Supplementary Information

Figure S1: Flow diagram depicting process of exclusion of survey responses for analysis. Responses were excluded where a participant filled out the consent form and accessed the survey but did not fill out any subsequent questions.

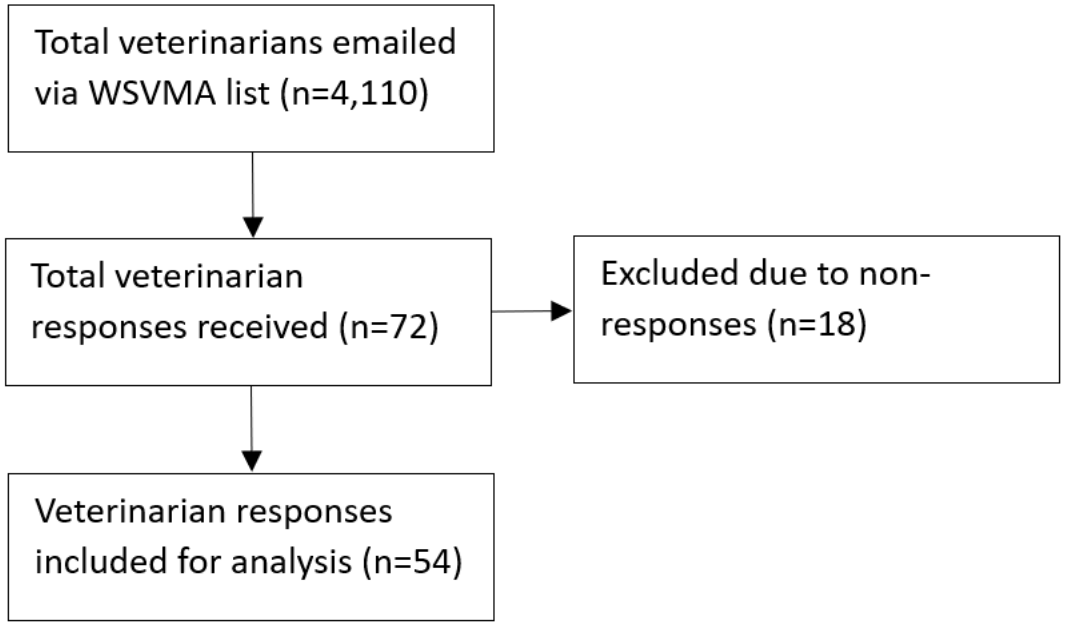

Table S1: Summary Results of Opinion-Based Questions, All Respondents

Prompt:	**In your opinion, which of the following contributes to antibiotic resistant infections in people?**		**Which of the following factors in veterinary medicine do you believe may play a role in antibiotic resistance?**		**Where might you seek continuing education pertaining to antimicrobial use, resistance and/or stewardship?**		**Have you ever prescribed or administered any of the following antibiotics (Select all that apply)?**		**Which veterinary antibiotic use guidelines do you typically refer to?**	
Variable Level:	**Answer**	**Number (%)**	**Answer**	**Number (%)**	**Answer**	**Number (%)**	**Answer**	**Number (%)**	**Answer**	**Number (%)**
	Antibiotic use in human medicine	49 (91)	Owner/producer compliance	46 (85)	In-person continuing education conference	44 (81)	Imipenem, meropenem, ertapenem, doripenem	3 (06)	Organizational antibiotic use guidelines (i.e., AVMA, AAHA, ISCAID)	37 (69)
	Antibiotic use in small animal veterinary medicine	34 (63)	Veterinary medicine prescription practices	42 (78)	Online continuing education conference	47 (87)	Linezolid	2 (04)	Hospital-specific antibiotic use guidelines	7 (13)
	Antibiotic use in food animal veterinary medicine	44 (81)	Client expectations	32 (59)	Journal articles	44 (81)	Oral Polymyxin B	25 (46)	Personally developed antibiotic use guidelines	24 (44)
	Environmental pressure	29 (54)	Prescription of broad spectrum antimicrobial drugs for treatment	39 (72)	ISCAID or similar recommendations	11 (20)	Mupirocin	4 (07)	I generally do not refer to antibiotic use guidelines during my practice.	6 (11)
	Random genetic mutations	29 (54)	Financial constraints	24 (44)	Veterinary teaching hospitals/infectious disease specialists	21 (39)	Injectable aminoglycoside in cattle	2 (04)		
			Restrictions of owner (For example: time available to administer treatment, etc)	27 (50)	Diagnostic labs	18 (33)	Vancomycin	21 (39)		
			Antimicrobial drugs available on site	23 (43)	Textbooks	14 (26)	Ciprofloxacin	8 (15)		
			Lack of veterinary education on antimicrobial use and stewardship	27 (50)	Pharmaceutical representatives	9 (17)	No, I have NOT prescribed or administered any of these antibiotics	14 (26)		

Table S2: Summary Results of Opinion-Based Questions, Small Animal Respondents

Prompt:	**In your opinion, which of the following contributes to antibiotic resistant infections in people?**		**Which of the following factors in veterinary medicine do you believe may play a role in antibiotic resistance?**		**Where might you seek continuing education pertaining to antimicrobial use, resistance and/or stewardship?**		**Have you ever prescribed or administered any of the following antibiotics (Select all that apply)?**		**Which veterinary antibiotic use guidelines do you typically refer to?**	
Variable Level:	**Answer**	**Number (%)**	**Answer**	**Number (%)**	**Answer**	**Number (%)**	**Answer**	**Number (%)**	**Answer**	**Number (%)**
	Antibiotic use in human medicine	43 (93)	Owner/producer compliance	40 (87)	In-person continuing education conference	37 (80)	Imipenem, meropenem, ertapenem, doripenem	3 (07)	Organizational antibiotic use guidelines (i.e., AVMA, AAHA, ISCAID)	35 (76)
	Antibiotic use in small animal veterinary medicine	31 (67)	Veterinary medicine prescription practices	37 (80)	Online continuing education conference	40 (87)	Linezolid	2 (04)	Hospital-specific antibiotic use guidelines	7 (15)
	Antibiotic use in food animal veterinary medicine	38 (70)	Client expectations	28 (61)	Journal articles	38 (70)	Oral Polymyxin B	23 (50)	Personally developed antibiotic use guidelines	20 (43)
	Environmental pressure	25 (54)	Prescription of broad spectrum antimicrobial drugs for treatment	32 (70)	ISCAID or similar recommendations	10 (22)	Mupirocin	3 (07)	I generally do not refer to antibiotic use guidelines during my practice.	3 (07)
	Random genetic mutations	2 (04)	Financial constraints	23 (50)	Veterinary teaching hospitals/infectious disease specialists	20 (43)	Injectable aminoglycoside in cattle	2 (04)		
			Restrictions of owner (For example: time available to administer treatment, etc)	24 (52)	Diagnostic labs	15 (33)	Vancomycin	20 (43)		
			Antimicrobial drugs available on site	19 (41)	Textbooks	12 (26)	Ciprofloxacin	8 (17)		
			Lack of veterinary education on antimicrobial use and stewardship	23 (50)	Pharmaceutical representatives	9 (20)	No, I have NOT prescribed or administered any of these antibiotics	10 (22)		

Table S3: Summary Results of Opinion-Based Questions, Mixed Animal Respondents

Prompt:	**In your opinion, which of the following contributes to antibiotic resistant infections in people?**		**Which of the following factors in veterinary medicine do you believe may play a role in antibiotic resistance?**		**Where might you seek continuing education pertaining to antimicrobial use, resistance and/or stewardship?**		**Have you ever prescribed or administered any of the following antibiotics (Select all that apply)?**		**Which veterinary antibiotic use guidelines do you typically refer to?**	
Variable Level:	**Answer**	**Number (%)**	**Answer**	**Number (%)**	**Answer**	**Number (%)**	**Answer**	**Number (%)**	**Answer**	**Number (%)**
	Antibiotic use in human medicine	15 (88)	Owner/producer compliance	17 (100)	In-person continuing education conference	13 (76)	Imipenem, meropenem, ertapenem, doripenem	0 (0)	Organizational antibiotic use guidelines (i.e., AVMA, AAHA, ISCAID)	11 (65)
	Antibiotic use in small animal veterinary medicine	10 (59)	Veterinary medicine prescription practices	10 (59)	Online continuing education conference	14 (82)	Linezolid	1 (06)	Hospital-specific antibiotic use guidelines	1 (06)
	Antibiotic use in food animal veterinary medicine	10 (59)	Client expectations	9 (53)	Journal articles	15 (88)	Oral Polymyxin B	5 (29)	Personally developed antibiotic use guidelines	5 (29)
	Environmental pressure	10 (59)	Prescription of broad spectrum antimicrobial drugs for treatment	11 (65)	ISCAID or similar recommendations	0 (0)	Mupirocin	2 (12)	I generally do not refer to antibiotic use guidelines during my practice.	2 (12)
	Random genetic mutations	11 (65)	Financial constraints	8 (47)	Veterinary teaching hospitals/infectious disease specialists	6 (35)	Injectable aminoglycoside in cattle	0 (0)		
			Restrictions of owner (For example: time available to administer treatment, etc)	8 (47)	Diagnostic labs	8 (47)	Vancomycin	10 (59)		
			Antimicrobial drugs available on site	8 (47)	Textbooks	2 (12)	Ciprofloxacin	1 (06)		
			Lack of veterinary education on antimicrobial use and stewardship	5 (29)	Pharmaceutical representatives	2 (12)	No, I have NOT prescribed or administered any of these antibiotics	3 (18)		

Table S4: Summary Results of Opinion-Based Questions, Equine Respondents

Prompt:	In your opinion, which of the following contributes to antibiotic resistant infections in people?		Which of the following factors in veterinary medicine do you believe may play a role in antibiotic resistance?		Where might you seek continuing education pertaining to antimicrobial use, resistance and/or stewardship?		Have you ever prescribed or administered any of the following antibiotics (Select all that apply)?		Which veterinary antibiotic use guidelines do you typically refer to?	
Variable Level:	**Answer**	**Number (%)**	**Answer**	**Number (%)**	**Answer**	**Number (%)**	**Answer**	**Number (%)**	**Answer**	**Number (%)**
	Antibiotic use in human medicine	8 (100)	Owner/producer compliance	7 (88)	In-person continuing education conference	7 (88)	Imipenem, meropenem, ertapenem, doripenem	0 (0)	Organizational antibiotic use guidelines (i.e., AVMA, AAHA, ISCAID)	6 (75)
	Antibiotic use in small animal veterinary medicine	6 (75)	Veterinary medicine prescription practices	4 (50)	Online continuing education conference	7 (88)	Linezolid	1 (13)	Hospital-specific antibiotic use guidelines	0 (0)
	Antibiotic use in food animal veterinary medicine	5 (63)	Client expectations	5 (63)	Journal articles	6 (75)	Oral Polymyxin B	2 (25)	Personally developed antibiotic use guidelines	1 (13)
	Environmental pressure	5 (63)	Prescription of broad spectrum antimicrobial drugs for treatment	5 (63)	ISCAID or similar recommendations	0 (0)	Mupirocin	1 (13)	I generally do not refer to antibiotic use guidelines during my practice.	1 (13)
	Random genetic mutations	5 (63)	Financial constraints	2 (25)	Veterinary teaching hospitals/infectious disease specialists	4 (50)	Injectable aminoglycoside in cattle	0 (0)		
			Restrictions of owner (For example: time available to administer treatment, etc)	4 (50)	Diagnostic labs	2 (25)	Vancomycin	3 (38)		
			Antimicrobial drugs available on site	2 (25)	Textbooks	1 (13)	Ciprofloxacin	1 (13)		
			Lack of veterinary education on antimicrobial use and stewardship	2 (25)	Pharmaceutical representatives	0 (0)	No, I have NOT prescribed or administered any of these antibiotics	4 (50)		

Table S5: Summary Results of Opinion-Based Questions, Dairy Cattle Respondents

Prompt:	In your opinion, which of the following contributes to antibiotic resistant infections in people?		Which of the following factors in veterinary medicine do you believe may play a role in antibiotic resistance?		Where might you seek continuing education pertaining to antimicrobial use, resistance and/or stewardship?		Have you ever prescribed or administered any of the following antibiotics (Select all that apply)?		Which veterinary antibiotic use guidelines do you typically refer to?	
Variable Level:	**Answer**	**Number (%)**	**Answer**	**Number (%)**	**Answer**	**Number (%)**	**Answer**	**Number (%)**	**Answer**	**Number (%)**
	Antibiotic use in human medicine	5 (83)	Owner/producer compliance	5 (83)	In-person continuing education conference	5 (83)	Imipenem, meropenem, ertapenem, doripenem	0 (0)	Organizational antibiotic use guidelines (i.e., AVMA, AAHA, ISCAID)	3 (50)
	Antibiotic use in small animal veterinary medicine	4 (67)	Veterinary medicine prescription practices	4 (67)	Online continuing education conference	6 (100)	Linezolid	0 (0)	Hospital-specific antibiotic use guidelines	0 (0)
	Antibiotic use in food animal veterinary medicine	5 (83)	Client expectations	5 (83)	Journal articles	4 (67)	Oral Polymyxin B	0 (0)	Personally developed antibiotic use guidelines	4 (67)
	Environmental pressure	4 (67)	Prescription of broad spectrum antimicrobial drugs for treatment	5 (83)	ISCAID or similar recommendations	1 (17)	Mupirocin	1 (17)	I generally do not refer to antibiotic use guidelines during my practice.	1 (17)
	Random genetic mutations	5 (83)	Financial constraints	2 (33)	Veterinary teaching hospitals/infectious disease specialists	2 (33)	Injectable aminoglycoside in cattle	0 (0)		
			Restrictions of owner (For example: time available to administer treatment, etc)	3 (50)	Diagnostic labs	2 (33)	Vancomycin	0 (0)		
			Antimicrobial drugs available on site	3 (50)	Textbooks	1 (17)	Ciprofloxacin	0 (0)		
			Lack of veterinary education on antimicrobial use and stewardship	3 (50)	Pharmaceutical representatives	0 (0)	No, I have NOT prescribed or administered any of these antibiotics	5 (83)		

Table S6: Summary results of Likert scale question for all respondents. This question asked whether the following factors influence how antimicrobials are prescribed in their practice.

	Strongly Disagree (%)	Somewhat Disagree (%)	Neither Agree nor Disagree (%)	Somewhat Agree (%)	Strongly Agree (%)
Client expectations of receiving antibiotics influence the way I prescribe antimicrobials.	15 (28)	18 (33)	7 (13)	12 (22)	2 (04)
Client ability to medicate influences the way I prescribe antimicrobials.	1 (02)	1 (02)	1 (02)	30 (56)	21 (39)
Client finances influence the way I prescribe antimicrobials.	6 (11)	4 (07)	6 (11)	32 (59)	6 (11)
When prescribing antimicrobials, the stock of readily available antimicrobials (e.g. the formulary of my in-clinic pharmacy, availability from pharmaceutical company) impacts which antibiotic I decide to prescribe.	4 (07)	4 (07)	7 (13)	24 (44)	15 (28)
Preference for certain antibiotics impacts which antimicrobial I select to prescribe.	0 (0)	5 (09)	13 (24)	22 (41)	14 (26)
Consideration of antimicrobial resistance influences the manner in which I prescribe antimicrobials.	1 (02)	1 (02)	4 (07)	29 (54)	19 (35)
Training that I have received in veterinary school influences the manner in which I prescribe antimicrobials.	1 (02)	11 (20)	10 (19)	18 (33)	14 (26)

Table S7: Summary results of Likert scale question for small animal respondents. This question asked whether the following factors influence how antimicrobials are prescribed in their practice.

