

# THE NATIONAL ACTION PLAN FOR THE ELIMINATION OF DOG-MEDIATED RABIES: A ONE HEALTH APPROACH IS ESSENTIAL FOR INDIA TO REACH ITS TARGET BY 2030

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## INTRODUCTION

The World Organisation for Animal Health (WOAH), the Food and Agriculture Organization (FAO) of the United Nations (UN), previously known as the Office International des Epizooties (OIE), along with the Global Alliance for Rabies Control (GARC), engaged in comprehensive collaborative discussions in 2015 to develop the Global Strategic Plan aimed at eliminating human fatalities caused by dog-mediated rabies by the year 2030.[1] This plan encompasses three primary objectives: (1) halting the transmission of rabies in dogs through the use of vaccines, medications, tools and other technologies, while also decreasing human fatalities; (2) utilizing high-quality evidence to assess impact and effectively customize policy decisions; and (3) fostering collaboration among multiple stakeholders in action.

## IMPROVING INDIA'S INITIATIVES FOR RABIES ELIMINATION: A COMPREHENSIVE STRATEGY

India's National Action Plan for Rabies Elimination (NAPRE) by 2030 was introduced during the COVID-19 pandemic in 2020 and became effective in 2021.[2] The components related to veterinary public health encompass estimating the dog population, identifying rabies risk zones, implementing a mass dog vaccination program, managing and disposing of solid waste effectively, conducting operational research, and promoting responsible dog ownership. The components pertaining to human public health include postexposure prophylaxis (PEP),

training human resources, improving surveillance of dog bites and clinical rabies cases in humans, developing appropriate communication strategies and fostering public-private partnerships. In accordance with these national strategies, state action plans will be formulated to align with local contexts and priorities.



**Fig. 1:** Catalytic response pathways for realignment of rabies

As the NAPRE is rolling out and planning and implementation are underway, suggesting six CRPR [Figure 1] to accelerate the progress and achieve elimination by the target date (2030).

CRPR-1: The initial indicator of objective 1, which pertains to the availability and access to vaccines for dogs, presents the greatest challenge. Our current goal is to achieve over 70% vaccination coverage for dogs, including free-roaming dogs (FRDs). The primary obstacles include the availability of trained personnel, such as skilled dog-catching teams, the administration of the vaccine via parenteral routes, the need for specialized equipment or logistics, and

training for effective catching. Additionally, securing adequate financial resources is essential to successfully carry out this initiative. At the subnational level, it is crucial to identify and effectively utilize trained human resources. Alternative vaccination methods, like oral rabies vaccines (ORVs), offer convenience and the potential to expedite progress, with support from the WHO and OIE. However, ORVs require safety evaluations, central licensing, the development of acceptable bait, and appropriate resource allocation prior to their implementation in the program.

CRPR-2: The second indicator of objective 1 focuses on universal health coverage, which includes the management of bites and clinical rabies cases in humans. India has made significant advancements in this domain. The availability and accessibility of post-exposure prophylaxis (PEP) and rabies immunoglobulin (RIG) at block and municipal levels facilitate prompt and easy access to vaccinations. However, ensuring adherence to the complete vaccination schedule remains a challenge. Innovations such as health literacy initiatives, mobile reminders and digital tracking methods can greatly enhance compliance. Key measures to ensure sustainability include guaranteeing that no eligible individuals for immunoglobulins are overlooked, establishing laboratory diagnostic capabilities, and creating model treatment centers.

CRPR-3: At the national level, India is resolutely dedicated to the execution of the "One Health" initiative. Efforts are underway at the subnational level to enhance multisectoral collaboration, particularly in addressing zoonotic diseases. The prompt exchange of information and the establishment of platforms for integrated data sharing, along with a dashboard for risk analysis and the dissemination of surveillance data concerning both clinical and nonclinical rabies in domestic and wild animal populations, are urgent priorities.

CRPR-4: Every state, district, and local authority possesses legal frameworks for

the vaccination of dogs and the management of rabies. Local health authorities must bolster the enforcement of these regulations to expedite implementation and control, while also promoting responsible pet ownership.

CRPR-5: In 2020, Goa incorporated rabies education into its school curriculum for children aged 11 to 12 years. Raising rabies awareness through educational programs in schools is a vital investment that can improve health literacy regarding the signs and symptoms of rabies, the identification of rabid dogs, and preventive measures such as responsible dog ownership and post-exposure prophylaxis (PEP) in the event of bites.

