

ONE HEALTH ECONOMICS

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Economic Analysis of Rabies Prevention and Control Program in Vietnam

OHE

Assoc. Prof. Arthorn Riewpaiboon, PhD

**Division of Social and Administrative Pharmacy, Department of Pharmacy
Faculty of Pharmacy, Mahidol University**

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Background

- In 2007, the ASEAN Plus Three member countries issued a Call for Action for rabies elimination from the region by 2020.
- Vietnam has committed to leading this initiative.
- In 2009, the National Institute of Hygiene and Epidemiology (NIHE) in Vietnam hosted an ASEAN Plus Three workshop on advocacy for rabies policy.
- This economic analysis of rabies prevention and control in Vietnam will serve as a practical example of an advocacy tool for ASEAN member countries.

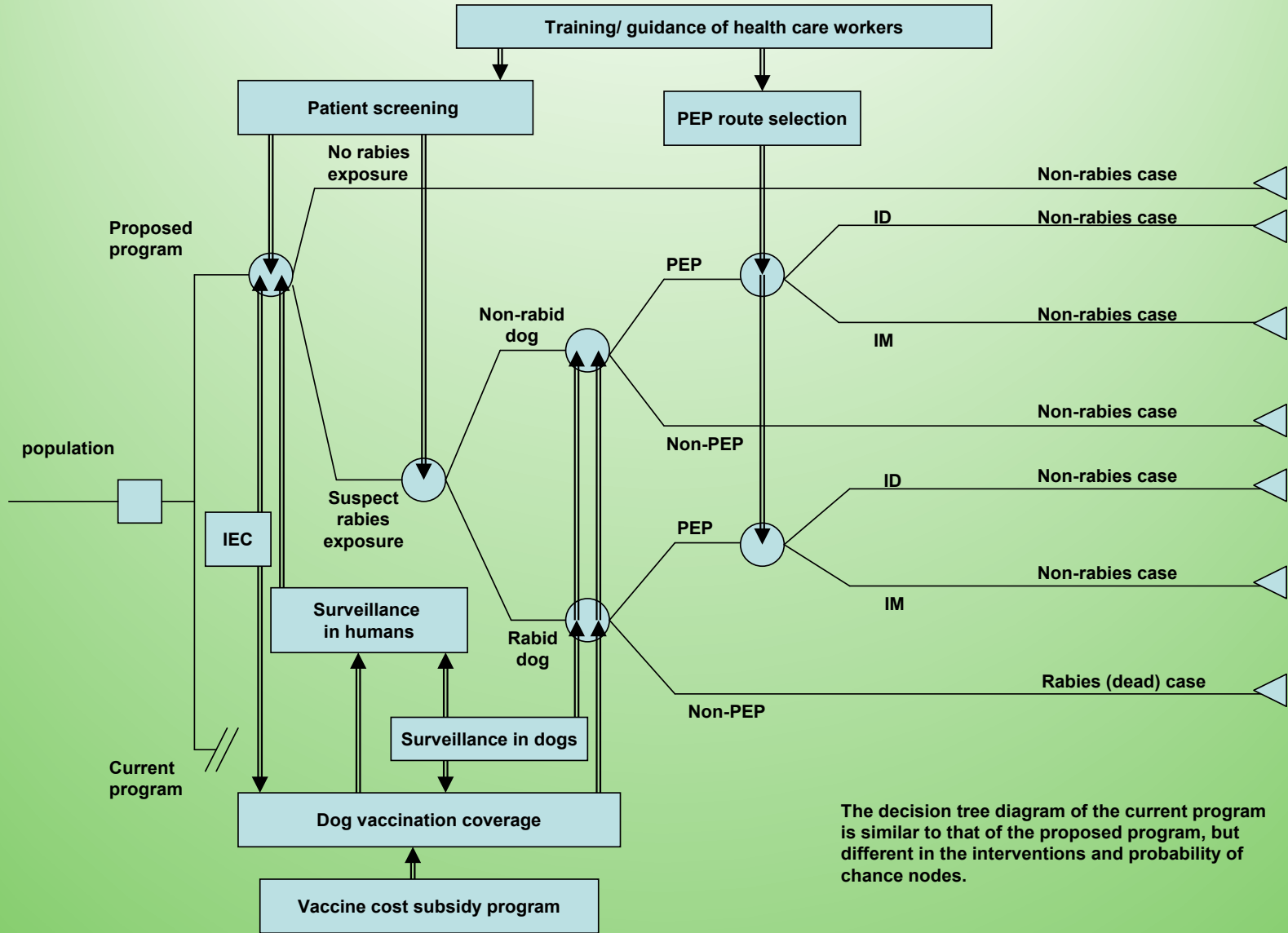
General purpose

- To undertake an economic analysis of the impact of rabies in Vietnam, to be used as an advocacy tool for greater investment in rabies prevention and control activities

Specific objectives

- To assess the current rabies situation in Vietnam, including the burden of disease, dog vaccination coverage, costs associated with dog bite injuries and human post-exposure prophylaxis.
- To incorporate the recommended rabies interventions into cost-effectiveness and cost-benefit analyses.