	Strongly Disagree (%)	Somewhat Disagree (%)	Neither Agree nor Disagree (%)	Somewhat Agree (%)	Strongly Agree (%)
Client expectations of receiving antibiotics influence the way I prescribe antimicrobials.	12 (26)	17 (37)	6 (13)	10 (22)	1 (02)
Client ability to medicate influences the way I prescribe antimicrobials.	1 (02)	1 (02)	1 (02)	27 (59)	16 (35)
Client finances influence the way I prescribe antimicrobials.	5 (11)	3 (07)	4 (09)	29 (63)	5 (11)
When prescribing antimicrobials, the stock of readily available antimicrobials (e.g. the formulary of my in-clinic pharmacy, availability from pharmaceutical company) impacts which antibiotic I decide to prescribe.	3 (07)	3 (07)	6 (13)	22 (49)	12 (26)
Preference for certain antibiotics impacts which antimicrobial I select to prescribe.	0 (0)	5 (11)	12 (26)	18 (39)	11 (24)
Consideration of antimicrobial resistance influences the manner in which I prescribe antimicrobials.	1 (02)	1 (02)	2 (04)	26 (57)	16 (35)
Training that I have received in veterinary school influences the manner in which I prescribe antimicrobials.	0 (0)	10 (22)	8 (17)	16 (35)	12 (26)

Table S8: Summary results of Likert scale question for mixed animal respondents. This question asked whether the following factors influence how antimicrobials are prescribed in their practice.

	Strongly Disagree (%)	Somewhat Disagree (%)	Neither Agree nor Disagree (%)	Somewhat Agree (%)	Strongly Agree (%)
Client expectations of receiving antibiotics influence the way I prescribe antimicrobials.	5 (29)	5 (29)	3 (18)	4 (24)	0 (0)
Client ability to medicate influences the way I prescribe antimicrobials.	0 (0)	0 (0)	1 (06)	9 (53)	7 (41)
Client finances influence the way I prescribe antimicrobials.	1 (06)	0 (0)	1 (06)	13 (76)	2 (12)
When prescribing antimicrobials, the stock of readily available antimicrobials (e.g. the formulary of my in-clinic pharmacy, availability from pharmaceutical company) impacts which antibiotic I decide to prescribe.	0 (0)	2 (12)	3 (18)	7 (44)	5 (28)
Preference for certain antibiotics impacts which antimicrobial I select to prescribe.	0 (0)	3 (09)	4 (24)	9 (53)	1 (06)
Consideration of antimicrobial resistance influences the manner in which I prescribe antimicrobials.	0 (0)	0 (0)	2 (12)	11 (65)	4 (24)
Training that I have received in veterinary school influences the manner in which I prescribe antimicrobials.	0 (0)	3 (18)	3 (18)	9 (53)	2 (12)

Table S9: Summary results of likert scale question for equine respondents. This question asked whether the following factors influence how antimicrobials are prescribed in their practice.

	Strongly Disagree (%)	Somewhat Disagree (%)	Neither Agree nor Disagree (%)	Somewhat Agree (%)	Strongly Agree (%)
Client expectations of receiving antibiotics influence the way I prescribe antimicrobials.	3 (38)	3 (38)	1 (13)	1 (13)	0 (0)
Client ability to medicate influences the way I prescribe antimicrobials.	0 (0)	0 (0)	0 (0)	6 (75)	2 (25)
Client finances influence the way I prescribe antimicrobials.	1 (13)	0 (0)	0 (0)	7 (88)	0 (0)
When prescribing antimicrobials, the stock of readily available antimicrobials (e.g. the formulary of my in-clinic pharmacy, availability from pharmaceutical company) impacts which antibiotic I decide to prescribe.	0 (0)	0 (0)	2 (25)	4 (50)	2 (25)
Preference for certain antibiotics impacts which antimicrobial I select to prescribe.	0 (0)	2 (25)	2 (25)	4 (50)	0 (0)
Consideration of antimicrobial resistance influences the manner in which I prescribe antimicrobials.	0 (0)	0 (0)	1 (13)	3 (38)	4 (50)
Training that I have received in veterinary school influences the manner in which I prescribe antimicrobials.	0 (0)	2 (25)	1 (13)	3 (38)	2 (25)

Table S10: Summary results of likert scale question for dairy cattle respondents. This question asked whether the following factors influence how antimicrobials are prescribed in their practice.

	Strongly Disagree (%)	Somewhat Disagree (%)	Neither Agree nor Disagree (%)	Somewhat Agree (%)	Strongly Agree (%)
Client expectations of receiving antibiotics influence the way I prescribe antimicrobials.	1 (17)	2 (33)	0 (0)	2 (33)	1 (17)
Client ability to medicate influences the way I prescribe antimicrobials.	0 (0)	0 (0)	0 (0)	2 (33)	4 (67)
Client finances influence the way I prescribe antimicrobials.	1 (17)	1 (17)	1 (17)	3 (50)	0 (0)
When prescribing antimicrobials, the stock of readily available antimicrobials (e.g. the formulary of my in-clinic pharmacy, availability from pharmaceutical company) impacts which antibiotic I decide to prescribe.	1 (17)	1 (17)	0 (0)	1 (17)	3 (50)
Preference for certain antibiotics impacts which antimicrobial I select to prescribe.	0 (0)	0 (0)	1 (17)	4 (67)	1 (17)
Consideration of antimicrobial resistance influences the manner in which I prescribe antimicrobials.	0 (0)	0 (0)	1 (17)	3 (50)	2 (33)
Training that I have received in veterinary school influences the manner in which I prescribe antimicrobials.	0 (0)	1 (17)	1 (17)	1 (17)	3 (5)

Table S11: Corrected p-values for the association between which of the following factors plays a role in antibiotic resistance and answers to each scenario question for small and mixed animal veterinarians. Chi-squared tests were used for individual scenario questions and linear models were used for associations with total score. P-values were corrected using the Bonferroni method.

	Owner/producer compliance		Veterinary medicine prescription practices		Client expectations		Prescription of broad spectrum antimicrobial drugs for treatment		Financial constraints		Restrictions of owner (For example: time available to administer treatment, etc)		Antimicrobial drugs available on site		Lack of veterinary education on antimicrobial use and stewardship	
	statistic	**p-value (adjusted)**	**statistic**	**p-value (adjusted)**	**statistic**	**P-value (adjusted)**	**statistic**	**p-value (adjusted)**	**statistic**	**p-value (adjusted)**	**statistic**	**p-value (adjusted)**	**statistic**	**p-value (adjusted)**	**statistic**	**p-value (adjusted)**
Small animal																
Kitten case	0 (1, 46)	1.0	0.08 (1, 46)	1.0	1.25 (1, 46)	0.78	0.18 (1, 46)	1.0	2.40 (1, 46)	0.36	0.01 (1, 46)	1.0	0.31 (1, 46)	1.0	0.10 (1, 46)	1.0
Dog case	0.04 (1, 46)	1.0	0.001 (1, 46)	1.0	0.0 (1, 46)	1.0	0.15 (1, 46)	1.0	1.7156 (1, 46)	0.57	0.71 (1, 46)	1.0	1.55 (1, 46)	0.63	0 (1, 46)	1.0
Cat case	0.25 (1, 46)	1.0	0.67 (1, 46)	1.0	0.18 (1, 46)	1.0	1.14 (1, 46)	0.87	0.20 (1, 46)	1.0	0.20 (1, 46)	1.0	5.23 (1, 46)	0.06*	0.20 (1, 46)	1.0
Summation score	0.06 (0.3565)	1.0	0.28 (0.3001)	1.0	-0.09 (0.24708)	1.0	0.46 (0.2523)	0.21	0.05 (0.24243)	1.0	0.23 (0.2401)	1.0	0.47 (0.2350)	0.15	NA	NA
Mixed animal																
Goat case	NA	NA	0 (1, 15)	1.0	4.05 (1, 15)	0.08*	0.04 (1, 15)	1.0	0 (1, 15)	1.0	0.84 (1, 15)	0.72	0.03 (1, 15)	1.0	0.04 (1, 15)	1.0
Backyard chicken case	NA	NA	0.17 (1, 16)	1.0	0.27 (1, 16)	1.0	0.64 (1, 16)	1.0	0.27 (1, 16)	1.0	0 (1, 16)	1.0	0.83 (1, 16)	0.72	0.48 (1, 16)	0.98
Summation score	NA	NA	0.11 (0.3837)	1.0	0.84 (0.2978)	0.04*	.50 (0.3752)	0.42	0.23 (0.3724)	1.0	0.23 (0.3724)	1.0	0.50 (0.3516)	0.36	.1000 (0.3990)	1.0

Table S12: Corrected p-values for the association between veterinary antibiotic use guidelines used and answers to each scenarios question for small and mixed animal veterinarians. Chi-squared tests were used for individual scenario questions and linear models were used for associations with total score. P-values were corrected using the Bonferroni method.

	Organizational antibiotic use guidelines (i.e., AVMA, AAHA, ISCAID)		Hospital-specific antibiotic use guidelines		Personally developed antibiotic use guidelines		I generally do not refer to antibiotic use guidelines during my practice	
	statistic	**p-value (adjusted)**	**statistic**	**p-value (adjusted)**	**statistic**	**P-value (adjusted)**	**statistic**	**p-value (adjusted)**
Small animal								
Kitten case	0.0 (1, 46)	1.0	0 (1, 46)	1.0	0.8273 (1, 46)	1.0	0.46431 (1, 46)	1.0
Dog case	0.090237 (1, 46)	1.0	0.22624 (1, 46)	1.0	0.57923 (1, 46)	1.0	0.21279 (1, 46)	1.0
Cat case	0.0 (1, 46)	1.0	0.78644 (1, 46)	1.0	0 (1, 46)	1.0	3.2228e-30 (1, 46)	1.0
Summation score	0.09358 (0.28176)	1.0	-0.3759 (0.3296)	0.78	0.3745 (0.2387)	0.36	0.8333 (0.4691)	0.24
Mixed animal								
Goat case	1.8375 (1, 15)	0.36	0.0 (1, 15)	1.0	0.0375 (1, 15)	1.0	0.072115 (1, 15)	1.0
Backyard chicken case	0.071111 (1, 16)	1.0	0.071111 (1, 16)	1.0	0.17455 (1, 16)	1.0	1.3714 (1, 16)	0.72
Summation score	0.2000 (0.3961)	1.0	0.2857 (0.7518)	1.0	-0.6591 (0.3852)	0.33	0.3077 (0.5481)	0.58

R-code:

Notes:

-deleted responses that were not completed in Excel (exclusion criteria in thesis written document), then imported the data afterwards

- R version used: 4.1.1

To import data set:

```
coeamrdata <- read.csv("C:\\Users\\eliza\\Desktop\\Thesis Data\\vetamrdata.csv")
```

Load in packages if needed:

```
if(!require(pacman)) install.packages('pacman', repos = 'https://cloud.r-project/org')
library(dplyr)
```

Subsetting data based on "animal type" selected:

```
smallanimalqs <- coeamrdata %>% filter(coeamrdata$type_species___1 == 1 | type_species___2 == 1)
> backyardqs <- coeamrdata %>% filter(coeamrdata$type_species___3 == 1)
> commpoultryqs <- coeamrdata %>% filter(coeamrdata$type_species___4 == 1)
> dairyqs <- coeamrdata %>% filter(coeamrdata$type_species___5 == 1)
> cattleqs <- coeamrdata %>% filter(coeamrdata$type_species___6 == 1)
> equineqs <- coeamrdata %>% filter(coeamrdata$type_species___7 == 1)
```

Demographics Information:

1. Clean up Vet School Free Response

```
table(coeamrdata$vet_school)
coeamrdata$vet_school <- replace(coeamrdata$vet_school, coeamrdata$vet_school=="Uw madison", "University of Wisconsin Madison")
> coeamrdata$vet_school <- replace(coeamrdata$vet_school, coeamrdata$vet_school=="Uw madison svm", "University of Wisconsin Madison")
```

```
> coeamrdata$vet_school <- replace(coeamrdata$vet_school, coeamrdata$vet_school=="niversity of Florida College of Veterinary Medicine", "University of Florida")

> coeamrdata$vet_school <- replace(coeamrdata$vet_school, coeamrdata$vet_school=="wsu", "Washington State University")

> coeamrdata$vet_school <- replace(coeamrdata$vet_school, coeamrdata$vet_school=="WSU", "Washington State University")

> coeamrdata$vet_school <- replace(coeamrdata$vet_school, coeamrdata$vet_school=="WSU/USU", "Washington State University")

> coeamrdata$vet_school <- replace(coeamrdata$vet_school, coeamrdata$vet_school=="Washington State", "Washington State University")

> coeamrdata$vet_school <- replace(coeamrdata$vet_school, coeamrdata$vet_school=="university of Missouri ", "University of Missouri")

> coeamrdata$vet_school <- replace(coeamrdata$vet_school, coeamrdata$vet_school=="UCDavis", "UC Davis")

> coeamrdata$vet_school <- replace(coeamrdata$vet_school, coeamrdata$vet_school=="Minnesota", "University of Minnesota")

> coeamrdata$vet_school <- replace(coeamrdata$vet_school, coeamrdata$vet_school=="The Ohio State University College of Veterinary Medicine ", "Ohio State University")

> coeamrdata$vet_school <- replace(coeamrdata$vet_school, coeamrdata$vet_school=="oregon state university", "Oregon State University")

> coeamrdata$vet_school <- replace(coeamrdata$vet_school, coeamrdata$vet_school=="oregon state university", "Oregon State University")

> coeamrdata$vet_school <- replace(coeamrdata$vet_school, coeamrdata$vet_school=="Oregon State university/Washington State University", "Oregon State University")
```

2. Convert vet school attended into COE regions

Use the same function as above, but instead change "Oregon State University" to "Colorado" etc

```
smallanimalqs$vet_school <- replace(smallanimalqs$vet_school, smallanimalqs$vet_school=="Colorado State University", "Colorado COE")

> smallanimalqs$vet_school <- replace(smallanimalqs$vet_school, smallanimalqs$vet_school=="Kansas State", "Colorado COE")

> smallanimalqs$vet_school <- replace(smallanimalqs$vet_school, smallanimalqs$vet_school=="Oklahoma State University", "Colorado COE")

> smallanimalqs$vet_school <- replace(smallanimalqs$vet_school, smallanimalqs$vet_school=="Midwestern University", "Colorado COE")

> smallanimalqs$vet_school <- replace(smallanimalqs$vet_school, smallanimalqs$vet_school=="University of Minnesota", "Minnesota COE")
```

```
> smallanimalqs$vet_school <- replace(smallanimalqs$vet_school, smallanimalqs$vet_school=="University of Wisconsin Madison", "Minnesota COE")

> smallanimalqs$vet_school <- replace(smallanimalqs$vet_school, smallanimalqs$vet_school=="Ohio State University", "Minnesota COE")

> smallanimalqs$vet_school <- replace(smallanimalqs$vet_school, smallanimalqs$vet_school=="Ohio State University", "Minnesota COE")

> smallanimalqs$vet_school <- replace(smallanimalqs$vet_school, smallanimalqs$vet_school=="University of Illinois", "Minnesota COE")

> smallanimalqs$vet_school <- replace(smallanimalqs$vet_school, smallanimalqs$vet_school=="University of Missouri", "Minnesota COE")

> smallanimalqs$vet_school <- replace(smallanimalqs$vet_school, smallanimalqs$vet_school=="Virginia-Maryland", "New York COE")

> smallanimalqs$vet_school <- replace(smallanimalqs$vet_school, smallanimalqs$vet_school=="Cornell", "New York COE")

> smallanimalqs$vet_school <- replace(smallanimalqs$vet_school, smallanimalqs$vet_school=="Tufts University", "New York COE")

> smallanimalqs$vet_school <- replace(smallanimalqs$vet_school, smallanimalqs$vet_school=="University Pennsylvania", "New York COE")

> smallanimalqs$vet_school <- replace(smallanimalqs$vet_school, smallanimalqs$vet_school=="University of Florida", "Tennessee COE")

> smallanimalqs$vet_school <- replace(smallanimalqs$vet_school, smallanimalqs$vet_school=="Auburn", "Tennessee COE")

> smallanimalqs$vet_school <- replace(smallanimalqs$vet_school, smallanimalqs$vet_school=="UC Davis", "Washington COE")

> smallanimalqs$vet_school <- replace(smallanimalqs$vet_school, smallanimalqs$vet_school=="Oregon State University", "Washington COE")

> smallanimalqs$vet_school <- replace(smallanimalqs$vet_school, smallanimalqs$vet_school=="Washington State University", "Washington COE")

> smallanimalqs$vet_school <- replace(smallanimalqs$vet_school, smallanimalqs$vet_school=="Armenia", "Other")

> smallanimalqs$vet_school <- replace(smallanimalqs$vet_school, smallanimalqs$vet_school=="Ross ", "Other")

> smallanimalqs$vet_school <- replace(smallanimalqs$vet_school, smallanimalqs$vet_school=="Latvian University of Agriculture ", "Other")

> smallanimalqs$vet_school <- replace(smallanimalqs$vet_school, smallanimalqs$vet_school=="University of Adelaide", "Other")
```

3. Get basic info on the numbers for demo qs/variables

table(coeamrdata$years_practice)

table(coeamrdata$type_vet)

table(coeamrdata$role)

table(coeamrdata$vet_school)

table(coeamrdata$type_species1,2,3,4,5...)

