

Enhanced surveillance for cases linked to a multistate outbreak of multidrug-resistant *Campylobacter* infections linked to contact with pet store puppies

Request for OMB approval of a New Information Collection

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Supporting Statement A

Contact:

Lee Samuel
National Center for Emerging and Zoonotic Infectious Diseases
Centers for Disease Control and Prevention
1600 Clifton Road, NE
Atlanta, Georgia 30333
Phone: (404) 718-1616
Email: llj3@cdc.gov

Table of Contents

1. Circumstances Making the Collection of Information Necessary.....	3
2. Purpose and Use of Information Collection.....	4
3. Use of Improved Information Technology and Burden Reduction.....	5
4. Efforts to Identify Duplication and Use of Similar Information.....	5
5. Impact on Small Businesses or Other Small Entities.....	5
6. Consequences of Collecting the Information Less Frequently.....	6
7. Special Circumstances Relating to the Guidelines of 5 CFR 1320.5.....	6
8. Comments in Response to the Federal Register Notice and Efforts to Consult Outside the Agency.	6
9. Explanation of Any Payment or Gift to Respondents.....	6
10. Protection of the Privacy and Confidentiality of Information Provided by Respondents.....	6
11. Institutional Review Board (IRB) and Justification for Sensitive Questions.....	7
12. Estimates of Annualized Burden Hours and Costs.....	7
13. Estimates of Other Total Annual Cost Burden to Respondents or Record Keepers.....	8
14. Annualized Cost to the Government.....	8
15. Explanation for Program Changes or Adjustments.....	9
16. Plans for Tabulation and Publication and Project Time Schedule.....	9
17. Reason(s) Display of OMB Expiration Date is Inappropriate.....	9
18. Exceptions to Certification for Paperwork Reduction Act Submissions.....	9
Attachments.....	9

- **Goal of the study:** Identify ill patients linked to the 2016–2018 multistate outbreak of multidrug-resistant *Campylobacter* infections linked to contact with pet store puppies.
- **Intended use of the resulting data:** Determine scope of multidrug-resistant infections caused by contact with pet store dogs to inform infection prevention recommendations and interventions.
- **Methods to be used to collect:** Nationwide case finding will be implemented via screening *Campylobacter* isolates routinely submitted to PulseNet. Cases identified via predictive resistance software screening whole genome sequence data will be interviewed with a standardized questionnaire by state/local health departments.
- **The subpopulation to be studied:** Ill-persons who have had a positive *Campylobacter* culture submitted to their state public health laboratory.

1. Circumstances Making the Collection of Information Necessary

The Centers for Disease Control and Prevention (CDC), National Center for Emerging and Zoonotic Infectious Diseases (NCEZID) requests an emergency 90-day approval for a New Information Collection, “Enhanced surveillance for cases linked to a multistate outbreak of multidrug-resistant *Campylobacter* infections linked to contact with pet store puppies.”

During 2016 – 2018 CDC, several states, and the U.S. Department of Agriculture’s Animal and Plant Health Inspection Service investigated a multistate outbreak of multidrug-resistant *Campylobacter* infections. Epidemic and laboratory evidence indicated that contact with puppies sold through Petland stores was the major source of this outbreak. A total of 113 people with laboratory-confirmed infections or symptoms consistent with *Campylobacter* infection were linked to this outbreak. Illnesses were reported from 17 states. Illnesses started on dates ranging from January 12, 2016 to January 7, 2018. Ill people ranged in age from less than 1 year to 86, with a median age of 27. Sixty-three percent of ill people were female. Of 103 people with available information, 23 (22%) were hospitalized. No deaths were reported. Whole genome sequencing (WGS) showed that isolates from people infected with *Campylobacter* were closely related genetically. The outbreak investigation was closed on January 30, 2018. This investigation began as an Epi-Aid led by the Ohio Department of Health and was supported by CDC. At the time, CDC’s role was to provide technical assistance to the Ohio Department of Health. Therefore, PRA was not applicable.

