# Participant Package

# Multimethod Questionnaire for the Co-Design of Spectrum DVM Using a Multidisciplinary One Health Approach

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This questionnaire comprises a total of **47 questions**. There are 6 sections.

The following sections regard <u>quantitative</u> assessment (33 questions in total):
Section 1.0 gathers quantitative demographic information (13 questions)
Section 2.0 assesses antimicrobial use (4 questions)
Section 3.0 assess antimicrobial stewardship (16 questions)

The following sections regard <u>qualitative</u> assessment (14 questions in total):

Section 4.0 explores prescribing practices (2 questions) and,
Section 5.0 explores Spectrum DVM co-design (8 questions) and,
Section 6.0 explores veterinary knowledge of the philosophy/concept/approach of 'One Health' (4 questions)

## Section 1.0 Demographic Section – Closed-ended quantitative assessment (13 questions)

1.  In what age range are you?
    o   18 – 24
    o   25 – 34
    o   35 – 44
    o   45 – 54
    o   55 – 64
    o   65+
    o   Prefer not to disclose

2.  What is your gender?
    o   Male
    o   Female
    o   You don't have an option that applies to me. I identify as _____
    o   Prefer not to disclose

3.  Please select which of the following applies to you:
    o   I am a veterinarian
    o   I am a veterinary technician
    o   I am a veterinary student
    o   Prefer not to disclose

4. In which year did you graduate from your veterinary program? _____

5. If you are a veterinary technician, in which year did you receive your veterinary technician qualifications? _____

6. If you are a veterinary student, in what year of veterinary training are you currently? _____

7. Which veterinary school did you graduate from?
   o Atlantic Veterinary College
   o Ontario Veterinary College
   o University of Calgary
   o Université de Montréal
   o Western College of Veterinary Medicine
   o Other (please specify) _____

8. How many years of <u>active</u> practice have you had as a veterinarian? _____

9. Have you completed any further formal training since you graduated? Please select all that apply.
   o Internship
   o Residency Program
   o Masters Program
   o PhD Program
   o Other (please specify) _____
   o No
   o Prefer not to disclose

10. Which of the following best describes your current primary type of practice? Please select all that apply.
   o Companion animal general practice
   o Companion animal specialty practice
   o Companion animal emergency practice
   o Veterinary teaching hospital
   o Mixed animal practice
   o Food animal practice
   o Feline only practice
   o Other
   o Prefer not to disclose

11. Which best describes your position?
   o Practice owner
   o Practice co-owner
   o Associate veterinarian
   o Locum
   o Other _____
   o Prefer not to disclose

12. Approximately whole number percentage (%) of the following species contribute(s) to your gross annual billing as a veterinarian?
   o Beef cattle _____
   o Cats _____
   o Dairy cattle _____
   o Pigs _____
   o Dogs _____
   o Small ruminants _____
   o Horses _____
   o Sheep _____
   o Exotics _____
   o Prefer not to disclose

13. In what region of Alberta is the veterinary practice located where you most often practice as a veterinarian/veterinary technician? (*please see map at end of document*)
   o Mackenzie
   o Wood Buffalo
   o Peace Country
   o Slave Lake
   o North Central
   o Northeast
   o Capital
   o West Yellowhead
   o Central
   o Battle River
   o Calgary
   o Palliser
   o Southwest
   o South Central
   o Not applicable
   o Prefer not to disclose

-----------------------------------------------------END OF DEMOGRAPHIC SECTION----------------------------

## Section 2.0 Antimicrobial Use Section – Closed-ended quantitative assessment (4 questions)

14. During a routine appointment, what percentage of pets do you estimate are prescribed at least one systemic antibiotic of any form? (i.e. oral or injectable)
    o   < 10%
    o   10 – 25%
    o   26 – 50%
    o   > 50%
    o   Not sure
    o   Prefer not to disclose

15. When a systemic antibiotic is prescribed (i.e., oral or injectable), what percentage of patients do you estimate have culture and susceptibility testing performed prior to prescription, e.g., you submit a urine culture and wait for the results BEFORE prescribing an antibiotic?
    o   < 10%
    o   10 – 25%
    o   26 – 50%
    o   > 50%
    o   Not sure
    o   Prefer not to disclose

16. When a systemic antibiotic is prescribed, what percentage of patients do you estimate have culture and susceptibility testing performed at the start of the course, e.g. you submit a urine culture but start the antibiotic before the results are back?
    o   < 10%
    o   10 – 25%
    o   26 – 50%
    o   > 50%
    o   Not sure
    o   Prefer not to disclose

17. What is the likelihood that you would recommend submission of a culture for the following clinical presentations? (5-point Likert scale)
    (Very likely =1; Likely =2, Neutral=3, Low likelihood=4, Not likely at all=5, Prefer not to disclose=6)
    o   Dysuria in a dog
    o   Dysuria in a cat
    o   Pyoderma in a dog
    o   Suspected sepsis
    o   Pneumonia in dog
    o   Pneumonia in a horse
    o   Feedlot pneumonia