Converted numbers to percentage**

Creating a variable for "correct" vs. incorrect within the data frames:

```
>smallanimalqs <- smallanimalqs %>% mutate(cat_case_wr = ifelse(cat_case == 3, "1", "0"))

>smallanimalqs <- smallanimalqs %>% mutate(dog_case_wr = ifelse(dog_case == 4, "1", "0"))
>smallanimalqs <- smallanimalqs %>% mutate(kitten_case_wr = ifelse(kitten_case == 4, "1", "0"))
>equineqs <- equineqs %>% mutate(horse1_case_wr = ifelse(horse1_case == 3 | horse1_case == 4, "1", "0"))
> equineqs <- equineqs  %>% mutate(horse2_case_wr = ifelse(horse2_case == 3 | horse2_case == 4, "1", "0"))
> dairyqs <- dairyqs %>% mutate(heif1_dc_case_wr = ifelse(heif1_dc_case == 3, "1", "0"))
> dairyqs <- dairyqs %>% mutate(heif2_dc_case_wr = ifelse(heif2_dc_case == 2, "1", "0"))
> dairyqs <- dairyqs %>% mutate(heif3_dc_case_wr = ifelse(heif3_dc_case == 1 | heif3_dc_case == 3, "1", "0"))
> dairyqs <- dairyqs %>% mutate(cow_dc_case_wr = ifelse(cow_dc_case == 4, "1", "0"))
> cattleqs <- cattleqs %>% mutate(calf1_fl_case_wr = ifelse(calf1_fl_case == 2 | calf1_fl_case == 4, "1", "0"))
> cattleqs <- cattleqs %>% mutate(ang_heif_fl_case_wr = ifelse(ang_heif_fl_case == 2 | ang_heif_fl_case == 4, "1", "0"))
> cattleqs <- cattleqs %>% mutate(steer_fl_case_wr = ifelse(steer_fl_case == 3, "1", "0"))
> backyardqs <- backyardqs %>% mutate(chick1_by_case_wr = ifelse(chick1_by_case == 3 | chick1_by_case == 4, "1", "0"))
```

```
> backyardqs <- backyardqs %>% mutate(goat_case_wr = ifelse(goat_case == 4, "1", "0"))
> commpoultryqs <- commpoultryqs %>% mutate(poultry_case_wr = ifelse(poultry_case == 1, "correct", "incorrect"))
```

Create Summation Score for Small and Mixed Animal Questions, respectively:

summation score w NA values:

```
> by_sum <- data.frame(backyardqs$goat_case_wr, backyardqs$chick1_by_case_wr)
> by_sum <- by_sum[complete.cases(by_sum), ]
> by_sum$backyardqs.goat_case_wr <- as.numeric(by_sum$backyardqs.goat_case_wr)
> by_sum$backyardqs.chick1_by_case_wr <- as.numeric(by_sum$backyardqs.chick1_by_case_wr)
> by_sum$sum_wr <- rowSums(by_sum)

> small_sum <- data.frame(smallanimalqs$cat_case_wr, smallanimalqs$dog_case_wr, smallanimalqs$kitten_case_wr)
> small_sum <- small_sum[complete.cases(small_sum), ]
> small_sum$smallanimalqs.cat_case_wr <- as.numeric(small_sum$smallanimalqs.cat_case_wr)
> small_sum$smallanimalqs.dog_case_wr <- as.numeric(small_sum$smallanimalqs.dog_case_wr)
> small_sum$smallanimalqs.kitten_case_wr <- as.numeric(small_sum$smallanimalqs.kitten_case_wr)
> small_sum$sum_wr <- rowSums(small_sum)
> small_sum2 <- data.frame(smallanimalqs$cat_case_wr, smallanimalqs$dog_case_wr, smallanimalqs$kitten_case_wr)
> small_sum2 <- small_sum2[complete.cases(small_sum2), ]
> small_sum2$smallanimalqs.cat_case_wr <- as.numeric(small_sum2$smallanimalqs.cat_case_wr)
> small_sum2$smallanimalqs.dog_case_wr <- as.numeric(small_sum2$smallanimalqs.dog_case_wr)
> small_sum2$smallanimalqs.kitten_case_wr <- as.numeric(small_sum2$smallanimalqs.kitten_case_wr)
```

```
> smallanimalqs$summ_wr <- c(small_sum$sum_wr, NA)

> t.test(smallanimalqs$summ_wr ~ smallanimalqs$vet_amr___7, data = smallanimalqs)
```

Adjust Likert Scale Question (combining Strongly Disagree and Disagree → Disagree and Strongly Agree and Agree → Agree):

```
> likert_scale_q <- data.frame(coeamrdata$finance_rx, coeamrdata$expect_rx, coeamrdata$access_rx, coeamrdata$preference_rx,
coeamrdata$amr_rx, coeamrdata$train_rx, coeamrdata$dispense_rx)

> likert_function_2 <- function(x) {

+    +    ifelse(x %in% c(1, 2), 1,

+              +          ifelse(x == 3, 2,

+                              +              ifelse(x %in% c(4, 5), 3, NA)))

+

> likert_function <- function(x) {

+    ifelse(x %in% c(1, 2), 1,

+          ifelse(x == 3, 2,

+               ifelse(x %in% c(4, 5), 3, NA)))

+ }

> likert_scale_q_applied <- as.data.frame(lapply(likert_scale_q, likert_function))

> View(likert_scale_q_applied)

> small_animal_likert_scale_q <- data.frame(smallanimalqs$expect_rx, smallanimalqs$dispense_rx, smallanimalqs$finance_rx,
smallanimalqs$access_rx, smallanimalqs$preference_rx, smallanimalqs$amr_rx, smallanimalqs$train_rx)

> small_animal_likert_scale_q_applied <- as.data.frame(lapply(small_animal_likert_scale_q, likert_function))

> mixed_animal_likert_scale_q <- data.frame(backyardqs$expect_rx, backyardqs$dispense_rx, backyardqs$finance_rx, backyardqs$access_rx,
backyardqs$preference_rx, backyardqs$amr_rx, backyardqs$train_rx)
```

```
> mixed_animal_likert_scale_q_applied <- as.data.frame(lapply(mixed_animal_likert_scale_q, likert_function))

> equine_animal_likert_scale_q <- data.frame(equineqs$expect_rx, equineqs$dispense_rx, equineqs$finance_rx, equineqs$access_rx,
equineqs$preference_rx, equineqs$amr_rx, equineqs$train_rx)

> equine_animal_likert_scale_q_applied <- as.data.frame(lapply(equine_animal_likert_scale_q, likert_function))

> View(small_animal_likert_scale_q_applied)

> small_animal_likert_scale_q_applied$smallanimalqs.expect_rx <- as.factor(small_animal_likert_scale_q_applied$smallanimalqs.expect_rx)

> small_animal_likert_scale_q_applied$smallanimalqs.dispense_rx <- as.factor(small_animal_likert_scale_q_applied$smallanimalqs.dispense_rx)

> small_animal_likert_scale_q_applied$smallanimalqs.finance_rx <- as.factor(small_animal_likert_scale_q_applied$smallanimalqs.finance_rx)

> small_animal_likert_scale_q_applied$smallanimalqs.access_rx <- as.factor(small_animal_likert_scale_q_applied$smallanimalqs.access_rx)

> small_animal_likert_scale_q_applied$smallanimalqs.preference_rx <-
as.factor(small_animal_likert_scale_q_applied$smallanimalqs.preference_rx)

> small_animal_likert_scale_q_applied$smallanimalqs.amr_rx <- as.factor(small_animal_likert_scale_q_applied$smallanimalqs.amr_rx)

> small_animal_likert_scale_q_applied$smallanimalqs.train_rx <- as.factor(small_animal_likert_scale_q_applied$smallanimalqs.train_rx)

> mixed_animal_likert_scale_q_applied$backyardqs.expect_rx <- as.factor(mixed_animal_likert_scale_q_applied$backyardqs.expect_rx)

> mixed_animal_likert_scale_q_applied$backyardqs.dispense_rx <- as.factor(mixed_animal_likert_scale_q_applied$backyardqs.dispense_rx)

> mixed_animal_likert_scale_q_applied$backyardqs.finance_rx <- as.factor(mixed_animal_likert_scale_q_applied$backyardqs.finance_rx)

> mixed_animal_likert_scale_q_applied$backyardqs.access_rx <- as.factor(mixed_animal_likert_scale_q_applied$backyardqs.access_rx)

> mixed_animal_likert_scale_q_applied$backyardqs.preference_rx <- as.factor(mixed_animal_likert_scale_q_applied$backyardqs.preference_rx)

> mixed_animal_likert_scale_q_applied$backyardqs.amr_rx <- as.factor(mixed_animal_likert_scale_q_applied$backyardqs.amr_rx)

> mixed_animal_likert_scale_q_applied$backyardqs.train_rx <- as.factor(mixed_animal_likert_scale_q_applied$backyardqs.train_rx)

> equine_animal_likert_scale_q_applied$equineqs.expect_rx <- as.factor(equine_animal_likert_scale_q_applied$equineqs.expect_rx)
```

> equine_animal_likert_scale_q_applied$equineqs.dispense_rx <- as.factor(equine_animal_likert_scale_q_applied$equineqs.dispense_rx)

> equine_animal_likert_scale_q_applied$equineqs.finance_rx <- as.factor(equine_animal_likert_scale_q_applied$equineqs.finance_rx)

> equine_animal_likert_scale_q_applied$equineqs.access_rx <- as.factor(equine_animal_likert_scale_q_applied$equineqs.access_rx)

> equine_animal_likert_scale_q_applied$equineqs.preference_rx <- as.factor(equine_animal_likert_scale_q_applied$equineqs.preference_rx)

> equine_animal_likert_scale_q_applied$equineqs.amr_rx <- as.factor(equine_animal_likert_scale_q_applied$equineqs.amr_rx)

> equine_animal_likert_scale_q_applied$equineqs.train_rx <- as.factor(equine_animal_likert_scale_q_applied$equineqs.train_rx)

Run Chi Sq and Linear Regression:

1. Ensure variables are factors:

dataset_name$variable_name<-as.factor(dataset_name$variable_name)

2. Run chi-square test

chi.sq(dataset_name$variable_name1, dataset_name$variable_name2)

3. Run linear regression

>variable_name_linear_model <- lm(dataset_name$variable_name1~dataset_name$variable_name2)

> summary(variable_name_linear_model)

4. Run t-test for linear regression

ttest(response variable, independent variable, data= ____)

- Response variable: Summation score or correct/incorrect for scenario based question
- Independent variable: Answer (selected y/n) for an opinion-based question or answer to Likert scale question

Data Dictionary Codebook

05/10/2023 11:19am

#	Variable / Field Name	Field Label *Field Note*	Field Attributes (Field Type, Validation, Choices, Calculations, etc.)
Instrument: Informationscreening (informationscreening) **Enabled as survey**			
1	[record_id]	Record ID	text
2	[infosheet]	Evaluating antimicrobial usage practices in small and large animal veterinary medicine: Washington Integrated Food Safety Center of Excellence (CoE) and Washington Animal Disease Diagnostic Laboratory (WADDL) are conducting a survey to evaluate veterinarian prescription practices in Washington State. We will be collecting surveys from all veterinarians currently providing care in Washington State. What does this study involve? The one-time survey should take approximately 10-15 minutes and will comprise 2-3 scenario based questions, demographic questions and opinion based questions. Responses will be kept confidential and participation in the survey is voluntary. Who is eligible to participate?Any small or large animal veterinarian currently practicing in Washington State is eligible to participate. What are the benefits for participating?The results of this study will be used to inform the creation of best practice recommendations to be used in the veterinary community. Will there be compensation for my time?Your name will be entered in a raffle to receive a $50 tango gift card. We will ask for your email address at the conclusion of the survey which will only be used for the purpose of sending you a gift card, should you win. You may also opt in to receiving follow up information, including a summary of our findings from the survey. For additional information or questions contact Dr. Erica Fuhrmeister at efuhrm@uw.edu.	descriptive

		Click "Next" to see if you are eligible to participate in this study.	
3	[screen_practicing]	Section Header: *These questions are designed to see if you are eligible to participate in this study.* Are you actively practicing veterinary medicine in Washington State?	radio, Required 1, Yes, I am actively practicing veterinary medicine in Washington State 2, I am actively practicing veterinary medicine but in another state 3, I am a retired Washington State veterinarian 4, I am not a licensed veterinarian
4	[recruit_type]	How did you hear about this study?	radio 1, Through WSVMA 2, From a colleague 3, Through social media 4, Other
5	[recruit_other] Show the field ONLY if: [recruit_type] = '4'	If other, please describe:	text, Required
6	[screen_eligible] Show the field ONLY if: [screen_practicing] = '1'	Section Header: *Eligibility status:* You are eligible to participate in this survey. Please click "Submit" if you wish to continue to the e-consent form. If you prefer to do the consent and survey over the phone with a member of the study team, please call us at 206-685-2654.	descriptive
7	[screen_ineligible] Show the field ONLY if: [screen_practicing] = '2' or [screen_practicing] = '3' or [screen_practicing] = '4'	We're sorry, we are currently only collecting information from practicing veterinarians in Washington state and you do not meet the eligibility criteria for this study. Thank you for your time and feel free to contact the study team at 206-685-2654 if you have any questions.	descriptive
8	[informationscreening_complete]	Section Header: *Form Status* Complete?	dropdown 0, Incomplete 1, Unverified 2, Complete
Instrument: Consent (consent) **Enabled as survey**			
9	[consent_yn]	Section Header: *Consent form for the "Evaluating Antimicrobial Usage Practices in Small and Large Animal Veterinary Medicine" study* You are invited to participate in a survey to evaluate veterinarian prescription practices in Washington State. This study is a collaboration between the Washington Integrated Food Safety Center of Excellence (CoE) and Washington Animal Disease Diagnostic Laboratory (WADDL). You will be asked to complete a short survey comprised of demographic questions, opinion based	yesno, Required 1, Yes 0, No Custom alignment: LH

		questions and 2-3 scenario based questions regarding your veterinary work. This survey should take 10-15 minutes. Your decision to participate in this study is completely voluntary and you have the right to stop your participation at any time without penalty. Data Confidentiality: You will be assigned a confidential study number that will be used to analyze your survey. If you participate in the raffle or opt in to hear about future studies, we will separate your contact information from your responses prior to analysis. We will securely retain this information in order to contact you about the raffle or future studies. Risks, and Benefits: There is a minimal risk of a loss of data confidentiality. Extra care will be taken to ensure that your answers are secure and kept separate from any identifying information. Benefits to participants: There are minimal benefits to the participants, but the results of the study may be helpful for the veterinary community. Contact Information: If you have any questions about this project, you may contact PI Erica Fuhrmeister at efuhrm@uw.edu or Vickie Ramirez at +1(206)-685-2654 (ramirezv@uw.edu). Do wish to participate in this study and proceed to the survey?	
10	[consent_no] Show the field ONLY if: [consent_yn] = '0'	Thank you for your interest in this study. Please feel free to contact us at 206-685-2654 if you have any questions or think you may wish to participate in the future.	descriptive
11	[consent_complete]	Section Header: *Form Status* Complete?	dropdown 0 Incomplete 1 Unverified 2 Complete
Instrument: Form 1 (form_1) **Enabled as survey**			
12	[survey_date]	Section Header: *We will start this survey about your veterinary clinic experience and type(s) of care you provide.* Date the survey was started *MM-DD-YYYY*	text (date_mdy) Field Annotation: @TODAY @HIDDEN
13	[years_practice]	How many years of veterinary clinical practice experience do you have?	radio, Required 1 Less than 5 years 2 5-10 years 3 11-15 years 4 16-20 years 5 More than 20 years
14	[grad_year]	What year did you graduate from veterinary school? (Please answer in a 4-digit year, e.g. 1996)	text (number, Min: 1930, Max: 2024), Required

