Seroprevalence and exposure to risk factors for leptospirosis among veterinary students at Massey University

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Supplementary Table 1. Participant questionnaire: Study of Leptospirosis among veterinary students

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Study of Leptospirosis among Veterinary Students Participant Questionnaire

The objectives of this study are to measure the prevalence of leptospirosis infection or exposure in veterinary students at Massey University, and to investigate risk factors for sero-prevalence during both scheduled study and other times. This study will quantify the risk of infection, identify sources of infection, and guide the faculty in developing control measures if appropriate.

In New Zealand, leptospirosis is the most common occupationally acquired zoonotic disease. Cattle, sheep and deer are the most important animal reservoirs. Human exposure to *Leptospira* is mainly through contacting infected animal urine via abrasions or cuts in the skin, or intact mucous membranes. The majority of notified leptospirosis cases in New Zealand are due to occupational risk factors.

Personal information included in the questionnaire will be treated in the strictest confidence and will not be published or disclosed to any third parties by the research team in a manner that would allow identification of participants.

The study has the approval of the Massey University Human Research Ethics Committee.

The research team appreciates your participation in this study of leptospirosis.

1 Participant identification

Note: please make sure you have read through and signed the consent and confidentiality form before taking part in this study.

Name	
Gender	Male ☐ Female ☐
Date of Birth	(day/month/year) ____/____/____
Which option best identifies your ethnic affiliation?	NZ-Maori ☐ Pacific Islander ☐ NZ-European ☐ Asian ☐ Other ☐ _____
Which year of the course are you currently in?	First ☐ Second ☐ Third ☐ Fourth ☐ Fifth ☐ * If you had repeated studying for your courses, please state ____ year
Track (Fifth year students only)	Companion Animal ☐ Production Animal ☐ Equine ☐ Wildlife Animal ☐ Avian Species ☐ Mixed ☐ Other ☐ (Please state) _____
What location/s have you lived in during the past 18 months ? (please state the proportions if you have been living in more than one type of the locations)	Rural ☐ % Urban ☐ % Lifestyle* ☐ % * i.e. Small block with grazing animals

2 Exposure within the veterinary curriculum *

(* Includes scheduled semester courses, vacation veterinary practical requirement, and farm practical as part of the veterinary curriculum only (other potential exposures are in section 3 below))

This section asks about your potential exposure to the risk of leptospirosis from each of the animal species you may have been in contact with during the veterinary curriculum.

2.1 Appliance of personal protective equipment during veterinary curriculum

During the veterinary curriculum, approximately what percentage of the time do you use the recommended personal protective equipment, such as gloves, overalls, face mask and/or goggles?

_____ %

2.2 Contact with live animals during veterinary curriculum

In the **past 18 months**, have you experienced or been in a situation where you were at risk of exposure to animal urine (eg. dealing with, handling or being around live animals in a manner that you could have come in contact with urine, dead animals in anatomy or post mortem, collection or test of urine samples, reproductive tract manipulations or treatment, urinary tract surgery, etc.) or exposure where you may have been in contact with urine but not directly hands-on the animal (e.g. farm animal mustering, milking cows etc.)?

YES ☐ Complete table below

NO ☐ Skip to **Section 3**.

Animal type	Exposure	Number of animals	How many times in past 18 months?
Beef cattle	Yes ☐ No ☐		_____ times
Dairy cattle	Yes ☐ No ☐		_____ times
Sheep	Yes ☐ No ☐		_____ times
Deer	Yes ☐ No ☐		_____ times
Horse	Yes ☐ No ☐		_____ times

Goat	Yes ☐ No ☐		_____ times
Dogs	Yes ☐ No ☐		_____ times
Cats	Yes ☐ No ☐		_____ times
Laboratory animals (i.e. rabbits, mice)	Yes ☐ No ☐		_____ times
Other animals (please state) _____	Yes ☐ No ☐		_____ times

3 Exposure outside the veterinary curriculum

This section asks about your potential exposure to the risk of leptospirosis from each of the animal species you may have been in contact with other than during the veterinary curriculum, i.e. during your personal life.

3.1 Own or have frequent contact with live animals

Do you own or have frequent contact (at least weekly) with live animals outside your veterinary curriculum?

YES ☐ Please specify the animal types

NO ☐ Skip to **Exposure during personal life table 3.2**

Animal type	Own or have frequent contact
Dogs, cats	Yes ☐ No ☐
Rabbits, guinea pigs or other small mammals	Yes ☐ No ☐
Horses	Yes ☐ No ☐
Cattle, sheep, goats, deer, pigs	Yes ☐ No ☐
Birds	Yes ☐ No ☐
Other_____	Yes ☐ No ☐

3.2 Contact with live animals at home, friend's or family's house

Over the **past 18 months**, have you had regular contact (at least weekly) with animals outside your veterinary curriculum (at home, friend's or family's house) that may lead to exposure or risk of exposure to animal urine, for example, emptying your cat's litter tray or assisting your ewe's with lambing?

