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GLOBAL ELIMINATION OF DOG-MEDIATED HUMAN RABIES

the time is
now!



Report of the Rabies Global Conference

10–11 December 2015

GENEVA, SWITZERLAND

Conference organized by



in collaboration with



Food and Agriculture
Organization of the
United Nations

with support of



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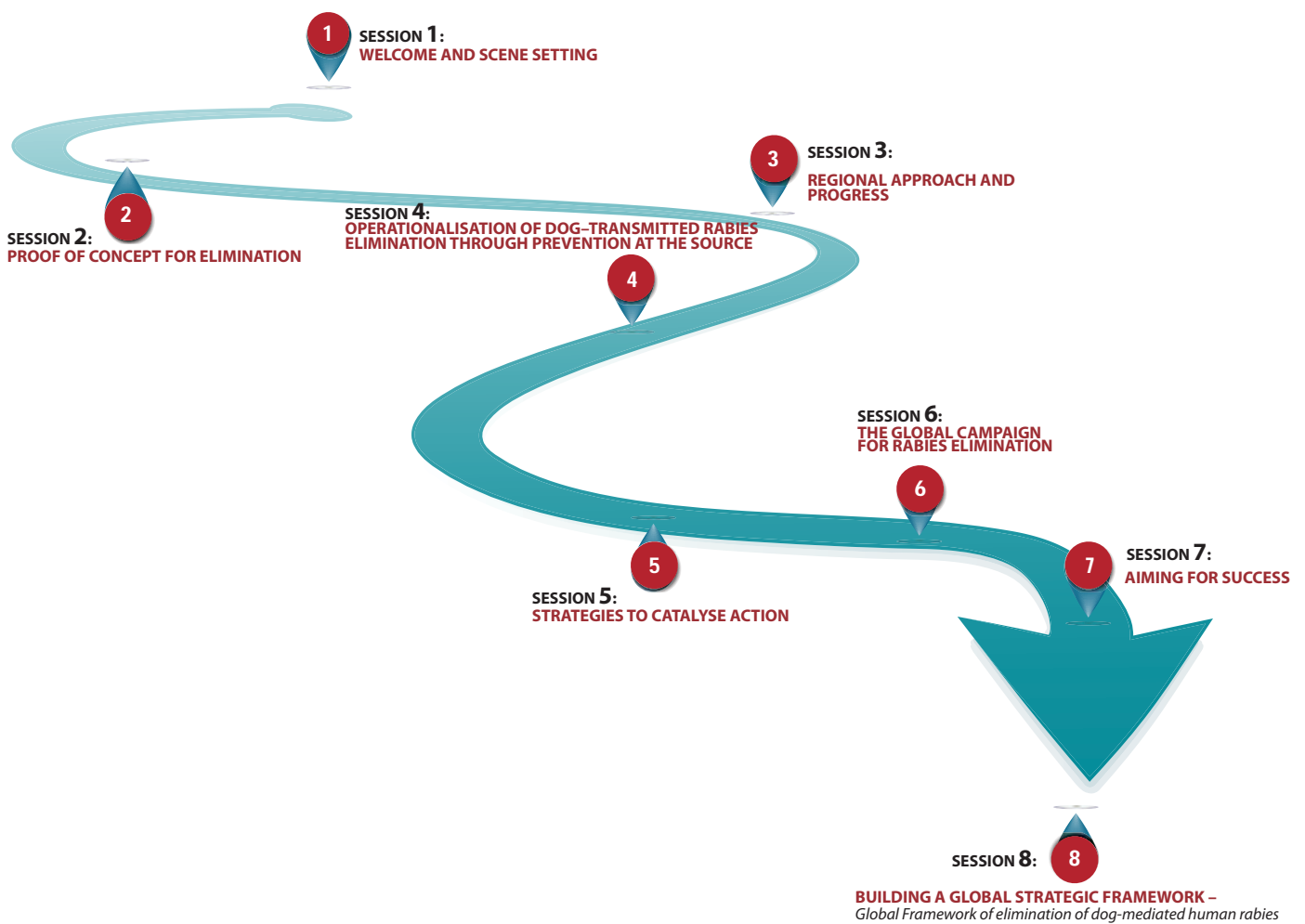


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Conference agenda

Global Elimination of Dog-mediated Human Rabies: *The Time is Now*



Background and conference objectives

Rabies remains an under-reported neglected zoonosis with a case-fatality rate of almost 100% in humans and animals. Dog-mediated human rabies causes tens of thousands of human deaths annually despite being 100% preventable. More than 95% of human cases are caused by the bite of a rabies-infected dog. Dog-mediated human rabies disproportionately affects rural communities, particularly children, and economically disadvantaged areas of Africa and Asia, where awareness of the disease and access to appropriate post-exposure prophylaxis (PEP) can be limited or non-existent. Unlike for many other zoonoses, the appropriate tools to eliminate dog-mediated human rabies already exist. Dog-mediated human rabies can be eliminated at source by vaccinating dogs, in conjunction with dog bite prevention, bite management, raising public awareness and improved access to prompt post-exposure treatment.

It is in this context that the World Health Organization (WHO) and the World Organisation for Animal Health (OIE), in collaboration with the Food and Agriculture Organization of the United Nations (FAO) and supported by the Global Alliance for Rabies Control (GARC), organized the Global Conference on “Global elimination of dog-mediated human rabies: the time is now,” in Geneva, Switzerland on 10–11 December 2015.

