

Integrated interventions

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Veyrier-du-Lac , France

- Why is this relevant to you?



RESEARCH ARTICLE

Rabies in the Americas: 1998-2014

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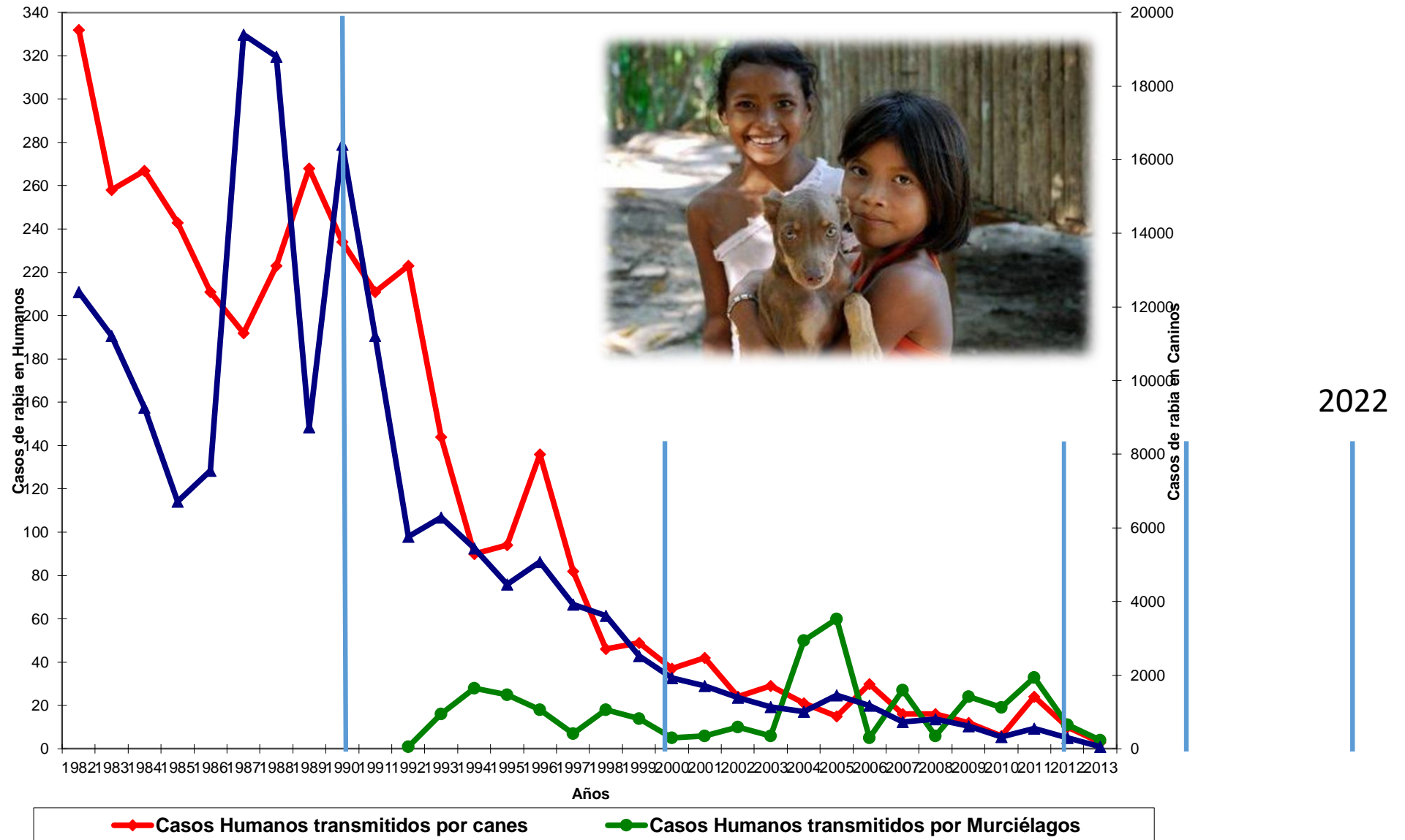


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- What's the situation at the moment
- How we got here

Features



Countries	2013			2014			2015			2016			2017		
	Dog-mediated	Other Species-mediated	Total	Dog-mediated	Other Species-mediated	Total	Dog-mediated	Other Species-mediated	Total	Dog-mediated	Other Species-mediated	Total	Dog-mediated	Other Species-mediated	Total
BOL	2	0	2	4	0	4	4(1#)	0	4(1#)	1	0	1	5	0	5
HAI	3	0	3	4	0	4	3###	0	3###	8###	0###	8###	8	0	8
DOR	2	0	2	0	0	0	2	0	2	0	0	0	1*	0	1*
BRA	3	2	5	0	0	0	1	1*	2	0	2 ¹ 5 ¹ **	2	0	4**	4**
PER	1	5**	6	0	0	0	1###	3(4)**	4(4)	0	15 ¹² **3###	15	0	3**	3**
MEX	0	0	0	0	0	0	0	1***	1	0	2###	2	0	0	0
COL	0	0	0	0	0	0	0	1 ⁵	1	0	1*	1	0	1*	1
CUB	0	1***	1	0	0	0	0	1***	0	0	1***	1	0	0	0
GUA	1	0	1	2	0	2	0	0	0	2###	0	2	1	0	1
CHI	0	1 ⁵ ###	1	0	0	0	0	0	0	0	0	0	0	0	0
COR	0	0	0	0	1 ⁵	1	0	0	0	0	0	0	0	0	0
NIC	0	0	0	0	1 ⁵	1	0	0	0	0	0	0	0	0	0
VEN	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0
Total	12	9	21	10	2	12	12(1#)	7(4)	19(5)	11	21	32	15	7	22

Table 1. Human rabies cases in Latin-America (2013-2017)

In (...) not officially confirmed

suspected case without laboratory confirmation

limited surveillance (lack of investigation, diagnosis, others)

under experimental treatment Milwaukee's protocol

under experimental treatment Milwaukee's protocol

* cat/dog (hematophagous bat variant of rabies virus)

** hematophagous bat

*** skunk/mongoose

Numbers represent cases under condition specified above

Fuente: SIRVERA – Rabies Surveillance System of Americas; IHR notifications;

Ministries of Health contacts; PAHO's local offices; information

How we got here?

