and municipal antirabies clinics thanks to the efforts of APCRI.

In the past, a large proportion of rabies patients did not receive any vaccination, and of those who did, many did not complete the full course. In the latest survey, in 2004, only 39.5% of bite victims washed the wounds with soap and water, and about 46.9% received rabies vaccination. The survey revealed that the use of tissue-culture vaccine was higher than that of nerve-tissue vaccine, and compliance to the full course was about 40.5%. However, the use of human rabies immune globulin was low (2.1%). The 2004 survey also revealed that about 60% of infected people resort to indigenous treatment, with local applications to the wound (36.8%) and indigenous remedies (45.3%) being popular. [16]

Role of veterinarians: Veterinarians role in control of rabies in India, need to be strengthened by establishing multilocal rabies diagnostic centers/ laboratories in almost all veterinary colleges of country in addition to facilities at central locations of medical and Animal Husbandry state departments. Presently diagnostic facilities in all colleges in India may not be existing which with the efforts of Association need to be implemented as special mission on rabies control in dogs. Only this single factor will help in control of death with rabies in human considering the value of human life. Other measures include-

- i. A combined animal birth control program and immunization of stray dog population. This will be most effective measure for control of rabies in our country.
- ii. Licensing of all pets for which awareness need to be develop in pet owners.
- iii. Before licensing a certificate of rabies vaccine should be mandatory.
- iv. There should be a fine or penalties, if owner does not vaccinate their pets.
- v. Legislation should be there especially for rabies prevention in canines.
- vi. Government should strict the rule of import of animal and its quarantine.
- vii. Emphasis should be given on rabies eradication programme.
- viii. Services of undergraduate and post graduate veterinary and medicos students should be utilize for public demonstration rallies and creating awareness in society with the involvement of school and college students.

Conclusions: Prevention of Animal and Human rabies must be community efforts involving both veterinary and public health officials. The future savings of discontinuing prevention programmes largely justifies rabies elimination programmes focused mainly on mass vaccination of dogs.

References:

1. Artois M, Charlton KM, Tolson ND, Casey GA, Knowles MK, Campbell JB (1990). "Vaccinia recombinant virus expressing the rabies virus glycoprotein: safety and efficacy trials in Canadian wildlife". *Can. J. Vet. Res.* 54 (4): 504-7.
2. Campbell, James B.; Charlton, K.M. (1988). *Developments in Veterinary Virology: Rabies*. Kluwer Academic Publishers: Springer. p. 48
3. Centers for Disease Control and Prevention. "Types of Exposure - CDC Rabies". 1600 Clifton Rd, Atlanta, GA 30333, USA: 2007-09-03.
4. Cotran RS, Kumar V, Fausto N, et al. (2005). *Robbins and Cotran Pathologic Basis of Disease (7th ed.)*. St. Louis: Elsevier/Saunders. pp. 1375.
5. Dacheux L, Reynes J-M, Buchy P, et al. (2008). "A reliable diagnosis of human rabies based on analysis of skin biopsy specimens". *Clin Infect Dis* 47 (11): 1410-17.
6. Drew WL (2004). "Chapter 41: Rabies". in Ryan KJ, Ray CG (editors). *Sherris Medical Microbiology (4th ed.)*. McGraw Hill. pp. 597-600
7. Finke S, Conzelmann KK (August 2005). "Replication strategies of rabies virus". *Virus Res.* 111 (2): 120-31.
8. Fu ZF, Jackson AC. Neuronal dysfunction and death in rabies virus infection. *J Neurovirol* 2005; 11:101-106.
9. Gough, Patricia M.; Jorgenson, Richard D. (July 1976). "Rabies Antibodies in Sera of Wild Birds". *Journal of Wildlife Diseases* Vol. 12.
10. Jackson AC. Pathogenesis. In: Jackson, AC, Wunner WH, editors. *Rabies*. San Diego: Academic Press; 2002. pp. 245-282.)
11. John TJ. An ethical dilemma in rabies immunisation. *Vaccine* 1997;15 Suppl:S12-5.
12. Ly S, Buchy P, Heng NY, et al. (2009). "Rabies situation in Cambodia". *PLoS Negl Trop Dis* 3 (9)
13. PARVIZ, S., CHOTANI, R., MCCORMICK, J., FISHER-HOCH, S. & LUBY, S. (2004) Rabies deaths in Pakistan: results of ineffective post-exposure treatment. *International Journal of Infectious Diseases* 8, 346-352)
14. "Rabies: Differential Diagnoses & Workup". *eMedicine Infectious Diseases*. 2008-10-03.
15. Schoenstadt A (2008-07-21). "Rabies Symptoms". *eMedTV*. <http://rabies.emedtv.com/rabies/rabies-symptoms.html>. Retrieved 2010-01-30.
16. Sudarshan MK. Assessing burden of rabies in India. WHO sponsored national multi- Taylor PJ (December 1993). "A systematic and population genetic approach to the rabies problem in the yellow mongoose (*Cynictis penicillata*)". *The Onderstepoort Journal of Veterinary Research* 60 (4): 379-87.
17. *Veterinary Record* (2007) 161, 289-290
18. Wiktor TJ, Macfarlan RI, Reagan KJ, Dietzschold B, Curtis PJ, Wunner WH, Kieny MP, Lathe R, Lecocq JP, Mackett M (1984). "Protection from rabies by a vaccinia virus recombinant containing the rabies virus glycoprotein gene". *Proc. Natl. Acad. Sci. U.S.A.* 81 (22): 7194-8.
19. World Health Organization. WHO expert consultation on rabies: first report. Geneva: World Health Organization; 2005.

IMPLEMENTATION OF IDRV-

A KERALA MODEL FOR STRENGTHENING OF HEALTH SYSTEM

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Background : In the 21st century, Rabies remains incurable. Human pre and post exposure prophylaxis together with vaccination of domestic and wild life animals are currently the most efficient interventions. In Kerala, like any other part of the country, the high cost of cell culture vaccines administered intramuscularly was the major limiting factor in the fight against the disease. Though the use of intra dermal route for tissue culture anti rabies vaccine was approved by Government of India in 2006, it's implementation was patchy.

Description : IDRV has become a reality in Kerala due to the synergistic support from the department of Health, Govt of Kerala by providing administrative support and academic inputs from dedicated members of APCRI which showed the commitment of the association towards the achievements of its organizational goals. The success of this programme in Kerala can be attributed to the broad base ownership build for IDRV in government medical college and also in the district health services. The Kerala experience shows that in order to translate policy to practice requires the back up of technical, administrative, political and scientific advocacy. Some of the weakness that were identified were the non involvement of the private sector, lack of IDRV facility at the PHC level and also the inability to provide IDRV round the clock at all the centres. IDRV provides a foundation to develop enormous opportunities to provide vaccine free of cost to all patients and also achieve greater acceptance among the public.