Campylobacter jejuni isolated from clinical samples from people sickened in this outbreak were resistant to commonly recommended, first-line antibiotics. Antibiotic resistance may be associated with increased risk of hospitalization, development of a bloodstream infection, or treatment failure in patients. Using WGS, we identified multiple antimicrobial resistance genes and mutations in most isolates from 38 ill people and 10 puppies in this outbreak. This finding matched results from standard antibiotic susceptibility testing methods used by CDC’s National Antimicrobial Resistance Monitoring System laboratory on isolates from five ill people and seven puppies in this outbreak. The 12 isolates tested by standard methods were resistant to azithromycin, ciprofloxacin, clindamycin, erythromycin, nalidixic acid, telithromycin, and tetracycline. In addition, 10 were resistant to gentamicin, and 2 were

resistant to florfenicol. This resistance pattern is very rare, only being documented in 0.3 percent of surveillance isolates. NARMS has been conducting surveillance for antimicrobial resistance in *Campylobacter* isolates since 1997.

Unlike for most multistate foodborne disease outbreaks, the outbreak vehicle could not be removed from commerce. Therefore, it is likely that cases of human illness have continued. Current *Campylobacter* surveillance will likely not detect ongoing cases associated with the outbreak. Therefore we propose an enhanced surveillance project screening DNA sequences of *Campylobacter* isolates for the unique multidrug resistance pattern using predictive resistance software. Epidemiologic information regarding contact with puppies or dogs to determine ongoing transmission would then be collected from the newly identified cases to determine if they can be linked to the outbreak. We are concerned about continued human illnesses and the potential for ongoing transmission of the multidrug-resistant outbreak strain. Without actions and interventions put in place to address the use of antimicrobials, the outbreak will likely continue.

Therefore we propose an enhanced surveillance project screening available *Campylobacter* isolates for the unique multidrug resistance pattern using predictive resistance software. Epidemiologic information would then be collected from newly identified cases to determine if cases were associated with the outbreak.

Authorizing Legislation comes from Section 301 of the Public Health Service Act (42 U.S.C. 241) (Attachment 1).

2. Purpose and Use of Information Collection

The data collected from the investigation will be used to identify additional cases associated with the 2016–2018 multistate outbreak determined to be linked to contact with pet store puppies. This information will help to better characterize the outbreak, since cases were expected to continue. Public health and infection control recommendations and interventions will be designed based on the results of the findings. This request is to obtain OMB approval for collection of patient-level exposure data collected by state and local health department employees.

The project would begin by reviewing the PulseNet *Campylobacter* database for all isolates that have undergone WGS since the conclusion of the outbreak investigation on January 30, 2018. All *Campylobacter* isolates obtained through September 30, 2018 will be included in this project. Isolates will be sequenced using the Illumina MiSeq. Sequences will be analyzed using the *Campylobacter* whole genome multi-locus sequence typing (wgMLST) database (wgMLST, core genome (cg)MLST, 7-gene MLST) in BioNumerics 7.6. These results will be compared with high quality single nucleotide polymorphism (hqSNP) analysis results using the LYVE-SET pipeline (github.com/lskatz/lyve-SET). WGS data will also be used to predict the resistance of these isolates using ResFinder 3.0.

After isolates matching the outbreak strain by resistance pattern are identified, state public health departments will be notified. We will request state and local public health departments to interview case-patients using a standardized questionnaire collect demographics, symptoms, treatment, and relevant

exposures in the week prior to illness (attachment 3). Respondents will be interviewed about contact with dogs both in and outside of their homes. Copies of questionnaires will be sent to CDC for analysis, and original copies will be retained. Results may be communicated with any implicated firms and published as a manuscript. The questionnaire used by state and local public health departments in this project is an updated and focused version of the form used during the initial outbreak investigation (Attachment 5). There will be less clinical information collected and will focus solely on dog contact rather than other animal exposures.

We will collect data from the PulseNet *Campylobacter* database to identify isolates matching the multidrug-resistant pattern. Sequenced data is collected routinely by PulseNet. Predictive resistance data will be obtained by microbiologists in NCEZID/DFWED/EDLB using ResFinder 3.0 software.

