

Tools for Eliminating Dog-Mediated Human Rabies: Designing Effective Dog Vaccination Programs

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Evolution of a Dog Vaccination Program

- 3 phases
 - 1. Preparation
 - 2. Scale-up
 - 3. Sustainability

Elimination of Dog-Mediated Human Rabies Deaths by 2030: Needs Assessment and Alternatives for Progress Based on Dog Vaccination

Ryan M. Wallace*, Eduardo A. Undurraga, Jesse D. Blanton, Julie Cleaton and Richard Franka

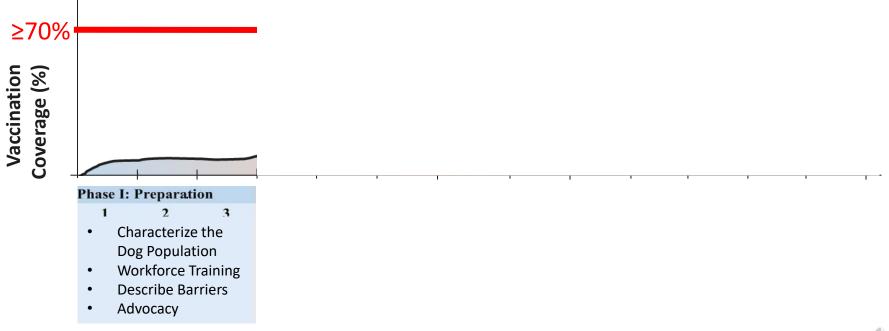
National Center for Emerging and Zoonotic Infectious Diseases, Centers for Disease Control and Prevention, Atlanta, GA, USA

caninerablesblueprint.org

a blueprint for the control of rabies in dog populations

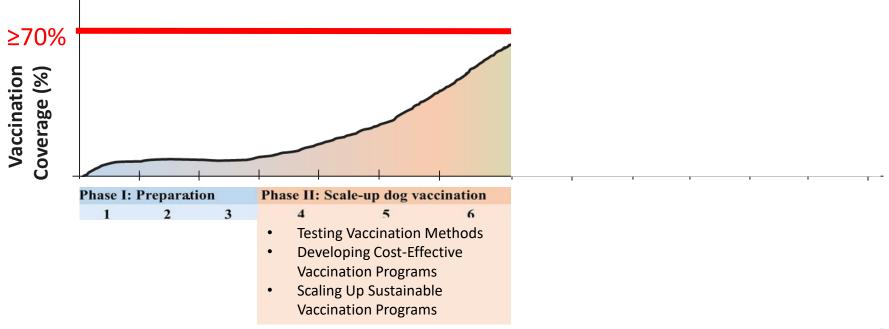
Wallace RM, et al. Elimination of Dog-Mediated Human Rabies Deaths by 2030: Needs Assessment and Alternatives for Progress Based on Dog Vaccination. Front Vet Sci. 2017:4:9.

Evolution of Dog Vaccination Programs: Early Years



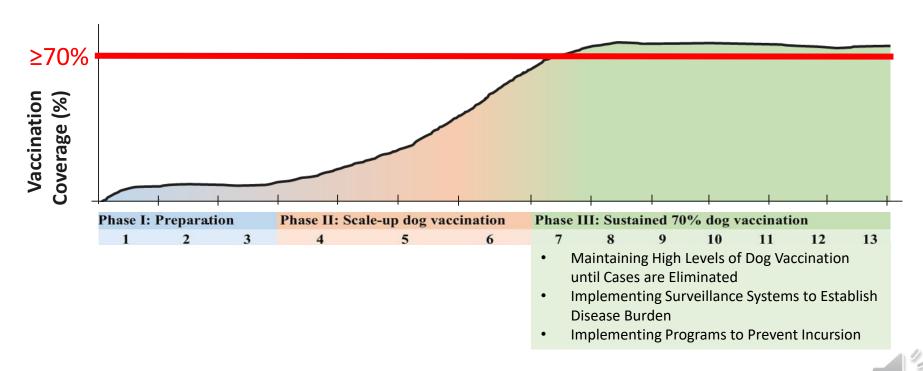


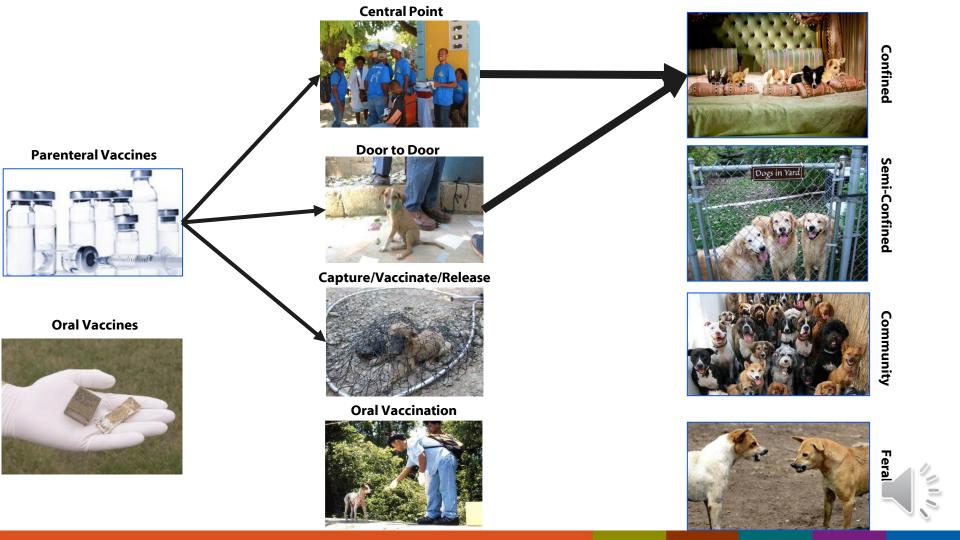
Evolution of Dog Vaccination Programs: Middle Years