By prioritising rabies



RESEARCH ARTICLE

Building the road to a regional zoonoses strategy: A survey of zoonoses programmes in the Americas

Melody J. Maxwell^{1aa}, Mary H. Freire de Carvalho¹, Armando E. Hoet², Marco A. N. Vigilato¹, Julio C. Pompei¹, Ottorino Cosivi¹, Victor J. del Rio Vilas^{1ab*}

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How we got here?

By prioritising rabies

Table 1. List of endemic zoonotic diseases and their frequency in regards to their prioritization by the Ministries of Health and Agriculture and combined entities in Latin America and Caribbean countries. First, second, and third refer to the priority level of the zoonotic diseases and total is a sum of all the times that disease was prioritized in such categories.

	Endemic	First	Second	Third	Total
1	Rabies	22	2	6	30
2	Leptospirosis	4	11	10	25
3	Brucellosis	7	6	6	19
4	Tuberculosis	2	7	4	13
5	<i>Salmonella</i>	5	3	3	11
6	Hydatidosis	4	0	2	6
7	<i>Campylobacteria</i>	0	1	4	5
8	<i>Escherichia coli</i>	1	4	0	5
9	Influenza	1	1	2	4
10	Chagas	0	3	0	3

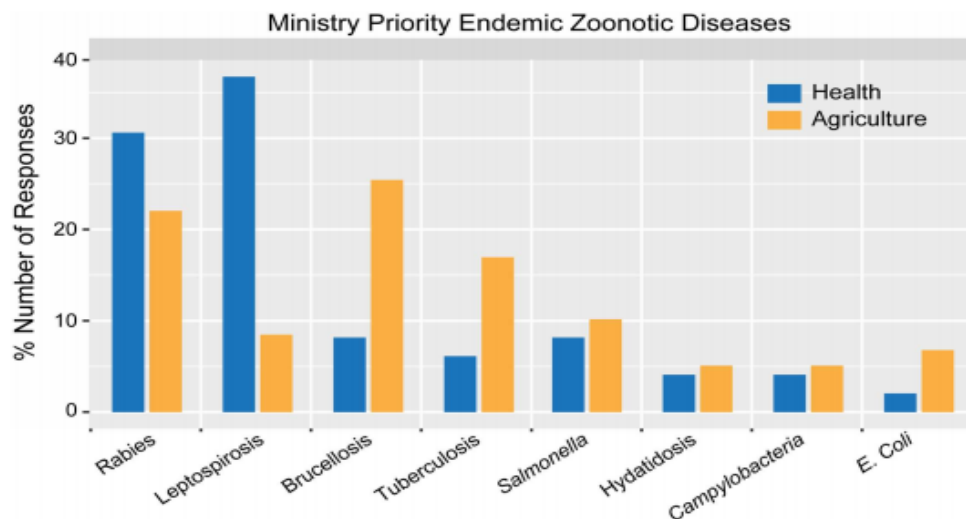


Fig 1. Comparison between the Ministries regarding their top endemic zoonotic disease priorities.

