

**Knowledge, Attitudes, and Practices of U.S. Large Animal Veterinarians Concerning
Common Veterinary Infection Control Measures When Working with Animal Obstetric
Cases**

Request for OMB approval for a New Information Collection

Supporting Statement A

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LIST OF ATTACHMENTS

- **Goals of the study:** The goals of this survey are to better describe veterinarians' current knowledge of zoonotic infectious diseases that cause abortion in large animals, determine common veterinary infection control practices when working up obstetric cases, and identify common barriers to personal protective equipment use.
- **Intended use of the resulting data:** With the information gathered, we will identify areas for improvement in risk perception and preventative behavior to reduce the rate of exposure of large animal veterinarians to infectious zoonotic diseases in the United States. Knowledge gained from the survey will be used to improve and enhance zoonotic disease education targeted to veterinarians.
- **Methods to be used to collect data:** electronic knowledge, attitudes, and practice survey.
- **The subpopulation to be studied:** Veterinarians that work with livestock in the United States.
- **How data will be analyzed:** Descriptive analyses using statistical software package.

A. JUSTIFICATION

1. Circumstances Making the Collection of Information Necessary

This is a new Information Collection Request. We are requesting approval for a period of 12 months. This study is authorized under Section 301 of the Public Health Service Act (42 U.S.C. 241) (Attachment A).

The goals of this study are to describe veterinarians' knowledge of zoonotic infectious disease, identify veterinarians' attitudes towards zoonotic infectious disease and personal risk, and determine practices to decrease personal risk of infection. By identifying knowledge gaps in personal protective equipment (PPE) use, transmission risk factors, and disease identification/diagnosis, we aim to determine the best methods for education of veterinarians on relevant abortion-associated zoonotic infectious diseases.

Table: Select abortion-associated zoonotic infectious diseases

Disease	Pathogen	U.S. Prevalence	Veterinarian Prevalence	Recommended PPE
Brucellosis	<i>Brucella</i> sp.	0.04/100,000	Unknown	Obstetrics' standard precautions [^] , N95
Q fever	<i>Coxiella burnetii</i>	0.06/100,000	22%	Obstetrics' standard precautions [^] , N95
Salmonellosis *	<i>Salmonella</i> sp.	16.7/100,000	Unknown	Obstetrics' standard precautions [^]
Leptospirosis	<i>Leptospira</i> sp.	0.03/100,000	2.50%	Obstetrics' standard precautions [^]
Campylobacteriosis *	<i>Campylobacter</i> sp.	20.7/100,000	Unknown	Obstetrics' standard precautions [^]

* most cases are foodborne and not zoonotic exposure (our interest).

[^] gloves or sleeves, facial protection, impermeable protective outwear.

Veterinarians are particularly at risk of contracting zoonotic infectious diseases due to their close proximity to animals, especially during times of injury or illness. Some veterinarians may be unaware of recommended personal protection measures, opt not to participate in measures that would decrease their risk of contracting a zoonotic disease, or inconsistently implement the standard precautions of veterinary practice (Wright et al. 2008). In 1977, a survey conducted of 1182 veterinarians showed that approximately 43% of the respondents had contracted an infectious zoonotic disease (Schnurrenberger & Martin 1977). Today, this elevated zoonotic disease risk persists; the seroprevalence of Q fever in U.S. veterinarians is 22% (Whitney, Massung, et al. 2009) and the seroprevalence of leptospirosis is 2.5% (Whitney, Ailes, et al. 2009). The seroprevalence for other abortion-associated pathogens is unknown. Within the veterinary profession, large animal practitioners might have an increased risk of occupational exposure to infectious zoonotic diseases

for many reasons, including decreased biosecurity measures available in the field and the limited space available on a mobile practice for PPE. Awareness of these diseases might be low, as vaccination and other control methods have reduced the prevalence of some disease in animals. Lack of familiarity with these diseases might prohibit veterinarians from taking appropriate personal protective precautions.

2. Purpose and Use of Information Collection

The purpose of this study is to better describe veterinarians' current knowledge of zoonotic diseases that cause abortion in large animals, determine common veterinary infection control practices when working up obstetric cases, and identify common barriers to PPE use. In order to develop effective messaging strategies, a deeper understanding of the attitudes and barriers to PPE use is needed. The information collected will be used to improve and enhance zoonotic disease education and PPE guidance targeted to veterinarians.