-------------------------------------------------------END OF ANTIMICROBIAL USE SECTION---------------------

## Section 3.0 Antimicrobial Stewardship Section – Closed-ended quantitative assessment (16 questions)

17 How important do you consider each of the following, when you are choosing an antimicrobial?
(**Please rank from 1 to 8, where 1=most important and 8=least important**)

_____ The organ, system that is affected, or specific disease condition
_____ Whether this is a first-time infection or a recurrent infection
_____ Whether an antibiotic has been used previously in this patient
_____ The importance of the antibiotic in human medicine
_____ Results of culture and susceptibility testing
_____ Cost to the owner
_____ Route of administration
_____ Frequency of administration

18 When prescribing an antibiotic which of the following help guide your selection?

| | Strongly agree (1) | Somewhat agree (2) | Neither agree nor disagree (3) | Somewhat disagree (4) | Strongly disagree (5) | Not sure/NA (6) |
|---|---|---|---|---|---|---|
| My own experience with a particular drug | ○ | ○ | ○ | ○ | ○ | ○ |
| My colleagues' experience with a particular drug | ○ | ○ | ○ | ○ | ○ | ○ |
| My practice's antimicrobial guidelines | ○ | ○ | ○ | ○ | ○ | ○ |
| The disease specific antimicrobial guidelines | ○ | ○ | ○ | ○ | ○ | ○ |

19. Please indicate how strongly you agree or disagree with the following statements.

| | Strongly agree (1) | Somewhat agree (2) | Neither agree nor disagree (3) | Somewhat disagree (4) | Strongly disagree (5) | Not sure/NA (6) |
|---|---|---|---|---|---|---|
| Antimicrobial resistance is a problem in veterinary medicine | ○ | ○ | ○ | ○ | ○ | ○ |
| Antimicrobial resistance has had an impact on my patients | ○ | ○ | ○ | ○ | ○ | ○ |
| Antimicrobial stewardship is important to me | ○ | ○ | ○ | ○ | ○ | ○ |
| I would like to practice better antimicrobial stewardship | ○ | ○ | ○ | ○ | ○ | ○ |
| I try and read the latest literature and guidelines related to antimicrobial use | ○ | ○ | ○ | ○ | ○ | ○ |
| My colleagues and I routinely discuss antimicrobial protocols | ○ | ○ | ○ | ○ | ○ | ○ |

| I would like to attend more CE about responsible antimicrobial use | ○ | ○ | ○ | ○ | ○ | ○ |
| --- | --- | --- | --- | --- | --- | --- |

20. How important are the following as barriers to antimicrobial stewardship in your practice? (**please rank from 1 to 5, where 1=most important and 5=least important**)

Getting clients consent to culture
Cost of culture
Owner pressure to prescribe something
Lack of good prescribing guidelines
Pressure from practice owners/managers to prescribe

21. Which of the following factors are a barrier to stewardship in your own daily practice? Please select all that apply.

☐ Accessibility of guidelines

☐ Accessibility of the literature

☐ My practice protocols

☐ Pet owner expectation

☐ Pet owner finances for appropriate testing

☐ Time to read around the subject

☐ Time to adequately counsel pet owners

☐ Other/none

☐ Prefer not to disclose

22. Which of the following antimicrobial guidelines do you routinely use? Please select all that apply.

☐ American Veterinary Medical Association (AVMA)

☐ British Small Animal Veterinary Medical Association (BSAVA)

☐ Canadian Veterinary Medical Association (CVMA)

☐ Federation of European Companion Animal Veterinary Associations (FECAVA)

☐ International Society for Companion Animal Infectious Diseases (ISCAID)

☐ None

☐ Other (please specify) _____

**If yes to CVMA,**
23. Do you currently use the *Canadian Veterinary Medical Association's Guidelines for Veterinary Antimicrobial Use* web-based tool to aid in antimicrobial prescribing?
    o Yes
    o No
    o Unsure
    o Prefer not to disclose

24. Does your practice have an antimicrobial stewardship protocol already in place?

○ Yes

○ No

○ Not sure

○ Prefer not to disclose

**If yes to Q24,**

25. Do you find your practice antimicrobial stewardship protocol helpful?

○ Yes

○ No

○ Not sure

○ Prefer not to disclose

26. How do you think you compare to your colleagues with regards to antimicrobial stewardship?

○ I think I am weaker than my most of colleagues

○ I think I am about the same as most of my colleagues

○ I think I am better than most of my colleagues

○ I'm not sure

27. How important do you think antibiotic resistance is in human medicine?

○ Very important

○ Important

○ Slightly important

○ Not sure

○ Not at all important

○ Prefer not to disclose

28. How important do you think antibiotic resistance is in veterinary medicine?

○ Very important

○ Important

○ Slightly important

○ Not sure

○ Not at all important

○ Prefer not to disclose

29. Do you think that antibiotic use in cats and dogs poses a risk to resistance in the human population?

○ Definitely yes

○ Probably yes

○ Might or might not

○ Probably not

○ Definitely not

○ Prefer not to disclose

30. Do you think that antibiotic use in food animals poses a risk to resistance in the human population?

○ Definitely yes

○ Probably yes

○ Might or might not

○ Probably not

○ Definitely not

○ Prefer not to disclose

31. Which of the following methods of continuing education would you find useful to help improve your stewardship in practice? Please select all that apply.

