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# World Rabies Day: Strategies and Measures for Rabies Prevention and Control in China

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**ABSTRACT**

On the occasion of World Rabies Day, this review summarizes the current status of rabies prevention and control in China. It outlines key national strategies, including the establishment of a nationwide surveillance network, standardization of post-exposure prophylaxis clinics, strengthened vaccine regulation, improved dog management, and expanded public health education. Since 2007, China has made substantial progress by developing a government-led, multisectoral, and society-wide "One Health" control system, reducing annual human rabies cases from the peak of 3,300 to 167 in 2024. Nonetheless, challenges remain, such as uneven vaccination coverage among rural dog populations, regional disparities in PEP accessibility, and gaps in the closed-loop management of high-risk exposures. With the 2025 World Rabies Day theme "All of Us Can Make Rabies History",coordinated efforts toward more targeted and technology-supported prevention are recommended to ensure progress toward the global goal of "Zero by 30" .



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## Introduction

World Rabies Day, initiated by the Alliance for Rabies Control (ARC) and jointly supported by the World Health Organization, the World Organisation for Animal Health, and the U.S. Centers for Disease Control and Prevention, is observed globally on 28 September each year. The day was established to provide a unified and sustained international platform for advocacy, with the aim of improving public awareness of rabies and advancing the implementation of rabies prevention and control measures worldwide.

Since its launch in 2007, this year marks the nineteenth World Rabies Day, with the theme “Collaborate and Act to Strengthen Rabies Prevention.” Each year, China carries out targeted activities in response to the global initiative. This article provides a concise overview of recent strategies and measures implemented in China for rabies prevention and control, as summarized below.

## About World Rabies Day

World Rabies Day is observed globally each year on 28 September. The date also commemorates the death of Louis Pasteur (December 27, 1822 – September 28, 1895), the French chemist and microbiologist who, in the 19th century, developed the first rabies vaccine for human use. His pioneering work laid the foundation for modern vaccinology and established the scientific basis for subsequent rabies prevention and control efforts[1].

The first World Rabies Day was held on 28 September 2007 with the theme “Working together to make rabies history.” Countries across the world organized a range of thematic awareness campaigns, which collectively marked a milestone in raising public understanding of rabies and advancing global control efforts[2]. Between 2007 and 2013, the annual themes primarily focused on increasing awareness of the dangers posed by rabies and promoting key concepts related to post-exposure management. From 2014 to 2019, activities such as animal vaccination days became more structured, although public education and awareness remained the dominant focus. During this stage, the overarching objective continued to be enhancing public recognition of rabies risks and emphasizing the importance of timely post-exposure prophylaxis.

Over time, the emphasis of World Rabies Day gradually shifted from simple advocacy to encouraging concrete actions and multi-sector cooperation. The themes increasingly aligned with the “One Health” concept, as reflected in slogans such as “Share the message. Save a life.” and “Educate. Vaccinate. Eliminate.” [3-4]During these years, WHO and other organizations released operational guidance and emergency response frameworks, which

supported health facilities in strengthening standardized training on post-exposure prophylaxis. As a result, World Rabies Day has progressively evolved into an important catalyst for putting rabies control measures into practice.

Since 2020, the themes of World Rabies Day have centered on the global goal of "Zero by 30," such as "One Health, Zero Death" in 2022 and "All for one, one health for all" in 2023[5-6]. During this period, many countries accumulated more experience in rabies prevention and control, and the focus gradually shifted from general awareness campaigns to the implementation of concrete policies. International organizations encouraged countries to develop national elimination plans suited to their local epidemiological and resource contexts and to strengthen laboratory-based surveillance systems.

Health authorities, disease control agencies and veterinary services in many regions also used World Rabies Day as an opportunity to conduct joint drills or targeted campaigns, promoting coordinated work across human health, animal health and public health sectors. Overall, the themes and activities of World Rabies Day have evolved from raising awareness, to driving practical interventions, and eventually to facilitating the implementation of national and regional policies. This progression has made the observance a key catalyst for improving global rabies prevention and control systems.

