

Supplementary File 2 - Characteristics of all papers included in the map (n=1098)

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Appendix 4 - Characteristics of papers on diagnosis (n=310)

This appendix presents the characteristics of papers on diagnosis by the following foci:

- Diagnostic test accuracy (Table A4.1, n=252)
- Patient experiences (Table A4.2, n=19)
- Clinician knowledge/behaviours (Table A4.3, n=17)
- Other aspects (Table A4.4, n=21)
- Combination of diagnosis foci (Table A4.5, n = 1)

Table A4.1 Characteristics of papers on diagnosis - Diagnostic test accuracy (n=252)

Author, year	Continent & country	Population	Diagnostic test
Aalto (2007)	Europe Sweden	Non-specific/General population	Clinical diagnosis
Aase (2016)	Europe Norway	Non-specific/General population	Laboratory diagnosis
Aberer (2007)	Europe Austria	Non-specific/General population	Laboratory diagnosis
Abusamieh (2002)	North America USA	Non-specific/General population	Laboratory diagnosis
Agarwal (2009)	North America USA	Non-specific/General population	Clinical diagnosis
Agosta (2006)	Europe Italy	Non-specific/General population	Clinical diagnosis
Ang (2011)	Europe Netherlands	Non-specific/General population	Laboratory diagnosis
Ang (2015)	Europe Netherlands	Non-specific/General population	Laboratory diagnosis

Aucott (2016)	North America USA	Non-specific/General population	Clinical diagnosis
Avery (2005)	North America USA	Children (< 18. y.old)	Laboratory diagnosis
Avery (2006)	North America USA	Children (< 18. y.old)	Clinical diagnosis
Ayub (2010)	North America USA	Non-specific/General population	Laboratory diagnosis
Babady (2008)	North America USA	Non-specific/General population	Laboratory diagnosis
Bacon (2003)	North America USA	Non-specific/General population	Laboratory diagnosis
Baldwin (2016)	North America USA	Children (< 18. y.old)	Laboratory diagnosis
Baranova (2014)	Europe Russia	Non-specific/General population	Laboratory diagnosis
Barrial (2009)	Europe France	Non-specific/General population	Laboratory diagnosis
Bednarova (2006)	Europe Czech Republic	Non-specific/General population	Laboratory diagnosis
Bennet (2008)	Europe Sweden	Children (< 18. y.old)	Laboratory diagnosis
Bil-Lula (2015)	Europe Poland	High-risk occupation	Laboratory diagnosis
Blanc (2007)	Europe France	Non-specific/General population	Laboratory diagnosis
Blocher (2012)	Europe Germany	Non-specific/General population	Laboratory diagnosis
Bobba (2006)	North America USA	Non-specific/General population	Laboratory diagnosis

Bouchard (2010)	Europe France	Non-specific/General population	Laboratory diagnosis
Branda (2010)	North America USA	Non-specific/General population	Laboratory diagnosis
Branda (2011)	North America USA	Non-specific/General population	Laboratory diagnosis
Branda (2013)	Europe Slovenia	Non-specific/General population	Laboratory diagnosis
Bremell (2011)	Europe Sweden	Non-specific/General population	Clinical diagnosis
Bremell (2014)	Europe Sweden	Non-specific/General population	Laboratory diagnosis
Burbelo (2010)	North America USA	Non-specific/General population	Laboratory diagnosis
Busson (2012)	Europe Belgium	Non-specific/General population	Laboratory diagnosis
Callister (2002)	North America USA	Non-specific/General population	Laboratory diagnosis
Cerar (2006)	Europe Slovenia	Non-specific/General population	Laboratory diagnosis
Cerar (2006)	Europe Slovenia	Non-specific/General population	Laboratory diagnosis
Cerar (2008)	Europe Slovenia	Non-specific/General population	Laboratory diagnosis
Cerar (2008)	Europe Slovenia	Non-specific/General population	Laboratory diagnosis
Cerar (2010)	Europe Slovenia	Non-specific/General population	Laboratory diagnosis
Cermakova (2005)	Europe Czech Republic	Non-specific/General population	Laboratory diagnosis

Chang (2010)	Asia Taiwan	Non-specific/General population	Clinical diagnosis
Chmielewska-Badora (2006)	Europe Poland	Non-specific/General population	Laboratory diagnosis
Chmielewski (2003)	Europe Poland	Non-specific/General population	Laboratory diagnosis
Christova (2003)	Europe Bulgaria	Non-specific/General population	Laboratory diagnosis
Cinco (2006)	Europe Italy	Non-specific/General population	Laboratory diagnosis
Cohn (2011)	North America USA	Children (< 18. y.old)	Clinical diagnosis
Cohn (2012)	North America USA	Children (< 18. y.old)	Clinical diagnosis
Coulter (2005)	North America USA	Non-specific/General population	Laboratory diagnosis
Cruz (2015)	North America USA	Children (< 18. y.old)	Clinical diagnosis Laboratory diagnosis
Czupryna (2012)	Europe Poland	Non-specific/General population	Clinical diagnosis
Deanehan (2013)	North America USA	Children (< 18. y.old)	Clinical diagnosis
Deanehan (2014)	North America USA	Children (< 18. y.old)	Laboratory diagnosis
Dessau (2010)	Europe Denmark	Non-specific/General population	Laboratory diagnosis
Dessau (2012)	Europe Denmark	Non-specific/General population	Laboratory diagnosis
Dessau (2013)	Europe Denmark	Non-specific/General population	Laboratory diagnosis

Dessau (2015)	Europe Finland, Sweden	Non-specific/General population	Laboratory diagnosis
Dickeson (2016)	Oceania Australia	Non-specific/General population	Laboratory diagnosis
Djukic (2011)	Europe Germany	Non-specific/General population	Laboratory diagnosis
Djukic (2011)	Europe Germany	Non-specific/General population	Laboratory diagnosis
Du (2007)	Europe Germany	Non-specific/General population	Laboratory diagnosis
Dudley (2007)	North America USA	Non-specific/General population	Laboratory diagnosis
Durovska (2010)	Europe Slovakia	Non-specific/General population	Laboratory diagnosis
Ecklund (2005)	North America USA	Children (< 18. y.old)	Clinical diagnosis
Eisendle (2007)	Europe Austria	Non-specific/General population	Laboratory diagnosis
Ekerfelt (2004)	Europe Sweden	Non-specific/General population	Laboratory diagnosis
Eshoo (2011)	North America USA	Non-specific/General population	Laboratory diagnosis
Eshoo (2012)	North America USA	Non-specific/General population	Clinical diagnosis
Fallon (2014)	North America USA	Non-specific/General population	Laboratory diagnosis
Fine (2011)	North America USA	Children (< 18. y.old)	Clinical diagnosis
Fraille (2010)	Europe Spain	Non-specific/General population	Laboratory diagnosis

Garro (2009)	North America USA	Children (< 18. y.old)	Clinical diagnosis
Gerritzen (2012)	Europe Germany	Non-specific/General population	Laboratory diagnosis
Gladnishka (2012)	Europe Bulgaria	Non-specific/General population	Laboratory diagnosis
Goettner (2004)	Europe Germany	Non-specific/General population	Laboratory diagnosis
Goettner (2005)	Europe Germany	Non-specific/General population	Laboratory diagnosis
Goettner (2006)	Europe Germany	Non-specific/General population	Laboratory diagnosis
Gomes-Solecki (2002)	North America USA	Non-specific/General population	Laboratory diagnosis
Guellec (2016)	Europe France	Non-specific/General population	Laboratory diagnosis
Halpern (2014)	North America USA	Non-specific/General population	Laboratory diagnosis
Hassing (2011)	Europe Netherlands	Non-specific/General population	Laboratory diagnosis
Heikkila (2002)	Europe Finland	Non-specific/General population	Laboratory diagnosis
Heikkila (2002)	Europe Finland	Non-specific/General population	Laboratory diagnosis
Heikkila (2005)	Europe Finland	Children (< 18. y.old)	Laboratory diagnosis
Henningsson (2014)	Europe Sweden	Non-specific/General population	Laboratory diagnosis
Hernandez-Novoa (2003)	Europe Spain	Non-specific/General population	Laboratory diagnosis

Herremans (2010)	Europe Netherlands	Non-specific/General population	Laboratory diagnosis
Hofmann (2006)	Europe Germany	Non-specific/General population	Laboratory diagnosis
Huckova (2003)	Europe Slovakia	Non-specific/General population	Laboratory diagnosis
Hufschmidt (2008)	Europe Germany	Children (< 18. y.old)	Clinical diagnosis
Hunfeld (2002)	Europe Austria	Non-specific/General population	Laboratory diagnosis
Hytonen (2014)	Europe Finland	Non-specific/General population	Laboratory diagnosis
Ivacic (2007)	North America USA	Non-specific/General population	Laboratory diagnosis
Jaaskelainen (2014)	Europe Finland	Non-specific/General population	Laboratory diagnosis
Jansson (2005)	Europe Finland	Non-specific/General population	Laboratory diagnosis
Jaulhac (2007)	Europe France	Non-specific/General population	Laboratory diagnosis
Jespersen (2002)	North America USA	Non-specific/General population	Laboratory diagnosis
Jin (2013)	North America USA	Non-specific/General population	Laboratory diagnosis
Jin (2013)	North America USA	Non-specific/General population	Laboratory diagnosis
Jobe (2008)	North America USA	Non-specific/General population	Laboratory diagnosis
Johnson (2014)	North America USA	Non-specific/General population	Laboratory diagnosis

Jovicic (2003)	Europe Serbia	Non-specific/General population	Laboratory diagnosis
Kadkhoda (2011)	North America Canada	Non-specific/General population	Laboratory diagnosis
Kimura (2005)	Asia Japan	Non-specific/General population	Clinical diagnosis
Kondrusik (2007)	Europe Poland	Non-specific/General population	Laboratory diagnosis
Krause (2002)	North America USA	Non-specific/General population	Laboratory diagnosis
Krbkova (2016)	Europe Czech Republic	Children (< 18. y.old)	Laboratory diagnosis
Kubova (2006)	Europe Czech Republic	Non-specific/General population	Clinical diagnosis
Kuchynka (2010)	Europe Czech Republic	Non-specific/General population	Laboratory diagnosis
Lahey (2015)	North America USA	Non-specific/General population	Laboratory diagnosis
Lakos (2012)	Europe Hungary	High-risk occupation	Laboratory diagnosis
Lantos (2015)	North America USA	Non-specific/General population	Laboratory diagnosis
Lantos (2016)	North America USA	Children (< 18. y.old)	Laboratory diagnosis
Ledue (2008)	North America USA	Non-specific/General population	Laboratory diagnosis
Lee (2010)	North America USA	Non-specific/General population	Laboratory diagnosis
Lee (2014)	North America USA	Non-specific/General population	Laboratory diagnosis

Lencakova (2007)	Europe Slovakia	Non-specific/General population	Laboratory diagnosis
Lencakova (2008)	Europe Slovakia	Non-specific/General population	Laboratory diagnosis
Li (2011)	North America USA	Non-specific/General population	Laboratory diagnosis
Lipowsky (2003)	Europe Switzerland	Non-specific/General population	Laboratory diagnosis
Lipsett (2015)	North America USA	Children (< 18. y.old)	Laboratory diagnosis
Lipsett (2016)	North America USA	Children (< 18. y.old)	Laboratory diagnosis
Liu (2011)	Asia China	Non-specific/General population	Laboratory diagnosis
Liu (2013)	Asia China	Non-specific/General population	Laboratory diagnosis
Liu (2016)	Asia China	Non-specific/General population	Laboratory diagnosis
Liu (2016)	Asia China	Non-specific/General population	Laboratory diagnosis
Liveris (2002)	North America USA	Non-specific/General population	Laboratory diagnosis
Liveris (2012)	North America USA	Non-specific/General population	Laboratory diagnosis
Ljostad (2007)	Europe Norway	Non-specific/General population	Laboratory diagnosis
Ljostad (2007)	Europe Norway	Non-specific/General population	Laboratory diagnosis
Ljostad (2008)	Europe Norway	Non-specific/General population	Laboratory diagnosis

Mackensen (2011)	Europe Germany	Non-specific/General population	Laboratory diagnosis
Magnarelli (2002)	North America USA	Non-specific/General population	Laboratory diagnosis
Magni (2015)	North America USA	Non-specific/General population	Laboratory diagnosis
Marangoni (2005)	Europe Italy	Non-specific/General population	Laboratory diagnosis
Marangoni (2005)	Europe Italy	Non-specific/General population	Laboratory diagnosis
Marangoni (2006)	Europe Italy	Non-specific/General population	Laboratory diagnosis
Marangoni (2007)	Europe Italy	Non-specific/General population	Laboratory diagnosis
Marangoni (2008)	Europe Italy	Non-specific/General population	Laboratory diagnosis
Marques (2014)	North America USA	Non-specific/General population	Laboratory diagnosis
Matthys (2007)	Europe Belgium	Non-specific/General population	Laboratory diagnosis
Mavin (2007)	Europe UK	Non-specific/General population	Laboratory diagnosis
Mavin (2009)	Europe UK	Non-specific/General population	Laboratory diagnosis
Mavin (2014)	Europe UK	Non-specific/General population	Laboratory diagnosis
Meloska (2014)	Europe Macedonia	Non-specific/General population	Laboratory diagnosis
Merljak (2008)	Europe Slovenia	Non-specific/General population	Laboratory diagnosis

Meyer (2008)	Europe Germany	Non-specific/General population	Laboratory diagnosis
Meyer (2011)	Europe Sweden	Non-specific/General population	Laboratory diagnosis
Michel (2004)	Europe Germany	Non-specific/General population	Laboratory diagnosis
Mihailescu (2012)	Europe Romania	Non-specific/General population	Laboratory diagnosis
Mogilyansky (2004)	North America USA	Non-specific/General population	Laboratory diagnosis
Molins (2014)	North America USA	Non-specific/General population	Laboratory diagnosis
Molins (2015)	North America USA	Non-specific/General population	Laboratory diagnosis
Moniuszko (2015)	Europe Poland	Non-specific/General population	Laboratory diagnosis
Muller (2006)	Europe Germany	Non-specific/General population	Laboratory diagnosis
Nagel (2008)	Europe Germany	Non-specific/General population	Laboratory diagnosis
Neifer (2012)	Europe Germany	Non-specific/General population	Laboratory diagnosis
Newberg (2002)	North America USA	Non-specific/General population	Clinical diagnosis
Niscigorska (2003)	Europe Poland	High-risk occupation	Laboratory diagnosis
Nordberg (2012)	Europe Sweden	Non-specific/General population	Laboratory diagnosis
Ogrinc (2008)	Europe Slovenia	Non-specific/General population	Clinical diagnosis