15	[vet_school]	What veterinary school did you attend?	text, Required
16	[type_vet]	What best describes your current employment setting?	radio, Required 1 Small Animal Veterinary 2 Mixed Animal Veterinary 3 Large Animal Veterinary
17	[role]	What is your practice role?	radio, Required 1 Owner 2 Associate 3 Locum 4 Other
18	[role_other] Show the field ONLY if: [role] = '4'	If other, what is your role?	text, Required
19	[type_species]	What species do you accept for treatment? (Select all that apply)	checkbox, Required 1 type_species___1 Dogs 2 type_species___2 Cats 3 type_species___3 Backyard livestock/hobby farm species (For example but not limited to: chickens, goats, sheep) 4 type_species___4 Commercial poultry farms 5 type_species___5 Commercial dairy cattle 6 type_species___6 Commercial feedlot cattle 7 type_species___7 Equine 8 type_species___8 Pocket/exotic pets 9 type_species___9 Wildlife 10 type_species___10 Other
20	[other_species] Show the field ONLY if: [type_species(10)] = '1'	If other species, what species?	text, Required
21	[vet_sector]	What sector of veterinary medicine are you currently employed? (Select all that apply)	checkbox, Required 1 vet_sector___1 Private Practice 2 vet_sector___2 Corporate Practice 3 vet_sector___3 Government 4 vet_sector___4 Industry 5 vet_sector___5 Academia 6 vet_sector___6 Other
22	[other_sector] Show the field ONLY if:	If other sector, what sector?	text, Required

	[vet_sector(6)] = '1'		
23	[desc_text1]	This next section asks your opinion about antibiotic resistance.	descriptive
24	[opinion_amr_people]	In your opinion, which of the following contributes to antibiotic resistant infections in people? (Select all that apply)	checkbox 1, opinion_amr_people___1, Antibiotic use in human medicine 2, opinion_amr_people___2, Antibiotic use in small animal veterinary medicine 3, opinion_amr_people___3, Antibiotic use in food animal veterinary medicine 4, opinion_amr_people___4, Environmental pressure 5, opinion_amr_people___5, Random genetic mutations 6, opinion_amr_people___6, Other
25	[other_amr_people] Show the field ONLY if: [opinion_amr_people(6)] = '1'	If other, what else do you think contributes to antibiotic resistant infections in people?	text
26	[vet_amr]	Which of the following factors in veterinary medicine do you believe may play a role in antibiotic resistance? (Select all that apply)	checkbox 1, vet_amr___1, Owner/producer compliance 2, vet_amr___2, Veterinary medicine prescription practices 3, vet_amr___3, Client expectations 4, vet_amr___4, Prescription of broad spectrum antimicrobial drugs for treatment 5, vet_amr___5, Financial constraints 6, vet_amr___6, Restrictions of owner (For example: time available to administer treatment, etc) 7, vet_amr___7, Antimicrobial drugs available on site 8, vet_amr___8, Lack of veterinary education on antimicrobial use and stewardship
27	[edu_amr]	Where might you seek continuing education pertaining to antimicrobial use, resistance and/or stewardship? (Select all that apply)	checkbox 1, edu_amr___1, In-person continuing education conference 2, edu_amr___2, Online continuing education conference 3, edu_amr___3, Journal articles

			4 edu_amr___4 ISCAID or similar recommendations 5 edu_amr___5 Veterinary teaching hospitals/infectious disease specialists 6 edu_amr___6 Diagnostic labs 7 edu_amr___7 Textbooks 8 edu_amr___8 Pharmaceutical representatives 9 edu_amr___9 Other
28	[other_edu_amr] Show the field ONLY if: [edu_amr(9)] = '1'	What other place might you seek education?	text
29	[use_abx]	Have you ever prescribed or administered any of the following antibiotics (Select all that apply)?	checkbox 7 use_abx___7 Imipenem, meropenem, ertapenem, doripenem 1 use_abx___1 Linezolid 2 use_abx___2 Oral Polymyxin B 3 use_abx___3 Mupirocin 4 use_abx___4 Injectable aminoglycoside in cattle 5 use_abx___5 Vancomycin 6 use_abx___6 Ciprofloxacin 8 use_abx___8 No, I have NOT prescribed or administered any of these antibiotics
30	[vet_abx_guide]	Which veterinary antibiotic use guidelines do you typically refer to? (Select all that apply)	checkbox 1 vet_abx_guide___1 Organizational antibiotic use guidelines (i.e., AVMA, AAHA, ISCAID) 2 vet_abx_guide___2 Hospital-specific antibiotic use guidelines 3 vet_abx_guide___3 Personally developed antibiotic use guidelines 4 vet_abx_guide___4 I generally do not refer to antibiotic use guidelines during my practice. 5 vet_abx_guide___5 Other
31	[other_vet_abx_guide] Show the field ONLY if: [vet_abx_guide(5)] = '1'	What other veterinary antibiotic guidelines do you use?	text
32	[descr_text2]	Do the following factors influence how you prescribe antibiotics? Please rate your level of agreement with	descriptive

		the following statements:	
33	[expect_rx]	Client expectations of receiving antibiotics influence the way I prescribe antimicrobials.	dropdown 1 Strongly Disagree 2 Somewhat Disagree 3 Neither Agree nor Disagree 4 Somewhat Agree 5 Strongly Agree
34	[dispense_rx]	Client ability to medicate influences the way I prescribe antimicrobials.	dropdown 1 Strongly Disagree 2 Somewhat Disagree 3 Neither Agree nor Disagree 4 Somewhat Agree 5 Strongly Agree
35	[finance_rx]	Client finances influence the way I prescribe antimicrobials.	dropdown 1 Strongly Disagree 2 Somewhat Disagree 3 Neither Agree nor Disagree 4 Somewhat Agree 5 Strongly Agree
36	[access_rx]	When prescribing antimicrobials, the stock of readily available antimicrobials (e.g. the formulary of my in-clinic pharmacy, availability from pharmaceutical company) impacts which antibiotic I decide to prescribe.	dropdown 1 Strongly Disagree 2 Somewhat Disagree 3 Neither Agree nor Disagree 4 Somewhat Agree 5 Strongly Agree
37	[preference_rx]	Preference for certain antibiotics impacts which antimicrobial I select to prescribe.	dropdown 1 Strongly Disagree 2 Somewhat Disagree 3 Neither Agree nor Disagree 4 Somewhat Agree 5 Strongly Agree
38	[amr_rx]	Consideration of antimicrobial resistance influences the manner in which I prescribe antimicrobials.	dropdown 1 Strongly Disagree 2 Somewhat Disagree 3 Neither Agree nor Disagree 4 Somewhat Agree 5 Strongly Agree
39	[train_rx]	Training that I have received in veterinary school influences the manner in which I prescribe antimicrobials.	dropdown 1 Strongly Disagree 2 Somewhat Disagree 3 Neither Agree nor Disagree

			4 Somewhat Agree 5 Strongly Agree
40	[cat_case] Show the field ONLY if: [type_species(1)] = '1' or [type_species(2)] = '1'	Section Header: *This next section includes short vignettes asking how you would treat an animal with specific signs.* A 4-year-old castrated male domestic shorthair cat presents with a 3-day history of stranguria, hematuria and urination outside of the litter box. On exam, no abnormalities are noted other than a small, mildly painful bladder. What diagnostics and/or treatments do you recommend?	radio 1 Empiric antimicrobial therapy without submitting samples for diagnostic testing 2 Empiric antimicrobial drugs while awaiting results from diagnostic lab 3 I may prescribe antimicrobial drugs once diagnostic test results are complete 4 Non-antimicrobial treatment options (For example: diet, pain management, behavioral modifications) 5 I do not treat this species
41	[cat_rx_no_test] Show the field ONLY if: [cat_case] = '1'	What antimicrobial drug would you prescribe for treatment?	radio 1 Amikacin 2 Amoxicillin 3 Amoxicillin/Clavulanic Acid 4 Ampicillin/sulbactam 5 Cefazolin 6 Cefovecin 7 Cefpodoxime 8 Ceftazidime 9 Ceftiofur 10 Cephalexin 11 Cephalothin 12 Chloramphenicol 13 Clindamycin 14 Doripenem 15 Doxycycline 16 Enrofloxacin 17 Ertapenem 18 Erythromycin 19 Florfenicol 20 Gentamicin 21 Imipenem 22 Linezolid 23 Marbofloxacin 24 Meropenem 25 Minocycline 26 Mupirocin 27 Nitrofurantoin 28 Orbifloxacin

			29 Oxacillin 30 Penicillin 31 Piperacillin/tazobactam 32 Pradofloxacin 33 Rifampin 34 Tetracycline 35 Trimethoprim/sulfamethoxazole 36 Vancomycin
42	[cat_rx_while_test] Show the field ONLY if: [cat_case] = '2'	What antimicrobial drug would you prescribe for treatment?	radio 1 Amikacin 2 Amoxicillin 3 Amoxicillin/Clavulanic Acid 4 Ampicillin/sulbactam 5 Cefazolin 6 Cefovecin 7 Cefpodoxime 8 Ceftazidime 9 Ceftiofur 10 Cephalexin 11 Cephalothin 12 Chloramphenicol 13 Clindamycin 14 Doripenem 15 Doxycycline 16 Enrofloxacin 17 Ertapenem 18 Erythromycin 19 Florfenicol 20 Gentamicin 21 Imipenem 22 Linezolid 23 Marbofloxacin 24 Meropenem 25 Minocycline 26 Mupirocin 27 Nitrofurantoin 28 Orbifloxacin 29 Oxacillin 30 Penicillin 31 Piperacillin/tazobactam 32 Pradofloxacin

			33 Rifampin 34 Tetracycline 35 Trimethoprim/sulfamethoxazole 36 Vancomycin
43	[cat_rx_while_result] Show the field ONLY if: [cat_case] = '2'	A urine culture and urinalysis was performed. There was no growth on the culture and >10 red blood cells/high powered field, 4-5 white blood cells/HPF, and a USG of 1.040 was found. Given this information, would you change the antimicrobial treatment prescribed?	radio 1 Yes 2 Stop antimicrobial treatment 3 No
44	[cat_change_rx] Show the field ONLY if: [cat_rx_while_result] = '1'	What would you change to?	radio 1 Amikacin 2 Amoxicillin 3 Amoxicillin/Clavulanic Acid 4 Ampicillin/sulbactam 5 Cefazolin 6 Cefovecin 7 Cefpodoxime 8 Ceftazidime 9 Ceftiofur 10 Cephalexin 11 Cephalothin 12 Chloramphenicol 13 Clindamycin 14 Doripenem 15 Doxycycline 16 Enrofloxacin 17 Ertapenem 18 Erythromycin 19 Florfenicol 20 Gentamicin 21 Imipenem 22 Linezolid 23 Marbofloxacin 24 Meropenem 25 Minocycline 26 Mupirocin 27 Nitrofurantoin 28 Orbifloxacin 29 Oxacillin 30 Penicillin 31 Piperacillin/tazobactam

			32 Pradofloxacin 33 Rifampin 34 Tetracycline 35 Trimethoprim/sulfamethoxazole 36 Vancomycin
45	[cat_test_rx] Show the field ONLY if: [cat_case] = '3'	A urine culture and urinalysis was performed. There was no growth on the culture and >10 red blood cells/high powered field, 4-5 white blood cells/HPF, and a USG of 1.040 was found. Given this information, what antimicrobial treatment, if any, would you prescribe?	radio 1 None 2 Amikacin 3 Amoxicillin 4 Amoxicillin/Clavulanic Acid 5 Ampicillin/sulbactam 6 Cefazolin 7 Cefovecin 8 Cefpodoxime 9 Ceftazidime 10 Ceftiofur 11 Cephalexin 12 Cephalothin 13 Chloramphenicol 14 Clindamycin 15 Doripenem 16 Doxycycline 17 Enrofloxacin 18 Ertapenem 19 Erythromycin 20 Florfenicol 21 Gentamicin 22 Imipenem 23 Linezolid 24 Marbofloxacin 25 Meropenem 26 Minocycline 27 Mupirocin 28 Nitrofurantoin 29 Orbifloxacin 30 Oxacillin 31 Penicillin 32 Piperacillin/tazobactam 33 Pradofloxacin 34 Rifampin 35 Tetracycline

			36 Trimethoprim/sulfamethoxazole 37 Vancomycin
46	[dog_case] Show the field ONLY if: [type_species(1)] = '1' or [type_species(2)] = '1'	A 3-year-old spayed, female mixed breed dog presents for a 2-3 day history of non-bloody diarrhea. The patient is still eating/drinking, has not had any vomiting, does not have a fever and is acting normally. The exam is unremarkable and the dog is up to date on vaccines. In clinic parasitology was negative, including Giardia. What diagnostic and/or treatment do you recommend?	radio 1 Empiric antimicrobial therapy without submitting samples for diagnostic testing 2 Empiric antimicrobial drugs while awaiting results from diagnostic lab 3 I may prescribe antimicrobial drugs once diagnostic test results are complete 4 Non-antimicrobial treatments (For example: diet, probiotic) 5 I do not treat this species
47	[dog_rx_no_test] Show the field ONLY if: [dog_case] = '1'	What antimicrobial drug would you prescribe for treatment?	radio 1 Amikacin 2 Amoxicillin 3 Amoxicillin/Clavulanic Acid 4 Ampicillin/sulbactam 5 Cefazolin 6 Cefovecin 7 Cefpodoxime 8 Ceftazidime 9 Ceftiofur 10 Cephalexin 11 Cephalothin 12 Chloramphenicol 13 Clindamycin 14 Doripenem 15 Doxycycline 16 Enrofloxacin 17 Ertapenem 18 Erythromycin 19 Florfenicol 20 Gentamicin 21 Imipenem 22 Linezolid 23 Marbofloxacin 24 Meropenem 25 Minocycline 26 Mupirocin 27 Nitrofurantoin 28 Orbifloxacin

			29 Oxacillin 30 Penicillin 31 Piperacillin/tazobactam 32 Pradofloxacin 33 Rifampin 34 Tetracycline 35 Trimethoprim/sulfamethoxazole 36 Vancomycin
48	[dog_rx_while_test] Show the field ONLY if: [dog_case] = '2'	What antimicrobial drug would you prescribe for treatment?	radio 1 Amikacin 2 Amoxicillin 3 Amoxicillin/Clavulanic Acid 4 Ampicillin/sulbactam 5 Cefazolin 6 Cefovecin 7 Cefpodoxime 8 Ceftazidime 9 Ceftiofur 10 Cephalexin 11 Cephalothin 12 Chloramphenicol 13 Clindamycin 14 Doripenem 15 Doxycycline 16 Enrofloxacin 17 Ertapenem 18 Erythromycin 19 Florfenicol 20 Gentamicin 21 Imipenem 22 Linezolid 23 Marbofloxacin 24 Meropenem 25 Minocycline 26 Mupirocin 27 Nitrofurantoin 28 Orbifloxacin 29 Oxacillin 30 Penicillin 31 Piperacillin/tazobactam 32 Pradofloxacin