World Rabies Day provides a long-term and unified platform for global advocacy, enabling countries to strengthen collaboration under shared objectives. It has played an important role in advancing key control measures-including dog vaccination, standardized post-exposure prophylaxis, and improved public awareness-on a global scale. The sustained momentum generated by this annual initiative has helped build consensus, mobilize resources and maintain political commitment, thereby laying the social and policy foundation needed to move toward the "Zero by 30" goal. The annual themes are summarized in Table 1.

## Strategies and Measures for Rabies Prevention and Control in China

China has actively aligned itself with the global goal of "Zero human rabies deaths by 2030" and, guided by the One Health framework, has developed an integrated national rabies control system featuring government leadership, multi-sectoral collaboration, and broad community participation. The country has strengthened its surveillance network, expanded and standardized post-exposure prophylaxis (PEP) services, advanced dog management and vaccination programs, and enhanced public education. These measures have collectively contributed to notable progress:

the number of human rabies cases decreased from the peak of more than 3,300 cases in 2007 to 122 cases in 2023, marking sixteen consecutive years of decline. Although a rebound occurred in 2024, with 167 reported cases (a 36.9% increase compared with 2023), the overall burden remains substantially lower than levels observed during 2005–2019 [7]. Annual case counts are presented in Figure 1.

**Table 1.** Themes of World Rabies Day, 2007–2025

| Year | Theme | Year | Theme |
|---|---|---|---|
| 2007 | Working Together to Make Rabies History | 2017 | Zero by 2030. |
| 2008 | | 2018 | Share the message. Save a life |
| 2009 | | 2019 | Vaccinate to Eliminate |
| 2010 | | 2020 | Vaccination and Collaboration |
| 2011 | | 2021 | Rabies: Facts, not Fear |
| 2012 | Vaccinate your pet. Act now | 2022 | One Health, Zero Deaths |
| 2013 | Understand it to defeat it | 2023 | All for 1, One Health for All |
| 2014 | Together Against Rabies | 2024 | Breaking Rabies Boundaries |
| 2015 | End Rabies Together | 2025 | Act Now: You, Me, Community |
| 2016 | Educate. Vaccinate. Eliminate. | | |

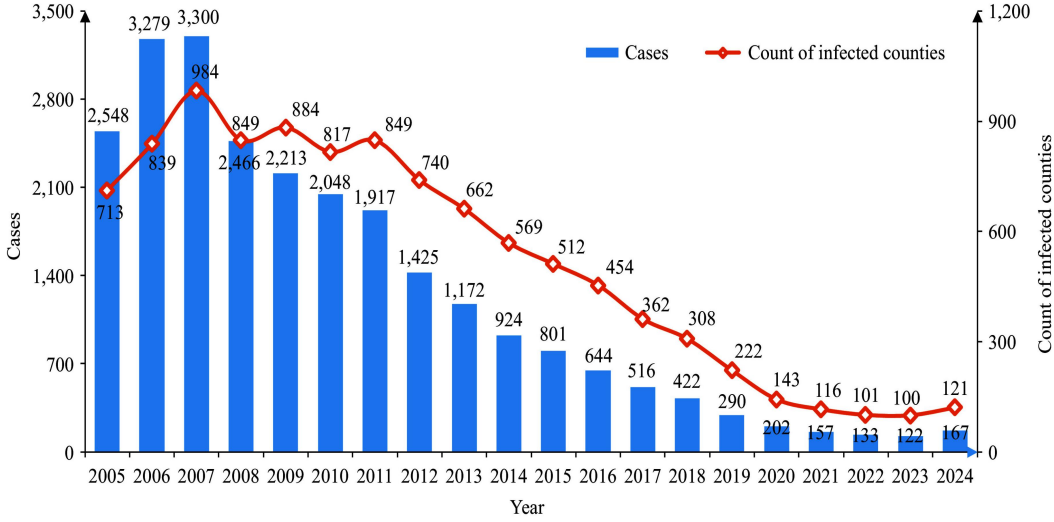


Figure1: Time-series analyses of human rabies in China, 2005 – 2024[7].