Ondrejškova (2014)	Europe Czech Republic	Non-specific/General population	Laboratory diagnosis
Ornstein (2002)	Europe Sweden	Non-specific/General population	Laboratory diagnosis
O'Rourke (2013)	Europe Austria	Non-specific/General population	Laboratory diagnosis
Ott (2011)	Europe NR	Non-specific/General population	Laboratory diagnosis
Panczuk (2014)	Europe Poland	Children (< 18. y.old)	Laboratory diagnosis
Panelius (2003)	Europe Finland	Non-specific/General population	Laboratory diagnosis
Panelius (2008)	Europe Finland	Non-specific/General population	Laboratory diagnosis
Patriquin (2016)	North America Canada	Non-specific/General population	Laboratory diagnosis
Pauluzzi (2004)	Europe Italy	Non-specific/General population	Laboratory diagnosis
Peltomaa (2004)	North America USA	Non-specific/General population	Laboratory diagnosis
Picha (2005)	Europe Czech Republic	Non-specific/General population	Laboratory diagnosis
Picha (2008)	Europe Czech Republic	Non-specific/General population	Laboratory diagnosis
Picha (2014)	Europe Czech Republic	Non-specific/General population	Laboratory diagnosis
Pikelj-Pecnik (2002)	Europe Slovenia	Non-specific/General population	Clinical diagnosis
Piqueur (2009)	Europe Belgium	Non-specific/General population	Laboratory diagnosis

Pomelova (2015)	Europe Russia	Non-specific/General population	Laboratory diagnosis
Porwancher (2011)	North America USA	Non-specific/General population	Laboratory diagnosis
Prisco (2015)	North America USA	Non-specific/General population	Laboratory diagnosis
Pritt (2016)	North America USA	Non-specific/General population	Laboratory diagnosis
Puri (2014)	Europe UK	Non-specific/General population	Laboratory diagnosis
Reiber (2013)	Europe Germany	Non-specific/General population	Laboratory diagnosis
Riesbeck (2007)	Europe Sweden	Non-specific/General population	Laboratory diagnosis
Rosslhuber (2012)	Europe Austria	Non-specific/General population	Laboratory diagnosis
Rossmann (2009)	Europe Germany	Non-specific/General population	Laboratory diagnosis
Roux (2007)	Europe France	Non-specific/General population	Laboratory diagnosis
Ruzic-Sabljic (2002)	Europe Slovenia	Non-specific/General population	Laboratory diagnosis
Ruzic-Sabljic (2014)	Europe Slovenia	Non-specific/General population	Laboratory diagnosis
Santino (2008)	Europe Italy	Non-specific/General population	Laboratory diagnosis
Santino (2009)	Europe Italy	High-risk occupation	Laboratory diagnosis
Sapi (2013)	North America USA	Non-specific/General population	Laboratory diagnosis

Schafers (2008)	Europe Germany	Non-specific/General population	Laboratory diagnosis
Schenk (2015)	Europe Germany	Non-specific/General population	Laboratory diagnosis
Schmidt (2011)	Europe Germany	Non-specific/General population	Laboratory diagnosis
Schulte-Spechtel (2003)	Europe Germany	Non-specific/General population	Laboratory diagnosis
Schulte-Spechtel (2004)	Europe Germany	Non-specific/General population	Laboratory diagnosis
Schwartz (2013)	North America USA	Non-specific/General population	Laboratory diagnosis
Schwarzbach (2012)	Europe Germany	Non-specific/General population	Laboratory diagnosis
Schwarzova (2009)	Europe Slovakia	Non-specific/General population	Laboratory diagnosis
Schwarzova (2011)	Europe Slovakia	Non-specific/General population	Laboratory diagnosis
Senel (2010)	Europe Germany	Non-specific/General population	Laboratory diagnosis
Senel (2010)	Europe Germany	Non-specific/General population	Laboratory diagnosis
Sepp (2013)	Europe Estonia	Non-specific/General population	Laboratory diagnosis
Shah (2005)	North America USA	Children (< 18. y.old)	Clinical diagnosis Laboratory diagnosis
Sillanpaa (2007)	North America USA Europe Finland, Slovenia	Non-specific/General population	Laboratory diagnosis

Sillanpaa (2013)	Europe Sweden	Children (< 18. y.old)	Laboratory diagnosis
Sillanpaa (2014)	Europe Finland	Children (< 18. y.old)	Laboratory diagnosis
Situm (2002)	Europe Croatia	High-risk occupation	Laboratory diagnosis
Skarpaas (2007)	Europe Norway	Non-specific/General population	Laboratory diagnosis
Skogman (2008)	Europe Sweden	Children (< 18. y.old)	Clinical diagnosis
Skogman (2008)	Europe Sweden	Children (< 18. y.old)	Laboratory diagnosis
Skogman (2015)	Europe Sweden	Children (< 18. y.old)	Clinical diagnosis
Smismans (2006)	Europe Netherlands	Non-specific/General population	Laboratory diagnosis
Smit (2015)	Europe Finland	Non-specific/General population	Laboratory diagnosis
Spackova (2015)	Europe Czech Republic	Non-specific/General population	Laboratory diagnosis
Spirin (2011)	Europe Russia	Non-specific/General population	Laboratory diagnosis
Sprong (2013)	Europe Netherlands	Non-specific/General population	Clinical diagnosis
Stanek (2014)	Europe Germany	Non-specific/General population	Laboratory diagnosis
Steere (2008)	North America USA	Non-specific/General population	Laboratory diagnosis
Sundin (2012)	Europe Sweden	Children (< 18. y.old)	Clinical diagnosis

Talhari (2010)	South America Brazil	Non-specific/General population	Laboratory diagnosis
Tay (2002)	Asia Malaysia	Non-specific/General population	Laboratory diagnosis
Tjernberg (2007)	Europe Sweden	Non-specific/General population	Laboratory diagnosis
Tjernberg (2008)	Europe Sweden	Non-specific/General population	Laboratory diagnosis
Tjernberg (2009)	Europe Sweden	Non-specific/General population	Laboratory diagnosis
Tjernberg (2011)	Europe Sweden	Non-specific/General population	Laboratory diagnosis
Trifonova (2010)	Europe Bulgaria	Non-specific/General population	Laboratory diagnosis
Trnovcova (2007)	Europe Slovakia	Non-specific/General population	Laboratory diagnosis
Tuerlinckx (2009)	Europe Belgium	Children (< 18. y.old)	Clinical diagnosis Laboratory diagnosis
Tveitnes (2012)	Europe Norway	Children (< 18. y.old)	Clinical diagnosis Laboratory diagnosis
Tylewska- Wierzbanska (2002)	Europe Poland	Non-specific/General population	Laboratory diagnosis
Valentine-Thon (2004)	Europe Germany	Non-specific/General population	Laboratory diagnosis
Van Burgel (2009)	Europe NR	Non-specific/General population	Laboratory diagnosis
van Burgel (2011)	Europe Netherlands	Non-specific/General population	Laboratory diagnosis
van Burgel (2011)	Europe Netherlands	Non-specific/General population	Laboratory diagnosis

Van Meensel (2012)	Europe Belgium	Non-specific/General population	Laboratory diagnosis
Vermeersch (2009)	Europe Belgium	Non-specific/General population	Laboratory diagnosis
Verstreken (2009)	Europe Belgium	Non-specific/General population	Laboratory diagnosis
von Baehr (2012)	Europe Germany	Non-specific/General population	Laboratory diagnosis
Vreede (2007)	Europe Netherlands	Non-specific/General population	Laboratory diagnosis
Waespe (2010)	Europe Switzerland	Children (< 18. y.old)	Clinical diagnosis
Weiner (2015)	North America USA	Non-specific/General population	Laboratory diagnosis
Welsh (2012)	North America USA	Children (< 18. y.old)	Clinical diagnosis
Widhe (2004)	Europe Sweden	Non-specific/General population	Laboratory diagnosis
Wojciechowska-Koszko (2011)	Europe Poland	Non-specific/General population	Laboratory diagnosis
Wormser (2008)	North America USA	Non-specific/General population	Laboratory diagnosis
Wormser (2013)	North America USA	Non-specific/General population	Laboratory diagnosis
Wormser (2014)	North America USA Europe Austria	Non-specific/General population	Laboratory diagnosis
Wutte (2011)	Europe Austria	Non-specific/General population	Clinical diagnosis

Wutte (2014)	Europe Austria	Non-specific/General population	Laboratory diagnosis
Zajkowska (2006)	Europe Poland	Non-specific/General population	Laboratory diagnosis
Zajkowska (2008)	Europe Poland	High-risk occupation	Clinical diagnosis
Zhang (2013)	Asia China	Non-specific/General population	Clinical diagnosis
Zhang (2015)	Asia China	Non-specific/General population	Laboratory diagnosis
Zollinger (2010)	Europe Switzerland	Non-specific/General population	Laboratory diagnosis

NR = Not reported

Table A4.2 Characteristics of papers on diagnosis - Patient experiences (n=19)

Author, year	Continent & country	Population	Diagnostic test
Ali (2012)	North America USA	Non-specific/General population	N/A (patient/providers' views)
Ali (2014)	North America USA	Non-specific/General population	N/A (patient/providers' views)
Bharadwaj (2013)	Asia India	Non-specific/General population	N/A (patient/providers' views)
Bloor (2013)	Europe UK	Non-specific/General population	N/A (patient/providers' views)
Bloor (2013)	Europe Ireland, UK	Non-specific/General population	N/A (patient/providers' views)
Caudwell (2016)	Europe UK	Non-specific/General population	N/A (patient/providers' views)
Chaudhury; (2016)	North America Canada	Non-specific/General population	N/A (patient/providers' views)
Csallner (2013)	Europe Germany	Non-specific/General population	N/A (patient/providers' views)
Dankyi; (2016)	North America USA	Non-specific/General population	N/A (patient/providers' views)
Drew (2006)	North America USA	Non-specific/General population	N/A (patient/providers' views)
Johnson (2011)	North America USA	Non-specific/General population	N/A (patient/providers' views)
Johnson (2014)	North America USA	Non-specific/General population	N/A (patient/providers' views)
Marcu (2013)	Europe UK	Non-specific/General population	N/A (patient/providers' views)
Newton, (2017)	Europe UK	Non-specific/General population	N/A (patient/providers' views)

Rebman (2015)	North America USA	Non-specific/General population	N/A (patient/providers' views)
Set short title	Europe UK	Non-specific/General population	N/A (patient/providers' views)
Tick (2016)	Europe Ireland	Non-specific/General population	N/A (patient/providers' views)
VIRAS (2014)	Europe UK	Non-specific/General population	N/A (patient/providers' views)
VIRAS (2015)	Europe Germany	Non-specific/General population	N/A (patient/providers' views)

N/A = Not applicable; NR = Not reported

Table A4.3 Characteristics of papers on diagnosis - Clinician knowledge/behaviours (n=17)

Author, year	Continent & country	Population	Diagnostic test
Al-Sharif (2011)	North America USA	Clinicians	Clinical diagnosis
Bakken (2002)	North America USA	Clinicians	Clinical diagnosis
Brett (2014)	North America USA	Clinicians	Clinical diagnosis Laboratory diagnosis
Coumou (2014)	Europe Netherlands	Clinicians	Laboratory diagnosis
Crowder (2014)	North America USA	Clinicians	Clinical diagnosis
Dessau (2010)	Europe Denmark	Clinicians	Clinical diagnosis
Esposito (2013)	Europe Italy	Clinicians	Clinical diagnosis
Ferrouillet (2015)	North America Canada	Clinicians	Clinical diagnosis
Henry (2012)	North America Canada	Clinicians	Clinical diagnosis
Hill (2014)	North America USA	Clinicians	Clinical diagnosis
Hill (2015)	North America USA	Clinicians	Clinical diagnosis
Johnson (2010)	North America USA	Clinicians	Clinical diagnosis
Lipsker (2004)	Europe France	Clinicians	Clinical diagnosis
Magri (2002)	North America USA	Clinicians	Clinical diagnosis

Ramsey (2004)	North America USA	Clinicians	Laboratory diagnosis
Singh (2016)	North America USA	Clinicians	Clinical diagnosis Laboratory diagnosis
Smith (2006)	Europe UK	Clinicians	Clinical diagnosis

NR = Not reported

Table A4.4 Characteristics of papers on diagnosis - Other aspects (n=21)

Author, year	Continent & country	Population	Diagnostic test
Aucott (2009)	North America USA	Non-specific/General population	Clinical diagnosis
Barclay (2012)	North America USA	Non-specific/General population	Laboratory diagnosis
Berenova (2016)	Europe Czech Republic	Non-specific/General population	Laboratory diagnosis
Bergmann (2002)	Europe Austria	Non-specific/General population	Laboratory diagnosis
Bernat (2012)	North America Canada	Clinicians	Laboratory diagnosis
Binnicker (2008)	North America USA	Non-specific/General population	Laboratory diagnosis
Brunner (2013)	Europe Austria	Children (< 18. y.old)	Clinical diagnosis
Coumou (2015)	Europe Netherlands	Non-specific/General population	Clinical diagnosis
Evans (2005)	Europe UK	Non-specific/General population	Laboratory diagnosis
Evans (2010)	Europe UK	Non-specific/General population	Laboratory diagnosis
Fahimi (2014)	North America USA	Non-specific/General population	Clinical diagnosis
Fawcett (2004)	North America USA	Non-specific/General population	Laboratory diagnosis
Jiang (2005)	Asia China	Non-specific/General population	Laboratory diagnosis
Joss (2008)	Europe UK	Non-specific/General population	Laboratory diagnosis

Kisand (2004)	Europe Estonia	Non-specific/General population	Laboratory diagnosis
Lakos (2010)	Europe Hungary	Non-specific/General population	Clinical diagnosis Laboratory diagnosis
Marques (2002)	North America USA	Non-specific/General population	Laboratory diagnosis
Muller (2003)	Europe France	Non-specific/General population	Laboratory diagnosis
Qureshi (2002)	North America USA	Children (< 18. y.old)	Clinical diagnosis Laboratory diagnosis
Seriburi (2012)	North America USA	Non-specific/General population	Clinical diagnosis Laboratory diagnosis
Wormser (2008)	North America USA	Non-specific/General population	Clinical diagnosis

N/A = Not applicable; NR = Not reported

Table A4.5 Characteristics of papers on diagnosis - Combination of diagnosis foci (n=1)

Author, year	Continent & country	Population	Foci	Diagnostic test
Hansmann (2014)	Europe France	Non-specific/General population	Diagnostic test accuracy Clinician knowledge/behaviours	Laboratory diagnosis

Appendix 5 - Characteristics of papers on symptoms and co-occurring conditions of Lyme disease (n=283)

This appendix presents the characteristics of papers on symptoms and co-occurring conditions by the following foci:

- **Association between Lyme disease (LD) and other conditions (Table A5.1, n=156)**
 - Correlation between LD and non-LD conditions
 - Presence of LD among populations with other conditions
 - Prevalence of other conditions among people who have LD

- **Symptoms and manifestations of LD (Table A5.2, n=73)**
 - Acrodermatitis chronica atrophicans
 - Arthritis
 - Erythema migrans
 - Lyme carditis
 - Neuroborreliosis
 - Multiple (combinations of the above)

- **Association between LD and other tick-borne infections (Table A5.3, n=41)**
 - Clinical features of co-infections
 - Co-occurrence of tick-borne infections in healthy populations
 - Presence of other tick-borne infections among people with LD

- **Other symptom related issues (Table A5.4, n=13)**

Table A5.1 Characteristics of papers on symptoms and co-occurring conditions - Association between LD and other conditions (n=156)