The conference convened key participants from ministries of health and veterinary services, national rabies coordinators from participant countries, experts from the veterinary and the human health sectors and international organizations, policy-makers, nongovernmental organizations, donors and the private sector (see Annex 1).



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The objectives of the conference were:

- to disseminate the results of the proof of concept for the elimination of dog-mediated human rabies in different settings, and explore expansion and sustainability into other endemic areas;
- to build support and the case for investment to progress towards the elimination of dog-mediated human rabies from national, regional, global and other stakeholders including the private sector;
- to promote a “One Health” intersectoral collaborative approach between the human and animal health and other sectors; and
- to shape the forward vision agenda with shared purpose in collaboration with donors and stakeholders for the elimination of dog-mediated human rabies.

The conference built on the outcomes of a meeting on human and dog rabies vaccines and immunoglobulins (Geneva, 12–13 October 2015).¹ A Global Framework for the elimination of dog-mediated human rabies prepared from the outcomes of the meeting was presented at the conference for further input and refinement.

The conference included PowerPoint presentations, facilitated panel discussions, and open forum question and answer sessions designed to engage participants in the sharing of information, success stories and experiences. The abstracts and presentations are available on the OIE website.²

This report provides an overview of the activities and areas of discussion at the conference, key messages and major outcomes to advance the rabies elimination agenda.

// **Think big,
start small,
scale fast** //

¹ Human and dog rabies vaccines and immunoglobulins: report of a meeting. Geneva: World Health Organization; 2015 (http://apps.who.int/iris/bitstream/10665/199176/1/WHO_HTM_NTD_NZD_2015.11_eng.pdf; accessed February 2015)

² <http://www.oie.int/eng/RABIES2015/index.html>

Session 1 Welcome and scene-setting

The objective of the first session was to acknowledge the high-level leadership support for the elimination of dog-mediated human rabies and the One Health approach.

Co-chairs Brian Evans (OIE) and Bernadette Abela-Ridder (WHO) welcomed participants and opened the conference. WHO Director-General Margaret Chan and OIE Director-General Bernard Vallat addressed the conference, followed by remarks by the WHO Department for Control of Neglected Tropical Diseases Director Dirk Engels, the FAO Director of Animal Production and Health Berhe Tekola, the Institut Pasteur Senior Global Affairs Advisor to the Director-General Nadia Khelef, the Global Alliance for Rabies Control (GARC) Executive Director Louis Nel, and the European Commission Veterinary Officer Moritz Klemm. The OIE Director-General Bernard Vallat delivered the keynote address: dog-mediated human rabies elimination is feasible.

Brian Evans presented a “start-up” version of the Global Framework as a starting point for input by the participants towards a Framework representing the collective experience and best practices for achieving rabies elimination. A goal of the Framework is to provide adaptable tools and options to advance rabies elimination from being feasible to being achieved.

KEY MESSAGES

- Rabies is a disease of poverty that affects the poorest of the poor, especially children.
- Rabies is 100% preventable with the available tools and proven approaches.
- Vaccinating at least 70% of dogs breaks the cycle of rabies transmission: decreasing canine rabies decreases the number of human deaths from rabies.
- Treatment for human rabies is much more expensive — and often inaccessible — than the cost of programmes for control and prevention of dog rabies (control at source): 10% of the current amount spent on post-bite treatment could eliminate dog-mediated rabies in affected areas if spent on dog rabies prevention.
- Multisectoral collaboration and broad-based partnerships are essential.
- Reporting of incidences of human rabies needs to be enhanced and shared across government levels and sectors using a One Health approach.
- Rabies elimination can be a model for elimination of other neglected tropical zoonotic diseases.
- Sustained political will and community involvement are key.
- Elimination of rabies must be seen as a global public good.
- This conference is a turning point in the fight against rabies: the time is now to shift from words to action.

“ Let’s put rabies in the history books. ”

Session 2 Proof of concept for elimination

The objective of the second session was to share country-level success stories, best practices, lessons learnt and challenges from a variety of starting points and experiences, including the economic aspects and impacts of rabies control programmes, public–private partnerships and cross-sectoral collaboration.

Three presentations demonstrated a range of activities and experiences designed to break the status quo in South Africa (Kevin Le Roux), the United Republic of Tanzania (Emmanuel A. Mpolya) and the Philippines (Raffy Deray). Panellists Sarah Cleaveland (United Kingdom of Great Britain and Northern Ireland), Thinlay Bhutia (India) and Veronica Gutiérrez Cedillo (Mexico) provided their perspectives, followed by a facilitated Q&A session.

KEY MESSAGES

- Champions are central to bringing all sectors together and maintaining effort and focus.
- Community-wide engagement is key: get everyone involved.
- Dog-mediated human rabies can be controlled and eventually eliminated by improving dog vaccination coverage and access to PEP.
- Aiming for 70% dog vaccination coverage for an entire population may not be initially possible for all countries. Strategic dog vaccination targeting 70% coverage in areas of higher rabies’ incidence can also be effective at breaking larger transmission cycles and may be less daunting and more attractive to governments and investors.

