

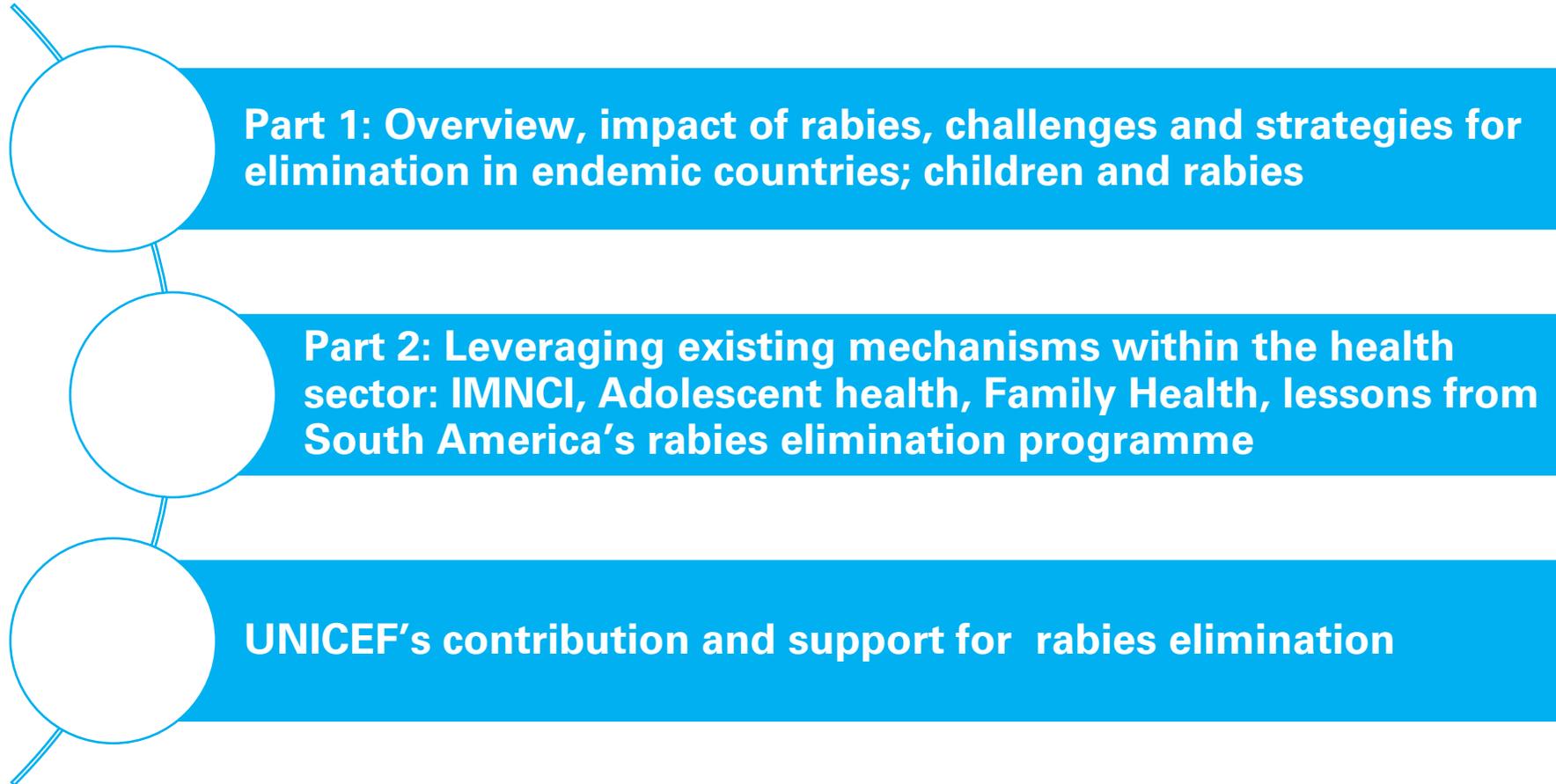
Fighting rabies in schools and communities:

A behaviour change intervention complementing Gavi support for post exposure prophylactic rabies vaccine in Sub-Saharan Africa

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United Against Rabies Meeting, 23-26 September 2024