State and local health departments will collect epidemiologic data via interview with a standard questionnaire. Completed questionnaires will be submitted via email or fax to CDC epidemiologists. No epidemiologic or laboratory data sent to CDC will contain personally identifiable information. Rather, data will be coded before submission to CDC. State and PulseNet identification numbers will be used rather than identifiable information. CDC will not collect names, addresses, or other personal identifiers.

This enhanced surveillance project will allow the detection of cases of the multidrug-resistant outbreak strain that would likely be otherwise missed via routine *Campylobacter* surveillance. CDC cannot reasonably comply with the normal clearance given the high numbers of the general public exposed to dogs potentially shedding the multidrug-resistant outbreak strain. According to the American Veterinary Medical Association, approximately 38 percent of households nationwide owned one or more dogs in their most recent survey—the highest estimated rate of dog ownership since the AVMA began measuring it in 1982. It is critical to the development of interventions and disease prevention programs to fully understand the scope of the outbreak associated cases. Given, the extremely multidrug-resistant nature of the outbreak strain and the potentially large number of people exposed to dogs shedding the outbreak strain, CDC requests an emergency clearance.

3. Use of Improved Information Technology and Burden Reduction

State or local health department staff will interview patients. A paper, standardized questionnaire form will be used by the staff to collect relevant exposure information. The paper forms will be scanned and retained by the state/local health department. The scanned forms will be electronically faxed or emailed to CDC via online secure submission where they will be entered into an electronic database. No personal identifiable information will be included in such online communication.

We expect that 100% of the responses will be sent electronically.

4. Efforts to Identify Duplication and Use of Similar Information

CDC is not aware of the ability of the availability of any similar information.

5. Impact on Small Businesses or Other Small Entities

This data collection will not involve small businesses. Questions have been held to the absolute minimum required for the intended use of the information.

6. Consequences of Collecting the Information Less Frequently

This is a one-time information collection. This information collected is critical to better understanding the multistate outbreak of multidrug-resistant *Campylobacter* infections linked to contact with pet store puppies.

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 the Agency

A. Because this is a request for an emergency clearance, CDC asks that the 60-day comment period be waived. However, a 60-day *Federal Register* notice will be submitted to make the public aware of this investigation (Attachment 2).

B. The Florida Department of Health was the first agency to report the case-patients. CDC has been working with the following experts since July 2017:

Danielle Stanek, DVM
Zoonotic and Vectorborne Disease Program
Florida Department of Health
850-245-4117
Danielle.Stanek@flhealth.gov

Jamie DeMent, MNS, CPM
Food and Water Disease Program Coordinator
Florida Department of Health
850-245-4116
Jamie.DeMent@flhealth.gov

A team at CDC is working closely with health department staff in all states linked to the outbreak to identify additional cases and prevent additional illnesses.

CDC has also been working with USDA, APHIS, Animal Care since August 2017.

9. Explanation of Any Payment or Gift to Respondents

No monetary incentives or gifts are provided to respondents.

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

The National Center for Emerging and Zoonotic Infectious Diseases (NCEZID) reviewed this submission and determined that the Privacy Act does not apply.

Data will be collected anonymously to ensure the privacy of patients who were interviewed with the standardized questionnaire.

CDC staff will follow procedures for assuring and maintaining privacy during all stages of data collection. All information provided by respondents will be treated in a secure manner and will not be disclosed unless otherwise compelled by law. This public health response was determined to be Not Human Subjects Research and does not require IRB approval.

Privacy Impact Assessment Information

In this activity, no identifiable information of patients and staff will be collected. However, we will collect contact information (name, email, phone number) of persons (such as local health department staff) who report cases to CDC via submission of the data collection tool (Attachment 3). The information will be used for follow-up of the cases.

CDC will treat information in a secure manner and will not disclose, unless otherwise compelled by law. Forms will be kept in a locked file cabinet when not in use and only CDC staff is accessible to the forms. Any electronic database that maintains such information will be kept in secure computers accessible to only CDC staff.