Conceptual framework



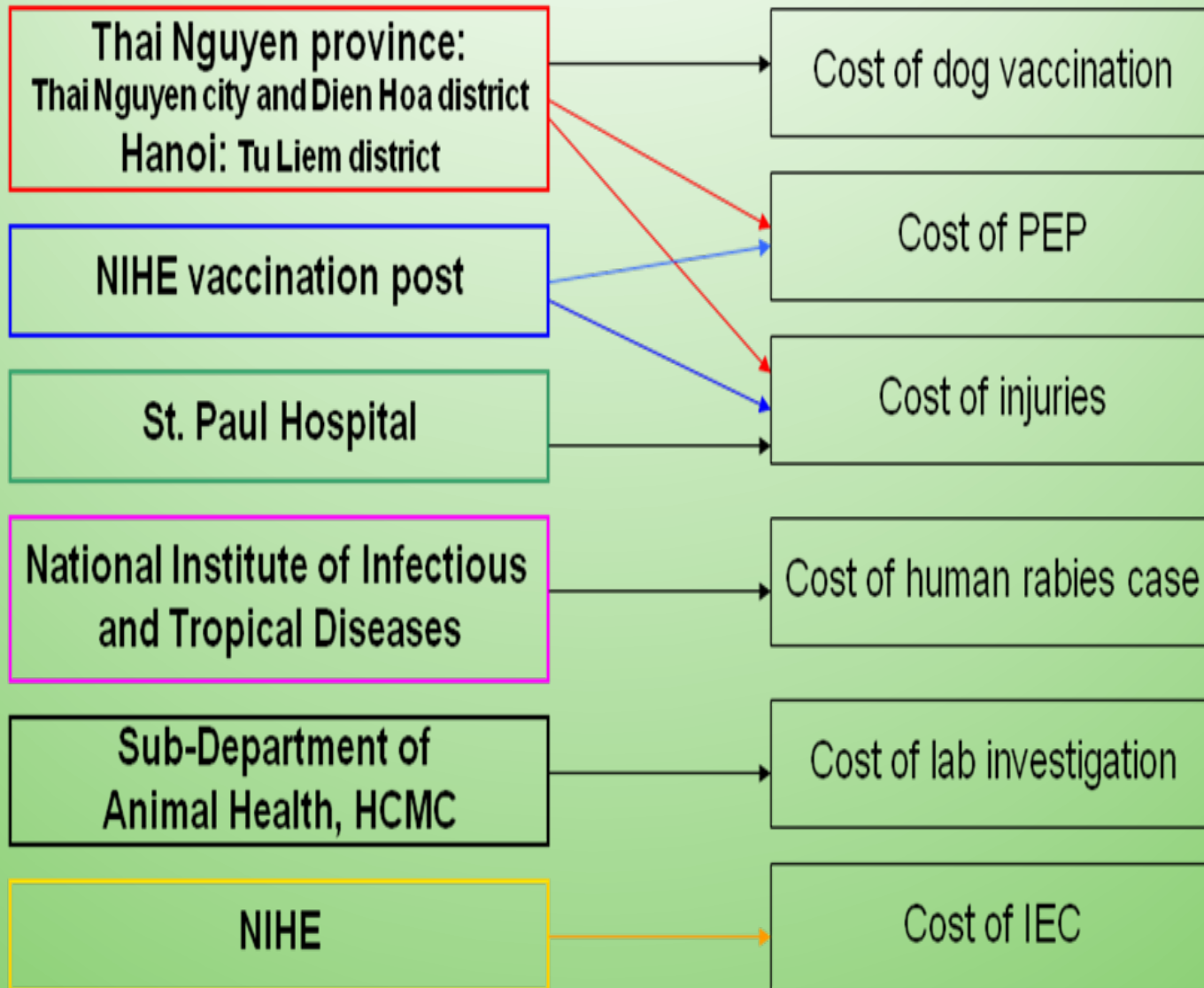
Costs within the human health sector

- 1 Administrative activities; program management; social mobilization (including IEC)
- 2 Surveillance and epidemiology (including laboratory investigation and coordination)
- 3 Research/development of vaccine; research into prevention and control programs
- 4 Treatment of dog bite injuries
- 5 Pre-exposure prophylaxis including adverse events of rabies vaccine
- 6 PEP including adverse events of rabies vaccine and rabies immunoglobulin (RIG)
- 7 Human cases of rabies

