



Humane method to control dog for rabies vaccination UVAS team in Lahore

CAN PAKISTAN MEET THE GLOBAL GOAL OF RABIES ERADICATION BY 2030? POSSIBLE APPROACHES

Policy Message

- Rabies occupies seventh position among the infective diseases at global level
- The disease kills 2000-5000 people annually in Pakistan i.e. 10% of whole world though the disease is absolutely vaccine preventable
- Pakistan is far behind in comparison to its neighboring countries on the pathway to control and eradication of rabies
- All age groups are at risk and vulnerable to rabies without differentiation of occupation.
- Elimination of animal rabies is pivotal of controlling human rabies
- Lack of awareness among the community and ineffective legislative measures are the key contributing factors to the life losses
- Lack of integrated approach (One Health) is the main hindrance to initiate an effective campaign for control of the rabies.

Different forms of rabies and miseries of dying rabid person are well known. Successful rabies control generates benefits in terms of improved human and animal health and well-being and safer environment. Pakistan is among the countries with highest cases of rabies. Many western countries have successfully controlled rabies through adopting integrative approach. Under the WHO slogan "Zero by 30", countries are now working on the elimination of rabies by the year 2030. In Pakistan, little progress toward integrative control of rabies has been made. This brief is thus aimed to raise understanding among the relevant stakeholders about their role to reduce the incidence of rabies in Pakistan.

How different countries has been able to control rabies successfully:

Since 1983, countries in WHO Region of the Americas have reduced the incidence of canine rabies by over 95% in humans and 98% in dogs. Australia and UK have also been able to eradicate canine rabies. This success has been achieved mainly through the im-

plementation of effective policies and programs that focus on regionally coordinated dog vaccination campaigns, raising public awareness, and widespread availability of post exposure prophylaxis (PEP). In South East Asia region only four countries (Bhutan, Indonesia, Sri Lanka and Thailand) have rabies control activities coordinated at the national level. These countries



Rabid Dog bites any animal and human in its way

Featured case studies

Sri Lanka towards zero rabies death by 2020

Sri Lanka initiated a national program “elimination of dog mediated rabies” (1975-2020) through mass dog vaccination, female dog sterilization, adoption of puppies at community level, raising awareness, and to include cats as much as possible in vaccination campaigns. In addition, a “no kill” policy for roaming dogs was introduced in 2006, supported by a “capture, neuter, vaccinate and release” (CNVR) policy, to stabilize the population of roaming dogs, dog ownership and garbage-disposal practices (Harischandra et al. 2016).

Mission Rabies India

Since 2014, India focused in eliminating rabies from the state of Goa. Vaccination teams were on the field catch dogs humanely for vaccination. The locations of dogs were recorded using a Mission Rabies smart phone app. The team also managed to create a Rabies hotline – a phone number for call if they see a rabies suspect dog. It also operated a Mission Rabies Truck – a mobile veterinary hospital that travelled around India provided veterinary surgical training courses and educating public (<http://www.indiapan.org/mission-rabies-project-in-india.html>).

Rabies control in Great Britain

Great Britain has been free of rabies for most of this century; the last case of indigenous animal rabies occurred in 1922. To counter the threat of rabies the government of Great Britain has the policy. The primary aim is to keep rabies out of Great Britain by means of stringent import controls, with strict penalties for offenders. Controls involve compulsory quarantine for six months, to prevent it becoming established in wildlife.

have registered a progressive decline in the number of human rabies deaths through improved accessibility to rabies post exposure prophylaxis (PEP), an effective vaccine delivery system and mass dog vaccination campaign. Indonesia and Bhutan have been focusing on dog vaccination and dog population management activities. Control efforts in Bangladesh, India and Nepal are fragmented. India launched a pilot project for rabies control in five metropolitan cities in 2008. Bangladesh launched an elimination program in 2010 and through the management of dog bites, mass dog vaccination, and increased availability of vaccines free of charge, human rabies deaths decreased by 50% from 2010–2013.

Existing policy framework for Rabies control in Pakistan

In Pakistan there is no comprehensive national rabies control program with proper planning, funding resources and inter-sectoral coordination. This is a major impediment in the control and subsequent elimination of human rabies transmitted by dogs. Ministries dealing with animal health are focused on economically important animal diseases which affect livestock productivity. Since dogs are not included in livestock, control of canine rabies and dog population management are often neglected. No proper diagnostic and treatment facilities are available at government hospitals neither at village nor at districts level.

Limited initiatives against rabies control in Pakistan:

Under WHO program “Zero by 30” a pilot project named ‘Rabies Free Karachi’ was

started in October 2017 and the purpose was to develop the scientific method of preventing rabies by source control. WHO/OIE strictly discourages killing of dogs. According to WHO/OIE recommendations Mass Dog Vaccination (MDV) of at least 70% of dogs in an area (Ibrahim Hyderi town of Karachi) were carried out to produce herd immunity against rabies. Furthermore, to reduce dog population the recommended strategy for Animal Birth Control (ABC) through spaying/neutering was part of the campaign. Under the aegis of “Indus Hospital Karachi” and “University of Veterinary and Animal Sciences” a pilot scale project was also carried out to train relevant human resource. Such initiatives were however not continued and extended to other regions of the country.

Limited awareness about rabies in Pakistan:

In Pakistan 55% people did not even consider dog bites as a predisposing factor to rabies and even did not know that dog bite can be fatal. There is a lack of awareness amongst medical doctors and health professionals about the importance of wound-washing, appropriate use of anti-rabies vaccines and the utility of rabies immunoglobulin (RIG) in saving the lives of rabid dog bite victims. Awareness of rabies among public is inadequate. Most of people even did not know what to do after dog bite. Traditional myths and cultural beliefs also play role in high number of rabies cases. Therefore, deaths from rabies occur due to mishandling of animal bites within the community as well as at professional level.