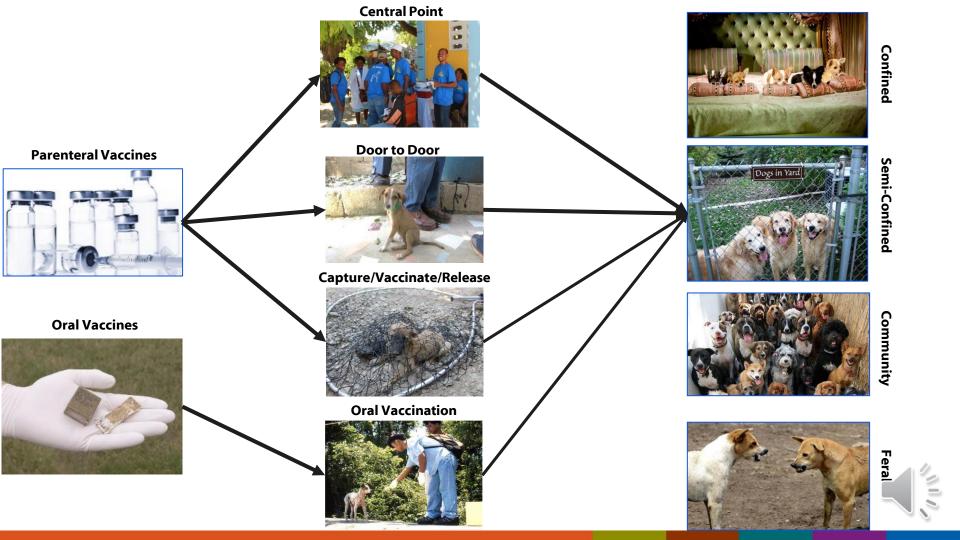


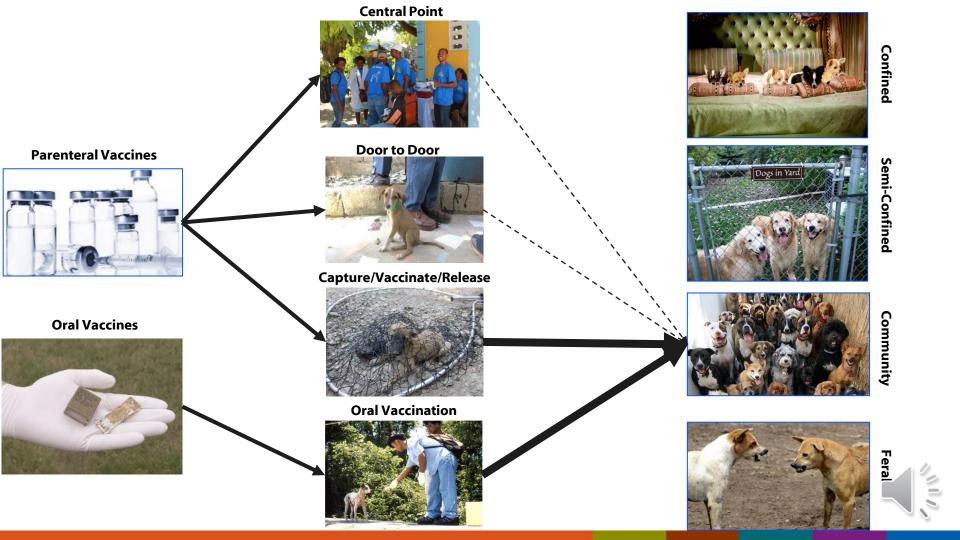


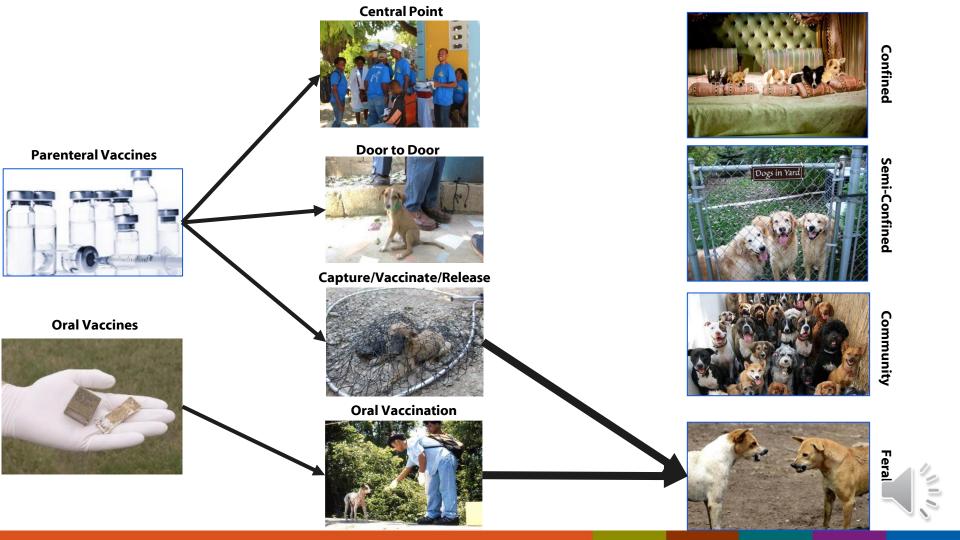
Evolution of Dog Vaccination Programs: Later Years