We plan to administer the Knowledge, Attitudes, Practices (KAP) survey to a convenience sample of large animal veterinarians across the United States. Electronic survey links (Attachment D) will be distributed by selected veterinary specialty association. The organizations will distribute the survey (Attachment C) to their listserves on our behalf. All veterinarians contained in the membership list supplied by the organizations will be asked to participate. The selected veterinary specialty associations will send out a reminder email (Attachment E) twice to remind their membership to participate. An advertisement of the data collection will also be placed in the Journal of the American Veterinary Medical Association (Attachment G) to recruit respondents.

The survey will focus on the following topics: knowledge of specific zoonotic abortion-associated diseases, occupational exposure to these diseases, practices surrounding use of personal protective equipment, barriers to use of personal protective equipment, and preferred delivery methods for educational materials.

3. Use of Improved Information Technology and Burden Reduction

This study will consist of data collection through the use of a one-time electronic survey (Attachment C) to collect and process data to reduce respondent burden and aid in data processing and reporting efficiency. Particular emphasis will be placed on compliance with the Government Paperwork Elimination Act (GPEA), Public Law 105-277, title XVII. The number of questions

posed will be held to the minimum required in all information collections in order to elicit the necessary data.

4. Efforts to Identify Duplication and Use of Similar Information

To identify duplication and use of similar information, CDC staff worked with a CDC librarian to perform an extensive review of the literature by examining several large periodical journal databases. A review of the published literature found no duplication of this effort or the existence of similar information.

5. Impact on Small Businesses or Other Small Entities

We recognize that large animal veterinarians typically work in small privately owned veterinary practices. The voluntary electronic survey can be taken at the veterinarian's convenience, which should minimize impact on the business. All questions asked of individuals will be kept to a minimum, and the number of survey points will be reduced to only what is necessary.

6. Consequences of Collecting the Information Less Frequently

This is an ad hoc data collection (i.e., a one-time study to develop a messaging strategy that does not require periodic collection of data). There are no legal obstacles to reduce burden. The survey will provide the primary data needed to address the goals of this study. If this survey was not conducted, information needed to inform the development of messaging and materials would not be gathered.

7. Special Circumstances Relating to the Guidelines of 5 CFR 1320.5

This request fully complies with the regulation 5 CFR 1320.5.

8. Comments in Response to the Federal Register Notice and Efforts to Consult Outside Agencies

A. A 60-day Federal Register Notice was published in the *Federal Register* on July 20, 2018, vol. 83, No. 140, pp. 34592 (Attachment B). CDC did not receive public comments related to this notice.

B. CDC project staff collaborated with CDC consultants on the study design and data collection instrument. Individuals consulted with and their roles are listed in **Exhibit B.8.1**. No major problems were identified that could not be resolved.

Exhibit B.8.1. CDC Project Staff and Other Consultants

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9. Explanation of Any Payment or Gift to Respondents

No payments, gifts, or incentives will be provided for participation in this survey.

10. Protection of the Privacy and Confidentiality of Information Provided by Respondents

The Privacy Act does not apply. CDC's National Center for Emerging and Zoonotic Infectious Diseases determined that no personally identifiable information will be collected in this data collection. The distribution listservs used by the selected veterinary organizations will not be shared with CDC and respondents will not enter any identifiable information when completing the electronic survey. Survey responses will not be tied to individual responses and no identifying information will be collected or transmitted to CDC.

11. Institutional Review Board (IRB) and Justification for Sensitive Questions

IRB Approval

The purpose of this activity is to survey veterinarians on their knowledge, attitudes, and practices related to zoonotic diseases and personal protective equipment in practice to inform educational outreach. This project has been deemed non-research due to the CDC IRB definition of research per 45 CFR 46.102(d) (**Attachment F**).

Justification for Sensitive Questions

The majority of questions asked will not be of a sensitive nature. However, some respondents may feel uncomfortable answering particular questions about their individual experiences, level of disease awareness, and/or adopted preventative behaviors (or lack thereof) associated with various diseases. To minimize psychological distress, the data collection instrument instructions will inform participants that they do not have to respond to any questions they do not want to answer and they may stop participating at any time.