- “Start small and scale up” allows for incremental growth while systems are developing, success to be demonstrated, momentum and commitment to be built, and communities and stakeholders to be engaged.
- Declaration of successful areas can be used to garner national support for inclusion of rabies in national health priorities, making budget available not only for PEP but also for procurement of dog vaccines.
- Vaccine banks provide quality products and stability of supply, ensuring continuity of effort and stimulate expansion.
- Programmes must include plans for sustainability, contingencies and restart following political turmoil, temporary adjustments in priorities or a natural disaster.
- Proper data collection, management and data-sharing are important. A reliable baseline of data and information will help strategically target programmes for greatest impact. Mobile phone surveillance is a useful tool.
- Increased awareness about rabies can lead to increased demand for PEP. Both systems should be developed in parallel. Eventually, demands for PEP should decrease as dog rabies decreases alongside increased vaccination coverage.
- Switching from intramuscular to intra-dermal administration of PEP significantly reduces costs.



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- The success of the rabies programme in the United Republic of Tanzania and the province of KwaZulu-Natal in South Africa has led to the formalization of a One Health approach against other zoonotic diseases collaboratively across human health and animal health agencies.
- It is much more cost effective to vaccinate dogs. Although the initial costs may be high, they do not increase: a break-even point (maybe 10 to 15 years out) is followed by significantly lower costs for maintenance. Appropriate cost analyses and expectations need to be communicated.
- Dog vaccination is the best way to ensure equity by protecting the whole population, whether PEP is available and affordable or not.

“ The vaccinated dog is the soldier in the fight against rabies. ”

Session 3

Regional approaches and progress

The third session showcased success stories on how regional approaches and strategies are implemented and linked. The presentations highlighted the importance of improved coordination and identification of regional needs to achieve elimination goals, as experienced through projects in Europe (Thomas Müller, Friedrich Loeffler Institute), the Americas (Ottorino Cosivi, Pan American Health Organization), the Middle-East and North Africa (Mohammed Bengoumi, FAO), Asia (Mary Joy Gordoncillo, OIE) and Africa (Louis Nel, GARC). The presentations were followed by a panel discussion and facilitated Q&A session. The panellists were Tu Chang Chun (OIE Reference Laboratory for Rabies, China), Valentina Picot (Fondation Mérieux) and Hervé Bourhy (Institut Pasteur).

KEY MESSAGES

Regional strategies and tools

- Eliminating rabies requires a coherent and sustainable long-term strategy, backed by robust human and animal health systems.
- A regional strategy for the prevention and control of rabies should be based on a participatory approach and coordinated interventions by all stakeholders.
- The elimination of rabies from large parts of Europe is a result of a stepwise approach that included initial focus on fox rabies elimination as a primary

reservoir in conjunction with dog rabies vaccination campaigns, establishment of a rabies database for surveillance, and long-term political commitment and resources.



- The PAHO action plan³ to eliminate human rabies transmitted by dogs includes four priority deliverables: access to timely PEP for the population at risk; mass dog vaccination; robust human and dog disease surveillance; and community mobilization. In the Region of the Americas, the public and private sectors provide strong leadership and governance and are responsible for the success of the rabies programmes in the region. Rabies is perceived as both a public health and an animal health issue.
- In the Asia Region, WHO, OIE and FAO regional offices provide a coordinating mechanism and technical support; the OIE Regional Vaccine Bank benefits the region by providing quality assured, affordable dog rabies vaccines.
- The *Stepwise approach towards rabies elimination* and the *Blueprint for rabies prevention and control*⁴

³ http://www.paho.org/panaftosa/index.php?option=com_docman&task=doc_download&gid=378&Itemid=311

⁴ www.rabiesblueprint.com

are tools designed to assist countries in developing and implementing sustainable intervention strategies. It includes options and advice on various programmatic aspects, including education and advocacy, surveillance and diagnosis, as well as performance monitoring and assessment including target setting.

- The goal date of 2030 for the elimination of dog-mediated human rabies was chosen as it represents both an aspirational and an achievable target for participating countries. It is tied to the United Nations sustainable development goals and is thereby a vehicle for attention and mobilization.

Challenges

- Elimination of rabies in dog populations can reveal rabies reservoirs among wildlife (e.g. fox rabies) and the need for other control strategies.
- Rabies elimination in the Middle-East and North Africa is constrained by limited coordination among stakeholders, inadequate communication and awareness of the population at risk, other health and security priorities, and limited human and financial resources.
- In Africa, the continent's size and complexity, language diversity, lack of information and high rabies incidence are challenges.
- Rabies remains a challenge in many parts of Asia, particularly in areas of poverty, political instability, suboptimal national health and animal health services, competing priorities, and those for whom cultural influences impact the societal roles of dogs, their ecology and interactions with humans.

- In the final stage of rabies elimination in the Region of the Americas it is paramount to maintain the resources provided by the health sector in coordination with other sectors (e.g. veterinary services, education) for reaching the last mile in elimination.