Outline

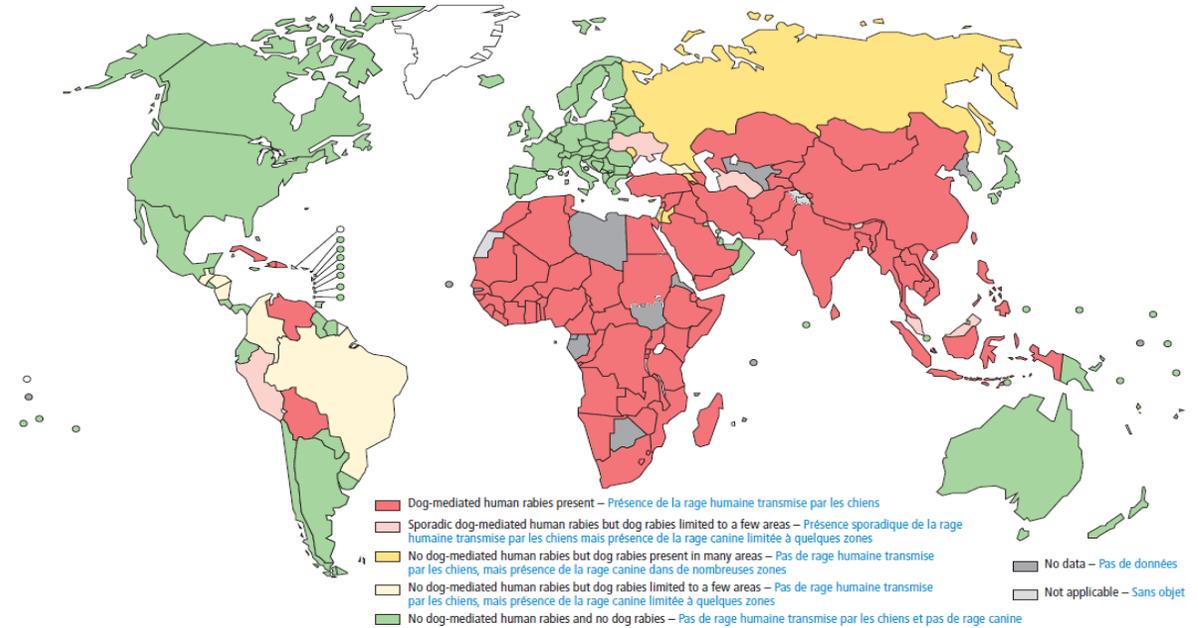


Impact of rabies

Rabies has a disproportionate impact on already poor communities:

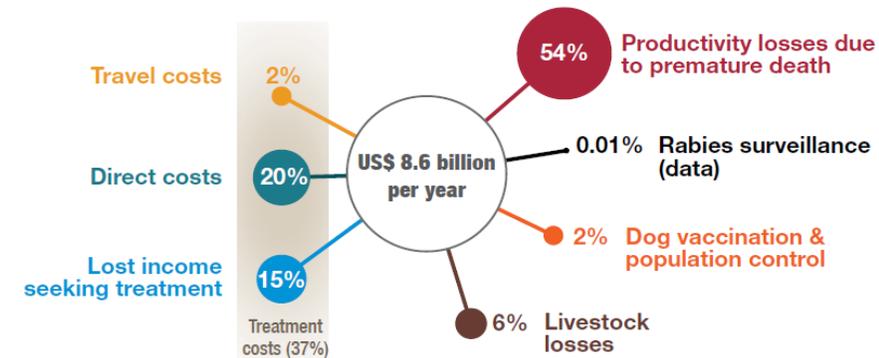
- It causes an estimated 59,000 human deaths (24,000 in Africa alone), > 3.7 million disability life-adjusted years (DALYs) loss each year across more than 150 countries, and US\$8.6 billion a year for management in endemic countries. ⁵
- The disease burden is borne by Africa (36.4%) and Asia (59.6%), where children < 15 years account for 40% of cases. ⁶
- 80 per cent of cases occur in rural areas.
- Beyond its traumatic symptoms and loss of life, rabies can exert a catastrophic financial burden for patients paying out of pocket.