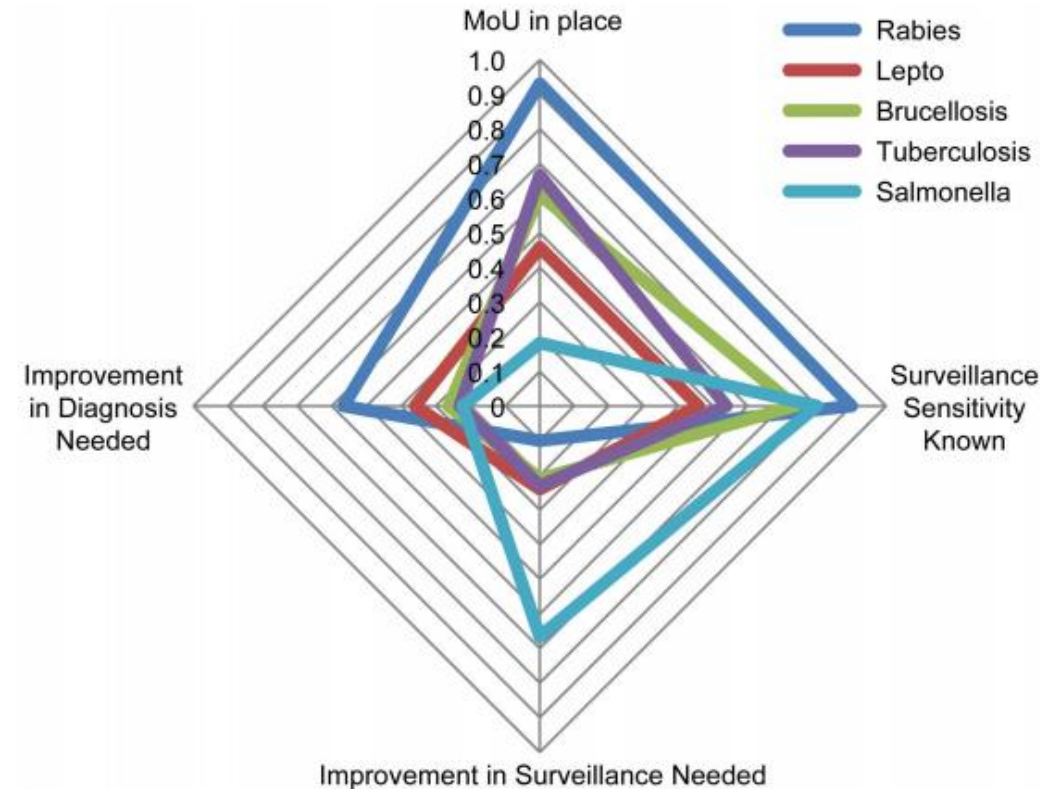
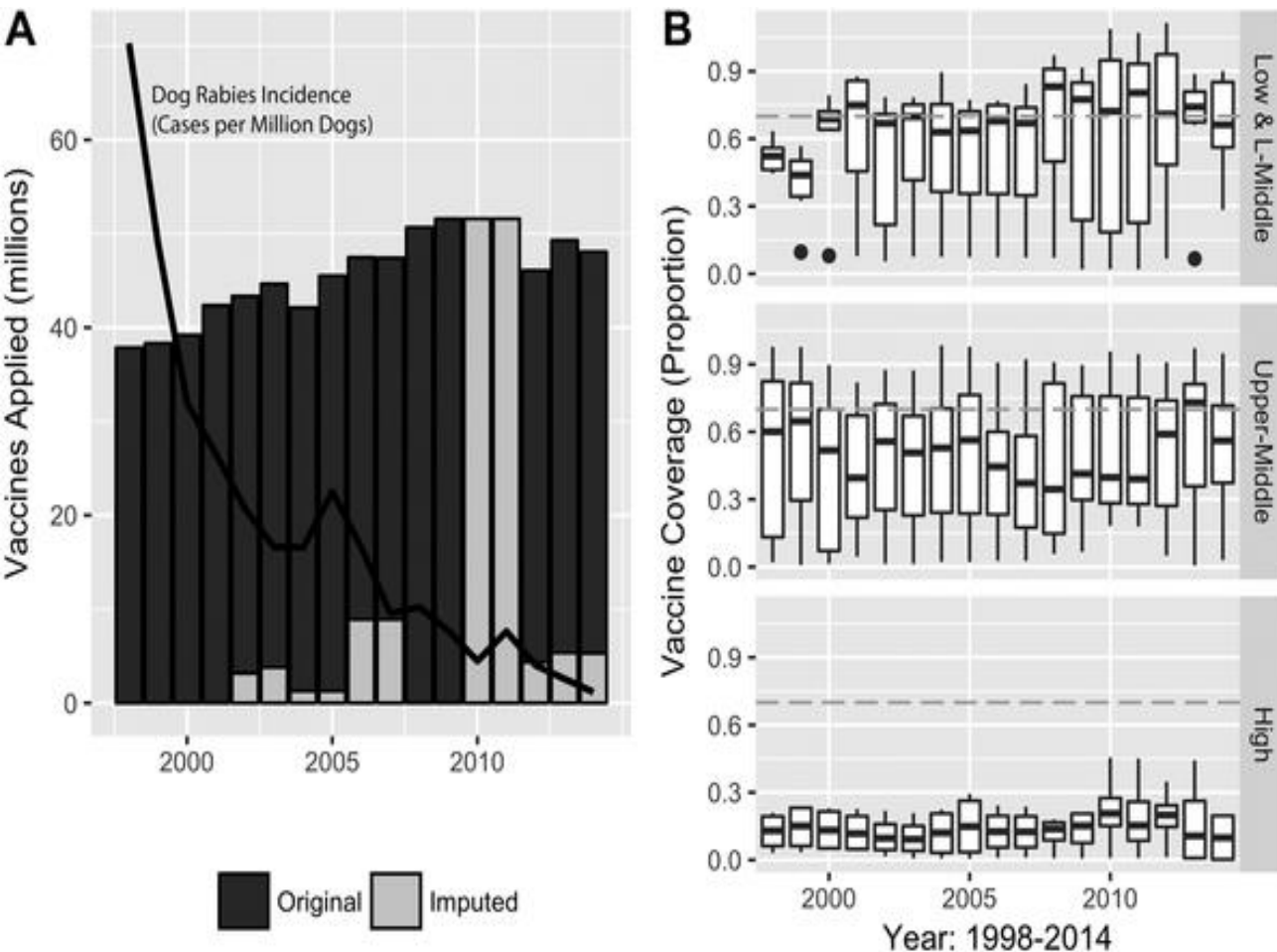


Fig 5. Comparison of the top five priority endemic zoonoses for Latin American and Caribbean countries.

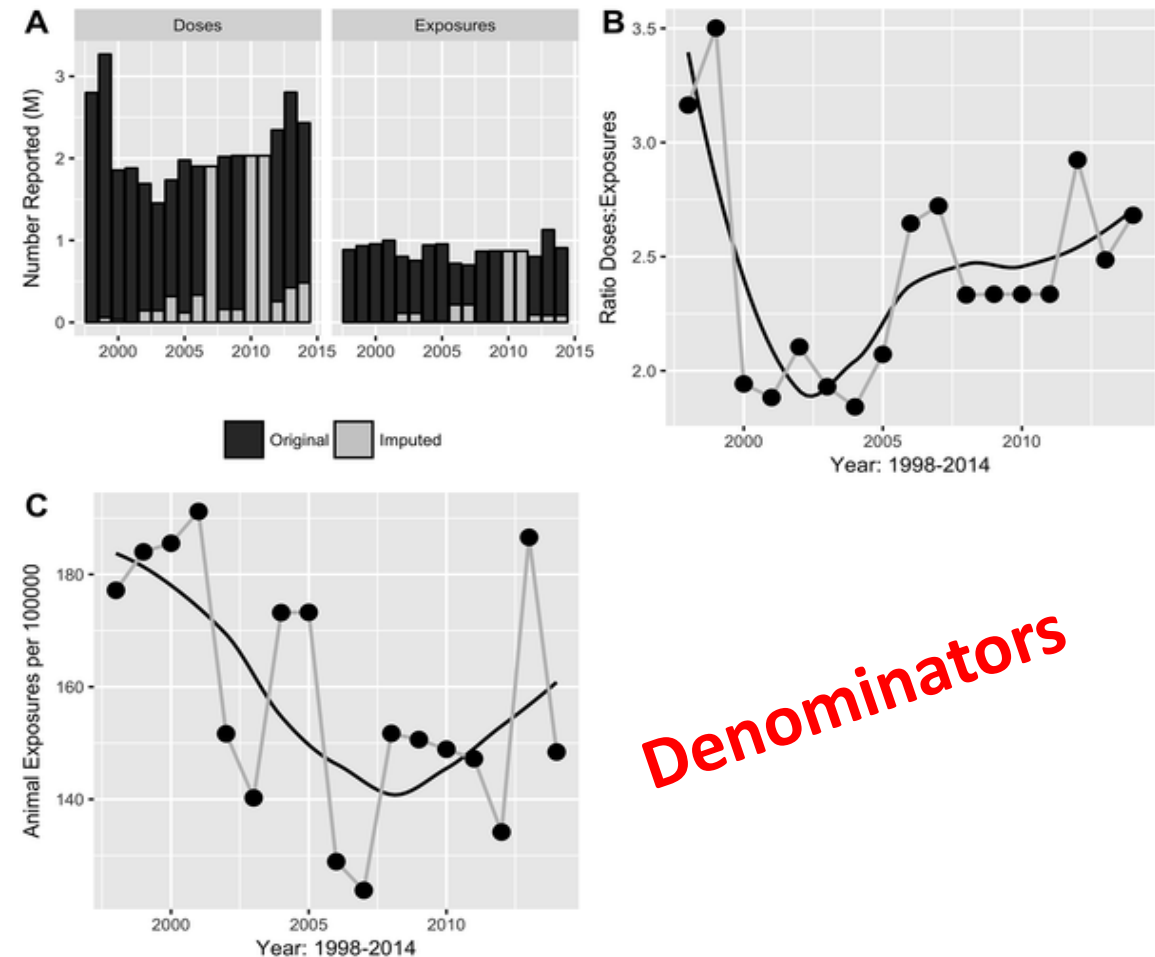
How we got here?

