Treatment and reporting of Lyme disease among physicians in British Columbia

Lyme disease (LD) is a tick-borne illness caused by the bacterium *Borrelia burgdorferi*. In British Columbia the Pacific black legged tick, *Ixodes pacificus*, is the primary vector for *B. burgdorferi*. LD is a systemic illness which, if untreated, may develop into chronic conditions involving the musculoskeletal, nervous and cardiovascular systems. A characteristic lesion, erythema migrans, develops in 60% to 80% of people with LD and may be accompanied by fever, arthralgia, headache, and fatigue. LD, both clinical and laboratory-confirmed, is a reportable communicable disease in BC.

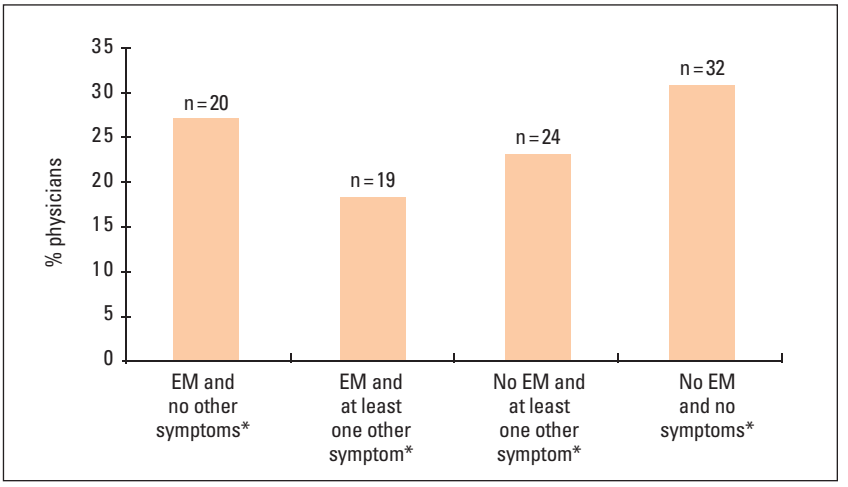

Figure 1. Physician-observed symptoms in last patient treated for LD.

EM = erythema migrans
*58 physicians observed EM but 11 did not respond to questions about other symptoms and were not included in these recoded variables

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In 2008 BCCDC mailed surveys to all physicians in the province who may see cases of LD to gain insight into their knowledge, beliefs, and practices around the disease. Overall, the results demonstrated good knowledge of the disease risk, diagnosis, and treatment. However, there was a large discrepancy between the number of cases physicians reported having diagnosed (221) and the number reported to public health (13), for 2007.[1]

We sent a follow-up survey to 1500 randomly selected physicians in 2010 to explore reasons for this discrepancy and determine the signs, symptoms, and risk exposures that lead to a diagnosis and rationale for treatment. The response rate was 28% (422/1500). Of those respondents, 28% (120/422) had treated at least one case of LD, and among the 115 physicians who provided details, 45% (n = 55) had only ever treated one case during their years of practice (average years of practice was 17). Physicians who had treated at least one case of LD were asked for information on the most recent patient treated, including:

- Symptoms.
- Environmental exposures.
- Degree of suspicion of LD.
- Whether a case was reported.
- Reasons for not reporting.

Erythema migrans was the most common patient-reported symptom (n = 68) and physician-observed sign (n=58) in people treated for LD. Rash, fever, and arthritis were commonly reported by patients, but observed less often by physicians. Among physicians who observed erythema migrans, 87% reported they suspected LD. **Figure 1** summarizes physician-observed clinical presentations of the patient most recently treated for LD.

Overall, 84% (99/118) of physicians reported the patient they had last treated for LD had spent time in wooded areas, 29% (35/115) had been in an area where LD was highly endemic, and 71% (85/119) reported being bitten by a tick. LD was suspected in 76% (58/76) of patients who reported a tick bite. Eighty-one percent of patients who had no physician-observed symptoms reported at least one exposure, and two-thirds of these patients reported a tick bite.

Of the 111 physicians who reported on whether they thought the last

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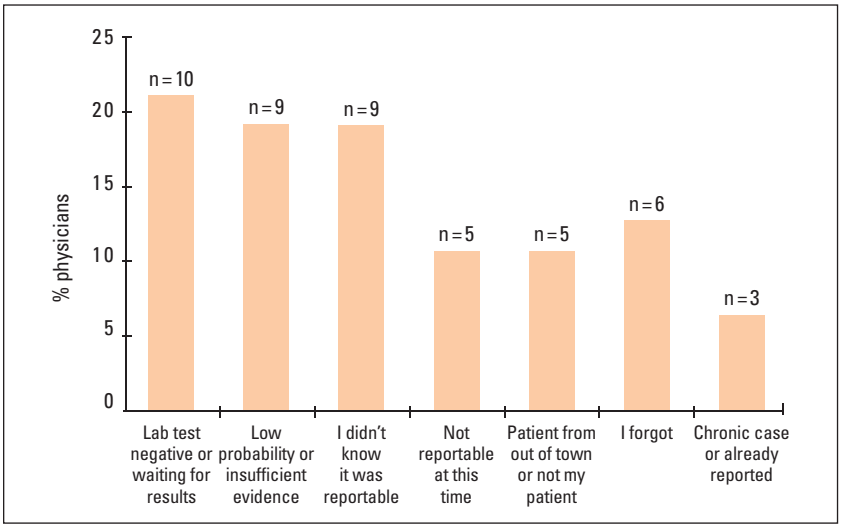

Figure 2. Reasons physicians did not report a suspected case of LD.

Note: 77 of the 81 physicians who suspected LD indicated whether they had reported the case to public health

patient they had treated for LD had the disease 14% (16/111) replied "definitely," 59% (65/111) "probably," 24% (27/111) "probably not," and 3% (3/111) "definitely not." Sixty-one percent (47/77) said they did not report and gave reasons (Figure 2). Thirty physicians reported they probably or definitely did not suspect LD in the last person they treated but indicated they had treated for other reasons, including prophylaxis and to alleviate patient anxiety.

Conclusions

This survey gives insight into physician treatment of LD in BC. In general, physicians have a low threshold for treating patients with possible LD and, in some cases, to allay patient anxiety even when LD is not suspected. Our survey also indicates that a substantial proportion of cases are not reported even when there is a high level of confidence in the diagnosis of LD. Barriers to reporting need to be identified and addressed. Improved physician-reporting of LD will enable BCCDC to better estimate the true burden of LD in the province and identify gaps where resources and education is needed for improved public health.

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