

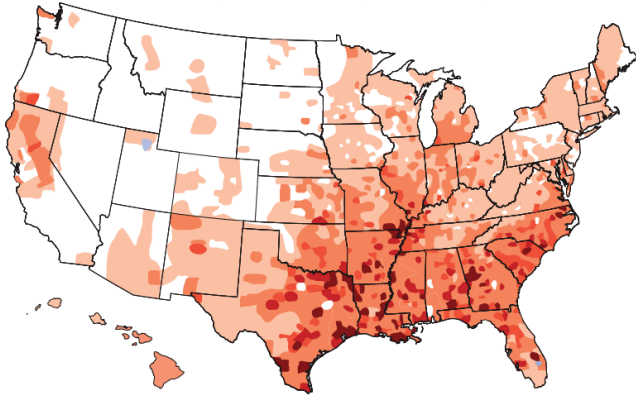
A Survey of Pet Caretakers on the Use and Perceptions Regarding Heartworm Prophylaxis for Prevention of Canine Heartworm Disease



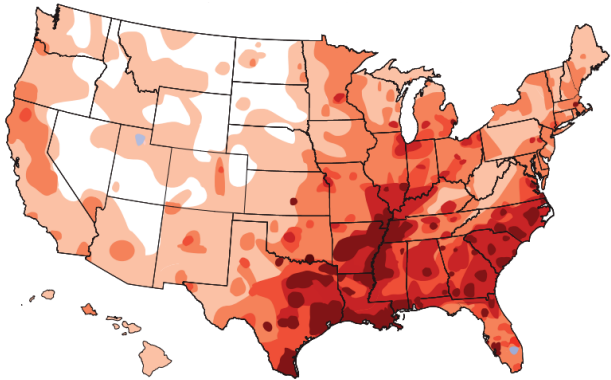
Stacie D Williams, Lauren Wisnieski, Karen Gruszynski, Vina Faulkner, Charles Faulkner
Lincoln Memorial University, Harrogate, TN, USA