Tangible capacities: the most important ones?

Dog vaccination

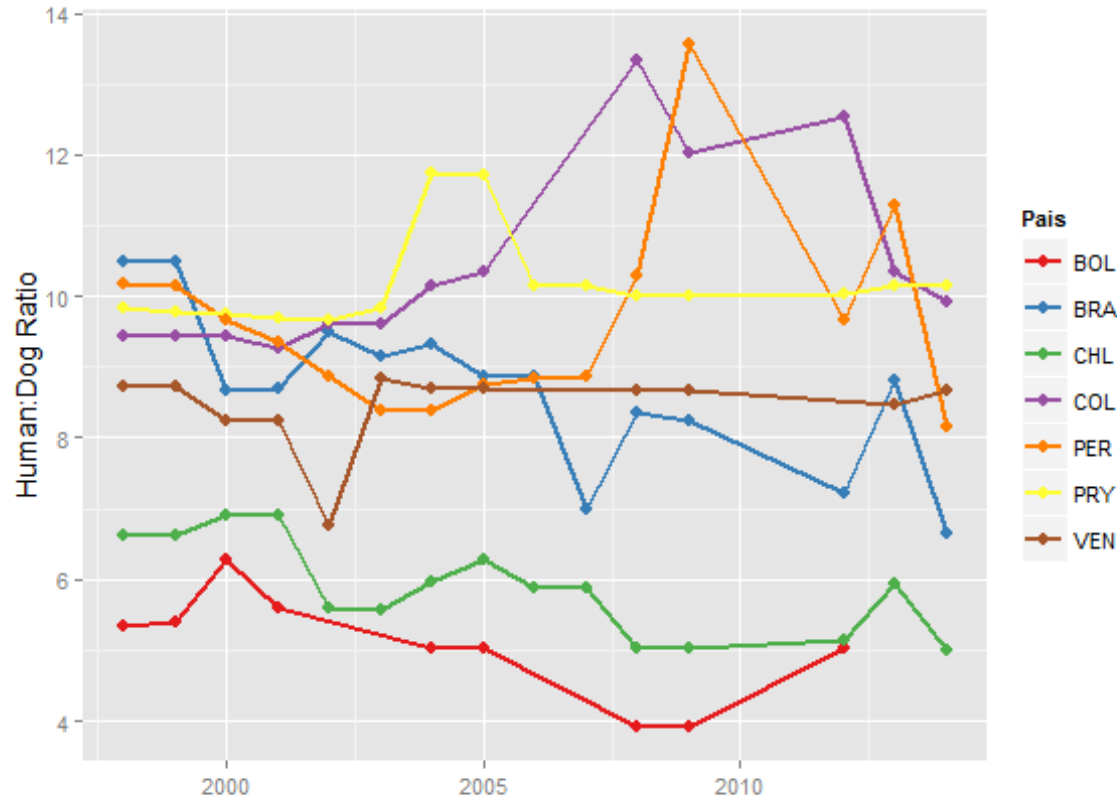


Bites/PEP

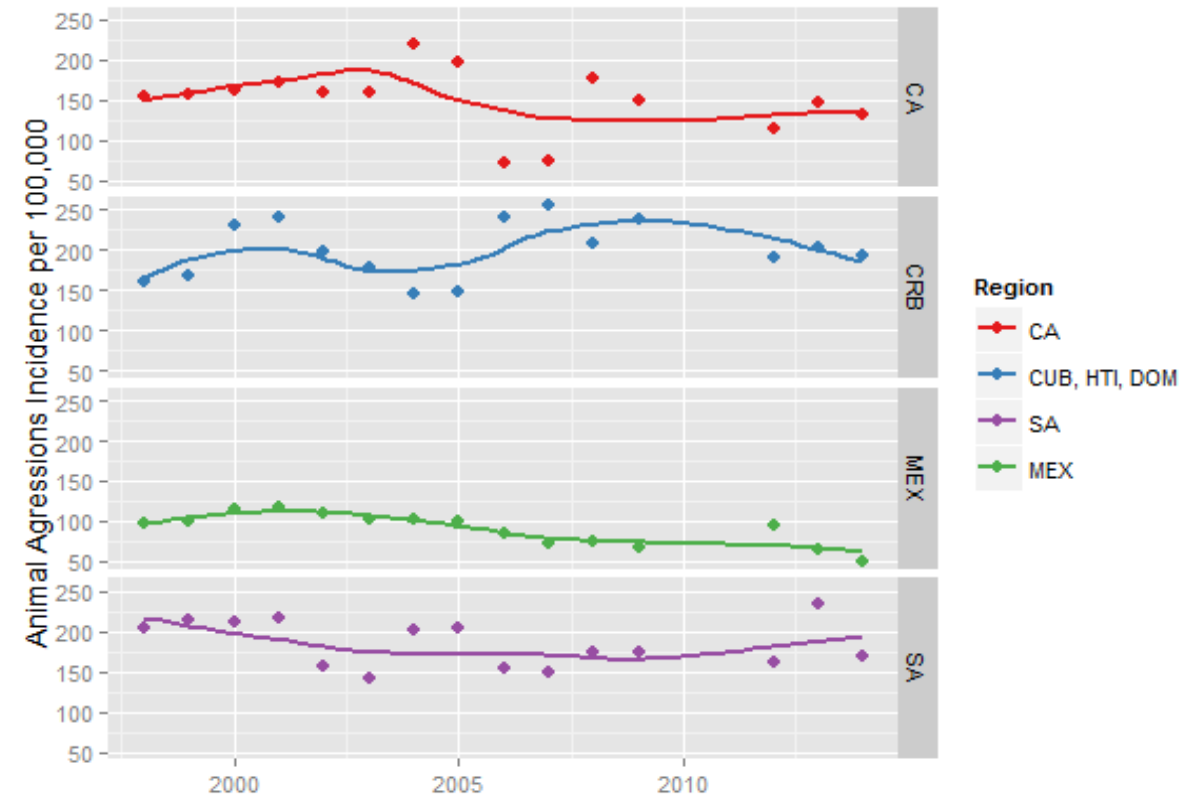


Denominators

How we got here?



