

# Q fever: An Underreported Reportable Communicable Disease

## Background

- To monitor trends and outbreaks of diseases, the Centers for Disease Control and Prevention (CDC) collects statistics about certain notifiable diseases. Incomplete data can make it difficult to accurately evaluate public health programs, investigate outbreaks, and ensure availability of medical therapy.
- Q fever is a nationally notifiable disease caused by the bacteria *Coxiella burnetii*. Reports suggest that Q fever is underreported.<sup>1,2</sup>
- Because the disease is uncommon in the United States, testing by a large national reference laboratory likely represents a substantial proportion of *C burnetii* antibody testing nationwide. Examination of test results could provide a more accurate estimate of Q fever incidence.
- **Objective:** The investigators of this study analyzed data from a large national clinical laboratory to determine the incidence of acute and chronic Q fever.

## Methods

- Results from all specimens tested for *C burnetii* IgG antibody at Quest Diagnostics laboratories between January 2010 and December 2016 were included in the analysis.
  - Patients from all 50 states and Washington, DC were included.
- An indirect immunofluorescence assay was used to analyze serum specimens for *C burnetii* IgG phase I and II antibodies.
  - Acute presumptive Q fever was defined as a phase II IgG titer  $\geq 1:128$  and phase I titer  $< 1:1024$ .
  - Chronic presumptive Q fever was defined as a phase I IgG titer  $\geq 1:1024$ .

## Results

- From 2010 to 2016, 18,672 serum specimens submitted to Quest Diagnostics for *C burnetii* IgG testing had valid titer results.
- A total of 2,298 patients (4,372 specimens) met the criteria for presumptive acute Q fever. Thus, the annual average was 328 cases.
- In contrast, the annual average of acute cases reported to the CDC during the same time period was 122 cases,<sup>2</sup> only 37.2% of the annual average based on Quest Diagnostics data.
- Over the 7-year period, the number of annually identified chronic cases of Q fever identified at Quest Diagnostics (n=34) was similar to that reported to the CDC (n=29).<sup>2</sup>

## Conclusions

- During the years 2010 to 2016, the incidence of acute Q fever based on Quest Diagnostics data was almost 3 times higher than that based on reporting to the CDC.
- This study suggests that supplementing data from the CDC with test data from a large national laboratory may improve estimates of the incidence of Q fever and other diseases.

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### Webpage

<https://www.ncbi.nlm.nih.gov/pubmed/?term=29941056>

### References

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