1.Government-led multisectoral mechanisms for rabies prevention and control

As a classical zoonotic disease, effective rabies control requires close cooperation across sectors. China has long adhered to a government-led model, gradually establish--ing a coordinated mechanism involving the health authorities, agriculture and rural affairs departments, public security agencies, and drug regulatory bodies, each with clearly defined responsibilities. In 1991, the former Ministry of Health issued the Implementa--tion Measures for Infectious Disease Control [8], which outlined the duties of local governments, public security departments, veterinary services, and health institutions in rabies prevention and control. Building on this foundation, and in response to evolving epidemiological trends, the Ministry of Health, Ministry of Public Security, Ministry of Agriculture, and State Food and Drug Administration jointly released the Notice on Strengthening Rabies Prevention and Control in 2003, further clarifying the division of labor among sectors.

On 4 September 2009, the National Health and Family Planning Commission, Ministry of Public Security, Ministry of Agriculture, and the State Food and Drug Administration issued the document Current Status of Rabies Prevention and Control in China [9]. This document reinforced multisectoral accountability and established a coordinated national strategy for rabies prevention and control, promoting closer collaboration and more proactive intervention efforts. In recent years, China has continued to strengthen this multisectoral framework. Joint achievements have been made in establishing integrated surveillance networks, improving dog management practices, and advancing nationwide awareness campaigns such as World Rabies Day, collectively contributing to more effective and systematic rabies prevention and control.

2. Ongoing Surveillance of Human Rabies in China

Surveillance of human rabies forms a central component of China’s rabies prevention and control system. Under the Law on the Prevention and Control of Infectious Diseases of the People’s Republic of China, human rabies is classified as a Category B notifiable infectious disease and must be reported through the national real-time online reporting system within 24 hours. Building on the national infectious disease reporting platform, China has established a dedicated surveillance framework tailored to the epidemiological characteristics of rabies.

In 2005, the former Ministry of Health issued the National Rabies Surveillance Protocol (Trial) [10], which clarified the responsibilities of disease control agencies and medical institutions at different administrative levels, outlined the essential

monitoring indicators, and proposed specific requirements for data collection, utilization, and supporting measures. Based on this framework, a nationwide rabies surveillance network was developed, and sentinel sites were set up in high-incidence provinces such as Anhui, Hunan, Guangxi and Guizhou. These sites conduct active surveillance, including enhanced laboratory diagnosis, registration and follow-up of post-exposure prophylaxis (PEP), and baseline investigations of reservoir animal populations, in addition to routine surveillance.

Since 2005, the National Health Authority (now the National Health Commission) has incorporated rabies surveillance into major public health programs supported by central government funding. Initial efforts focused on strengthening surveillance and emergency response capacities in high-incidence areas[11]. By 2025, program coverage had expanded substantially to include all 31 provinces, autonomous regions and municipalities across the country.

In recent years, China's rabies surveillance system has continued to improve, and its value for disease control has become increasingly evident. By integrating case reporting, PEP data and laboratory findings, the system enables more precise characterization of the temporal and spatial distribution of rabies. This approach identified a persistent high-incidence cluster from 2019 to 2023 in the border areas of Hunan, Henan and Anhui provinces, and confirmed older rural men (≥65 years) as the population at greatest risk. These insights support targeted allocation of prevention resources. High-risk incidents—such as "one dog injuring multiple persons"—have been incorporated into priority surveillance events, prompting coordinated multi-sectoral follow-up of exposed individuals and timely intervention. With these developments, China's rabies surveillance has been gradually shifting from passive recording toward risk-based early warning and response [12].

