

Rabies Immunization WHO Recommendations and New Gavi Support

Dr Bernadette Abela
Global Programme for Neglected
Tropical Diseases
abelab@who.int

ASTMH 27 September 2024

Rabies is vaccine-preventable

An indicator for impact on inequity, capacity of health system and One Health

RABIES **Zero deaths by 2030**

99% human cases result from dog bites

One death every 15 minutes worldwide

4 out of 10 deaths are in children

100% vaccine preventable

no bite no rabies

VACCINATE TO STOP TRANSMISSION

VACCINATE TO SAVE LIVES

learn how to interact

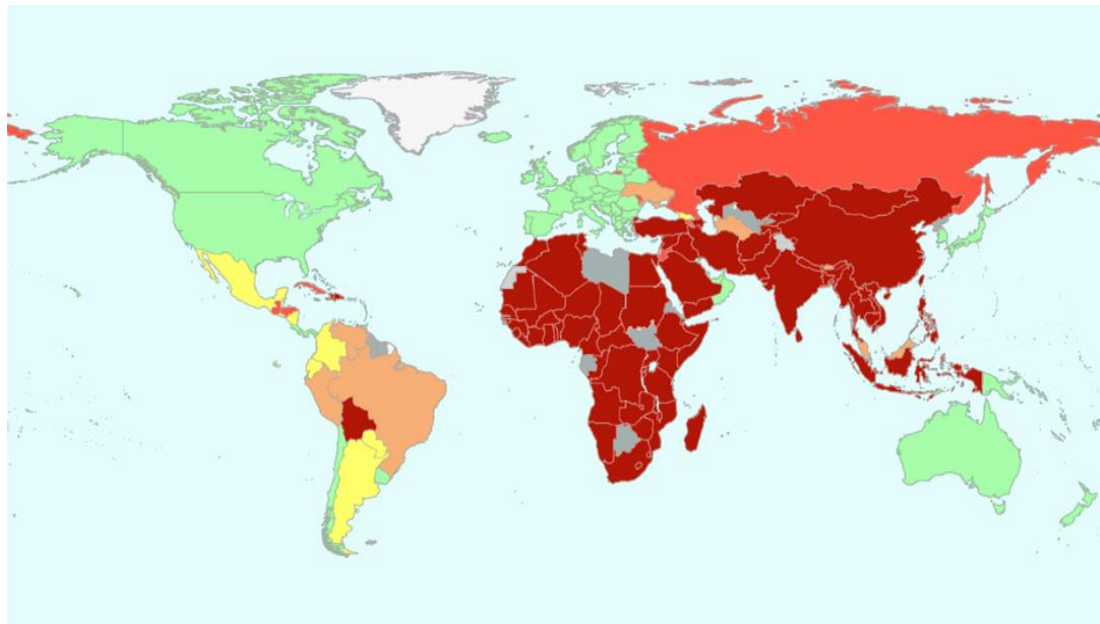
#rabies
28 September
World Rabies Day
www.who.int/rabies/en

World Health Organization

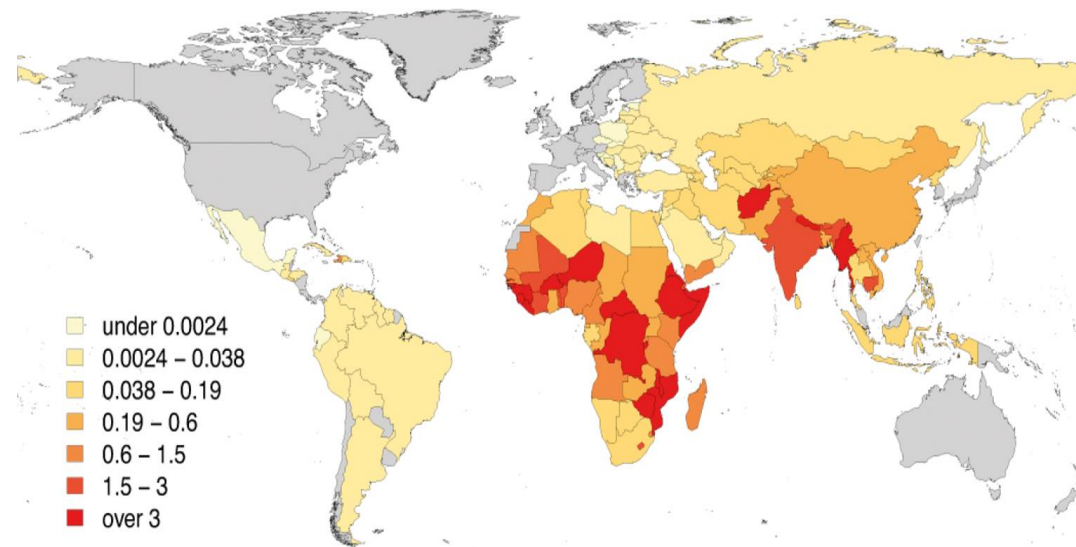
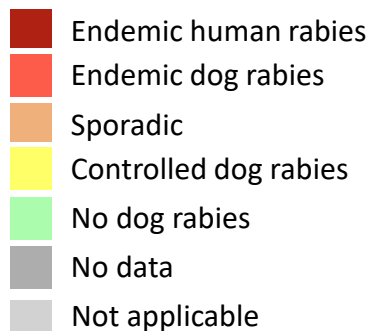
Our Goal:
Zero by 30