Costs within the animal health sector

- 1 Vaccination (acquisition cost of the vaccine, vaccine delivery cost, cost of IEC activities and campaigns, and transportation/time costs of dog owners)
- 2 Administrative activities; program management; social mobilization
- 3 Surveillance and epidemiology (including laboratory investigation and coordination)
- 4 Research/development of vaccine; research into prevention and control programs
- 5 Population control (e.g. sterilization, elimination of stray dogs)

Data collection



Costs of the current program

	COST	Total cost at 2009 prices (x1,000VND)	
		2009	2009-2018
1	Cost of program management and IEC activities	9,800,000	86,103,867
2	Cost of surveillance in dogs	18,238	169,576
3	Cost of dog vaccination	41,342,818	384,403,057
3.1	Rabisin vaccine	744,718	6,924,347
3.2	Dog vaccine administration	33,322,552	309,831,102
3.3	Time & transportation of dog owner	7,275,548	67,647,609
4	Direct medical costs of dog bite injuries	87,659,558	815,053,344
5	The total cost of PEP	1,822,284,634	16,943,493,829
5.1	Verorab vaccine	209,503,095	1,947,947,277
5.2	RIG	98,546,266	916,277,301
5.3	Human vaccine administration	507,456,680	4,718,301,946
5.4	Time, transportation and meal of PEP case	1,006,778,593	9,360,967,305
6	The total cost of a human case of rabies	1,180,929,408	20,806,355,479
6.1	Direct medical costs of human cases of rabies	70,198	652,693
6.2	Direct non-medical costs of human cases of rabies	216,815	2,015,929
6.3	Indirect costs of human cases of rabies	1,180,642,395	20,803,686,857
	Total cost of prevention & control (1+2+3)	51,161,056	470,676,500
	Total cost of illness (4+5+6)	3,090,873,600	38,564,902,652

Excel-based cost calculations

	A	B	C	D	E	F	G	H	I	J
1	Cost data of human vaccine post									
2	1. Date of data collection	05/06/2009					Adjusted cost of vaccination unit			
3	2. Name of institution	DinhHoa	TuLiem	ThaiNguyen	Average	Type of data	DinhHoa	TuLiem	ThaiNguyen	
4	3. Province	Thai Nguyen	Hanoi							
5	4. Data period (month)	12	12	12						
6	5.1 Catchment area;sqkm		76	345149.15 ha						
7	5.2 human pop	91,457	400,000	1,190,000						
8	5.3 estimated dog pop		11,165							
9	6. Number of staff									
10	rabies unit	7	7	12						
11	the rest staff	16	82	75						
12										
13	7. Personal payment per year	73,587,204								
14	rabies unit	130,000,000	192,000,000	360,000,000		Labor cost	130,000,000	192,000,000	360,000,000	
15	the rest staff	183,329,804	4,608,000,000	3,156,000,000						
16										
17	8.1 Total other vaccines+PEP vaccinated cases	225	193	5,955						
18	8.2 PEP: IM	2	89	120						
19	8.3 PEP: ID	223	-	2,835						
20	9.1 Total EPI+PEP doses	327	412	11,066		Outputs	327	412	11,066	
21	9.2 PEP: IM	10	329	600						
22	9.3 PEP: ID	317	-	5,466						
23	10. 1 Total Verorab vial	327	329	3,557						
24	10.2 Cost/unit	126,000	170,000	126,000						
25	10.3 Total cost	41,202,000	55,930,000	448,182,000		Vaccine cost	41,202,000	55,930,000	448,182,000	
26	11. Total medical material cost									
27	Dose wastage rate(%)	80%		38%						
28	ID/total case (%)	97%	0%	49%	41.33%					
29	average dose/IM PEP	5.00	3.70	5.00	4.57					
30	average dose/ID PEP	1.42	-	1.93	1.67					
31	syringe 1125 pcs x 1000D	1,125,000	965,000	7,390,000		Material cost	1,125,000	965,000	7,390,000	
32	alcohol 10 litre x 25,000D	250,000	150,000	456,000		Material cost	250,000	150,000	456,000	
33	cotton 3 kg x 80,000 D	240,000	640,000	528,000		Material cost	240,000	640,000	528,000	
34	Floor cleaning liquid 6 l x 40,000	240,000	240,000	240,000		Material cost	240,000	240,000	240,000	
35	Prednisolone 2 vial x 13,000	30,311	26,000	802,228		Material cost	30,311	26,000	802,228	
36	Sterile water 4 vial x 4000	166	16,000	493,679		Material cost	166	16,000	493,679	
37	Adrenaline 2 vial x 2500	5,777	5,000	154,275		Material cost	5,777	5,000	154,275	
38	12. Overhead cost 12 months					Allocation propotion	0.41	0.04	0.10	
39	Electricity	4,948,665	48,000,000	12,000,000		Material cost	2,053,193	1,920,000	1,228,669	
40	Water	126,868	36,000,000	2,400,000		Material cost	52,637	1,440,000	245,734	
41	Telephone/ internet	1,219,927	48,000,000	1,200,000		Material cost	506,146	1,920,000	122,867	
42	13. Consumables/Office material/ stationery		475,000	20,000,000		Material cost	-	19,000	2,047,782	
43	14. Maintenance cost(Blg/equip/system)	25,039,000	-	50,000,000		Material cost	10,388,638	-	5,119,454	
44	15. Hiring/ outsourcing		-			Material cost	-	-	-	
45						Material cost	-	-	-	
46						Total material cost	56,093,868	63,271,000	467,010,686	
47										
48	SUMMARY									
49	Post	total dose	capital	labor	material	total cost	cost/dose			