Unique features of IDRV implementation in Kerala

- 1) Implementation through the Government system

Facilitatory factors			
Political will	Administrative and logistic support	Academic inputs	Artistic innovations

2) Systematic implementation

Activities	Accomplishments
National workshop for developing Guidelines (20 th -21 st September-2008)	<ul style="list-style-type: none"> • Advocacy • Guidelines • Road map for implementation
ToT at IPM, Hyderabad (15 th -18 th December 2008)	<ul style="list-style-type: none"> • Man power training • Government endorsement
CME for doctors and nurses (Feb 2009 onwards)	<ul style="list-style-type: none"> • Awareness creation • Hands on training
Development and dissemination of IEC materials (January 2009)	<ul style="list-style-type: none"> • Create awareness of public
Inauguration of 1 st model IDRV clinic on 27 th Feb 2009	<ul style="list-style-type: none"> • Official launch of IDRV in the State of Kerala
Immunosurveillance with NIMHANS (March 2009)	<ul style="list-style-type: none"> • Confidence building • Thrust on Evidence based medicine
Daily reporting	<ul style="list-style-type: none"> • Systematic evaluation
Visit by Dr. FX Meslin (Team leader, WHO, Geneva) 18 th -21 th November 2009)	<ul style="list-style-type: none"> • Appraisal by WHO

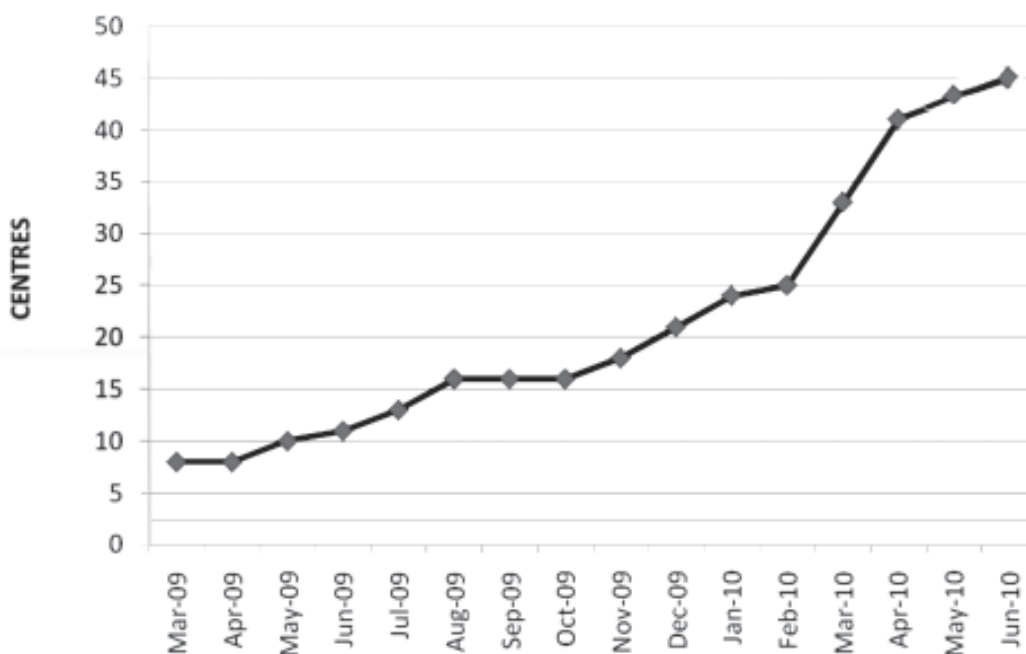
3) IDRV free of cost for all (APL/BPL) as per the GO (Rt) No. 3357/2009/H&FWD, dt. 18.11.2009

Status of IDRV in Kerala from March 2009 to May 2010

Realizing the significance of implementing Intra Dermal Rabies Vaccination (IDRV) in the state, the Government has decided to provide IDRV free of cost to all, irrespective of their APL and BPL status. As on today, there are 45 centres providing this service in this state and the government is planning to scale it up to all hospitals in the state which caters to more than 5 bite victims per day. From 2nd March 2009 to 20th June 2010, 35139 patients have received IDRV.

Total	Sex wise distribution		Category of Animals			Category of Bites	
	Male (%)	Female (%)	DOG (%)	CAT (%)	OTHERS (%)	Category II (%)	Category III (%)
35139	59.6	40.4	67	30	3	68.2	31.8

IDRV CENTRES IN KERALA MARCH 2009 TO JUNE 2010



Lessons learned: Intersectoral co-ordination by all stakeholders together with administrative, academic and artistic support is the key for implementation of a public health initiative in the State

Way forward

- Our next challenge is to scale up IDRV to all hospitals in the state which caters to more than 5 bite victims per day.
- Our goal is not IDRV but to work together for a rabies free India by 2020

ABSTRACTS
HALL I

WHETHER HIGHER ANTIGENICITY PRODUCES HIGHER IMMUNOGENICITY IN INTRADERMAL RABIES VACCINATION? RESULTS OF A METAANALYSIS

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The metadata of 10 published studies and 3 vaccine trial reports comprising of 19 vaccine cohorts from four countries conducted over a period of 23 years (1986 - 2009) was used for metaanalysis. The vaccines studied were purified chick embryo cell vaccine (Rabipur, India & Germany), purified vero cell rabies vaccine (Verorab, France; Indirab, India) & human diploid cell vaccine (MIRV, France). The potency of these vaccines varied from 0.55 IU to 2.32 IU per intradermal dose of 0.1ml per site. The vaccines were administered to 1011 subjects comprising of 19 cohorts and using five different ID regimens. The immunogenicity was measured by assays of rabies virus neutralizing antibody (RVNA) titres using rapid fluorescent focus inhibition test (RFFIT) [15 cohorts] and mouse neutralization test (MNT) [4 cohorts]. The statistical analysis of the data was done by Mann-Whitney test. The results showed that an higher antigenicity did not produce a significant higher immunogenicity in intradermal rabies vaccination ($p > 0.331$ & $p > 0.482$).

COMMUNITY DOG: WHOSE RESPONSIBILITY

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Background: Rabies is a fatal zoonotic disease which can be prevented by appropriate post exposure prophylaxis. Dog is the most common vector and ABC program is targeted towards not only control of the dog population but also aims at decreasing the reservoir of the virus by immunization of the dogs. However a lot of concern is for elimination of the reservoir of infection in stray dogs.

Methods: A study was conducted in 57 randomly selected eateries within the urban areas of Berhampur town. Stray dogs were invariably found loitering around these centers and their numbers ranged from 1-4 per site. The owners were interviewed with the help of a predesigned questionnaire and the opinion were then analyzed and interpreted.

Results: All the owners interviewed knew the dogs wandering around their shops and in most of them the customers used to feed them. Only 27% of the owners had the knowledge that dog bite can lead to a fatal disease. However 10% opined that these dogs had bitten some of their customers in their knowledge.40% had the knowledge that dog can be vaccinated against rabies. Majority opined that they will assist the vets for dog immunization but were undecided when asked if they would purchase the vaccine if required.

Conclusion: Although all the subjects knew the dogs roaming around their establishments but the basic awareness regarding the outcomes of a dog bite was lacking in most of them. Similarly few had knowledge regarding that dogs can be vaccinated. However the positive outcome was that most of them were ready to assist the vets if given a chance to assist them in immunizing the dogs

ADVERSE EFFECTS FOLLOWING INTRA-DERMAL RABIES VACCINATION IN CHILDREN.

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Background: Survey revealed that children less than 15 years of age constituted 35% of the total rabies deaths in India. The estimated animal bite load per year was 2.28 million. Taking into consideration of two factors that children less than 15 years of age are more prone to animal bites and 35% total rabies deaths in India are in children, the following study was undertaken to determine the Clinical safety of post-exposure prophylaxis by ERIG and Intra Dermal Rabies Vaccination (IDRV) using the modified Thai Red Cross Regimen with Category-III animal bite exposures.

Objectives: To study the adverse effects of IDRV & ERIG in patients attending ARC.

Materials & Methods: Type of study: longitudinal follow-up . **Study period:** 1st May 2007 to 31st March 2008. **Study place:** Anti-Rabies Clinic, M.K.C.G. Medical College, Berhampur.

Study Population: 1494 children **Study analysis:** Percentage, proportion & chi-square test.