## 3. Institutionalization, Standardization, and Accessibility Development of the PEP System

Post-exposure prophylaxis (PEP) remains the most effective method for preventing human rabies. The Chinese government continues to refine technical guidelines, standardize PEP outpatient management and service delivery, strengthens regulatory oversight of vaccines and passive immunising agents, and has gradually established gradually establishing a comprehensive system of policies and services to support the effective implementation of PEP.

### 3.1 Standardization of PEP Clinical Implementation Processes

To standardize PEP implementation, China has continuously improved its legal and regulatory framework: the Ministry of Health issued the Rabies Post-Exposure Treatment Standard as early as 2006, with revisions in 2009. In 2016, the Chinese Center for Disease Control and Prevention published the Technical Guidelines for Rabies Prevention and Control[13].

In 2023, based on the review and analysis of existing evidence-based medicine data, the National Health Commission and the National Disease Control and Prevention Administration jointly issued the Rabies Post-Exposure Treatment Standard (2023 Edition)[14]. Disease control agencies at all levels actively conduct specialized training sessions, including expert lectures and training courses, aimed at outpatient healthcare personnel, focusing on enhancing competencies in rabies exposure risk assessment and standardized clinical practices.

### 3.2 PEP Outpatient Service Capacity and Accessibility

The establishment and service delivery of PEP clinics are key determinants of prevention outcomes. In 2019, the Chinese Medical Rescue Association issued the Specifications for the Treatment Clinic Setting of Rabies Post-exposure Prophylaxis[15], specifying requirements for functional zones, equipment, drug storage, and personnel qualifications. Disease control agencies at all levels promote standardiza--tion through guidance, regulation, resource coordination, and supervision.

According to national survey data from 2021, a total of 20,016 PEP clinics were established across 23 provinces in China, with an average density of 1.8 clinics per 100,000 population, achieving full coverage at the county (district) administrative level in these provinces. Of these, 57.2% (11,456 clinics) were capable of managing cases of grade III rabies exposure, and 13 provinces had rolled out electronic PEP clinic management systems to centrally integrate of diagnosis and treatment records, vaccine administration data, and case reports.

### 3.3 Quality Control and Supply Assurance for Rabies Vaccines and Passive Immunization Agents

To ensure the efficacy of PEP, the National Medical Products Administration (NMPA) has consistently strengthened the regulation of rabies vaccines and passive immunizing agents for human use, focusing on quality control and distribution oversight. Since August 2005, the NMPA has implemented a national lot release system for rabies vaccines, requiring each batch to undergo national testing and approval prior to market entry or importation. Additionally, since 2004, the NMPA has promoted the development of adjuvant-free vaccines to

enhance immunogenicity.

In advancing vaccine accessibility, several domestic vaccine enterprises have played a critical role. A notable example is Liaoning Chengda Biotechnology Co., Ltd., whose adjuvant-free purified Vero cell rabies vaccine, SPEEDA®, has become the dominant product in PEP clinics nationwide due to its strong immunogenicity, low adverse event profile, and the highest registered potency (≥4.5 IU/dose) among human rabies vaccines.

The manufacturer has conducted extensive post-marketing research on immunization schedules, immunogenicity, safety, compliance, special population applications, and production optimization. Critically, as the first rabies vaccine in China approved for the Zagreb regimen (2-1-1), studies confirm that this schedule achieves superior seroconversion rates at 7 days after the first dose compared with the Essen regimen[16], greater full-course vaccination adherence[17], and effectively reduces vaccination costs and provider workload. These evidence-based findings have consolidated the clinical position of the vaccine and further provided crucial support for the development of industry guidelines. Furthermore, large-scale clinical data confirm the vaccine safety, with a study involving 5,081 participants demonstrating a very low incidence of adverse events[18]. Studies involving pediatric[19], elderly[20], and pregnant populations[21] also indicate good tolerability. The vaccine additionally supports intradermal multipoint administration for post-exposure prophylaxis in regions such as Thailand[22], and maintains strong immunogenicity upon co-administration with quadrivalent influenza vaccine[23]. Additionally, both the Zagreb and Essen regimens of SPEEDA® demonstrated clear protective efficacy in multiple rabid dog bite incidents (Table 2).