Presence of dog-mediated rabies by country, 2022



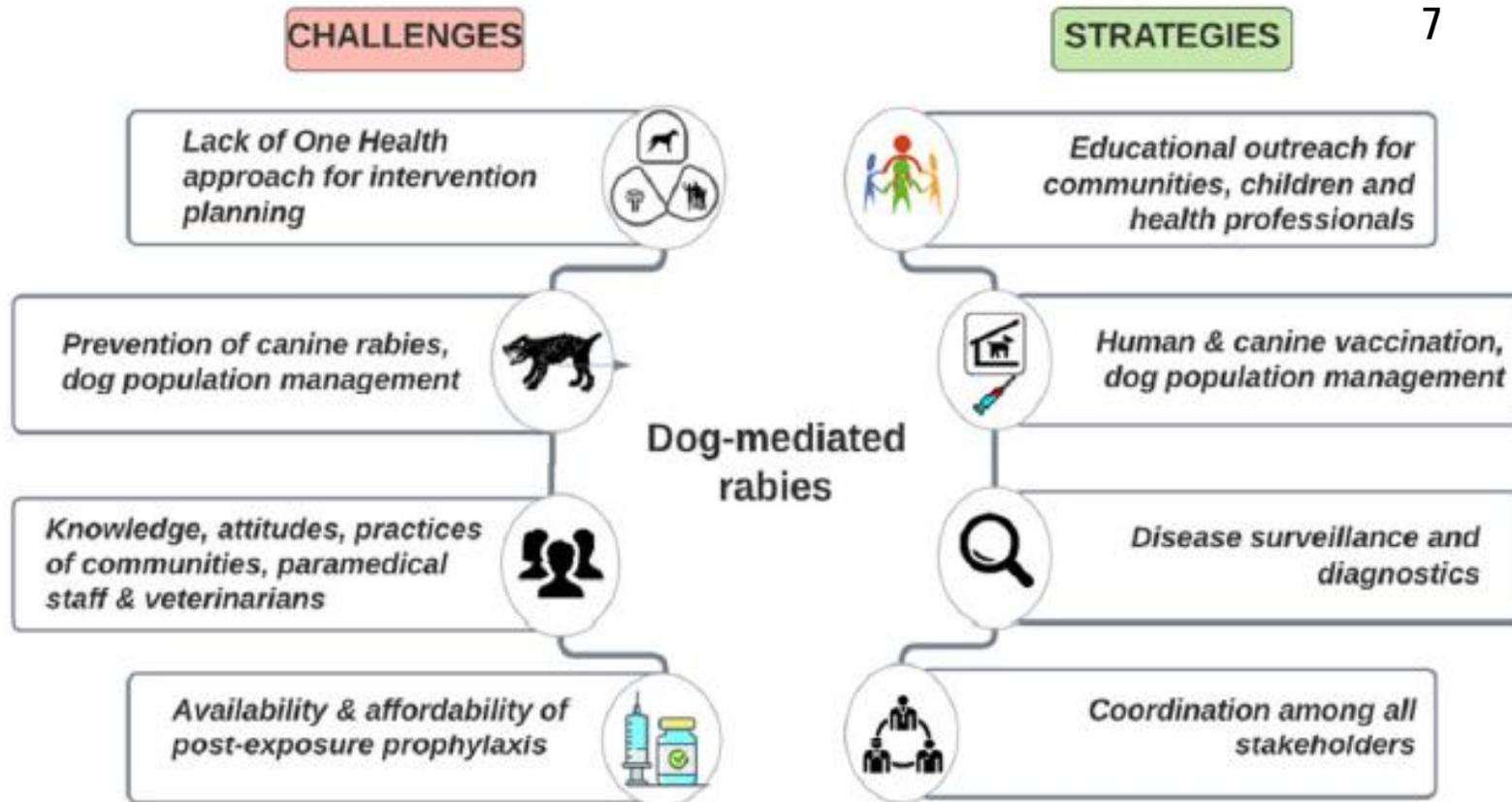
Source: WHO Global Health Observatory / Neglected tropical diseases: rabies, 2024 update, <https://www.who.int/data/gho/data/themes/topics/rabies>.

Economic burden of rabies



Source: Figure 1 in WHO/FAO/OIE (2018) Zero by 30: the global strategic plan to end human deaths from dog-mediated rabies by 2030. Geneva.

Snapshot of challenges and strategies for elimination of dog-mediated rabies in endemic countries



Source: Tiwari et al, 2021 Eliminating dog-mediated rabies: challenges and strategies *Animal Diseases* (2021) 1:19
<https://doi.org/10.1186/s44149-021-00023-7>

Children and rabies

Why are children particularly vulnerable?

