REACHING "ZERO BY 30": THE GLOBAL STRATEGIC PLAN

Unleashing the Power of Rabies Vaccines

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Rabies is a lethal zoonotic disease



Every 15 minutes one death

40% of deaths in children

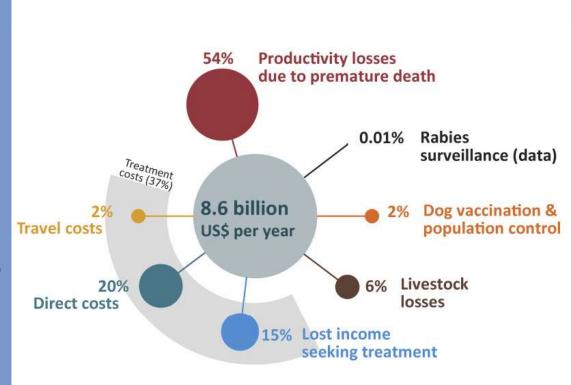
80% of deaths in rural areas

99% from dog bites



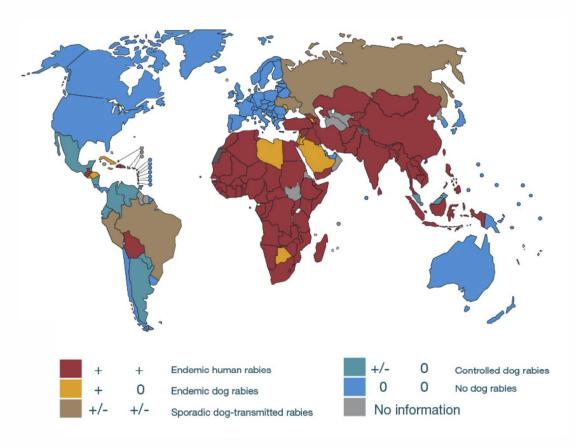


It burdens vulnerable populations





Endemicity of dog transmitted rabies

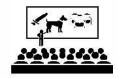




Rabies is preventable

Needs safe, efficacious and optimally priced biologicals

Awareness



Timely care



Dog vaccination









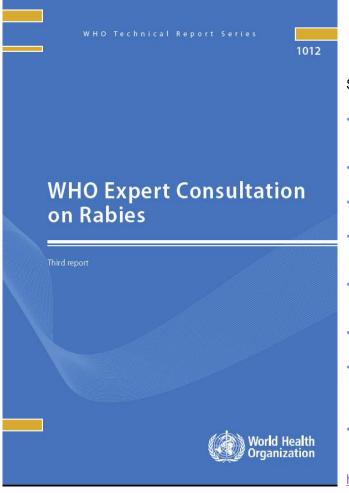


New WHO position on rabies immunization:

Safety - programmatic savings - feasibility

Topic	2010	2018	
PEP regimen duration	3-4 weeks 4-5 visits	1-2 weeks 3-4 visits	
Vaccine savings PEP	ID: 0.8 ml IM: 5 ml	ID: -20% (0.6 ml) IM: -20% (4 ml)	
RIG infiltration	Wound + distant IM	Wound only - 40% RIG vials - 80% RIG volume/ person	
RIG allocation	All category III exposures	When scarce: High risk cat. III exposures	





Updated Report

Some highlights include:

- Practical approaches to improve surveillance in animals and humans
- Updates on laboratory techniques
- Guidelines for palliative care of rabies patients
- Safe and feasible human and animal immunization policies
- Potential of new rabies biologics to improve delivery to (rural) communities
- Role of oral vaccination in dog campaigns
- Processes for countries to validate 0 human rabies deaths, verify breaking of dog-mediated rabies transmission and rabies freedom
- Research agenda

http://www.who.int/rabies/resources/who_trs_1012/en/

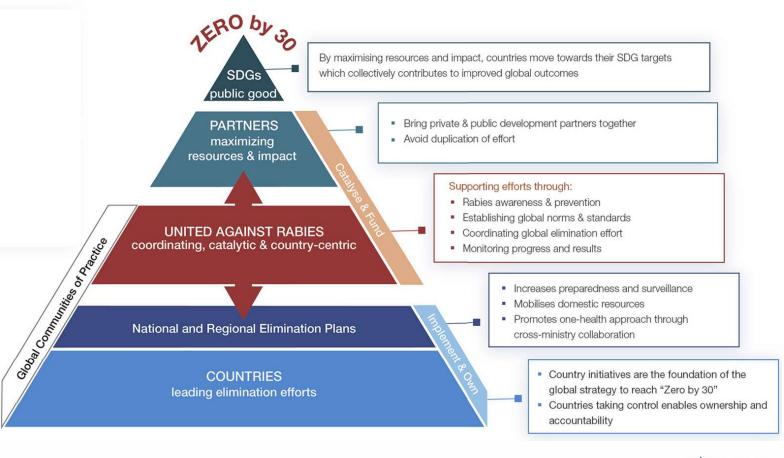


A mission driven coalition to eliminate dog-mediated human rabies by 2030 "Zero by 30"