Author, year	Continent & country	Population	Focus	Design	Body system affected
Abuzeid (2008)	North America USA	Non-specific population	Prevalence of LD among people with other conditions	Single group design	Ears
Ajamian (2013)	North America USA	Children (< 18. y.old)	Prevalence of LD among people with other conditions	Controlled/comparative design	Brain (Neurological)
Arnez (2003)	Europe Slovenia	Children (< 18. y.old)	Prevalence of LD among people with other conditions	Single group design	Flu-like symptoms
Arteagabeitia (2011)	Europe Spain	Non-specific population	Prevalence of LD among people with other conditions	Single group design	Eyes
Aslan (2011)	Asia Turkey	Children (< 18. y.old)	Prevalence of LD among people with other conditions	Controlled/comparative design	Joints
Aucott (2013)	North America USA	Non-specific population	Prevalence of other conditions among people who have LD	Single group design	Range of symptoms
Ayaslioglu (2004)	Asia Turkey	Non-specific population	Prevalence of LD among people with other conditions	Controlled/comparative design	Other
Bachur (2015)	North America USA	Children (< 18. y.old)	Prevalence of LD among people with other conditions	Single group design	Joints
Back (2013)	Europe Germany	Non-specific population	Prevalence of other conditions among people who have LD	Single group design	Range of symptoms

Baranova (2012)	Europe Russia	Non-specific population	Prevalence of other conditions among people who have LD	Single group design	Nerve system
Bartunek (2007)	Europe Czech Republic	Non-specific population	Prevalence of LD among people with other conditions	Single group design	Heart (Cardiovascular)
Baskin (2011)	Asia Turkey	Children (< 18. y.old)	Prevalence of LD among people with other conditions	Single group design	Eyes
Benoilid (2011)	Europe France	Non-specific population	Prevalence of LD among people with other conditions	Single group design	Eyes
Blanc (2013)	Europe France	Non-specific population	Prevalence of LD among people with other conditions	Controlled/comparative design	Brain (Neurological)
Boudova (2005)	Europe Czech Republic, Germany, Norway, Slovakia, Slovenia	Non-specific population	Prevalence of LD among people with other conditions	Single group design	Skin (Dermatological)
Bransfield (2016)	North America USA	Non-specific population	Prevalence of LD among people with other conditions	Single group design	Brain (Neurological)
Brooks (2015)	North America USA	Non-specific population	Prevalence of LD among people with other conditions	Single group design	Brain (Neurological)
Bu (2015)	Asia China	Non-specific population	Prevalence of LD among people with other conditions	Controlled/comparative design	Brain (Neurological)
Bu (2015)	Asia China	Non-specific population	Prevalence of LD among people with other conditions	Controlled/comparative design	Nerve system

Buettner (2008)	Europe Germany	Non-specific population	Prevalence of other conditions among people who have LD	Single group design	Other
Buettner (2009)	Europe Germany	Non-specific population	Prevalence of other conditions among people who have LD	Single group design	Other
Buettner (2012)	Europe Germany	Non-specific population	Prevalence of other conditions among people who have LD	Single group design	Other
Burbelo (2013)	North America USA	Children (< 18. y.old)	Prevalence of LD among people with other conditions	Controlled/comparative design	Range of symptoms
Cerroni (2002)	Europe Austria	Non-specific population	Prevalence of LD among people with other conditions	Controlled/comparative design	Skin (Dermatological)
Cevizci (2015)	Asia Turkey	Non-specific population	Prevalence of LD among people with other conditions	Controlled/comparative design	Brain (Neurological)
Chmielewski (2014)	Europe Poland	Non-specific population	Prevalence of LD among people with other conditions	Controlled/comparative design	Eyes
Chyzheuskaya (2014)	Europe Belarus	Children (< 18. y.old)	Prevalence of LD among people with other conditions	Controlled/comparative design	Skin (Dermatological)
Cihelkova (2015)	Europe Czech Republic	Non-specific population	Prevalence of other conditions among people who have LD	Controlled/comparative design	Brain (Neurological)
Colli (2004)	Europe Austria	Non-specific population	Prevalence of LD among people with other conditions	Single group design	Skin (Dermatological)

Cook (2016)	North America Canada	Non-specific population	Prevalence of LD among people with other conditions	Controlled/comparative design	Nerve system
de la Fouchardiere (2003)	Europe France	Non-specific population	Prevalence of LD among people with other conditions	Single group design	Skin (Dermatological)
Duda (2008)	Europe Poland	Non-specific population	Prevalence of LD among people with other conditions	Single group design	Joints
Earl (2013)	North America USA	Non-specific population	Prevalence of LD among people with other conditions	Single group design	Brain (Neurological)
Eisendle (2007)	Europe Austria	Non-specific population	Prevalence of LD among people with other conditions	Controlled/comparative design	Skin (Dermatological)
Eisendle (2008)	Europe Austria	Non-specific population	Prevalence of LD among people with other conditions	Controlled/comparative design	Skin (Dermatological)
Eisendle (2008)	Europe Austria, Germany	Non-specific population	Prevalence of LD among people with other conditions	Controlled/comparative design	Skin (Dermatological)
Eros (2010)	Europe Finland	Non-specific population	Prevalence of LD among people with other conditions	Single group design	Skin (Dermatological)
Espinoza-Leon (2006)	South America Venezuela	Non-specific population	Prevalence of LD among people with other conditions	Controlled/comparative design	Skin (Dermatological)
Fadeeva (2008)	Europe Russia	Non-specific population	Prevalence of LD among people with other conditions	Single group design	Nerve system

Fadeeva (2010)	Europe Russia	Non-specific population	Prevalence of LD among people with other conditions	Single group design	Nerve system
Fallon (2003)	North America USA	Non-specific population	Prevalence of other conditions among people who have LD	Single group design	Brain (Neurological)
Forrester (2015)	North America USA	Non-specific population	Correlation between LD and non-LD conditions	Single group design	Range of symptoms
Fried (2004)	North America USA	Children (< 18. y.old)	Prevalence of LD among people with other conditions	Single group design	Other
Garro (2011)	North America USA	Children (< 18. y.old)	Prevalence of LD among people with other conditions	Single group design	Brain (Neurological)
Gaudin (2016)	North America USA	Non-specific population	Prevalence of LD among people with other conditions	Single group design	Brain (Neurological)
Goodlad (2002)	Europe UK	Non-specific population	Prevalence of other conditions among people who have LD	Single group design	Skin (Dermatological)
Goodson (2003)	North America USA	Non-specific population	Prevalence of LD among people with other conditions	Single group design	Brain (Neurological)
Goteri (2007)	Europe Italy	Non-specific population	Prevalence of LD among people with other conditions	Single group design	Skin (Dermatological)
Gouriet (2015)	Europe France	Non-specific population	Prevalence of LD among people with other conditions	Single group design	Heart (Cardiovascular)
Grabe (2008)	Europe Germany	Non-specific population	Prevalence of LD among people with other conditions	Controlled/comparative design	Range of symptoms

Greenberg (2015)	North America USA	Non-specific population	Prevalence of LD among people with other conditions	Single group design	Brain (Neurological)
Greenberg (2016)	North America USA	Children (< 18. y.old)	Prevalence of LD among people with other conditions	Single group design	Brain (Neurological)
Grieco (2014)	North America USA	Children (< 18. y.old)	Prevalence of other conditions among people who have LD	Controlled/comparative design	Brain (Neurological)
Hajek (2002)	Europe Czech Republic	Non-specific population	Prevalence of LD among people with other conditions	Controlled/comparative design	Brain (Neurological)
Hajek (2006)	Europe Czech Republic	Non-specific population	Prevalence of other conditions among people who have LD	Controlled/comparative design	Brain (Neurological)
Hassett (2003)	North America USA	Non-specific population	Prevalence of other conditions among people who have LD	Single group design	Brain (Neurological)
Hassett (2003)	North America USA	Non-specific population	Prevalence of other conditions among people who have LD	Controlled/comparative design	Range of symptoms
Hassett (2004)	North America USA	Non-specific population	Prevalence of other conditions among people who have LD	Controlled/comparative design	Brain (Neurological)
Hassett (2008)	North America USA	Non-specific population	Prevalence of other conditions among people who have LD	Controlled/comparative design	Brain (Neurological)
Hassett (2009)	North America USA	Non-specific population	Prevalence of other conditions among people who have LD	Controlled/comparative design	Brain (Neurological)

Heinz (2014)	Europe Germany	Children (< 18. y.old)	Prevalence of LD among people with other conditions	Controlled/comparative design	Eyes
Hermansen (2015)	Europe Denmark	Non-specific population	Prevalence of LD among people with other conditions	Single group design	Joints
Hertmanowska (2014)	NR	Non-specific population	Prevalence of LD among people with other conditions	Single group design	Nerve system
Hjetland (2015)	Europe Norway	Non-specific population	Prevalence of other conditions among people who have LD	Single group design	Other
Hufschmidt (2009)	Europe Germany	Non-specific population	Prevalence of other conditions among people who have LD	Controlled/comparative design	Brain (Neurological)
Jacobson (2003)	North America USA	Non-specific population	Prevalence of other conditions among people who have LD	Single group design	Eyes
Jares (2014)	North America USA	Non-specific population	Prevalence of other conditions among people who have LD	Controlled/comparative design	Functioning/HRQL
Juchnowicz (2004)	Europe Poland	Non-specific population	Prevalence of other conditions among people who have LD	Controlled/comparative design	Brain (Neurological)
Juchnowicz (2004)	Europe Poland	Non-specific population	Prevalence of other conditions among people who have LD	Controlled/comparative design	Brain (Neurological)
Kazakov (2008)	Europe Czech Republic	Non-specific population	Prevalence of LD among people with other conditions	Single group design	Skin (Dermatological)

Kazi (2016)	Europe Netherlands	Non-specific population	Prevalence of LD among people with other conditions	Controlled/comparative design	Eyes
Keino (2009)	Asia Japan	Non-specific population	Prevalence of LD among people with other conditions	Single group design	Eyes
Kempf (2015)	Europe NR	Non-specific population	Prevalence of other conditions among people who have LD	Single group design	Skin (Dermatological)
Khatchikian (2014)	North America USA	Non-specific population	Prevalence of other conditions among people who have LD	Single group design	Immunological
Kleitz (2007)	Europe France	Non-specific population	Prevalence of other conditions among people who have LD	Single group design	Brain (Neurological)
Kosan (2012)	Asia Turkey	Non-specific population	Prevalence of other conditions among people who have LD	Controlled/comparative design	Nerve system
Kubanek (2011)	Europe Czech Republic	Non-specific population	Prevalence of LD among people with other conditions	Single group design	Heart (Cardiovascular)
Kuchynka (2012)	Europe Germany	Non-specific population	Prevalence of LD among people with other conditions	Single group design	Heart (Cardiovascular)
Lake (2008)	North America USA	Non-specific population	Prevalence of other conditions among people who have LD	Single group design	Brain (Neurological)
Lindqvist (2011)	Europe Sweden	Non-specific population	Prevalence of LD among people with other conditions	Controlled/comparative design	Other

Ljøstad (2012)	Europe Norway	Non-specific population	Prevalence of other conditions among people who have LD	Single group design	Range of symptoms
Lorenzi (2003)	South America Brazil	Non-specific population	Prevalence of other conditions among people who have LD	Single group design	Ears
Losevicha (2012)	Europe Czech Republic	Non-specific population	Prevalence of LD among people with other conditions	Single group design	Brain (Neurological)
Maczka (2011)	Europe Poland	Non-specific population	Prevalence of LD among people with other conditions	Single group design	Heart (Cardiovascular)
Mappa (2011)	Europe Italy	Non-specific population	Prevalence of LD among people with other conditions	Controlled/comparative design	Skin (Dermatological)
Maraspin (2002)	Europe Slovenia	Non-specific population	Prevalence of other conditions among people who have LD	Single group design	Skin (Dermatological)
Maraspin (2016)	Europe Slovenia	Non-specific population	Prevalence of LD among people with other conditions	Single group design	Skin (Dermatological)
Markowicz (2015)	Europe Austria	Non-specific population	Prevalence of LD among people with other conditions	Single group design	Range of symptoms
Marquard (2011)	Europe Hungary	Non-specific population	Prevalence of LD among people with other conditions	Controlled/comparative design	Brain (Neurological)
Marquard (2012)	Europe Germany	Non-specific population	Prevalence of LD among people with other conditions	Controlled/comparative design	Brain (Neurological)

Martin (2010)	North America USA	Non-specific population	Prevalence of LD among people with other conditions	Single group design	Fatigue
Matta (2006)	North America USA	Non-specific population	Prevalence of other conditions among people who have LD	Single group design	Eyes
Mazer (2012)	North America USA	Non-specific population	Prevalence of LD among people with other conditions	Single group design	Immunological
McAuliffe (2007)	North America USA	Children (< 18. y.old)	Prevalence of other conditions among people who have LD	Controlled/comparative design	Functioning/HRQL
McAuliffe (2008)	North America USA	Children (< 18. y.old)	Prevalence of other conditions among people who have LD	Controlled/comparative design	Brain (Neurological)
Middelveen (2015)	North America USA	Non-specific population	Prevalence of LD among people with other conditions	Single group design	Skin (Dermatological)
Moniuszko (2012)	Europe Poland	Non-specific population	Prevalence of other conditions among people who have LD	Single group design	Skin (Dermatological)
Moniuszko (2014)	Europe Poland	Children (< 18. y.old)	Prevalence of LD among people with other conditions	Single group design	Joints
Moreno (2003)	Europe Spain	Non-specific population	Prevalence of other conditions among people who have LD	Single group design	Skin (Dermatological)
Mosayebi (2009)	Asia Iran	Non-specific population	Prevalence of LD among people with other conditions	Controlled/comparative design	Nerve system

Mravljak (2006)	Europe Slovenia	Children (< 18. y.old)	Prevalence of other conditions among people who have LD	Controlled/comparative design	Heart (Cardiovascular)
Muehlenbachs (2016)	North America USA	Non-specific population	Prevalence of other conditions among people who have LD	Single group design	Heart (Cardiovascular)
Munksgaard (2004)	Europe Denmark	Non-specific population	Prevalence of LD among people with other conditions	Single group design	Skin (Dermatological)
Mygland (2006)	Europe Norway	Non-specific population	Prevalence of LD among people with other conditions	Controlled/comparative design	Brain (Neurological)
Ni (2014)	Asia China	Non-specific population	Prevalence of other conditions among people who have LD	Single group design	Range of symptoms
Niedzielski (2013)	Europe Poland	Children (< 18. y.old)	Prevalence of LD among people with other conditions	Controlled/comparative design	Joints
Nowakowski (2009)	North America USA	Non-specific population	Prevalence of LD among people with other conditions	Single group design	Range of symptoms
Onen (2003)	Asia Turkey	Non-specific population	Prevalence of LD among people with other conditions	Controlled/comparative design	Other
Palecek (2010)	Europe Czech Republic	Non-specific population	Prevalence of LD among people with other conditions	Single group design	Heart (Cardiovascular)
Petrov (2012)	North America USA	Children (< 18. y.old)	Prevalence of LD among people with other conditions	Single group design	Fatigue
Podsiadly (2003)	Europe Poland	Non-specific population	Correlation between LD and non-LD conditions	Single group design	Other