3 GOOD HEALTH AND WELL-BEING

Rabies endemicity & disease burden



A: Rabies endemicity

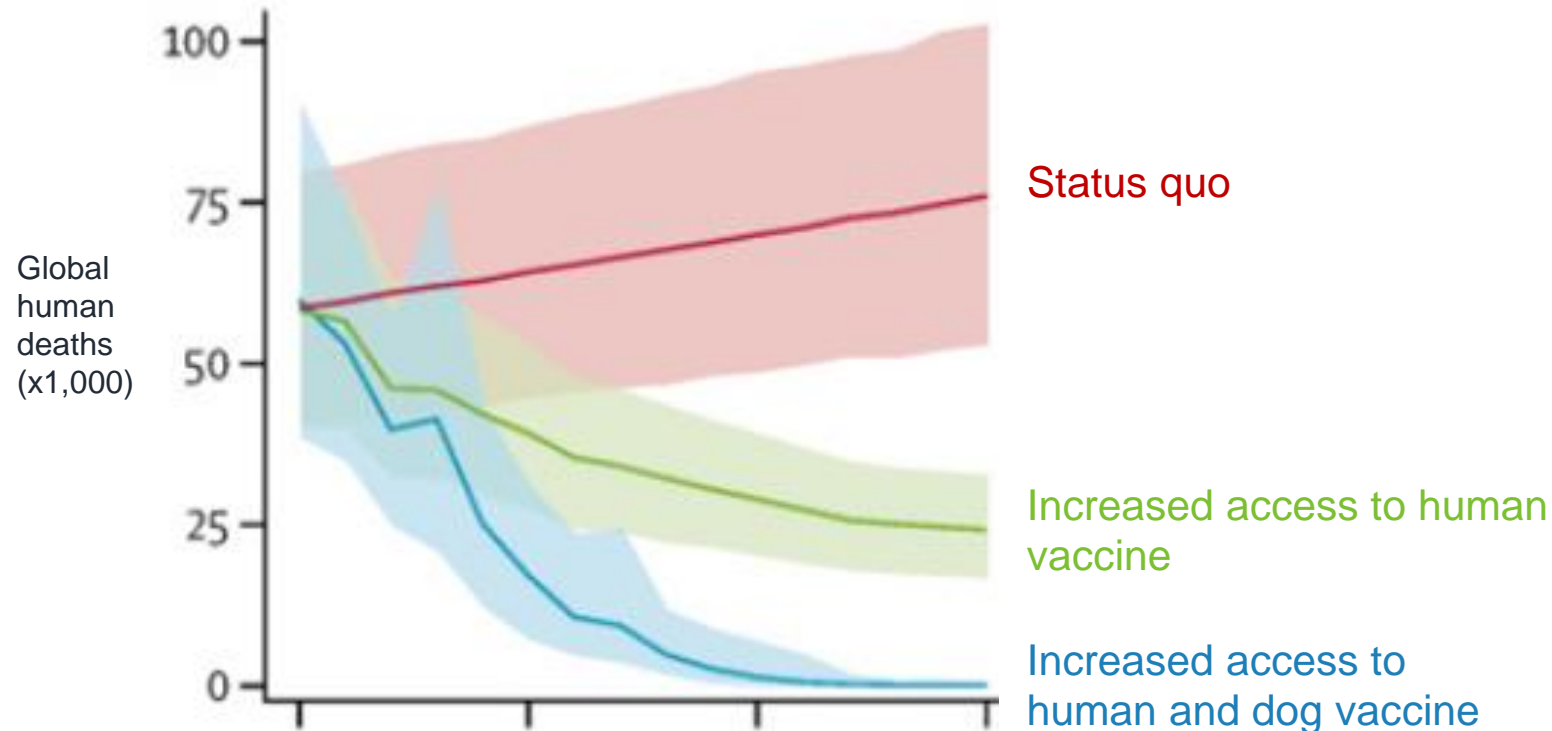


B: per capita death rates (per 100,000 persons)

99% are infected through a dog bite
40% are children under the age of 15

Comparing estimates, rabies is currently **underreported** by a factor up to **20 times in Asia** and **160 times in Africa**

Cost-effective and sustainable rabies programmes follow an One Health approach



- **Dog culling does not eliminate rabies**
- **Mass Dog Vaccinations**
 - **controls** canine rabies
 - **safeguards** those who struggle to access post-exposure prophylaxis
 - **eliminates** dog-mediated human rabies deaths
 - **protects** the lives of livestock and the livelihood of rural communities

Rabies elimination needs a three-pronged approach

Effective rabies programmes are based on 3 key pillars:

Timely care



Dog vaccination & dog population management



Awareness & community engagement



A coalition of actors



We are United Against Rabies.

ZERO BY 30
THE GLOBAL STRATEGIC PLAN



TO END
HUMAN DEATHS
FROM DOG-MEDIATED
RABIES BY 2030

1 every 9 minutes

1 person dies from rabies every 9 minutes and almost half of them are children.

99%

Up to 99% of human rabies infections are caused by a bite from a rabid dog.

100% preventable

We have effective dog vaccines and vaccines to treat people who are bitten.

Together, we can end all human deaths from dog-mediated rabies by 2030.

<https://www.unitedagainstrabies.org/>



Food and Agriculture
Organization of the
United Nations



World Organisation
for Animal Health
Founded as OIE



World Health
Organization

A coalition at country level, sub-national and community levels

WHO strongly encourages collaboration between

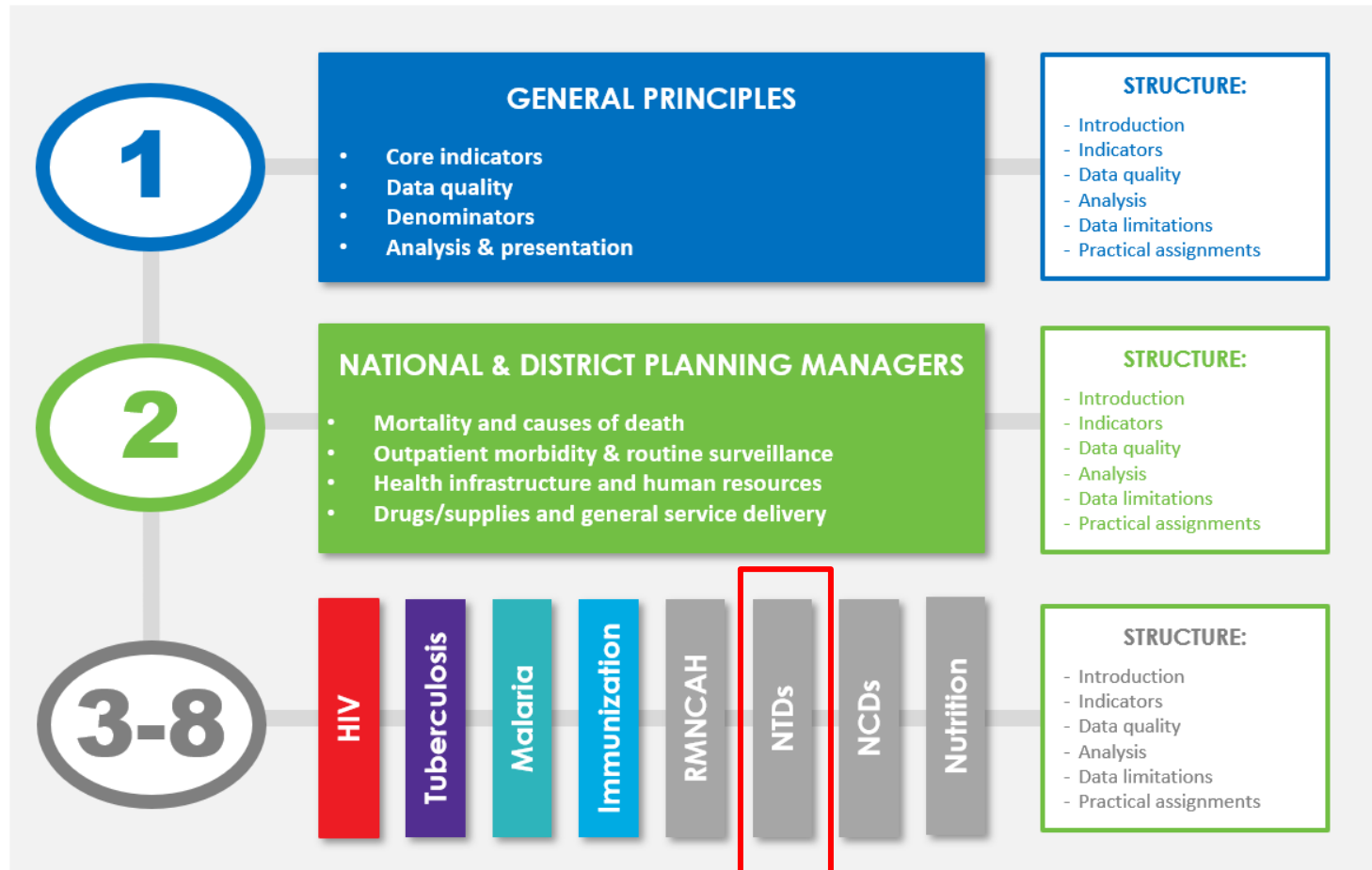
- National rabies programme staff
- National immunisation programme
- National Immunization Technical Advisory Group (NITAG)