Heartworm Prevalence Incidence Maps

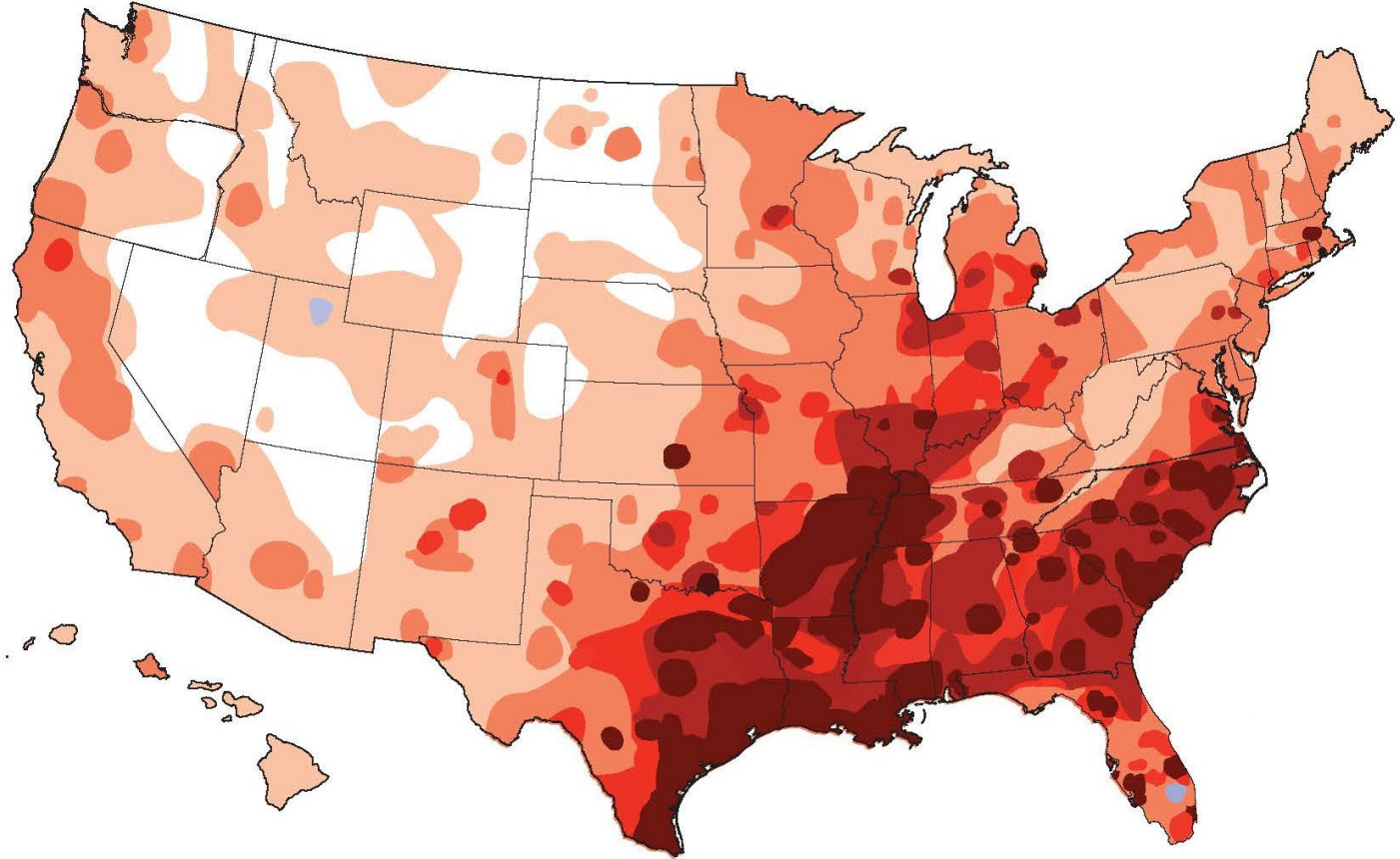
2010



2019



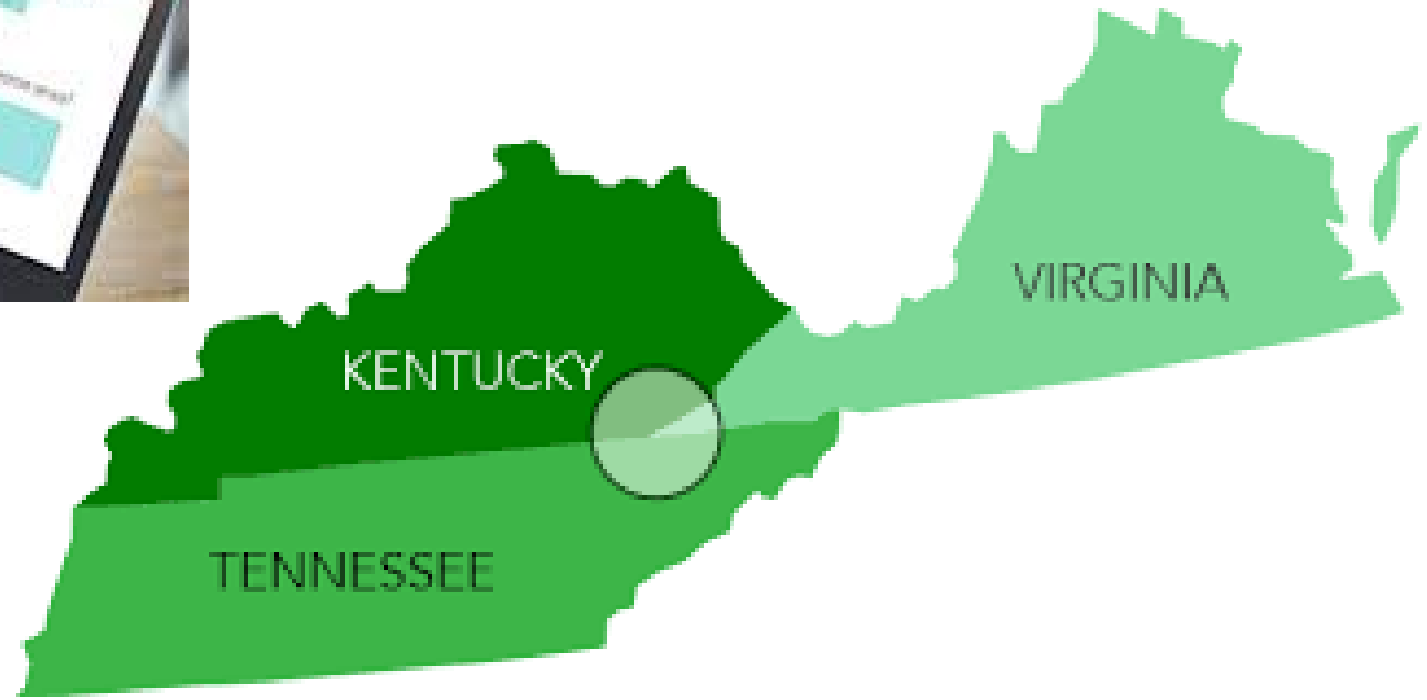
2022



American Heartworm Society (2023)