- **Behavioural factors:** Love of animals, gender differences in exposure (cultural norms, risk-taking behaviour), inability to defend themselves, flee or recognize dangerous situations, fear of owning up to 'irresponsible' behaviour.
- **Low awareness** about optimal dog management, the link between dog bites and rabies, and prevention and control, including wound washing and post-exposure vaccination.

More knowledge in pet-owned households; lower knowledge among younger children; inadequate health worker awareness of rabies management protocols. ^{8,9}

- **Biological factors:** Small size, the closeness of the head to a large dog's mouth – more severe injuries among smaller children (head/neck/face); children below 10 are disproportionately affected. ^{10,11}
- **Low-risk perception:** Most bites occurred in the home environment and were considered unprovoked; more reports from pet-owned households. ^{10,11}

Other factors:

- Psychological impact, disfigurement and disability, stigma.
- Is there room for multispecies co-existence? How are cultural, historical and transnational links between health, humans and dogs impacting the control of rabies (and other zoonoses)?¹²
- Linkages across health programmes, between human health and animal health, and other sectors playing an integral role in rabies control

Patterns

- Rural/Urban exposure in line with population geographic distribution ¹⁰
- More bites reported during school holidays, when there is less supervision of children ^{10,11,15}
- Climatic factors: drought, and urban drift/population movement ¹⁰
- Conflict: Separation of families from domestic animals, disruption of animal health interventions including rabies vaccination, disruption in emergency health interventions
- Key sources of information include: health workers, teachers, family and friends, media ¹³

Leveraging entry points within the health sector: integrated management of childhood illnesses and adolescent health

1. Integrated Management of Childhood Illness (IMCI) is a global strategy introduced to reduce child mortality, morbidity and disability.

- IMCI facilitates holistic management of illnesses for the unwell child by identifying history, signs and symptoms.
- It is built along three tracks that involve improving health worker clinical and communication skills; the overall health system along the traditional pillars and family and community health practices

2. Health for the world's adolescents: *a second chance in the second-decade strategy*

Up to 50% of the population in many SSA countries is below 18 years. This strategy is intended to sustain gains from the first decade with impact across the life course.

- Key entry points relevant to rabies control include services for violence and injury prevention, integrated management of common conditions, mental health and immunization.
- Requires actions at the individual, family and community level, considering media, and social determinants, including power distribution and rights.
- It is built on the following key principles:
 - Engagement of adolescents in decisions and as actors for social change
 - Close collaboration across health, education, gender and youth, among other sectors.

Sources: [WHO \(2014\) Health for the world's adolescents: a second chance in the second decade: summary](#); WHO (2024) [Integrated management of childhood illness](#)



Involving families in public health interventions, including rabies control

- 1. Key family care practices** that impact child survival, growth and development, and address the commonest causes of morbidity and mortality.
 - Key family practices focus on child feeding, growth and development, disease/illness prevention, appropriate home care and care-seeking and compliance/response to illnesses.
 - Rabies control can leverage entry points for key family practices such as immunisation, handwashing with soap at key moments, treatment and follow-up visits, and managing childhood injuries at home.
- 2. Key principles for engaging families:** Respect, Reassurance and responsiveness by listening, ensuring participation, ownership, and constant communication/feedback.
- 3. Roles:** change agents, champions, health promoters
- 4. Theoretical framework:**
 - Ecological models that consider multiple influences on behaviour, including at the public policy level; and
 - Social Cognitive Theory, which considers individual experiences, actions of others, and environmental influences, while offering opportunities for social support and reinforcements to achieve behaviour change.