Ponzoni (2011)	Europe Italy	Non-specific population	Prevalence of LD among people with other conditions	Controlled/comparative design	Skin (Dermatological)
Puri (2013)	Europe Germany	Non-specific population	Prevalence of other conditions among people who have LD	Controlled/comparative design	Range of symptoms
Puri (2014)	Europe UK	Non-specific population	Prevalence of other conditions among people who have LD	Controlled/comparative design	Heart (Cardiovascular)
Puri (2014)	Europe UK	Non-specific population	Prevalence of other conditions among people who have LD	Controlled/comparative design	Range of symptoms
Puri (2014)	Europe UK	Non-specific population	Prevalence of other conditions among people who have LD	Controlled/comparative design	Other
Pychova (2014)	Europe Czech Republic	Non-specific population	Prevalence of LD among people with other conditions	Single group design	Range of symptoms
Qureshi (2009)	North America USA	Non-specific population	Prevalence of LD among people with other conditions	Single group design	Nerve system
Ramgopal (2016)	North America USA	Children (< 18. y.old)	Prevalence of other conditions among people who have LD	Single group design	Brain (Neurological)
Reznicek (2014)	Europe Germany	Non-specific population	Prevalence of LD among people with other conditions	Single group design	Eyes
Roth (2006)	Europe Germany	Children (< 18. y.old)	Prevalence of other conditions among people who have LD	Single group design	Joints

Rudnik (2003)	Europe Poland	Non-specific population	Prevalence of other conditions among people who have LD	Controlled/comparative design	Brain (Neurological)
Rutman (2007)	North America USA	Children (< 18. y.old)	Prevalence of LD among people with other conditions	Single group design	Brain (Neurological)
Santos (2010)	South America Brazil	Non-specific population	Prevalence of LD among people with other conditions	Single group design	Skin (Dermatological)
Santos (2011)	South America Brazil	Non-specific population	Prevalence of LD among people with other conditions	Single group design	Skin (Dermatological)
Satalino (2009)	North America USA	Non-specific population	Prevalence of other conditions among people who have LD	Controlled/comparative design	Brain (Neurological)
Savely (2010)	North America USA	Non-specific population	Prevalence of LD among people with other conditions	Single group design	Skin (Dermatological)
Schaefer (2008)	Europe Germany	Non-specific population	Prevalence of LD among people with other conditions	Single group design	Endocrinal (e.g. hormone secretion)
Schollkopf (2008)	Europe Denmark, Sweden	Non-specific population	Prevalence of LD among people with other conditions	Controlled/comparative design	Immunological
Schoombee (2015)	North America USA	Non-specific population	Prevalence of other conditions among people who have LD	Single group design	Brain (Neurological)
Selmani (2002)	Europe Finland	Non-specific population	Prevalence of other conditions among people who have LD	Controlled/comparative design	Ears

Sengun (2006)	Asia Turkey	Non-specific population	Prevalence of other conditions among people who have LD	Controlled/comparative design	Nerve system
Seyfert (2012)	Europe Germany	Pregnant women	Prevalence of LD among people with other conditions	Single group design	Other
Shadick (2002)	North America USA	Non-specific population	Prevalence of other conditions among people who have LD	Controlled/comparative design	Range of symptoms
Shotland (2003)	North America USA	Non-specific population	Prevalence of other conditions among people who have LD	Controlled/comparative design	Ears
Sibony (2005)	North America USA	Non-specific population	Prevalence of LD among people with other conditions	Controlled/comparative design	Eyes
Skogman (2012)	Europe Sweden	Children (< 18. y.old)	Prevalence of other conditions among people who have LD	Controlled/comparative design	Brain (Neurological)
Soderlin (2003)	Europe Sweden	Non-specific population	Prevalence of LD among people with other conditions	Single group design	Joints
Stricker (2003)	North America USA	Non-specific population	Prevalence of LD among people with other conditions	Single group design	Eyes
Szanyi (2012)	Europe Czech Republic	Non-specific population	Prevalence of other conditions among people who have LD	Single group design	Eyes
Tothova (2006)	Europe Italy	Non-specific population	Prevalence of LD among people with other conditions	Controlled/comparative design	Skin (Dermatological)

Trevisan (2006)	Europe Italy	Non-specific population	Prevalence of LD among people with other conditions	Controlled/comparative design	Other
Trifiletti (2010)	North America USA	Children (< 18. y.old)	Prevalence of LD among people with other conditions	Single group design	Other
Tveitnes (2009)	Europe Norway	Children (< 18. y.old)	Prevalence of other conditions among people who have LD	Single group design	Brain (Neurological)
van den Wijngaard (2015)	Europe Netherlands	Non-specific population	Prevalence of other conditions among people who have LD	Single group design	Brain (Neurological)
Vatne (2011)	Europe Norway	Non-specific population	Prevalence of LD among people with other conditions	Single group design	Nerve system
Veley (2013)	North America USA	Non-specific population	Correlation between LD and non-LD conditions	Single group design	Brain (Neurological)
Volzke (2005)	Europe Germany	Non-specific population	Correlation between LD and non-LD conditions	Controlled/comparative design	Immunological
Volzke (2006)	Europe Germany	Non-specific population	Prevalence of LD among people with other conditions	Single group design	Heart (Cardiovascular)
Winter (2013)	Europe Germany	Non-specific population	Prevalence of other conditions among people who have LD	Single group design	Brain (Neurological)
Wormser (2013)	North America USA	Non-specific population	Prevalence of other conditions among people who have LD	Single group design	Skin (Dermatological)
Wormser (2015)	North America USA	Non-specific population	Prevalence of other conditions among people who have LD	Single group design	Fatigue

Wormser (2015)	North America USA	Non-specific population	Prevalence of other conditions among people who have LD	Single group design	Other
Ziemer (2008)	Europe Austria	Non-specific population	Prevalence of LD among people with other conditions	Controlled/comparative design	Skin (Dermatological)
Zinchuk (2016)	Europe Ukraine	Non-specific population	Prevalence of LD among people with other conditions	Single group design	Skin (Dermatological)
Zotter (2013)	Europe Austria	Children (< 18. y.old)	Prevalence of other conditions among people who have LD	Controlled/comparative design	Brain (Neurological)

LD = Lyme disease; NR = Not reported

Table A5.2 Characteristics of papers on symptoms and co-occurring conditions - Symptoms and manifestations of LD (n=73)

Author, year	Continent & country	Population	Focus	Design	Body system affected
Ananjeva (2003)	Europe Russia	Older people (> 60 y.old)	Acrodermatitis chronica atrophicans	Single group design	Range of symptoms
Arnez (2003)	Europe Slovenia	Children (< 18. y.old)	Erythema migrans	Controlled/comparative design	Skin (Dermatological)
Arnez (2010)	Europe Slovenia	Children (< 18. y.old)	Neuroborreliosis	Single group design	Brain (Neurological)
Arnez (2011)	Europe Slovenia	Children (< 18. y.old)	Erythema migrans	Single group design	Skin (Dermatological)
Bagger-Sjoback (2005)	Europe Sweden	Children (< 18. y.old)	Neuroborreliosis	Controlled/comparative design	Brain (Neurological)
Bartunek (2006)	Europe Czech Republic	Non-specific population	Lyme carditis	Single group design	Heart (Cardiovascular)
Beach (2015)	North America USA	Children (< 18. y.old)	Lyme carditis	Controlled/comparative design	Heart (Cardiovascular)
Bennet (2006)	Europe Sweden	Non-specific population	Erythema migrans	Single group design	Skin (Dermatological)
Brescia (2009)	North America USA	Children (< 18. y.old)	Arthritis	Single group design	Joints
Broekhuijsen-van (2010)	Europe Netherlands	Children (< 18. y.old)	Neuroborreliosis	Single group design	Range of symptoms
Brunner (2010)	Europe Austria	Children (< 18. y.old)	Neuroborreliosis	Single group design	Brain (Neurological)
Carlsson (2003)	Europe Finland	Non-specific population	Erythema migrans	Controlled/comparative design	Skin (Dermatological)
Celik (2016)	Asia Turkey	Non-specific population	Neuroborreliosis	Single group design	Brain (Neurological)

Chandra (2013)	North America USA	Non-specific population	Neuroborreliosis	Single group design	Range of symptoms
Costache (2013)	Europe Romania	Non-specific population	Neuroborreliosis	Single group design	Brain (Neurological)
De Vries-Bouwstra (2013)	Europe Netherlands	Non-specific population	Arthritis	Single group design	Joints
Dersch (2015)	Europe Germany	Non-specific population	Neuroborreliosis	Controlled/comparative design	Range of symptoms
Diana (2011)	Europe Romania	Children (< 18. y.old)	Neuroborreliosis	Single group design	Brain (Neurological)
Engman (2012)	Europe Sweden	Children (< 18. y.old)	Neuroborreliosis	Controlled/comparative design	Brain (Neurological)
Eriksson (2013)	Europe Finland	Non-specific population	Erythema migrans	Single group design	Skin (Dermatological)
Forrester (2014)	North America USA	Non-specific population	Lyme carditis	Single group design	Heart (Cardiovascular)
Glaude (2014)	North America Canada	Children (< 18. y.old)	Arthritis	Single group design	Joints
Guellec (2014)	Europe France	Non-specific population	Arthritis	Single group design	Joints
Hohman (2014)	North America USA	Non-specific population	Neuroborreliosis	Single group design	Brain (Neurological)
Jaamaa (2003)	Europe Finland	Children (< 18. y.old)	Neuroborreliosis	Controlled/comparative design	Brain (Neurological)
Jarefors (2006)	Europe Sweden	Non-specific population	Neuroborreliosis	Controlled/comparative design	Other
Jones (2008)	North America USA Europe Austria	Non-specific population	Erythema migrans	Controlled/comparative design	Skin (Dermatological)

Kacinski (2007)	Europe Poland	Children (< 18. y.old)	Neuroborreliosis	Single group design	Nerve system
Kanerva (2013)	Europe Finland	Children (< 18. y.old)	Neuroborreliosis	Single group design	Brain (Neurological)
Karatolios (2015)	Europe Germany	Non-specific population	Lyme carditis	Single group design	Heart (Cardiovascular)
Kerimovic-Morina (2003)	Europe Serbia	Children (< 18. y.old)	Arthritis	Single group design	Joints
Kerimovic-Morina (2006)	Europe Serbia	Non-specific population	Arthritis	Single group design	Joints
Kindler (2013)	Europe Austria	Non-specific population	Neuroborreliosis	Single group design	Brain (Neurological)
Kindler (2015)	Europe Austria	Non-specific population	Neuroborreliosis	Single group design	Brain (Neurological)
Kubanek (2012)	Europe Czech Republic	Non-specific population	Lyme carditis	Controlled/comparative design	Heart (Cardiovascular)
Kuchynka (2016)	Europe Czech Republic	Non-specific population	Lyme carditis	Single group design	Heart (Cardiovascular)
Ljostad (2005)	Europe Norway	Non-specific population	Neuroborreliosis	Single group design	Brain (Neurological)
Logar (2004)	Europe Slovenia	Non-specific population	Erythema migrans	Single group design	Skin (Dermatological)
Lovett (2006)	Europe UK	Non-specific population	Neuroborreliosis	Single group design	Brain (Neurological)
Milewski (2011)	North America USA	Children (< 18. y.old)	Arthritis	Controlled/comparative design	Joints
Milewski (2011)	North America USA	Children (< 18. y.old)	Arthritis	Controlled/comparative design	Joints
Milewski (2011)	North America USA	Children (< 18. y.old)	Arthritis	Controlled/comparative design	Joints

Milovanović (2011)	Europe Serbia	Non-specific population	Neuroborreliosis	Single group design	Brain (Neurological)
Mlynarczyk (2014)	Europe Poland	Children (< 18. y.old)	Neuroborreliosis	Controlled/comparative design	Brain (Neurological)
Nigrovic (2008)	North America USA	Children (< 18. y.old)	Neuroborreliosis	Single group design	Brain (Neurological)
Ogrinc (2013)	Europe Slovenia	Non-specific population	Neuroborreliosis	Controlled/comparative design	Brain (Neurological)
Oymar (2009)	Europe Norway	Children (< 18. y.old)	Neuroborreliosis	Single group design	Brain (Neurological)
Peltomaa (2002)	Europe Finland	Non-specific population	Neuroborreliosis	Single group design	Brain (Neurological)
Petersen (2015)	Europe Denmark	Non-specific population	Neuroborreliosis	Controlled/comparative design	Brain (Neurological)
Schmidt (2009)	Europe Germany	Non-specific population	Neuroborreliosis	Single group design	Brain (Neurological)
Schmidt (2011)	Europe Germany	Children (< 18. y.old)	Neuroborreliosis	Controlled/comparative design	Brain (Neurological)
Schmidt (2015)	Europe Germany	Non-specific population	Neuroborreliosis	Controlled/comparative design	Brain (Neurological)
Seslar (2006)	North America USA	Non-specific population	Lyme carditis	Single group design	Heart (Cardiovascular)
Skogman (2003)	Europe Sweden	Children (< 18. y.old)	Neuroborreliosis	Single group design	Brain (Neurological)
Smitka (2013)	Europe Germany	Children (< 18. y.old)	Neuroborreliosis	Single group design	Brain (Neurological)
Soltysova (2007)	Europe Czech Republic	Children (< 18. y.old)	Neuroborreliosis	Single group design	Brain (Neurological)
Spirin (2010)	Europe Russia	Non-specific population	Neuroborreliosis	Controlled/comparative design	Brain (Neurological)

Strle (2002)	Europe Slovenia	Non-specific population	Erythema migrans	Controlled/comparative design	Skin (Dermatological)
Strle (2011)	North America USA	Non-specific population	Erythema migrans	Controlled/comparative design	Skin (Dermatological)
Strle (2013)	Europe Slovenia	Non-specific population	Erythema migrans	Controlled/comparative design	Skin (Dermatological)
Taseva (2011)	Europe Bulgaria	Non-specific population	Neuroborreliosis	Single group design	Brain (Neurological)
Tee (2013)	Europe Austria	Non-specific population	Acrodermatitis chronica atrophicans	Single group design	Skin (Dermatological)
Thompson (2007)	North America USA	Children (< 18. y.old)	Arthritis	Single group design	Joints
Thompson (2009)	North America USA	Non-specific population	Arthritis	Single group design	Joints
Tjernberg (2010)	Europe Sweden	Non-specific population	Neuroborreliosis	Controlled/comparative design	Brain (Neurological)
Tveitnes (2007)	Europe Norway	Children (< 18. y.old)	Neuroborreliosis	Single group design	Brain (Neurological)
Tveitnes (2015)	Europe Norway	Children (< 18. y.old)	Neuroborreliosis	Controlled/comparative design	Brain (Neurological)
Vrethem (2002)	Europe Sweden	Non-specific population	Neuroborreliosis	Controlled/comparative design	Brain (Neurological)
Weber (2006)	Europe Germany	Non-specific population	Neuroborreliosis	Single group design	Skin (Dermatological)
Wills (2016)	North America USA	Non-specific population	Multiple: Lyme carditis, Neuroborreliosis, Erythema migrans, Arthritis	Controlled/comparative design	Range of symptoms
Wittwer (2015)	Europe France	Non-specific population	Neuroborreliosis	Single group design	Brain (Neurological)

Wormser (2005)	North America USA	Non-specific population	Erythema migrans	Single group design	Skin (Dermatological)
Zajkowska (2002)	North America USA Europe Poland	Non-specific population	Erythema migrans	Controlled/comparative design	Range of symptoms

LD = Lyme disease; NR = Not reported

Table A5.3 Characteristics of papers on symptoms and co-occurring conditions - Association between LD and other tick-borne infections (n=41)