www.heartwormsociety.org/veterinary-resources/incidence-maps

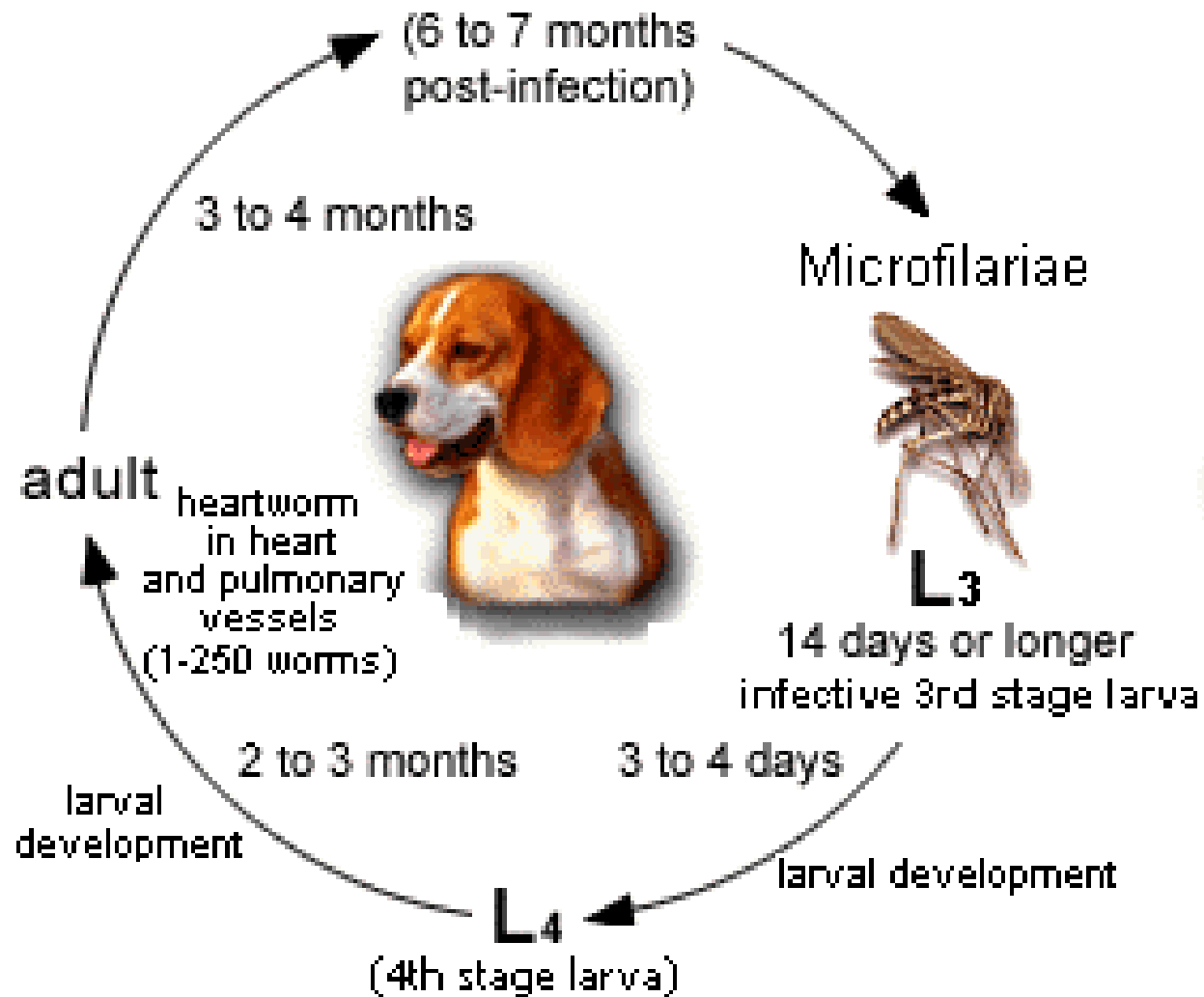
Previous Research



Hypothesis

- **Hypothesis:** Among dog-owning individuals in the United States, those that do not use heartworm prophylaxis are more likely than users of heartworm prophylaxis to be unaware of the risks of heartworm disease, lack adequate forms of obtainable information about heartworm disease, and prefer a holistic-natural point of view for prevention of heartworm disease.

Life Cycle of *Dirofilaria immitis*



Safe and Effective Prophylactic Compounds

- Administered:
 - Monthly-Topically or Orally
 - 6 or 12 months-Subcutaneously
- 95% effective
- Commercial formulations include control of:
 - Fleas
 - Ticks
 - Gastrointestinal Parasites



Aims

- 1) Discover the reasons why people choose not to use canine heartworm prophylaxis
- 2) Describe the demographic characteristics, heartworm knowledge, range of beliefs, and perceptions among people who use or do not use heartworm prophylaxis among dog caretakers
- 3) Determine sources of CHW information that influences the use of prophylaxis among dog caretakers

Anecdotal Background

- Social Media Search
 - Holistic Medical Practices
 - Holistic Medicine and Failed
 - Trust in the veterinary medicine
- Facebook, Forums
 - “I am not anti-vet; I am pro-integrity. There are vets with integrity, but they are getting to be a bit like free-range tigers”
 - “...Not everything vets suggest is necessary and that with a little research, there are alternatives”
 - “Your website encompasses everything I believe about veterinary marketing and the pharmaceutical companies in our country”

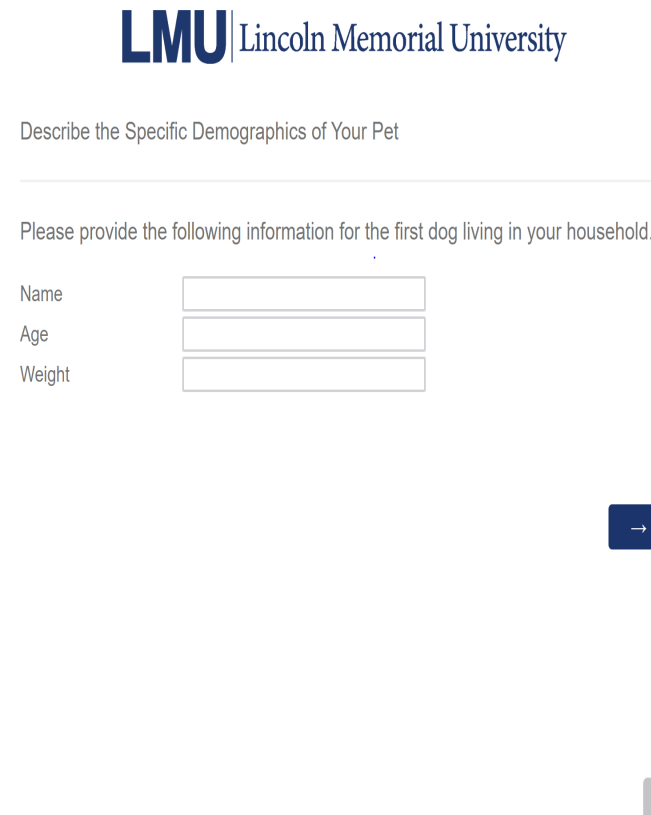
Burns, P. (2010, May 6). The Billion Dollar Heartworm Scam. Retrieved from Terrierman's Daily Dose:
<https://terriermandotcom.blogspot.com/2008/05/billion-dollar-heartworm-scam.html>

Falconer, W. (2022^a). *Drug Free Heartworm Prevention: How to Stop Poisoning Your Dog in the Name of Prevention*. Retrieved July 2022, from Vital Animal: The Natural Path:
<https://vitalanimal.com/drugfreeheartworm/>

Dodds, J. (2013, March 25). Dr. Dodds' Take on and General Recommendations for Heartworm Preventives. Retrieved from Dr. Jean Dodds' Pet Health Resource Blog: <https://drjeandodds.pethealthresource.tumblr.com/post/46289883129/dodds-heartworm-preventives#.Ytg5q3bMKUI>

Methods

- Survey
 - a. Demographic Information
 - b. Information about pet ownership
 - c. Information about access and use of veterinary care
 - d. Information relevant to understanding perceptions and beliefs that motivate adoption or non-use of heartworm prophylaxis
- Distribution
 - a. QR code
 - b. Anonymous Link
 - c. Flyer
- Statistical Analysis



LMU Lincoln Memorial University

Describe the Specific Demographics of Your Pet

Please provide the following information for the first dog living in your household.