Excel-based analysis with PSA

Variable	Value	Parameter description	Distribution	Probabilistic	Mean	SE	alpha	beta	Best case	Worst case	Scenario 1	Scenario 2
hPop	86,210,800	Population in 2008	n/a	86,210,800	86,210,800	n/a	n/a		86,210,800	86,210,800	86,210,800	86,210,800
hPopGr	1.32	Average annual population growth rate (%)	n/a	1.32	1.32	n/a	n/a		1.32	1.32	1.32	1.32
GDP	17,141	GDP per capita in 2008 (x 1000VND)	n/a	17,141	17,141.00	n/a	n/a		17,141	17,141	17,141	17,141
GDPGr	0.14	Average annual growth of GDP per capita (current price)(%)	n/a	0.14	0.14	n/a	n/a		0.14	0.00	0.14	0.14
Wage	88	Daily income (x1000VND)	n/a	88	88.38	n/a	n/a		88.38	88.38	88.38	88.38
WageGr	18	Average annual growth of income (%)	n/a	18	17.72	n/a	n/a		17.72	0.00	17.72	17.72
cDR	0.03	Cost discount rate	n/a	0.03	0.03	n/a	n/a		0.03	0.03	0.60	0.03
dDR	0.03	Death/ DALYS discount rate	n/a	0.03	0.03	n/a	n/a		0.03	0.03	0.03	0.00
LifeExp	72	Life expectancy (years)	n/a	72	72	n/a	n/a		72	72	72	72
	0.00	Forecasted annual inflation rate; medical care				0.00	0.00					
Animal sector												
dPop	6,000,000	Dog population in 2008	gamma	5,974,369.98	6,000,000	577,350	108	55,556	5,000,000	7,000,000	6,000,000	6,000,000
Dog_Man	0.07	Dog/inhabitant	gamma	0.07	0.07	0.01	108.00	0.00	0.06	0.08	0.07	0.07
dVacC	0.35	Current dog vaccination coverage	n/a	0.35	0.35	n/a	n/a	n/a	0.40	0.30	0.35	0.35
dVacA	0.70	Attack phase: Dog vaccination coverage rate	n/a	0.70	0.70	n/a	n/a	n/a	0.70	0.70	0.70	0.70
dVacM	0.00	Maintenance phase: Dog vaccination coverage rate	n/a	0.00	0.00	n/a	n/a	n/a	0.00	0.00	0.00	0.00
cDVac	3.50	Cost of Rabisin/10 dose vial (x1000VND)	n/a	3.50	3.50	n/a	n/a	n/a	3.50	5.00	3.50	3.50
DVwaste	0.00	Dog vaccine wastage rate	n/a	0.00	0.00	n/a	n/a	n/a	0.00	0.10	0.00	0.00
cDVad	15.66	Dog vaccine administration cost (not include cost of vaccine)	gamma	11.12	15.66	5.01	9.77	2	15.66	15.66	15.66	15.66
cDVown	8.94	Dog owner cost (travel, worktime)	gamma	1.78	8.94	8.94	1.00	8.94	8.94	8.94	8.94	8.94
pDLabC	0.0000067	Current investigation of dog specimen investigation rate	n/a	0.00	0.0000067	n/a			0.00	0.00	0.00	0.00
pDLab	0.0001500	Proposed investigation of dog specimen investigation rate	n/a	0.00	0.00015	n/a			0.00	0.00	0.00	0.00
cDLab	450	Cost/investigation of dog specimen including transportation(x1000VND)	n/a	450.00	450.00	n/a			450.00	450.00	450.00	450.00
Human sector												
pDead	1	Death/ million population	gamma	0.91	0.9428155	0.11	68.96	0.01	0.94	0.94	0.94	0.94
PepPop	7	PEP case/ 1000 population	gamma	7.29	7.08	0.28	648.83	0.01	7.08	7.08	7.08	7.08
IDPEP	0.64	Probability of ID/PEP case	beta	0.44	0.64	0.2	1.00	0.5500000	0.80	0.50	0.64	0.64