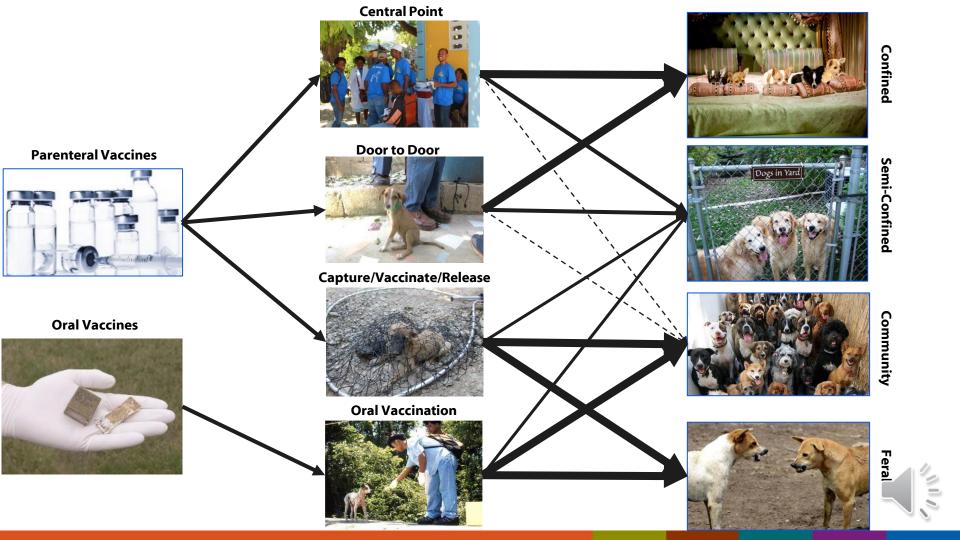












Vax-PLAN: A guide for designing effective vaccination

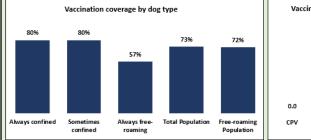
Vax I LAIV. A Sai	uc	101	G	316	•	9	CII		
		g aid for	the imp	lementat	ior	of dog vaco	cination	cam	
Input: Enter Values in White C	ells								
1. Describe the confinement of the dog population in the program area.	N	umber of D	ogs	%	Ш	Vaccination Do	ses by Stra	tegy	
How many dogs are in the program area?		600,000		100.0%	Ш	Central Point Va	accination		
What proportion are always under owner confinement?		60,000		10.0%	Ш	Door to Door Va	accination		
What proportion are only sometimes under owner confinment?*		360,000		60.0%	Ш	Capture, Vaccin	ate, Release	•	
What proportion are always free-roaming?		180,000		30.0%	Ш	Oral Vaccine Ha	andouts		
2. Provide the number of vaccines you plan to procure.	D	oses Procur	red	%	Ш	Vaccination do	ses by dog	type	
How many parenteral vaccines will be procured?		500,000			Ш	Always confine	d		
How many oral vaccines will be procured?		0		99.0%	Ш	Sometimes con	fined		
						Always free-roa	aming		
3. Allocate the vaccines to a vaccination strategy.	D	oses Procur	red	%	Ш				
What proportion of vaccines will be allocated to Central Point vaccination?		165,000		33.0%	Ш	Vaccination co	verage by d	log typ	
What proportion of vaccines will be allocated to Door to Door vaccination?		165,000		33.0%	Ш	Total Population	on		
What proportion of vaccines will be allocated to Capture, Vaccinate, Release?		165,000		33.0%	Ш	Free-roaming P	opulation		
Proportion of vaccines allocated to Oral vaccination		0		0.0%	Ш				
4. Describe the efficacy of the vaccines you have procured.		Percent Eff	ficacious (%	3	Ш	Vaccine utiliza	tion		
What is the efficacy of the parenteral vaccine?			ncacious (70	•1	Ш				
What is the efficacy of the oral vaccine?			00%		il I	Economic costs			
what is the emetry of the oral fo ceme:	_	10	JU%		Cost per dog vaccinated				
5. Expected Vaccination Effectiveness by Method §		Vaccinatio	n strategy*	*	Total Campaign Cost				
Confinement status:	CPV	DDV	CVR	ORV	Ш	il .	Lower bo	und	
What is the expected coverage among dogs that are always confined?	80%	80%	5%	5%	Ш		Upper bo	und	
What is the expected coverage among dogs that are only sometimes confined?	60%	60%	80%	80%	Ш				
What is the expected coverage among dogs that are never confined?	5%	5%	60%	80%	Ш	1	Vaccination	covera	
	Т		5		Ш	80%	80%		
6. How confident are you in your responses to the input variables?			5		Ц				
OPTIONAL: Suggested values for vaccination strategy table									
What is your current estimated program area vaccination coverage?		4	5%		Ш				
GDREP§ phase:			se II b						
Suggested values:	CPV	DDV	CVR	ORV					
Always confined	80%	80%	5%	5%					
Semi-confined Never confined	60% 5%	60% 5%	80% 60%	80%					
Never commed	5%	5%	00%	80%	ш	Always confined	Sometimes	Alw	