			33 Rifampin 34 Tetracycline 35 Trimethoprim/sulfamethoxazole 36 Vancomycin
49	[dog_rx_while_result] Show the field ONLY if: [dog_case] = '2'	A bacterial culture of the animal's feces is performed. Results show mixed bacterial growth, with no enteric pathogens identified. Given this information, would you change the antimicrobial treatment prescribed?	radio 1 Yes 2 Stop antimicrobial treatment 3 No
50	[dog_change_rx] Show the field ONLY if: [dog_rx_while_result] = '1'	What would you change to?	radio 1 Amikacin 2 Amoxicillin 3 Amoxicillin/Clavulanic Acid 4 Ampicillin/sulbactam 5 Cefazolin 6 Cefovecin 7 Cefpodoxime 8 Ceftazidime 9 Ceftiofur 10 Cephalexin 11 Cephalothin 12 Chloramphenicol 13 Clindamycin 14 Doripenem 15 Doxycycline 16 Enrofloxacin 17 Ertapenem 18 Erythromycin 19 Florfenicol 20 Gentamicin 21 Imipenem 22 Linezolid 23 Marbofloxacin 24 Meropenem 25 Minocycline 26 Mupirocin 27 Nitrofurantoin 28 Orbifloxacin 29 Oxacillin 30 Penicillin 31 Piperacillin/tazobactam 32 Pradofloxacin

			33 Rifampin 34 Tetracycline 35 Trimethoprim/sulfamethoxazole 36 Vancomycin
51	[dog_test_rx] Show the field ONLY if: [dog_case] = '3'	A bacterial culture of the animal's feces is performed. Results show mixed bacterial growth, with no enteric pathogens identified. Given this information, what antimicrobial treatment, if any, would you prescribe?	radio 1 None 2 Amikacin 3 Amoxicillin 4 Amoxicillin/Clavulanic Acid 5 Ampicillin/sulbactam 6 Cefazolin 7 Cefovecin 8 Cefpodoxime 9 Ceftazidime 10 Ceftiofur 11 Cephalexin 12 Cephalothin 13 Chloramphenicol 14 Clindamycin 15 Doripenem 16 Doxycycline 17 Enrofloxacin 18 Ertapenem 19 Erythromycin 20 Florfenicol 21 Gentamicin 22 Imipenem 23 Linezolid 24 Marbofloxacin 25 Meropenem 26 Minocycline 27 Mupirocin 28 Nitrofurantoin 29 Orbifloxacin 30 Oxacillin 31 Penicillin 32 Piperacillin/tazobactam 33 Pradofloxacin 34 Rifampin 35 Tetracycline 36 Trimethoprim/sulfamethoxazole

			37 Vancomycin
52	[kitten_case] Show the field ONLY if: [type_species(1)] = '1' or [type_species(2)] = '1'	A 1-year-old spayed domestic short hair cat presents to you for a 2-day history of nasal discharge. She has also been sneezing some at home, but is still eating/drinking. A new kitten from a shelter was introduced into the home 7 days ago. On exam, lungs auscultate clearly. She has a normal respiratory rate, normal temperature, mild bilateral conjunctivitis and a moderate amount of bilateral clear nasal discharge are noted. The cat has been previously healthy and is up to date on vaccines. What diagnostic and/or treatment do you recommend?	radio 1 Empiric antimicrobial therapy without submitting samples for diagnostic testing 2 Empiric antimicrobial drugs while awaiting results from diagnostic lab 3 I may prescribe antimicrobial drugs once diagnostic test results are complete 4 Non-antimicrobial treatments (For example: diet, pain management, behavioral modifications) 5 I do not treat this species
53	[kitten_rx_no_test] Show the field ONLY if: [kitten_case] = '1'	What antimicrobial drug would you prescribe for treatment?	radio 1 Amikacin 2 Amoxicillin 3 Amoxicillin/Clavulanic Acid 4 Ampicillin/sulbactam 5 Cefazolin 6 Cefovecin 7 Cefpodoxime 8 Ceftazidime 9 Ceftiofur 10 Cephalexin 11 Cephalothin 12 Chloramphenicol 13 Clindamycin 14 Doripenem 15 Doxycycline 16 Enrofloxacin 17 Ertapenem 18 Erythromycin 19 Florfenicol 20 Gentamicin 21 Imipenem 22 Linezolid 23 Marbofloxacin 24 Meropenem 25 Minocycline 26 Mupirocin 27 Nitrofurantoin 28 Orbifloxacin 29 Oxacillin

			30 Penicillin 31 Piperacillin/tazobactam 32 Pradofloxacin 33 Rifampin 34 Tetracycline 35 Trimethoprim/sulfamethoxazole 36 Vancomycin
54	[kitten_rx_while_test] Show the field ONLY if: [kitten_case] = '2'	What antimicrobial drug would you prescribe for treatment?	radio 1 Amikacin 2 Amoxicillin 3 Amoxicillin/Clavulanic Acid 4 Ampicillin/sulbactam 5 Cefazolin 6 Cefovecin 7 Cefpodoxime 8 Ceftazidime 9 Ceftiofur 10 Cephalexin 11 Cephalothin 12 Chloramphenicol 13 Clindamycin 14 Doripenem 15 Doxycycline 16 Enrofloxacin 17 Ertapenem 18 Erythromycin 19 Florfenicol 20 Gentamicin 21 Imipenem 22 Linezolid 23 Marbofloxacin 24 Meropenem 25 Minocycline 26 Mupirocin 27 Nitrofurantoin 28 Orbifloxacin 29 Oxacillin 30 Penicillin 31 Piperacillin/tazobactam 32 Pradofloxacin 33 Rifampin

			34 Tetracycline 35 Trimethoprim/sulfamethoxazole 36 Vancomycin
55	[kitten_rx_while_result] Show the field ONLY if: [kitten_case] = '2'	A swab of the nasal and ocular discharge was taken for bacterial culture. Culture results indicated normal respiratory flora. Given this information, would you change the antimicrobial treatment prescribed?	radio 1 Yes 2 Stop antimicrobial treatment 3 No
56	[kitten_change_rx] Show the field ONLY if: [kitten_rx_while_result] = '1'	What would you change to?	radio 1 Amikacin 2 Amoxicillin 3 Amoxicillin/Clavulanic Acid 4 Ampicillin/sulbactam 5 Cefazolin 6 Cefovecin 7 Cefpodoxime 8 Ceftazidime 9 Ceftiofur 10 Cephalexin 11 Cephalothin 12 Chloramphenicol 13 Clindamycin 14 Doripenem 15 Doxycycline 16 Enrofloxacin 17 Ertapenem 18 Erythromycin 19 Florfenicol 20 Gentamicin 21 Imipenem 22 Linezolid 23 Marbofloxacin 24 Meropenem 25 Minocycline 26 Mupirocin 27 Nitrofurantoin 28 Orbifloxacin 29 Oxacillin 30 Penicillin 31 Piperacillin/tazobactam 32 Pradofloxacin 33 Rifampin

			34 Tetracycline 35 Trimethoprim/sulfamethoxazole 36 Vancomycin
57	[kitten_test_rx] Show the field ONLY if: [kitten_case] = '3'	A swab of the nasal and ocular discharge nasal or ocular swab was taken for bacterial culture. Culture results indicated normal respiratory flora. Given this information, what antimicrobial treatment, if any, would you prescribe?	radio 1 None 2 Amikacin 3 Amoxicillin 4 Amoxicillin/Clavulanic Acid 5 Ampicillin/sulbactam 6 Cefazolin 7 Cefovecin 8 Cefpodoxime 9 Ceftazidime 10 Ceftiofur 11 Cephalexin 12 Cephalothin 13 Chloramphenicol 14 Clindamycin 15 Doripenem 16 Doxycycline 17 Enrofloxacin 18 Ertapenem 19 Erythromycin 20 Florfenicol 21 Gentamicin 22 Imipenem 23 Linezolid 24 Marbofloxacin 25 Meropenem 26 Minocycline 27 Mupirocin 28 Nitrofurantoin 29 Orbifloxacin 30 Oxacillin 31 Penicillin 32 Piperacillin/tazobactam 33 Pradofloxacin 34 Rifampin 35 Tetracycline 36 Trimethoprim/sulfamethoxazole 37 Vancomycin

58	[horse1_case] Show the field ONLY if: [type_species(7)] = '1'	At a stable, a horse is presenting with purulent nasal discharge, fever, decreased appetite and lethargy. The horse has recently attended an event, and developed these symptoms after returning. Given this information, which treatment do you recommend for this horse?	radio 1 Empiric antimicrobial therapy without submitting samples for diagnostic testing 2 Empiric antimicrobial drugs while awaiting results from diagnostic lab 3 Antimicrobial drugs once diagnostic test results are complete 4 Non-antimicrobial treatments (For example: quarantine symptomatic individuals, cull)
59	[horse1_rx_no_test] Show the field ONLY if: [horse1_case] = '1'	What antimicrobial drug would you prescribe for treatment?	radio 1 Amikacin 2 Amoxicillin/Clavulanic Acid 3 Ampicillin 4 Ampicillin/sulbactam 5 Cefazolin 6 Ceftazidime 7 Ceftiofur 8 Chloramphenicol 9 Clarithromycin 10 Doxycycline 11 Enrofloxacin 12 Erythromycin 13 Gentamicin 14 Imipenem 15 Meropenem 16 Minocycline 17 Oxacillin 18 Penicillin 19 Piperacillin/tazobactam 20 Rifampin 21 Tetracycline 22 Trimethoprim/sulfamethoxazole
60	[horse1_rx_while_test] Show the field ONLY if: [horse1_case] = '2'	What antimicrobial drug would you prescribe for treatment?	radio 1 Amikacin 2 Amoxicillin/Clavulanic Acid 3 Ampicillin 4 Ampicillin/sulbactam 5 Cefazolin 6 Ceftazidime 7 Ceftiofur 8 Chloramphenicol

			9 Clarithromycin 10 Doxycycline 11 Enrofloxacin 12 Erythromycin 13 Gentamicin 14 Imipenem 15 Meropenem 16 Minocycline 17 Oxacillin 18 Penicillin 19 Piperacillin/tazobactam 20 Rifampin 21 Tetracycline 22 Trimethoprim/sulfamethoxazole
61	[horse1_while_result] Show the field ONLY if: [horse1_case] = '2'	A BAL sample was obtained and bacterial culture and a screen for respiratory viruses via PCR performed. Streptococcus equi subsp. zooepidemicus was identified with no viral pathogens detected. Given this information, would you change the antimicrobial treatment prescribed?	radio 1 Yes 2 Stop antimicrobial treatment 3 No
62	[horse1_change_rx] Show the field ONLY if: [horse1_while_result] = '1'	What would you change to?	radio 1 Amikacin 2 Amoxicillin/Clavulanic Acid 3 Ampicillin 4 Ampicillin/sulbactam 5 Cefazolin 6 Ceftazidime 7 Ceftiofur 8 Chloramphenicol 9 Clarithromycin 10 Doxycycline 11 Enrofloxacin 12 Erythromycin 13 Gentamicin 14 Imipenem 15 Meropenem 16 Minocycline 17 Oxacillin 18 Penicillin 19 Piperacillin/tazobactam 20 Rifampin 21 Tetracycline 22 Trimethoprim/sulfamethoxazole

63	[horse1_test_rx] Show the field ONLY if: [horse1_case] = '3'	A BAL sample was obtained and bacterial culture and a screen for respiratory viruses via PCR performed. Streptococcus equi subsp. zooepidemicus was identified with no viral pathogens detected. Given this information, what antimicrobial, if any, would you prescribe?	radio 1, None 2, Amikacin 3, Amoxicillin/Clavulanic Acid 4, Ampicillin 5, Ampicillin/sulbactam 6, Cefazolin 7, Ceftazidime 8, Ceftiofur 9, Chloramphenicol 10, Clarithromycin 11, Doxycycline 12, Enrofloxacin 13, Erythromycin 14, Gentamicin 15, Imipenem 16, Meropenem 17, Minocycline 18, Oxacillin 19, Penicillin 20, Piperacillin/tazobactam 21, Rifampin 22, Tetracycline 23, Trimethoprim/sulfamethoxazole
64	[horse1_report] Show the field ONLY if: [horse1_case] = '1' or [horse1_case] = '2' or [horse1_case] = '3' or [horse1_case] = '4'	For the above scenario, would you contact the state veterinary office?	yesno 1, Yes 0, No
65	[horse2_case] Show the field ONLY if: [type_species(7)] = '1'	A 2-year old quarter horse presents with diarrhea, fever and lethargy of 2-3 days. The horse is well vaccinated, and has no history of medications or other health concerns. The horse is housed in a show barn, with horses traveling in and out on a regular basis. No other horses are affected at this time. After physical examination infectious diarrhea is suspected. Given this information, which treatment do you recommend for this horse?	radio 1, Empiric antimicrobial therapy without submitting samples for diagnostic testing 2, Empiric antimicrobial drugs while awaiting results from diagnostic lab 3, Antimicrobial drugs once diagnostic test results are complete 4, Non-antimicrobial treatments (For example: quarantine symptomatic individuals, cull) 5, I do not treat this type of animal
66	[horse2_rx_no_test] Show the field ONLY if: [horse2_case] = '1'	What antimicrobial drug would you prescribe for treatment?	radio 1, Amikacin 2, Amoxicillin/Clavulanic Acid

			3 Ampicillin 4 Ampicillin/sulbactam 5 Cefazolin 6 Ceftazidime 7 Ceftiofur 8 Chloramphenicol 9 Clarithromycin 10 Doxycycline 11 Enrofloxacin 12 Erythromycin 13 Gentamicin 14 Imipenem 15 Meropenem 16 Minocycline 17 Oxacillin 18 Penicillin 19 Piperacillin/tazobactam 20 Rifampin 21 Tetracycline 22 Trimethoprim/sulfamethoxazole
67	[horse2_rx_while_test] Show the field ONLY if: [horse2_case] = '2'	What antimicrobial drug would you prescribe for treatment?	radio 1 Amikacin 2 Amoxicillin/Clavulanic Acid 3 Ampicillin 4 Ampicillin/sulbactam 5 Cefazolin 6 Ceftazidime 7 Ceftiofur 8 Chloramphenicol 9 Clarithromycin 10 Doxycycline 11 Enrofloxacin 12 Erythromycin 13 Gentamicin 14 Imipenem 15 Meropenem 16 Minocycline 17 Oxacillin 18 Penicillin 19 Piperacillin/tazobactam 20 Rifampin

			21 Tetracycline 22 Trimethoprim/sulfamethoxazole
68	[horse2_rx_while_result] Show the field ONLY if: [horse2_case] = '2'	A bacterial culture and viral screen of the animal's feces is performed. Results show mixed bacterial growth, with no enteric bacterial or viral pathogens identified. Given this information, would you change the antimicrobial treatment prescribed?	radio 1 Yes 2 Stop antimicrobial treatment 3 No
69	[horse2_change_rx] Show the field ONLY if: [horse2_rx_while_result] = '1'	What would you change to?	radio 1 Amikacin 2 Amoxicillin/Clavulanic Acid 3 Ampicillin 4 Ampicillin/sulbactam 5 Cefazolin 6 Ceftazidime 7 Ceftiofur 8 Chloramphenicol 9 Clarithromycin 10 Doxycycline 11 Enrofloxacin 12 Erythromycin 13 Gentamicin 14 Imipenem 15 Meropenem 16 Minocycline 17 Oxacillin 18 Penicillin 19 Piperacillin/tazobactam 20 Rifampin 21 Tetracycline 22 Trimethoprim/sulfamethoxazole
70	[horse2_test_rx] Show the field ONLY if: [horse2_case] = '3'	A bacterial culture and viral screen of the animal's feces is performed. Results show mixed bacterial growth, with no enteric bacterial or viral pathogens identified. Given this information, what antimicrobial, if any, would you prescribe?	radio 1 None 2 Amikacin 3 Amoxicillin/Clavulanic Acid 4 Ampicillin 5 Ampicillin/sulbactam 6 Cefazolin 7 Ceftazidime 8 Ceftiofur 9 Chloramphenicol 10 Clarithromycin 11 Doxycycline