CRPR-6: The experiences gained from the elimination of polio and measles have highlighted the significance of molecular epidemiology, and India now possesses substantial laboratory capabilities to conduct these studies for priority programs. Time-scaled phylogenetic analysis at the state level, along with the newly established Integrated District Public Health Laboratories, are essential for comprehending the transmission dynamics of the rabies virus and for pinpointing potential areas for the ongoing reintroduction of canine rabies.

### **IMPLEMENTING "ONE HEALTH" APPROACH FOR RABIES:**

India has earnestly embarked on the journey to institutionalize the One Health approach and integrate it into both human and veterinary public health systems. There is a necessity to examine and identify strategies for improving collaboration across various sectors to effectively address zoonoses and the animal-human interface. Although different ministries and departments have distinct objectives and resource allocations, it is promising to note the existence of a broad political consensus and commitment.

Concurrently, the One Health initiative requires a more comprehensive framework that encompasses a deeper appreciation of its multidisciplinary aspects. This will involve the creation of institutional mechanisms to operate both within and between ministries

and agencies. Assigning suitable leadership roles will be crucial for navigating the implicit institutional hierarchies. The phased approach

to elimination that has been adopted in India is expected to contribute to a reduction in fatalities in the forthcoming days.

**Table 1: Key Components of One Health Implementation for Rabies**

| Component                                     | Description   |
|---|---|
| <b>Dog Vaccination</b>                        | Mass dog vaccination is the cornerstone. WHO recommends 70% coverage to break transmission.   |
| <b>Integrated Bite Case Management (IBCM)</b> | A surveillance system linking human and animal health sectors to assess bite risk, guide post-exposure prophylaxis (PEP), and investigate animal cases. |
| <b>Public Awareness &amp; Education</b>       | Community engagement to promote responsible dog ownership and timely medical care.  |
| <b>Access to Human PEP</b>                    | Ensuring availability and affordability of rabies vaccines and immunoglobulin, especially in rural areas.   |
| <b>Surveillance &amp; Data Sharing</b>        | Cross-sectoral data collection and sharing to monitor outbreaks and evaluate interventions.   |
| <b>Policy &amp; Governance</b>                | Multisectoral coordination among ministries of health, agriculture, and environment.  |

**IMPROVING INDIA'S INITIATIVES FOR RABIES ELIMINATION: A COMPREHENSIVE STRATEGY**

**Community Engagement**

While discussing responsible dog ownership and extensive dog vaccination initiatives, it is crucial to emphasize the importance of community participation. Local communities play a vital role in the success of these initiatives. It is essential to encourage communities to engage in awareness campaigns, vaccination drives, and dog bite reporting. Empowering communities with the necessary resources to take charge of rabies control efforts can lead to sustainable success.

**Interdisciplinary Research**

The elimination of rabies would greatly benefit from collaborative interdisciplinary research. Molecular epidemiology, yet there exists an opportunity for deeper exploration. Co-operation among epidemiologists, virologists, and other relevant fields can enhance our understanding and strategies for rabies elimination and social scientists can provide a holistic understanding

of rabies transmission dynamics, including the socio-cultural factors influencing human-dog interactions and rabies spread.[3]

**Technological Innovation**

Emerging technologies like blockchain and artificial intelligence can be utilized for the tracking and monitoring of dog vaccination initiatives, ensuring transparency and minimizing vaccine wastage. Furthermore, telemedicine and mobile health applications can enable prompt reporting of dog bites and assist individuals in accessing post-exposure prophylaxis (PEP) information and services more effectively.[4]

**Global Cooperation**

The international community should be motivated to exchange best practices and resources. While recognizing the significance of international collaboration, emphasizing the necessity of global cooperation regarding knowledge sharing, vaccine distribution, and expertise exchange can expedite progress not only in India but also in areas facing similar challenges.

**Public-Private Partnerships**

In addition to the public sector, involving the private sector can introduce innovative solutions. Pharmaceutical companies, technology enterprises, and non-governmental organizations can work together with government agencies to improve the availability of vaccines, diagnostics, and educational resources.

### **Sustainability**

It is essential to strategize for the sustainability of rabies elimination efforts beyond 2030. Formulating a post-2030 plan that concentrates on sustaining vaccination coverage and ongoing surveillance is crucial to avert the resurgence of rabies cases.

### **CONCLUSION**

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