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

Institutional Review Board (IRB)

The protocols and tools used to conduct this information collection request have been reviewed and approved by NCEZID's Human Subjects Advisor, who determined that this data collection does not meet the definition of research under 45 CFR 46.102(d). IRB review was not required (Attachment 4).

Justification for Sensitive Questions

In this activity, no sensitive questions will be asked.

12. Estimates of Annualized Burden Hours and Costs

The estimated burden to respondents is summarized in Table 12-A and Table 12-B below. We request three months of clearance. The burden described in the tables is the total burden.

This is an estimate based on receiving responses from 50 individual patients collected by state and local health department staff. We estimate receiving responses from 50 individuals based on the submission frequency of *Campylobacter* isolates and the very rare resistance pattern.

The questionnaire takes, on average, 15 minutes to complete. It is estimated that 50 questionnaires will be completed by patients with a related *Campylobacter* isolate for a total estimated burden of 12.5 hours.

The burden on state and local health departments will be greater. It is estimated that, on average, health department staff will spend 30 minutes to collect and report the data to CDC for a total estimated burden of 25 hours.

Total burden on the public and health department staff is estimated to be 37.5 hours.

Table 12-A. Estimated Burden Hours

Type of Respondent	Form Name	No. of Respondents	No. Responses per Respondent	Avg. Burden per response (in hrs.)	Total Burden (in hrs.)
General public	Dog Exposure Questionnaire	50	1	15/60	12.5
State and local health department staff		50	1	30/60	25
Total					37.5

There will be no anticipated costs to respondents other than time. Employees of pet stores are often the persons exposed to common zoonotic diseases, such as campylobacteriosis. These employees are categorized as retail sales workers. The 2018 U.S. median national hourly wage for retail sales workers is \$11.33 (see http://www.bls.gov/oes/current/oes_nat.htm#00-0000).

State and local public health department staff will also have burden on their time. These employees are often registered nurses and other staff can be considered to have a similar national hourly wage of \$34.48. No other occupation is expected to be represented at a higher than expected rate in the general population.

Total estimated cost burden is \$1,003.63.

Table 12-B. Estimated Burden Costs

Type of Respondent	Form Name	Total Burden Hours	Hourly Wage Rate	Total Respondent Costs
General public	Dog Exposure Questionnaire	12.5	\$11.33	\$141.63
State and local health department staff		25	\$34.48	\$862.00
Total				\$1003.63

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

There are no costs to respondents other than their time to participate.

14. Annualized Cost to the Government – Need to Calculate time required for lab staff

The estimated average annual cost to the federal government for the proposed information collection activities is \$26,329.20. This figure encompasses 50% FTE of two GS-12 employees for four weeks doing data collection, 50% of two GS-12 employees doing data analysis for two weeks, and ancillary information collection costs. The average hourly rate was obtained from the Office of Personnel Management’s website (<https://www.opm.gov/policy-data-oversight/pay-leave/salaries-wages/2016/general-schedule/>). The hourly rate for a GS-12 in metro Atlanta is \$36.92.

Estimated Annualized Cost to the Government per Activity and Total

Activity	Time in hours required to perform activity	Number of employees performing activity	Average hourly wage of staff reviewing data	Total Estimated Yearly Cost
Data collection	160	2	\$36.92	\$5,907.20
Data analysis	80	2	\$36.92	\$2,953.60
Total				\$8,860.80

15. Explanation for Program Changes or Adjustments

This is a new information collection.

16. Plans for Tabulation and Publication and Project Time Schedule

Project Time Schedule	
Activity	Time Schedule
Data collection	1 day after OMB approval
Data analysis	1–2 months after OMB approval
Manuscript Publication	6 months after OMB approval

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

The display of the OMB Expiration date is not inappropriate.

18. Exceptions to Certification for Paperwork Reduction Act Submissions

There are no exceptions to the certification.

Attachments

1. Authorizing Legislation
2. 60-Day FRN
3. Information Collection instrument
4. Non-research determination
5. Data collection instrument from initial outbreak response