			12 Enrofloxacin 13 Erythromycin 14 Gentamicin 15 Imipenem 16 Meropenem 17 Minocycline 18 Oxacillin 19 Penicillin 20 Piperacillin/tazobactam 21 Rifampin 22 Tetracycline 23 Trimethoprim/sulfamethoxazole
71	[horse2_report] Show the field ONLY if: [horse2_case] = '1' or [horse2_case] = '2' or [horse2_case] = '3' or [horse2_case] = '4'	For the above scenario, would you contact the state veterinary office?	yesno 1 Yes 0 No
72	[header_small_matrix_instruct] Show the field ONLY if: [type_species(1)] = '1' or [type_species(2)] = '1' or [type_species(8)] = '1' or [type_species(7)] = '1'	When working with these animals, who do you communicate instructions to for administering antimicrobials to the patient(s)?	descriptive
73	[instruct_owner] Show the field ONLY if: [type_species(1)] = '1' or [type_species(2)] = '1' or [type_species(8)] = '1' or [type_species(7)] = '1'	I communicate the antimicrobial treatment plan directly to the owner of the patient	radio (Matrix) 1 Strongly Agree 2 Agree 3 Neutral 4 Disagree 5 Strongly Disagree
74	[instruct_compan] Show the field ONLY if: [type_species(1)] = '1' or [type_species(2)] = '1' or [type_species(8)] = '1' or [type_species(7)] = '1'	I communicate the antimicrobial treatment plan directly to a companion of the patient owner	radio (Matrix) 1 Strongly Agree 2 Agree 3 Neutral 4 Disagree 5 Strongly Disagree
75	[instruct_tech] Show the field ONLY if: [type_species(1)] = '1' or [type_species(2)] = '1' or [type_species(8)] = '1' or [type_species(7)] = '1'	I communicate the antimicrobial treatment plan to a veterinary technician or assistant, who then communicates the plan with the patient owner	radio (Matrix) 1 Strongly Agree 2 Agree 3 Neutral 4 Disagree 5 Strongly Disagree

76	[instruct_kennel] Show the field ONLY if: [type_species(1)] = '1' or [type_species(2)] = '1' or [type_species(8)] = '1' or [type_species(7)] = '1'	I communicate the antimicrobial treatment plan to kennel/stable workers	radio (Matrix) 1 Strongly Agree 2 Agree 3 Neutral 4 Disagree 5 Strongly Disagree
77	[calf1_fl_case] Show the field ONLY if: [type_species(6)] = '1'	Section Header: In a backgrounding yard, a recently weaned Hereford calf newly arrived to the premise is showing signs of lethargy, soft/moist cough and isolation from the group. Physical exam reveals a fever of 105F, increased cranioventral lungs sounds and a decreased rumen fill. The calf has not received vaccines prior to shipment. Given this information, what treatment would you recommend for this calf?	radio 1 Empiric antimicrobial therapy without submitting samples for diagnostic testing 2 Empiric antimicrobial drugs while awaiting results from diagnostic lab 3 I may prescribe antimicrobial drugs once diagnostic test results are complete 4 Non-antimicrobial treatments (For example: Non-steroid antiinflammatories, corticosteroids, behavioral modifications, diet)
78	[calf1_fl_rx_no_test] Show the field ONLY if: [calf1_fl_case] = '1'	What antimicrobial drug would you prescribe for treatment?	radio 1 Ampicillin 2 Bacitracin 3 Ceftiofur 4 Danofloxacin 5 Enrofloxacin 6 Florfenicol 7 Gamithromycin 8 Gentamicin 9 Lincomycin 10 Neomycin 11 Penicillin 12 Pradofloxacin 13 Spectinomycin 14 Sulfadimethoxine 15 Tetracycline 16 Tiamulin 17 Tildipirosin 18 Tilmicosin 19 Trimethoprim/sulfamethoxazole 20 Tulathromycin 21 Tylosin tartrate 22 Virginiamycin
79	[calf1_fl_rx_while_test]	What antimicrobial drug would you prescribe for treatment?	radio 1 Ampicillin

	Show the field ONLY if: [calf1_fl_case] = '2'		2 Bacitracin 3 Ceftiofur 4 Danofloxacin 5 Enrofloxacin 6 Florfenicol 7 Gamithromycin 8 Gentamicin 9 Lincomycin 10 Neomycin 11 Penicillin 12 Pradofloxacin 13 Spectinomycin 14 Sulfadimethoxine 15 Tetracycline 16 Tiamulin 17 Tildipirosin 18 Tilmicosin 19 Trimethoprim/sulfamethoxazole 20 Tulathromycin 21 Tylosin tartrate 22 Virginiamycin
80	[calf1_fl_rx_while_result] Show the field ONLY if: [calf1_fl_case] = '2'	A deep nasopharyngeal swab was performed, and Mannheimia haemolytica was isolated on culture and also tested positive for Bovine parainfluenza virus-3. The calf is not responding as expected to the originally prescribed treatment. Given this information, would you change the antimicrobial treatment prescribed?	radio 1 Yes 2 Stop antimicrobial treatment 3 No
81	[calf1_fl_change_rx] Show the field ONLY if: [calf1_fl_rx_while_result] = '1'	What would you change to?	radio 1 Ampicillin 2 Bacitracin 3 Ceftiofur 4 Danofloxacin 5 Enrofloxacin 6 Florfenicol 7 Gamithromycin 8 Gentamicin 9 Lincomycin 10 Neomycin 11 Penicillin 12 Pradofloxacin 13 Spectinomycin 14 Sulfadimethoxine

			15, Tetracycline 16, Tiamulin 17, Tildipirosin 18, Tilmicosin 19, Trimethoprim/sulfamethoxazole 20, Tulathromycin 21, Tylosin tartrate 22, Virginiamycin
82	[calf1_fl_test_rx] Show the field ONLY if: [calf1_fl_case] = '3'	A deep nasopharyngeal swab or BAL culture was performed, and Mannheimia haemolytica was isolated on culture and also tested positive for Bovine parainfluenza virus-3. The calf is not responding as expected to the originally prescribed treatment. Given this information, what antimicrobial treatment, if any, would you prescribe?	radio 1, None 2, Ampicillin 3, Bacitracin 4, Ceftiofur 5, Danofloxacin 6, Enrofloxacin 7, Florfenicol 8, Gamithromycin 9, Gentamicin 10, Lincomycin 11, Neomycin 12, Penicillin 13, Pradofloxacin 14, Spectinomycin 15, Sulfadimethoxine 16, Tetracycline 17, Tiamulin 18, Tildipirosin 19, Tilmicosin 20, Trimethoprim/sulfamethoxazole 21, Tulathromycin 22, Tylosin tartrate 23, Virginiamycin
83	[calf1_fl_report] Show the field ONLY if: [calf1_fl_case] = '1' or [calf1_fl_case] = '2' or [calf1_fl_case] = '3' or [calf1_fl_case] = '4'	For the above scenario, would you contact the state veterinary office?	yesno 1, Yes 0, No
84	[ang_heif_fl_case] Show the field ONLY if: [type_species(6)] = '1'	You are presented with an angus heifer that was moved to the sick pen after signs of lethargy, isolation and coughing were noted. Examination reveals dehydration, lethargy, increased respiratory rate, increased cranioventral lung sounds and a fever of 105F. The heifer was vaccinated at birth with	radio 1, Empiric antimicrobial therapy without submitting samples for diagnostic testing 2, Empiric antimicrobial drugs while

		intranasal PI3/IBR MLV and systemically at 2 weeks with a IBR/PI3/BRSV/BVD-MLV, and was recently transported from a calf ranch to the dairy shortly after weaning. Given this information, what treatment would you recommend for this calf?	awaiting results from diagnostic lab 3 Antimicrobial drugs once diagnostic test results are complete 4 Non-antimicrobial treatments (For example: Non-steroid antiinflammatories, corticosteroids, behavioral modifications, diet)
85	[ang_heif_fl_not_test] Show the field ONLY if: [ang_heif_fl_case] = '1'	What antimicrobial drug would you prescribe for treatment?	radio 1 Ampicillin 2 Bacitracin 3 Ceftiofur 4 Danofloxacin 5 Enrofloxacin 6 Florfenicol 7 Gamithromycin 8 Gentamicin 9 Lincomycin 10 Neomycin 11 Penicillin 12 Pradofloxacin 13 Spectinomycin 14 Sulfadimethoxine 15 Tetracycline 16 Tiamulin 17 Tildipirosin 18 Tilmicosin 19 Trimethoprim/sulfamethoxazole 20 Tulathromycin 21 Tylosin tartrate 22 Virginiamycin
86	[ang_heif_fl_rx_while_test] Show the field ONLY if: [ang_heif_fl_case] = '2'	What antimicrobial drug would you prescribe for treatment?	radio 1 Ampicillin 2 Bacitracin 3 Ceftiofur 4 Danofloxacin 5 Enrofloxacin 6 Florfenicol 7 Gamithromycin 8 Gentamicin 9 Lincomycin 10 Neomycin 11 Penicillin 12 Pradofloxacin

			13 Spectinomycin 14 Sulfadimethoxine 15 Tetracycline 16 Tiamulin 17 Tildipirosin 18 Tilmicosin 19 Trimethoprim/sulfamethoxazole 20 Tulathromycin 21 Tylosin tartrate 22 Virginiamycin
87	[ang_heif_fl_while_result] Show the field ONLY if: [ang_heif_fl_case] = '2'	A deep nasopharyngeal swab was obtained and bacterial culture and testing for respiratory viruses via PCR was performed. Salmonella Dublin was isolated on culture with no viral agents detected. Given this information, would you change the antimicrobial treatment prescribed?	radio 1 Yes 2 Stop antimicrobial treatment 3 No
88	[ang_heif_fl_change_rx] Show the field ONLY if: [ang_heif_fl_while_result] = '1'	What would you change to?	radio 1 Ampicillin 2 Bacitracin 3 Ceftiofur 4 Danofloxacin 5 Enrofloxacin 6 Florfenicol 7 Gamithromycin 8 Gentamicin 9 Lincomycin 10 Neomycin 11 Penicillin 12 Pradofloxacin 13 Spectinomycin 14 Sulfadimethoxine 15 Tetracycline 16 Tiamulin 17 Tildipirosin 18 Tilmicosin 19 Trimethoprim/sulfamethoxazole 20 Tulathromycin 21 Tylosin tartrate 22 Virginiamycin
89	[ang_heif_fl_test_rx] Show the field ONLY if: [ang_heif_fl_case] = '3'	A deep nasopharyngeal swab was obtained and bacterial culture; and a screen testing for respiratory viruses via PCR was performed. Results showed isolation of Salmonella Dublin was isolated on culture with no viral agents detected. Given this information,	radio 1 None 2 Ampicillin 3 Bacitracin

		what antimicrobial treatment, if any, would you prescribe?	4, Ceftiofur 5, Danofloxacin 6, Enrofloxacin 7, Florfenicol 8, Gamithromycin 9, Gentamicin 10, Lincomycin 11, Neomycin 12, Penicillin 13, Pradofloxacin 14, Spectinomycin 15, Sulfadimethoxine 16, Tetracycline 17, Tiamulin 18, Tildipirosin 19, Tilmicosin 20, Trimethoprim/sulfamethoxazole 21, Tulathromycin 22, Tylosin tartrate 23, Virginiamycin
90	[ang_heif_report] Show the field ONLY if: [ang_heif_fl_case] = '1' or [ang_heif_fl_case] = '2' or [ang_heif_fl_case] = '3' or [ang_heif_fl_case] = '4'	For the above scenario, would you contact the state veterinary office?	yesno 1, Yes 0, No
91	[steer_fl_case] Show the field ONLY if: [type_species(6)] = '1'	An angus steer is showing symptoms such lethargy, soft cough and isolation from the herd housed in a feedlot. The group (pen) comes from three different direct sources and the animals entered the operation at around the same time. Of the fifty animals originally housed in the pen, 20% are showing signs of respiratory disease. Given this information, what treatment would you recommend for the cattle in this group?	radio 1, Empiric antimicrobial therapy to only cattle showing symptoms 2, Empiric antimicrobial therapy for all cattle 3, Evaluate the health of all cattle in a chute and administer antibiotics to those showing symptoms 4, Non-antimicrobial treatments (intensify monitoring, nutritional supplements, vaccination, etc) 5, No treatment
92	[steer_rx] Show the field ONLY if: [steer_fl_case] = '1' or [steer_fl_case] = '2' or [steer_fl_case] = '3'	What antimicrobial drug would you prescribe for treatment?	radio 1, Ampicillin 2, Bacitracin 3, Ceftiofur 4, Danofloxacin 5, Enrofloxacin 6, Florfenicol

			7 Gamithromycin 8 Gentamicin 9 Lincomycin 10 Neomycin 11 Penicillin 12 Pradofloxacin 13 Spectinomycin 14 Sulfadimethoxine 15 Tetracycline 16 Tiamulin 17 Tildipirosin 18 Tilmicosin 19 Trimethoprim/sulfamethoxazole 20 Tulathromycin 21 Tylosin tartrate 22 Virginiamycin
93	[steer_intervention] Show the field ONLY if: [steer_fl_case] = '1' or [steer_fl_case] = '2' or [steer_fl_case] = '3' or [steer_fl_case] = '4'	Given the situation described above, which of the following interventions would you recommend? (Select all that apply)	checkbox 1 steer_intervention___1 Prophylaxis of incoming calves onto premise 2 steer_intervention___2 Individual animal treatment based on clinical signs 3 steer_intervention___3 Metaphylaxis of in-contact calves in the same pen as the affected calf.
94	[steer_report] Show the field ONLY if: [steer_fl_case] = '1' or [steer_fl_case] = '2' or [steer_fl_case] = '3' or [steer_fl_case] = '4' or [steer_fl_case] = '5'	For the above scenario, would you contact the state veterinary office?	yesno 1 Yes 0 No
95	[heif1_dc_case] Show the field ONLY if: [type_vet] = '3' or [type_species(5)] = '1'	A group of holstein heifers of weaning age are to be moved from hutches to a grow barn. This calf source consistently has some management issues with colostrum administration at birth, and the facilities are minimally adequate. The calves on this farm have 15% mortality due to respiratory disease. Which of the following interventions do you recommend to prevent bacterial disease in this group at the dairy?	radio 1 Empiric antimicrobial therapy to only cattle showing symptoms 2 Empiric antimicrobial therapy for all cattle 3 Non-antimicrobial treatments (For example: nutritional support, vaccination, allowing rest and acclimatization time, etc) 4 No treatment