Lessons learned from rabies elimination programme in the Americas

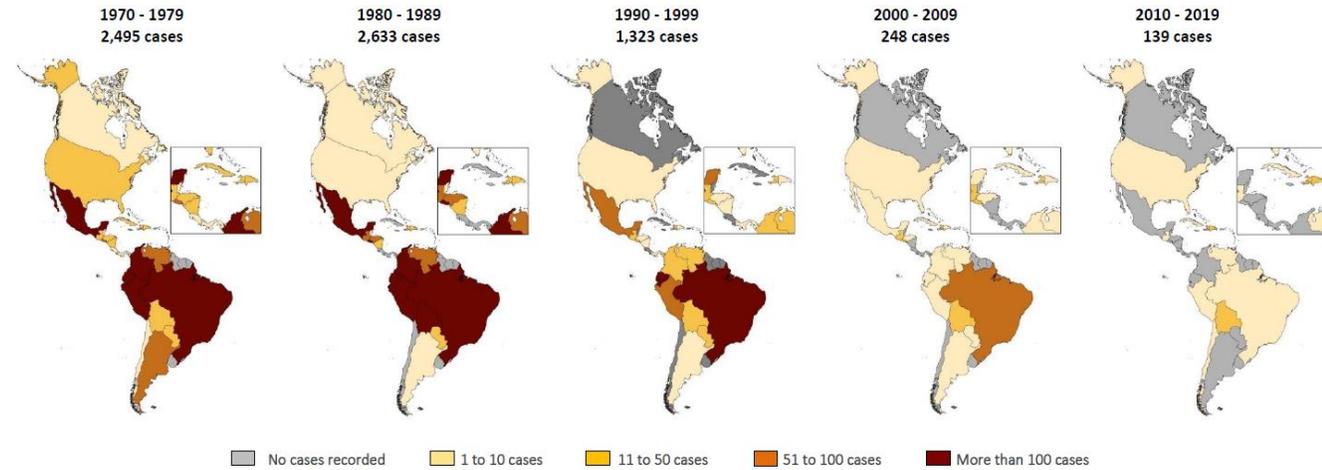
Overview of epidemiology:

- From 1970 to 2022, 7,572 human rabies cases were reported, 90% by dogs, 7% by wild animals, and the rest by cats and other domestic animals.
- From 1996-2022, a total of 1,295 human rabies cases were reported. Of the total reported, 49% were children below 12 years old (66% were male).

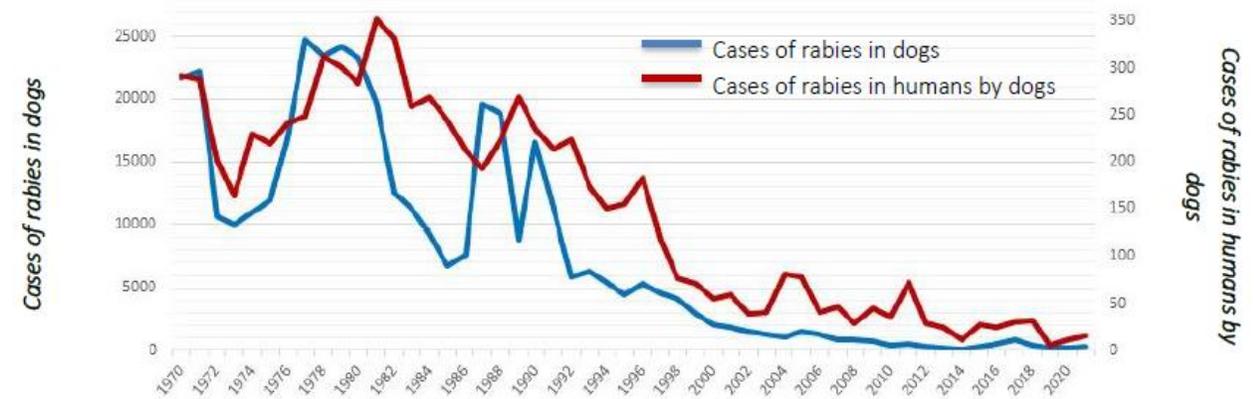
The **successful reduction** in rabies has been due to:

- High-level, multisectoral coordination and collaboration using a **one health approach** for >40 years
- Annual massive canine vaccination campaigns reaching least 80% of the dog population
- **Effective bite management**, including rapid access to care, availability of quality assured biologicals (vaccines and immunoglobulin)
- Strengthening surveillance and laboratory diagnostic capacity
- **A high level of community awareness, health education and responsible dog ownership**

Trend of dog transmitted rabies in the Americas, 1970-2019



Rabies in humans transmitted by dogs versus rabies in dogs, 1970-2022



Resources:

[Report on the situation of rabies in the Americas 2017-2022](#)

[Regional plan for the elimination of canine rabies 2024-2030](#)

UNICEF approach to fighting rabies in Africa

The **overall project goal** is to contribute to the elimination of dog-mediated human rabies in sub-Saharan Africa.