Result: The study population consists of 889 (59.5%) boys and 605 (45.5%) girls . with mean age 8.7 ± 2.4 years. the cases were exposed to Dog bite of whom 90.6% were stray dog. 98.7% children were having category III exposure and rest 1.3% were category II exposure. Majority of bite were over lower limb (43.2%) followed by upper limb (39.6%), head & neck (9.1%) and least over trunk (8%). Local Induration was the most common (91.8%) local side effect followed by Erythema (43.1%), pruritus (29.8%) and pain was the least common (19.9%) observed among the cases received IDRV.

Pain over ERIG infiltration site was the most common local reaction of ERIG observed in all the cases on day 0 which gradually decreases by medications prescribed routinely (Tab Paracetamol), and 67.3%, 33.4% & 2.9% of patients complained of pain on day 3,7 & 28 respectively. Induration (87.4%) and pruritus (81.2%) had almost similar incidence on day 0. These local side effects decrease gradually as time progresses. Fever (34.8%) was most common systemic side effect followed by malaise (29.5%) & generalized pruritus (6.8%). No case of

anaphylaxis or lymphadenopathy or observed. These effects generalized pruritus and malaise disappears by day 7 with simple medication like antihistamines & analgesics.

Conclusion: The study reveals that almost 1/3rd of the cases requiring anti rabies treatment were children <15 years of age and majority have category III exposures. The use of rabies biological in form of IDRV and ERIG in children is safe with a few adverse effects which are mainly localized and can be taken care by symptomatic therapy and counseling. Clinical rabies had not developed in any of the study subjects ,who had been on IDRV & ERIG for Category III exposure.

A RETROSPECTIVE ANALYSIS OF PATIENTS ATTENDING ANTIRABIES CLINIC & COMPLIANCE TO THE DOSAGE SCHEDULE AT SGH, PUNE

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The present study was undertaken with the objective to:

- 1) To study the demographic profile of patients attending ARC, SGH & B.J Medical college Pune.
- 2) Assess the characteristics of biting animal.
- 3) Compliance of patients to post exposure prophylaxis.

The data from 1st May 2009 to 30th April 2010 was analyzed from the records at ARV clinic. A total of 5187 patients were given post exposure prophylaxis in one year.

Of the 5187 animal bite victims, 4022 (77.54%) were males and 1165 (22.46%) were females. Maximum number of cases were in the month of April and May. Of these 760 (14.65%) were classified in category II bite and 4427 (85.35%) in category III bite. The compliance of patients to ARV was good for first three doses and it was meager for the subsequent doses.

INTRADERMAL RABIES VACCINATION: UPDATE ON THE CLINICAL EXPERIENCE WITH RABIPUR (PCECV) IN PRE- AND POST-EXPOSURE PROPHYLAXIS.

Wolfgang Bender, MD

Novartis Vaccines, Medical Affairs Region International, Singapore

Rabies is an acute viral disease that is considered to be fatal once clinical symptoms develop. With an estimated 55,000 deaths per year worldwide, human rabies remains a major health problem. While in North America and Europe human rabies cases are rare, in India, about 20,000 human rabies deaths are estimated to occur each year.

Today, vaccination is considered the only means to prevent the disease in humans; either as pre-exposure prophylaxis or after exposure to rabid animals in combination with wound management and administration of anti-rabies immune globulin.

While rabies vaccine usually is given intramuscularly (IM), some countries have licensed rabies vaccination using intradermal (ID) administration of Purified Chick Embryo Cell rabies Vaccine (PCECV). Due to a reduction of the individual dose when given ID (0.1 mL ID instead of 1.0 mL administered IM), this method is especially suitable when multiple patients are to be treated at the same center within a short period of time, i.e. within the recommended time period of 6-8 hours after reconstitution, after which the vaccine vial has to be discarded. ID administration is cost-economic in both pre- and post-exposure prophylaxis regimens and beneficial to patients who otherwise could not afford rabies prophylaxis. Moreover, ID administration of PCECV could be a means of saving vaccine in situations of limited vaccine supply.

This presentation gives an update on the clinical data obtained in clinical trials after vaccination with PCECV. Clinical trials using ID vaccination schedules have been performed in age groups from toddlers to adults, have included pre-exposure as well as different post-exposure regimens (including the Thai Red Cross and the 8-site regimen) and have demonstrated immunogenicity, tolerability and efficacy of the vaccine when given ID.

PRACTICAL CONSIDERATIONS: RIG INFILTRATION IN CATEGORY III ANIMAL BITES

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Use of RIG's in Category III Animal bites is life saving but its still looming around apex hospitals, corporate hospitals and among trained anti rabies Practioners.It has a long way to reach the village level where most of the bite occurs.

Time has come now to think about some points regarding RIG infiltration to be accessible and acceptable to the community.

1. Availability of Rabies Immunoglobulin
2. Use of RIG
3. Anatomy of wound sites
4. Children, old age persons with different ailments
5. Volume of RIG/site/administration
6. Adverse effects of RIG

We all realize that RIG's are life saving but time has come to think about some soothing solutions for these problems.

AN APPRAISAL OF IMPLEMENTATION OF INTRADERMAL RABIES VACCINATION IN KERALA

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Government of Kerala implemented intradermal rabies vaccination (IDRV) from March, 2009. It has envisioned to have a rabies free Kerala by 2015 by involving all stake holders in the rabies prevention and control activities. Following an Invitation from Government of Kerala,

Dr. F. X. Meslin, WHO, Geneva, Switzerland, along with Dr. D.H. Ashwath Narayana, Executive Director, Rabies in Asia [RIA] Foundation & Dr. G. Sampath, President, APCRI, conducted an appraisal of IDRV implementation in Kerala. Dr. Thomas Mathew, Nodal Officer, IDRV, Kerala coordinated the activity.

The study team visited anti rabies clinics (ARCs) of two district/General hospitals (Thiruvananthapuram & Alappuzha), two ARCs in medical college hospitals (Thiruvananthapuram & Alappuzha - model ARC) and one taluka (sub district) hospital. The team perused the records & reports available at different ARCs, at state disease control & monitoring cell (SDCMC), observed the administration of IDRV & rabies immunoglobulin (RIG) at ARCs and interviewed animal bite victims & staff of ARCs. The team had a discussion with officials of Departments of Health, Animal Husbandry & Local Self Government. The team also attended an IDRV review meeting conducted by the Honorable Health Minister of the state & participated in an interactive session with members of state veterinary council.

It was observed that IDRV was implemented in a phased manner through Government orders & training of staff as per the guidelines of regulatory authorities. IDRV was in vogue at 6 District hospitals, 5 Medical college hospitals, 3 Taluka hospitals & one community health

centre (block level hospital). It was incidentally noticed that there was an increase in the number of cat and rodent exposures receiving rabies post exposure prophylaxis.

The study team recommended IDRV be expanded to cover more hospitals in the state after necessary training of ARC staff. Hands-on training for administration of RIGs be given to the medical officers and nursing staff in ARCs. For patients with positive skin sensitivity test, full dose of ERIG can be administered after following pre-medication protocol to save on the cost of HRIG. The guidelines of WHO for rabies PEP be followed in management of rodent bites after confirming the possibility of reservoir of rabies in rodents. Public educational programmes on rabies and its prevention be undertaken. Pet dog licensing to be initiated with emphasis on responsible pet ownership practices.

CONFUSIONS IN RABIES POST-EXPOSURE PROPHYLAXIS

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Physicians managing cases of animal bites or exposures to animals usually follow some guidelines. The Physicians most concerned about providing the most authentic and state of the art treatment to their patients, usually follow the procedures mentioned in the Text Books of Medicine and Community Medicine. Those who want to follow more authentic material usually follow the National Guidelines issued by the erstwhile NICD [Now called NCDC]. There are still others who follow the WHO TRS 931, which is most commonly called, the WHO guidelines.

