

## The Spread of Lyme Disease

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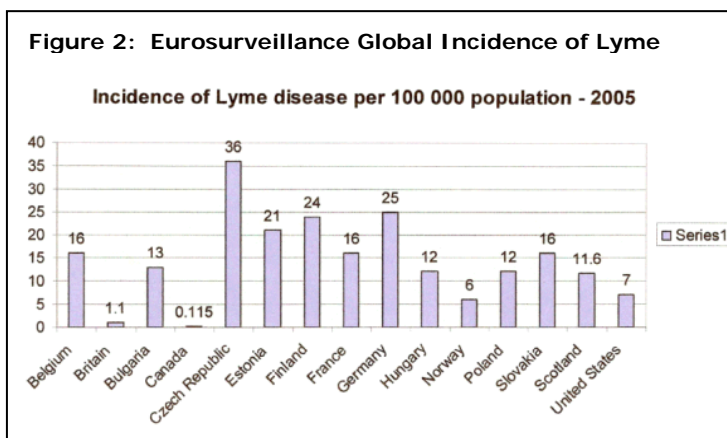
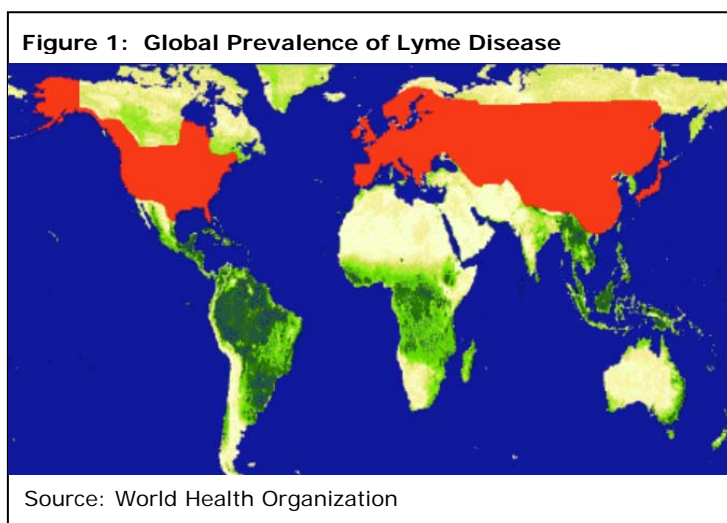
Lyme disease is the most rapidly spreading vector-borne disease in the world. The medical world is divided, with one group saying it is rare, easy to diagnose, and easy to treat; and the other saying it is a difficult diagnosis because of the negativity of the ELISA test and the lack of medical education of medical students, family practitioners and specialists.

There is an urgent need to make both the public and medical worlds aware of this since there is an unexplained but prevalent Lyme denial problem in our medical association. I have seen many patients suffering from arthritis, mental fog and severe fatigue, and most of these individuals have gone undiagnosed to the present day. My personal feeling is that there is a high percentage of Lyme and vector-borne disease in these patients who are suffering chronically and resorting to other forms of pain relief, including alcohol and street and prescribed medications. Many people are suffering in every walk of life in both urban and rural areas of Canada.

The following maps of the world, North America and British Columbia (BC) support my belief in the prevalence of Lyme. Figure 1 reveals the areas in the world that are infested with Lyme disease in red colouring, north and south of the 49<sup>th</sup> parallel. Note that Alaska, which is more northerly than most of Canada, is completely red, stretching below the 49<sup>th</sup> parallel and into the US. The two areas on the map that indicate BC and Ontario have recorded

many cases are likely because of my testing of patients through American labs and the work of an infectious diseases specialist who is treating Lyme disease openly in Ontario.

An international study of the global incidence of Lyme disease (Figure 2) indicates Canada has 0.115 cases per 100,000 population, a sharp contrast to the 36 per 100,000 for Czech Republic, which is on a similar latitude.



The next map (Figure 3) shows a distinct demarcation of diminished Lyme disease risk at the 49<sup>th</sup> parallel based on the ELISA test. This represents about 2 cases per million in Canada, or a total of about 80 cases in 2008 according to the Public Health Agency of Canada (PHAC). Yet immediately south of the Canada-US border, there are 70 cases per million, which is mathematically impossible. In a province versus state comparison, Canada averages about six cases per year per province by the ELISA test, yet across the border every north-central and northeastern state reports an average of 1,000 cases annually. There are two possible explanations: (1) the Americans are wrong about the statistics from their CDC in Atlanta or (2) more onerous and neglectful, Canadian testing methods are inadequate as is the diagnostic acumen of our physicians.

the ELISA and Western Blot test at BC CDC. My first case was #8 in Agassiz in 1994.