- Animal health sector
- Education sector
- Civil society
- Community
-

Health Management Information Systems (HMIS) – integration and mainstreaming

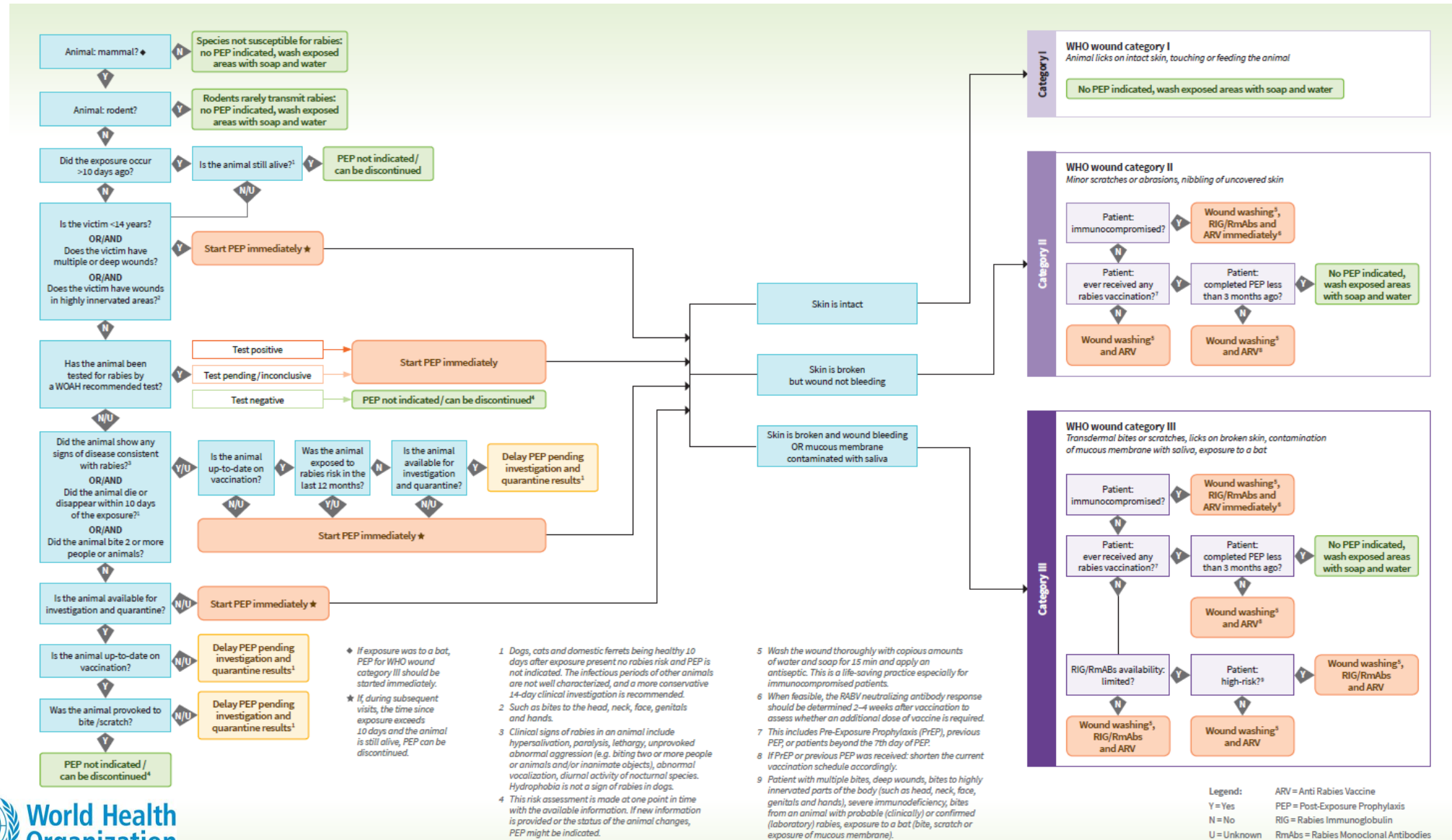
Health facility data tool kit

ANALYSIS AND USE OF HEALTH FACILITY DATA: GUIDANCE OUTLINE



Rabies PEP administration decision tree

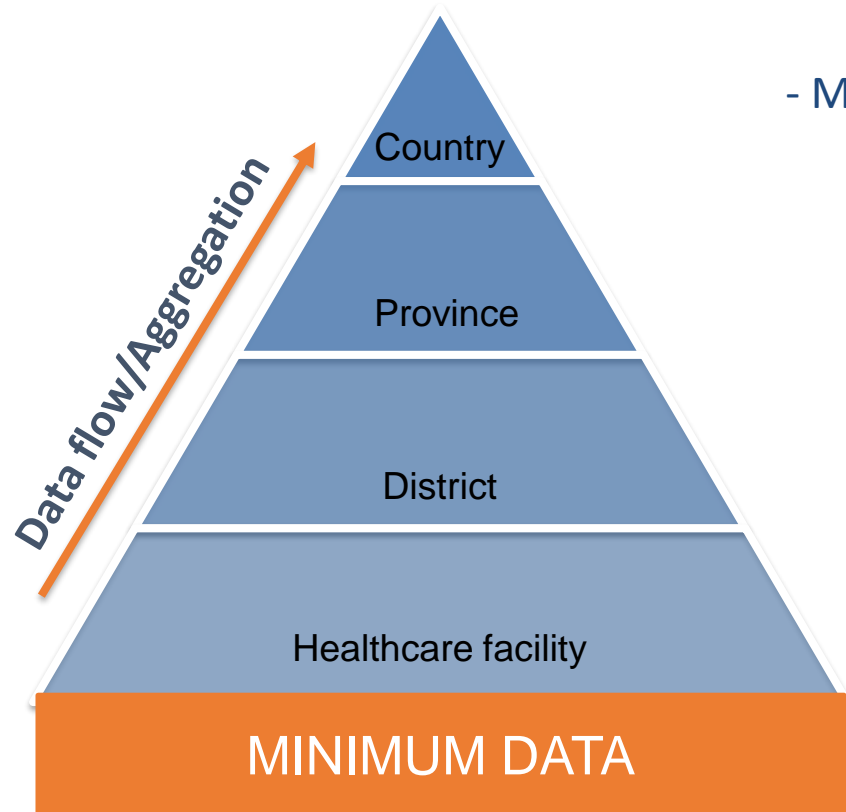
<https://www.who.int/publications/i/item/B09018>