Name

Age

Weight

[→](#)

Powered by Qualtrics [↗](#)



12:29

LMU Lincoln Memorial University

Describe the Specific Demographics of Your Pet

Please provide the following information for the first dog living in your household.

Name

Age

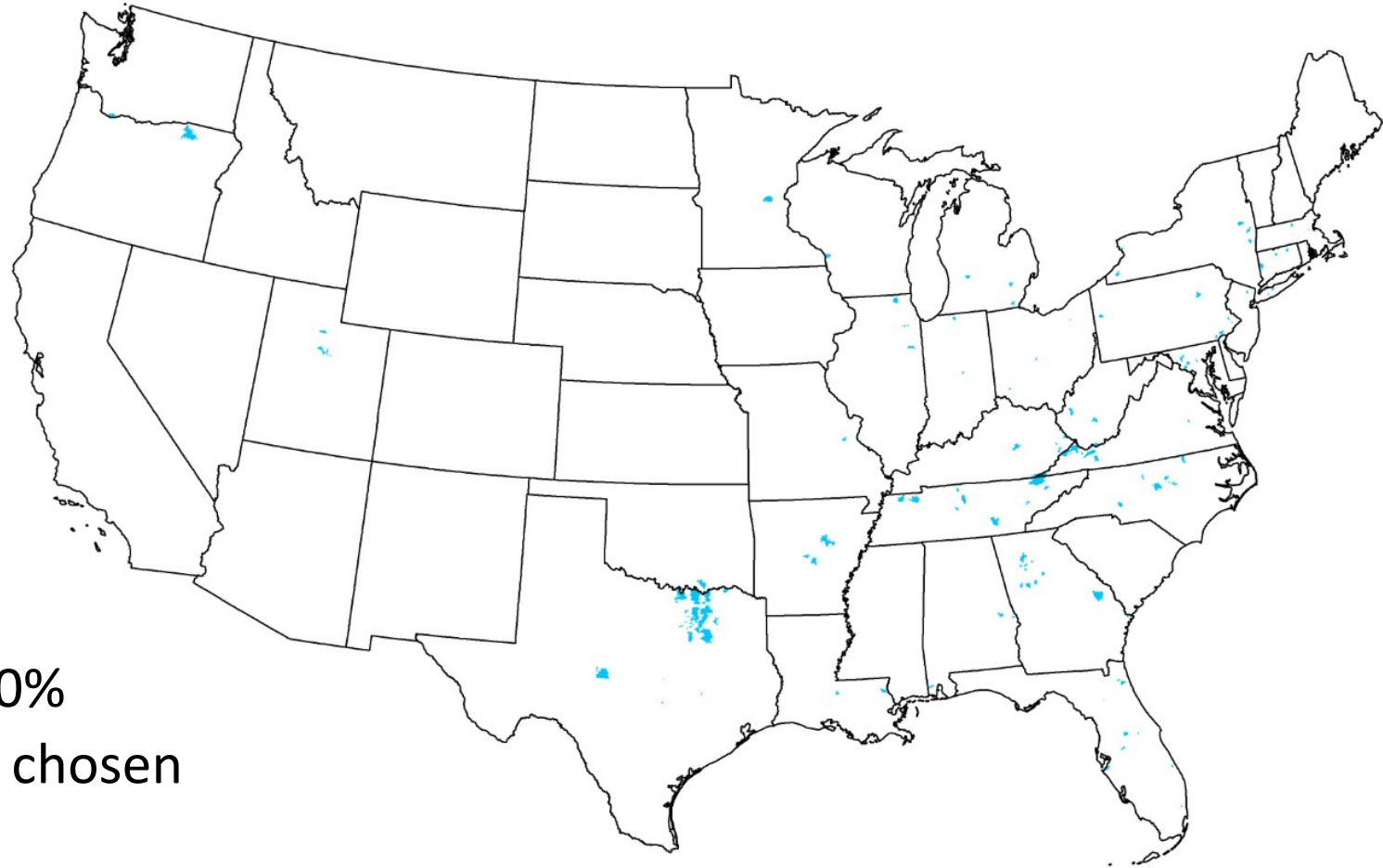
Weight

[→](#)

Powered by Qualtrics [↗](#)

Results

- 305 Survey Responses
- 31 States including Puerto Rico
- 415 Dog responses
- Exclusion Criteria:
 - Not United States Resident
 - <18 years
 - Survey completion does not =100%
 - No to the Informed Consent was chosen