Costs and outcomes of the current situation

A	B	C	D	E	F	G	H	I
	Analysis	r	P=PSA	R=reference case	B=best case	W=worst case	S1=scenario 1	S2=scenario 2
	x1000 VND	Calculation	Reference case	PSA	Best case	Worst case	Scenario 1	Scenario 2
	CURRENT SITUATION							
1	Cost of management	86,103,867	86,103,867		86,103,867	86,103,867	25,895,652	86,103,867
2	Cost of surveillance (lab)	169,576	169,576		141,313	141,313	57,417	169,576
3	Cost of dog vaccination	493,679,963	493,679,963		470,171,393	473,939,745	143,277,239	493,679,963
3.1	Rabisin vaccine	6,924,347	6,924,347		6,594,616	10,362,968	2,009,604	6,924,347
3.2	Dog vaccine administration	309,831,102	309,831,102		295,077,240	295,077,240	89,920,086	309,831,102
3.3	Time & transportation of dog owner	176,924,515	176,924,515		168,499,538	168,499,538	51,347,549	176,924,515
4	Direct medical of dog bite injuries	350,535,321	350,535,321		350,535,321	350,535,321	101,733,384	350,535,321
5	Total cost of PEP	31,751,781,203	31,751,781,203		26,442,791,732	33,567,603,302	9,215,094,573	31,751,781,203
5.1	Verorab vaccine	1,947,947,277	1,947,947,277		1,076,985,010	2,920,516,402	565,338,942	1,947,947,277
5.2	RIG	916,277,301	916,277,301		747,906,257	2,214,953,145	265,924,672	916,277,301
5.3	Human vaccine administration	19,526,589,320	19,526,589,320		15,256,933,160	19,071,166,450	5,667,063,719	19,526,589,320
5.4	Time, transportation and meal of PEP case	9,360,967,305	9,360,967,305		9,360,967,305	9,360,967,305	2,716,767,241	9,360,967,305
6	Total cost of rabid case	20,806,355,479	20,806,355,479		20,806,355,479	217,620,961	13,181,578	20,806,355,479
6.1	Direct medical cost of human rabies case	652,693	652,693		652,693	652,693	189,427	652,693
6.2	Direct non-medical of human rabies case	2,015,929	2,015,929		2,015,929	2,015,929	585,069	2,015,929
6.3	Indirect cost of human rabies case	20,803,686,857	20,803,686,857		20,803,686,857	214,952,339	12,407,083	20,803,686,857
7	Total cost of prevention & control (1+2+3)	579,953,406	579,953,406		556,416,574	560,184,926	169,230,308	579,953,406
8	Total cost of illness (4+5+6)	52,908,672,004	52,908,672,004		47,599,682,532	34,135,759,585	9,330,009,534	52,908,672,004
	OUTCOME							
9	Number of death	766	766		766	766	766	874
10	Loss of DALYs	17,423	17,423		17,423	17,423	17,423	37,126