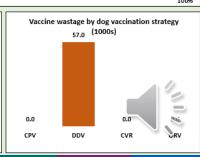
Estimate value

Vaccination campaign costs per vaccinated dog+

Click button to estimate the average cost per dog vaccinated

or dog vaccination campaigns								
	Results: c	calculated va	lues					
Vaccination Doses by Strategy	Abbrev	viation	Procured	Used	Unused			
Central Point Vaccination	CP	v	165,000	165,000	-			
Door to Door Vaccination	DD	v	165,000	108,000	57,000			
Capture, Vaccinate, Release	cv	R	165,000	165,000	-			
Oral Vaccine Handouts	OR	v	-	ı	-			
				Confi	dence			
Vaccination doses by dog type	Vaccinated	Unvaccinated	Percent	Lower	Upper	Immunized		
Always confined	48,000	12,000	80%	74%	86%	80%		
Sometimes confined	288,000	72,000	80%	74%	86%	80%		
Always free-roaming	102,000	78,000	57%	51%	63%	57%		
				Confid	Confidence			
Vaccination coverage by dog type	Dogs	Immunized	Percent	Lower	Upper	Immunized		
Total Population	600,000	438,000	73%	67%	79%	73%		
Free-roaming Population	540,000	390,000	72%	66%	78%	72%		
Vaccine utilization	Procured	Used	Unused	Lower	Upper			
vaccine utilization	500,000	88%	11%	5%	20%			
					_			
Economic costs	Total (\$)			Vaccine wast	age	11%		
Cost per dog vaccinated	\$ 3.01							
Total Campaign Cost	\$ 1,318,656							
Lower bound	\$ 833,856			57% 51% 63% Confidence Percent Lower Upper 73% 67% 79% 72% 66% 78% Unused Lower Upper				
Upper bound	\$ 1,811,743	0%	• (used Ur	nused	100%		





Example 1: High Income, Urban Community

CAMPAIGN DESIGN

- Dog Population
 - 5,000 dogs
 - 80% confined
 - 20% semi-confined
- Vaccines
 - 4,000 purchased
- Vaccinators
 - 50 dogs per day





Planning aid for the implementation of dog vaccine campaigns to prevent and control rabies†

Government perspective February 10, 2018

thors: Ryan M. Wallace and Jesse D. Blanton

filiation: Poxvirus and Rabies Branch (PRB), Division of High Consequence Pathogens and Pathology (DHCPP), National Center for Emerging and Zoonotic ectious Diseases (NCEZID)

nis spreasheet is a beta test version. It has not been officially cleared by the funding agency. The use of this version is for testing purposes only. The methodology used, dings, and conclusions produced from this software are those of the authors and do not necessarily represent the views of the Centers for Disease Control and evention.



Start

Example 2: Low Income, Urban Community

CAMPAIGN DESIGN

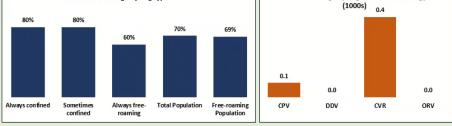
- Dog Population
 - 5,000 dogs
 - 10% confined
 - 40% semi-confined
 - 50% community
- Vaccinators
 - 50 dogs per day
- Method
 - 80% Central Point
 - 20% CVR