The project aims to:

- **Increase public awareness and address misinformation** about rabies, responsible dog care and preventing dog bites.
- **Strengthen coordination between school health and the rabies control programme using the one health approach** to enhance rabies prevention and control using the health-promoting schools platform.
- **Enhance rabies control by increasing awareness among health workers, community health workers and communities** on reporting and handling potential exposures, appropriate bite management, and PEP.
- **Address social and gender norms, and rabies-related stigma** for effective IBCM and uptake of PEP.

UNICEF in action

- **Immunization**, where UNICEF provides leadership in vaccine demand, innovation, planning, budgeting and finance, procurement and distribution of vaccines, and integrated supply chain strengthening.
- **NTD prevention and control** where UNICEF is driving progress through its **cross-sectoral programming**
- **Leadership in community health** and
- Cross cutting support for **health system strengthening** and **social behaviour change**.
- **UNICEF leverages various platforms**, including [Health Promoting Schools \(HPS\)](#), [The Internet of Good Things \(IOGT\)](#), [U-Report](#), among others, for effective community engagement and social behaviour change.
- UNICEF's vast global, regional and country footprint and multisectoral partnerships.

UNICEF approach to fighting rabies in Africa: HPS as an entry point

Why HPS for rabies prevention and management?

- **Reach:** Schools provide a structured setting for systematic reach of children and consistent delivery of integrated interventions for rabies prevention.
- **Empowerment:** Students become advocates for positive health practices, driving adoption of key behaviors at the family level, and contributing to community actions in rabies prevention and control measures.
- **Sustainability:** Integrating rabies prevention efforts into school programs ensures continuous reinforcement and facilitates sustainable social behavior change.

How can we strengthen HPS for rabies control?

- **Enhancing school health systems:** Reinforce schools as central platform for health promotion, improving available data, screening, and strengthening linkages with primary health care services in relation to rabies and other health issues.
- **Building School Staff Capacity:** Further empower teachers and school staff to take an active role in advancing rabies related and broader health practices within the school environment.
- **Expanding Health Education:** Utilize the opportunity to broaden the health curriculum, addressing rabies and a range of other relevant risk factors and issues.

Strategic interventions within the school system

School Curriculum

- Educate students on rabies prevention, transmission, and the importance of vaccination.
- Teach safe interactions with animals and responsible pet care to prevent dog bites and rabies.
- Raise awareness about rabies symptoms and appropriate responses to animal bites.

School Physical Environment

- Ensure school grounds and surrounding areas are free from stray animals to minimize risk.

School Health Services

- Train students and staff in basic bite care and immediate response protocols.

School and Community Partnership

- Connect schools with local health services for rabies vaccination and treatment.
- Engage parents and communities in rabies awareness campaigns and pet vaccination initiatives.
- Collaborate with local animal and human health authorities on school-based rabies prevention efforts.

UNICEF approach to fighting rabies in Africa: leveraging SBC

Why Social and Behaviour Change for rabies prevention and management?

- **Comparative advantage:** SBC staff in almost all countries in Africa, with some countries having large teams concentrating on supporting governments to scale SBC interventions.
- **Sustainability:** Many countries already have established SBC networks and working groups within government.
- **Multi-Stakeholder Collaboration:** SBC fosters cross-sector collaboration and has a large amount of experience working with cross-sectoral stakeholders.
- **Cost-Effective Use:** Utilizing existing platforms, partnerships and influencers allows for efficient and low-cost implementation of rabies prevention efforts.
- **Engagement:** Community engagement and participation are the cornerstones of SBC.
- **Implementation strategies:**
 - Community and child/youth engagement and participation
 - Digital engagement and innovation
 - Mass and traditional media
 - Stakeholder and influencer engagement
 - Using special days/events to spotlight rabies awareness and prevention
 - Capacity building for including the development of tools and resources

Social and Behaviour Change (SBC) is a set of approaches that promotes positive and measurable changes towards achieving a specific goal.

SBC works with communities and authorities to understand and influence the cognitive, social, and structural drivers of change.

It relies on social and behavioural evidence and a collaborative approach to addressing development and humanitarian challenges.