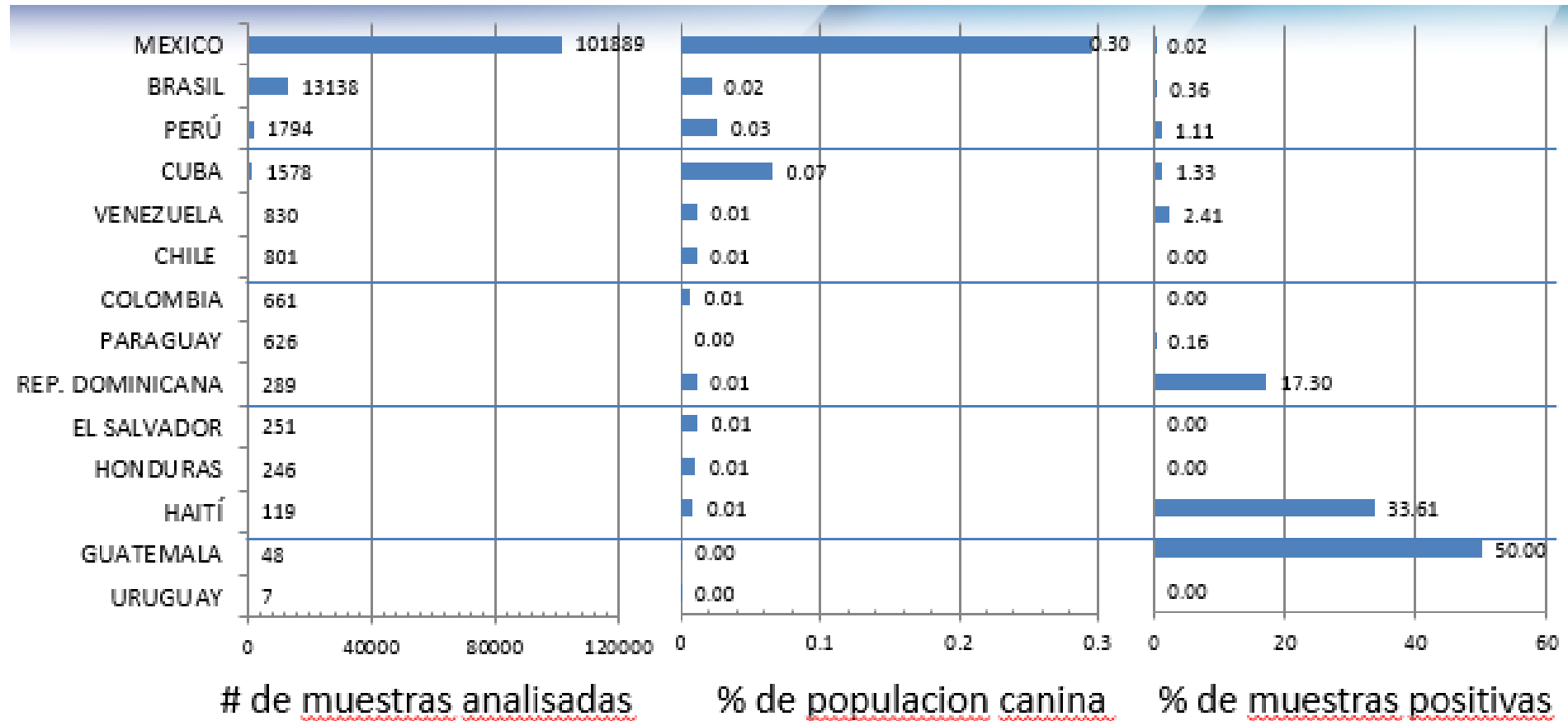
The relevance of demographics



The relevance of denominators

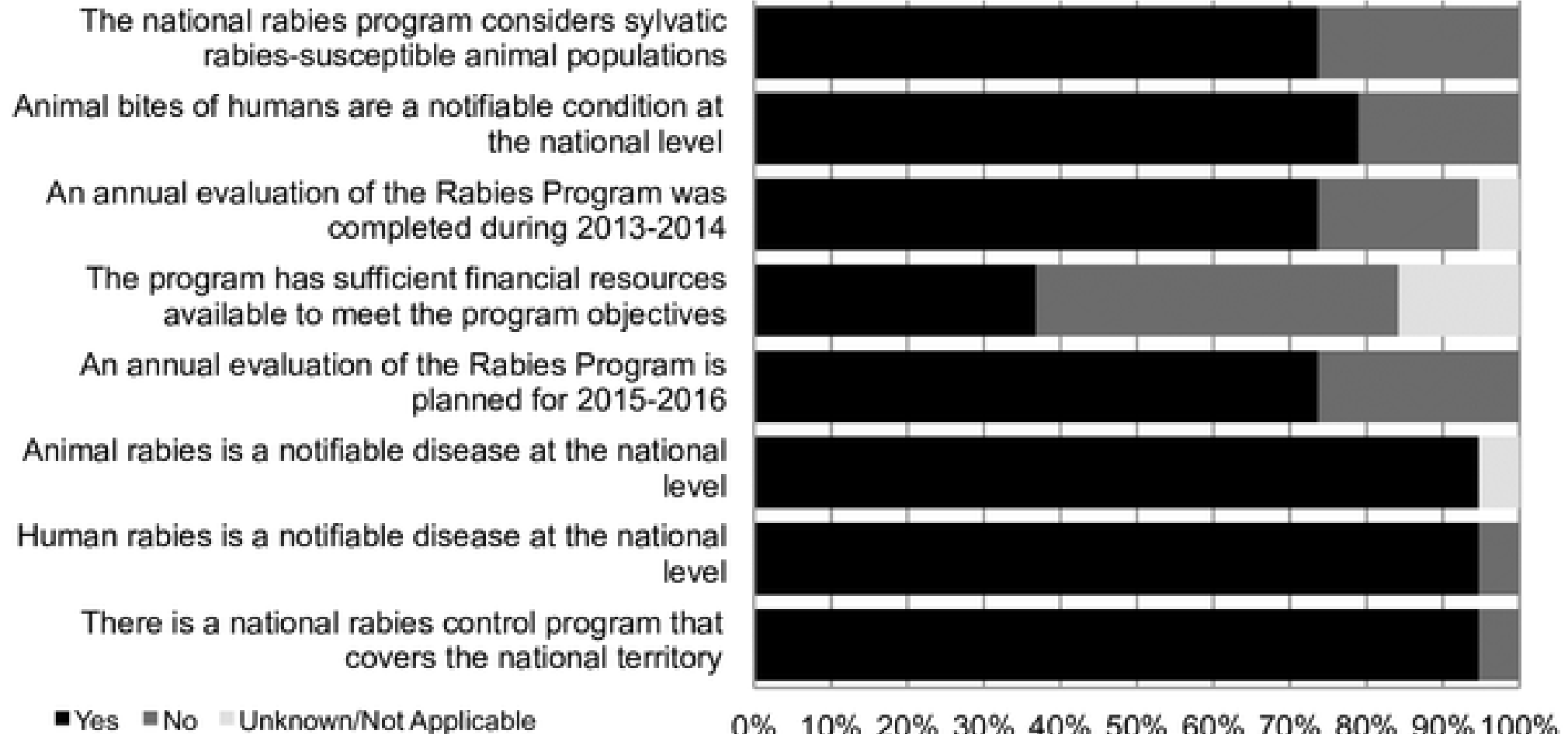
How we got here?

Despite some limitations



How we got there?

Despite some limitations: tracking capacities



How we got here