EMPOWER ENGAGE ENABLE

Puts countries at the centre





Theory of change to reach 'Zero by 30'

ZERO HUMAN DEATHS FROM DOG-MEDIATED RABIES BY 2030

less expenditures on rabies

fewer rabies exposures

validated rabies elimination in individual countries/regions

Reduce human rabies risk

- improved awareness and education
- increased access to healthcare, 2.2- ensuring reliable data to medicines and vaccines
- dog vaccinations

Provide guidance and data

- 2.1- effective policies, guidance and governance
- enable effective decision-making

Harness multi-stakeholder engagement

- demonstrate the impact of activities completed under the United Against Rabies collaboration

OBJECTIVE 1

to effectively use vaccines, medicines, tools and technologies

OBJECTIVE 2

to generate, innovate and measure impact

OBJECTIVE 3

to sustain committment and resources

OBJECTIVES

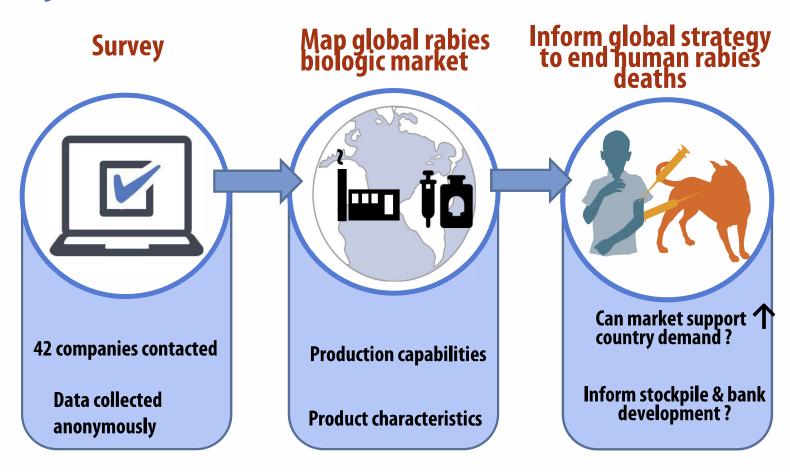
operational capacity-building preparedness

educational & advocacy programmes awareness & commitment

monitoring & effectiveness & sustainability



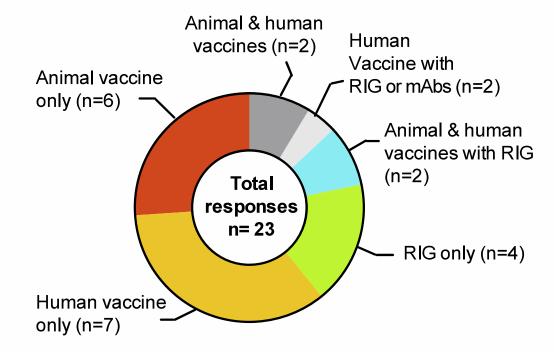
Objectives





Summary statistics of respondents

- 54.8% response rate (23 of 42 manufacturers)
- Human vaccines n=13
- RIG and mAbs, n=7
- Animal vaccines, n=10





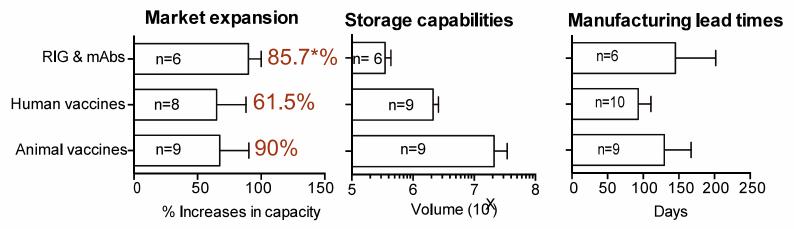
Global manufacturing locations & capacity

Regional manufacturing **Total manufacturing capacity** 200 Anima 150. WPRO-Vaccines (Millions) **EMRO-EURO-**100 Human SEARO-50 AMRO-AFRO-2015 2014 2017 2016 2013 No. manufacturing sites per region