96	[heif1_dc_dx] Show the field ONLY if: [heif1_dc_case] = '1' or [heif1_dc_case] = '2'	What antimicrobial drug would you prescribe for treatment?	radio 1, Ampicillin 2, Bacitracin 3, Ceftiofur 4, Danofloxacin 5, Enrofloxacin 6, Florfenicol 7, Gamithromycin 8, Gentamicin 9, Lincomycin 10, Neomycin 11, Penicillin 12, Pradofloxacin 13, Spectinomycin 14, Sulfadimethoxine 15, Tetracycline 16, Tiamulin 17, Tildipirosin 18, Tilmicosin 19, Trimethoprim/sulfamethoxazole 20, Tulathromycin 21, Tylosin tartrate 22, Virginiamycin
97	[heif1_dc_report] Show the field ONLY if: [heif1_dc_case] = '1' or [heif1_dc_case] = '2' or [heif1_dc_case] = '3' or [heif1_dc_case] = '4'	For the above scenario, would you contact the state veterinary office?	yesno 1, Yes 0, No
98	[heif2_dc_case] Show the field ONLY if: [type_species(5)] = '1'	You are presented with a holstein heifer that was moved to the sick pen after signs of lethargy, isolation and diarrhea were noted. Exam reveals dehydration, depression, increased respiratory rate, fecal staining of hind legs and a fever of 105F. This calf was vaccinated at birth with intranasal PI3/IBR MLV and vaccinated systemically at 2 weeks with a IBR/PI3/BRSV/BVD-MLV. Given this information, what treatment would you recommend for this calf?	radio 1, Empiric antimicrobial therapy without submitting samples for diagnostic testing 2, Empiric antimicrobial drugs while awaiting results from diagnostic lab 3, Antimicrobial drugs once diagnostic test results are complete 4, Non-antimicrobial treatments (For example: Non-steroid antiinflammatories, corticosteroids, behavioral modifications, diet) 5, I do not treat this type of animal
99	[heif2_dc_rx_no_test] Show the field ONLY if: [heif2_dc_case] = '1'	What antimicrobial drug would you prescribe for treatment?	radio 1, Ampicillin 2, Bacitracin

			3 Ceftiofur 4 Danofloxacin 5 Enrofloxacin 6 Florfenicol 7 Gamithromycin 8 Gentamicin 9 Lincomycin 10 Neomycin 11 Penicillin 12 Pradofloxacin 13 Spectinomycin 14 Sulfadimethoxine 15 Tetracycline 16 Tiamulin 17 Tildipirosin 18 Tilmicosin 19 Trimethoprim/sulfamethoxazole 20 Tulathromycin 21 Tylosin tartrate 22 Virginiamycin
100	[heif2_dc_rx_while_test] Show the field ONLY if: [heif2_dc_case] = '2'	What antimicrobial drug would you prescribe for treatment?	radio 1 Ampicillin 2 Bacitracin 3 Ceftiofur 4 Danofloxacin 5 Enrofloxacin 6 Florfenicol 7 Gamithromycin 8 Gentamicin 9 Lincomycin 10 Neomycin 11 Penicillin 12 Pradofloxacin 13 Spectinomycin 14 Sulfadimethoxine 15 Tetracycline 16 Tiamulin 17 Tildipirosin 18 Tilmicosin 19 Trimethoprim/sulfamethoxazole 20 Tulathromycin

			21 Tylosin tartrate 22 Virginiamycin
101	[heif2_dc_rx_while_result] Show the field ONLY if: [heif2_dc_case] = '2'	A fecal sample was obtained and bacterial culture and a screen for viruses via PCR performed. Salmonella Typhimurium was identified, and the animal is also positive for bovine coronavirus. Given this information, would you change the antimicrobial treatment prescribed?	radio 1 Yes 2 Stop antimicrobial treatment 3 No
102	[heif2_dc_change_rx] Show the field ONLY if: [heif2_dc_rx_while_result] = '1'	What would you change to?	radio 1 Ampicillin 2 Bacitracin 3 Ceftiofur 4 Danofloxacin 5 Enrofloxacin 6 Florfenicol 7 Gamithromycin 8 Gentamicin 9 Lincomycin 10 Neomycin 11 Penicillin 12 Pradofloxacin 13 Spectinomycin 14 Sulfadimethoxine 15 Tetracycline 16 Tiamulin 17 Tildipirosin 18 Tilmicosin 19 Trimethoprim/sulfamethoxazole 20 Tulathromycin 21 Tylosin tartrate 22 Virginiamycin
103	[heif2_dc_test_rx] Show the field ONLY if: [heif2_dc_case] = '3'	A fecal sample was obtained and bacterial culture and a screen for viruses via PCR performed. Salmonella Typhimurium was identified, and the animal is also positive for bovine coronavirus. Given this information, what antimicrobial, if any, would you prescribe?	radio 1 None 2 Ampicillin 3 Bacitracin 4 Ceftiofur 5 Danofloxacin 6 Enrofloxacin 7 Florfenicol 8 Gamithromycin 9 Gentamicin 10 Lincomycin 11 Neomycin

			12 Penicillin 13 Pradofloxacin 14 Spectinomycin 15 Sulfadimethoxine 16 Tetracycline 17 Tiamulin 18 Tildipirosin 19 Tilmicosin 20 Trimethoprim/sulfamethoxazole 21 Tulathromycin 22 Tylosin tartrate 23 Virginiamycin
104	[heif2_dc_report] Show the field ONLY if: [heif2_dc_case] = '1' or [heif2_dc_case] = '2' or [heif2_dc_case] = '3' or [heif2_dc_case] = '4'	For the above scenario, would you contact the state veterinary office?	yesno 1 Yes 0 No
105	[heif3_dc_case] Show the field ONLY if: [type_species(5)] = '1'	You are presented with 50 heifers that were recently weaned and co-mingled. Five animals are showing similar signs of respiratory disease, including lethargy, isolation, coughing, dehydration, increased respiratory rate and increased cranioventral lung sounds, and a fever of 105F. There have been two dead, which necropsies have been performed on. One necropsy revealed fibrinous pneumonia while the other showed effusive pleuritis. Given this information, which of the following intervention is your group treatment of choice?	radio 1 Empiric antimicrobial therapy to only cattle showing symptoms 2 Empiric antimicrobial therapy for all cattle 3 Non-antimicrobial treatments (For example: Evaluate the health of all cattle in a chute, nutritional support, vaccination, etc) 4 No treatment
106	[heif3_dc_rx] Show the field ONLY if: [heif3_dc_case] = '1' or [heif3_dc_case] = '2'	What antimicrobial drug would you prescribe for treatment?	radio 1 Ampicillin 2 Bacitracin 3 Ceftiofur 4 Danofloxacin 5 Enrofloxacin 6 Florfenicol 7 Gamithromycin 8 Gentamicin 9 Lincomycin 10 Neomycin 11 Penicillin 12 Pradofloxacin 13 Spectinomycin 14 Sulfadimethoxine 15 Tetracycline

			16 Tiamulin 17 Tildipirosin 18 Tilmicosin 19 Trimethoprim/sulfamethoxazole 20 Tulathromycin 21 Tylosin tartrate 22 Virginiamycin
107	[heif3_dc_test_rx] Show the field ONLY if: [heif3_dc_case] = '1' or [heif3_dc_case] = '2' or [heif3_dc_case] = '3' or [heif3_dc_case] = '4'	Histophilus somni and Mycoplasma bovis are identified on culture and no viruses are detected from the lungs of two affected animals. No viruses were detected. Given this information, would you change the initial treatment prescribed?	radio 1 Start antimicrobial treatment 2 Change antimicrobial drug prescribed 3 Stop antimicrobial treatment 4 Start non-antimicrobial treatments 5 No changes to treatment plan
108	[heif3_dc_change_rx] Show the field ONLY if: [heif3_dc_test_rx] = '1' or [heif3_dc_test_rx] = '2'	What antimicrobial would you prescribe?	radio 1 Ampicillin 2 Bacitracin 3 Ceftiofur 4 Danofloxacin 5 Enrofloxacin 6 Florfenicol 7 Gamithromycin 8 Gentamicin 9 Lincomycin 10 Neomycin 11 Penicillin 12 Pradofloxacin 13 Spectinomycin 14 Sulfadimethoxine 15 Tetracycline 16 Tiamulin 17 Tildipirosin 18 Tilmicosin 19 Trimethoprim/sulfamethoxazole 20 Tulathromycin 21 Tylosin tartrate 22 Virginiamycin
109	[heif3_dc_report] Show the field ONLY if: [heif3_dc_case] = '1' or [heif3_dc_case] = '2' or [heif3_dc_case] = '3' or [heif3_dc_case] = '4'	For the above scenario, would you contact the state veterinary office?	yesno 1 Yes 0 No

110	[cow_dc_case] Show the field ONLY if: [type_species(5)] = '1'	A 4 year old Jersey cow that is 90 days in milk presents with a 30% drop in production. Her front left quarter is firm, painful, and hot to the touch. She is bright, alert and responsive, and has a temperature of 103 F and a heart rate of 95 bpm. Given this information, which of the following intervention would you pursue?	radio 1 Empiric antimicrobial therapy without submitting samples for diagnostic testing 2 Empiric antimicrobial drugs while awaiting results from diagnostic lab 3 Antimicrobial drugs once diagnostic test results are complete 4 Non-antimicrobial treatment options (For example: Non-steroid antiinflammatories, corticosteroids, behavioral modifications, diet)
111	[cow_dc_rx_no_test] Show the field ONLY if: [cow_dc_case] = '1'	What antimicrobial drug would you prescribe for treatment?	radio 1 Amoxicillin Trihydrate 2 Ceftiofur Hydrochloride 3 Ceftiofur Sodium 4 Cephapirin Sodium 5 Cloxacillin Benzathine or Sodium 6 Erythromycin 7 Hetacillin Potassium 8 Novobiocin Sodium 9 Penicillin G Procaine 10 Penicillin G Procaine and Dihydrostreptomycin 11 Penicillin G Procaine and Novobiocin Sodium 12 Pirlimycin Hydrochloride 13 Other
112	[otherrx_notest_cow_dc] Show the field ONLY if: [cow_dc_rx_no_test] = '13'	If you chose other, what antimicrobial drug would you prescribe?	text
113	[cow_dc_rx_while_test] Show the field ONLY if: [cow_dc_case] = '2'	What antimicrobial drug would you prescribe for treatment?	radio 1 Amoxicillin Trihydrate 2 Ceftiofur Hydrochloride 3 Ceftiofur Sodium 4 Cephapirin Sodium 5 Cloxacillin Benzathine or Sodium 6 Erythromycin 7 Hetacillin Potassium 8 Novobiocin Sodium 9 Penicillin G Procaine 10 Penicillin G Procaine and Dihydrostreptomycin

			11 Penicillin G Procaine and Novobiocin Sodium 12 Pirlimycin Hydrochloride 13 Other
114	[otherrx_while_cow_dc] Show the field ONLY if: [cow_dc_rx_while_test] = '13'	If you chose other, what antimicrobial drug would you prescribe?	text
115	[cow_dc_while_result] Show the field ONLY if: [cow_dc_case] = '2'	A sample of milk is cultured and E. coli is identified. Given this information, would you change the antimicrobial treatment prescribed?	radio 1 Yes 2 Stop antimicrobial treatment 3 No
116	[cow_dc_change_rx] Show the field ONLY if: [cow_dc_while_result] = '1'	What would you change to?	radio 1 Amoxicillin Trihydrate 2 Ceftiofur Hydrochloride 3 Ceftiofur Sodium 4 Cephapirin Sodium 5 Cloxacillin Benzathine or Sodium 6 Erythromycin 7 Hetacillin Potassium 8 Novobiocin Sodium 9 Penicillin G Procaine 10 Penicillin G Procaine and Dihydrostreptomycin 11 Penicillin G Procaine and Novobiocin Sodium 12 Pirlimycin Hydrochloride 13 Other
117	[otherrx_whilechange_cow_dc] Show the field ONLY if: [cow_dc_change_rx] = '13'	If you chose other, what antimicrobial drug would you prescribe?	text
118	[cow_dc_test_rx] Show the field ONLY if: [cow_dc_case] = '3'	A sample of milk is cultured and E. coli is identified. Given this information, if any, antimicrobial treatment would you prescribe?	radio 1 None 2 Amoxicillin Trihydrate 3 Ceftiofur Hydrochloride 4 Ceftiofur Sodium 5 Cephapirin Sodium 6 Cloxacillin Benzathine or Sodium 7 Erythromycin 8 Hetacillin Potassium 9 Novobiocin Sodium 10 Penicillin G Procaine

			11 Penicillin G Procaine and Dihydrostreptomycin 12 Penicillin G Procaine and Novobiocin Sodium 13 Pirlimycin Hydrochloride 14 Other
119	[otherrx_test_cow_dc] Show the field ONLY if: [cow_dc_test_rx] = '14'	If you chose other, what antimicrobial drug would you prescribe?	text
120	[cow_dc_report] Show the field ONLY if: [cow_dc_case] = '1' or [cow_dc_case] = '2' or [cow_dc_case] = '3' or [cow_dc_case] = '4'	For the above scenario, would you contact the state veterinary office?	yesno 1 Yes 0 No
121	[poultry_case] Show the field ONLY if: [type_species(4)] = '1'	A 20,000 bird commercial poultry farm (5,000 birds per barn) reports a 20% mortality in chicks with clinical signs including sudden death, respiratory distress and lethargy in one barn. Recently, there was a change in source for the breeder flock. Given this information, which treatment do you recommend?	radio 1 Administer antimicrobial therapy to all poultry on premises 2 Administer antimicrobial therapy to affected poultry barns only 3 Non-antimicrobial treatments (intensify monitoring, nutritional supplements, vaccination, etc) 4 No treatment
122	[poultry_rx] Show the field ONLY if: [poultry_case] = '1' or [poultry_case] = '2'	What antimicrobial drug would you prescribe for treatment?	radio 1 Amoxicillin 2 Bacitracin 3 Bambermycin 4 Ceftiofur 5 Chlortetracycline 6 Enrofloxacin 7 Erythromycin 8 Flavophospholipol 9 Florfenicol 10 Gentamicin 11 Lincomycin 12 Neomycin 13 Novobiocin 14 Oxytetracycline 15 Penicillin 16 Spectinomycin 17 Streptomycin 18 Sulfadimethoxine 19 Sulphathiazole 20 Tetracycline

			21 Trimethoprim/sulfamethoxazole 22 Tylosin tartrate 23 Virginiamycin
123	[poultry_result] Show the field ONLY if: [poultry_case] = '1' or [poultry_case] = '2'	A culture of the liver and air sac was performed on four affected chicks, and results showed isolation of E. coli. Given this information, would you change the treatment prescribed?	radio 2 Start antimicrobial treatment 3 Change antimicrobial drug prescribed 4 Stop antimicrobial treatment 5 Start non-antimicrobial treatments 1 No changes to treatment plan
124	[poultry_result_rx] Show the field ONLY if: [poultry_result] = '2' or [poultry_result] = '3'	What antimicrobial would you use to treat these animals?	radio 1 Amoxicillin 2 Bacitracin 3 Bambermycin 4 Ceftiofur 5 Chlortetracycline 6 Enrofloxacin 7 Erythromycin 8 Flavophospholipol 9 Florfenicol 10 Gentamicin 11 Lincomycin 12 Neomycin 13 Novobiocin 14 Oxytetracycline 15 Penicillin 16 Spectinomycin 17 Streptomycin 18 Sulfadimethoxine 19 Sulphathiazole 20 Tetracycline 21 Trimethoprim/sulfamethoxazole 22 Tylosin tartrate 23 Virginiamycin
125	[poultry_report] Show the field ONLY if: [poultry_case] = '1' or [poultry_case] = '2' or [poultry_case] = '3' or [poultry_case] = '4'	For the above scenario, would you contact the state veterinary office?	yesno 1 Yes 0 No
126	[header_large_matrix_la_coms] Show the field ONLY if:	When working with commercial or large animals, who do you communicate instructions to for administering antimicrobials to the patient(s)?	descriptive