Very recently another Guideline from the World Health Organization, named, "**Human and dog rabies prevention and control - Report of the WHO/Bill & Melinda Gates Foundation Consultation Annecy, France 7–9 October 2009**", is available with some others.

The more guidelines from different sources being available, the more confused gets the physician. The different types of post-exposure schedules being developed by different teams, are all being accepted as a recommendation from the WHO. This is adding to confusion in the field of Rabies post-exposure prophylaxis. Even what was till very recently treated as incomplete vaccination is now accepted as complete vaccination if carried out with certain selected vaccines and the recipients of the vaccines are good immune responders.

The WHO guidelines are very useful documents, which helps the Physicians in most cases. However, there are certain situations where it is found to be deficient. In those situations the Physician is left to his or her sense of judgment and clinical acumen for managing the critical situations faced by them.

In the preface of the TRS 931, it is mentioned that "the responsibility for the interpretation and use of the material lies with the reader. In no event shall the World Health Organization be liable for damages arising from its use".

In my long experience of treating animal bites and exposures, I have managed many cases where a good sense of judgment and good clinical acumen was essential for managing those cases, and the guidelines were deficient in solving the problem faced.

In this paper I am highlighting a few of those cases, the problems they posed to the clinician and the thought process of the clinician and the reason for adopting those solutions. This experience of mine can help many other Physicians facing similar situations in future. I can also state that most of those patients were bitten by animals which were showing features of Rabies clinically. All the patients have survived for more than seven years after completion of treatment. It means that all of them had an uneventful recovery.

AWARENESS OF RABIES PREVENTION AND INTRADERMAL RABIES VACCINATION AMONGST DOCTORS OF MANDYA CITY

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Intradermal rabies vaccination (IDRV) is a recent (2006) development in India which was intended to provide an ethical and efficient alternative to NTV. Though IDRV is targeted at high volume centres, its success largely depends on the referring doctors in the field, their awareness and confidence in IDRV will go a long way in ensuring the success of the programme.

This study was conducted four years after the introduction of IDRV in the country and almost three years after a dedicated IDRV anti rabies clinic was started in Mandya Institute of Medical Sciences. This cross sectional study was conducted by means of an interview using a structured, pretested questionnaire administered to the practicing doctors in Mandya city (MBBS or higher). The study aims to assess the knowledge of the target population regarding their knowledge of Rabies prevention & IDRV.

The results of the study will be presented at the conference.

TREATMENT FAILURES PROBABLE CAUSES

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ANALYSIS OF FEW CASES: Considering that Rabies is a 100% fatal disease , every step for post exposure treatment should be very methodical .In spite of best possible treatment ,the patient may develop rabies encephalitis due to many reasons . The nerve tissue vaccine which was withdrawn in 2004 had a significant number of failures with associated complications. Modern cell culture vaccine, although claimed to be safe and potent, however has some treatment failures which are on record. So each treatment failure should be thoroughly investigated and identification of potential errors in the treatment protocol should be made.

Case History – 1

The child Subhajit Mondal aged 3½ yrs was bitten by an untraceable stray dog bite on the left side of his face and left anterior chest wall with Cat - III exposure on 25/06/09. Wound toilet was administered for few minutes only. The patient subsequently received IDRV with RIG infiltration on 26/06/09 Day-0 followed by subsequent doses on Day - 3 and Day – 7 intradermally. He developed a high fever on 3rd July 2009 and ultimately died due to rabies on 6th July 2009.

Case History - 2

Mr. Bhignaraj Pal (Reg. No. 357733) had suffered a dog bite 20 years back . He received inadequate treatment. Finally he was admitted to Pune Jahangir Hospital on 27th August 2009 and died due to rabies on 29th August 2009. His specimen was sent to NIMHANS Hospital where the diagnosis was confirmed.

Case History – 3

Master Dinanath died due to rabies after receiving NTV full course in 1995. Enquiry committee tried to locate the potential errors which were placed on record but controversies are still continuing.

Discussion : The primary reasons for treatment failure include improper wound toilet. Technical faults during RIG and IDRV administration, chance of loss of potency due to improper cold chain maintenance, vaccine vial monitor not in use, underlying immuno-suppression if any, newly emerging or previously unknown rabies virus variants etc. It should also be kept in mind that the virus may be in the dormant stage for many years. It is unknown what may

happen to the rabies virus during a prolonged incubation period. Does the virus reside at the bite site before suddenly replicating and migrating centrally, or is it already in the nervous system? There is no way to determine whether the patient is silently incubating the disease.

Finally every step in the treatment protocol should strictly adhere to the WHO guidelines and more research work should be initiated to find out the causes of treatment failure.

Ref :-

1. *WHO expert consultation on rabies: WHO technical series 931 – page – 17*
2. *Failure of rabies post exposure treatment: Dr. S.N. Madhusudana and others - page – 34*
3. *Rabies prevention : Dr. M.K.Sudarshan- page – 54. APCRI Journal Medical guideline book vol - 1 ,issue – II .*

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POST EXPOSURE RABIES PROPHYLAXIS : HOW MANY DOSES DO WE NEED ?

Dr. Sumit Poddar*, **Dr. Hemant Gohil****, **Dr. Snehamay Chowdhury*****,
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There are many protocols being followed in rabies pre and post –exposure treatment. Four doses regimen is equally effective which not only curtails the cost of vaccine but develops a steady level of antibodies which are protective against the disease. IDR, Essen, Zagreb three and four doses vaccination shows a protective level of antibodies. It is important to justify the dose of vaccines which can be safely used for rabies prophylaxis.

ABSTRACTS
HALL II

EVIDENCE ON EFFICACY OF TWO ROUTES OF VACCINE ADMINISTRATION FOR POST EXPOSURE PROPHYLAXIS IN RABIES PREVENTION – A META ANALYSIS

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Introduction: Rabies is an enzootic viral disease wide spread throughout the world. It causes fatal encephalomyelitis in virtually all warm blooded animals including man. Though fatal, it is a vaccine preventable zoonosis. India has the highest incidence of rabies related deaths-20,000 per year. An estimated 25,000 persons die of hydrophobia every year in this country and approximately 500,000 undergo post-exposure prophylaxis which will result in a loss of 4.2 million man days per year. The present management includes providing post exposure prophylaxis with modern cell culture vaccines intramuscularly. Kerala is now in a transitional stage of providing the vaccine from the standard practice of Intramuscular to the newer technique of providing it through the intradermal route.

Though there are many studies proving the efficacy and effectiveness of modern cell culture vaccine, they show variation in effect size, are done in different setting and some have relatively small sample size. It is in this context that a Meta analysis was planned, to obtain a pooled estimate with maximum precision.

Objective: To do a Meta analysis of clinical trials done on efficacy of Intramuscular versus Intradermal route of administration of Antirabies Cell Culture vaccines.

Method – Meta Analysis : The quantitative analysis of selected studies was done using the software Rev Man of Cochrane collaboration. Step wise description of the tasks that are performed when statistical methods are used to combine data are: (i) Deciding whether to combine data and defining what to combine, (ii) Evaluating the statistical heterogeneity of data, (iii) Estimating a common effect, (iv) Exploring and explaining heterogeneity, (v) Assessing the potential for bias, and (vi) Presenting the results.

A thorough search was done using different means for studies based on fixed selection criteria. A total of 133 studies were identified of which ten studies were finally included after applying the inclusion criteria. The levels of evidence of these studies were assessed using

guidelines by Sackett and colleagues. The methodological quality was done using the software. As there was wide variation in the outcome measure, the log values of these were taken and entered in the table provided in Rev Man and the result was computed as the Forest Plot.

The cost incurred by patients on post exposure prophylaxis by the intramuscular and the intradermal routes were assessed by interviewing a sample of 368 persons attending three first referral units and the cost was compared between the groups.