Success factors

- A regional governance mechanism is instrumental for success, alongside long-term goals, vision and commitment.
- The successful coordination between animal and human health sectors at national, regional and global levels sends a clear message that dog-mediated human rabies is a global public health concern that requires intersectoral collaboration following the One Health approach.
- Attacking rabies at source is key, but the dynamics of the rabies virus have demonstrated that killing dogs does not eliminate rabies. Rather, a vaccinated dog is the "soldier in the fight against rabies."
- The introduction of the more cost-effective intradermal PEP vaccines improves accessibility and affordability.
- Rabies elimination strategies must be flexible and adaptable to meet the impacts of changing demographics (e.g. population shifts from rural to urban).
- The ongoing commitment and participation of many varied partners and stakeholders enables regional capacity to be leveraged and countries to adapt approaches to their circumstances.
- Lessons learnt at the country level can inform regional approaches.

- Surveillance is crucial — it is a key tool to demonstrate success. Mobile vaccine clinics, easy diagnostic tests, regional coordination, information-sharing and encouraging reporting compliance are all part of an effective surveillance system.
- Some 3–4 years of mass dog vaccination in at risk areas can eliminate rabies. However, to avoid reintroducing the virus, programmes must also include strategies for maintenance, including effective and ongoing surveillance.
- A key indicator of success is fewer (or ideally zero) human rabies cases.
- Although many challenges remain in Asia, progress is being made through regional cooperation, intersectoral collaboration, addressing rabies at its source through dog vaccination, and political support for dog-mediated rabies as a public health concern.



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Session 4 Operationalization of dog-transmitted rabies elimination through prevention at source

Presentations in this session focused on the “how” of rabies elimination programmes, including mass dog vaccination in at risk areas (Ahmed Be-Nazir, National Institute of Preventive and

Social Medicine, Bangladesh) and dog bite prevention (Daniel Stewart, South Africa). The importance of intersectoral collaboration (Eric Osoro, Ministry of Health Kenya) and education of at-risk populations (Deepashree Balaram, GARC) was highlighted. The facilitated Q&A session and panel discussion included Luke Gamble (Mission Rabies), Rubina Cresencio (Chief Veterinary Officer, Philippines) and Eric Brum (FAO).

KEY MESSAGES

One Health approach

- Mass dog vaccination supported by education, community engagement and a One Health approach are common elements of successful rabies elimination programmes.

// If you want to go fast, go alone. If you want to go far, go together. //

African Proverb

- A One Health approach that integrates human, animal and environmental sectors in the management of zoonotic diseases can lead to more rapid detection of and response to outbreaks, fewer human deaths, and improved coordination, documentation, reporting and understanding of animal–human disease linkages.
- Strong relationships, networking and information-sharing across sectors are crucial to sustaining an effective One Health approach.
- There are many organizations and individuals advocating rabies elimination who are ready to help catalyse country efforts.

Start small and scale up

- It is important to build capacity through pilot projects and then scale-up campaigns to expand coverage.
- Vaccine banks for animal rabies have contributed significantly to the successful expansion of programmes in countries such as Bangladesh, the Philippines, South Africa and Sri Lanka.

Mass dog vaccination

- Roaming dogs (not owned or loosely owned) are a common feature of dog populations in Asia and Africa. These dogs are vulnerable to rabies while simultaneously exposing humans and other animals to the virus. Mass vaccination of roaming dogs has been shown to contribute to consistent reduction and elimination of rabies.
- To be effective, mass dog vaccination programmes must be cost effective, affordable, reproducible and adequately resourced to achieve sufficient coverage throughout the

project site and a sustainable strategy for maintenance of the progress gained.

- Mass dog vaccination programmes against rabies are in the public health interest.

Education and awareness

- Dog behaviour and bite prevention education is an essential extension of a rabies vaccination project and can decrease both the incidence of human rabies and the financial burden of treating dog bites. Such education needs to be targeted at both children and adults.
- Increasing awareness of rabies prevention and control in communities includes education and information on responsible pet ownership, how to prevent dog bites and what to do if bitten. Engagement and ownership of the programme at the community level increases reach and uptake of messages.
- Paradoxically, increased public awareness and improved PEP distribution lead to an increase in demand for PEP, even though rabies incidence may be declining in the area.

Community engagement

- Building and maintaining community engagement and empowering at-risk communities generate behaviour change within the community.
- Examples of effective community-based engagement and education approaches include: integrating rabies education into the school curricula; teacher training; police involvement; edutainment, such as storytelling, theatre, colouring books; and involving community volunteers in dog

vaccination, conducting dog surveys, and participating in early warning and rapid response systems at the village level.

Session 5 Strategies to catalyse action

The objective of the fifth session was to identify existing strategies and tools to support country efforts in dog-mediated human rabies elimination and to highlight the challenges and barriers to be overcome. Presentations focused on vaccine banks and vaccine quality (Alain Dehove, OIE), the impact of the rabies vaccine bank from the recipient country perspective (Rubina Cresencio, Philippines), access to vaccines and immunoglobulins (Bernadette Abela-Ridder, WHO) and the role of private veterinarians in rabies elimination (René Carlson, World Veterinary Association). The panellists were Steven McIvor (WAP), Carel du Marchie Sarvaas (HealthforAnimals) and Katinka de Balogh (FAO).

KEY MESSAGES

Strengthening access to quality and affordable vaccines and immunoglobulins

- Countries require easy access to high-quality, affordable human and dog vaccines and immunoglobulins to successfully eliminate rabies.
- Since 2012, OIE has provided more than 13 million doses of rabies vaccines for dogs in 17 countries, mainly in South-East Asia.