Despite some limitations...that support the current residual cases

Controlling Infectious (258/1 unread) - vde

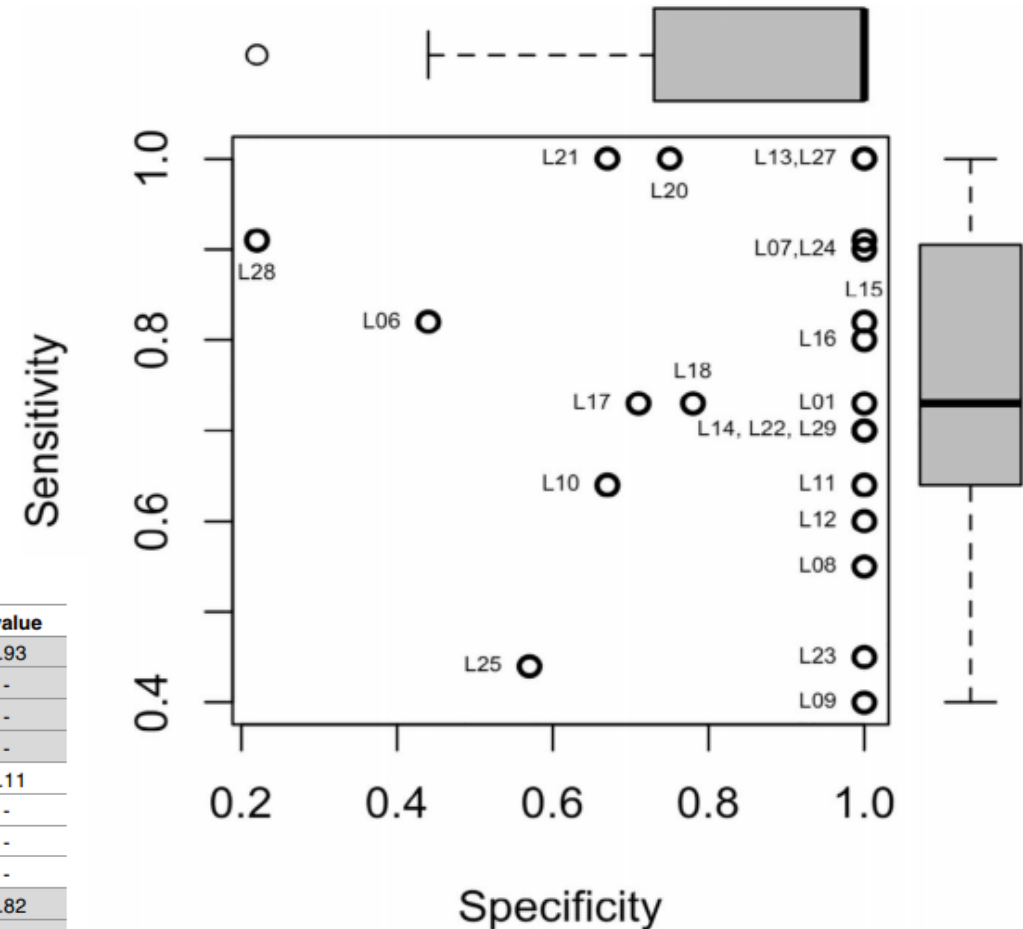
RESEARCH ARTICLE

An inter-laboratory proficiency testing exercise for rabies diagnosis in Latin America and the Caribbean