Results: The results of the quantitative analysis were presented in a graphical plot called Forest Plot. It shows the summary effect size of individual studies and also pooled effect estimate of all studies included. The process was done to obtain a more precise estimate. Heterogeneity between the studies was also tested during the process. Ten studies were included for the analysis. One study showed considerable heterogeneity and when this was removed the heterogeneity was reduced to zero. The funnel plot showed no publication bias.

Conclusion: This Meta analysis shows that there is no difference in the immunogenicity of Cell Culture vaccines when administered through either the intramuscular or the intradermal route. A comparison of the costs incurred was also done, which showed that there was an excess cost of rupees nine hundred and fifty eight incurred by those who had the vaccine through the intramuscular route. To conclude, the Intradermal route of administration of modern Cell Culture Vaccines are efficacious and economical alternative to the Intramuscular route of administration of the vaccines.

Policy Implications: As the modern cell culture vaccines used for post exposure prophylaxis in rabies is seen to be equally efficacious, when administered through either the intramuscular or intradermal routes and since there is a cost saving of nearly Rs.1000/- for those on the intradermal route, the decision taken by the government is most appropriate.

ADOPT A VILLAGE- A RURAL RABIES PREVENTION PROJECT

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Introduction: Globally 55,000 deaths are reported due to rabies every year. India reports about 20,000 (36%) deaths every year. Majority of human rabies victims are from rural areas and belong to lower socio economic status. Dog (97%) continues to be the major reservoir of rabies in the country. There are no clear strategies available for control of rabies especially in animals. In this background, both medical and veterinary professionals in a joint effort have come together for the first time in a novel project for the prevention and control of rabies in a rural community.

Objectives: i) To assess the knowledge, attitude and practice (KAP) of the people regarding rabies and its prevention, ii) Developing a standard teaching module for teaching rural population about rabies prevention iii) Diagnosis of rabies using dRIT iv) Prevention of rabies in animals by providing rabies vaccination v) Providing PEP for all animal bite victims & pre exposure vaccination to risk groups in the villages and vi) Developing a model for rabies prevention programme that will empower local public health experts around the world to prevent rabies in their own communities.

Material & Methods: Study Place: 3 study villages and 3 control villages coming under the rural field practice area of Kempegowda Institute of Medical Sciences, Bangalore. **Study period** - 2 years (Dec 2009 to November 2011). **Study design** - Prospective, Interventional study. **Sampling method** - Systematic random sampling. **Sample size** - 20% of households in each of the study and control villages.

Expected outcome: Reduction in incidence of rabies in human and animal population. Increase in the KAP of the population regarding rabies prevention including pet care practices. To Advocate and use this project as a novel model that will empower local public health experts around the world to prevent rabies in their own communities.

This project is sponsored jointly by Global alliance for rabies control (GARC), Rabies in Asia (RIA) Foundation & Commonwealth Veterinary Association (CVA). The project implementing institutions are Department of Community Medicine, KIMS, Bangalore; Department of Veterinary Pathology, Veterinary College, Bangalore & National Institute of Mental Health & Neurosciences (NIMHANS), Bangalore.

IDRV IN CHILDREN: A STUDY ON IT'S COMPLIANCE

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Background: The ARC of MKCG Medical College is a tertiary care hospital catering 10 south district of Orissa. The Intradermal Rabies vaccination by Updated Thai Red Cross Regimen (TRC regimen), is being followed since last 3 years. The ERIG for category- III being administered free of cost (by Govt. of Orissa) for nearly one year. Among the total cases reported to ARC children accounts 1/3rd of the total. So it is high time to assess the dropout & non compliance to IDRV especially in children. Objective: To calculate the Drop Out rate & it's reason in children < 15 years age group. Methods: Analysis of data from the register for one year (April 2009 -March 2010) to calculate the dropout & it's reason among children <15yrs age at ARC MKCG Medical College. Parents were interviewed to know the reasons of dropout who did not report on the scheduled day. Results: A total of 7272 no of cases were registered at ARC MKCG Medical College from (April 2009 -March 2010). Out of these cases children <15 years age were 2425 (33%) which constituted our study subjects. Boys accounted for 61.9% & nearly 2/3rd of children were from Rural areas. 87.1% of children had category III exposure & 12.9% had cat II exposure. Out of these 68.63% & 80.95% cases had completed their course as per the scheduled date respectively. Total drop out after Day '28' in category III cases was 31.37%. Similarly for Category II cases total drop out after Day '28' was 19.1%. The drops out rates on particular scheduled day were analyzed separately from the records & register. Around 7% of cat III cases didn't report for IDRV on Day '3', but 4% out of these reported in between Day '3' to Day '7'. Rest 3% didn't come for 2nd Dose. Similarly on Day '7', 17.91% did not report on scheduled date. Reason: The major reasons for non attendance on the particular scheduled day was analyzed by interviewing their parents / attendant & it was found that apprehensions by the guardians, Fever, Local pain, parent's pre-occupation, communication / transport problems were the major reason for drop out. Conclusion: Total dropout rate on Day '28' was 31.37% & 19.1% in category III & II cases respectively. The observed figure reflects that dropout rate is high, which suggests non compliance to IDRV may be due to the long gap between 3rd & 4th dose. The reasons of noncompliance for day 3 & day 7 were apprehensions among children & pre-occupation of their parents.

IDRV&ERIG: THE COST EFFECTIVE ARSENAL OF RABIES PROPHYLAXIS

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Berhampur.*

Intra-dermal Rabies vaccination (IDRV) is the cost effective method of active immunization against Rabies. The process of IDRV was implemented in the Anti Rabies Clinic (ARC) of M.K.C.G. Medical College Hospital from 27th April 2007. As per WHO's recommendation all category III exposures need to be given both active and passive immunization. During the initial periods of implementation of IDRV, the Government of Orissa had not supplied any RIG for which the cases had to procure the same for their use and majority could afford Equine Rabies Immunoglobulin (ERIG).

The average dose of IDRV per day in the ARC was 59. The average amount of ERIG per day used in the ARC during the same period was 115 ml/day. If the active immunization would have been carried out by the Essen (IM) regimen the cost to the Govt would have been @ Rs 180/- per vial amounting to Rs10,620/- as per the current rate of single dose of PVRV(Inj Abhayrab) supplied by the Govt .The use of IDRV leads cost reduction of 1/5th which comes to Rs 2,124 for ARV per day. The saving accrued by the Govt exchequer by use of IDRV was highlighted to the authorities. The cost of the total ERIG per day was @ Rs 185/- per 5 ml amounting to Rs4,255/- per day to as per the current rate of single vial (5ml) of ERIG(Inj Equirab) supplied by the Govt. The combined cost of IDRV (PVRV) and ERIG (Inj Equirab) @ Rs 6,375/- which is only 60% if the vaccine would have been used as Essen regimen. This fact was highlighted and since 3rd March 2009 the state govt had supplied Inj ERIG(Inj Equirab) for simultaneous use with IDRV in the ARCs of the three Medical College Hospitals of the state. So, IDRV can have a definite impact to go for the complete arsenal of active and passive immunization as anti Rabies treatment.

PRE-EXPOSURE PROPHYLAXIS OF RABIES IN INDIAN SCHOOLCHILDREN WITH RABIPUR (PCECV) OR VERORAB (PVRV)

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Marburg, Germany

Young children are particularly vulnerable to animal bites; 40% - 60% of all bite cases are reported to occur in children < 15 years of age. Little data is currently available on the immunogenicity and safety of tissue culture rabies vaccines used for pre-exposure prophylaxis of rabies in Indian children. Therefore, we conducted such a study comparing two WHO-recognized rabies vaccines, Rabipur (PCECV) and Verorab (PVRV).