- OIE regional vaccine banks can hold ready-to-use, formulated vaccines, production on demand when needed and replenishment mechanisms to ensure emergency access as well as delivery of small or large quantities. Limited physical stocks allow for urgent deliveries.
- Regional vaccine banks enable economies of scale, synergies and leveraging of results while contributing to harmonization and coordination of global and regional control programmes. In addition, they allow for multi-party vaccination



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campaigns, public–private partnerships and the possible involvement of nongovernmental organizations.

- The vaccine bank mechanism can also be used to facilitate the purchase of vaccines by countries or by international organisations.
- Sufficient dog vaccine coverage in priority areas of the Philippines led to a significant reduction in dog rabies cases and in human rabies cases. The quality of the vaccines was assured by the use of the OIE Rabies Vaccine Bank for Asia, which also provided an efficient procurement process delivering quantities required for good coverage.

- Vaccine banks can be an impetus for improved data collection, as the recipient country is required to report on vaccine use and results. This creates better recordkeeping protocols, leading to better understanding of the situation.
- Vaccine banks ensure the procurement of high-quality vaccines manufactured in line with OIE intergovernmental standards and delivered in a timely manner.
- Empower local health communities in first aid and PEP. The most affected people who continue to die from rabies are in remote, mostly subsistence communities, with no local access to care. It will take time for rabies to disappear in dogs; in the meantime, providing care to at-risk patients in remote settings is a moral obligation.
- The intradermal route of administration of vaccine for PEP saves approximately 80% of costs. Pharmaceutical companies are urged to include intradermal route on labels and countries to adopt this alternative cost saving, safe and efficacious route of administration.
- Most of the deaths from rabies occur in remote areas where very poor victims do not have access to PEP. Delivery of human vaccines to these remote settings is essential where local healthcare workers can be empowered to provide PEP to bite victims. Provision of PEP will be needed as long as transmission of rabies in animals is ongoing.

Success factors

- Collaboration among the agriculture, animal health and human health sectors and high-level political recognition of the need to address the disease at source through mass dog vaccination are key success factors. In-country rabies

stakeholder consultations can kick-start coordinated rabies control and are an integral part of a step-wise approach towards rabies elimination.

- Access to safe, efficacious and affordable dog and human rabies vaccines can be improved through better forecasting and planning, optimized procurement practices and support from the private sector.
- Provision of vaccine can provide a stimulus to start up rabies control and elimination programmes, which in turn demonstrate success and stimulate interest and further investment.
- Funding strategies should also support capacity and awareness building, planning and initiation of local, national or regional programmes and activities, animal handling and implementation of standard operating procedures for bite management, including encouraging a shift to intradermal vaccine administration.
- Veterinary, medical and pharmaceutical students are underutilized resources: greater engagement is needed. Rabies elimination is a long-term investment: it is important to engage the next generation of leaders now.
- Increasing access: availability, affordability, reliable health and supply systems to reach affected people. Timely care for bite patients saves lives.
- Vaccine manufacturers have a role to play in ensuring quality assurance systems are in place. Involving vaccine manufacturers in projects from the beginning helps to assure quality, quantity and timing of vaccines; appropriate lead times are important.
- Use alternative funding mechanisms such as the revolving fund used in PAHO countries to enable the procurement of rabies vaccines.

Challenges

- Barriers to engaging private sector veterinarians (such as lack of workforce, lack of resources, general apathy, or perceived or real competition from freely donated services from outside volunteers) must be resolved so that private sector veterinarians can be fully involved in rabies control. Public and private veterinarians can act as leaders, facilitators and educators.

Session 6 The global campaign for rabies elimination

The sixth session focused on strategies to increase awareness and political will for the elimination of dog-mediated human rabies. The presentations considered the benefits of prevention and transboundary collaboration and highlighted the importance of community engagement and the impact of campaigns such as World Rabies Day.

Presenters and their topics included Katie Hampson, UK (The impact of rabies and the benefits of prevention); Eduardo Pacheco de Caldas, Brazil (Local government and municipalities: motivating communities); Bavukile Kunene, Swaziland (Cross-border collaboration: the influence of the champion country); and Deborah Briggs, USA (An effective communication campaign: nine years of World Rabies Day and the End Rabies Now Campaign). The panellists were Ahmed Be-Nazir (National Institute of Preventive Medicine, Bangladesh) and Sivasothy Arumugam (Sri Lanka).

KEY MESSAGES

The burden of rabies

- Annual economic losses resulting from dog-mediated human rabies are estimated to be US\$ 8.6 billion. The largest component of the economic burden is due to premature death (55%), direct costs of PEP (20%) and lost income while receiving treatment (15.5%). Costs related to dog vaccination are minimal by comparison. These losses are frequently invisible for policy makers given the high number of underreported or misdiagnosed cases.



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- The economic burden of rabies impacts public sector budgets, communities and families.
- The highest risk of rabies occurs in the poorest regions of the world.

Success factors

- Brazil has achieved a 90% reduction in cases of dog-mediated human rabies over the past decades. Success is attributed to recognition of the disease as a public health concern, improved surveillance processes, mass dog vaccination campaigns, prophylactic

measures directed at people at risk, education campaigns, community involvement and sustained investment.