Rabies tracker in WHO's Toolkit for RHIS Data

BENEFITS

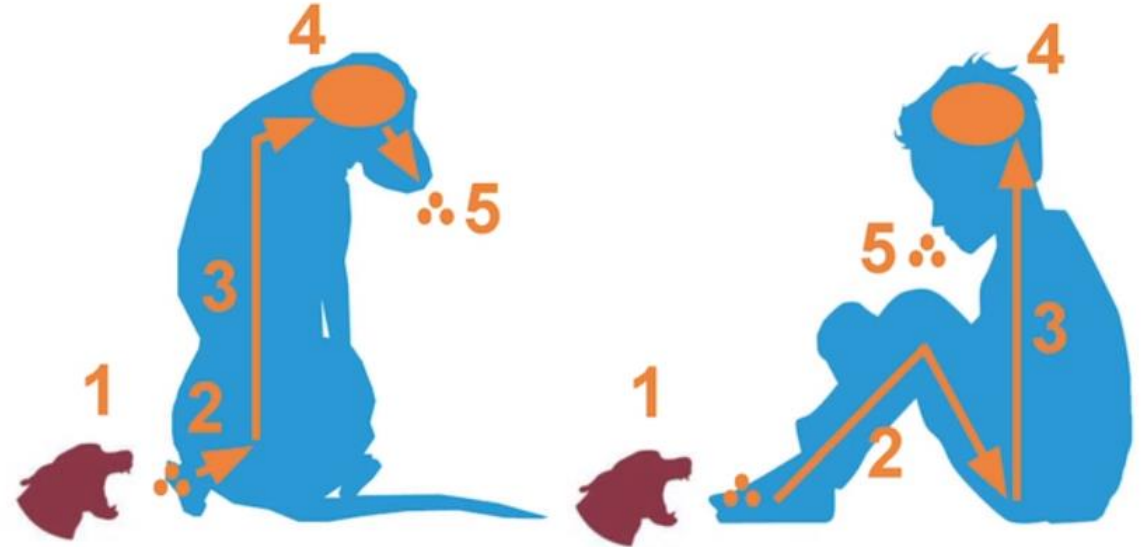
- Facilitating data collection and reporting at the community level
- Helping clinicians make better PEP-related decisions through the « tracker tool » = a healthcare facility-based data entry and collection tool that issues PEP advice after data entry
- Measuring progress towards 2030:



Minimum indicator	2020 (estimate)	2030
# countries having achieved zero human deaths from dog-transmitted rabies	80/169 (47%)	155/169 (92%)
# countries having progressed to zero human deaths from dog-transmitted rabies	100/169 (59%)	169/169 (100%)
# countries having reached 70% vaccination coverage of dogs in high-risk areas	63/169 (37%)	154/169 (91%)

Rabies is transmitted via infectious saliva

- 1 Inoculation of infectious **saliva** via a bite (most common), scratch, or direct contact with mucosa (e. g. eyes, mouth, or open wound)
- 2 Local **muscle** infection and uptake into peripheral nerves
- 3 Spread to **central nervous system**
- 4 Replication in the **brain**
- 5 Spread to salivary glands and excretion in **saliva**



Rarely documented transmission:

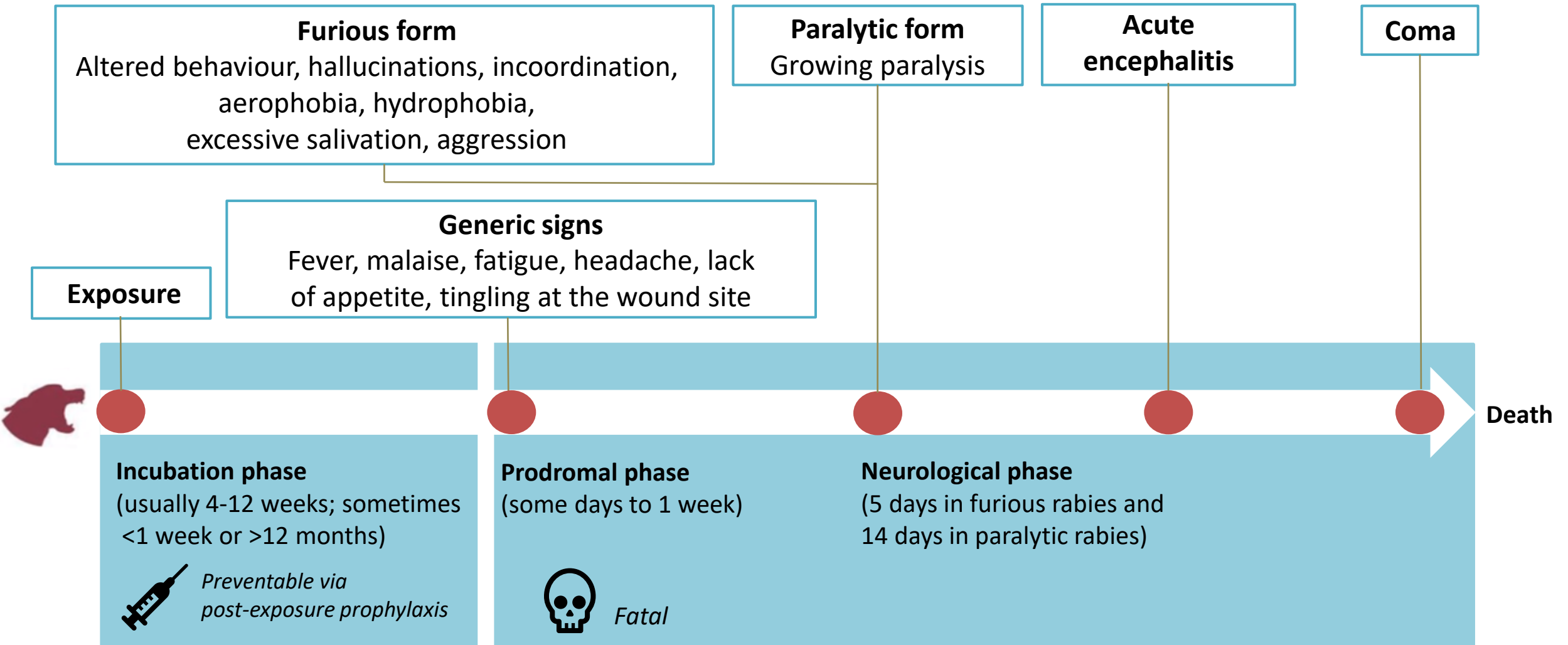
- Human-to-human transmission via tissue and organ transplantation or mucosal route
- Inhalation of aerosolised virus (e.g. in labs)
- Handling of raw meat