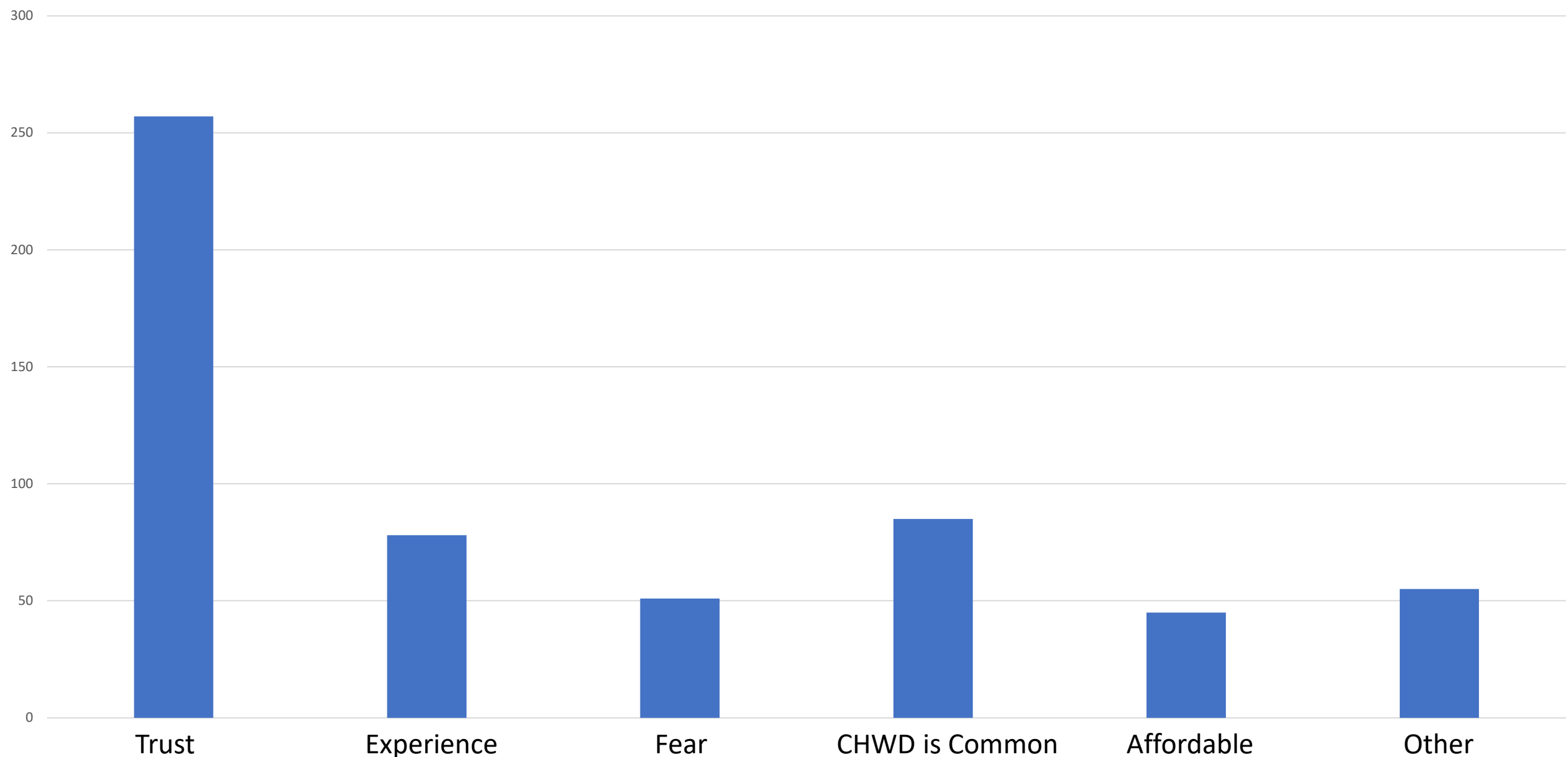


Dog Owner Demographics Overall			Heartworm Prophylaxis Use	
Dog -Owner Gender (n=399)	Number	Percent (%)	Yes (n=344)	No (n=47)
Man	76	19	60 (78.9%)	16 (21.1%)
Woman	315	78.9	275 (87.3%)	30 (9.5%)
Other	8	2	6 (75.0%)	1 (12.5%)
Race (n=402)	Number	Percent (%)		
White/Caucasian American	376	93.5	324 (86.2%)	41 (10.9%)
Black/African American	7	1.7	6 (85.7%)	1 (14.3%)
Asian/ Asian American	7	1.7	6 (85.7%)	1 (14.3%)
American Indian/ Pacific Islander	3	0.7	3 (100.0%)	0 (0.0%)
Other	9	2.2	5 (55.6%)	4 (44.4%)
Owner Reported Income (n=386)	Number	Percent (%)		
<\$20,000	54	14	47 (87.0%)	7 (13.0%)
\$20,000-\$39,000	49	12.7	46 (93.9%)	2 (4.1%)
\$40,000-\$59,000	38	9.8	31 (81.6%)	4 (10.5%)
\$60,000-\$79,000	55	14.2	42 (76.4%)	12 (21.8%)
\$80,000-\$99,999	43	10.9	33 (76.7%)	6 (14.0%)
\$100,000+	148	38.3	130 (87.8%)	15 (10.1%)