- There have been no recorded deaths from human rabies in Swaziland since 2012. Success is attributed to free annual dog vaccination campaigns by mobile teams countrywide, animal bite reporting, outbreak declaration protocols, annual spay/neuter clinics and provision of PEP to dog bite victims.
- South Africa and Swaziland continuously engage in cross-border collaboration meetings where issues such as rabies control are discussed. The two countries have a Movement Permit for Dogs and Cats that requires proof of rabies vaccination.
- Ongoing vigilance once dog rabies has been eliminated is important as there could be residual problems with wildlife rabies or reoccurrence of dog rabies.

Community involvement

- World Rabies Day is a partnership initiative led by GARC. Launched in 2007 as a global day of action against rabies, World Rabies Day is commemorated on September 28 and has become a focal point for thousands of rabies prevention events in over 200 countries; participation is included in the action plans of many country and regional rabies elimination strategies.
- Participation in annual World Rabies Day activities creates increased awareness and community involvement and demand for both dog rabies vaccination and post-bite treatment.

- The End Rabies Now campaign aims to significantly raise the profile of rabies as a global neglected tropical disease. Objectives include eliminating dog-mediated human rabies by 2030, including rabies control on the agenda of foundations, donor governments and international institutions, and recognizing rabies as an urgent priority leading to political commitment and support for rabies elimination in endemic countries.
- Sustaining the global movement towards rabies elimination requires formal and informal communication and information-sharing, networking and collaboration among peers, sectors and countries.



© Mission Rabies

Session 7 **Aiming for success**

The roundtable discussion during the seventh session considered the elimination of dog-mediated human rabies from donors' perspectives. With the key success factors understood and ready for implementation (such as political will, engagement, communication, technical tools, motivation), what else must be done to make a compelling, sound case? In this context, the objectives of the session were:

- to better understand donors' motivations to invest in rabies elimination;
- to identify gaps and opportunities for investment in human rabies elimination; and
- to determine the performance measures required to demonstrate progress and success.

Representatives of donor groups participating in the discussion included Andrea Ellis (Canada), Pedro Rosado (European Commission), Anne-Marie Sevcsik (UBS Optimus Foundation), Judith Kallenberg (Gavi, the Vaccine Alliance) and Molly Mort (Bill & Melinda Gates Foundation).

KEY MESSAGES

Demonstrate success and return on investment

- Rabies elimination is feasible and has been demonstrated. Successful proof of concept projects have provided an evidence base; this is important because success makes investment attractive to donors.
- Donors want to see the social impact of their investment: make a compelling case for lives saved.
- Emphasize the cost effectiveness of rabies prevention and elimination versus the cost of doing nothing.

Demonstrate a sound strategy, collaboration across sectors and sustainability

- Donors want to see that there is country commitment and mobilization to rabies elimination; rabies must be a country priority and a recognized public health issue, supported by a comprehensive plan.

- The collaboration of the three major international organizations (WHO, OIE, FAO) demonstrates commitment and cross-sectoral collaboration. Intersectoral collaboration within countries and regions also sends an important message to donors.
- Country-to-country technical assistance and exchange (e.g. twinning projects to build capacity) is important.
- Action plans must be doable; ensure they demonstrate how to bring together stakeholders and communities.
- Ensure robust surveillance systems are in place to determine if the measures implemented are working and to monitor any reoccurrence of disease.
- Countries cannot depend on donors for the long term: there must be a transition of ownership plan and sustainable activities and resources as part of the rabies control action plan and strategy.

Look beyond vaccines and beyond rabies

- Donors should also be considered as sources for support beyond vaccines and vaccine delivery: capacity development for education, transfer of knowledge and information, diagnostics, surveillance and reporting are all areas where donors can be involved.
- Approaches that leverage opportunities and maximize investment are attractive to donors. Look to build onto other initiatives to maximize the impact of investments. For example, other platforms or projects could be used to deliver rabies control services and programmes or, conversely, there may be opportunities for rabies elimination efforts to help other projects.

- There is no one donor or one solution to dog-mediated human rabies: it requires collective approaches, coordination and motivation.

In accordance with the consensus of the Global Conference (Geneva, 10–11 December 2015), this framework provides a coordinated approach and vision for the global elimination of dog-mediated human rabies. It is intended to harmonize actions and provide adaptable, achievable guidance for country and regional strategies. Strategic vision: zero human deaths from dog-mediated rabies by 2030 in participating countries.

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THE FIVE PILLARS OF RABIES ELIMINATION (STOP-R)

Session 8 Building a global strategic framework

The eighth (open forum) session looked to further discuss issues and identify actions needed to achieve effective rabies elimination in the context of a global strategic framework. Following the conference, the input was used to finalize the Global Framework for elimination of dog-mediated human rabies, the content of which is provided below. The graphic version is available at the end of this document and on the OIE rabies portal.⁵

GLOBAL FRAMEWORK FOR THE ELIMINATION OF DOG-MEDIATED HUMAN RABIES

Dog-mediated human rabies kills tens of thousands of people every year worldwide. Freedom from dog-mediated human rabies is a global public good and is feasible with currently available tools.

⁵ <http://www.oie.int/rabies>

Pillar 1: Socio-cultural

Rabies control involves a wide range of stakeholders including the general public. The socio-cultural context influences rabies perceptions and dog-keeping practices of at-risk populations. Understanding the context guides approaches to motivate behavioural change and plan feasible delivery of services.

