

SHORT ARTICLE

Strengthening India's Shield Against Zoonoses: Newer Initiatives from a Centre for One Health in North India

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ABSTRACT

Background: Zoonotic diseases constitute over 60% of infectious diseases and 75% of emerging infections, posing risks in India due to high human animal interface. **Aims & Objectives:** To describe two One Health initiatives implemented by a Regional Coordinating Centre in North India. **Description:** NIVARAN, a zoonoses helpline, provides teleconsultation and referral guidance, while SAATH strengthens frontline workers' capacity for early recognition and prevention of priority zoonoses. **Results:** These initiatives improved access, consultation and strengthened community-level vigilance and referrals. **Conclusion:** Integrating consultation with structured training of community health workers offers a scalable model for strengthening zoonotic disease preparedness.

KEYWORDS

Zoonoses, One Health

INTRODUCTION

"The health of humans, animals, and the environment are not separate stories; they are chapters of the same book."

In the aftermath of the COVID-19 pandemic, there has been renewed global focus on zoonotic diseases, which have emerged as a major public health challenge worldwide. According to the World Health Organization, in collaboration with the Food and Agriculture Organization and the World Organisation for Animal Health, more than 60% of all known infectious diseases in humans and nearly 75% of emerging infectious diseases are zoonotic in origin, as documented in global assessments published in 2014 and reaffirmed in subsequent technical reports (1,2). This epidemiological reality underscores the urgent need for public health strategies that move beyond conventional, sector-specific (siloed) approaches.

India, with its vast livestock population, dense human settlements, and rich biodiversity, is particularly vulnerable to zoonotic threats. From rabies in rural and urban communities to brucellosis in dairy farming regions, and from leptospirosis in flood-prone areas to emerging infections such as Crimean-Congo haemorrhagic fever, these diseases exert a heavy toll on health systems, livelihoods of individuals, families, and local economies (3).

North India exhibits a heterogeneous zoonotic disease profile shaped by ecological, occupational, and socio-

environmental factors. Dairy-intensive states experience persistent transmission of brucellosis and rabies (4), while flood-prone and irrigated regions face seasonal leptospirosis (5). Arid and semi-arid regions report scrub typhus, anthrax, and episodic Crimean-Congo haemorrhagic fever outbreaks (6,7), whereas hilly and forested areas are more vulnerable to tick-borne zoonoses, including scrub typhus, along with continued rabies transmission due to free-ranging dog populations (8). In parts of the Indo-Gangetic plains, Japanese encephalitis and rabies remain important public health concerns, as documented through national disease surveillance systems (9).

Addressing these challenges requires not isolated interventions, but an integrated and collaborative approach known as One Health a framework that acknowledges the interdependence of human, animal, and environmental wellbeing. By fostering collaboration among medical, veterinary, and environmental sectors, One Health enables integrated surveillance, rapid response, and sustainable prevention strategies

This not only strengthens preparedness for outbreaks but also promotes long-term resilience in the face of future pandemics. This vision underpins the National One Health Programme for Prevention and Control of Zoonoses (NOHPCZ), led by the National Centre for Disease Control under the Ministry of Health and Family Welfare, Government of India (10).

Regional Coordinating Centre for One Health in North India: The Centre for One Health in North India, functioning as a Regional Coordinating Centre (RCC), plays a pivotal role in strengthening One Health activities across the northern region. This region reflects diverse ecological and occupational profiles, each with distinct vulnerabilities to zoonotic diseases. The RCC's responsibilities include surveillance, capacity building, community engagement, and rapid response mechanisms to enhance preparedness and resilience.(5)

Two initiatives have been launched to fulfil this mandate: **NIVARAN** (Nodal Initiative for Vigilance, Awareness and Response Against Notifiable Zoonoses), a dedicated zoonoses helpline, and **SAATH** (Sensitization and Awareness for ASHAs, ANMs and Training of Health workers) a structured sensitization and training programme for frontline health workers. Together, they form a comprehensive strategy that combines accessible expert guidance with empowered grassroots vigilance.

NIVARAN – Nodal Initiative for Vigilance, Awareness and Response Against Notifiable Zoonoses

NIVARAN, launched in May 2025, is the first One Health helpline of its kind in the region. It provides expert teleconsultation, risk assessment, and referral guidance for zoonotic diseases in humans and animals. The helpline ensures that communities and health workers have immediate access to credible advice, reducing the risk of misinformation and delays in treatment.

Its objectives include providing expert support to healthcare workers, veterinarians, researchers, and the general public; offering confidential telephonic communications for suspected zoonotic exposures; linking human and animal health services for coordinated response; and disseminating preventive strategies through risk communication. The services are provided by medical doctors and veterinarians in consultation.

NIVARAN in Action

The real impact of NIVARAN is best understood through its early success stories:

- **Case 1 – Rabies Risk Management:** A resident of Badal village, District Mukhtsar Punjab called the helpline after a dog bite incident. The teleconsultation team provided immediate wound-care guidance, advised urgent referral for **post-exposure prophylaxis**, and connected the caller with the nearest Health Centre for follow-up.
- **Case 2 – Brucellosis Response:** In Sangat village, District Bathinda an animal handler suspected brucellosis after experiencing prolonged fever and joint pain. NIVARAN guided him to AIIMS Bathinda for testing while simultaneously alerting the **Department of Animal Husbandry** to examine the livestock demonstrating a textbook One Health response.