An additional objective of this study was to determine whether reducing the volume of the diluent of Rabipur from 1.0 mL to 0.5 mL while keeping the antigenic dose unchanged would affect the immunogenicity or tolerance of the vaccine. It has been argued that a 0.5 mL intramuscular dose might be less painful for infants and children than a 1.0 mL dose.

175 school children were enrolled in a prospective, comparative, observer-blind study and randomized to receive either Rabipur reconstituted with 0.5 mL of diluent, Rabipur reconstituted with 1.0 mL of diluent or Verorab reconstituted with 0.5 mL of diluent. In each study arm, the full antigenic dose of the vaccine was administered. Subjects were vaccinated on days 0, 7 and 28. Blood was drawn on day 0 and 3 weeks after the last immunization dose for estimation of rabies virus neutralizing antibody titres by RFFIT. Subjects were observed for 30 minutes after each vaccination for evaluation of pain and immediate hypersensitivity reactions. Local and systemic reactions occurring up to 3 days after each vaccination visit were recorded by parents in a diary.

Antibody titres above 0.5 IU/mL, indicative of protection against rabies, were achieved in 100% of children in all arms of the study. There was no statistically significant difference in the immunogenicity or reactogenicity parameters including pain perception, between injection volumes of 0.5 mL or 1.0 mL of Rabipur and 0.5 mL of Verorab.

In conclusion, Rabipur at a reduced volume of 0.5 mL (with full antigenic dose) is as immunogenic and well tolerated as 0.5 mL of Verorab or 1.0 mL of Rabipur in Indian children.

CLINICAL EVALUATION OF SAFETY OF EQUINE RABIES IMMUNOGLOBULIN

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1 Associate Professor, 2 Post-Graduate trainee cum Tutor, 3 Assistant Professor, 4Dean, Principal and Professor, Department of Community Medicine, Kempegowda Institute of Medical Sciences, Bangalore

The safety of equine rabies immunoglobulin (ERIG) was assessed in 859 subjects who had severe (WHO category III) exposure to rabies during July 2009-May 2010. Majority of bite victims were males (70%) and adults (59%). 94% of the subjects were bitten by dog of which 69 % were strays & 97.5 % were suspect rabid animals.

The incidence of skin sensitivity test (SST) positivity was 13.1%. The SST was positive more in adults (69 %). 746 (87%) subjects who were negative for SST received full dose of ERIG without premedication, among them one (0.1%) subject had vomiting immediately after full dose administration. Among 113 subjects who were positive for SST, Full dose of ERIG was administered to 106 (94%) subjects following KIMS premedication protocol; 06 subjects (5.2%) opted for HRIG & 01 (0.8 %) did not give consent for ERIG administration.

Among 852 subjects who received full dose of ERIG, Equirab was administered in 577 (68%) subjects and Abhayrig in 275 (32%). 661 (78%) subjects received exclusive local infiltration of wounds with ERIG. The mean volume of ERIG used for full dose was 3.9mL in children, 8.1 mL in adults & 6.3 mL in both. 01 (0.1%) subject had immediate systemic adverse event to ERIG, 05 (0.6%) subjects had delayed local & 07 (0.8 %) subjects had delayed systemic ADR after full dose of ERIG.

Keywords: rabies, rabies immunoglobulin, equine rabies immunoglobulin, skin sensitivity test, premedication.

A STUDY OF DROPOUTS OF IDR V AT ANTIRABIES CLINIC OF T.D.MEDICAL COLLEGE, ALAPPUZHA FOR A PERIOD OF FOUR MONTHS

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¹*Asst. Professor, ²Asso. Professor, ⁴Professor, Dept, of Community Medicine, Govt. TDMC, Alappuzh*
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BACKGROUND : IntraDermal Rabies Vaccination started in T.D.Medical College from 16.3.2009. It was found that there was an annual drop out rate of 26.4% among the 2241 patients who attended the clinic in one year. An insight into the reasons for dropouts would help in counseling patients for IDR V in future and institute corrective steps wherever required.

OBJECTIVES:

1. To understand the profile of patients in terms of age and sex distribution, nature of biting animal, frequency of categories and the treatment given.
2. To find out the dropout rate for the preceding four months and the reasons for these dropouts.

MATERIALS AND METHODS:

Study period: 4 Months from 1.11.2009 to 28.2.2010

Study Population: All patients who attended the Anti rabies clinic during the above period

Exclusion criteria: The patients who were on IDR V taken from other centres and referred to us for immunoglobulin..

METHODOLOGY: Data from the IDR V register were collected to find out the profile of patients. The reason for these dropouts were identified based on telephone calls to patients..

RESULTS: For a 4 month period, 820 patients attended the clinic of which 53.3% were males and 46.7% females. 22.6% cases were less than 10 years of age. Animal involved was dog in 57.4% cases, cat in 38.2% cases and others in 4.4% cases. Domestic animals were involved in 81% cases. Limbs were the commonest site of bite in 86% cases. 93.7% had done wound toilet before attending the clinic and 74% attended the clinic within one day. Of the 820 cases 82.2% constituted category 2 and 17.7% category 3. Immunoglobulin were administered to 80.68% of category 3 cases.

There were 299 dropouts for four months based on records .Only 120 patients could be contacted. Non availability of number, wrong number, out of service phones and switched off phones made it impossible to contact the rest.

Dropout rates were found to be 17.1% for D3, 25.5% for D7 and 36.5% for D28 dose of the initially labelled drop outs,55 were mislabeled as drop outs due to continuation of schedule from other hospitals(33) , nonentry in the idrv register(19) and mislabeling(3).

Of the 65 true drop outs,29 were due to reasons like healthy status of animal, trivial wound, advice from local doctors to discontinue and mistaking ERIG as single dose vaccine. 3 patients discontinued due to pain at local site and fatigue. 21 patients had other priority matters and personal problems like family function, examination, hospitalization of a family member, difficulty in traveling to clinic, nobody to accompany,out of station, late arrival to hospital, lost O.P tickets etc. 12 had to go out of station.

CONCLUSIONS:Domestic animals especially dogs were the commonest biting animal. One fifth of patients were children. Majority had performed wound toileting on their own.Commonest were category 2 bites.

45.8% turned out to be false dropouts. True drop outs occurred mainly because of lack of understanding regarding the importance of continuation of vaccination. Drop outs are likely to increase as the schedule advances

SUGGESTIONS:

1. Pre exposure prophylaxis considered for pet dog owners.
2. IDR V Register Recording should be monitored,Telephone numbers obtained and drop outs need to be traced within one week as a routine.
3. Initial counselling of patients is essential and should address the likely reasons for default.
4. Awareness regarding completion of vaccination should be given to the public and updates on rabies prophylaxis should be organized for doctors working in the periphery.

AWARENESS REGARDING MANAGEMENT OF ANIMAL BITE CASES IN RURAL AND URBAN POPULATION OF ROHTAK DISTRICT

B M Vashisht*, **Manish Kumar Goel****, **Ramesh Verma#**, **Sandeep Sachdeva##**,
Meenakshi**

**Professor, **Assistant Professor, #Post graduate student, ## Senior resident -Department of Community Medicine, Pt. B.D. Sharma, PGIMS, Rohtak*

Background: Today approximately 38 million animal bite cases occur yearly around the world and out of these India accounts for approximately 15 million cases. Outcome in these cases varies from no harm to death. The outcome greatly depends on the case management which in turn governed by the awareness among the population regarding its management.

Aims and objectives: To find out the level of awareness in the study population regarding management of animal bite cases

Study area: Block Lakhan-Majra- Rural field practice area and Sainipura- urban field practice area, attached to department of Community Medicine, Pt. B.D. Sharma, PGIMS, Rohtak.