Never documented transmission:

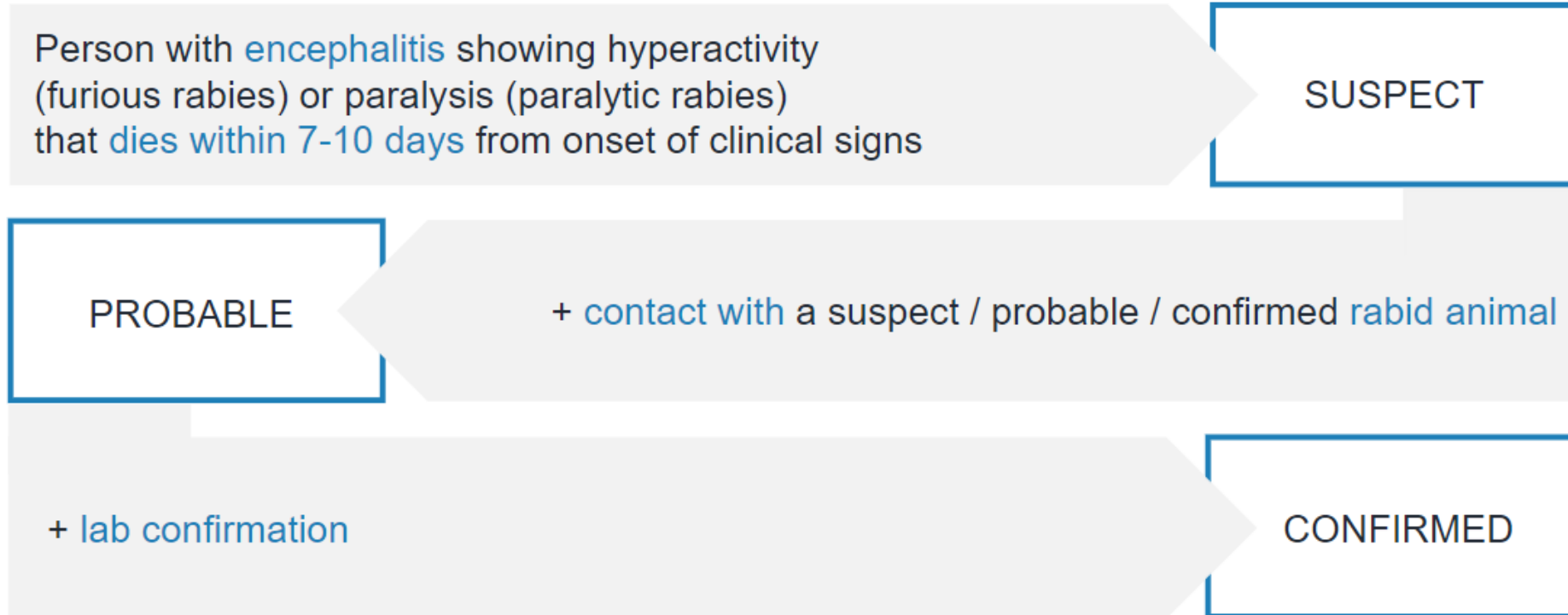
- Consumption of raw milk
- Rodent bites

Rabies is fatal once clinical signs appear

The clinical signs and development of rabies in humans are:



Clinical case definitions...

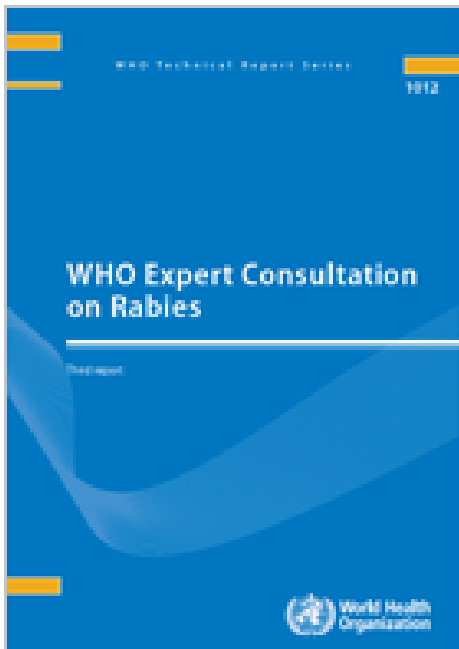


NOT A CASE:

Suspect / probable case ruled out by lab tests
OR
No animal contact in the past 6 months

WHO guidelines for Post-exposure Prophylaxis (PEP) and Pre-exposure Prophylaxis (PrEP) recommendations

Expert Report on Rabies 2018



Rabies vaccines: WHO position paper, April 2018

2018, 93, 201-220 No. 16

World Health Organization
Organisation mondiale de la Santé

Weekly epidemiological record
Relevé épidémiologique hebdomadaire

20 APRIL 2018, 93rd YEAR / 20 AVRIL 2018, 93^e ANNÉE
No. 16, 2018, 93, 201-220
<http://www.who.int/wer>

Rabies vaccines: WHO position paper – April 2018

Introduction
In accordance with its mandate to provide guidance to Member States on health policy matters, WHO issues a series of regularly updated position papers on vaccines and combinations of vaccines against diseases that have an international public health impact. They summarize essential background information on diseases and vaccines and conclude with the current WHO position on the use of vaccines worldwide.

Introduction
Conformément à son mandat qui est de donner aux États Membres des conseils sur les questions de politique de santé, l'OMS publie une série de notes de synthèse régulièrement actualisées sur les vaccins et les associations vaccinales contre les maladies ayant un impact sur la santé publique au niveau international. Elles révisent les informations essentielles sur les maladies et les vaccins et présentent en conclusion la position actuelle de l'OMS concernant l'utilisation des vaccins dans le contexte mondial.

Introduction
Conformément à son mandat qui est de donner aux États Membres des conseils sur les questions de politique de santé, l'OMS publie une série de notes de synthèse régulièrement actualisées sur les vaccins et les associations vaccinales contre les maladies ayant un impact sur la santé publique au niveau international. Elles révisent les informations essentielles sur les maladies et les vaccins et présentent en conclusion la position actuelle de l'OMS concernant l'utilisation des vaccins dans le contexte mondial.