☐ Web-based prescribing guidelines

☐ App-based prescribing guidelines

☐ Conference or courses

☐ Online courses

☐ Seminars in my practice

☐ Webinars

☐ Other (please specify)

☐ None

☐ Prefer not to disclose

**If respondent chooses "Q31 Other (please specify)**
32. Please specify what other continuing education methods you would find useful. You may write in more than one answer.

_____

-----------------------------------------END OF ANTIMICROBIAL STEWARDSHIP SECTION----------------------------

## Section 4.0 Assessment of Prescribing Practices - open-ended, qualitative assessment (2 questions)

1. Have you ever felt pressured by a client to prescribe an antimicrobial when you thought it wasn't necessary?
   If yes, question about how common is this?

2. Have you ever had a client question your decision to prescribe an antimicrobial because of concerns about antimicrobial resistance?

### Thank you, that was very helpful. Do you have any questions or comments?

## Section 5.0 Spectrum DVM Co-Design - open-ended, qualitative assessment (8 questions)

Interviewer: *I am going to present you with a "mock-up" of an antimicrobial prescribing and stewardship "app" for the veterinary community. This "app" is based on Spectrum MD, an antimicrobial application for physicians in Alberta. I will ask you some questions to guide us through your thoughts about the Spectrum DVM "mock-up" and how it might be developed for the veterinary community.*
*I would ask you to think aloud as much as possible: to say what you're looking at, and what you're thinking.*

==Present mock-up of Spectrum DVM==

When user first opens app, some selection → preferences → app will respond to choices (i.e., user behaviour) so the app changes preferences for the user (or rather keeps this in mind). All species visible but most frequently treated at top.
==Note:== mention to respondent and seek feedback

1. What are your first impressions of the Spectrum DVM mock up?

2. What key information would you like to see included in Spectrum DVM "app" content?

3. Can you think of any clinical situations that would benefit from the use of Spectrum DVM (and in what way)?

4. Can you think of any clinical situations in which Spectrum DVM would have a negative effect? (and why?).

5. What might keep veterinary professionals from incorporating Spectrum DVM or the information it provides into their current practice?

6. What do you find most appealing about Spectrum DVM in its current "mock-up" format?

7. What functions/qualities should Spectrum DVM include to influence its usability and its longevity in your practice?

8. Could you see yourself using and recommending Spectrum DVM to your colleagues?

**Thank you, that was very helpful. Do you have any questions or comments?**

## Section 6.0 Assessment of Veterinary Knowledge of the Philosophy/Concept/Approach of One Health - open-ended, qualitative assessment (4 questions)

1. In your opinion, what does the term 'One Health' mean?

2. Do you consider the concept of 'One Health' when prescribing antimicrobials?

3. What practices of veterinarians do you believe reflect a good understanding of the One Health approach to the management of AMR in veterinary practice?

4. Who do you think should have access to this "DVM app"? (e.g. Only veterinarians; veterinary students, veterinary technicians, production animal operation owners; everyone?)

**Thank you, that was very helpful. Do you have any questions or comments?**

**Closing remarks:**
Thank you for your time and your help in the co-design of Spectrum DVM. Are there any additional comments you would like to add on the topic of prescribing and/or AMR?

Are there any closing comments you would like to make with respect to Spectrum DVM?

**Figure 1** Map of Alberta to show respondents regarding question 7 - *Source: https://investalbertamag.ca/map-albertas-economic-regions/Accessed November 27, 2*

**UNIVERSITY OF CALGARY**

Debrief

Thank you for participating in our study. We would like to provide you with a brief summary of the background and the objectives of this study.

The Spectrum DVM iOS and Android-based smart phone application and Spectrum Content Management System web-based application (CMS) are being developed to become a digital steward for use in Alberta and nationally which will increase adherence to veterinary prescription guidelines and reduce antimicrobial resistance.

The evaluation done today collects both formative and summative feedback. The evaluation will produce benchmark data regarding the layout and organization of Spectrum DVM "app" for use in veterinary medicine.

We very much appreciate your participation in this study, which has contributed to furthering our understanding of antimicrobial use in veterinary practice and the most appropriate layout and organization of the Spectrum DVM "app" to facilitate veterinary needs. Should you have any questions or concerns regarding this study please contact the study's Research Associate:

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Thank you!