A.12. Estimates of Annualized Burden Hours and Costs

Exhibits A.12.1 and **A.12.2** provide details about how this estimate was calculated, assuming 500 respondents. The survey will take approximately 15 minutes per individual (125 burden hours). The estimated annual cost burden to participants for information collection will be \$5,335.

Exhibit A.12.A Annualized Burden Hours

Type of Respondent	Form Name	No. of Respondents	No. of Responses per Respondent	Average Burden per Response (in Hours)	Total Burden Hours
Veterinarian	Livestock abortion-associated zoonoses	500	1	15/60	125

Exhibit A.12.B. Annualized Cost to Respondents

Category of Respondent	Form Name	No. of Respondents	Hourly Wage Rate*	Total Burden Hours	Total Respondent Costs
Veterinarian	Livestock abortion-associated zoonoses	500	\$42.68	125	\$5,335

* The United States Department of Labor, Bureau of Labor Statistics November 2017 (<https://www.bls.gov/ooh/healthcare/veterinarians.htm>) data were used to estimate the hourly wage rate for veterinarians.

A.13. Estimates of Other Total Annual Cost Burden to Respondents and Record Keepers

There are no other costs to respondents or record keepers.

A.14. Annualized Costs to the Government

The average annualized cost to the Federal Government to collect this information is \$27,824.75. The federal government personnel estimate is based on cost of the three CDC staff. Federal staff responsibilities include overall management and oversight of the project, provision of content matter expertise in the development of the research strategy and data collection instruments, data collection, analysis and reporting. (**Exhibit A.14.1**)

Exhibit A.14.1. Government Costs

		Percent Time	Total (\$)
Federal Government Personnel Costs	CDC Epidemiologist (GS-13)	20%	\$18,004.60
	CDC Veterinary Medical Officer (GS-13)	5%	\$4,501.15
	CDC Epidemiologist (GS-14)	5%	\$5,319.00
Total Annualized Cost to Government			\$27,824.75

A.15. Explanation for Program Changes or Adjustments

No change in burden is requested as this is a new information collection.

A.16. Plans for Tabulation and Publication and Project Time Schedule

Data will be collected from a web-based survey platform. No personally identifiable information will be collected. Data will be downloaded from the survey platform and stored on a secure network drive on a password-protected computer. Epidemiologists will analyze the data and produce a written report describing the major findings from the survey. The key events and reports to be prepared are listed in **Exhibit A.16.1**.

Exhibit A.16.1. Project Activities and Time Schedule

Activity	Time Schedule
Send out survey through participating group listserves	1 month after OMB approval
Send out first survey completion reminder	2 months after OMB approval
Send out second/final survey completion reminder	3 months after OMB approval
Data compiled for analysis	4 months after OMB approval
Preliminary data analysis completed	6 months after OMB approval
Draft manuscript completed	12 months after OMB approval
Final manuscript completed	15 months after OMB approval

Research findings will be disseminated to a number of audiences. The main reporting and dissemination mechanism will be in the form of a journal manuscript. The manuscript will include the following information: overview of background literature to provide contextual information about the purpose of the research, a detailed summary of the formative research methods and results, a discussion of findings, strengths and limitations of the research, and future directions regarding prevention and education strategies. Survey findings will also be presented to various veterinary audiences via oral presentation or poster. Information gathered will assist the CDC with future interventions in veterinary education to decrease occupational exposures to zoonotic infectious disease, specifically those diseases associated with obstetric spread.

A.17. Reason(s) Display of OMB Expiration Date is Inappropriate

Approval to eliminate the expiration date is not needed.

A.18. Exceptions to Certification for Paperwork Reduction Act Submissions

There are no exceptions to the certification.

References

Bureau of Labor Statistics. (2015). Occupational Outlook Handbook > Veterinarians. U.S. Department of Labor. Retrieved November 28, 2017, from <https://www.bls.gov/ooh/healthcare/veterinarians.htm>

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- Whitney, E., Ailes, E., Myers, L., Saliki, J., & Berkelman, R. (2009). Prevalence of and risk factors for serum antibodies against *Leptospira* serovars in US veterinarians. *Journal of the American Veterinary Medical Association*, 938–944.
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