Conclusion
The position paper replaces the 2010 WHO position on rabies vaccines. It presents new evidence in the field of rabies and the use of rabies vaccines, focusing on programme feasibility, simplification of vaccination schedules and improved cost-effectiveness. The recommendations

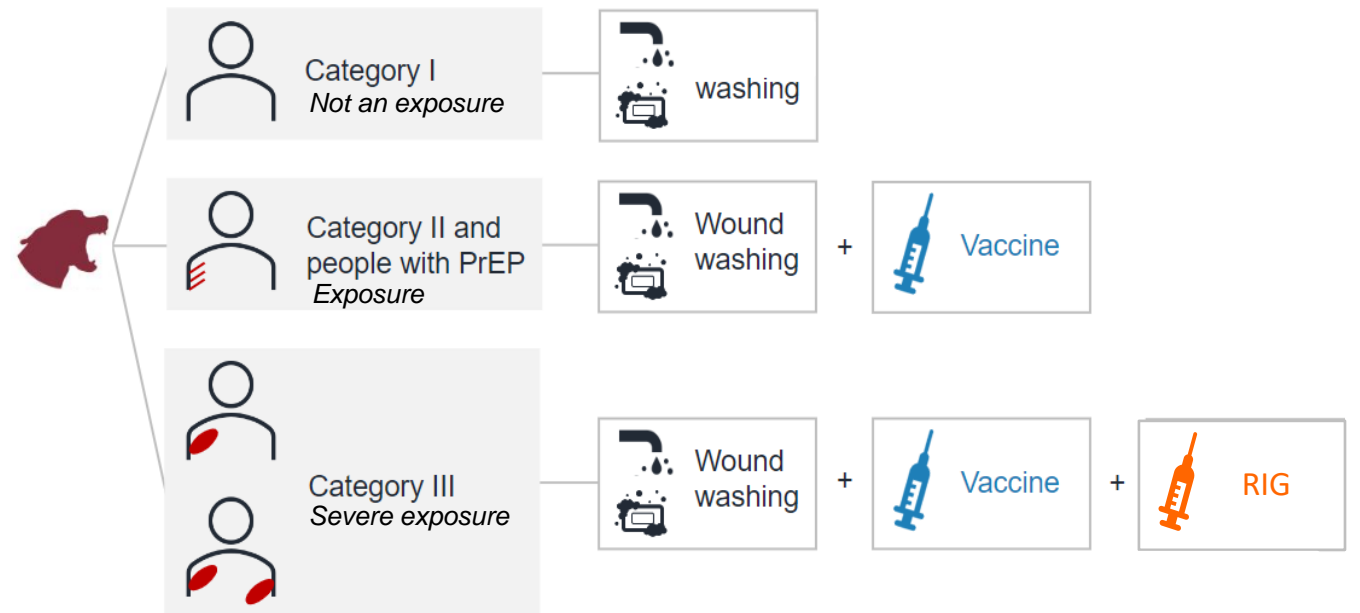
Conclusion
Ce document remplace la note de synthèse de l'OMS sur les vaccins antirabiques publiée en 2010. Il présente de nouvelles données scientifiques dans le domaine de la rage et de l'utilisation des vaccins antirabiques, en mettant l'accent sur la faisabilité programmatique, la simplification des sché-

ORGANIZATION
MONDIALE
DE LA SANTÉ
Lebanon

Annual subscription / abonnement annuel
No. 16, 2018
ISSN 0950-2688
Printed in Switzerland

1 See No. 32, 2014, pp. 309-320.
1 Voir No. 32, 2014, pp. 309-320.

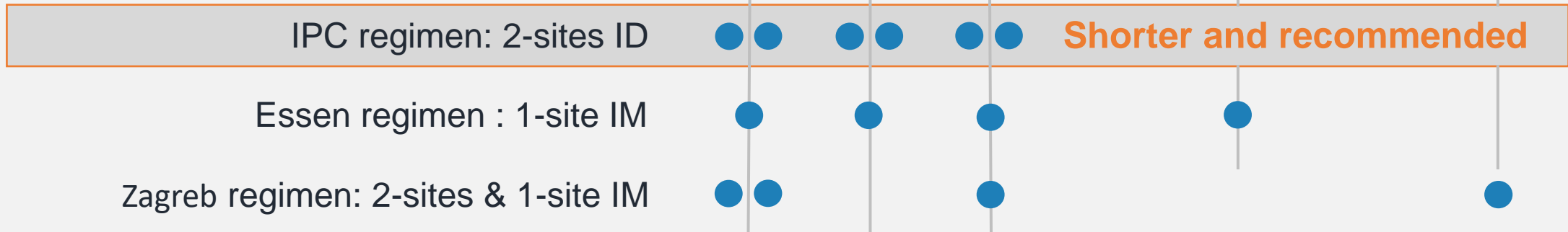
PEP requires vaccines and rabies immunoglobulin (RIG)



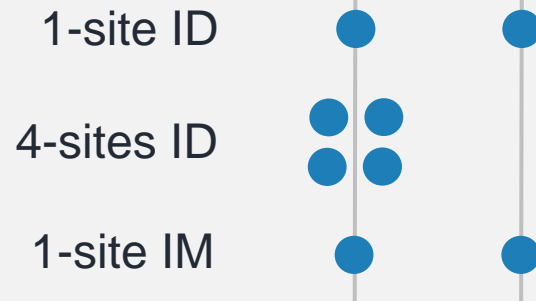
WHO recommends a dose-, time- and cost-saving vaccination schedule



