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Stronger Together for Zero by 2030: Reimagining Rabies Elimination Before World Rabies Day 2026

Jessica Susan John¹, Mohammad Faizan T K¹, Jincy Jose¹, Asha K², Nirmal Jacob³

¹Fourth Year BVSc & AH Student, College of Veterinary and Animal Sciences,

²Assistant Professor, Department of Veterinary Public Health and Epidemiology,

College of Veterinary and Animal Sciences,

³BVSc and AH Intern, College of Veterinary and Animal Sciences,

Kerala Veterinary and Animal Sciences University, India

*Corresponding Author: jess20john@gmail.com

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Abstract:

Rabies remains one of the deadliest yet most preventable zoonotic diseases, causing an estimated 59,000 human deaths each year, primarily in Africa and Asia. While progress has been made over the past thirty years, the disease still reveals significant gaps in access to dog vaccination, post-exposure treatment, surveillance, and health education. As World Rabies Day 2026, centered on the theme “Stronger Together,” approaches, this article contends that eradicating rabies by 2030 is still feasible if countries adopt a One Health approach that combines mass dog vaccination, equitable access to human rabies vaccines and immunoglobulins, stronger surveillance, community participation, and digital coordination. The remaining years before 2030 should focus less on developing new tools and more on effectively implementing existing ones, especially in high-burden and underserved communities.

The Present Scenario:

Rabies causes an estimated 59,000 human deaths each year, with about 95% of cases occurring in Africa and Asia. Dogs remain the major source of human infection, and more than 90% of human exposures and 99% of human rabies deaths are connected to dog bites. The disease burden has declined over the last three decades; however, the progress is uneven, and the highest risk remains concentrated in low-resource settings where access to vaccines, post-exposure prophylaxis, and surveillance is limited.

Indicator	Current Scenario
Annual human deaths	About 59,000 worldwide
Main geographic burden	Africa and Asia account for most deaths
Main source of infection	Dog-mediated transmission
Fatality after symptom onset	Nearly 100%

Table 1. Summary of primary indicators and current scenario of rabies in today's era.

Rabies cannot be limited to a medical problem; it is a systemic issue. In many endemic areas, people struggle to access care after a bite. Dog vaccination coverage remains too low to stop transmission, and surveillance data are often incomplete, which makes planning harder.

What Must Change?

The most effective global strategy remains the “Zero by 30” framework, which integrates mass dog vaccination, enhanced access to post-exposure prophylaxis, surveillance, community engagement, and One Health coordination. The core lesson is simple: treating human bite victims alone cannot end rabies if the disease continues to circulate among dogs.

A practical elimination plan should focus on 5 steps:

- 1. Mass Dog Vaccination:** This remains the most cost-effective way to break transmission, with the global goal of achieving and sustaining high coverage in the at-risk dog population.
- 2. Universal Availability of Post Exposure Prophylaxis:** Rabies vaccine and immunoglobulin must be available, affordable, and geographically accessible, especially for rural and poor communities.
- 3. Targeted Innovations:** Mobile vaccination teams, digital reporting systems, oral vaccination for free-roaming dogs, and better supply forecasting can fill the gaps. Human and animal health data should be shared through integrated dashboards to identify outbreaks quickly.
- 3.4. Community-based Awareness and Education:** On wound washing, bite reporting, responsible dog ownership, and early care-seeking can prevent deaths immediately.
- 4.5. Develop One Health Systems:** Rabies elimination requires veterinary services, public health, local government, schools, and civil society to work as one system. Robust surveillance, laboratory capacity, and real-time reporting systems are also essential for targeting hotspots and measuring progress.
- 5.6. Environmental Waste Management:** There is a link between rabies persistence in dog rabies-endemic countries and municipal solid waste (MSW) mismanagement. A large discrepancy exists between the recycling and reuse of MSW in developing and developed countries worldwide. In developing countries, the main focus is on increasing capacity of waste collection and minimizing uncontrolled dumping of MSW. In contrast, developed countries give priority to reducing waste generation and reuse/recycling activities. Dog rabies free countries in Asia, like Japan, Singapore, and Korea, have made immense progress in waste recycling and management through door-to-door waste collection, thermal recovery, fuel recovery, composting of biodegradable waste, easier disassembly, and incineration, whereas in dog rabies endemic countries, it is just the opposite. Likewise, many countries in Europe and America have established power plants to utilize the MSW produced.
- 6.7. Effective Ownership:** Owners should ensure that dogs receive regular anti-rabies vaccination, are appropriately identified, and are prevented from roaming freely in the community. Responsible ownership also helps reduce dog bites and unwanted dog reproduction, thereby supporting effective

dog-population management. Canine rabies vaccination coverage of 70% has been demonstrated to reduce transmission enough to control outbreaks of the disease in the dog population, which leads to the prevention of virus transmission from dogs to humans. Mass vaccination of between 60% and 70% of owned dogs has subsequently resulted in dramatic decreases in the incidence of human rabies.