Costs and outcomes of the proposed intervention

A	B	C	D	E	F	G	H	I
	Analysis	r	P=PSA	R=reference case	B=best case	W=worst case	S1=scenario 1	S2=scenario 2
	x1000 VND	Calculation	Reference case	PSA	Best case	Worst case	Scenario 1	Scenario 2
	PROPOSED PROGRAM							
11	Cost of management	158,538,728	158,538,728		158,538,728	158,538,728	47,680,364	158,538,728
12	Cost of surveillance (lab)	3,815,456	3,815,456		3,179,547	3,179,547	1,291,888	3,815,456
13	Cost of dog vaccination	987,359,926	987,359,926		822,799,938	829,394,554	334,313,558	987,359,926
13.1	Rabisin vaccine	13,848,693	13,848,693		11,540,578	18,135,194	4,689,076	13,848,693
13.2	Dog vaccine administration	619,662,203	619,662,203		516,385,169	516,385,169	209,813,534	619,662,203
13.3	Time & transportation of dog owner	353,849,030	353,849,030		294,874,191	294,874,191	119,810,947	353,849,030
14	Direct medical of dog bite injuries	350,535,321	350,535,321		350,535,321	350,535,321	101,733,384	350,535,321
15	Total cost of PEP	13,777,247,985	13,777,247,985		11,473,652,352	14,565,141,779	6,102,076,743	13,777,247,985
15.1	Verorab vaccine	845,223,533	845,223,533		467,308,888	1,267,225,875	374,357,700	845,223,533
15.2	RIG	397,577,053	397,577,053		324,520,061	961,078,642	176,090,733	397,577,053
15.3	Human vaccine administration	8,472,679,426	8,472,679,426		6,620,055,432	8,275,069,290	3,752,631,885	8,472,679,426
15.4	Time, transportation and meal of PEP case	4,061,767,972	4,061,767,972		4,061,767,972	4,061,767,972	1,798,996,425	4,061,767,972
16	Total cost of rabid case	3,331,073,824	3,331,073,824		3,331,073,824	57,567,827	7,307,747	3,331,073,824
16.1	Direct medical cost of human rabies case	172,659	172,659		172,659	172,659	122,070	172,659
16.2	Direct non-medical of human rabies case	533,279	533,279		533,279	533,279	377,029	533,279
16.3	Indirect cost of human rabies case	3,330,367,887	3,330,367,887		3,330,367,887	56,861,889	6,808,648	3,330,367,887
17	Total cost of prevention & control (11+12+13)	1,149,714,111	1,149,714,111		984,518,214	991,112,830	383,285,810	1,149,714,111
18	Total cost of illness (14+15+16)	17,458,857,130	17,458,857,130		15,155,261,498	14,973,244,927	6,211,117,873	17,458,857,130
	OUTCOME							
19	Number of death	203	203		203	203	203	209
20	Loss of DALYs	4,609	4,609		4,609	4,609	4,609	8,859

Results of the economic analysis

	A	B	C	D	E	F	G	H	I
1		Analysis	r	P=PSA	R=reference case	B=best case	W=worst case	S1=scenario 1	S2=scenario 2
2		x1000 VND	Calculation	Reference case	PSA	Best case	Worst case	Scenario 1	Scenario 2
52									
53		COST-BENEFIT ANALYSIS							
54	21	Total cost of intervention (17-7)	569,760,704	569,760,704		428,101,640	430,927,904	214,055,502	569,760,704
55	22	Total benefit (8-18)	35,449,814,874	35,449,814,874		32,444,421,034	19,162,514,658	3,118,891,661	35,449,814,874
56	23	Net present value (NPV) (22-21)	34,880,054,169	34,880,054,169		32,016,319,395	18,731,586,754	2,904,836,159	34,880,054,169
57		Internal rate of return (IRR) (23/21*100)	6,122	6,122		7,479	4,347	1,357	6,122
58	24	Benefit-to-cost ratio (22/21)	62	62		76	44	15	62
59									
60		COST-EFFECTIVENESS ANALYSIS							
61	25	Total death averted (9-19)	563	563		563	563	563	666
62	26	Total DALYs averted (10-20)	12,814	12,814		12,814	12,814	12,814	28,267
63	27	ICER; death averted [(17+18-16.3)-(7+8-6.3)]	(30,908,220)	-30,908,220		-25,823,237	-32,979,976	-5,148,023	-26,148,152
64	28	ICER; DALYs averted [(17+18-16.3)-(7+8-6.3)]	(1,358,380)	-1,358,380		-1,134,901	-1,449,431	-226,250	-615,803
65									
66									
67		Probabilistic sensitivity analysis of the reference case							
68		Net present value	26,647,502	upper level =	26,806,374	lower level =	26,488,631		
69		Benefit-to-cost ratio	63	upper level =	65	lower level =	62		
70		ICER; death averted	-84,566	upper level =	-84,358	lower level =	-84,774		
71		ICER; DALYs averted	-3,976	upper level =	-3,967	lower level =	-3,986		