Never vaccinated patients



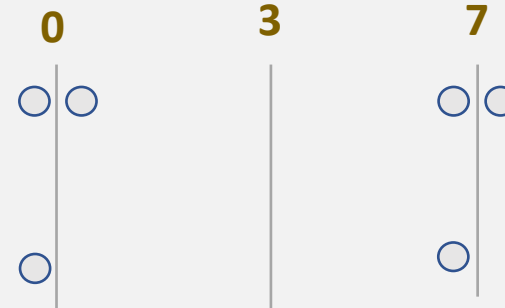
Previously vaccinated patients



Pre-exposure prophylaxis for at-risk groups

2-site ID vaccine administered on days 0 and 7

1-site IM vaccine administration on days 0 and 7

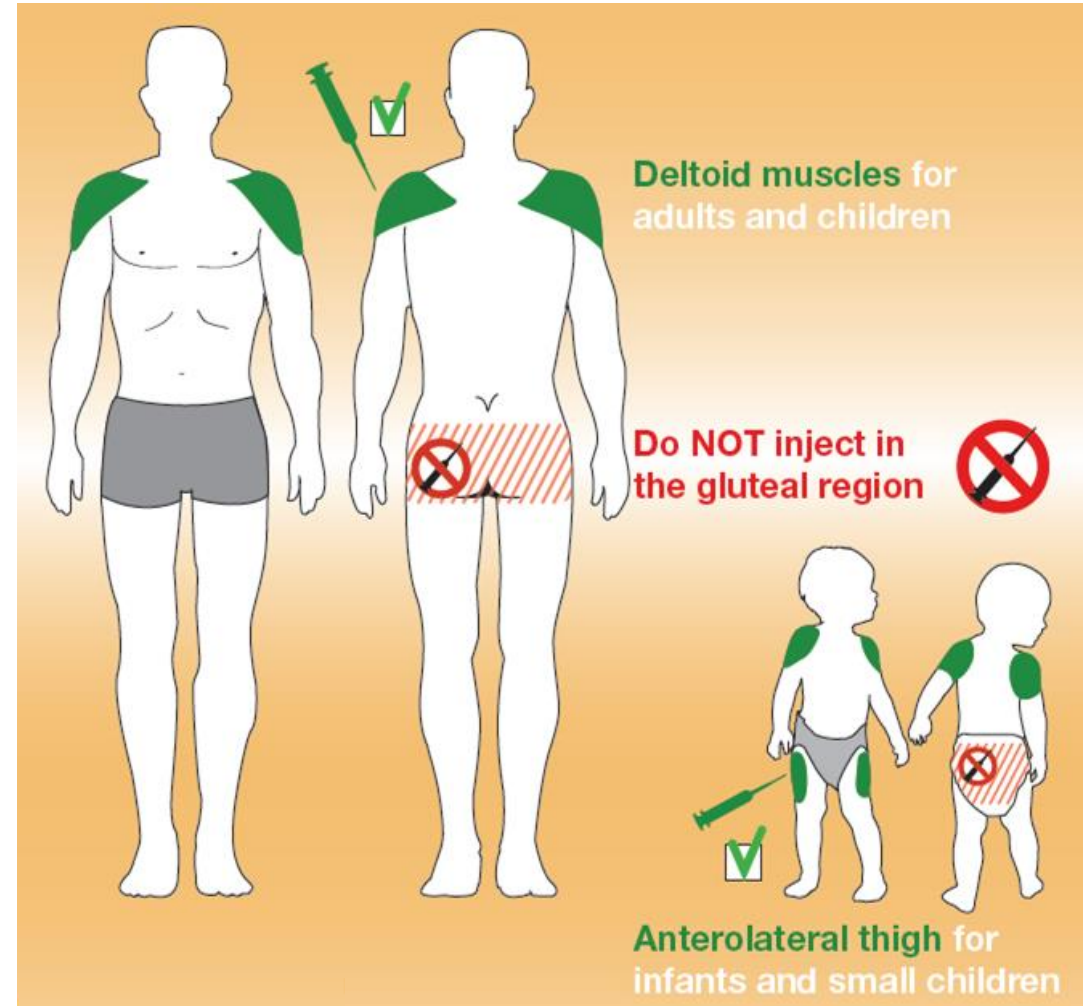


PrEP and PEP can be given intra-dermally or intra-muscularly

Intra-dermal (ID) = in the skin
1 dose = 0.1 mL of vaccine

Intra-muscular (IM) = in the muscle
1 dose = 1 entire vial (which is 0.5 mL or 1.0 mL of vaccine, depending on the product)

- All WHO pre-qualified vaccines can be administered by either route
- The injection sites for ID and IM are the same
- For ID, opened vials can be used up to 8 hours ([WHO policy on the use of opened multi-dose vaccine vials](#))
- ID administration is simple to perform, if health care providers are adequately trained



! Do not inject vaccine in the gluteal region !

WHO Position: Administration of rabies immunoglobulins (RIG)

- RIG should be administered only once, preferably at, or as soon as possible after, the initiation of PEP.
- RIG can be given up to day 7 after the first rabies vaccine administration.
- For optimal effectiveness, the maximum dose calculation for RIG is 40 IU/kg body weight for equine derived RIG (eRIG) products, and 20 IU/kg body weight for human derived RIG (hRIG).
- RIG is infiltrated into and around the wound. IM no longer recommended
- Skin testing before eRIG administration should not be done because of unreliable prediction of adverse effects.
- 2 monoclonal products available



Pre-exposure prophylaxis (PrEP) shortens, but does not replace, the post-exposure vaccine

PrEP is recommended for at **high-risk individuals**:



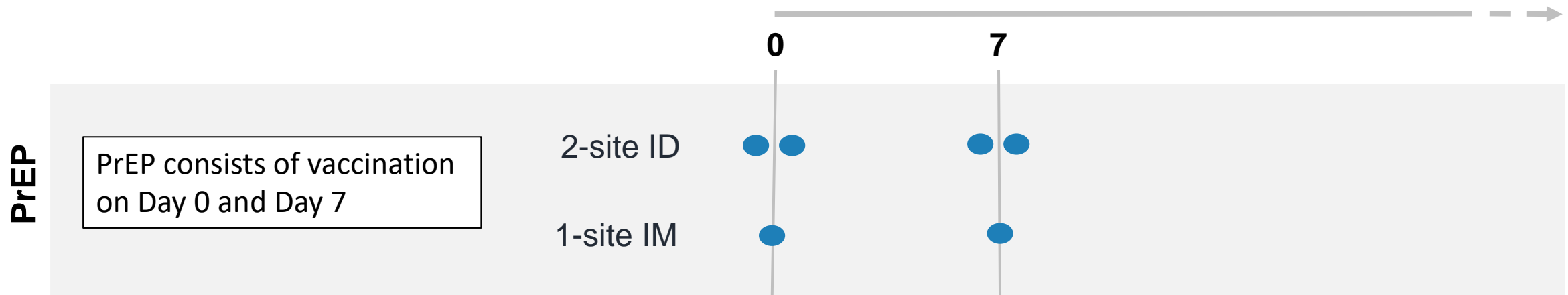
communities in remote, highly endemic settings with limited access to proper PEP



travellers to remote, highly endemic settings with limited access to proper PEP



individuals at occupational risk e.g., laboratory staff, veterinarians,



Off-Label Vaccine use

- Before vaccines can be placed on the market, they need to obtain a market authorization by the National Regulatory Authority (NRA).
- The NRA authorizes the use of the vaccine for a given indication outlined in the vaccine product information sheet
- Following approval, the **National Immunization Technical Advisory Group (NITAG)**, can issue public health recommendations for use of the vaccine.

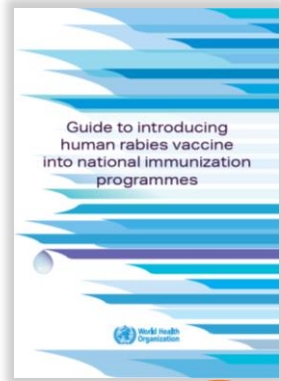
Recommendations on vaccine use at the global level are formulated by **Strategic Advisory Group of Experts on Immunization (SAGE)** that advises WHO.