Alfonso Clavijo^{1aa}, Mary H. Freire de Carvalho¹, Lillian A. Orciari², Andres Velasco-Villa², James A. Ellison², Lauren Greenberg², Pamela A. Yager², Douglas B. Green², Marco A. Vigilato¹, Ottorino Cosivi¹, Victor J. Del Rio-Vilas^{1ab*}

Table 4. Selected questions of the rabies laboratory practices questionnaire and results.

Survey Item and Response	Freq.	Percent	Sensitivity(Mean)	Test Stat	p-value
Number of rabies samples tested per week			-	0.07	0.93
0–10	12	52	0.78	-	-
11–30	5	22	0.78	-	-
>30	6	26	0.75	-	-
Number of people performing tests in the lab			-	2.5	0.11
1–2	8	35	0.86	-	-
3–4	11	48	0.69	-	-
4+	4	17	0.81	-	-
Has a formal quality program			-	44.5	0.82
Yes	17	74	0.78	-	-
No	6	26	0.74	-	-



How we got here?

Supporting functions

1. That there was a regional programme
 1. PAHO in collaboration with FAO, OIE, CDC, etc
 2. Engaging decision makers
 3. With \$ to support activities
 1. Vision/plan,
 2. Missions,
 3. Meetings,
 4. Surveillance, M&E
2. We need STANDARDISED data to populate all the previous: SIRVERA
3. Can we quantify the impact of these elements to prioritise resources?

} Strategy/advocacy

} Operations



55th DIRECTING COUNCIL

68th SESSION OF THE REGIONAL COMMITTEE OF WHO FOR THE AMERICAS

Washington, D.C., USA, 26-30 September 2016

CD55.R9
Original: English

RESOLUTION

CD55.R9

PLAN OF ACTION FOR THE ELIMINATION OF NEGLECTED INFECTIOUS
DISEASES AND POST-ELIMINATION ACTIONS 2016-2022

RESOLVES:

1. To approve the *Plan of Action for the Elimination of Neglected Infectious Diseases and Post-elimination Actions 2016-2022* (Document CD55/15).

What's next?

In an ideal world

1. Changing gear

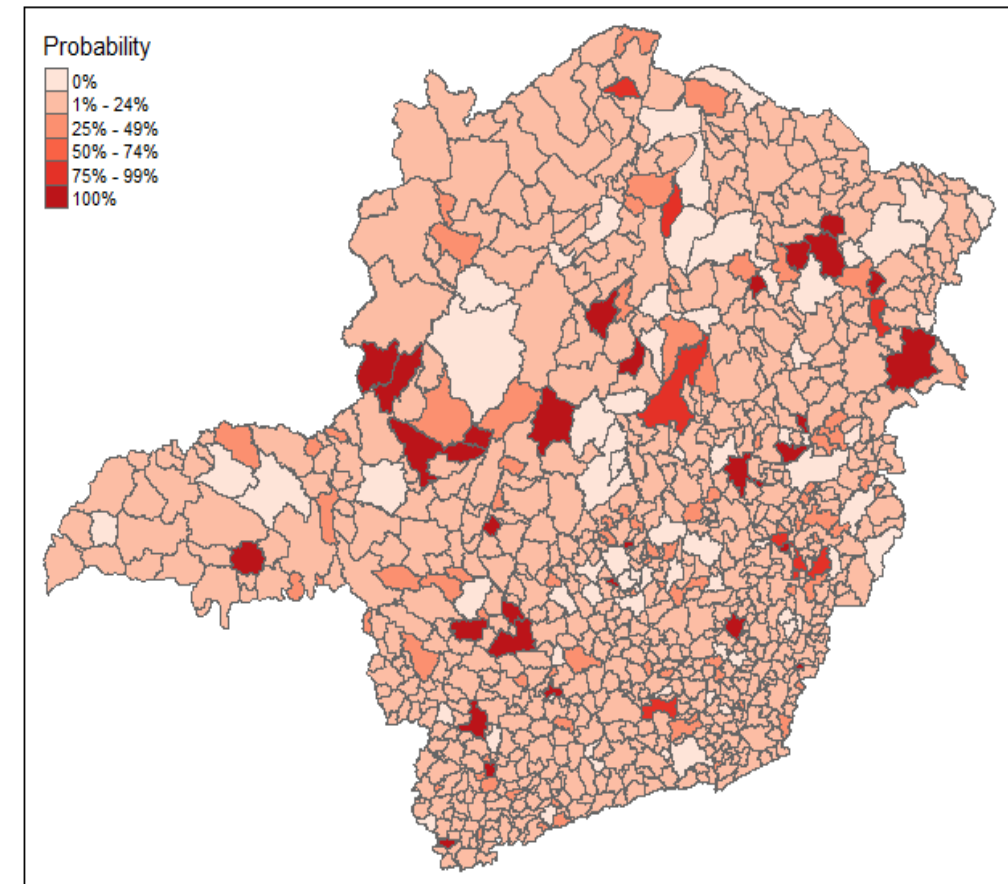
2. Country specific plans (for endemic countries)
 1. We need an objective (2022) to focus efforts.
 2. This needs to be monitored on a regular basis (what are the KPI?)
 1. Cases (reactive) or capacities (proactive)
3. Some essential capacities at that stage
 1. Ag/molecular characterization
4. Seeking efficiencies
 1. Undurraga et al (2017)
5. Engaging, sustainable, and flexible (e.g. progressive within country) freedom mechanisms
 1. What are the surveillance requirements...?
 2. What are the post-elimination surveillance requirements?