- China and Indian manufacturers are likely highly represented in SEARO
- The production of RIG doses was lower than vaccines; reflects lower demand compared to vaccines.
- For 2017, one manufacturer indicated a production capacity 2 million vials of mAbs



Characteristics of market



* Percentage of total respondents who could expand production

- Many manufacturer's could expand production
- Many could store biologics; important consideration for rabies biologic banks
- Vaccine and RIG lead times ranges were 0-420 days, and 30-420 days, respectively



Biological characteristics / formulation of vaccines & immunoglobulins

	human vaccines	RIG & mAbs	animal vaccines
Biological source	Cell derived, n=13	Cell line, n=2 eRIG, n=2 hRIG=3	Cell derived, n=9
Formulation vial size (mean ± SEM)	Lyophilized 92% 0.67 ± 0.07	Liquid 86% 3.13 ± 1.13	Liquid 100% 1.02 ± 0.09
Storage 2-8°C (No. responses) Thermotolerance (%) Vial monitors	13 69% 8	7 57% 1	7 29% 2
Administration Route (% of responses)	IM only, n=4 IM:ID, n=9	IM only, n=4 IM:ID, n=3	IM and/or SC, n=8 Oral, n=1

3 vaccines were WHO pre-qualified



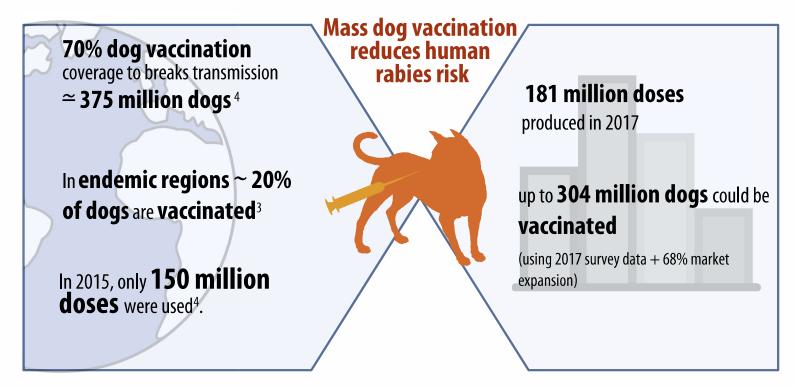
Conclusions: Rabies biologics for human PEP

Ensuring access to Annual post-bite In 2017, 22.5 million complete **Rabies biologics** vaccination rate is 15 **PEP vaccination courses** saves lives million people1 produced (assuming 4 visit, 0.5 or 1ml dose, IM regimen) + possible market expansion of ~14.6 million PEP courses (assuming 65% market expansion within 5 years) Only 2% of patients who need Total **RIG capacity < than vaccines** it, receive RIG² 3 WHO-Prequalified vaccines

¹World Health Organization. WHO fact sheet on rabies. 2017; Available from: www.who.int/mediacentre/factsheets/fs099/en
²WHO. Background paper: Proposed revision of the policy on rabies vaccines and rabies immunoglobulins. 2017; Available from: http://www.who.int/immunization/sage/meetings/2017/october/1 Background paper WG RABIES final.pdf



Conclusions: Animal vaccines for dog vaccination



³ Rupprecht, C., I. Kuzmin, and F. Meslin, Lyssaviruses and rabies: current conundrums, concerns, contradictions and controversies. F1000Res, 2017. 6: p. 184. ⁴Wallace, R.M., et al., Elimination of Dog-Mediated Human Rabies Deaths by 2030: Needs Assessment and Alternatives for Progress Based on Dog Vaccination. Front Vet Sci, 2017. 4: p. 9

Countries

Develop **National plans** in line with global strategy & WHO guidelines

Forecast & finance supply chain needs to improve access

Global Partners

Rabies stockpiles & banks can shape market

Procedures for the registration of high quality rabies mAbs & RIG needed

Manufacturers

mAbs will improve immuno-globulin supply long term

Encouraged to **seek WHO-PQ** for purchase by procurement agencies

Should adopt new WHO guidelines

Products of high quality, longer shelf lives with thermotolerance are desired

Manufacturers can likely meet future supply needs for rabies elimination programmes

³ Rupprecht, C., I. Kuzmin, and F. Meslin, Lyssaviruses and rabies: current conundrums, concerns, contradictions and controversies. F1000Res, 2017. 6: p. 184. ⁴Wallace, R.M., et al., Elimination of Dog-Mediated Human Rabies Deaths by 2030: Needs Assessment and Alternatives for Progress Based on Dog Vaccination. Front Vet Sci, 2017. 4: p. 9

Lack of demand

limiting market

Thank you!



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http://www.who.int/rabies/en/