Author, year	Continent & country	Population	Focus	Design
Aguero-Rosenfeld (2002)	North America USA	Non-specific population	Presence of other tick-borne infections among people with LD	Controlled/comparative design
Andric (2011)	Europe Montenegro	Non-specific population	Presence of other tick-borne infections among people with LD	Single group design
Andric (2012)	Europe Montenegro	Non-specific population	Presence of LD among people with other tick-borne infections	Single group design
Bjoersdorff (2002)	Europe Sweden	Non-specific population	Presence of LD among people with other tick-borne infections	Single group design
Bonin (2016)	Europe Italy	Non-specific population	Clinical features of co-infections	Single group design
Elfving (2008)	Europe Sweden	Non-specific population	Presence of other tick-borne infections among people with LD	Controlled/comparative design
Ergunay (2011)	Asia Turkey	Non-specific population	Co-occurrence of tick-borne infections in healthy populations	Single group design
Gaito (2014)	North America USA	Non-specific population	Co-occurrence of tick-borne infections in healthy populations	Single group design
Grankvist (2015)	Europe Sweden	Non-specific population	Presence of LD among people with other tick-borne infections	Single group design
Grzeszczuk (2004)	Europe Poland	High-risk occupation	Co-occurrence of tick-borne infections in healthy populations	Single group design
Grzeszczuk (2004)	Europe Poland	Non-specific population	Presence of other tick-borne infections among people with LD	Controlled/comparative design
Grzeszczuk (2006)	Europe Poland	Non-specific population	Presence of LD among people with other tick-borne infections	Single group design
Grzeszczuk (2009)	Europe Poland	Non-specific population	Presence of other tick-borne infections among people with LD	Single group design

Gunes (2011)	Asia Turkey	Non-specific population	Presence of LD among people with other tick-borne infections	Single group design
Hermanowska-Szpakowicz (2004)	NR	Non-specific population	Presence of other tick-borne infections among people with LD	Single group design
Horowitz (2013)	North America USA	Non-specific population	Presence of other tick-borne infections among people with LD	Single group design
Hulinska (2002)	Europe Czech Republic	Non-specific population	Presence of LD among people with other tick-borne infections	Single group design
Kalinova (2009)	Europe Slovakia	Non-specific population	Presence of other tick-borne infections among people with LD	Single group design
Koetsveld (2016)	Europe Netherlands	Non-specific population	Presence of other tick-borne infections among people with LD	Controlled/comparative design
Kondrusik (2006)	Europe Poland	Non-specific population	Presence of LD among people with other tick-borne infections	Single group design
Krause (2014)	North America USA	Non-specific population	Co-occurrence of tick-borne infections in healthy populations	Controlled/comparative design
Lindblom (2013)	Europe Sweden	Non-specific population	Presence of LD among people with other tick-borne infections	Single group design
Logina (2005)	Europe Latvia	Non-specific population	Co-occurrence of tick-borne infections in healthy populations	Single group design
Logina (2006)	Europe Latvia	Non-specific population	Clinical features of co-infections	Single group design
Lotric-Furlan (2012)	Europe Slovenia	Non-specific population	Presence of LD among people with other tick-borne infections	Single group design
Maggi (2012)	North America USA	Non-specific population	Presence of LD among people with other tick-borne infections	Single group design
Mayne (2011)	Oceania Australia	Non-specific population	Presence of other tick-borne infections among people with LD	Single group design
Moniuszko (2012)	Europe Poland	Non-specific population	Presence of LD among people with other tick-borne infections	Single group design

Moniuszko (2014)	Europe Poland	Non-specific population	Presence of LD among people with other tick-borne infections	Controlled/comparative design
Moritz (2014)	North America USA	Non-specific population	Presence of LD among people with other tick-borne infections	Single group design
Nicolson (2008)	North America USA	Non-specific population	Clinical features of co-infections	Controlled/comparative design
Nielsen (2004)	Europe Denmark	Non-specific population	Presence of other tick-borne infections among people with LD	Single group design
Oteo (2003)	Europe Spain	Non-specific population	Presence of LD among people with other tick-borne infections	Single group design
Santos (2006)	Europe Portugal	Non-specific population	Presence of other tick-borne infections among people with LD	Controlled/comparative design
Smith (2014)	North America USA	Non-specific population	Co-occurrence of tick-borne infections in healthy populations	Single group design
Steere (2003)	North America USA	Non-specific population	Presence of other tick-borne infections among people with LD	Single group design
Stricker (2003)	North America USA	Non-specific population	Presence of other tick-borne infections among people with LD	Controlled/comparative design
Strle (2014)	Europe Slovenia	Non-specific population	Presence of other tick-borne infections among people with LD	Single group design
Volkova (2005)	Europe Russia	Non-specific population	Co-occurrence of tick-borne infections in healthy populations	Single group design
Walder (2003)	Europe Austria	Non-specific population	Presence of LD among people with other tick-borne infections	Single group design
Zhang (2011)	Asia China	Non-specific population	Presence of LD among people with other tick-borne infections	Single group design

LD = Lyme disease; NR = Not reported

Table A5.4 Characteristics of papers on symptoms and co-occurring conditions - Other symptom related issues (n=13)

Author, year	Continent & country	Population	Design	Affected system/symptom type
Chao (2012)	Asia Taiwan	Non-specific population	Single group design	Skin (Dermatological)
Fernandez-Flores (2008)	Europe NR	Non-specific population	Single group design	Skin (Dermatological)
Grieco (2013)	NR	Children (< 18. y.old)	Controlled/comparative design	Brain (Neurological)
Grygorczuk (2010)	Europe Poland	Non-specific population	Single group design	Range of symptoms
Lobraico (2014)	North America USA	Non-specific population	Controlled/comparative design	Range of symptoms
Maraspin (2011)	Europe Slovenia	Non-specific population	Controlled/comparative design	Range of symptoms
Patrick (2015)	North America USA	Non-specific population	Controlled/comparative design	Range of symptoms
Schwarzwalder (2010)	North America USA	Non-specific population	Single group design	Range of symptoms
Steere (2003)	North America USA	Non-specific population	Single group design	Range of symptoms
Stinco (2014)	Europe Italy	Non-specific population	Single group design	Range of symptoms
Strle (2006)	Europe Slovenia	Non-specific population	Controlled/comparative design	Range of symptoms
Trifonova (2010)	Europe Bulgaria	Non-specific population	Single group design	Range of symptoms
Wormser (2009)	North America USA	Non-specific population	Controlled/comparative design	Other

LD = Lyme disease; NR = Not reported

Appendix 6 - Characteristics of papers on incidence and prevalence (n=189)

This appendix presents the characteristics of papers on incidence and prevalence by the following foci:

- Incidence (Table A6.1, n=126)
- Prevalence (Table A6.2, n=60)
- Both incidence and prevalence (Table A6.3, n=3)

Table A6.1 Characteristics of papers on incidence and prevalence - Incidence (n=126)

Author, year	Continent & country	Population	Data sources	Measures
Adekoya (2008)	North America USA	Non-specific/General population	Surveillance records	Unclear/NR
Altpeter (2013)	Europe Switzerland	Non-specific/General population	Surveillance records	Both laboratory and clinical assessments
Anna (2012)	North America USA	High-risk occupation	Surveillance records	Unclear/NR
Armed Forces Health Surveillance Center (2009)	North America USA	High-risk occupation	Surveillance records	Unclear/NR
Armed Forces Health Surveillance Center (2013a)	North America USA	High-risk occupation	Surveillance records	Unclear/NR
Armed Forces Health Surveillance Center (2013b)	North America USA	High-risk occupation	Surveillance records	Unclear/NR

Bacon (2004)	North America USA	Non-specific/General population	Surveillance records	Both laboratory and clinical assessments
Bacon (2007)	North America USA	Non-specific/General population	Surveillance records	Both laboratory and clinical assessments
Bacon (2008)	North America USA	Non-specific/General population	Surveillance records	Both laboratory and clinical assessments
Beytout (2007)	Europe France	Non-specific/General population	Research project: clinical setting	Both laboratory and clinical assessments
Bilski (2009)	Europe Poland	High-risk occupation	Surveillance records	Unclear/NR
Bleyenheuft (2015)	Europe Belgium	Non-specific/General population	Surveillance records Medical records	Laboratory diagnosis only International Classification of Diseases
Bochnickova (2012)	Europe Slovakia	Non-specific/General population	Surveillance records Medical records	Both laboratory and clinical assessments Unclear/NR
Boltri (2002)	North America USA	Non-specific/General population	Surveillance records Research project: clinical setting	Both laboratory and clinical assessments
Bonet (2016)	Europe Spain	Non-specific/General population	Medical records	International Classification of Diseases
Bossuyt (2004)	Europe Belgium	Non-specific/General population	Surveillance records	Both laboratory and clinical assessments
Centers for Disease Control and Prevention (2002)	North America USA	Non-specific/General population	Surveillance records	Unclear/NR
Centers for Disease Control and Prevention (2004)	North America USA	Non-specific/General population	Surveillance records	Both laboratory and clinical assessments
Centers for Disease Control and Prevention (2008)	North America USA	Non-specific/General population	Surveillance records	Both laboratory and clinical assessments

Centers for Disease Control and Prevention (2016)	North America USA	Non-specific/General population	Surveillance records	Both laboratory and clinical assessments
Chen (2005)	North America USA	Non-specific/General population	Surveillance records	Both laboratory and clinical assessments
Chen (2006)	North America USA	Non-specific/General population	Surveillance records	Both laboratory and clinical assessments
Chow (2003)	North America USA	Non-specific/General population	Surveillance records	Both laboratory and clinical assessments
Christova (2004)	Europe Bulgaria	Non-specific/General population	Research project: clinical setting	Both laboratory and clinical assessments
Clark (2014)	North America USA	Non-specific/General population	Medical records Research project: clinical setting	Both laboratory and clinical assessments
Clayton (2015)	North America USA	Non-specific/General population	Surveillance records Insurance records	Both laboratory and clinical assessments
Csep (2014)	Europe Romania	Non-specific/General population	Medical records	Both laboratory and clinical assessments
Department for Environment, Food and Rural Affairs (2004)	Europe UK	Non-specific/General population	Surveillance records	Laboratory diagnosis only
Department for Environment, Food and Rural Affairs (2015)	Europe UK	Non-specific/General population	Surveillance records	Laboratory diagnosis only
Dessau (2015)	Europe Denmark	Non-specific/General population	Surveillance records Laboratory records	Both laboratory and clinical assessments
Doggett (2008)	North America USA	Non-specific/General population	Medical records	Unclear/NR
Dryden (2015)	Europe UK	Non-specific/General population	Research project: clinical setting	Both laboratory and clinical assessments

Ertel (2012)	North America USA	Non-specific/General population	Surveillance records	Both laboratory and clinical assessments
Ferquel (2004)	Europe France	Non-specific/General population	Laboratory records	Both laboratory and clinical assessments
Firoz (2014)	North America USA	Non-specific/General population	Surveillance records	Both laboratory and clinical assessments
Forrester (2015)	North America USA	Non-specific/General population	Surveillance records	Both laboratory and clinical assessments
Frank (2002)	North America USA	Non-specific/General population	Surveillance records	Unclear/NR
Fulop (2008)	Europe Germany	Non-specific/General population	Surveillance records	Both laboratory and clinical assessments
Fulton (2008)	North America USA	Non-specific/General population	Surveillance records	Laboratory diagnosis only
Gordillo (2010)	North America Mexico	Non-specific/General population	Research project: clinical setting	Both laboratory and clinical assessments
Government of Canada (2015a)	North America Canada	Non-specific/General population	Surveillance records	Both laboratory and clinical assessments
Government of Canada (2015b)	North America Canada	Non-specific/General population	Surveillance records	Both laboratory and clinical assessments
Government of Canada (2016)	North America Canada	Non-specific/General population	Surveillance records	Both laboratory and clinical assessments
Greco (2003)	Europe Italy	Non-specific/General population	Research project: clinical setting	Both laboratory and clinical assessments
Greene (2015)	North America USA	Non-specific/General population	Surveillance records	Both laboratory and clinical assessments
Hashimoto (2007)	Asia Japan	Non-specific/General population	Surveillance records	Unclear/NR
Health Protection Scotland (2009)	Europe UK	Non-specific/General population	Surveillance records	Laboratory diagnosis only

Health Protection Surveillance Centre (2013)	Europe Ireland	Non-specific/General population	Surveillance records	Laboratory diagnosis only
Henry (2011)	North America Canada	Non-specific/General population	Surveillance records	Both laboratory and clinical assessments
Hofhuis (2006)	Europe Netherlands	Non-specific/General population	Medical records Research project: clinical setting	Both laboratory and clinical assessments
Hofhuis (2015)	Europe Netherlands	Non-specific/General population	Surveillance records Research project: clinical setting	Clinical manifestation only
Hofhuis (2015)	Europe Netherlands	Non-specific/General population	Medical records Research project: clinical setting	Both laboratory and clinical assessments
Hofhuis (2015)	Europe Netherlands	Non-specific/General population	Medical records Research project: clinical setting	Both laboratory and clinical assessments
Hofhuis (2016)	Europe Netherlands	Non-specific/General population	Research project: clinical setting	Clinical manifestation only
Ho-Yen (2008)	Europe UK	Non-specific/General population	Surveillance records	Both laboratory and clinical assessments
Hurt (2014)	North America USA	High-risk occupation	Research project: clinical setting	International Classification of Diseases
Institute of Environmental Science and Research (2009)	Oceania New Zealand	Non-specific/General population	Surveillance records	Unclear/NR
Isaac (2016)	North America USA	Children (< 18. y.old)	Medical records	Unclear/NR
Jones (2012)	North America USA	Non-specific/General population	Surveillance records Insurance records	International Classification of Diseases

Jones (2013)	North America USA	Non-specific/General population	Surveillance records Insurance records	Both laboratory and clinical assessments
Karaban (2008)	Europe Belarus	Non-specific/General population	Unclear/NR	Unclear/NR
Karaban (2009)	Europe Belarus	Non-specific/General population	Surveillance records	Unclear/NR
Klier (2013)	Europe Germany	Non-specific/General population	Surveillance records	Both laboratory and clinical assessments
Kovalenko (2012)	Europe Russia	Non-specific/General population	Surveillance records	Laboratory diagnosis only
Kugeler (2015)	North America USA	Non-specific/General population	Surveillance records	Unclear/NR
Lantos (2015)	North America USA	Non-specific/General population	Surveillance records	Unclear/NR
Lashley (2014)	Europe UK	Non-specific/General population	Surveillance records	Laboratory diagnosis only
Lawrence (2007)	Europe UK	Non-specific/General population	Surveillance records	Laboratory diagnosis only
Lawrence (2014)	North America USA	Non-specific/General population	Surveillance records	Laboratory diagnosis only
Lewandowska (2013)	Europe Poland	High-risk occupation	Research project: community setting (e.g. farmers)	Patient/population self-reporting
Li (2014)	North America USA	Non-specific/General population	Surveillance records	Both laboratory and clinical assessments
Lopes (2006)	Europe Portugal	Non-specific/General population	Surveillance records Laboratory records	Laboratory diagnosis only Both laboratory and clinical assessments
Lovett (2008)	Europe UK	Non-specific/General population	Medical records Research project: clinical setting	Both laboratory and clinical assessments