What's next?

In an ideal world

1. Changing gear
2. **Country specific plans (for endemic countries) with acknowledgment of risks and capacities heterogeneity**
 1. **Yes, we need an objective (2022) to focus efforts.**
 2. **This needs to be monitored on a regular basis (what are the KPI?)**
 1. **Cases (reactive) or capacities (proactive)?**
 1. **With full consideration of uncertainty**
3. Some essential capacities at that stage
 1. Ag/molecular characterization
4. Seeking efficiencies
 1. Undurraga et al (2017)
5. Engaging, sustainable, and flexible (e.g. progressive within country) freedom mechanisms
 1. What are the surveillance requirements...?
 2. What are the post-elimination surveillance requirements?

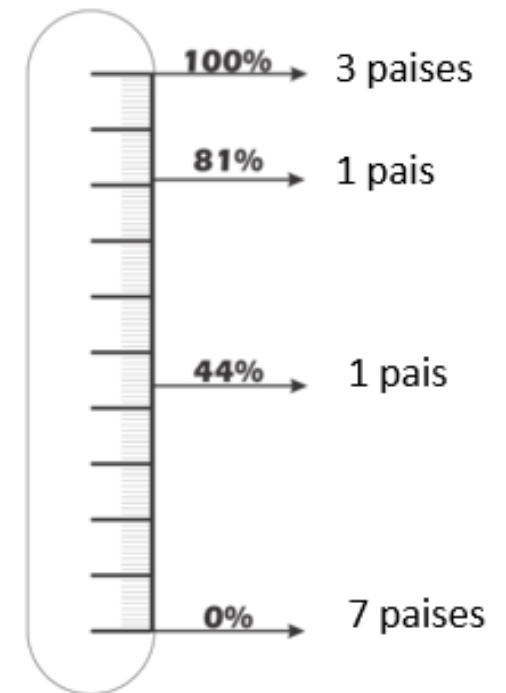


Del Rio Vilas et al., to appear

What's next?

In an ideal world

1. Changing gear
2. Country specific plans (for endemic countries)
 1. Yes, we need an objective (2022) to focus efforts.
 2. This needs to be monitored on a regular basis (what are the KPI?)
 1. Cases (reactive) or capacities (proactive)
3. **Some essential capacities at that stage**
 1. **Ag/molecular characterization**
4. Seeking efficiencies
 1. Undurraga et al (2017)
5. Engaging, sustainable, and flexible (e.g. progressive within country) freedom mechanisms
 1. What are the surveillance requirements...?
 2. What are the post-elimination surveillance requirements?



% of positive cases with
variant information

What's next?

In an ideal world

1. Changing gear
2. Country specific plans (for endemic countries)
 1. Yes, we need an objective (2022) to focus efforts.
 2. This needs to be monitored on a regular basis (what are the KPI?)
 1. Cases (reactive) or capacities (proactive)
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- 4. Seeking efficiencies**
 - 1. Undurraga et al (2017)**
5. Engaging, sustainable, and flexible (e.g. progressive within country) freedom mechanisms
 1. What are the surveillance requirements...?
 2. What are the post-elimination surveillance requirements?

Main cost-effectiveness outcomes from the implementation of the HARSP initiated in Pétionville, Carrefour communes, West Department, Haiti, 2014–2015

Program indicators (annual)	Units	NBCM	HARSP
		[A]	[B]
Evaluation year 2014			
Effectiveness of the intervention			
Fatal human rabies infections	N	14	3
YLL due to premature death*	N	832	178
PEP vaccine doses administered	N	290	1,150
Costs of the intervention (including biologics)			
Government pays no PEP costs (all donated)	US\$	15,988	39,531
Government subsidizes 50% of PEP costs (transition)	US\$	19,294	52,140
Government pays 100% of PEP costs (self-sustaining)	US\$	22,600	64,750
Cost-effectiveness indicators			
Average cost per human rabies death averted			
Government pays no PEP costs (all donated)	US\$/death	5,980	2,891
Government subsidizes 50% of PEP costs (transition)	US\$/death	7,216	3,813
Government pays 100% of PEP costs (self-sustaining)	US\$/death	8,453	4,735
Average cost per LYG			
Government pays no PEP costs (all donated)	US\$/LYG	101	49
Government subsidizes 50% of PEP costs (transition)	US\$/LYG	121	64
Government pays 100% of PEP costs (self-sustaining)	US\$/LYG	142	80

How we got here...what's here?

We need better evidence, i.e. surveillance, surveillance, surveillance

- Surveillance standards.... PAHO (0.01-0.02% of dog population)
- US
- ~ 100K samples/year (Birhane et al., 2017)
 - Counties were considered free from terrestrial rabies virus variants if they reported identifying no cases in a reservoir species during the past 5 years and met 1 of the following 2 conditions: all bordering counties reported identifying no cases in a reservoir species during the past 5 years, **or the county tested ≥ 15 animals from reservoir species or ≥ 30 domestic vector species (eg, cats, dogs, and livestock)**
- Active case finding guided by bite-patient triage is needed as elimination is approached.

Surveillance strategy	Target	Incidence (per 100,000 dogs)	Average case detection (numbers positive)	Sampling to detect 1 case (10 cases)
Sampling-based	0.02% of population	High (383)	0.0004% (0.006)	>40,000 (>200,000)
		Low (58)	0.0004% (0.0009)	>270,000 (NA)
Sampling-based	0.02% dead/dying dogs	High (383)	0.02% (0.3)	>230 (>1,200)
		Low (58)	0.02% (0.05)	>1500 (>8,000)
Bite-patient sentinels	Laboratory testing	High (383)	12-13% (44-50)	<50 (<67) possible bite-patients
		Low (58)	12-13% (7)	<50 (<67) possible bite-patients

Thanks

“It is not necessary to change; survival is not mandatory”

W. Edwards Deming