## 4. Management and Immunization of Canine

Canine immunization is essential for rabies control and elimination in China, as dogs are the principal source of rabies transmission in China. The Ministry of Agriculture issued and implemented the National Animal Rabies Prevention and Control Plan (2017-2020) and the Rabies Prevention and Treatment Standard. These policies require local authorities to intensify canine vaccination coverage, issue standardized vaccination tags and certificates for immunized dogs, and establish vaccination records.

The public security sector verifies canine vaccination certificates in coordination with agricultural departments, and enforces penalties for non-compliance. Additionally, public security, health, and agriculture departments have a joint mechanism for epidemic response: tracking people exposed

to rabid animals, euthanizing or disposing of suspected infected animals. This combines social governance with public health measures.

The documents, technical specifications, and guidelines for rabies prevention and control in China are presented in Table 3 and Table 4.

Table 2. Protective Efficacy of SPEEDA® in Rabid Dog Bite Cases

| No. | Region | Year(s) | Vaccination Regimen | Number of Injured Individuals | Neutralizing Antibody (IU/ml) | Seroconversion Rate (%) | Follow-Up (1-Year Post-Vaccination) |
|---|---|---|---|---|---|---|---|
| 1 | Zhejiang[25] | 2008 | Essen | 7 | 16.7~41.7 | 100 | Alive |
| 2 | Beijing[26] | 2009 | Essen | 12 | 7.7 | 100 | Alive |
| 3 | Hunan[27] | 2010 | Zagreb | 10 | 13.91~35.65 | 100 | Alive |
| 4 | Zhejiang[28] | 2012~2013 | Zagreb | 29 | 7.94±2.27 | 100 | Alive |
| 5 | Hunan[29] | 2013 | Zagreb | 7 | 7.52~51.96 | 100 | Alive |
| 6 | Shaanxi[30] | 2016 | Zagreb | 13 | 37.33 | 100 | Alive |

Table 3. Policy Documents on Rabies Prevention and Control in China (Health Sector)

| No. | Year | Documents |
|---|---|---|
| 1 | 1989 | Law on the Prevention and Treatment of Infectious Diseases(Current Version: 2025 Revised ) |
| 2 | 1991 | Enforcement Measures for Law on the Prevention and Control of Infectious Diseases |
| 4 | 2002 | Rabies Prevention and Treatment Standard (Current Version: 2006 Revised Edition) |
| 5 | 2002 | Rabies Diagnostic Techniques (Current Version: GB/T 18639-2023) |
| 6 | 2003 | Notice on Strengthening the Prevention and Control of Rabies |
| 7 | 2005 | National Rabies Surveillance Program |
| 8 | 2008 | Diagnostic Criteria for Rabies（WS 281-2008） |
| 9 | 2009 | Rabies Post-Exposure Treatment Standard (Current Version: 2023 Revised Edition) |
| 10 | 2016 | Technical Guidelines for Human Rabies Prevention and Control |
| 11 | 2019 | Specifications for the Treatment Clinic Setting of Rabies PEP(T/CADERM 3010–2019) |

Table 4. Policy Documents on Rabies Prevention and Control in China (Agriculture, Animal Husbandry and Veterinary Sector)

| No. | Year | Documents |
|---|---|---|
| 1 | 1997 | Law on Animal Epidemic Prevention(Current Version: 2021 Revised Edition) |
| 2 | 2012 | National Medium and Long-Term Animal Epidemic Prevention Planning (2012–2020) |
| 3 | 2017 | National Animal Rabies Prevention and Control Plan (2017–2020) |

**World Rabies Day: China in Action**

Since 2008, China has conducted annual nationwide rabies prevention and control publicity campaigns aligned with the World Rabies Day themes issued by the World Health Organization (WHO), continuously bringing this neglected tropical disease back onto the government agenda and into public view. To guide implementation, the National Disease Control and Prevention Administration publishes official notices via its official website, specifying the campaign theme and outlining specific tasks and requirements.