Everyone is exposed to stray dog both in rural and urban areas.

Limited data availability, stakeholder coordination and infrastructure for rabies control

The infrastructure and utilization of laboratory services are not sufficient. People often can diagnose the furious form of rabies but the dumb form of rabies often remain neglected because there are no proper diagnostic facilities available even at district level human and veterinary hospitals. Inadequate understanding of the epidemiology of rabies in humans has encouraged an absence of prioritization of the disease by health authorities. In Pakistan, there is no census on dog bite and rabies; rabies is neither reportable nor notifiable. There is no approachable diagnostic facility; Knowledge, attitude and practices against rabies prevention are extremely poor among physicians and general public. Currently rabies vaccine for animals is not being prepared in Pakistan, while the National Institute of Health Islamabad is contributing in preparation of rabies vaccine for humans. Eradication of rabies is not feasible without regional and inter-sectoral collaboration and as there is no surveillance system for animal rabies. In Pakistan there is often a lack of consensus among ministries (health, agriculture/livestock) while dealing with rabies which can be resolved using one health approach.

What benefits can be accrued by effective rabies control:

Rabies is life threatening hence benefits of rabies control on human and animal health will be innumerable. Efforts for rabies control as per guidelines of WHO will help Pakistan to achieve “zero by 30” goal. Currently there is no data available on animal rabies but when a massive vaccination campaign will be carried out to control dog mediated rabies, it will help in generation of rabies cases data both for animal & humans and will strengthen reporting system. Coordination among different departments under One Health principle will help in reducing incidence of animal and human deaths. Rabies control program will help to improve the status of human health, economic benefits for livestock and compliance of International Health Regulations in Pakistan.

How existing framework for the control of rabies in Pakistan can be improved

The following actions will lead to the pos-



Killing of stray dog is not solution to a problem, is not recommended by WHO.

sibility of eradication of rabies by 2030. Pakistan needs actions at level of government, community, livestock and health department as per the following recommended activities.

- At Community level-Includes** activities like

- a.—Awareness raising about dog mediated rabies as a preventable public health problem, by celebrating World Rabies Day and by starting End Rabies Now campaign
- b.—Promote responsible dog ownership
- c.—Develop and implement education programs about dog behavior, bite prevention and imperatives of post-bite treatment both for children and adults

- At level of Health and Livestock department** - Includes activities i.e.

- a.—Make available dog and human vaccines and immunoglobulins, for mass dog vaccination
- b.—Collect data to create and sustain the logistics and infrastructure
- c.—Ensure capacity and capability for rapid and accurate rabies diagnosis through accessible, well equipped laboratories and trained personnel
- d.—Support improved surveillance, sampling, reporting, and data-sharing

- At local and provincial government level** –

- a.—Establish and enforce appropriate legal frameworks
- b.—Provide resources for investment in dog-mediated human rabies elimination
- c.—Support monitoring and evaluation of national plans to ensure timely and cost

effective delivery.

Policy Recommendations

Rabies will continue to threaten human life in Pakistan if rabies is not controlled in dog population. Suggested policy recommendations can avert such scenario include:

- 1—Declare dog rabies as notifiable disease and focus on the primary source (dog) for the control of rabies.
- 2—Establish rabies treatment centers at each district headquarters hospital where health-care providers will be trained on management and treatment of dog bites with anti-rabies vaccine
- 3—Ensure the availability of cost-effective and efficacious anti-rabies vaccines in designated rabies treatment centers at district level
- 4—Initiate a dog prophylactic vaccination campaign with regular frequency at every veterinary hospital and dispensary like other livestock diseases of economic importance
- 5—At Union Council level, whenever there is case of rabies inform all relevant stakeholders and immediately initiate coordinated action for mass vaccination of dogs in surrounding territory.
- 6—Initiate mass communication/ awareness raising campaigns through mass media, press, field days, and awareness seminars.
- 7—Start dog population management (animal birth control i.e. spaying and neutering, habitat control) campaigns instead of killing campaigns.

8—Launch mandated training and capacity building program with sufficient resources, logistics and infrastructure to train personnel in rabies control to benefit for both human and animal health sector.

9—Research institution could play role in collecting baseline data for monitoring, carry out epidemiological research and providing modern vaccines of cell-culture or embryonated-egg origin that are safer and more effective than the older brain tissue culture vaccines

10—Government should provide long-term social and political commitment.



Child-with-multiple-dog-bites-of-face-head-and-hands-from-a-confirmed-rabid-animal-Small

Researchers Featured

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Further Reading

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Explained Terminologies:

Post-exposure Prophylaxis (PEP): Medication after being potentially exposed to pathogen, to prevent infection

Rabies Immunoglobulins (RIG): Readily prepared antibodies

Eradication: Removal of disease globally

Elimination: Removal of disease from specific region

Notifiable disease: Any disease that is required by law to be reported to government authorities.

Spaying: Sterilize a female by removing ovaries, so that not able to produce off-springs

Neutering: Is the removal of an animal's reproductive organ

WHO regions: WHO Member States are grouped into 6 WHO regions: African Region, Region of the Americas, South-East Asia Region, European Region, Eastern Mediterranean Region, and Western Pacific Region.

WHO: World Health Organization

OIE: Office International des Epizooties (WHO for animals)

Embryonated-egg: Fertilized chicken eggs, in which vaccines for diseases are produced

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