UNICEF approach to fighting rabies in Africa

Pillar 1: Establish a collaborative partnership on human rabies elimination

- Establish a collaborative partnership between the HPS Initiative, UNICEF, WHO, Gavi Secretariat, and global, regional, and country partners engaged in human rabies elimination. This partnership will form the foundation for effective rabies awareness and prevention (including IBCM, PEP, and dog vaccination) through health-promoting schools and community engagement.
- Conduct a scoping exercise of current rabies strategies and communication resources in the SSA region and globally.
- Monitoring and evaluation: Support the development, implementation, and monitoring of action plans aligned with national 'one health' rabies elimination plans.

Pillar 2: Develop/Adapt and implement social behaviour change interventions for rabies prevention and control.

- Map awareness and prevention materials on rabies in SSA and globally.
- Conduct World Rabies Day (28 September) campaigns.
- Develop social behaviour change materials:
- Disseminate and monitor harmonized messages across countries using different media and platforms such as IOGT, and WhatsApp.
- Generate and use evidence: Conduct knowledge, attitude, and practices (KAP) studies, community rapid assessments (CRA), U Report surveys and polls, and social listening to identify and address emerging trends.

Pillar 3: Strengthen school health capacity for rabies prevention

- Assessment and country selection
- Create open-access information and educational resources on rabies awareness and prevention for schools and communities in multiple languages.
- Develop rabies educators' toolkit
- School health worker training on prevention, first, and post-exposure prophylaxis.
- Emergency response plans, including clear protocols for handling suspected rabies cases and coordinating with local health authorities.
- Poster competition campaigns: Organize competitions for school-age children to develop materials on rabies, promoting engagement and awareness.
- Regular school-based rabies awareness activities with increased intensity around World Rabies Day on 28 September each year.

References

1. WHO (2021) [Ending the neglect to attain the SDGs: A roadmap for NTDs 2021-2030](#) Geneva, Switzerland
2. WHO, FAO and OIE (2018) [Zero by 30: the global strategic plan to end human deaths from dog-mediated rabies by 2030](#) Geneva, Switzerland
3. Tarantola (2017) Four Thousand Years of Concepts Relating to Rabies in Animals and Humans, Its Prevention and Its Cure Trop. Med. Infect. Dis. 2017, 2, 4; doi:10.3390/tropicalmed2020005
4. Nadal and Radhakrishnan (2023) CABI, Global Dog and Human Rabies Control Efforts from Ancient Times to 2030 and Beyond, 9781800622975.0001, (1–10)CABI Books, doi:10.1079/9781800622975.0001
5. Hampson K, Coudeville L, Lembo T, Sambo M, Kieffer A, Attlan M, et al. (2015) Estimating the Global Burden of Endemic Canine Rabies. PLoS Negl Trop Dis 9(4): e0003709. doi:10.1371/journal.pntd.0003709
6. Weekly Epidemiological Record (19 April 2018) [Rabies vaccines: WHO Position Paper](#) – April 2018, pages 201-2019
7. Tiwari et al, 2021 Eliminating dog-mediated rabies: challenges and strategies Animal Diseases (2021) 1:19 <https://doi.org/10.1186/s44149-021-00023-7>
8. Lungtenet et al, 2021 Knowledge and Perception of Rabies among School Children in Rabies Endemic Areas of South Bhutan. Trop. Med. Infect. Dis. 2021, 6, 28. <https://doi.org/10.3390/tropicalmed6010028>
9. Ullas et al, 2023 Case Report: Survival from Clinical Rabies in a Young Child from Maharashtra, India, 2022 *Am. J. Trop. Med. Hyg.*, 109(5), 2023, pp. 1157–1160 doi:10.4269/ajtmh.22-0683
10. Davarani et al, 2023 Epidemiological Characteristics, Injuries, and Rabies Post-exposure Prophylaxis among Children in Kerman County, Iran During 2019-2021 *The Open Public Health Journal* DOI: 10.2174/18749445-v16-e230419-2023-8, 2023, 16, e187494452303272
11. Pancharoen et al, 2001 Rabies exposures in Thai children *Wilderness and Environmental Medicine*, 12, 239-243 (2001)
12. Srinivasan et al, 2019 Reorienting rabies research and practice: Lessons from India *Palgrave communications* (2019) 5:152 <https://doi.org/10.1057/s41599-019-0358-y> | www.nature.com/palcomms
13. Grace G et al, 2020 Knowledge regarding rabies among school children in an urban area of Kancheepuram district: a cross sectional study *Int J Community Med Public Health*. 2020 Aug;7(8):3178-3182 DOI: <http://dx.doi.org/10.18203/2394-6040.ijcmph20203397>
14. Marpaung et al (2018) Children’s involvement in the rabies post-exposure prophylaxis: a qualitative study in Bajawa, Indonesia. Poster presentation <https://doi.org/10.1016/j.ijid.2018.04.3672>
15. Andri, A. 2023. An 8-year-old child with encephalitis rabies due to delayed case finding, proper post-exposure prophylaxis for rabies infection: a case report. *Intisari Sains Medis* 14(3): 1152-1155. DOI: 10.15562/ism.v14i3.1782
16. World Health Organization (WHO), Food and Agriculture Organization of the United Nations (FAO) and World Organisation for Animal Health (OIE), 2018 [Zero by 30: the global strategic plan to end human deaths from dog-mediated rabies by 2030](#)