	Planni	ing aid fo	r the imp	lementati	on of dog vaco	ination c	amnaigns	, n		171	- 1		' '
Input: Enter Values in White		ing and ro	the imp	Tementat	on or dog vace	.iriation c	ampaigns	Results:	calculated v	alues			
Describe the confinement of the dog population in the program area.	N	lumber of D)ops	%	Vaccination D	oses by Stra	itegy	Abbre	viation	Procured	Used	Unused	
How many dogs are in the program area?		0€}	-8-	#DIV/0!	Central Point Va				PV	-	-	-	
What proportion are always under owner confinement?		0		0.0%	Door to Door Va			D	DV	-	-	-	
What proportion are only sometimes under owner confinment?*		0		0.0%	Capture, Vaccin	ate, Release		C	VR	-	-	-	
What proportion are always free-roaming?		0		0.0%	Oral Vaccine Ha	andouts		0	RV	-		-	
2. Provide the number of vaccines you plan to procure.		oses Procu	red	%	Vaccination d	oses by doe	type	Vaccinated	Unvaccinated	Percent	Lower	idence Upper	Immunized
How many parenteral vaccines will be procured?	7	0		~	Always confine		-,,,-	0	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
How many oral vaccines will be procured?		0		#DIV/0!	Sometimes conf			0	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
		_			Always free-roa			0	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
3. Allocate the vaccines to a vaccination strategy.	10	oses Procu	ired	%	i i						Confi	idence	
What proportion of vaccines will be allocated to Central Point vaccination?		0		0.0%	Vaccination c	overage by	dog type	Dogs	Immunized	Percent	Lower	Upper	Immunized
What proportion of vaccines will be allocated to Door to Door vaccination?		0		0.0%	Total Populatio	n		0	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
What proportion of vaccines will be allocated to Capture, Vaccinate, Release?		0		0.0%	Free-roaming P	pulation		0	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Proportion of vaccines allocated to Oral vaccination		0		#DIV/0!									_
					Vaccine utiliza	***		Procured	Used	Unused	Lower	Upper	
4. Describe the efficacy of the vaccines you have procured.			fficacious (%	5)	vaccine utiliza	ition		0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	
What is the efficacy of the parenteral vaccine?		1	00%										
What is the efficacy of the oral vaccine?		1	00%		Economic cos	ts		Total (\$)	0%		Vaccine wast	age	
	_				Cost per dog va	ccinated		#DIV/0!					
5. Expected Vaccination Effectiveness by Method §		Vaccinatio	n strategy*	*	Total Campaign	Cost		\$ 4,920					
Confinement status:	CPV	DDV	CVR	ORV		Lower bo	und	\$ 3,030					
What is the expected coverage among dogs that are always confined?	80%	80%	5%	5%		Upper bo	und	\$ 6,560	0%	-	Used Unused		100%
What is the expected coverage among dogs that are only sometimes confined?	60%	60%	80%	80%					1				
What is the expected coverage among dogs that are never confined?	5%	5%	60%	80%		Vaccination	coverage by do	g type		Vaccine v	wastage by doو (100)		trategy
			_								(100	03)	
6. How confident are you in your responses to the input variables?			5										
OPTIONAL: Suggested values for vaccination strategy table													
What is your current estimated program area vaccination coverage?			55%										
GDREP§ phase:	CDV		ase II b	OPM									
Suggested values:	CPV	DDV	CVR	ORV									
Always confined Semi-confined	80% 60%	80% 60%	5% 80%	5% 80%	0%	0%	0%	0%	0%	0.0	0.0	0.0	0.0
Semi-contined Never confined	5%	5%	60%	80%	,,	C	Ab.,	Tatal Danielation	Fi	cour	nn.	0.0	on.
Vaccination campaign costs per vaccinated dog†	370			0070	Always confined	Sometimes confined	Always free- roaming	Total Population	Free-roaming Population	CPV	DDV	CVR	ORV
Click button to estimate the average cost per dog vaccinated		Estim	ate value										
* Dogs that are allowed to roam unsupervised in the community, but come back to a home to re													
** Vaccination strategies = CPV: central point vaccination, CVR: Capture vaccinate and release	DDV: door to d	ORV: Ora	Labies vaccin	ation Ca	culations Co	maria 1 C	nfinament	Connario 2	May Dragues	mont C	conorio 2a l	Vay Ctratas	

		ng aid for	the imp	lementat				
Input: Enter Values in White Co	ells							
L. Describe the confinement of the dog population in the program area.	Nu	ımber of Do	ogs	%				
How many dogs are in the program area?		5,000		100.0%				
What proportion are always under owner confinement?		10.0%						
What proportion are only sometimes under owner confinment?*		500 2,000						
What proportion are always free-roaming?		2,500						
. Provide the number of vaccines you plan to procure.	D	Doses Procured						
How many parenteral vaccines will be procured?		4,000		100.0%				
How many oral vaccines will be procured?		4,000						
Allocate the vaccines to a vaccination strategy.	De	oses Procur	ed	%				
What proportion of vaccines will be allocated to Central Point vaccination?		1,800		45.0%				
What proportion of vaccines will be allocated to Door to Door vaccination?		0		0.0%				
What proportion of vaccines will be allocated to Capture, Vaccinate, Release?		55.0%						
Proportion of vaccines allocated to Oral vaccination		0	0					
Describe the efficacy of the vaccines you have procured.		Percent Effi 10)				
What is the efficacy of the parenteral vaccine?								
What is the efficacy of the oral vaccine?		10	0%					
i. Expected Vaccination Effectiveness by Method §		Vaccination						
Confinement status:	CPV			100000				
		DDV	CVR	ORV				
What is the expected coverage among dogs that are always confined?	80%	80%	5%	5%				
What is the expected coverage among dogs that are only sometimes confined?	60%	60%	80%	80%				
What is the expected coverage among dogs that are never confined?	5%	5%	60%	80%				
i. How confident are you in your responses to the input variables?			5					
OPTIONAL: Suggested values for vaccination strategy table								
What is your current estimated program area vaccination coverage?		55	5%					
DREP§ phase:		Phas	e II b					
uggested values:	CPV	DDV	CVR	ORV				
Always confined	80%	80%	5%	5%				
Semi-confined	60%	60%	80%	80%				
Never confined	5%	5%	60%	80%				
/accination campaign costs per vaccinated dog† Click button to estimate the average cost per dog vaccinated		Estima	te value					
* Dogs that are allowed to roam unsupervised in the community, but come back to a home to rece	eive some level	of care are cor	nsidered "son	netimes confir				