Includes activities for:

- **Awareness:** build awareness of dog-mediated rabies as a preventable global public health problem including through participation in initiatives such as World Rabies Day and the EndRabiesNow campaign;
- **Responsible dog ownership:** promote responsible dog ownership and dog population management practices, including dog vaccination, in accordance with OIE standards;
- **Bite prevention and treatment:** develop and implement educational programmes on bite prevention and first aid for both children and adults;

- **Post-exposure prophylaxis:** increase awareness and understanding of post-exposure prophylaxis (PEP) imperatives and options including intradermal administration;
- **Community engagement:** encourage community involvement and engagement in activities to eliminate dog-mediated rabies.

Pillar 2: Technical

Effective animal health and public health systems are required to eliminate dog-mediated human rabies. These systems must be strengthened and resourced appropriately, and gaps identified and filled.

Includes activities for:

- **Vaccination:** ensure safe, efficacious and accessible dog and human vaccines and immunoglobulins, and promote and implement mass dog vaccination as the most cost-effective intervention to achieve dog-mediated human rabies elimination;
- **Logistics:** collect data on needs forecasts to inform the vaccine procurement system and to create and sustain the logistics and infrastructure required for effective delivery and implementation of mass dog vaccination programmes and PEP administration;
- **Diagnostics:** ensure capacity and capability for rapid and accurate rabies diagnosis through accessible, well equipped laboratories and trained personnel;

- **Surveillance:** support improved surveillance, sampling, reporting and data-sharing;
- **Technical support:** provide guidance and technical support for the development and tailoring of regional and national plans, including promoting the use of existing tools;
- **Proof of concept:** support proof-of-concept programmes, and then scale up through leveraging of success.

Pillar 3: Organization

The One Health approach of close collaboration is applied. Leadership, partnership and coordination for rabies elimination activities arise from the human health and animal health sectors and other stakeholders.

Includes activities for:

- **One Health:** promote the One Health approach and intersectoral coordination through national and regional networks;
- **Good governance:** establish good governance, including clear roles, chain of command, measurable outcomes and timelines;
- **Harmonization:** align work plans and activities with national and regional priorities and approaches fostering synergies among sectors;
- **Coordination:** coordinate and combine human resources, logistics and infrastructure of other programmes and initiatives, as appropriate and feasible;

- **Indicators and performance:** identify targets and their indicators to support performance measurement, including surveillance and validation data, to identify areas requiring attention or extra support;
- **Monitoring and evaluation:** support monitoring and evaluation of national plans to ensure timely and cost-effective delivery.

Pillar 4: Political

Success depends on political will and support for elimination of dog-mediated human rabies. Political will results from recognition of rabies elimination as a national, regional and global public good.

Includes activities for:

- **Political support:** political support is essential and most relevant during and following country instability (political upheaval, natural disasters, etc.);
- **International support:** encourage countries to request a resolution on dog-mediated human rabies elimination through the World Health Assembly (WHO) and the General Assembly of Delegates (OIE);
- **Legal frameworks:** establish and enforce appropriate legal frameworks for rabies notification and elimination;
- **Demonstrating impacts:** demonstrate the compelling case for mass dog vaccination programmes and their impact on protecting and saving human lives;

- **Regional engagement:** support active national and regional engagement and cooperation to commit to a rabies elimination programme and promote the exchange of lessons learnt and experiences to leverage resources and engagement.

“ Rabies does not recognize country borders ”

Pillar 5: Resources

Rabies elimination activities frequently span several years and therefore require sustained, long-term support.

Includes activities for:

- **Case for investment:** promote the case for investment in dog-mediated human rabies elimination to persuade countries, policy-makers and donors of the feasibility, merit and value of investing in rabies elimination strategies;
- **Business plans:** prepare business plans based on the Global Framework for Dog-mediated Human Rabies Elimination;
- **Investment:** encourage different forms of investment and partnerships (private and public investment) to leverage resources and engagement.

CRITICAL SUCCESS FACTORS

- Long-term political and social commitment
- Community engagement
- Sustainable vaccination of 70% of the at-risk dog population
- Proof of concept: start small, scale up.
- Sufficient resources, logistics and infrastructure
- Promote vaccine banks and other strategies for acquisition of rabies immunologicals to ensure sufficient supply of quality-assured rabies vaccines and human immunoglobulin
- Reach remote, rural and at-risk populations
- Conduct performance measurement at all levels
- Maintain trained and motivated implementation personnel

REFERENCES AND ADDITIONAL INFORMATION

- ¹ Conference Report on the outcomes of a meeting on human and dog rabies vaccines and immunoglobulins (Geneva, 12–13 October 2015).
 - http://apps.who.int/iris/bitstream/10665/199176/1/WHO_HTM_NTD_NZD_2015.11_eng.pdf;
- ² Abstracts and presentations from Conference above are available on the OIE website.
 - <http://www.oie.int/eng/RABIES2015/index.html>
- ³ PAHO Action Plan.
 - http://www.paho.org/panaftosa/index.php?option=com_docman&task=doc_download&gid=378&Itemid=311
- ⁴ The Stepwise approach towards rabies elimination and the Blueprint for rabies prevention and control.
 - www.rabiesblueprint.com
- ⁵ Global Strategic Framework
 - <http://www.oie.int/rabies>

“ Rabies is 99.9% fatal but 100% preventable ”

GLOBAL FRAMEWORK FOR THE ELIMINATION OF DOG-MEDIATED HUMAN RABIES

Dog-mediated human rabies kills tens of thousands of people every year worldwide. Freedom from dog-mediated human rabies is a global public good and is feasible with currently available tools.

