



Lyme Borreliosis

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Medimar, Åland

Lyme Borreliosis is-----

- A multisystemic vector-borne, inflammatory infectious disease
- Caused by the **immune-defence** to spirochetes of the *Borrelia burgdorferi* s.l. complex
- The most common vector-borne infectious disease in North-Europe



Borrelia burgdorferi s.l. and others

- B. b. sensu stricto
 - B. afzelii
 - B. garinii
 - B. bavariensis
 - B. spielmanii, valaisana
 - B. miyamotoi
-
- Other – TBE, Anaplasma, Rickettsia SFG, Tularemia, Candidatus Neoehrlichia mikurensis

Ticks are the vectors



I. ricinus

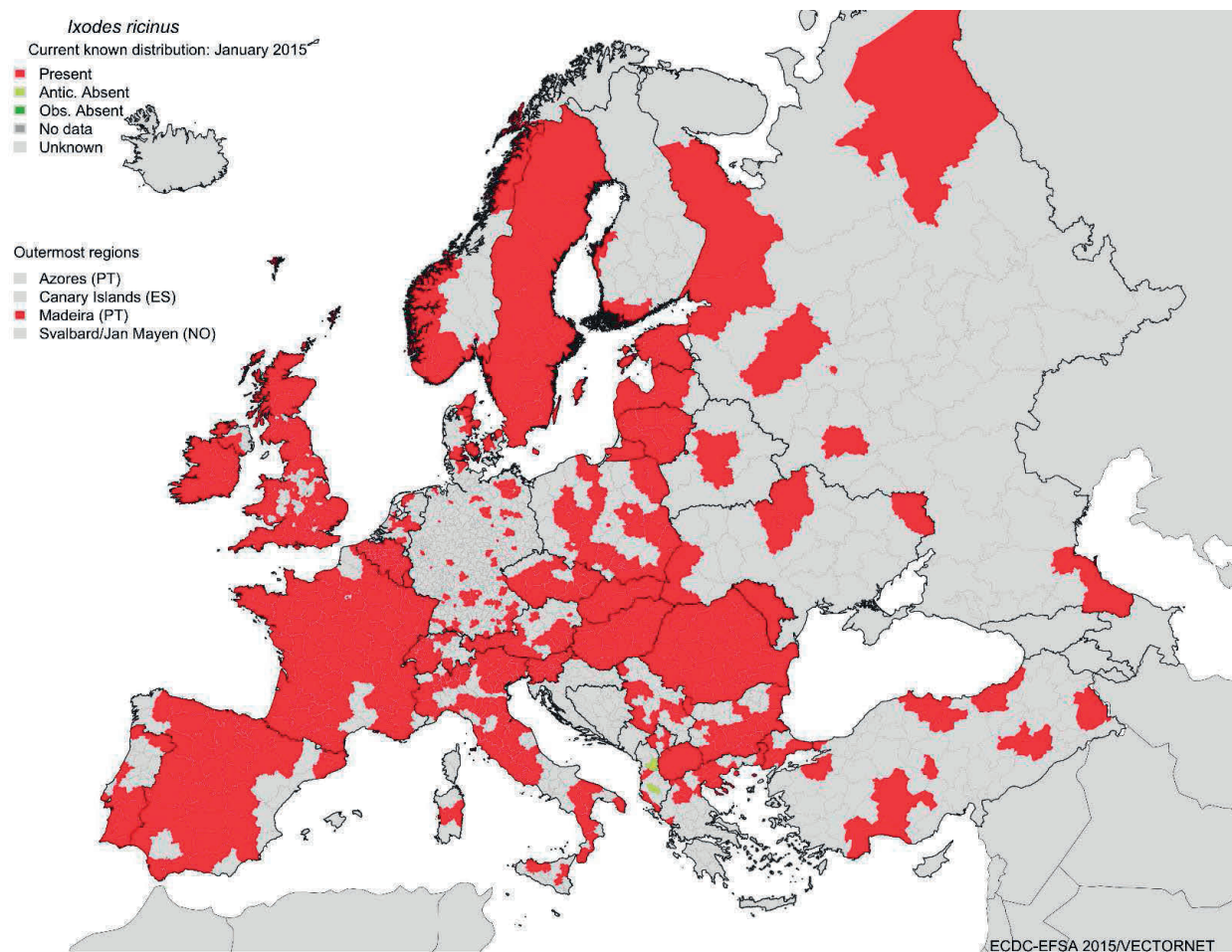


I. persulcatus

Why a borreliosis clinic?