SAATH – Sensitization and Awareness of ASHAs, ANMs, and Training of Health Workers

If NIVARAN brings expertise closer to the people, SAATH strengthens the capacity of the frontline workforce. In rural and peri-urban India, health workers such as ASHAs, ANMs, and CHOs are often the first to notice unusual health events, including fever clusters, unexplained animal deaths, or neurological symptoms. Without adequate information and formal training in zoonotic disease recognition, these early warning signs risk being overlooked.

SAATH bridges this gap by building awareness of priority zoonotic diseases, improving diagnostic suspicion for early detection, teaching referral protocols, and promoting community-level prevention. Training sessions emphasize preventive measures such as safe animal handling, personal hygiene, boiling milk to avoid brucellosis, and wearing protective footwear in flood-prone areas to prevent leptospirosis. The modules also include practical tools such as referral flowcharts, case studies based on real-life scenarios, and myth-busting facts for instance, rabies transmission can occur not only from bites but also from scratches or licks on broken skin. A simple message *“Healthy animals mean healthy families”* captures the essence of the One Health philosophy and resonates strongly at the community level.

Regional Relevance of These Initiatives: The zoonotic profiles of this region (North and North Western part) highlight the importance of these interventions. Punjab and Haryana, with high dairy production and rice cultivation, face significant risks of brucellosis, rabies, and leptospirosis. Rajasthan, with its tribal and pastoral populations, remains vulnerable to scrub typhus, anthrax, and Crimean-Congo haemorrhagic fever. Himachal Pradesh, with its hilly and forested terrain, experiences a higher risk of tick-borne infections.

In such diverse contexts, NIVARAN provides timely expert support that can prevent complications and save lives, while SAATH strengthens community-based surveillance systems that enable early outbreak detection and containment. Together, they establish a safety net that combines top-down expertise with bottom-up vigilance.

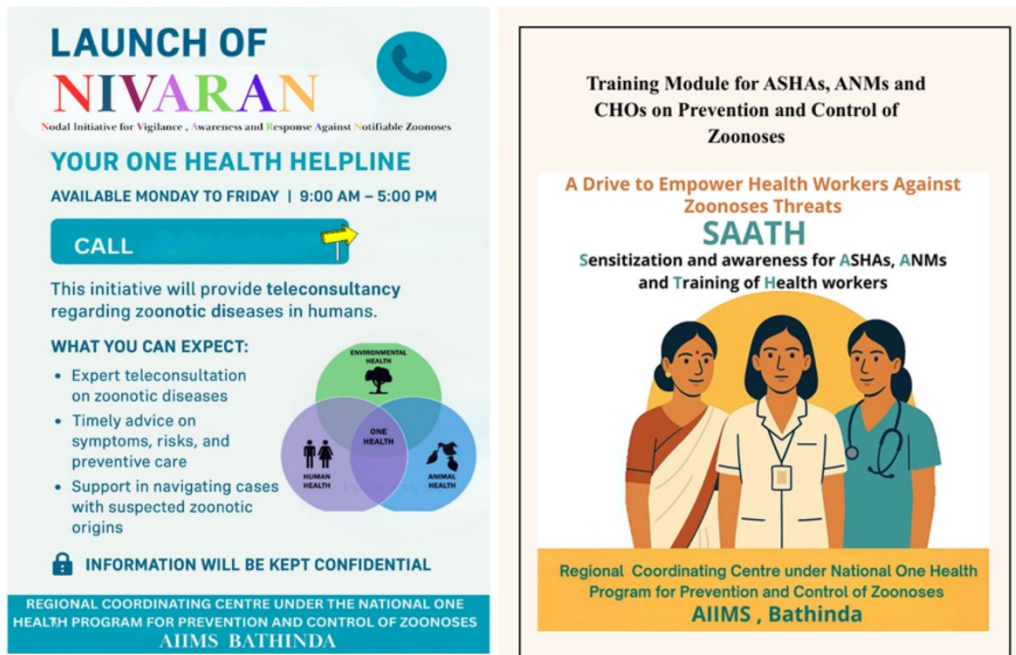
Planned Expansion: The Centre for One Health is planning to scale up these initiatives further. QR-coded brochures will soon be distributed across Primary Health Centres, Community Health Centres, and District Hospitals. These brochures will link directly to user-friendly resources and FAQs on zoonotic diseases, offering integrated human and animal health guidance in local languages.

The RCC's approach combines:

- Top-down consultation (through NIVARAN)
- Bottom-up vigilance (through SAATH)

The RCC approach represents a model which can be replicated or adapted to local context for other regions in the country. By combining consultation platforms such as NIVARAN with grassroots capacity-building programmes like SAATH, One Health approaches can be operationalized effectively in a more organized way with better implementation of the NOHPPCZ. This model can be adapted across India, with disease priorities and training content customized to reflect local epidemiological realities.

Figure 1 One Health initiatives (NIVARAN and SAATH) implemented by the Regional Coordinating Centre, AIIMS Bathinda



CONCLUSION

One Health is more than a concept it is a commitment to breaking down silos between human medicine, veterinary science, and environmental stewardship. With NIVARAN and SAATH, the RCC is envisioning initiatives that can translate into real-world results: early responses and stronger, healthier communities.

RECOMMENDATION

"One Health is not a choice it is the only path forward." When communities are empowered and expertise is accessible, zoonotic diseases can be detected earlier, managed more effectively, and, most importantly, prevented in line with the program objectives and vision.

AUTHORS CONTRIBUTION

All authors have contributed equally.

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CONFLICT OF INTEREST

There are no conflicts of interest.

DECLARATION OF GENERATIVE AI AND AI ASSISTED TECHNOLOGIES IN THE WRITING PROCESS

The authors haven't used any generative AI/AI assisted technologies in the writing process.

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