Lucenko (2012)	Europe Latvia	Non-specific/General population	Surveillance records	Laboratory diagnosis only
Lukacik (2016)	North America USA	Non-specific/General population	Surveillance records	Laboratory diagnosis only Both laboratory and clinical assessments
MacDonald (2016)	Europe Norway	Non-specific/General population	Surveillance records Medical records Research project: clinical setting	Both laboratory and clinical assessments
Marshall (2002a)	North America USA	Non-specific/General population	Surveillance records	Both laboratory and clinical assessments
Marshall (2002b)	North America USA	Non-specific/General population	Surveillance records	Unclear/NR
Mavin (2009)	Europe UK	Non-specific/General population	Surveillance records	Laboratory diagnosis only
Mavin (2015)	Europe UK	Non-specific/General population	Surveillance records Research project: clinical setting	Both laboratory and clinical assessments
Mehnert (2005)	Europe Germany	Non-specific/General population	Surveillance records	Both laboratory and clinical assessments
Mikhaylova (2012)	Europe Russia	Non-specific/General population	Medical records	Unclear/NR
Milner (2009)	Europe UK	Non-specific/General population	Surveillance records Research project: clinical setting	Laboratory diagnosis only Clinical manifestation only
Moon (2015)	Asia Korea	Non-specific/General population	Surveillance records Medical records	Both laboratory and clinical assessments
Mulic (2002)	Europe Croatia	Non-specific/General population	Surveillance records	Unclear/NR
Mulic (2006)	Europe Croatia	Non-specific/General population	Surveillance records Other	Unclear/NR

Müller (2012)	Europe Germany	Non-specific/General population	Insurance records Laboratory records	Laboratory diagnosis only International Classification of Diseases
Naleway (2002)	North America USA	Non-specific/General population	Surveillance records Medical records	Both laboratory and clinical assessments
Nelson (2015)	North America USA	Non-specific/General population	Surveillance records Insurance records	Both laboratory and clinical assessments International Classification of Diseases
Nelson (2016)	North America USA	Ethnic groups	Surveillance records	Both laboratory and clinical assessments
No (2014)	Europe UK	Non-specific/General population	Surveillance records	Laboratory diagnosis only
Nygaard (2005)	Europe Norway	Non-specific/General population	Surveillance records	Both laboratory and clinical assessments
Ogden (2015)	North America Canada	Non-specific/General population	Surveillance records	Both laboratory and clinical assessments
Ogden (2015)	North America Canada	Children (< 18. y.old)	Surveillance records	Unclear/NR
Paradowska-Stankiewicz (2013)	Europe Poland	Non-specific/General population	Surveillance records Other	Both laboratory and clinical assessments
Paradowska-Stankiewicz (2014)	Europe Poland	Non-specific/General population	Surveillance records Other	Both laboratory and clinical assessments
Paradowska-Stankiewicz (2015)	Europe Poland	Non-specific/General population	Surveillance records Other	Both laboratory and clinical assessments
Park (2011)	Asia Korea	Non-specific/General population	Laboratory records	Laboratory diagnosis only
Popov (2011)	Europe Bosnia and Herzegovina	High-risk occupation	Medical records	International Classification of Diseases
Roberts (2003)	Europe UK	Non-specific/General population	Medical records	Unclear/NR
Robinson (2014)	North America USA	Non-specific/General population	Surveillance records Medical records	Both laboratory and clinical assessments International Classification of Diseases

Rossi (2015)	North America USA	High-risk occupation	Surveillance records Medical records	Both laboratory and clinical assessments International Classification of Diseases
Russell (2009)	North America Canada	Non-specific/General population	Surveillance records	Laboratory diagnosis only
Rutz (2016)	North America USA	Non-specific/General population	Surveillance records	Laboratory diagnosis only
Sarwari (2005)	North America USA	Hikers/Outdoor pursuits	Research project: community setting (e.g. farmers) Other	Patient/population self-reporting Unclear/NR
Schiffman (2016)	North America USA	Non-specific/General population	Surveillance records Medical records	Both laboratory and clinical assessments International Classification of Diseases
Schwarzwalder (2010)	North America USA	Non-specific/General population	Medical records	Both laboratory and clinical assessments
Slack (2011)	Europe UK	Non-specific/General population	Surveillance records Laboratory records	Laboratory diagnosis only
Smith (2006)	Europe Multi-country (SR + EU reports)	Non-specific/General population	Surveillance records	Unclear/NR
Sočan (2015)	Europe Slovenia	Non-specific/General population	Research project: clinical setting	Other
Stjernberg (2002)	Europe Sweden	Non-specific/General population	Research project: community setting (e.g. farmers)	Patient/population self-reporting
Strle (2013)	Europe Slovenia	Non-specific/General population	Medical records	Both laboratory and clinical assessments
Svihrova (2011)	Europe Slovakia	Non-specific/General population	Surveillance records	Laboratory diagnosis only
Szeszenia-Dabrowska (2016)	Europe Poland	High-risk occupation	Surveillance records	Unclear/NR

Szonyi (2015)	North America USA	Non-specific/General population	Surveillance records	Both laboratory and clinical assessments
Țilea (2014)	Europe Romania	Non-specific/General population	Medical records	Both laboratory and clinical assessments
Tseng (2015)	North America USA	Non-specific/General population	Insurance records	Laboratory diagnosis only International Classification of Diseases Other
Vandenesch (2014)	Europe France	Non-specific/General population	Surveillance records Medical records	Both laboratory and clinical assessments International Classification of Diseases
Vazquez (2003)	North America USA	Non-specific/General population	Surveillance records Medical records	Both laboratory and clinical assessments
Vrbova (2006)	North America Canada	Non-specific/General population	Surveillance records	Both laboratory and clinical assessments
Waller (2007)	North America USA	Non-specific/General population	Surveillance records	Both laboratory and clinical assessments
Wang (2014)	North America USA	Non-specific/General population	Medical records	International Classification of Diseases
World Health Organization (2004)	Europe UK	Non-specific/General population	Surveillance records	Unclear/NR
Wilking (2014)	Europe Germany	Non-specific/General population	Surveillance records	Both laboratory and clinical assessments
Xue (2015)	North America USA	Non-specific/General population	Surveillance records	Unclear/NR
Zalewska (2008)	Europe Poland	Non-specific/General population	Surveillance records	Unclear/NR

EU = European Union; NR = Not reported; SR = Systematic reviews

Table A6.2 Characteristics of papers on incidence and prevalence - Prevalence (n=60)

Author, year	Continent & country	Population	Data sources	Measures
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Antoniou (2002)	Europe Greece	Non-specific/General population	Research project: community setting (e.g. farmers)	Seroprevalence
Bartůněk (2007)	Europe Czech Republic	High-risk occupation	Research project: community setting (e.g. farmers) and analysis of blood samples from donors	Both laboratory and clinical assessments
Boulware (2003)	North America USA	Hikers/Outdoor pursuits	Research project: community setting (e.g. farmers)	Patient/population self-reporting
Bozkurt (2008)	Asia Turkey	Non-specific/General population	Research project: community setting (e.g. farmers)	Seroprevalence
Bucak (2016)	Asia Turkey	Non-specific/General population	Research project: community setting (e.g. farmers)	Seroprevalence
Buczek (2009)	Europe Poland	High-risk occupation	Research project: community setting (e.g. farmers)	Seroprevalence
Calderaro (2011)	Europe Italy	Non-specific/General population	Research project: clinical setting	Laboratory diagnosis only
Cetin (2006)	Europe Austria	High-risk occupation	Research project: community setting (e.g. farmers)	Seroprevalence
Chmielewska-Badora (2009)	Europe Poland	High-risk occupation	Research project: community setting (e.g. farmers) and analysis of blood samples from donors	Seroprevalence
Chmielewska-Badora (2012)	Europe Poland	High-risk occupation	Research project: community setting (e.g.	Seroprevalence

			farmers) and analysis of blood samples from donors	
Ciceroni (2003)	Europe Italy	Non-specific/General population	Research project: clinical setting	Seroprevalence
Cisak (2005)	Europe Poland	High-risk occupation	Research project: community setting (e.g. farmers) and analysis of blood samples from donors	Clinical manifestation only Seroprevalence
Cisak (2008)	Europe Poland	High-risk occupation	Medical records Research project: community setting (e.g. farmers) and analysis of blood samples from donors	Clinical manifestation only Seroprevalence
Cisak (2012)	Europe Poland	High-risk occupation	Research project: community setting (e.g. farmers)	Seroprevalence
Di Renzi (2010)	Europe Italy	High-risk occupation	Research project: community setting (e.g. farmers) and analysis of blood samples from donors	Seroprevalence
Dobracki (2007)	Europe Poland	High-risk occupation	Unclear/NR	Seroprevalence Unclear/NR
Fomenko (2008)	Europe Russia	Non-specific/General population	Research project: clinical setting	Seroprevalence
Ghafar (2011)	Africa Egypt	High-risk occupation	Research project: community setting (e.g. farmers)	Seroprevalence

Goncalves (2013)	South America Brazil	Non-specific/General population	Research project: community setting (e.g. farmers)	Seroprevalence
Goncalves (2015)	South America Brazil	Non-specific/General population	Research project: community setting (e.g. farmers)	Seroprevalence
Hjetland (2014)	Europe Norway	Non-specific/General population	Research project: analysis of blood samples from donors	Seroprevalence
Jovanovic (2015)	Europe Serbia	High-risk occupation	Research project: community setting (e.g. farmers) and analysis of blood samples from donors	Seroprevalence
Jurke (2015)	Europe Germany	High-risk occupation	Research project: community setting (e.g. farmers)	Seroprevalence
Kaya (2008)	Asia Turkey	High-risk occupation	Research project: community setting (e.g. farmers) and analysis of blood samples from donors	Seroprevalence
Khatchikian (2015)	North America USA	Non-specific/General population	Unclear/NR	Laboratory diagnosis only
Laba (2015)	Europe Poland	Non-specific/General population	Research project: analysis of blood samples from donors	Seroprevalence
Lledo (2004)	Europe Spain	Non-specific/General population	Research project: community setting (e.g. farmers)	Seroprevalence
Lledo (2014)	Europe Spain	Non-specific/General population	Research project: clinical setting	Seroprevalence

Machcinska (2013)	Europe Poland	Non-specific/General population	Research project: analysis of blood samples from donors	Seroprevalence
Magnaval (2011)	Europe Russia	Non-specific/General population	Research project: community setting (e.g. farmers)	Seroprevalence
Magnaval (2016)	Europe Russia	Non-specific/General population	Research project: community setting (e.g. farmers)	Seroprevalence
Munro (2011)	Europe UK	Non-specific/General population	Research project: analysis of blood samples from donors	Seroprevalence
Münstedt (2012)	Europe Austria, Germany, Luxemburg, Switzerland	High-risk occupation	Research project: community setting (e.g. farmers)	Patient/population self-reporting
Niścigorska (2004)	Europe Poland	High-risk occupation	Research project: community setting (e.g. farmers)	Laboratory diagnosis only
Nubling (2002)	Europe France, Germany	Non-specific/General population	Research project: community setting (e.g. farmers)	Seroprevalence
Oehme (2002)	Europe Germany	High-risk occupation	Research project: community setting (e.g. farmers)	Seroprevalence
Podsiadly (2011)	Europe Poland	High-risk occupation	Research project: community setting (e.g. farmers)	Seroprevalence
Praharaj (2008)	Asia India	Non-specific/General population	Research project: community setting (e.g. farmers)	Seroprevalence

Pugliese (2007)	Europe Italy	High-risk occupation	Research project: community setting (e.g. farmers)	Seroprevalence
Rigaud (2016)	Europe France	High-risk occupation	Research project: community setting (e.g. farmers)	Seroprevalence
Rodriguez (2012)	North America Cuba	Non-specific/General population	Research project: community setting (e.g. farmers)	Seroprevalence
Rojko (2005)	Europe Slovenia	High-risk occupation	Research project: community setting (e.g. farmers)	Seroprevalence
Santino (2004)	Europe Italy	High-risk occupation	Research project: community setting (e.g. farmers)	Seroprevalence
Sekeyova (2012)	Europe Slovakia	Non-specific/General population	Research project: clinical setting	Seroprevalence
Skinner-Taylor (2016)	North America Mexico	High-risk occupation	Research project: community setting (e.g. farmers)	Seroprevalence
Skogman (2010)	Europe Sweden	Children (< 18. y.old)	Research project: community setting (e.g. farmers)	Seroprevalence
Sonnleitner (2015)	Europe Austria	Non-specific/General population	Research project: analysis of blood samples from donors	Seroprevalence
Spolidorio (2010)	South America Brazil	Non-specific/General population	Research project: community setting (e.g. farmers)	Seroprevalence
Tabibi (2013)	Europe Italy	High-risk occupation	Research project: community setting (e.g. farmers)	Seroprevalence

Tinguely (2011)	Europe Switzerland	Non-specific/General population	Research project: analysis of blood samples from donors	Seroprevalence
Tkachev (2008)	Europe Russia	Non-specific/General population	Research project: clinical setting	Seroprevalence
Tomao (2005)	Europe Italy	High-risk occupation	Research project: community setting (e.g. farmers)	Seroprevalence
Topolovec (2003)	Europe Croatia	Non-specific/General population	Research project: clinical setting	Seroprevalence
Vestrheim (2016)	Europe Norway	Non-specific/General population	Research project: clinical setting	Seroprevalence
Walder (2006)	Asia Mongolia	Non-specific/General population	Research project: clinical setting	Seroprevalence
Weisshaar (2006)	Europe Germany	Children (< 18. y.old)	Research project: community setting (e.g. farmers)	Patient/population self-reporting
Wilhelmsson (2016)	Europe Finland	Non-specific/General population	Medical records Research project: clinical setting	Both laboratory and clinical assessments Seroprevalence
Wilking (2015)	Europe Germany	Non-specific/General population	Research project: community setting (e.g. farmers)	Seroprevalence
Zakutna (2015)	Europe Slovakia	Non-specific/General population	Research project: analysis of blood samples from donors	Seroprevalence
Zakutna (2015)	Europe Slovakia	High-risk occupation	Research project: community setting (e.g. farmers)	Seroprevalence

NR = Not reported

Table A6.3 Characteristics of papers on incidence and prevalence - Both incidence and prevalence (n=3)

Author, year	Continent & country	Population	Data sources	Measures
Bazovska (2005)	Europe Slovakia	Non-specific/General population	Surveillance records Research project: analysis of blood samples from donors	Both laboratory and clinical assessments
Faulde (2014)	Europe Germany	High-risk occupation	Research project: community setting (e.g. farmers)	Clinical manifestation only Both laboratory and clinical assessments Seroprevalence
Hatchette (2015)	North America Canada	Non-specific/General population	Surveillance records Research project: clinical setting	Both laboratory and clinical assessments Seroprevalence

Appendix 7 - Characteristics of papers on prevention (n=82)

This appendix presents the characteristics of papers on incidence and prevalence by the following foci:

- **Surveys (Table A7.1, n=42)**
 - Attitudes about LD prevention/communication of risks
 - Knowledge/Awareness
 - Preventive behaviours
 - Views on how to manage LD
 - Combinations of the above

- **Intervention evaluations (Table A7.2, n=40)**
 - Deer targeted programmes
 - Domestic protective measures
 - Education
 - Habitat restoration
 - Personal protection prevention
 - Prophylaxis
 - Vaccine
 - Combinations of the above

Table A7.1 Characteristics of papers on prevention - Surveys (n=42)