Settings: Rural and Urban both

Study design: Cross-sectional

Sample size: 178 rural and 77 urban households

Sampling: Households were selected by simple random sampling using the records available at subcentres and urban health centres

Methodology: Study was carried out by conducting house-to-house survey in the selected households using pre-tested, self designed, semi-structured interview schedule

Statistical analysis: Data collected was analysed using percentages, proportions and chi-square test wherever applicable.

Results: We found that 15% subjects in rural and 10% in urban area still not know that mortality can be prevented by adequate treatment. Still more than 50% in rural and urban were applying red chilli mixed in oil on the wound and nearly 15% in rural and 30% in urban still preferred to tie the wound tightly. Only 38% respondents vaccinate their pets in rural and 55% in urban.

Conclusion: As the subjects lack awareness regarding important issues for animal bite management so, there is a great need to increase the awareness in rural as well as urban population.

CONTROL OF RABIES & STRAY DOG POPULATION

Dr. Dinesh Yadav

Member Secretary, *Palika Animal Birth Control Society*

N.D.M.C, Vety. Hospital, Moti Bagh, New Delhi

Rabies disease can only be controlled by sustained vaccination of pets and stray dogs.

Palika Animal Birth Control Society of NDMC has the aims & objective to control stray dog population, prevent rabies and make the public aware about the same.

Palika ABC Society functions & strictly adheres to the Extra Ordinary Gazette Notification No. 929 dated 24.12.2006 of Animal Birth Control (Dog) Rules 2001 .

As per the Extra Ordinary Gazette Notification No. 929 dated 24.12.2006;

The stray dogs are to be caught for sterilization & immunization and after sterilization & immunization these are released in the same area of their pick up. Accidental and diseased dogs are picked up and treated.

Palika ABC Society has started Anti Rabies vaccination for stray dogs and Public Awareness programme in different localities of NDMC area on regular basis..The society has already vaccinated stray dogs of the following areas:Lodhi Garden, Golf Links, India Gate ,PandaraPark, Pandara road, Shahjhan Road ,Nirman Bhawan, Vigyan Bhawan ,Rabinder nagar, Bharti Nagar.We plan to vaccinate all stray dogs in NDMC area every year for atleast five years to controll Rabies disease.

Participation of ,Animal Welfare Board of India, all RWAs of NDMC and Animal lovers is taken in order to make the NDMC area free of Rabies and control the stray dog population.

To control stray dog population AREA BASED MASS STERILISATION of stray dogs has to be implimented. Our society has two vehicles : One vehicle attends to the complaints regarding stray dogs..Second vehicle is deployed for sterilisation of stray dogs on area based approach.The stray dogs are caught & handed over to the participating NGOs for sterilisation & immunization against Rabies..These dogs are again released in the same area of their pick up.Once the stray dogs of an area are sterilised ,Next area is taken .In this way we plan to impliment ABC (Animal Birth Control) Programme. .

In order to make the ABC & Anti RABIES Vaccination programme highly effective ,coordination from all is required on War Footing Basis.

ANIMAL RABIES CONTROL IN KERALA: INITIATIVES AND CHALLENGES

S.S.Rani, *Assistant Director, Animal Husbandry Department, Kerala*

Rabies control is a transferred function to the Local Self Government Institutions (LSGIs) under decentralized planning in Kerala since 1996 but the programme goes in a low profile. Government recently introduced IDRV regime also to increase free PEPs to bite victims, but the number of bites keeps increasing and deaths still reported in the absence of effective animal control programme. Hence the focus of rabies control needs a shift to animal sector. Advantages of decentralized planning or high literacy rate of the state could not effectively be utilized for the control of rabies.

An interested group of bureaucrats and professionals from the Health and Animal Husbandry sectors could sit together to do a critical review of the problem and could convince the policy makers of LSGIs about the importance of the problem and its possible solutions when they united for the World Rabies Day celebrations 2009. A multistakeholder expert committee was announced to frame an ideal animal control project for piloting in the state. After considerable discussions, field studies and interaction with some target LSGIs, an action plan was prepared and submitted. Among the components of the proposed programme, Animal Birth Control programme (ABC) for stray dog control demands lots of resources like skilled manpower, infra structures and time. Cost sharing and technical support from the major stakeholders are included to encourage LSGIs to take up the programme on priority. Provisions for hiring skilled experts for ABC programme on reasonable remuneration is another element that could enhance the participation and accountability of work force, which is critical for the success of this project. Extension of the programme to the entire state would exert sizeable financial burden but possible to implement in a phased manner. With resource pooling, an effective animal rabies control programme is possible through the wide network of veterinary institutions in the state.

Though some LSGIs have extended their willingness to pilot, the forthcoming election seems to have created uncertainties about optimization of the available funds, popularity of the programme, their continuity after election etc. However Kerala had already taken proactive steps for rabies control both in man and animals. With combined efforts of all stakeholders, a rabies free Kerala by 2020 is an achievable target.

RABIES FREE WORLD BY 2020 -NEED FOR REALISTIC TEAM WORK

Dr C V Subramaniam, *Hon.Member, APCRI*

Concept of a Rabies Free World by 2020 is very challenging . Rabies is a zoonoses and transmitted to human beings through the bites of Rabies infected animals. It is essential that the vector animals should be eliminated. In Asia and mainly the Indian sub continent dogs mainly stray dogs are the principal vectors and it is essential that these vectors should be eliminated by conventional methods like in countries which have eradicated Rabies and not by resorting to programs which may not be practical at field level. The Medical and Health Department and the Animal Health and Disease Control Department should work combined at the NATIONAL LEVEL like in countries which have cleared and eradicated Canine Rabies and Hydrophobia after World War II. Animal Activists groups may be taken into confidence and the existing Animal Regulations should be changed by representing to the Central Government to achieve this goal.

PILOT RABIES CONTROL PROJECT (PRCP), PUNE, INDIA

Dr. A.S. Bannalekar

*Project Coordinator & Professor & Head,
Department of Microbiology Bombay Veterinary College,
Parel, MUMBAI*

Of the estimated 20,000 human deaths reported annually in India due to rabies, 75% occur in rural areas. Most human deaths in rabies are due to lack of awareness about the importance of appropriate post-exposure treatment from a qualified health official after a stray dog-bite incidence. The Pilot Rabies Control Project, Pune jointly undertaken by the Bombay Veterinary College, Mumbai; K.N.P. College of Veterinary Science, Shirval and Karuna Animal Health Foundation, Narayangaon (an NGO) Dist. Pune aims to demonstrate the reduction of incidences of human and animal rabies deaths through improved educational awareness and by canine rabies control by mass vaccination of dogs. The project has been financed by Schering Plough Corporation, USA (Currently known as Merck & Co, USA) as their CSR initiative at village level.

The Pune Rabies project has been recently initiated in six villages namely Narayangaon, Wadgaon Anand, Khodad, Arvi Pimpalgaon, Ale Phata and Yedgaon in Junnar Tehsil of Pune District. The programme of the project includes Phase I: collection of baseline data viz human and animal population statistics, present status of rabies, level of awareness of the people; Phase II: Public awareness campaign including special programme for children's education; Phase III: identification and vaccination of pets and stray dogs, serological monitoring of randomly collected samples, establishing diagnostic facilities for rabies and Phase IV: Project evaluation. The work of the first phase involving collection of baseline data is at present in progress. The status of rabies in the six villages included under the project and the other details of the project programme will be discussed.