In accordance with the consensus of the Global Conference (Geneva, 10-11 December 2015), this framework provides a coordinated approach and vision for the global elimination of dog-mediated human rabies. It is intended to harmonize actions and provide adaptable, achievable guidance for country and regional strategies.

The five pillars of rabies elimination (STOP-R)

1 SOCIO-CULTURAL

Rabies control involves a wide range of stakeholders including the general public. The socio-cultural context influences rabies perceptions and dog-keeping practices of at-risk populations. Understanding the context guides approaches to motivate behavioural change and plan feasible delivery of services.

Includes activities for:

- Awareness: build awareness of dog-mediated rabies as a preventable global public health problem including through participation in initiatives such as World Rabies Day and the End Rabies Now campaign
- Responsible dog ownership: promote responsible dog ownership and dog population management practices, including dog vaccination, in accordance with OIE standards
- Bite prevention and treatment: develop and implement education programmes on bite prevention and first aid for both children and adults
- Post-exposure prophylaxis: increase awareness and understanding of post-exposure prophylaxis (PEP) imperatives and options including intradermal administration
- Community engagement: encourage community involvement and engagement in activities to eliminate dog-mediated rabies

2 TECHNICAL

Effective animal health and public health systems are required to eliminate dog-mediated human rabies. These systems must be strengthened and resourced appropriately, and gaps identified and filled.

Includes activities for:

- Vaccination: ensure safe, efficacious and accessible dog and human vaccines and immunoglobulins, and promote and implement mass dog vaccination as the most cost-effective intervention to achieve dog-mediated human rabies elimination
- Logistics: collect data on needs forecasts to inform the vaccine procurement system and to create and sustain the logistics and infrastructure required for effective delivery and implementation of mass dog vaccination programmes and PEP administration
- Diagnostics: ensure capacity and capability for rapid and accurate rabies diagnosis through accessible, well-equipped laboratories and trained personnel
- Surveillance: support improved surveillance, sampling, reporting, and data-sharing
- Technical support: provide guidance and technical support for the development and tailoring of regional and national plans, including promoting the use of existing tools
- Proof of concept: support proof-of-concept programmes, and then scale up through leveraging of success

3 ORGANIZATION

The One Health approach of close collaboration is applied. Leadership, partnership and coordination for rabies elimination activities arise from the human health and animal health sectors and other stakeholders.

Includes activities for:

- One Health: promote the One Health approach and intersectoral coordination through national and regional networks
- Good governance: establish good governance, including clear roles, chain of command, measurable outcomes and timelines
- Harmonization: align work plans and activities with national and regional priorities and approaches fostering synergies among sectors
- Coordination: coordinate and combine human resources, logistics and infrastructure of other programmes and initiatives, as appropriate and feasible
- Indicators and performance: identify targets and their indicators to support performance measurement, including surveillance and validation data, to identify areas requiring attention or extra support
- Monitoring and evaluation: support monitoring and evaluation of national plans to ensure timely and cost effective delivery

4 POLITICAL

Success depends on political will and support for elimination of dog-mediated human rabies. Political will results from recognition of rabies elimination as a national, regional and global public good.

Includes activities for:

- Political support: political support is essential and most relevant during and following country instability (political upheaval, natural disasters, etc.)
- International support: encourage countries to request a resolution on dog-mediated human rabies elimination through the World Health Assembly (WHO) and the General Assembly of Delegates (OIE)
- Legal frameworks: establish and enforce appropriate legal frameworks for rabies notification and elimination
- Demonstrating impacts: demonstrate the compelling case for mass dog vaccination programmes and their impact on protecting and saving human lives
- Regional engagement: support active national and regional engagement and cooperation to commit to a rabies elimination programme and promote the exchange of lessons learnt and experiences to leverage resources and engagement

5 RESOURCES

Rabies elimination activities frequently span several years and therefore require sustained, long-term support.

Includes activities for:

- Case for investment: promote the case for investment in dog-mediated human rabies elimination to persuade countries, policy makers and donors of the feasibility, merit and value of investing in rabies elimination strategies
- Business plans: prepare business plans based on the Global Framework for Dog-mediated Human Rabies Elimination
- Investment: encourage different forms of investment and partnerships (private and public investment) to leverage resources and engagement

CRITICAL SUCCESS FACTORS

- ③ Long-term political and social commitment
- ③ Community engagement
- ③ Sustainable vaccination of 70% of the at-risk dog population
- ③ Proof of concept: start small, scale up
- ③ Sufficient resources, logistics and infrastructure
- ③ Promote vaccine banks and other strategies for acquisition of rabies immunoglobulins to ensure sufficient supply of quality-assured rabies vaccines and human immunoglobulin
- ③ Reach remote, rural and at-risk populations
- ③ Conduct performance measurement at all levels
- ③ Maintain trained and motivated implementation personnel

STRATEGIC VISION: zero human deaths from dog-mediated rabies by 2030 in participating countries

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the time is
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