	Results: o	alculated va	lues			
Vaccination Doses by Strategy	Abbrev	riation	Procured	Used	Unused	
Central Point Vaccination	СР	v	1,800	1,725	75	
Door to Door Vaccination	DD	v	-	-	-	
Capture, Vaccinate, Release	cv	'R	2,200	1,775	425	
Oral Vaccine Handouts	OF	V	1-	-	-	
				Confi	dence	
Vaccination doses by dog type	Vaccinated	Unvaccinated	Percent	Lower	Upper	Immunize
Always confined	400	100	80%	74%	86%	80%
Sometimes confined	1,600	400	80%	74%	86%	80%
Always free-roaming	1,500	1,000	60%	54%	66%	60%
				Confid		
Vaccination coverage by dog type	Dogs	Immunized	Percent	Lower	Upper	Immunize
Total Population	5,000	3,500	70%	64%	76%	70%
Free-roaming Population	4,500	3,100	69%	63%	75%	69%
	Procured	Used	Unused	Lower	Upper	
Vaccine utilization	4,000	88%	13%	5%	20%	
		_				•
Economic costs	Total (\$)			Vaccine wasta	ige	13
Cost per dog vaccinated	\$ 3.91					
Total Campaign Cost	\$ 13,699					
Lower bound	\$ 8,592					
Upper bound	\$ 18,616	0%	= (Jsed Un	iused	1009
оррег вошто	7 10,010	070				1007
Vaccination coverage by do	g type		Vaccine w	astage by dog	vaccination st	rategy
-0-,				(1000		
80% 80%					0.4	
	70%	69%				
60%						



^{*} Dogs that are allowed to roam unsupervised in the community, but come back to a home to receive some level of care are considered "sometimes confined". These may include owned, community owned, or loosely owned dogs.

** Vaccination strategies = CPV: central point vaccination OVP: Canture vaccinate and related to the CPV: Calculations vaccination.

** Title | Locative to provide the community, but come back to a home to receive some level of care are considered "sometimes confined". These may include owned, community owned, or loosely owned dogs.

** Vaccination strategies = CPV: central point vaccination OVP: Canture vaccinate and related to the community of the community of the community of the community owned dogs.

** Vaccination strategies = CPV: central point vaccination OVP: Canture vaccinate and related to the community of the community owned dogs.

	Planni	ng aid fo	the imp	lementati	on of dog va	ccination c	ampaigns	
Input: Enter Values in White C						Results:		
Describe the confinement of the dog population in the program area.	N	umber of D	ogs	%	Vaccinatio	Doses by Stra	ategy	Abbre
How many dogs are in the program area?		5,000	•	100.0%	Central Poir	t Vaccination	1171	c
What proportion are always under owner confinement?		500		10.0%	Door to Doo	r Vaccination		D
What proportion are only sometimes under owner confinment?*		2,000		40.0%	Capture, Va	cinate, Release		c
What proportion are always free-roaming?		2,500		50.0%	Oral Vaccin	e Handouts		0
2. Provide the number of vaccines you plan to procure.	P	eses Procui	red	%	Vaccinatio	n doses by dog	type	Vaccinated
How many parenteral vaccines will be procured?		1,800	/		Always cont	ined		400
How many oral vaccines will be procured?		2,200		100.0%	Sometimes	onfined		1,525
		,			Always free	roaming		2,000
3. Allocate the vaccines to a vaccination strategy.	D	oses Procui	red	%				
What proportion of vaccines will be allocated to Central Point vaccination?		1,800		45.0%	Vaccinatio	n coverage by	dog type	Dogs
What proportion of vaccines will be allocated to Door to Door vaccination?		0		0.0%	Total Popul	ation		5,000
What proportion of vaccines will be allocated to Capture, Vaccinate, Release?		0		0.0%	Free-roamir	g Population		4,500
Proportion of vaccines allocated to Oral vaccination		2,200		55.0%				
					Vaccine ut	lization		Procured
4. Describe the efficacy of the vaccines you have procured.			icacious (%)	vaccine at	incution.		4,000
What is the efficacy of the parenteral vaccine?		10	00%					
What is the efficacy of the oral vaccine?		10	00%		Economic	osts		Total (\$)
					Cost per do	vaccinated		\$ 2.94
5. Expected Vaccination Effectiveness by Method §		Vaccinatio	n strategy*	•	Total Campa	ign Cost		\$ 11,534
Confinement status:	CPV	DDV	CVR	ORV		Lower bo	ound	\$ 7,976
What is the expected coverage among dogs that are always confined?	80%	80%	5%	5%		Upper bo	ound	\$ 14,908
What is the expected coverage among dogs that are only sometimes confined?	60%	60%	80%	80%				
What is the expected coverage among dogs that are never confined?	5%	5%	60%	80%		Vaccination	coverage by do	g type
6. How confident are you in your responses to the input variables?			5		80%	76%	80%	79%
OPTIONAL: Suggested values for vaccination strategy table								
What is your current estimated program area vaccination coverage?		5	5%					
GDREP§ phase:			se II b					
Suggested values:	CPV	DDV	CVR	ORV				
Always confined	80%	80%	5%	5%				
Semi-confined	60%	60%	80%	80%				
Never confined	5%	5%	60%	80%	Always confin		Always free-	Total Population
Vaccination campaign costs per vaccinated dog† Click button to estimate the average cost per dog vaccinated			ite value			confined	roaming	
* Dogs that are allowed to roam unsupervised in the community, but come back to a home to rec	eive some level	of care are co	nsidered "son	netimes confine	d". These may incl	ide owned, comm	unity owned, or	loosely owned dogs