8. Animal Birth Control: Dog population management programme in which free-roaming or unowned dogs are humanely captured, sterilized, vaccinated against rabies, and subsequently returned to their area when appropriate. “Catch, Neuter, Vaccinate, Return” (CNVR) approach is another key aspect which is likely to have a significant impact. Neutering prevents the birth of unwanted dogs that will likely be abandoned and thus be unvaccinated, leading to poorer vaccination coverage. Furthermore, this approach also benefits animal welfare, improving the life expectancy of vaccinated dogs.

New Strategies for 2030:

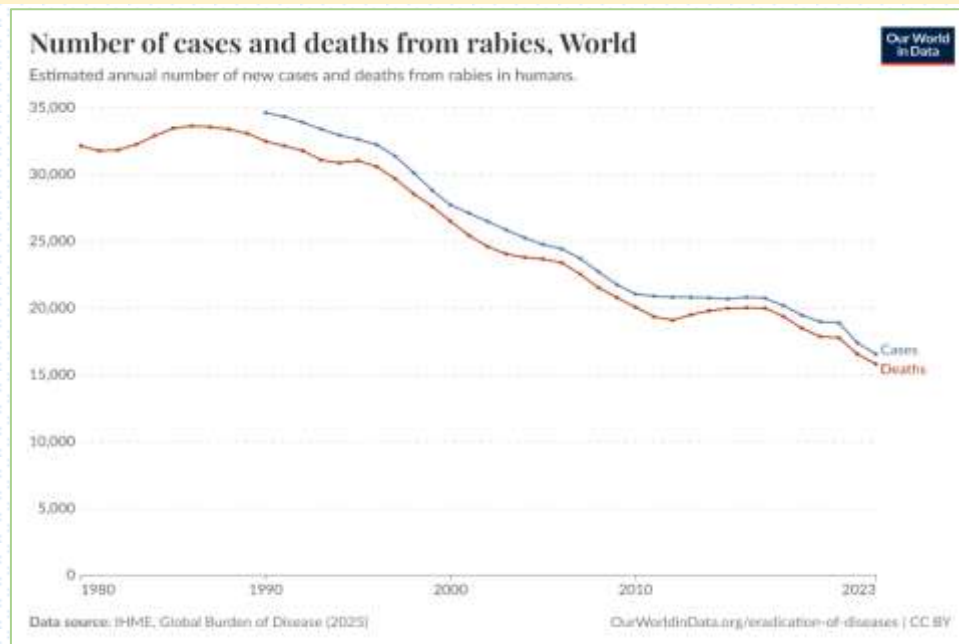
Strategy	Why it matters	How it helps by 2030
Mobile dog vaccination teams	Reaches peri-urban and remote areas	Increases dog coverage where fixed services fail
Digital bite reporting	Improves case detection and follow-up	Speeds referral and outbreak response
Local vaccine forecasting	Reduces stock-outs of human and dog vaccines	Keeps prevention continuous
Community health worker engagement	Extends reach into underserved communities	Improves awareness and referral
School-based rabies education	Reaches families through children	Boosts prevention and early wound care
One Health dashboards	Unites human and animal surveillance	Supports faster, shared decision-making
Oral vaccination for free-roaming dogs	Complements conventional dog vaccination	Helps hard-to-catch populations

Table 2. New strategies worth scaling

These strategies matter because rabies control is often weakest at the margins: villages far from clinics, informal settlements with free-roaming dogs, and communities that do not trust formal scientific systems. A truly modern elimination program must be designed for those settings first, not last.

Year	Annual cases	Trend
1990	22,035	Higher burden
2021	10,181	Lower burden

Table 3. Estimated global progress in rabies burden, 1990 to 2021



The global age-standardized incidence rate fell by 69.4% between 1990 and 2021, showing that rabies control works when prevention is sustained. But falling numbers should not create false overconfidence: the disease remains lethal, geographically clustered and limited, and deeply tied to inequity

Why New Strategies By 2030?

The 2030 target is not unrealistic because the tools already exist. The real challenge is its implementation at scale, continuity of funding, and political commitment over time. Where dog vaccination campaigns are sustained, PEP access improves, and surveillance becomes routine, human rabies deaths can fall sharply.

The most promising next step is an emergency approach: start with high-burden districts, prove impact quickly, then expand to neighboring areas with logistics aid and data systems. This is especially important now, because the final years before 2030 should not be spent inventing new science alone; they should be spent delivering existing science better.

Discussion:

Rabies control is a public health equity test. The disease is concentrated in places where poverty, distance, and weak infrastructure obstruct prevention and care. Therefore, the response must go beyond clinical treatment and include dog population management, public education, and policy commitment.

The “Stronger Together” message for World Rabies Day 2026 is especially relevant because no single sector can solve rabies in isolation. Veterinarians can vaccinate dogs, clinicians can deliver post-exposure prophylaxis, schools can spread awareness, and governments can coordinate financing and reporting. When these efforts are aligned, the path to zero becomes realistic.

Conclusions:

Rabies elimination is often described as a technical goal, but it is also a moral one. Every death

represents a missed vaccine, a missed diagnosis, a missed opportunity to wash a wound, or a missed chance to vaccinate a dog.

World Rabies Day 2026 offers the perfect moment to shift the context from “control” to “closure.” If we are serious about 2030, we must think beyond single interventions and build an interconnected system where human health, animal health, and community trust reinforce each other.

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