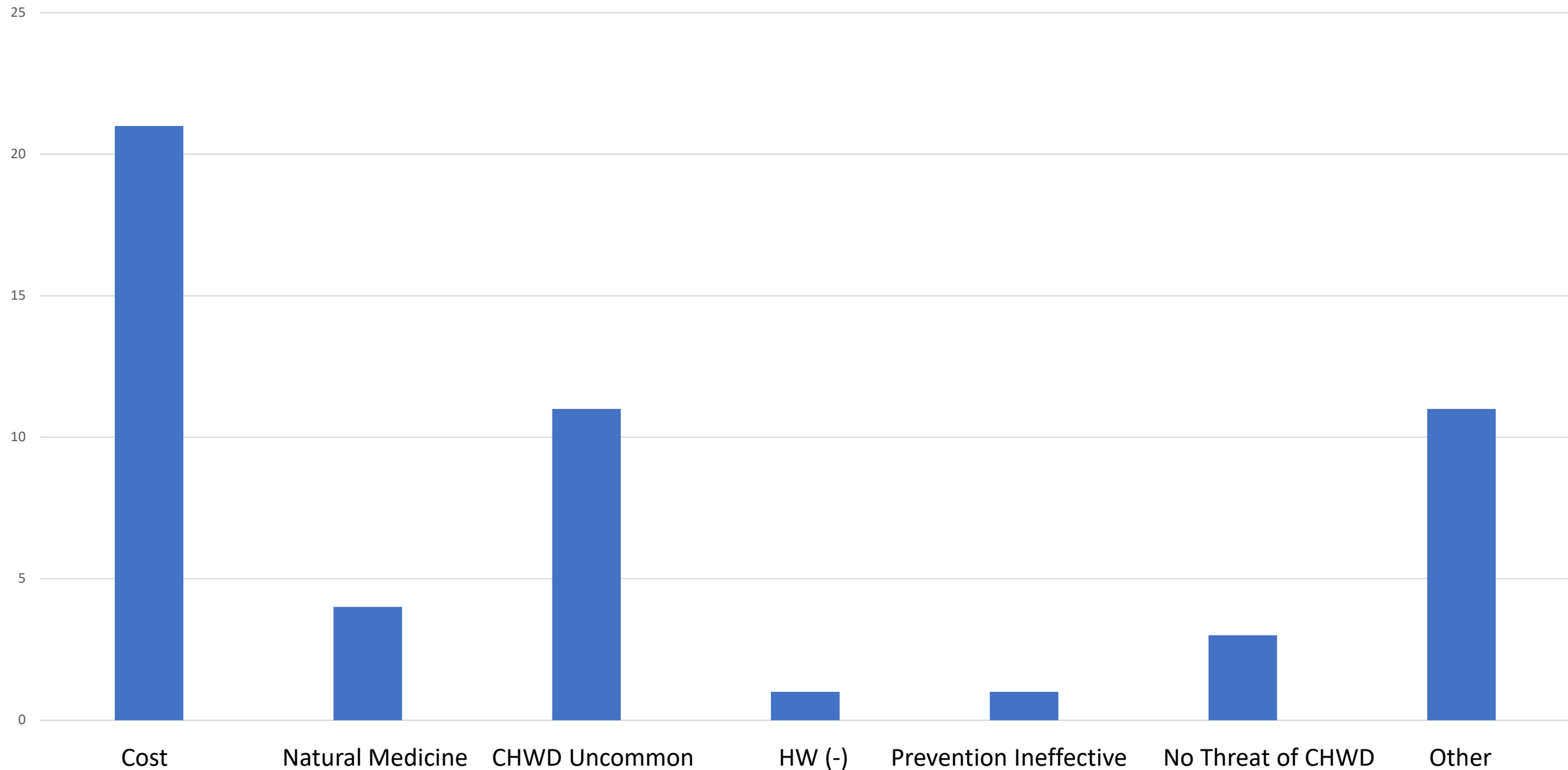
Dog Demographic Information Overall			Heartworm Prophylaxis Use	
Pet Age (n=397)	Number	Percent (%)	Yes (n=344)	No (n=47)
<2years	65	16.4	55	9
2-5years	151	38	135	12
5-10years	117	29.5	100	14
10+ years	64	16.1	50	12
Pet Weight (n=396)	Number	Percent (%)		
<20lbs	82	20.7	73	7
20-40lbs	77	19.4	65	10
40-80lbs	185	46.7	161	22
>80lbs	52	13.1	42	7
Inside/Outside (n=400)	Number	Percent (%)		
Inside	277	69.3	240	33
Outside	21	5.3	16	3
Both	102	25.5	87	11
View of Dog (n=399)	Number	Percent (%)		
Family Member	388	97.2	334	44
Working/Farm/Guard	13	3.3	10	3
Show/Racing	2	0.5	1	1
Service	3	0.8	3	0
Police/Military	0	0	0	0
Property	4	1	3	1

Heartworm Belief			Heartworm Prophylaxis Use	
How Heartworm Information is Obtained (n=402)	Number	Percent (%)	Yes (n=344)	No (n=47)
Veterinarian	376	93.5	332 (88.3%)	37 (9.8%)
Family member or Friend	70	17.4	65 (92.9%)	5 (7.1%)
Brochures	43	10.7	39 (90.7%)	4 (9.3%)
Infomercials/Commercials	113	28.1	95 (84.1%)	14 (12.5%)
Internet Sources (Facebook, SnapChat, Google, Forums)	14	3.5	12 (85.7%)	2 (14.3%)
No Information about Heartworms	13	3.2	6 (46.2%)	6 (46.2%)
Other	33	8.2	30 (90.9%)	3 (9.1%)
Is Heartworm Disease a Concern (n=398)	Number	Percent (%)		
Yes	395	99.2	341 (86.3%)	44 (11.1%)
No	3	0.8	0 (0.0%)	2 (66.7%)
Is Heartworm Prevention Important (n=394)	Number	Percent (%)		
Yes	389	98.7	341 (87.7%)	38 (9.8%)
No	5	1.3	1 (20.0%)	3 (60.0%)
Do you know how Heartworms are contracted? (n=402)	Number	Percent (%)		
Correct	306	76.1	278 (90.8%)	26 (8.5%)
Incorrect	96	23.9	66 (68.8%)	21 (21.9%)
How does Heartworm Prevention Work? (n=301)	Number	Percent (%)		
Correct	167	55.5	148 (88.6%)	14 (8.4%)
Incorrect	134	44.5	122 (91.0%)	10 (7.5%)