^{*} Dogs that are allowed to roam unsupervised in the community, but come back to a home to receive some level of care are considered "sometimes confined". These may include owned, community owned, or loosely owned dogs.

**Vaccination strategies = CPV: central noint vaccination - CVP: Canture vaccinate and relaxes - DVP: Canture vaccinate and relaxes - Considered of the community owned, or loosely owned dogs.

**Vaccination strategies = CPV: central noint vaccination - CVP: Canture vaccinate and relaxes - Considered of the community owned, or loosely owned dogs.

**Vaccination strategies = CPV: central noint vaccination - CVP: Canture vaccinate and relaxes - Considered of the community owned owned owned, or loosely owned owned, or loosely owned owned.

	Planni	ng aid fo	r the imp	lementati	on	of dog vacc	ination ca	mpaigns						
Input: Enter Values in White Cel					П				Results:	calculated v	alues			
Describe the confinement of the dog population in the program area.	N	umber of D	ogs	%		Vaccination D	oses by Strat	tegy	Abbre	viation	Procured	Used	Unused	
How many dogs are in the program area?		5,000		100.0%		Central Point Va	ccination		CI	PV	1,800	1,800	-	
What proportion are always under owner confinement?		500		10.0%		Door to Door Va	ccination		DDV		-	-	-	
What proportion are only sometimes under owner confinment?*		2,000		40.0%		Capture, Vaccin	ite, Release		C	VR.	2,200	2,200		
What proportion are always free-roaming?		2,500		50.0%		Oral Vaccine Ha	ndouts		0	RV	-	-	-	
					Ш							Confi	dence	
2. Provide the number of vaccines you plan to procure.	D	oses Procu	red	%		Vaccination d	oses by dog t	type	Vaccinated	Unvaccinated	Percent	Lower	Upper	Immunized
How many parenteral vaccines will be procured?		4,000		100.0%		Always confined			400	100	80%	74%	86%	80%
How many oral vaccines will be procured?		0		100.070		Sometimes conf	ned		1,600	400	80%	74%	86%	80%
					Ш	Always free-roa	ning		2,000	500	80%	74%	86%	80%
3. Allocate the vaccines to a vaccination strategy.	D	oses Procu	red	%								Confi	dence	
What proportion of vaccines will be allocated to Central Point vaccination?		1,800		45.0%		Vaccination co	verage by d	og type	Dogs	Immunized	Percent	Lower	Upper	Immunized
What proportion of vaccines will be allocated to Door to Door vaccination?		0		0.0%		Total Population	1		5,000	4,000	80%	74%	86%	80%
What proportion of vaccines will be allocated to Capture, Vaccinate, Release?		2,200		55.0%		Free-roaming Po	pulation		4,500	3,600	80%	74%	86%	80%
Proportion of vaccines allocated to Oral vaccination		0		0.0%										
									Procured	Used	Unused	Lower	Upper	
4. Describe the efficacy of the vaccines you have procured.	Percent Efficacious (%)					Vaccine utiliza	tion		4,000	100%	0%	0%	8%	
What is the efficacy of the parenteral vaccine?		1	00%								•			
What is the efficacy of the oral vaccine?	100%					Economic costs			Total (\$)			Vaccine wasta	ige	0%
					Ш	Cost per dog vad	cinated		\$ 3.78	_				076
5. Expected Vaccination Effectiveness by Method §		Vaccinatio	n strategy*	*		Total Campaign			\$ 15,121					
Confinement status:	CPV	DDV	CVR	ORV			Lower bou	nd	\$ 9,404					
What is the expected coverage among dogs that are always confined?	80%	80%	5%	5%			Upper bou	nd	\$ 20,653 0%		■ (Jsed Ur	nused	100%
What is the expected coverage among dogs that are only sometimes confined?	80%	80%	80%	80%										
What is the expected coverage among dogs that are never confined?	5%	5%	80%	80%			Vaccination co	overage by dog	type		Vaccine wastage by dog vaccination			trategy
					Ш							(1000	ls)	
6. How confident are you in your responses to the input variables?			5		₹	80%	80%	80%	80%	80%				
OPTIONAL: Suggested values for vaccination strategy table			Chassas	ption from	4 4	O serie								
What is your current estimated program area vaccination coverage?		5			1-1	U Scale								
GDREP§ phase:		Pha	r=not cor											
Suggested values:	CPV	DDV	10=very c	onfident										
Always confined	80%	80%												
Semi-confined	60%	60%	8078	0070							0.0	0.0	0.0	0.0
Never confined	5%	5%	60%	80%		Always confined	Sometimes	Always free-	Total Population	Free-roaming	CPV	DDV	CVR	ORV
Vaccination campaign costs per vaccinated dog†		Ectim	ate value				confined	roaming		Population				
Click button to estimate the average cost per dog vaccinated					Ш									
* Dogs that are allowed to roam unsupervised in the community, but come back to a home to recei														
** Vaccination strategies = CPV: central point vaccination CVR: Canture vaccinate and release DI	II ATOR	VACCIA	LATION CO	OCTC C	l	lations Con	naria 1 Car	nfinamant	Connario 3	Vay Dragura	mant Co	anaria 2a l	Inv Ctratas	