- Epidemiology
- Diagnostics and differential diagnostics
- Treatment
- Chronic infection
- Persisting symptoms

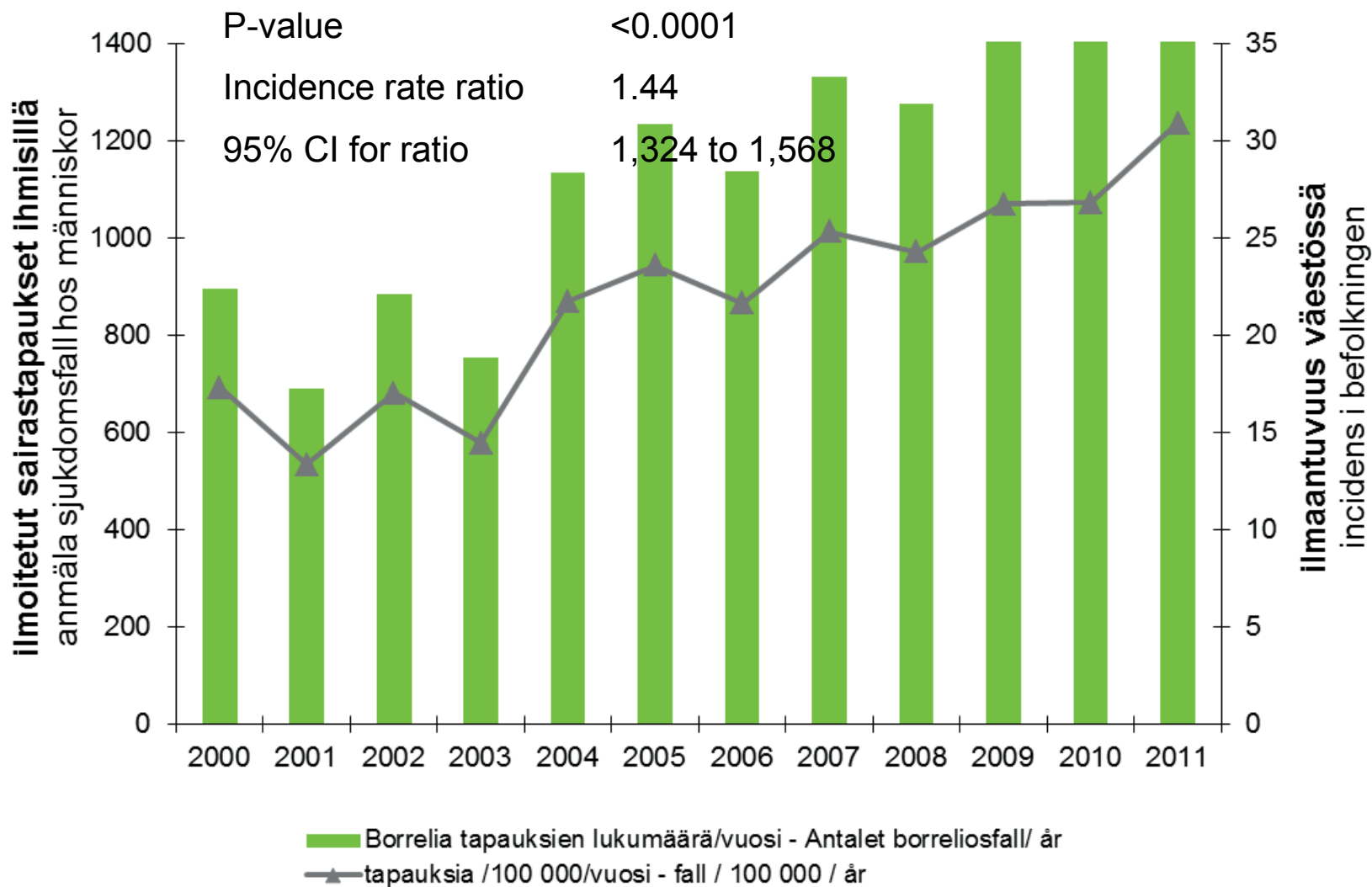
Ticks in Europe



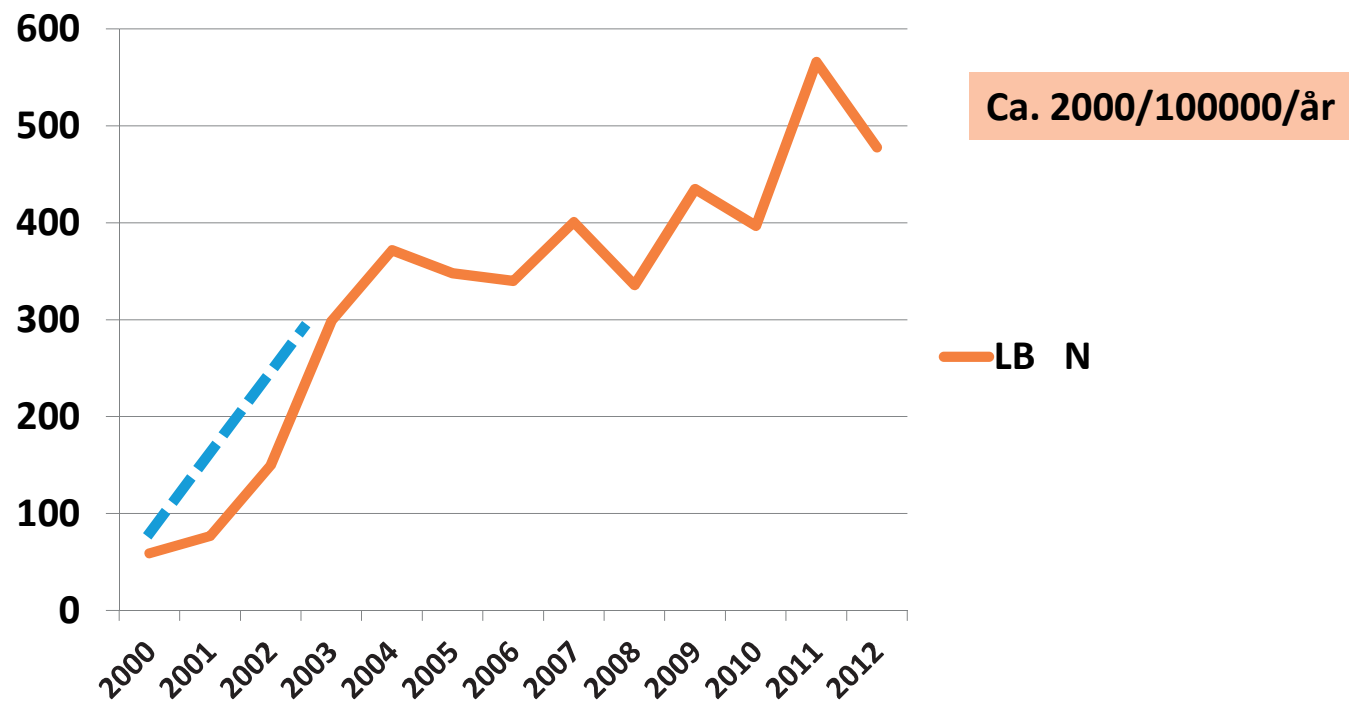
ECDC 2015

Reported borreliosis 2000-2011
(IHW Finland)

Serology based incidence!



Clinical borreliosis 2000 -2012 Åland



***Borrelia* prevalence and species in ticks, Åland Islands**

Tick stage	No. (%) of ticks	No. (%) of positive	No. (%) of ticks containing <i>Borrelia</i> species determined by nucleotide sequencing								
			<i>B. a</i>	<i>B. g</i>	<i>B. v</i>	<i>B. b</i>	<i>B. m</i>	<i>B. s</i>	<i>B. l</i>	Mixed	UT
	777	178 (23)	86 (48)	42 (24)	14 (8)	4 (2)	2 (1)	5 (3)	--	1(1)	24 (13)
Adult male	5 (1)	--									
Adult female	118 (15)	35 (30)	10 (28)	11 (30)	5 (14)	3 (8)	1 (3)	1 (3)			4 (11)
Nymph	587 (74)	143 (24)	76 (53)	31 (21)	9 (6)	1 (1)	1 (1)	4 (3)		1 (1)	20 (14)
Larva	67 (8)	--									

Borrelia in ticks from Estonia

- Ixodes ricinus 8.2% (2293)
- Ixodes persulcatus 9.7% (2833)
- Total 4.7 - 24.2 % regional variation
- The most prevalent genospecies was *B. afzelii* which was detected in 53.5% of *Borrelia*-positive ticks, followed by *B. garinii* and *B. valaisiana* with 26.2% and 5.5%, respectively.