Thank you!



Additional slides

DR Congo

Family infected after child bite in rabies horror

 News and Press Release • Source: [MSF](#) • Posted: 7 Oct 2013 • Originally published: 7 Oct 2013

London/Goma: 7th October: At least ten people have died of rabies, following an outbreak in the east of the Democratic Republic of Congo (DRC), said Médecins Sans Frontières/Doctors Without Borders (MSF), today.

The outbreak has infected 154 people, including a father and son who were bitten by a member of their own family. The father, 27, and his seven year old son, were infected after being bitten by a younger son who was dying of the disease. Both were treated with an anti rabies vaccine and given immunoglobulin.

Dr Jantina Mandelkow, who leads MSF's team in Lemera, in DRC's South Kivu region, said:

"I held my breath when I heard that a child dying of rabies had bitten and infected his father and brother - it was horrific. It's an impossible situation. Family members would obviously want to be with those who are ill, but when a person has rabies they can be a danger to people around them.

"I've only seen one other case of rabies in my career as a doctor and it was one of the worst things I have ever seen. Rabies leads to death without treatment, and people in Lemera were incredibly scared - many walked for days to get to the hospital for treatment. With vaccinations unavailable elsewhere, they had nowhere else to turn."

MSF's teams have already vaccinated 106 people. If untreated, rabies is invariably fatal, and leads to a slow and painful death. Treatment involves vaccinating people who have been bitten or scratched by a suspected rabid dog and administering post-exposure treatment where necessary. With vaccinations unavailable in DRC, MSF's team had to order them from Europe before they could start their emergency intervention.

With reports of new bites coming from remote areas, MSF is set to donate vaccines and post exposure treatment to the Ministry of Health so they can treat the remaining cases.

After decades of conflict and instability in DRC, measures to prevent animal-to-human transmission of the virus have not been implemented. To properly contain the outbreak, MSF is also asking the authorities to provide free vaccinations for domestic animals. Local people cannot afford the \$6 USD cost of vaccinations, so have killed animals and dogs who were acting suspiciously. If their bodies are not properly disposed of, they can be eaten by other animals, infecting them with rabies.

Primary country:

[Democratic Republic of the Congo](#)

Source:

[Médecins Sans Frontières](#)

Format:

 [News and Press Release](#)

Theme:

[Health](#)

Language:

[English](#)



Source: <https://reliefweb.int/report/democratic-republic-congo/family-infected-after-child-bite-rabies-horror>

Global strategy for rabies elimination

- In 2015, the world called for action by setting a goal of zero human dog-mediated rabies deaths by 2030, worldwide.
- The United Against Rabies (UAR) alliance developed a strategic plan, tools, and expertise that is being leveraged by partners and governments to reach the 2030 elimination goal.
- **Rationale:** Increased and targeted investments will break the chain of under-resourcing, weak implementation, and insufficient data and surveillance required to get the rabies programme on track.
- The strategy is built on the premise that:
 - Increased awareness** will empower communities to seek care early, prevent, and respond to potential rabies appropriately.
 - Integrated bite case management** covering risk reduction, appropriate case management, prompt access to PEP, surveillance and contact tracing will prevent human rabies.
 - Mass dog vaccination** with coverage of 70% will contribute to curbing transmission from dogs to humans.

United against rabies collaboration



Resource: [Zero by 30: the global strategic plan to end human deaths from dog-mediated rabies by 2030](#)

Theory of change for the global strategy to end rabies by 2030