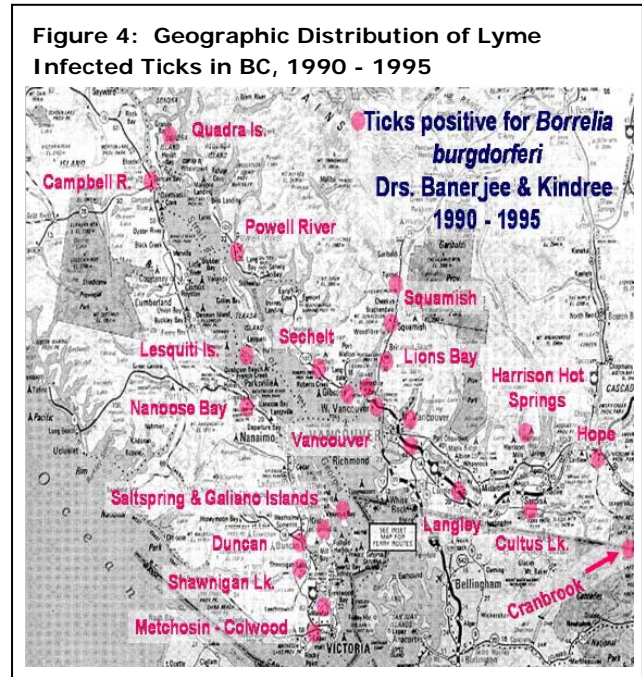
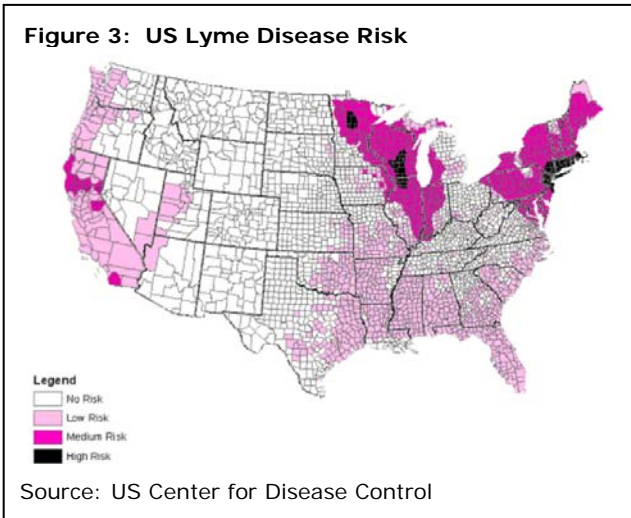


Figure 5 - Confirmed Lyme Disease Cases in B.C. April 1986 – May 1994

Age	Sex	Location	Year	Symptoms
2	F	Burns Lake	1988	fever, headache, rash, fatigue
44	F	Saltspring Is.	1989	rash, cellulitis, headache, muscle pain, rigor
71	F	Galiano Is.	1989	rash-erythema multiforme, arthritic pain, headache, joint effusion
46	M	Kootenay Lake	1992	fever, fatigue, rigors, parasthesia, arthralgia, myalgia
66	M	Cortes Is.	1993	arthralgia, joint swelling, joint effusions, no EM rash
58	F	Oliver	1993	rash, facial palsy, tingling sensation in fingertips extending to all fingers, started as a boil on arm prior to brachial plexopathy
74	F	Nanaimo	1993	EM rash, fever, fatigue, arthralgia, myalgia, treated with Doxycycline and got better
57	M	Agassiz	1994	rash, history of tick bit, stiff neck

There are doctors who vehemently deny the existence of Lyme disease in BC and Canada, despite the evidence recorded on the three following charts or graphs of studies done in BC in the early 1990s. Figure 4 presents a map compiled by Dr. Satwant Banerjee (BC CDC) and Dr. LaVerne Kindree who randomly tested ticks throughout BC and found live spirochetes of *Borrelia burgdorferi*.

Figure 5 documents the first eight cases of Lyme disease in BC serologically positive by

**Figure 6: Isolation of spirochetes from ticks and wild mice in BC.**  
 Tested by Polymerase chain reaction or monoclonal antibody tests for OSPA gene.