RESEARCH ARTICLE

Estimating the economic impact of canine rabies to Viet Nam 2005–2014

Stephanie A. Shwiff¹, Vienna R. Brown^{2*}, Thu Trang Dao³, Julie Elser¹, Hoang Xuan Trung⁴, Nguyen Ngoc Tien⁵, Nguyen Thi Huong⁶, Nguyen Thi Thanh Huong⁷, Arthorn Riewpaiboon⁸, Karina Ernst¹, Steven Shwiff⁹, David Payne¹⁰

1 USDA APHIS Wildlife Services, NWRC, Fort Collins, Colorado, United States of America, **2** Department of Microbiology, Immunology, and Pathology, Colorado State University, Fort Collins, Colorado, United States of America, **3** One Health Partnership, Hanoi, Viet Nam, **4** Vietnam Academy of Social Sciences, Hanoi, Viet Nam, **5** Department of Animal Health – Ministry of Agriculture and Rural Development, Hanoi, Viet Nam, **6** General Department of Preventive Medicine – Ministry of Health, Hanoi, Viet Nam, **7** National Institute of Hygiene and Epidemiology, Hanoi, Viet Nam, **8** Faculty of Pharmacy, Mahidol University, Bangkok, Thailand, **9** Department of Economics and Finance, Texas A&M - Commerce, Commerce, Texas, United States of America, **10** United Nations Development Program, International Trade and Development, Hanoi, Viet Nam

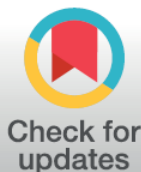


Table 5. Variable definitions, data type, and values (2017 USD) used in this analysis.

Data type	Variable	Value
Human		
Human population*	POP _H	variable
Number of human deaths	Deaths	variable
Number of PEPs	PEP	variable
PEP vaccine administration cost/dose (excl. vaccine cost)	PEPcost1	8
Direct non-medical + indirect costs of PEP/case	PEPcost2	111
Direct medical cost of rabid patient	Rabid1	58
Direct non-medical cost of rabid patient	Rabid2	179
Indirect cost of rabid patient/case	Rabid3	976
RIG cost	RIGcost	44
Vaccine (verorab) cost	HumanV	8
% of RIG/PEP	9%	-
Canine		
Dog population*	POP _D	variable
Number of dogs vaccinated	VD	variable
Cost of dog vaccine	DogV	0.45
Vaccinators/animal health worker costs	Worker	1.07
Dog owner cost (travel time, etc)	Owner	0.23
Livestock		
Livestock populations (for each livestock type i)	POP _L ⁱ	variable
Rate of livestock incidence	IL	variable
Livestock price/kg (for each livestock type i)	Price _L ⁱ	variable
Slaughter weight (for each livestock type i)	Wght _L ⁱ	pigs = 81kg, cattle = 176kg, buffalo = 215kg

*Not used in any formula.

Table 8. Costs (in 2017 USD) associated with human rabies deaths in Viet Nam from 2005 to 2014.

Year	Direct medical cost of rabid patient	Direct non-medical costs of rabid patient	Indirect medical costs of rabid patient	Total cost
2005	4,872	15,036	81,984	101,892
2006	4,756	14,678	80,032	99,466
2007	7,598	23,449	127,856	158,903
2008	5,278	16,289	88,816	110,383
2009	3,944	12,172	66,368	82,484
2010	4,524	13,962	76,128	94,614
2011	6,380	19,690	107,360	133,430
2012	5,684	17,542	95,648	118,874
2013	6,090	18,795	102,480	127,365
2014	3,886	11,993	65,392	81,271
Total	53,012	163,606	892,064	1,108,682

<https://doi.org/10.1371/journal.pntd.0006866.t008>

Table 9. Costs (in 2017 USD) of canine rabies prevention in Viet Nam between 2005 and 2014.

