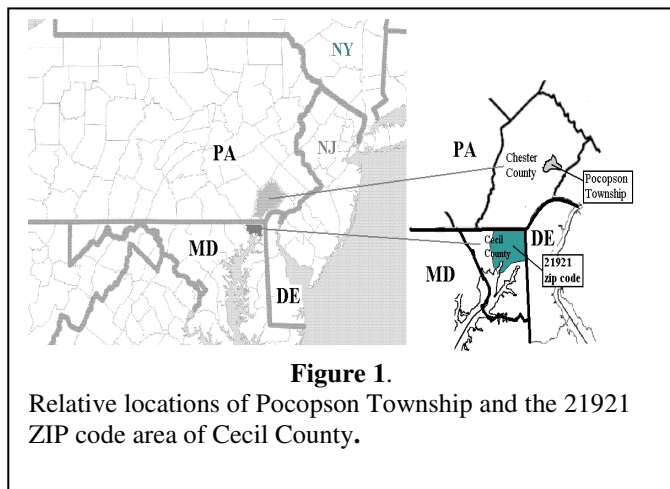


# Lyme Borreliosis Population Survey of a single ZIP Code in Cecil County, Maryland

## Introduction

The 2003 Lyme borreliosis case incidence reported to the Centers for Disease Control and Prevention (CDC) for Cecil County, MD was 59 cases/100,000 population (0.059%).<sup>1</sup> Contiguous Chester County, PA had a 2003 incidence of 209 cases/100,000 population (0.21%).<sup>2</sup> High case numbers were documented in the previously reported 2004 survey of Pocopson Township in Southern Chester County located ca. 16 miles Northeast of Cecil County.<sup>3</sup>

The Cecil County Lyme and Associated Diseases Support Group and the Lyme Disease Association of Southeastern Pennsylvania, Inc. (LDASEPA) conducted this 2005 pilot study of patient reported Lyme borreliosis case numbers and treatment results to demonstrate the need for a statistically-valid population survey to determine the true rate of Lyme borreliosis infection in Cecil and Chester Counties. The Cecil and Pocopson surveyed sites are geographically proximate and topographically and ecologically analogous (Fig. 1).



## Materials and Methods

Names and addresses of residents in the Cecil County, MD, 21921 ZIP Code were obtained from the District 34B State Legislative office and verified with current voting records. Of the 1000 survey cards mailed, 74 were returned as undeliverable.

The survey card included survey background, instruction, and returnable data portions (Fig. 2).

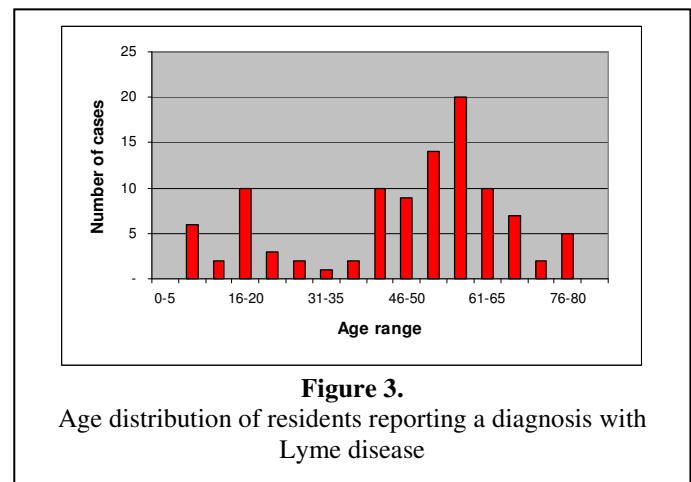
Lyme Disease Survey							
Household Member	Age	Sex	Never had Lyme	Diagnosed with Lyme	Treated for Lyme	Still has symptoms	Suspect has Lyme
1							
2							
3							
4							
5							
6							

Please circle your answers: Have you been treated by a Maryland physician? Y or N  
 If yes, how long was treatment? \_\_\_\_\_ Was the treatment successful? Y or N  
 Have you been treated by a non-Maryland physician? Y or N  
 If yes, how long was treatment? \_\_\_\_\_ Was the treatment successful? Y or N

**Figure 2.** Lyme disease survey card

## Results and Discussion

A total of 244 survey cards were returned representing 244 households with 660 individuals. The rate of return was 26.3% of all (926) valid addresses. The age range was 4 months to 92 years with a mean age of 42.8 years (1.4% did not report age). Age distribution of residents reporting a diagnosis with Lyme borreliosis is shown in Figure 3. Gender breakdown was 47.6% female, 50.5% male, and 1.9% not reported.