Apcricon 2010

N E W D E L H I

Day 1 (3rd July 2010)

Programme Schedule

09.00 - 09.30	Registration	
09.30 – 10.00	Theme Presentation - Joining Hands for Rabies Control in India	Dr. R. L. Ichhpujani Director, NCDC, Govt. of India, Delhi
10.00 – 10.30	A Rabies free India - Building global partnerships"	Dr. Deborah J Briggs Executive Director, Alliance for Rabies Control, France
10.30 – 11.00	Louis Pasteur Oration	Dr. S.Abdul Rahman Secretary, Commonwealth Veterinary Association
11.00 - 12.00	Inauguration	
	Welcome Address	Dr. Thomas Mathew Secretary General APCRI & Organizing Secretary, APCRICON 2010
	Presidential Address	Dr. G. Sampath President, APCRI
	Inaugural Address by Chief guest	Dr. R.K. Srivastava Director General of Health Services, Govt. of India
	Key Note Address	Dr. A.K. Agarwal Addl. Director General of Health Services, Govt. of India
	Presentation of Young Scientist Award Release of the Souvenir APCRICON 2010 Release of the APCRI 2010 Journal	
	Felicitations	Dr. R. L. Ichhpujani Dr. Deoki Nandan Dr M. K. Sudarshan Dr N.K. Arora Dr S. Abdul Rahman Dr. C. S. Pandav Dr. N.K. Yadav
	Vote of thanks	Dr. Sanjay Gupta Jt. Organizing Secretary, APCRICON 2010

	Panel Discussion Issues in Human Rabies Control (Session Supported by WHO Country office for India)	
	Moderator	Dr B J Mahendra
	Panelists	Dr R L Ichhpujani Dr M K Sudarshan Dr Mala Chhabra Dr. G. Sampath Dr. Thomas Mathew
01.30 – 02.30	Lunch	
02.30 – 04.30	Free paper Session - Hall A (Silver Oak- I)	
Sl No.	Topic	Authors
1.	Whether higher antigenicity produces higher immunogenicity in intra dermal rabies vaccination? Results of a meta analysis	M.K. Sudarshan , Gangaboraiah ,H S Ravish
2.	Community Dog: Whose Responsibility	Padhi A, M Sahu, Satapathy D M ,Tripathy R M
3.	Adverse Effects following Intra-dermal Rabies Vaccination in children.	Pratap AK ,Behera T R , Satapathy D M, Tripathy R M
4.	A retrospective analysis of patients attending antirabies clinic & compliance to the dosage schedule at SGH, Pune.	Shelke S.C, Kshirsagar V
5	Intra dermal rabies vaccination: update on the clinical experience with Rabipur (PCECV) in pre-exposure prophylaxis.	Wolfgang Bender, MD
6	Practical Considerations: RIG infiltration in Category III Animal Bites	DS Malini, Sunil Dash, Asutosh Padhy, DM Satapathy, RM Tripathy
7.	Awareness of Rabies prevention and Intradermal Rabies Vaccination amongst doctors of Mandya City	Mahendra B J, Harish B R, Subhas Babu P, Vinay M.
8.	Pilot Rabies Control Project (PRCP), Pune, India	A.S. Bannaliker
9.	An appraisal of implementation of intradermal rabies vaccination in Kerala	F. X. Meslin, Thomas Mathew, D. H. Ashwath Narayana, G. Sampath and M.K. Sudarshan
10.	Treatment failures probable causes	Sumit Poddar
11.	Post exposure rabies prophylaxis: how many doses do we need?	Sumit Poddar Hemant Gohil-MV, Snehamay Chowdhury, Samiran Das

	Free paper Session - Hall B (Silver Oak- II)	
1.	Evidence on Efficacy of Two Routes of Vaccine Administration for Post Exposure Prophylaxis in Rabies Prevention – A Meta Analysis	Sara Varghese, Rajamohan Pillai, Muraleedharan Nair, Thomas Mathew, Regi Jose
2.	Adopt a Village- A rural rabies prevention Project	N. R. Ramesh Masthi, M. L. Sathyanarayana, D. H. Ashwath Narayana Praveen Kulkarni
3.	IDRV in children: a study on it's compliance	Dash S, Padhi A, Behera T R, Malini D S, Satapathy D M, Tripathy R M.
4.	Pre exposure prophylaxis of rabies in Indian school children with rabipur (PCECV) or verorab (PVRV)	Preeti Shanbag, Nitin Shan, Madhuri Kulkarni, Manisha Juvekar, S.N Madhusudana, Hoshang B. Vakil and Claudious Malerczyk.
5.	Clinical evaluation of safety of equine rabies immunoglobulin	Aswatha Narayana DH, Ramesh Holla Ravish, Sudarshan M K
6.	A study of dropouts of IDRV at antirabies clinic of TD Medical College, Alappuzha for a period of four months	Karthika.M., Sairu Philip, Thomas Mathew, Ravi Prasad Varma, A.Sobha
7.	Awareness regarding management of animal bite cases In rural and urban population of Rohtak District	B M Vashisht, Manish Kumar Goel, Dr Ramesh Verma, Sandeep Sachdeva, Meenakshi
8.	IDRV & ERIG: The Cost effective arsenal of Rabies prophylaxis.	Satapathy D M , Dash S, Pratap AK , Behera T R, Malini D S , Mahapatra HH, Tripathy R M
9.	Confusions in Rabies Post-Exposure Prophylaxis	Amlan Goswami
10.	Animal Rabies Control In Kerala: Initiatives And Challenges	S.S.Rani
11.	Rabies Free World By 2020 -Need For Realistic Team Work	C V Subramaniam
12.	Control of Rabies & Stray Dog Population.	Dinesh Yadav
04.30 – 05.30	Annual General body meeting of APCRI	
07.00pm onwards	Banquet Dinner at The Claridges , 12 Aurangzeb Road, New Delhi 110 011	

Day 2 (4th July 2010)

09.00 – 10.00	RIA Video & Discussion	Dr. M. K. Sudarshan Principal & Prof. of Community Medicine, KIMS, Bengaluru
10.00 – 01.00	Plenary Session - Animal Rabies Control	
	Animal Rabies in India – Current Status	Dr. Ashok Kumar Head, Division of Veterinary Public Health, IVRI, Izatnagar, (U.P)
	Proposed strategy for control of rabies in animals	Dr. UVS Rana, Joint Director, NCDC, Delhi
	Blue print for canine Rabies Elimination	Dr .Deborah Briggs, Executive Director, Alliance for Rabies Control
	Issues in Animal Rabies Control, the Sri Lanka Experience	Dr. P.A.L. Harischandra Director, Public Health Veterinary Services, Sri Lanka
	Panel Discussion	
	Chairperson	Dr. KML Pathak, Dy. Director General, (Animal Science), ICAR, Krishi Bhawan, New Delhi.
	Co-Chairperson	Dr. A.B. Negi, Joint Commissioner, (Livestock Health) Ministry of Agriculture, Krishi Bhawan, New Delhi.
	Panelists 1. Dr. Ashok Kumar, Principal Scientist & HOD, Division of VPH,IVRI, Izatnagar, Bareilly, UP. 2. Dr. J.M. Kataria, Director, National Institute of Animal Health, Baghpath 3. Dr. S.P. Singh, Prof. & Head, Dept of Veterinary Public Health, College of Veterinary Sciences, GBPUA&T, Pant Nagar, Distt. Udham Singh Nagar, Uttarakhand 4. Dr. Harish Chand Bhardwaj, Medical Superintendent, NDMC, Veterinary Hospital, Moti Bagh, New Delhi 5. Dr. R.L. Ichhpujani, Director, National Centre for Disease Control, Delhi. 6. Dr. M.K. Sudarshan, Principal, KIMS, Bangalore, (Karnataka). 7. Dr. S.Abdul Rahman, Secretary, Commonwealth Veterinary Association	
01.00 – 02.00	Valedictory function	
02.00pm	Lunch & Sight seeing	