Culture #	Tick Species	#, Sex or Stage	BC Location	Spirochetes	PCR Lab Results	Host
936	<i>I. pacificus</i>	2 male	Hope	motile	positive	
202	<i>I. pacificus</i>	2 male	Harrison	non-motile	positive	
664	<i>I. pacificus</i>	3 larvae	Cultus Lake	non-motile	positive	
665	<i>I. angustus</i>	5 larvae	Cultus Lake	motile	positive	mouse
703	<i>I. pacificus</i>	2 female	Cultus Lake	motile	positive	
710	<i>I. pacificus</i>	2 female	Cultus Lake	non-motile	positive	
1340	<i>I. angustus</i>	4 larvae	Squamish	motile	positive	mouse
1778	<i>I. angustus</i>	1 larvae	Sechelt	non-motile	positive	mouse
1779	<i>I. angustus</i>	2 larvae	Sechelt	non-motile	positive	mouse
115	<i>I. pacificus</i>	5 male	Bowen Is.	non-motile	positive	
72	<i>I. pacificus</i>	10 female	Lasqueti Is.	non-motile	positive	goat
1990	<i>I. pacificus</i>	5 female	Lasqueti Is.	non-motile	positive	cat
1992	<i>I. pacificus</i>	2 female	Lasqueti Is.	non-motile	positive	cat
1545	<i>I. pacificus</i>	4 larvae	Galiano Is.	motile	positive	mouse
729	<i>I. pacificus</i>	2 female	Nanoose	non-motile	positive	
334	<i>I. pacificus</i>	2 larvae	Metchosin	non-motile	positive	mouse
344	<i>I. pacificus</i>	1 larvae	Metchosin	non-motile	positive	lizard
363	<i>I. pacificus</i>	2 male	Metchosin	non-motile	positive	
368	<i>I. pacificus</i>	3 female	Metchosin	non-motile	positive	
382	<i>I. pacificus</i>	3 male	Metchosin	motile	positive	

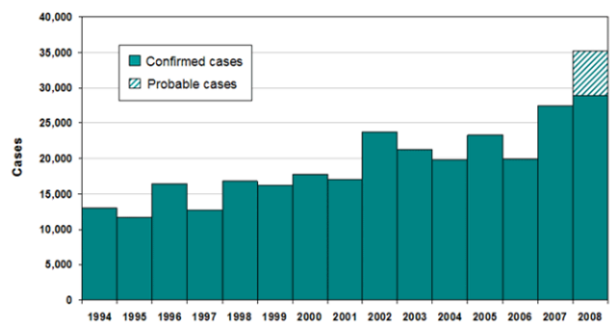
As shown in Figure 6, ticks with nucleic acid from *Borrelia burgdorferi* spirochetes have been found in domestic and wild animals, including lizards, throughout BC.

New York and Connecticut report up to 90% of ticks infected, which means that for almost every tick bite, there is a high probability of contracting Lyme disease and/or co-infections. As the world warms with climate change, more ticks will survive. More ticks add to the likelihood of being bitten, which is compounded by people spending more time outdoors enjoying the warmer weather.

The US CDC has published statistics that indicate 35,198 reported cases of Lyme disease for the year 2008 (Figure 7) and an astonishing 422,376 estimated actual cases

**Figure 7: US Lyme Disease Cases, 1994 - 2008**

Reported Cases of Lyme Disease by Year, United States, 1994-2008



Source: US Center for Disease Control

using an error factor of 12x. It is a well-known fact that when the US has 422,376 cases, Canada will have approximately 10% of that number, yet only 80 cases are reported for the year 2008 by PHAC. The estimated actual cases in Canada must be over 40,000.

The validity of the Infectious Diseases Society of America (IDSA) guidelines on Lyme disease has been challenged by Connecticut Attorney General Richard Blumenthal and the IDSA has been ordered to review and revise their guidelines under a new panel. This review panel had until the end of 2009 to render any changes. However, the rewrite of the guidelines was pushed back in early 2010 when the Attorney General was moved to request that the panel redo the vote due to his concern over “improper voting procedures” that violated the settlement agreement between his office and IDSA.

The polarization among those in the medical profession and the controversy that surrounds Lyme disease has led to the courts in numerous American states legislating laws that prohibit the investigation or harassment of all medical doctors who are treating chronic Lyme disease. Many other states are considering similar legislation.

This disease is not going away – it started in eastern Canada and has spread right across the country, and BC represents the latest province to become endemic for Lyme disease. Numbers have magnified tremendously and we are probably now facing about 50% of ticks being infected with Lyme and co-infections. Awareness of this rapidly growing disease is paramount and doctors must remove this great divide and the fear of our skeptical peers which prevents the diagnosis and treatment of Lyme disease early and adequately.

We in the medical profession around the world should be resolving this great divide amicably and professionally ourselves as we have done with all other major infectious diseases in the past. There is no time for complacency as was experienced with the AIDS epidemic in the early 1980s. We must prepare for the rapidly approaching pandemic of Lyme disease.

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**E**rnst Murakami is a retired family physician whose passion and interest in Lyme disease started in 1994 with his first Lyme patient in Hope, BC. Over the years, he has attended conferences on Lyme disease and has become privy to the vast differences within the medical community's views of this disease.

Dr. Murakami was educated at the University of British Columbia where he obtained his Bachelors in Immunology & Bacteriology, and continued on to achieve his MD. He has been honoured and recognized for his efforts to further the education of fellow colleagues through the UBC, giving him the status of Clinical Associate Professor Emeritus.

Dr. Murakami is the founder of the Dr. E. Murakami Centre for Lyme Research, Education & Assistance and has made it his life's work to further educate and treat Lyme in Canada.