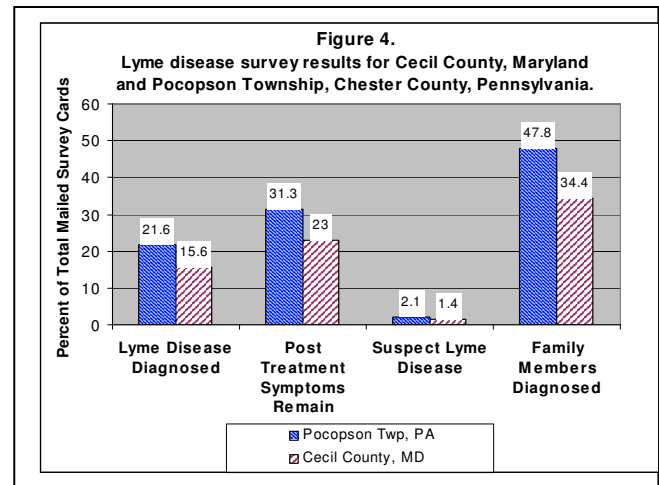
## Incidence

- Of the 660 individuals, 103 (15.6%) reported they have or had been diagnosed with Lyme borreliosis
- Of the 244 households, 84 (34.4%) had a member diagnosed with Lyme borreliosis now or in the past
- Of the 84 households reporting Lyme borreliosis, 16 (19%) had more than one member currently, or in the past, diagnosed with Lyme borreliosis

*Patient and physician information*

- While 103 individuals reported a diagnosis with Lyme borreliosis only 100 individuals reported being treated. Of these 100, 23 (23%) reported they still experienced symptoms
- Twenty-nine individuals (29%) were treated by a Maryland physician, 75 (75%) were treated by a non-Maryland physician, and 4 (4%) were treated by Maryland and non-Maryland physicians
- Twenty-six (89.7%) of individuals treated by Maryland physicians reported successful treatment and 69 (92%) of individuals treated by non-Maryland physicians reported successful treatment
- Of the 95 individuals reporting successful treatment, 15 (15.8%) reported they still experienced symptoms
- Twelve (12%) individuals reported more than 1 treatment cycle

The previous Pocopson study established a high rate of infection in Southern Chester County.<sup>3</sup> This identical study in Cecil County, only a few miles distant, indicates a lower rate (Table 1, Figure 4).



As these two sites have analogous topographical and ecological characteristics, we conclude the lower reporting for Cecil County is due to a lack of public and physician awareness. It is more likely that the actual rates are probably much closer or the same. It is biologically inconceivable that the intimate etiological relationship among deer, *Ixodes* ticks, *Borrelia burgdorferi*, and humans ceases at the Cecil County and Chester County border.

As data among the public, physicians, and Health Department in Cecil County were not collected on year of infection or duration of infection it is not possible to draw valid conclusions about infection rate of Lyme disease. However, these findings should raise concern for Lyme disease among the public, physicians, and the Health Department in Cecil County.

Survey site	Diagnosed with Lyme disease	Still have post-treatment Lyme disease symptoms	Suspect have Lyme disease	Households with member(s) diagnosed with Lyme disease
<b>Pocopson Township</b>	217 (21.6%)	68 (31.3%)	21 (2.1%)	164 (47.8%)
<b>Cecil County</b>	103 (15.6%)	23 (23%)	9 (1.4%)	84 (34.4%)

**References**

- <sup>1</sup>Maryland Center for Veterinary Public Health (CVPH), Maryland Department of Health and Mental Hygiene (DHMH). [http://www.edcp.org/vet\\_med/lymetrnd\\_2001.html](http://www.edcp.org/vet_med/lymetrnd_2001.html)
- <sup>2</sup>Chester County Health Department. [http://dsf.chesco.org/health/lib/health/diseases/lyme\\_for\\_web.pdf](http://dsf.chesco.org/health/lib/health/diseases/lyme_for_web.pdf)
- <sup>3</sup>Lyme Disease Association of Southeastern Pennsylvania. Lyme disease population survey in a small SE Pennsylvania township. International Lyme and Associated Diseases Society (ILADS), Annual Scientific Session, October 23-24, 2004, Rye, NY and Lyme Disease Association conference, Lyme and other tick-borne diseases: Technology leading the way, October 22, 2004, Rye, NY., 2004, p. V4.

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This survey was designed by Douglas W. Fearn and analyzed by Ronald A. Hamlen, Ph.D. with the helpful design and analysis input from the LDASEPA Board of Directors.