Taking the 19th World Rabies Day as an example, the National Disease Control and Prevention Administration issued a special notice on September 17, 2025. The notice designated the campaign theme as “You and Me Acting Together to Build a Solid Defense Against Rabies”, a localized adaptation of the global theme. It advocates for the whole society to participate extensively, beginning with each individual and in daily life, to establish a community defense line against rabies. The key requirements for the campaign are summarized as follows:

Enhance collaboration among disease control, agriculture and rural affairs, health, public security, and forestry authorities to expand publicity reach and mobilize universal public participation;

Intensify rabies prevention and control publicity in rabies-endemic areas by disseminating information on rabies prevention knowledge, the availability of post-exposure prophylaxis clinics, and standardized exposure management measures through targeted, well-received activities to raise public awareness;

Popularize scientific and regulated dog-raising practices, and guide the public to raise dogs in accordance with legal provisions.

Following the issuance of the notice, all relevant parties responded proactively:

- ✓ Local CDC agencies, in collaboration with agriculture and rural affairs, education, and public security departments, set up publicity stations in communities, schools, township markets, and pet clinics to popularize core knowledge including rabies transmission routes, exposure classification criteria, and PEP procedures via leaflets, posters, and on-site consultations.
- ✓ Sub-district offices and community committees use localized channels (community bulletin boards, WeChat groups, rural radio) to continuously promote civilized dog ownership norms, including dog registration, regular vaccination, leashing in public,

and feces disposal, while also highlighting the safety risks and legal liabilities associated with non-compliance.

- ✓ Primary-level PEP clinics provide guidance to patients through the display of standardized disposal flowcharts and continuous playback of educational videos.

- ✓ Public health experts clarify common misconceptions about rabies prevention and control through Q&As and case analyses on new media platforms.

**Summary and Outlook**

Guided by the One Health concept, China has established a government-led, multisectoral-coordinated, "whole-society participation" mechanism. Through promoting close cooperation among various sectors, conducting rabies surveillance, advancing the standardization and accessibility of post-exposure prophylaxis (PEP) services, and organizing publicity campaigns on World Rabies Day each year, remarkable progress has been achieved. The incidence of human rabies has declined consecutively for 16 years, dropping from over 3,300 cases in 2007 to 122 cases in 2023, offering a Chinese solution to the "Zero by 30" goal.

In 2024, China reported 167 rabies cases, a 36.9% increase over 2023, which signals an urgent need to consolidate existing rabies prevention and control strategies. The canine management system remains suboptimal, with low registration rates, particularly in rural regions. Access to PEP services remains inequitable, with remote areas lacking sufficient clinics and high-risk groups like rural seniors having limited service availability. Surveillance capacity remains insufficient, with the tracking mechanism for high-risk incidents, such as "one dog injuring multiple people", still requiring further improvement. Public awareness also has notable gaps: some individuals lack a strong sense of civilized dog ownership, and standardized post-exposure interventions are often delayed due to failure to seek timely medical care after rabies exposure.

World Rabies Day provides a strategic opportunity to strengthen prevention systems and international collaboration toward the "Zero by 30" goal. By utilizing its global platform, China can enhance technical exchanges with international organizations and leading nations, integrating proven insights to optimize dog vaccination coverage in rural areas, strengthen wildlife rabies surveillance networks, and refine bite case management. Building on this foundation, sustained regular science popularization centered on the Day can further raise public awareness of responsible pet ownership and standardized post-exposure care, elevating

overall societal prevention and control capacity. On the other hand, it is essential to maintain ongoing public education initiatives centered around World Rabies Day, utilizing new media platforms and grassroots community outreach. Through these integrated efforts, China is well-positioned to play a pivotal role in global rabies elimination, ultimately eradicating dog-mediated human rabies and delivering robust contributions to global public health security.

## Competing interests

The authors declare all financial and non-financial competing interests.

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