These may be off-label until manufacturers update their labels and inserts to address

- specific population groups
- Vaccine shortages
- Simplified immunization schedules

[Explanatory note](#)

Guidance is available for countries to roll out rabies vaccination programmes



To highlight considerations specific to rabies PEP
that can be integrated into existing systems

To inform policy discussions and operational planning
to introduce or expand rabies PEP into a national immunization programme:

1

Decision-making



2

National planning



3

Microplanning
at selected
health
facilities



4

Training
and
service
delivery



5

Communication
and
social
mobilisation



6

Monitoring
and
evaluation



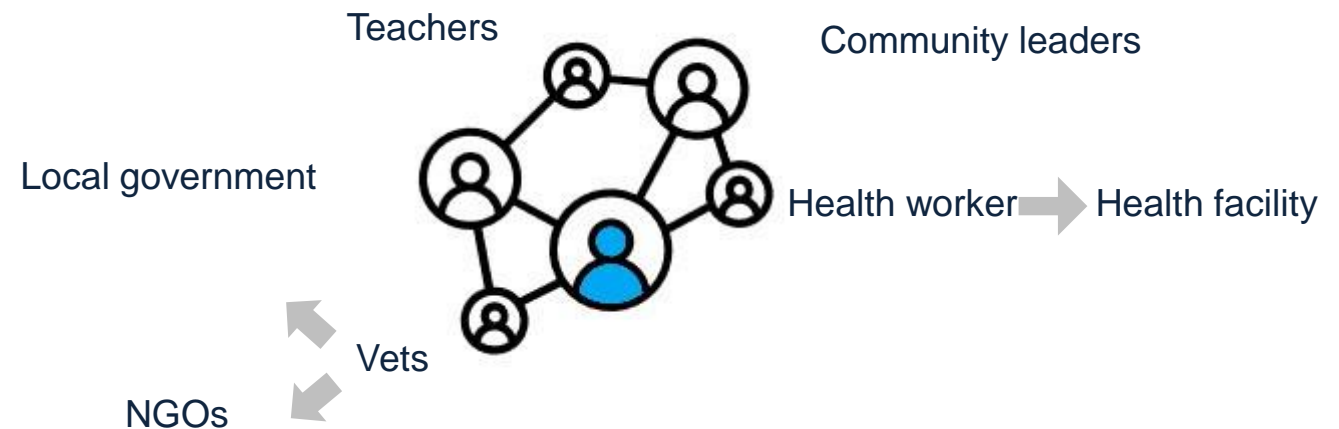
It takes a village to eliminate rabies



C: World Animal Protection

Local communities are not programme recipients, but **key stakeholders** to work with to:

- understand local needs
- raise awareness
- teach rabies in schools
- increase access and demand for affordable PEP
- design sustainable mass dog vaccination campaigns
- build relations between the human and animal sectors
- trigger national and global action



All you want to know about rabies and One Health in NTDs

One Health in action against Neglected Tropical Diseases

OpenWHO

Course is available

Learnings Discussions Progress Certificates Collab Space Course Details Documents Announcements



Share Tweet LinkedIn Share Mail

Neglected Tropical Diseases (NTDs) continue to cause hardship and harm to over one billion people worldwide, burdening individuals, families and communities who are already marginalized and disadvantaged. Taking a One Health approach that recognizes the relationship between human, animal, and environmental health is key to sustainably addressing NTDs. This course provides practical ideas, tools, and examples to enable each of us to take One Health action towards the global goal of substantially reducing the burden of NTDs by 2030.

Photo credits: WHO/Olyas Ahmed

Self-paced
Language: English
NTD

Enroll me for this course

Rabies & One Health: From basics to cross-sectoral action to stop human rabies deaths

OpenWHO

Course is available

Learnings Discussions Progress Certificates Collab Space Course Details Documents Announcements



Share Tweet LinkedIn Share Mail

Despite being fully preventable, dog-mediated human rabies kills tens of thousands of people every year, especially in rural and impoverished areas in Africa and Asia. This course provides participants with knowledge about the biology and epidemiology of this Neglected Zoonotic Disease, the current 'Zero by 30' rabies elimination strategy, and how to prevent rabies in people and dogs by taking a One Health approach. The learning package consists of seven modules, which include downloadable video-lectures by global experts and professionals confronted with rabies in the field.

Photo credit: WHO/ Budi Chandra

Self-paced
Language: English
Rabies

Enroll me for this course



<https://apps.who.int/iris/handle/10665/351193>

<https://openwho.org/courses/NTDs-one-health>

<https://openwho.org/courses/NTDs-Rabies-and-one-health>

Rabies Resources

- Guide to introducing human rabies vaccine into national immunization programmes (Eng) <https://www.who.int/publications/i/item/9789240052499>
- Rabies vaccines: WHO position paper – April 2018 (Eng) <https://www.who.int/publications/i/item/who-wer9316>
- WHO Expert Consultation on Rabies: WHO TRS N°1012 <https://www.who.int/publications/i/item/WHO-TRS-1012>
- Rabies Post-Exposure Prophylaxis Decision Tree: Decide with Confidence https://cdn.who.int/media/docs/default-source/searo/ntd/who-searo_rabies-pep-decision-tree-poster.pdf?sfvrsn=f2249312_6
- Protocol for a well-performed rabies post-exposure prophylaxis delivery: to read along with the decision trees 1- Wound risk assessment and 2 - PEP risk assessment <https://www.who.int/publications/i/item/B09018>
- Open WHO Rabies & One Health <https://openwho.org/courses/NTDs-Rabies-and-one-health>
- GAVI Funding Guidelines FR– Rabies page 67 – 69 https://www.gavi.org/sites/default/files/support/guidelines-2024/GAVI-Vaccine-Funding-Guidelines-july2024_FR.pdf
- WHO AFRO Webinar Recording : WHO Rabies Vaccination: WHO Recommendations and New GAVI Report 20th March 2024. Link: https://who.zoom.us/rec/share/T_4r48lFn_Xgc79h781cTS2cJ3UQQEhsJFKcPkpQy73wFDSFUSPF5ue6A0PCXzDH.uuWHZLDtVA62-1BJ
Passcode: @Rabies2024
- Off-label vaccine use: explanatory note for countries [note_off-label_vaccine_use_considerations_countries_22_dec_2023.pdf \(who.int\)](https://www.who.int/publications/i/item/note_off-label_vaccine_use_considerations_countries_22_dec_2023)
- Global Market Study Human Rabies Vaccines https://cdn.who.int/media/docs/default-source/immunization/mi4a/human-rabies-vaccine-market-study_public_summary.pdf?sfvrsn=2dee3e4_1&download=true
- WHO List of Prequalified Vaccines [Prequalified Vaccines | WHO - Prequalification of Medical Products \(IVDs, Medicines, Vaccines and Immunization Devices, Vector Control\)](https://www.who.int/prequalification/medical-products/ivds-medicines-vaccines-and-immunization-devices-vector-control)



Dr Bernadette Abela, Global Programme for Neglected Tropical Diseases, abelab@who.int