Reasons for Heartworm Prevention



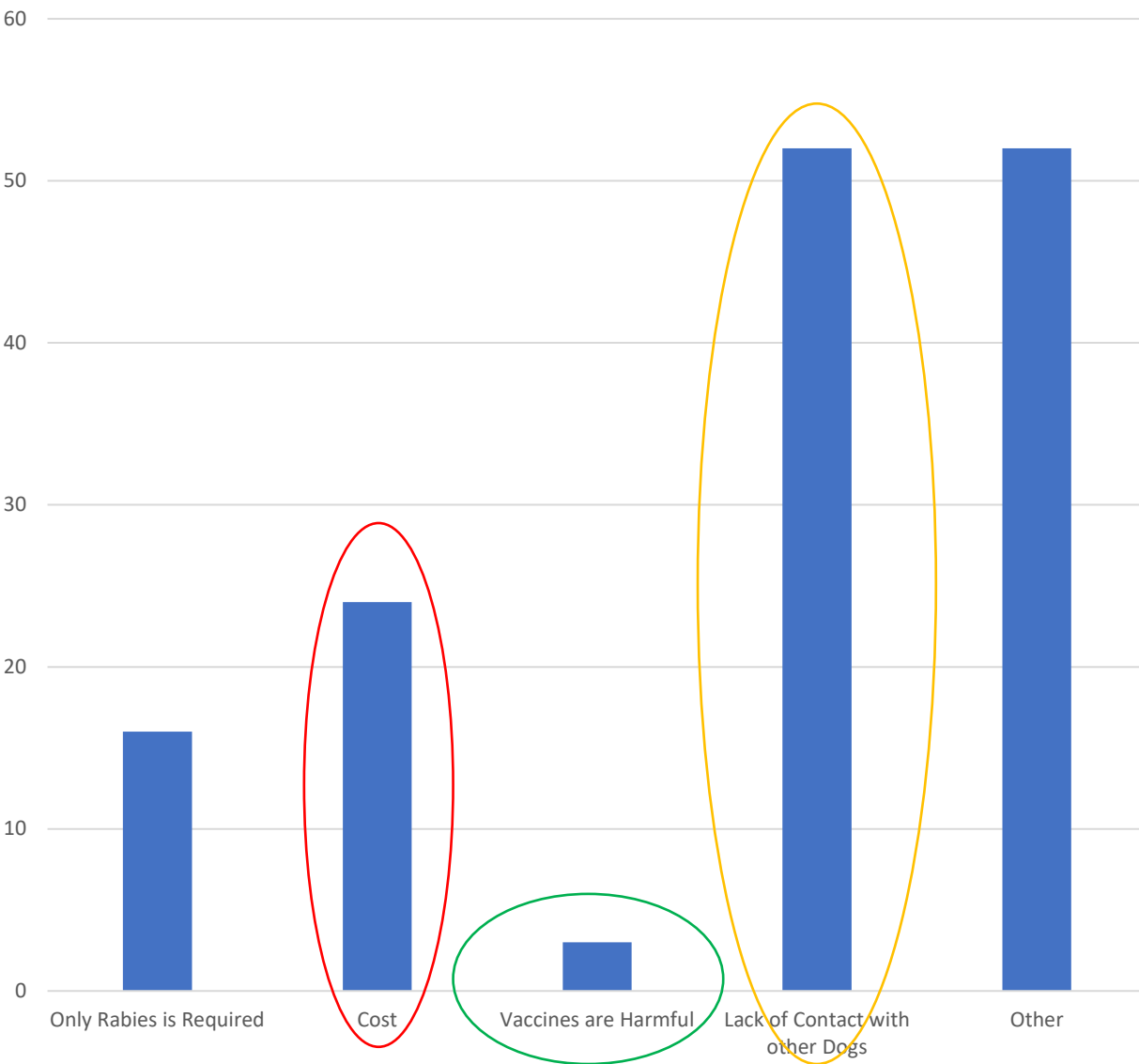
Reasons for Heartworm Non-Prevention



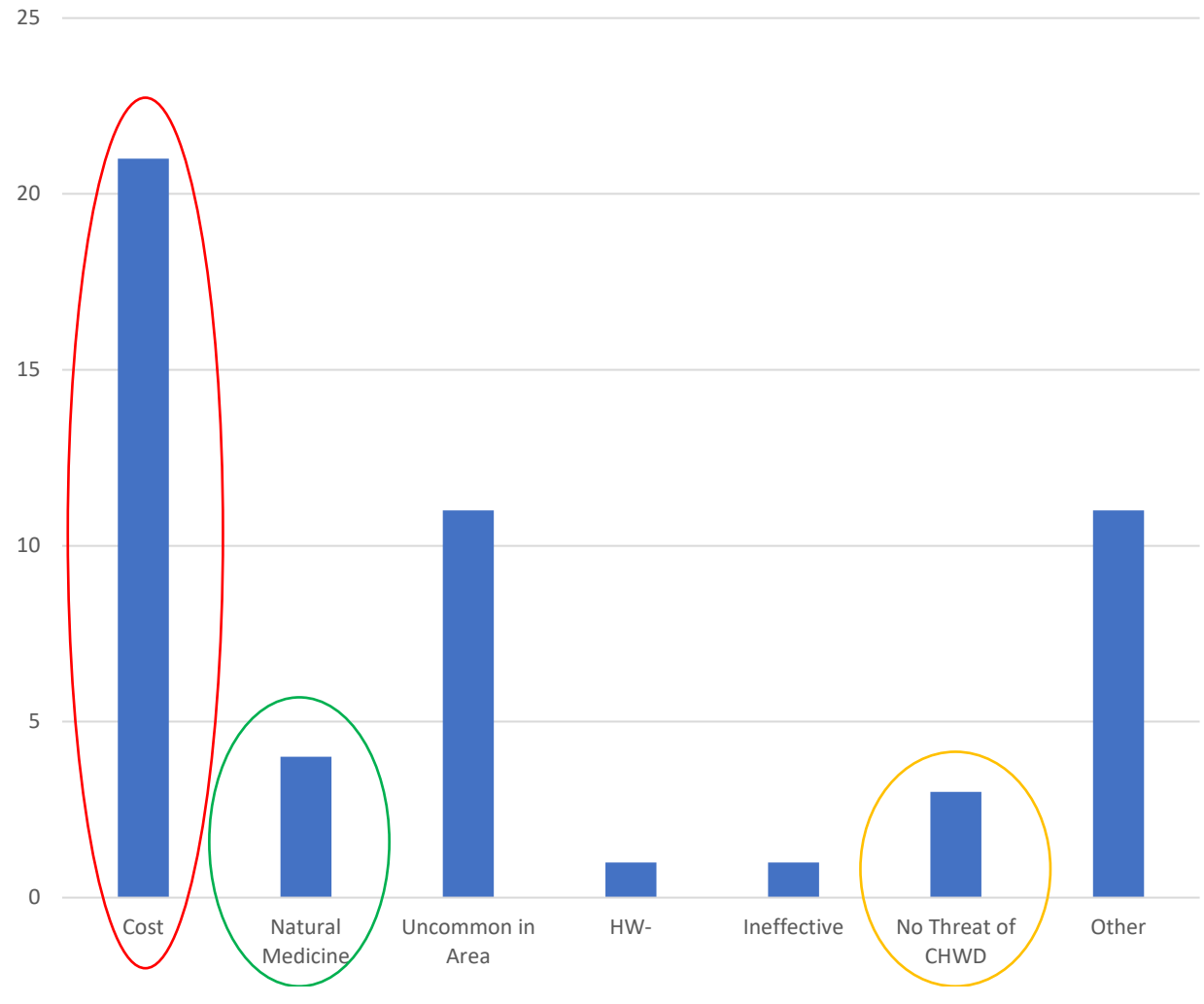
Preventive Care Investment

Dog Veterinary Information			Heartworm Prophylaxis Use	
Veterinarian Visits (n=400)	Number	Percent (%)	Yes (n=344)	No (n=47)
Monthly	20	5	19 (95.0%)	1 (5.0%)
Every Other Month	22	5.5	18 (81.8%)	2 (9.1%)
Every 6 Months	148	37	131 (88.5%)	12 (8.1%)
Once per year	185	46.3	166 (89.7%)	17 (9.2%)
Emergencies Only	15	3.8	6 (40.0%)	8 (53.3%)
Rarely	10	2.5	3 (30.0%)	7 (70.0%)
Vaccines Given (n=400)	Number	Percent (%)		
Rabies	369	92.3	327 (88.6%)	35 (9.5%)
DAPP	346	86.5	310 (89.6%)	30 (8.7%)
Lepto	224	56	211 (94.2%)	7 (3.1%)
Bordetella	269	67.3	248 (92.2%)	16 (5.9%)
None	17	4.3	7 (41.2%)	8 (47.1%)

Reasons for Non-Vaccination



Reasons for Heartworm Non-Prevention



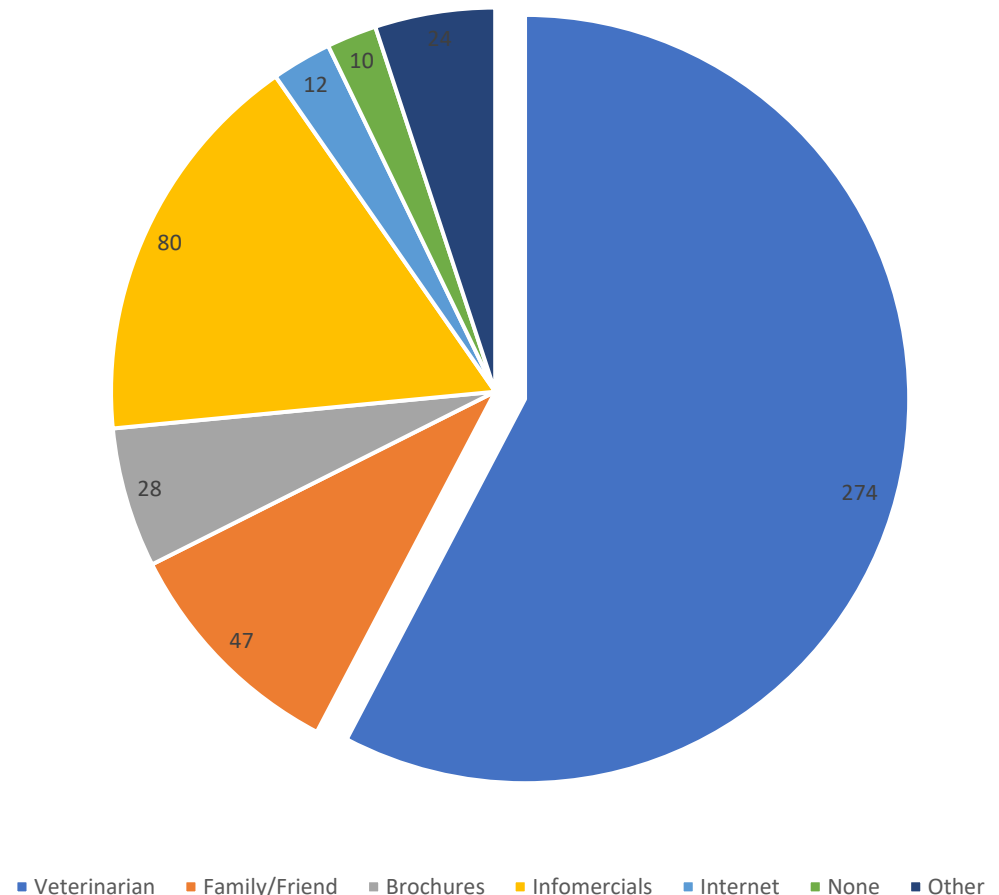
Logistic Regression Model

Logistic Regression Model				
			95% Confidence Interval	
Variable	Significance	Odds Ratio	Lower	Upper
Comprehension of CHWD Transmission	0.033	2.311	1.072	4.983
Rabies or DAPP (single vaccine)	0.024	5.362	1.247	23.054
Rabies and DAPP (both vaccines)	0.004	7.671	1.961	30.01
Lepto and Bordetella (both vaccines)	0.005	3.974	1.518	10.406

Discussion/Conclusions

- Revisiting the Hypothesis:
 - Among dog caretakers in the United States,
 - those that do not use heartworm prophylaxis are more likely to be unaware of the risks of heartworm disease
 - lack adequate forms of obtainable information about heartworm disease
 - and prefer a holistic point of view for prevention of heartworm disease than users of heartworm prophylaxis.
- Importance/Relevance
- Limitations
- Future Studies

Sources of Heartworm Information



Acknowledgements

- Lincoln Memorial University-College of Veterinary Medicine
- Dr. Charles Faulkner-Major Professor
- Dr. Vina Faulkner-Thesis Committee Member
- Dr. Karen Gruszynski-Thesis Committee Member
- Dr. Lauren Wisnieski- Thesis Committee Member
- Dr. Stacy Anderson- Dean of the College of Veterinary Medicine

Questions?