Author, year	Continent & country	Population	Focus	Design
Aenishaenslin (2013)	North America Canada	Non-specific/General population	Views on how to manage LD	Survey: mixed methods
Aenishaenslin (2014)	North America Canada Europe Switzerland	Non-specific/General population	Knowledge/Awareness Preventive behaviours	Survey: quantitative
Aenishaenslin (2015)	North America Canada Europe Switzerland	Non-specific/General population	Knowledge/Awareness Preventive behaviours	Survey: quantitative
Aenishaenslin (2015)	North America Canada Europe Switzerland	Non-specific/General population	Views on how to manage LD	Survey: mixed methods
Aenishaenslin (2016)	North America Canada Europe Switzerland	Non-specific/General population	Views on how to manage LD	Survey: mixed methods
Aenishaenslin (2017)	North America Canada	Non-specific/General population	Knowledge/Awareness Preventive behaviours	Survey: quantitative
Aucott (2012)	North America USA	Non-specific/General population	Knowledge/Awareness	Survey: quantitative
Barone (2002)	North America USA	Non-specific/General population	Knowledge/Awareness Views on how to manage LD	Survey: quantitative
Bayles (2013)	North America USA	Non-specific/General population	Knowledge/Awareness Preventive behaviours	Survey: quantitative
Beaujean (2013)	Europe Netherlands	Children (< 18. y.old)	Knowledge/Awareness Preventive behaviours	Survey: quantitative

Beaujean (2013)	Europe Netherlands	Non-specific/General population	Knowledge/Awareness Preventive behaviours	Survey: qualitative
Beaujean (2013)	Europe Netherlands	Non-specific/General population	Preventive behaviours	Survey: quantitative
Brewer (2004)	North America USA	Non-specific/General population	Knowledge/Awareness Preventive behaviours	Survey: quantitative
Butler (2016)	North America USA	Non-specific/General population	Knowledge/Awareness Preventive behaviours	Survey: quantitative
de Vries (2002)	Europe Netherlands	Children (< 18. y.old)	Knowledge/Awareness Preventive behaviours	Survey: quantitative
Downs (2015)	North America USA	Non-specific/General population	Preventive behaviours	Survey: quantitative
Drevova (2003)	Europe Czech Republic	Children (< 18. y.old)	Knowledge/Awareness	Survey: quantitative
Fogel (2016)	North America USA	Pet owners	Knowledge/Awareness	Survey: quantitative
Fogel (2016)	North America USA	Non-specific/General population	Knowledge/Awareness Preventive behaviours	Survey: quantitative
Fogel (2016)	North America USA	Non-specific/General population	Preventive behaviours	Survey: quantitative
Garvin (2005)	North America USA	Non-specific/General population	Knowledge/Awareness Preventive behaviours	Survey: mixed methods
Gliniewicz (2014)	Europe Poland	Hikers/Outdoor pursuits	Preventive behaviours	Survey: quantitative
Heller (2010)	North America USA	Non-specific/General population	Knowledge/Awareness Preventive behaviours	Survey: quantitative
Herrington (2003)	North America USA	Non-specific/General population	Knowledge/Awareness Preventive behaviours	Survey: quantitative
Herrington (2004)	North America USA	Non-specific/General population	Knowledge/Awareness Preventive behaviours	Survey: quantitative

Hook (2015)	North America USA	Non-specific/General population	Knowledge/Awareness Preventive behaviours	Survey: quantitative
Knoll (2014)	North America USA	Hikers/Outdoor pursuits	Knowledge/Awareness	Survey: quantitative
Kurnatowski (2011)	Europe Poland	High-risk occupation	Knowledge/Awareness	Survey: quantitative
Macauda (2008)	North America USA	Non-specific/General population	Knowledge/Awareness Preventive behaviours	Survey: mixed methods
Marcu (2011)	Europe UK	Non-specific/General population	Knowledge/Awareness	Survey: qualitative
Marzano (2013)	Europe UK	Non-specific/General population	Attitudes about LD prevention/communication of risks	Survey: qualitative
McKenna (2004)	North America USA	Non-specific/General population	Preventive behaviours	Survey: quantitative
Middleton (2015)	North America USA	Non-specific/General population	Knowledge/Awareness Preventive behaviours	Survey: quantitative
Mowbray (2014)	Europe UK	Non-specific/General population	Preventive behaviours	Survey: mixed methods
O'Brien (2012)	Europe UK	Hikers/Outdoor pursuits	Knowledge/Awareness Preventive behaviours	Survey: qualitative
Perea (2015)	North America USA	Clinicians	Views on how to manage LD	Survey: quantitative
Sandhu (2014)	North America USA	Pet owners	Knowledge/Awareness	Survey: quantitative
Uzzell (2012)	Europe UK	High-risk occupation	Attitudes about LD prevention/communication of risks	Survey: qualitative
Valente (2015)	North America USA	Non-specific/General population	Knowledge/Awareness Preventive behaviours	Survey: quantitative

van Velsen (2015)	Europe Netherlands	Non-specific/General population	Views on how to manage LD	Survey: qualitative
Wu (2013)	Asia China	Non-specific/General population	Knowledge/Awareness	Survey: quantitative
Zibit (2006)	North America USA	Children (< 18. y.old)	Knowledge/Awareness Preventive behaviours	Survey: quantitative

LD = Lyme disease

Table A7.2 Characteristics of papers on prevention - Intervention evaluations (n=40)

Author, year	Continent & country	Population	Focus	Design
Aenishaenslin (2016)	North America Canada	Non-specific/General population	Education	Single group: pre/post
Beaujean (2016)	Europe Netherlands	Children (< 18. y.old)	Education	Controlled/Comparative: RCT
Beaujean (2016)	Europe Netherlands	Non-specific/General population	Education	Controlled/Comparative: RCT
Brewer (2007)	North America USA	Non-specific/General population	Vaccine	Controlled/Comparative: controlled trials
Burdick (2002)	North America USA	Non-specific/General population	Prophylaxis	Controlled/Comparative: controlled trials
Connally (2009)	North America USA	Non-specific/General population	Domestic protective measures Personal protection prevention	Controlled/Comparative: case control study
Daltroy (2007)	North America USA	Non-specific/General population	Education	Controlled/Comparative: RCT
Faulde (2008)	Europe Germany	Non-specific/General population	Personal protection prevention	Controlled/Comparative: controlled trials
Faulde (2015)	Europe Germany	High-risk occupation	Personal protection prevention	Controlled/Comparative: controlled trials
Fox (2009)	North America USA	Children (< 18. y.old)	Education	Single group: pre/post
Gardulf (2004)	Europe Sweden	Non-specific/General population	Personal protection prevention	Controlled/Comparative: RCT

Garnett (2011)	North America USA	Non-specific/General population	Deer targeted programmes	Controlled/Comparative: controlled trials
Geier (2002)	North America USA	Non-specific/General population	Vaccine	Single group: medical records review
Gould (2008)	North America Canada	Non-specific/General population	Education	Single group: pre/post
Hinckley (2016)	North America USA	Non-specific/General population	Domestic protective measures	Controlled/Comparative: RCT
Hsia (2002)	North America USA	Non-specific/General population	Vaccine	Cost evaluation
Jackson (2014)	North America USA	Non-specific/General population	Prophylaxis	Single group: post study only
Jenks (2005)	North America USA	Ethnic groups	Education	Single group: pre/post
Jordan (2007)	North America USA	Non-specific/General population	Deer targeted programmes	Controlled/Comparative: controlled trials
Karreman (2014)	Europe Netherlands	High-risk occupation	Education	Single group: post study only
Kilpatrick (2003)	North America USA	Non-specific/General population	Deer targeted programmes	Single group: pre/post Other (views on intervention)
Kilpatrick (2014)	North America USA	Non-specific/General population	Deer targeted programmes	Single group: pre/post
Lathrop (2002)	North America USA	Non-specific/General population	Vaccine	Single group: medical records review
Latov (2004)	North America USA	Non-specific/General population	Vaccine	Single group: Case study
Maher (2004)	North America USA	Children (< 18. y.old)	Education	Single group: pre/post
Malouin (2003)	North America USA	Non-specific/General population	Education	Controlled/Comparative: RCT

Mannion (2015)	North America USA	Children (< 18. y.old)	Education	Single group: pre/post
Maraspin (2002)	Europe Slovenia	Non-specific/General population	Prophylaxis	Single group: medical records review
Marks (2011)	North America USA	Non-specific/General population	Vaccine	Single group: medical records review
Morlando (2012)	North America USA	Non-specific/General population	Habitat restoration	Cost evaluation
Nolan (2006)	North America USA	High-risk occupation	Education	Controlled/Comparative: controlled trials
Schoen (2003)	North America USA	Non-specific/General population	Vaccine	Controlled/Comparative: controlled trials
Seifert (2016)	North America USA	Children (< 18. y.old)	Education	Single group: pre/post
Shadick (2016)	North America USA	Children (< 18. y.old)	Education	Controlled/Comparative: RCT
Vazquez (2003)	North America USA	Non-specific/General population	Personal protection prevention	Controlled/Comparative: case control study
Vazquez (2008)	North America USA	Non-specific/General population	Domestic protective measures Personal protection prevention	Controlled/Comparative: case control study
Woo (2003)	North America USA	Non-specific/General population	Vaccine	Single group: medical records review
Wressnigg (2013)	Europe Austria, Germany	Non-specific/General population	Vaccine	Controlled/Comparative: RCT
Wressnigg (2014)	Europe Austria, Germany	Non-specific/General population	Vaccine	Controlled/Comparative: RCT
Yagodina (2007)	Europe Russia	Non-specific/General population	Prophylaxis	Controlled/Comparative: controlled trials

RCT = Randomised controlled trial

Appendix 8 - Characteristics of papers on treatment (n=78)

This appendix presents the characteristics of papers on diagnosis by the following foci:

- Safety/effectiveness of a single treatment (Table A8.1, n=53)
- Comparing effectiveness of different treatments (Table A8.2, n=14)
- Examining/comparing treatment length (Table A8.3, n=8)
- Other (Table A8.4, n=3)

Table A8.1 Characteristics of papers on treatment - Safety/effectiveness of a single treatment (n=53)

Author, year	Continent & country	Population	Types of treatment	Design	Outcomes
Alaedini (2010)	North America USA	Non-specific/General population	One specific type of antibiotic	Controlled/Comparative design: controlled trial	Biomarkers
Bartunek (2005)	Europe Czech Republic	Non-specific/General population	Range of antibiotics (focus on outcomes rather than therapy)	Single group	Physical symptoms and biomarkers
Bransfield (2004)	North America USA	Non-specific/General population	One specific type of antibiotic	Single group	Physical symptoms Adverse effects
Bremell (2014)	Europe Sweden	Non-specific/General population	One specific type of antibiotic	Controlled/Comparative design: other comparative	Physical symptoms and biomarkers
Briciu (2013)	Europe Romania	Non-specific/General population	Range of antibiotics (focus on outcomes rather than therapy)	Controlled/Comparative design: case control study	Physical symptoms and biomarkers
Cameron (2008)	North America USA	Non-specific/General population	One specific type of antibiotic	Controlled/Comparative design: RCT	Physical symptoms Adverse effects

					Other
Clarissou (2009)	Europe France	Non-specific/General population	Range of antibiotics (focus on outcomes rather than therapy)	Single group	Physical symptoms
D'Adamo (2015)	North America USA	Non-specific/General population	Other One specific type of antibiotic	Single group	Physical symptoms Adverse effects
Darcy (2015)	North America USA	Non-specific/General population	Range of antibiotics (focus on outcomes rather than therapy)	Single group	Physical symptoms
Darcy (2015)	North America USA	Non-specific/General population	Range of antibiotics (focus on outcomes rather than therapy)	Single group	Physical symptoms
Donta (2003)	North America USA	Non-specific/General population	One specific type of antibiotic	Controlled/Comparative design: controlled trial	Physical symptoms and biomarkers
Donta (2012)	North America USA	Non-specific/General population	Range of antibiotics (focus on outcomes rather than therapy)	Single group	Physical symptoms and biomarkers
Eikeland (2011)	Europe Norway	Non-specific/General population	Range of antibiotics (focus on outcomes rather than therapy)	Controlled/Comparative design: controlled trial	Physical symptoms
Eikeland (2011)	Europe Norway	Non-specific/General population	Range of antibiotics (focus on outcomes rather than therapy)	Controlled/Comparative design: case control study	Physical symptoms
Eikeland (2012)	Europe Norway	Non-specific/General population	Range of antibiotics (focus on outcomes rather than therapy)	Controlled/Comparative design: case control study	Physical symptoms
Eikeland (2013)	Europe Norway	Non-specific/General population	Range of antibiotics (focus on outcomes rather than therapy)	Single group	Physical symptoms and biomarkers
Fallon (2008)	North America USA	Non-specific/General population	One specific type of antibiotic	Controlled/Comparative design: RCT	Physical symptoms Adverse effects

Fleming (2004)	North America USA	Non-specific/General population	Range of antibiotics (focus on outcomes rather than therapy)	Controlled/Comparative design: RCT	Physical symptoms and biomarkers
Fried (2002)	North America USA	Children (< 18. y.old)	Range of antibiotics (focus on outcomes rather than therapy)	Controlled/Comparative design: other comparative	Biomarkers
Furst (2006)	Europe Austria	Non-specific/General population	Range of antibiotics (focus on outcomes rather than therapy)	Controlled/Comparative design: controlled trial	Physical symptoms and biomarkers
Galev (2005)	Europe Bulgaria	Non-specific/General population	One specific type of antibiotic	Single group	Physical symptoms
Hassler (2004)	Europe Germany	Non-specific/General population	One specific type of antibiotic	Single group	Biomarkers
Honegr (2004)	Europe Czech Republic	Non-specific/General population	Multiple antibiotics	Single group	Physical symptoms and biomarkers
Kaplan (2003)	North America USA	Non-specific/General population	One specific type of antibiotic	Controlled/Comparative design: RCT	Physical symptoms Other
Keilp (2006)	North America USA	Non-specific/General population	Range of antibiotics (focus on outcomes rather than therapy)	Controlled/Comparative design: controlled trial	Physical symptoms
Kindstrand (2002)	Europe Sweden	Non-specific/General population	Range of antibiotics (focus on outcomes rather than therapy)	Single group	Physical symptoms
Kowalski (2011)	North America USA	Non-specific/General population	Range of antibiotics (focus on outcomes rather than therapy)	Controlled/Comparative design: controlled trial	Physical symptoms
Krupp (2003)	North America USA	Non-specific/General population	One specific type of antibiotic	Controlled/Comparative design: RCT	Other
Kuchynka (2010)	Europe Czech Republic	Non-specific/General population	One specific type of antibiotic	Single group	Physical symptoms