	[type_species(4)] = '1' or [type_species(5)] = '1' or [type_species(6)] = '1'		
127	[la_owner_coms] Show the field ONLY if: [type_species(4)] = '1' or [type_species(5)] = '1' or [type_species(6)] = '1'	I communicate antimicrobial treatment plan directly to the farm or premise owner	radio (Matrix) 1 Strongly Agree 2 Agree 3 Neutral 4 Disagree 5 Strongly Disagree
128	[la_tech_coms] Show the field ONLY if: [type_species(4)] = '1' or [type_species(5)] = '1' or [type_species(6)] = '1'	I communicate antimicrobial treatment plan to a veterinary assistant/technician, who communicates this to individuals carrying out treatment.	radio (Matrix) 1 Strongly Agree 2 Agree 3 Neutral 4 Disagree 5 Strongly Disagree
129	[la_manager_coms] Show the field ONLY if: [type_species(4)] = '1' or [type_species(5)] = '1' or [type_species(6)] = '1'	I communicate antimicrobial treatment plan to the farm or premise manager.	radio (Matrix) 1 Strongly Agree 2 Agree 3 Neutral 4 Disagree 5 Strongly Disagree
130	[la_hand_coms] Show the field ONLY if: [type_species(4)] = '1' or [type_species(5)] = '1' or [type_species(6)] = '1'	I communicate antimicrobial treatment plan to a farm hand, who is employed by animal owner and provides care to animal.	radio (Matrix) 1 Strongly Agree 2 Agree 3 Neutral 4 Disagree 5 Strongly Disagree
131	[chick1_by_case] Show the field ONLY if: [type_species(3)] = '1'	Section Header: The owner of a backyard chicken enclosure has just received 8 new chicks in the mail, and has introduced them to the flock. Since then, some adult birds in the flock are showing respiratory symptoms, including wheezing, discharge from eyes and nose, lethargy and decreased appetite. Given this information, which treatment do you recommend?	radio 1 Empiric antimicrobial therapy without submitting samples for diagnostic testing 2 Empiric antimicrobial drugs while awaiting results from diagnostic lab 3 Antimicrobial drugs once diagnostic test results are complete 4 Non-antimicrobial treatment options (For example: quarantine symptomatic individuals, cull) 5 I do not treat this species
132	[which_chick] Show the field ONLY if: [chick1_by_case] = '1' or [chick1_by_case] = '2' or [chick1_by_case] = '3'	For this situation given, would you treat:	radio 1 Symptomatic adult birds 2 All adult birds 3 All birds in the flock (adults and chicks)

133	[chick1_by_rx_no_test] Show the field ONLY if: [chick1_by_case] = '1'	What antimicrobial drug would you prescribe for treatment?	radio 1, Amoxicillin 2, Bacitracin 3, Bambermycin 4, Ceftiofur 5, Chlortetracycline 6, Enrofloxacin 7, Erythromycin 8, Flavophospholipol 9, Florfenicol 10, Gentamicin 11, Lincomycin 12, Neomycin 13, Novobiocin 14, Oxytetracycline 15, Penicillin 16, Spectinomycin 17, Streptomycin 18, Sulphathiazole 19, Tetracycline 20, Trimethoprim/sulfamethoxazole 21, Tylosin tartrate 22, Virginiamycin
134	[chick1_by_rx_while_test] Show the field ONLY if: [chick1_by_case] = '2'	What antimicrobial drug would you prescribe for treatment?	radio 1, Amoxicillin 2, Bacitracin 3, Bambermycin 4, Ceftiofur 5, Chlortetracycline 6, Enrofloxacin 7, Erythromycin 8, Flavophospholipol 9, Florfenicol 10, Gentamicin 11, Lincomycin 12, Neomycin 13, Novobiocin 14, Oxytetracycline 15, Penicillin 16, Spectinomycin 17, Streptomycin

			18 Sulphathiazole 19 Tetracycline 20 Trimethoprim/sulfamethoxazole 21 Tylosin tartrate 22 Virginiamycin
135	[chick1_by_rx_while_result] Show the field ONLY if: [chick1_by_case] = '2'	A tracheal swab was taken to identify bacterial and/or viral pathogens. Results showed a positive PCR for Mycoplasma gallisepticum. Given this information, would you change the antimicrobial treatment prescribed?	radio 1 Yes 2 Stop antimicrobial treatment 3 No
136	[chick1_by_change_rx] Show the field ONLY if: [chick1_by_rx_while_result] = '1'	What would you change to?	radio 1 Amoxicillin 2 Bacitracin 3 Bambermycin 4 Ceftiofur 5 Chlortetracycline 6 Enrofloxacin 7 Erythromycin 8 Flavophospholipol 9 Florfenicol 10 Gentamicin 11 Lincomycin 12 Neomycin 13 Novobiocin 14 Oxytetracycline 15 Penicillin 16 Spectinomycin 17 Streptomycin 18 Sulphathiazole 19 Tetracycline 20 Trimethoprim/sulfamethoxazole 21 Tylosin tartrate 22 Virginiamycin
137	[chick1_by_test_rx] Show the field ONLY if: [chick1_by_case] = '3'	A tracheal swab was taken to identify bacterial and/or viral pathogens. Results showed a positive PCR for Mycoplasma gallisepticum. Given this information, what antimicrobial treatment, if any, would you prescribe?	radio 1 None 2 Amoxicillin 3 Bacitracin 4 Bambermycin 5 Ceftiofur 6 Chlortetracycline 7 Enrofloxacin 8 Erythromycin

			9 Flavophospholipol 10 Florfenicol 11 Gentamicin 12 Lincomycin 13 Neomycin 14 Novobiocin 15 Oxytetracycline 16 Penicillin 17 Spectinomycin 18 Streptomycin 19 Sulphathiazole 20 Tetracycline 21 Trimethoprim/sulfamethoxazole 22 Tylosin tartrate 23 Virginiamycin
138	[chick1_by_report] Show the field ONLY if: [chick1_by_case] = '1' or [chick1_by_case] = '2' or [chick1_by_case] = '3' or [chick1_by_case] = '4'	For the above scenario, would you contact the state veterinary office?	yesno 1 Yes 0 No
139	[goat_case] Show the field ONLY if: [type_species(3)] = '1'	In a backyard farm setting, a goat presents with a submandibular abscess. The owner of the backyard farm is concerned about caseous lymphadenitis (Corynebacterium pseudotuberculosis, CL), and is inquiring about treatment for this, as well as methods to control the spread to the rest of the herd. Given this information, which treatment do you recommend?	radio 1 Empiric antimicrobial therapy without submitting samples for diagnostic testing 2 Empiric antimicrobial drugs while awaiting results from diagnostic lab 3 Antimicrobial drugs once diagnostic test results are complete 4 Non-antimicrobial treatments (For example: quarantine symptomatic individuals, drain abscess, remove lymph nodes, cull) 5 I do not treat this species
140	[which_goats] Show the field ONLY if: [goat_case] = '1' or [goat_case] = '2' or [goat_case] = '3'	For the above scenario, which animals in the backyard farm would be treated?	radio 1 Treat symptomatic goat only 2 Treat all goats in the herd 3 Treat all animals on the farm
141	[goat_rx_no_test] Show the field ONLY if: [goat_case] = '1'	What antimicrobial drug would you prescribe for treatment?	radio 1 Ampicillin 2 Bacitracin 3 Ceftiofur 4 Danofloxacin 5 Enrofloxacin 6 Florfenicol

			7 Gamithromycin 8 Gentamicin 9 Lincomycin 10 Neomycin 11 Penicillin 12 Pradofloxacin 13 Spectinomycin 14 Sulfadimethoxine 15 Tetracycline 16 Tiamulin 17 Tildipirosin 18 Tilmicosin 19 Trimethoprim/sulfamethoxazole 20 Tulathromycin 21 Tylosin tartrate 22 Virginiamycin
142	[goat_rx_while_test] Show the field ONLY if: [goat_case] = '2'	What antimicrobial drug would you prescribe for treatment?	radio 1 Ampicillin 2 Bacitracin 3 Ceftiofur 4 Danofloxacin 5 Enrofloxacin 6 Florfenicol 7 Gamithromycin 8 Gentamicin 9 Lincomycin 10 Neomycin 11 Penicillin 12 Pradofloxacin 13 Spectinomycin 14 Sulfadimethoxine 15 Tetracycline 16 Tiamulin 17 Tildipirosin 18 Tilmicosin 19 Trimethoprim/sulfamethoxazole 20 Tulathromycin 21 Tylosin tartrate 22 Virginiamycin
143	[goat_rx_while_result] Show the field ONLY if:	A culture of the abscess material or exudate was performed, and results showed isolation of	radio 1 Yes

	[goat_case] = '2'	Staphylococcus aureus. Given this information, would you change the antimicrobial treatment prescribed?	2, Stop antimicrobial treatment 3, No
144	[goat_change_rx] Show the field ONLY if: [goat_rx_while_result] = '1'	What would you change to?	radio 1, Ampicillin 2, Bacitracin 3, Ceftiofur 4, Danofloxacin 5, Enrofloxacin 6, Florfenicol 7, Gamithromycin 8, Gentamicin 9, Lincomycin 10, Neomycin 11, Penicillin 12, Pradofloxacin 13, Spectinomycin 14, Sulfadimethoxine 15, Tetracycline 16, Tiamulin 17, Tildipirosin 18, Tilmicosin 19, Trimethoprim/sulfamethoxazole 20, Tulathromycin 21, Tylosin tartrate 22, Virginiamycin
145	[goat_test_rx] Show the field ONLY if: [goat_case] = '3'	A culture of the abscess material or exudate was performed, and results showed isolation of Staphylococcus aureus. Given this information, what antimicrobial treatment, if any, would you prescribe?	radio 1, None 2, Ampicillin 3, Bacitracin 4, Ceftiofur 5, Danofloxacin 6, Enrofloxacin 7, Florfenicol 8, Gamithromycin 9, Gentamicin 10, Lincomycin 11, Neomycin 12, Penicillin 13, Pradofloxacin 14, Spectinomycin 15, Sulfadimethoxine

			16 Tetracycline 17 Tiamulin 18 Tildipirosin 19 Tilmicosin 20 Trimethoprim/sulfamethoxazole 21 Tulathromycin 22 Tylosin tartrate 23 Virginiamycin
146	[goat_report] Show the field ONLY if: [goat_case] = '1' or [goat_case] = '2' or [goat_case] = '3' or [goat_case] = '4'	For the above scenario, would you contact the state veterinary office?	yesno 1 Yes 0 No
147	[header_large_matrix_by_coms] Show the field ONLY if: [type_species(3)] = '1'	When working with backyard animals, who do you communicate instructions to for administering antimicrobials to the patient(s)?	descriptive
148	[by_owner_coms] Show the field ONLY if: [type_species(3)] = '1'	I communicate antimicrobial treatment plan directly to backyard farm or animal owner.	radio (Matrix) 1 Strongly Agree 2 Agree 3 Neutral 4 Disagree 5 Strongly Disagree
149	[by_manager_coms] Show the field ONLY if: [type_species(3)] = '1'	I communicate antimicrobial treatment plan to the production manager of farm where animal resides.	radio (Matrix) 1 Strongly Agree 2 Agree 3 Neutral 4 Disagree 5 Strongly Disagree
150	[by_tech_coms] Show the field ONLY if: [type_species(3)] = '1'	I communicate antimicrobial treatment plan to a veterinary assistant/technician, who communicates this to individuals carrying out treatment.	radio (Matrix) 1 Strongly Agree 2 Agree 3 Neutral 4 Disagree 5 Strongly Disagree
151	[by_staff_coms] Show the field ONLY if: [type_species(3)] = '1'	I communicate antimicrobial treatment plan to animal care staff.	radio (Matrix) 1 Strongly Agree 2 Agree 3 Neutral 4 Disagree 5 Strongly Disagree
152	[by_other_coms] Show the field ONLY if:	I communicate antimicrobial treatment plan to another person not directly involved in treatment	radio (Matrix) 1 Strongly Agree

	[type_species(3)] = '1'	plan of the animal.	2, Agree 3, Neutral 4, Disagree 5, Strongly Disagree
153	[unknown_abx]	Section Header: *You are almost done with the survey, just one very long question, and two very short questions left!* This is a very long list, but please select all the antimicrobials that you have NOT heard of, or are unfamiliar with.	checkbox

1	unknown_abx___1	Amikacin
2	unknown_abx___2	Amoxicillin
3	unknown_abx___3	Amoxicillin Trihydrate
4	unknown_abx___4	Amoxicillin/Clavulanic
5	unknown_abx___5	Ampicillin
6	unknown_abx___6	Bacitracin
7	unknown_abx___7	Bambermycin
8	unknown_abx___8	Cefazolin
9	unknown_abx___9	Cefovecin
10	unknown_abx___10	Cefpodoxime
11	unknown_abx___11	Ceftazidime
12	unknown_abx___12	Ceftiofur
13	unknown_abx___13	Ceftiofur Hydrochloric
14	unknown_abx___14	Ceftiofur Sodium
15	unknown_abx___15	Cephalexin
16	unknown_abx___16	Cephalothin
17	unknown_abx___17	Cephapirin Sodium
18	unknown_abx___18	Chloramphenicol
19	unknown_abx___19	Chlortetracycline
20	unknown_abx___20	Clarithromycin
21	unknown_abx___21	Clindamycin
22	unknown_abx___22	Cloxacillin Benzathine Sodium
23	unknown_abx___23	Danofloxacin
24	unknown_abx___24	Doripenem
25	unknown_abx___25	Doxycycline
26	unknown_abx___26	Enrofloxacin
27	unknown_abx___27	Ertapenem
28	unknown_abx___28	Erythromycin
29	unknown_abx___29	Flavophospholipol
30	unknown_abx___30	Florfenicol
31	unknown_abx___31	Gamithromycin
32	unknown_abx___32	Gentamicin
33	unknown_abx___33	Hetacillin Potassium
34	unknown_abx___34	Imipenem
35	unknown_abx___35	Imipenim
36	unknown_abx___36	Lincomycin

			37 unknown_abx___37 Linezolid 38 unknown_abx___38 Marbofloxacin 39 unknown_abx___39 Meropenem 40 unknown_abx___40 Minocycline 41 unknown_abx___41 Mupirocin 42 unknown_abx___42 Neomycin 43 unknown_abx___43 Nitrofurantoin 44 unknown_abx___44 Novobiocin 45 unknown_abx___45 Novobiocin Sodium 46 unknown_abx___46 Orbifloxacin 47 unknown_abx___47 Oxacillin 48 unknown_abx___48 Oxytetracycline 49 unknown_abx___49 Penicillin 50 unknown_abx___50 Penicillin G Procaine 51 unknown_abx___51 Penicillin G Procaine a Dihydrostreptomycin 52 unknown_abx___52 Penicillin G Procaine a Novobiocin Sodium 53 unknown_abx___53 Piperacillin/tazobactar 54 unknown_abx___54 Pirlimycin Hydrochlori 55 unknown_abx___55 Pradofloxacin 56 unknown_abx___56 Rifampin 57 unknown_abx___57 Spectinomycin 58 unknown_abx___58 Streptomycin 59 unknown_abx___59 Sulfadimethoxine 60 unknown_abx___60 Sulphadimethoxine 61 unknown_abx___61 Sulphathiazole 62 unknown_abx___62 Tetracycline 63 unknown_abx___63 Tiamulin 64 unknown_abx___64 Tildipirosin 65 unknown_abx___65 Tilmicosin 66 unknown_abx___66 Trimethoprim/sulfam 67 unknown_abx___67 Tulathromycin 68 unknown_abx___68 Tylosin tartrate 69 unknown_abx___69 Vancomycin 70 unknown_abx___70 Virginiamycin
154	[desc_text4]	Thank you for your time! Just two final questions.	descriptive
155	[raffle]	For participating in this study, we would like to compensate you for your time by putting your name into a raffle to win a $50 gift card. Would you like your name added to the raffle?	yesno 1 Yes 0 No
156	[raffle_email] Show the field ONLY if:	Please provide your email to notify you if you are a raffle winner.	text (email)

	[raffle] = '1'		
157	[future]	Would you be interested in hearing about future studies and the results of this survey? Future studies would be strictly related to the veterinary field (e.g., occupational health, one health, AMR)	yesno 1 Yes 0 No
158	[future_email] Show the field ONLY if: [future] = '1'	Please provide your email to connect with you about future studies.	text (email)
159	[form_1_complete]	Section Header: *Form Status* Complete?	dropdown 0 Incomplete 1 Unverified 2 Complete