Year	Number of dogs vaccinated	Dog vaccine costs	Vaccinator/animal health worker costs	Dog owner costs	Total
2005	996,300	448,335	1,066,041	229,149	1,743,525
2006	1,297,660	583,947	1,388,496	298,462	2,270,905
2007	1,632,610	734,675	1,746,893	375,500	2,857,068
2008	2,001,150	900,518	2,141,231	460,265	3,502,013
2009	2,403,280	1,081,476	2,571,510	552,754	4,205,740
2010	2,839,000	1,277,550	3,037,730	652,970	4,968,250
2011	3,244,595	1,460,068	3,471,717	746,257	5,678,041
2012	3,223,263	1,450,468	3,448,891	741,350	5,640,710
2013	3,643,674	1,639,653	3,898,731	838,045	6,376,429
2014	3,850,391	1,732,676	4,119,918	885,590	6,738,184
Total	25,131,923	11,309,365	26,891,157	5,780,342	43,980,864

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Table 10. Costs (in 2017 USD) of canine rabies prevention in humans in Viet Nam from 2005 through 2014.

Year	Number of human PEPs	Total vaccine cost/case	RIG cost	Vaccine admin cost/case	Direct non-medical + indirect costs of PEP	Total
2005	585,251	14,046,024	2,317,594	14,046,024	64,962,861	95,372,503
2006	567,173	13,612,152	2,246,005	13,612,152	62,956,203	92,426,512
2007	450,023	10,800,552	1,782,091	10,800,552	49,952,553	73,335,748
2008	380,450	9,130,800	1,506,582	9,130,800	42,229,950	61,998,132
2009	280,453	6,730,872	1,110,594	6,730,872	31,130,283	45,702,621
2010	303,150	7,275,600	1,200,474	7,275,600	33,649,650	49,401,324
2011	342,731	8,225,544	1,357,215	8,225,544	38,043,141	55,851,444
2012	400,308	9,607,392	1,585,220	9,607,392	44,434,188	65,234,192
2013	371,153	8,907,672	1,469,766	8,907,672	41,197,983	60,483,093
2014	394,979	9,479,496	1,564,117	9,479,496	43,842,669	64,365,778
Total	4,075,671	97,816,104	16,139,657	97,816,104	452,399,481	664,171,346

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Table 11. Total annual cost (in 2017 USD) of rabies in Viet Nam from 2005 through 2014.

Year	Total cost of rabies prevention in humans	Total cost of rabies patients	Total cost of dog vaccination	Total value of livestock lost	Total	Human deaths	Years of life lost (YLL)*
2005	95,372,503	101,892	1,743,525	2,499,858	99,717,778	84	3,780
2006	92,426,512	99,466	2,270,905	2,091,252	96,888,135	82	3,690
2007	73,335,748	158,903	2,857,068	1,709,964	78,061,682	131	5,895
2008	61,998,132	110,383	3,502,013	1,279,648	66,890,175	91	4,095
2009	45,702,621	82,484	4,205,740	924,389	50,915,234	68	3,060
2010	49,401,324	94,614	4,968,250	660,557	55,124,745	78	3,510
2011	55,851,444	133,430	5,678,041	419,226	62,082,141	110	4,950
2012	65,234,192	118,874	5,640,710	445,507	71,439,282	98	4,410
2013	60,483,093	127,365	6,376,429	186,710	67,173,597	105	4,725
2014	64,365,778	81,271	6,738,184	127,113	71,312,346	67	3,015
Total	664,171,346	1,108,682	43,980,864	10,344,223	719,605,116	914	41,130

*This column represents the mean YLL based on the average patient age at death (31 years).

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Table 12. Costs (in 2017 USD) associated with human rabies prevention in dogs as compared to rabies prevention and death at the actual dog vaccination coverage rate and at the recommended 70% dog vaccination coverage.

Year	Total dog vaccination costs	Total human rabies costs and rabies prevention costs	Dog vaccination as a % of human costs	Total dog vaccination costs at 70% coverage	70% dog vaccination as a % of human costs
2005	1,743,525	95,474,395	2%	7,350,000	8%
2006	2,270,905	92,525,978	2%	7,962,500	9%
2007	2,857,068	73,494,651	4%	8,575,000	12%
2008	3,502,013	62,108,515	6%	9,187,500	15%
2009	4,205,740	45,785,105	9%	9,800,000	21%
2010	4,968,250	49,495,938	10%	10,412,500	21%
2011	5,678,041	55,984,874	10%	10,517,674	19%
2012	5,640,710	65,353,066	9%	10,336,380	16%
2013	6,376,429	60,610,458	11%	10,093,849	17%
2014	6,738,184	64,447,049	10%	10,039,866	16%
Total	43,980,864	665,280,028	7%	94,275,269	14%

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Thanks for your attention