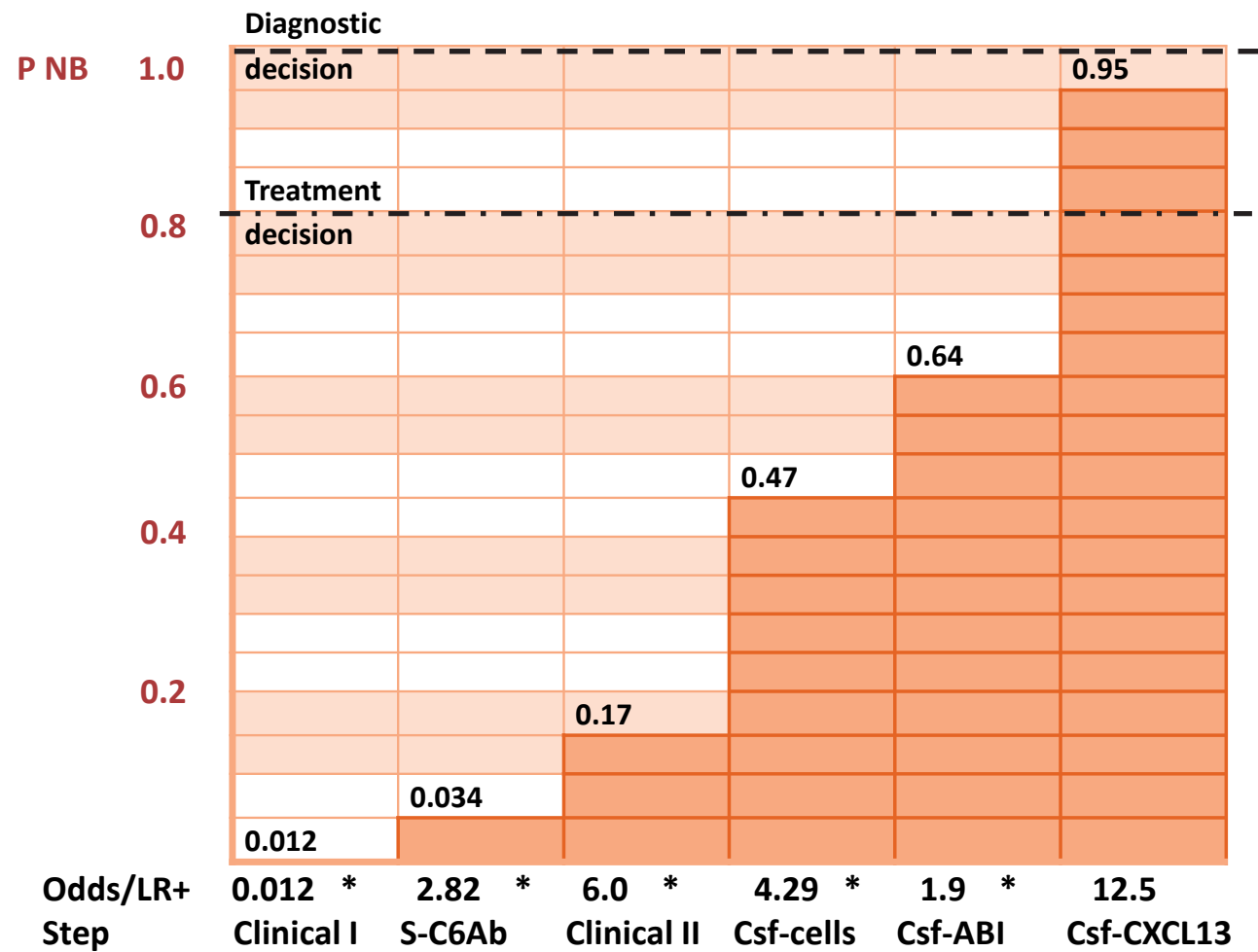
Borreliosis in Europe

Year	2001		2002		2003		2004		2005	
Country	Incidence	[cases]	Incidence	[cases]	Incidence	[cases]	Incidence	[cases]	Incidence	[cases]
Slovenia	163	[3232]	169	[3359]	177	[3524]	193	[3849]	206	[4123]
Austria	-	-	-	-	-	-	-	-	135	-
Netherlands	74	[12000]	-	-	-	-	-	-	103	[17000]
Lithuania	33	[1153]	26	[894]	106	[3688]	50	[1740]	34	[1161]
Finland	13	[691]	17	[884]	14	[753]	22	[1135]	24	[1236]
Latvia	16	[379]	14	[328]	31	[714]	31	[710]	21	[493]
Estonia	25	[342]	23	[319]	42	[562]	36	[480]	21	[281]

Diagnosis

- Clinical picture
 - early, late
 - localized, disseminated
 - organ involved
- Laboratory verification
 - which test when
 - diagnostic performance

BUILDING A DIAGNOSIS NB



Do not be afraid of the nature!



(c) Erkki Santamala 2011