YES ☐ Complete table below

NO ☐ Skip to **Wildlife table 3.3**

Animal type	Exposure	Number of animals	How many times in past 18 months?
Beef cattle	Yes ☐ No ☐		_____ times
Dairy cattle	Yes ☐ No ☐		_____ times
Sheep	Yes ☐ No ☐		_____ times
Goats	Yes ☐ No ☐		_____ times
Deer	Yes ☐ No ☐		_____ times
Pigs	Yes ☐ No ☐		_____ times
Dogs	Yes ☐ No ☐		_____ times
Cats	Yes ☐ No ☐		_____ times
Other_____	Yes ☐ No ☐		_____ times
Did you have contact with any of these animals overseas?	Yes ☐ No ☐ If yes, specify country(ies) _____		

3.3 Contact with wildlife animals

Over the **past 18 months**, have you seen rats, mice, possums, rabbits or hedge hogs at where you were living (house, garden, surrounding fields)?

YES ☐ Complete table below

NO ☐ Skip to **Home slaughter table 3.4**

How many times in past 18 months?	_____ times
Have you set trapped or poisoned for these animals at home?	Yes ☐ No ☐ Don't know ☐
Have you had contact with wildlife animals overseas?	No ☐ Yes ☐ If yes, specify country(ies) _____

3.4 Home slaughter

Did you home-slaughter or have you helped with home slaughtering any animals in the **past 18 months**?

YES ☐ Complete table below

NO ☐ Skip to **outdoor exposures table 3.5**

Animal type	How many times in past 18 months?	Number of animals slaughtered?	When was the last time?
Cattle	_____ times		
Sheep	_____ times		
Goats	_____ times		
Deer	_____ times		
Pigs	_____ times		

3.5 Outdoor exposures

3.5.1 **Hunting/Trapping exposures**

Have you been hunting in the **past 18 months**?

YES ☐ Complete table below

NO ☐ Skip to **Other Outdoors exposure table 3.5.2**

Animals hunted	How many shot or trapped	When was the last time?	Animal butchered (by yourself)?
Deer			
Wild pig			
Small game *			
Goats			
Other_____			

* e.g. ducks, other birds, possums, rabbits, hares...

3.5.2 Other Outdoor exposure

Over the **past 18 months**, have you done outdoor activities where you were exposed to fresh water?

YES ☐ Complete table below

NO ☐ Skip to Flooding 3.6

Outdoor activities fresh water	How many times in past 18 months?	When was the last time?	Region?
Camping beside lakes/rivers	_____ times		
Water sports in lakes/rivers e.g. swimming, boating, windsurfing, endurance events	_____ times		
Fresh water fishing	_____ times		
Did you do any of these activities overseas?	No ☐ Yes ☐ If yes, specify country(ies) _____		

3.6 Flooding

Over the **past 18 months** has where you were living been flooded?

YES ☐ When the last time? (please state) _____

NO ☐ Skip to Previous illness.

4 Previous illness

Have you ever been diagnosed with Leptospirosis by a medical practitioner?

YES ☐ Complete **Leptospirosis table 4.1**

NO / Don't know ☐ Skip to **Other illness table 4.2**

4.1 Leptospirosis (confirmed or suspected)

Approximate date:	_____		
How was it diagnosed (multi-choice)?	Self diagnosed ☐	GP ☐	Blood test ☐
Do you know the serovar and/or titre?	Serovar: _____	Titre: _____	No/ Don't know ☐
How many days were you away from work and/or study?	_____ days		
Please describe your symptoms	Fever ☐ Headache ☐ Sore muscles/bones ☐ Sore eyes ☐ Sweating ☐ Severe debility ☐ Yellow eyes ☐ Other (please state) _____		
Treatment?	Yes ☐ No ☐ Don't know/remember ☐ Antibiotic treatment ☐ If yes, how many days: _____		

4.2 Other Illness

Have you had influenza-like symptoms in the past 18 months?	Yes ☐ No ☐ Approx.date of latest episode _____	
Have you been off study/work due to this illness?	Approx date _____ # days _____	No ☐
Did you ask for professional help?	GP ☐ Nurse ☐ Other _____	No ☐
Were any blood tests done or samples collected?	Yes ☐ No ☐ NA ☐	
Was a diagnosis made?	Yes ☐ , diagnosis of _____	No ☐ Do not remember ☐
Which of the following symptoms did you experience?	Fever ☐ Headache ☐ Sore muscles ☐ Sore eyes ☐ Sweating ☐ Severe debility ☐ Coughing ☐ Sore throat ☐ Other (please state) _____	
Treatment?	Yes ☐ No ☐ Don't know/remember ☐ Antibiotic treatment ☐ If yes, how many days: _____	

- Comments**

Thank you so much for your participating in this survey. Please feel free to comment on your experience with leptospirosis or about this questionnaire.