	Planni	ing aid fo	r the imp	lementati	on of dog vac	ination ca	mpaigns		-				
Input: Enter Values in White C			1					Results:	calculated v	alues			
Describe the confinement of the dog population in the program area.	N	lumber of D	oes	%	Vaccination [oses by Stra	tegy	Abbre	viation	Procured	Used	Unused	
How many dogs are in the program area?		5,000	-6-	100.0%	Central Point V			CPV		1,800	1,800	-	
What proportion are always under owner confinement?		500		10.0%	Door to Door V	accination		D	DV	-	-	-	
What proportion are only sometimes under owner confinment?*		2,000		40.0%	Capture, Vaccin	ate, Release		C	VR	2,200	2,200	-	
What proportion are always free-roaming?		2,500		50.0%	Oral Vaccine H	andouts		0	RV	-	-	-	
											Confi	dence	
2. Provide the number of vaccines you plan to procure.	D	oses Procu	red	%	Vaccination of	oses by dog	type	Vaccinated	Unvaccinated	Percent	Lower	Upper	Immunized
How many parenteral vaccines will be procured?		4,000		100.0%	Always confine	d		400	100	80%	74%	86%	80%
How many oral vaccines will be procured?		0		100.0%	Sometimes con	fined		1,600	400	80%	74%	86%	80%
					Always free-roa	ming		2,000	500	80%	74%	86%	80%
3. Allocate the vaccines to a vaccination strategy.	D	oses Procu	red	%							Confi	dence	
What proportion of vaccines will be allocated to Central Point vaccination?		1,800		45.0%	Vaccination of	overage by o	log type	Dogs	Immunized	Percent	Lower	Upper	Immunized
What proportion of vaccines will be allocated to Door to Door vaccination?		0		0.0%	Total Population	n		5,000	4,000	80%	74%	86%	80%
What proportion of vaccines will be allocated to Capture, Vaccinate, Release?		2,200		55.0%	Free-roaming P	opulation		4,500	3,600	80%	74%	86%	80%
Proportion of vaccines allocated to Oral vaccination		0		0.0%									
					Vaccine utiliz			Procured	Used	Unused	Lower	Upper	
4. Describe the efficacy of the vaccines you have procured.		Percent Efficacious (%)				ation		4,000	100%	0%	0%	8%	
What is the efficacy of the parenteral vaccine?		1	00%										
What is the efficacy of the oral vaccine?		1	00%		Economic cos	Economic costs					Vaccine wasta	age	00/
۵					Cost per dog va	ccinated		\$ 3.78					U76
5. Expected Vaccination Effectiveness by Method §		Vaccinatio	n strategy*	•	Total Campaign			\$ 15,121					
Confinement status:	CPV	DDV	CVR	ORV		Lower box	und	\$ 9,404					
What is the expected coverage among dogs that are always confined?	80%	80%	5%	5%		Upper box	und	\$ 20,653	\$ 20,653 0%		Jsed Ur	nused	100%
What is the expected coverage among dogs that are only sometimes confined?	80%	80%	80%	80%									
What is the expected coverage among dogs that are never confined?	5%	5%	80%	80%		Vaccination of	overage by dog	type		Vaccine v	wastage by dog		trategy
	_										(1000)s)	
6. How confident are you in your responses to the input variables?			5		80%	80%	80%	80%	80%				
OPTIONAL: Suggested values for vaccination strategy table													
What is your current estimated program area vaccination coverage?		5	55%										
GDREP§ phase:		Pha	se II b										
Suggested values:	CPV	DDV	CVR	ORV									
Always confined	80%	80%	5%	5%									
Semi-confined	60%	60%	80%	80%						0.0	0.0	0.0	0.0
Never confined	5%	5%	60%	80%	Always confined	Sometimes	Always free-	Total Population	Free-roaming	CPV	DDV	CVR	ORV
Vaccination campaign costs per vaccinated dog†		Fctim	ate value			confined	roaming		Population				
Click button to estimate the average cost per dog vaccinated													
* Dogs that are allowed to roam unsupervised in the community, but come back to a home to rec													l
** Vaccination strategies = CPV: central point vaccination CVR: Capture vaccinate and release	DDV: door to d	Opr ORV: Ora	LATION CO	ation Co	culations Co	anaria 1 Ca	nfinament	Connaria 2	May Drocure	mant C	canaria 2a l	lay Ctratas	

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Where to find this tool?

- https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6805755/
 - Published in Epidemiology and Infection, 2019
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- Online at: https://rabiestaskforce.com/toolkit/vaxplan