Kuchynka (2015)	Europe Czech Republic	Non-specific/General population	Range of antibiotics (focus on outcomes rather than therapy)	Controlled/Comparative design: other comparative	Physical symptoms and biomarkers
Lipsker (2002)	Europe France	Non-specific/General population	Multiple antibiotics	Single group	Physical symptoms
Lupse (2014)	Europe Romania	Non-specific/General population	Range of antibiotics (focus on outcomes rather than therapy)	Single group	Physical symptoms and biomarkers
Maraspin (2011)	Europe Slovenia	Pregnant women	One specific type of antibiotic	Single group	Physical symptoms and biomarkers Adverse effects
Moniuszko-Malinowska (2016)	Europe Poland	Non-specific/General population	One specific type of antibiotic	Controlled/Comparative design: case control study	Physical symptoms and biomarkers
Nowakowski (2003)	North America USA	Non-specific/General population	Range of antibiotics (focus on outcomes rather than therapy)	Single group	Physical symptoms
Peltomaa (2003)	Europe Finland	Non-specific/General population	Range of antibiotics (focus on outcomes rather than therapy)	Controlled/Comparative design: controlled trial	Physical symptoms and biomarkers
Renaud (2004)	Europe Switzerland	Non-specific/General population	Range of antibiotics (focus on outcomes rather than therapy)	Single group	Physical symptoms and biomarkers
Schardt (2004)	Europe Germany	Non-specific/General population	One specific type of antibiotic	Controlled/Comparative design: other comparative	Physical symptoms and biomarkers
Seidel (2007)	Europe Germany	Non-specific/General population	Range of antibiotics (focus on outcomes rather than therapy)	Single group	Physical symptoms
Shoemaker (2006)	North America USA	Non-specific/General population	Multiple antibiotics	Controlled/Comparative design: RCT	Physical symptoms

Sjowall (2012)	Europe Sweden	Non-specific/General population	One specific type of antibiotic	Controlled/Comparative design: RCT	Physical symptoms and biomarkers
Spirin (2012)	Europe Russia	Non-specific/General population	Range of antibiotics (focus on outcomes rather than therapy)	Single group	Physical symptoms and biomarkers
Stricker (2008)	North America USA	Non-specific/General population	One specific type of antibiotic	Single group	Adverse effects
Stricker (2010)	North America USA	Non-specific/General population	One specific type of antibiotic	Single group	Biomarkers Adverse effects
Stricker (2011)	North America USA	Non-specific/General population	One specific type of antibiotic	Single group	Physical symptoms
Țăulescu (2010)	Europe Romania	Non-specific/General population	Multiple antibiotics	Single group	Physical symptoms and biomarkers
Thompson (2012)	North America USA	Children (< 18. y.old)	Multiple antibiotics	Single group	Physical symptoms Adverse effects
Weissenbacher (2005)	Europe Germany	Non-specific/General population	One specific type of antibiotic	Single group	Physical symptoms Adverse effects
Weitzner (2015)	North America USA	Non-specific/General population	Range of antibiotics (focus on outcomes rather than therapy)	Single group	Physical symptoms and biomarkers
Weitzner (2016)	North America USA	Non-specific/General population	Range of antibiotics (focus on outcomes rather than therapy)	Single group	Physical symptoms
Wormser (2015)	North America USA	Non-specific/General population	Range of antibiotics (focus on outcomes rather than therapy)	Single group	Physical symptoms
Yakovlev (2010)	North America USA	Non-specific/General population	OtherOne specific type of antibiotic	Single group	Physical symptoms
Tory (2010)	North America USA	Children (< 18. y.old)	Multiple antibiotics	Single group	Physical symptoms and biomarkers

RCT = Randomised controlled trial

Table A8.2 Characteristics of papers on treatment - Comparing effectiveness of different treatments (n=14)

Author, year	Continent & country	Population	Types of treatment	Design	Outcomes
Alario (2015)	North America USA	Non-specific/General population	Multiple antibiotics	Controlled/Comparative design: other comparative	Physical symptoms
Arnez (2002)	Europe Slovenia	Children (< 18. y.old)	Multiple antibiotics	Controlled/Comparative design: controlled trial	Physical symptoms and biomarkers Adverse effects
Arnez (2015)	Europe Slovenia	Children (< 18. y.old)	Multiple antibiotics	Controlled/Comparative design: controlled trial	Physical symptoms Adverse effects
Berende (2016)	Europe Netherlands	Non-specific/General population	Multiple antibiotics	Controlled/Comparative design: RCT	Physical symptoms
Berglund (2002)	Europe Sweden	Non-specific/General population	Multiple antibiotics	Controlled/Comparative design: other comparative	Physical symptoms Adverse effects
Borg (2005)	Europe Sweden	Non-specific/General population	Multiple antibiotics	Controlled/Comparative design: other comparative	Physical symptoms and biomarkers
Cerar (2010)	Europe Slovenia	Non-specific/General population	Multiple antibiotics	Controlled/Comparative design: controlled trial	Physical symptoms
Eppes (2002)	North America USA	Children (< 18. y.old)	Multiple antibiotics	Controlled/Comparative design: RCT	Physical symptoms and biomarkers Adverse effects
Ljostad (2008)	Europe Norway	Non-specific/General population	Multiple antibiotics	Controlled/Comparative design: RCT	Physical symptoms Adverse effects
Ljostad (2008)	Europe Norway	Non-specific/General population	Multiple antibiotics	Controlled/Comparative design: RCT	Physical symptoms and biomarkers Adverse effects

Nizic (2012)	Europe Slovenia	Children (< 18. y.old)	Multiple antibiotics	Controlled/Comparative design: controlled trial	Physical symptoms and biomarkers Adverse effects
Ogrinc (2006)	Europe Slovenia	Non-specific/General population	Multiple antibiotics	Controlled/Comparative design: other comparative	Physical symptoms and biomarkers Adverse effects Other
Oksi (2007)	Europe Finland	Non-specific/General population	Multiple antibiotics	Controlled/Comparative design: RCT	Physical symptoms
Wormser (2003)	North America USA	Non-specific/General population	Multiple antibiotics	Controlled/Comparative design: RCT	Physical symptoms and biomarkers Adverse effects

RCT = Randomised controlled trial

Table A8.3 Characteristics of papers on treatment - Examining/comparing treatment length (n=8)

Author, year	Continent & country	Population	Types of treatment	Design	Outcomes
Aberer (2006)	Europe Austria	Non-specific/General population	One specific type of antibiotic	Controlled/Comparative design: controlled trial	Physical symptoms and biomarkers
Dattwyler (2005)	North America USA	Non-specific/General population	One specific type of antibiotic	Controlled/Comparative design: RCT	Physical symptoms Adverse effects
Kowalski (2010)	North America USA	Non-specific/General population	One specific type of antibiotic	Controlled/Comparative design: controlled trial	Physical symptoms
Puri (2015)	Europe UK	Non-specific/General population	Multiple antibiotics	Single group	Physical symptoms
Stupica (2012)	Europe Slovenia	Non-specific/General population	One specific type of antibiotic	Controlled/Comparative design: controlled trial	Physical symptoms and biomarkers
Thorstrand (2002)	Europe Sweden	Children (< 18. y.old)	Multiple antibiotics	Single group	Physical symptoms and biomarkers
Tseng (2015)	North America USA	Non-specific/General population	Range of antibiotics (focus on outcomes rather than therapy)	Single group	Other Antibiotic treatment patterns
White (2013)	Europe UK	Non-specific/General population	One specific type of antibiotic	Single group	Physical symptoms Adverse effects

RCT = Randomised controlled trial

Table A8.4 Characteristics of papers on treatment - Other (n=3)

Author, year	Continent & country	Population	Focus	Types of treatment	Design	Outcomes
Halperin (2003)	North America USA	Non-specific/General population	Mode of treatment delivery	Range of antibiotics (focus on outcomes rather than therapy)	Single group	Physical symptoms and biomarkers
Macauda (2011)	North America USA	Non-specific/General population	Views of treatment	Range of antibiotics (focus on outcomes rather than therapy)	Single group	Other
Miller (2014)	North America USA	Non-specific/General population	Different treatment patterns	Multiple antibiotics	Single group	Unclear/NR

NR = Not reported

Appendix 9 - Characteristics of papers on risk factors (n=46)

This appendix presents the characteristics of papers on diagnosis by the following foci:

- Season/Climate (Table A9.1, n=10)
- Landscape factors (Table A9.2, n=6)
- Multiple risk factors (Table A9.3, n=16)
- Other (Table A9.4, n=14)
 - Human to human transmission
 - Residential location
 - Contact with animals
 - Other risk factors

Table A9.1 Characteristics of papers on risk factors - Season/Climate (n=10)

Author, year	Continent & country	Population	Design	Measures
Daniel (2008)	Europe Czech Republic	Non-specific/General population	Ecological	Estimation of association with LD
Insaf (2012)	North America USA	Non-specific/General population	Ecological	Estimation of association with LD
McCabe (2004)	North America USA	Non-specific/General population	Ecological	Estimation of association with LD
Monaghan (2015)	North America USA	Non-specific/General population	Ecological	Estimation of association with LD
Moore (2014)	North America USA	Non-specific/General population	Ecological	Estimation of association with LD
Shrestha (2013)	North America USA	Non-specific/General population	Ecological	Estimation of association with LD

Subak (2002)	North America USA	Non-specific/General population	Ecological	Estimation of association with LD
Subak (2003)	North America USA	Non-specific/General population	Ecological	Estimation of association with LD
Trajer (2013)	Europe Hungary	Non-specific/General population	Ecological	Estimation of association with LD
Trajer (2014)	Europe Hungary	Non-specific/General population	Ecological	Estimation of association with LD

LD = Lyme disease

Table A9.2 Characteristics of papers on risk factors - Landscape factors (n=6)

Author, year	Continent & country	Population	Design	Measures
Barrios (2013)	Europe Belgium	Non-specific/General population	Ecological	Estimation of association with LD
Eisen (2006)	North America USA	Non-specific/General population	Ecological	Estimation of association with LD
Jackson (2006)	North America USA	Non-specific/General population	Ecological	Estimation of association with LD
Jackson (2006)	North America USA	Non-specific/General population	Ecological	Estimation of association with LD
Mariet (2013)	Europe France	Non-specific/General population	Ecological	Estimation of association with LD
Messier (2015)	North America USA	Non-specific/General population	Ecological	Estimation of association with LD

LD = Lyme disease

Table A9.3 Characteristics of papers on risk factors - Multiple risk factors (n=16)

Author, year	Continent & country	Population	Design	Measures
Atkinson (2014)	North America USA	Non-specific/General population	Ecological	Estimation of association with LD
Diuk-Wasser (2013)	North America USA	Non-specific/General population	Survey	Direct measurement of association with LD
Estrada-Pena (2009)	North America USA	Non-specific/General population	Ecological	Estimation of association with LD
Finch (2014)	North America USA	Hikers/Outdoor pursuits	Survey	Direct measurement of association with LD
Fitzner (2002)	Europe Germany	Non-specific/General population	Case control	Direct measurement of association with LD
Lane (2004)	North America USA	Hikers/Outdoor pursuits	Risk behaviour simulation study	Estimation of association with LD
Linard (2007)	Europe Belgium	Non-specific/General population	Ecological	Estimation of association with LD
Phoebe (2016)	North America USA	Non-specific/General population	Ecological	Estimation of association with LD
Rieger (2002)	Europe Germany	High-risk occupation	Survey	Direct measurement of association with LD
Robinson (2015)	North America USA	Non-specific/General population	Ecological	Estimation of association with LD
Seukep (2015)	North America USA	Non-specific/General population	Ecological	Estimation of association with LD
Tran (2013)	North America USA	Non-specific/General population	Ecological	Estimation of association with LD
Tran (2015)	North America USA	Non-specific/General population	Ecological	Estimation of association with LD
Tuite (2013)	North America USA	Non-specific/General population	Ecological	Estimation of association with LD

Walter (2016)	North America USA	Non-specific/General population	Ecological	Estimation of association with LD
Zoldi (2013)	Europe Hungary	Non-specific/General population	Ecological	Estimation of association with LD

LD = Lyme disease

Table A9.4 Characteristics of papers on risk factors - Other risk factors (n=14)

Author, year	Continent & country	Population	Risk factor	Design	Measures
Bennet (2002)	Europe Sweden	Non-specific/General population	Other	Survey	Direct measurement of association with LD
Huegli (2011)	Europe Switzerland	Non-specific/General population	Other	Other	Direct measurement of association with LD
Lakos (2010)	Europe Hungary	Pregnant women	Human to human transmission	Review of medical records	Direct measurement of association with LD
Lakos (2012)	Europe Hungary	Non-specific/General population	Contact with animals	Case control	Direct measurement of association with LD
Larsen (2014)	North America USA	Non-specific/General population	Other	Ecological	Estimation of association with LD
Levi (2012)	North America USA	Non-specific/General population	Contact with animals	Ecological	Estimation of association with LD
Middelveen (2014)	North America NR	Non-specific/General population	Human to human transmission	Case series	Clinical assessment
Pepin (2011)	North America USA	Non-specific/General population	Residential location	Ecological	Estimation of association with LD
Stricker (2004)	North America USA	Non-specific/General population	Human to human transmission	Case series	Clinical assessment
Townsend (2003)	North America USA	Non-specific/General population	Contact with animals	Survey	Direct measurement of association with LD

Zeman (2013)	Europe Czech Republic	Non-specific/General population	Residential location	Ecological	Estimation of association with LD
Zeman (2014)	Europe Czech Republic	Non-specific/General population	Residential location	Ecological	Estimation of association with LD
Zeman (2015)	Europe Czech Republic	Non-specific/General population	Residential location	Ecological	Estimation of association with LD
Zjevikova (2009)	Europe Czech Republic	Pregnant women	Human to human transmission	Case series	Direct measurement of association with LD

LD = Lyme disease; NR = Not reported

Appendix 10 - Characteristics of papers on costs (n=10)

This appendix presents the characteristics of papers that report information on costs:

- Papers that focus on the cost of healthcare for LD (Table A10.1, n=10)
- Other papers that provide some information on the costs of healthcare for LD (Table A10.2, n=6)

Table A10.1 Papers that focus on the cost of healthcare for LD (n=10)

Author, year	Continent & country	Population	Focus	Design	Setting	Outcomes
Adrion (2015)	North America USA	Non-specific/General population	Cost of service organization and delivery	Partial economic evaluation (cost/utilisation data, cost-of-illness)	Commercial laboratory	Healthcare costs
Freitag (2011)	Europe Germany	Non-specific/General population	Cost of service organization and delivery, and diagnosis/laboratory testing	Cost of length of stay in hospital	Hospital	Healthcare costs
Henningsson (2010)	Europe Sweden	Non-specific/General population	Cost of service organization and delivery	Partial economic evaluation (cost/utilisation data, cost-of-illness)	Hospital	Healthcare and social costs
Hinckley (2014)	North America USA	Non-specific/General population	Cost of diagnosis/laboratory testing	Partial economic evaluation (cost/utilisation data, cost-of-illness)	Commercial laboratory	Healthcare costs

Joss (2003)	Europe UK	Non-specific/General population	Cost of service organization and delivery	Partial economic evaluation (cost/utilisation data, cost-of-illness)	Unclear/NR	Healthcare and social costs
Lantos (2013)	North America USA	Non-specific/General population	Cost of service organization and delivery	Cost-effectiveness	Unclear/NR	Healthcare costs
Lohr (2015)	Europe Germany	Non-specific/General population	Cost of service organization and delivery	Partial economic evaluation (cost/utilisation data, cost-of-illness)	Hospital	Healthcare and social costs
Nigrovic (2013)	North America USA	Children (< 18. y.old)	Cost of diagnosis/laboratory testing	Unclear/NR	Hospital	Healthcare costs
Wormser (2013)	North America USA	Non-specific/General population	Cost of diagnosis/laboratory testing	Cost-effectiveness	Commercial laboratory	Healthcare costs
Zhang (2006)	North America USA	Non-specific/General population	Cost of service organization and delivery	Partial economic evaluation (cost/utilisation data, cost-of-illness)	Unclear/NR	Healthcare and social costs

NR = Not reported

Table A10.2 Other papers that provide some information on the costs of healthcare for LD (n=6)

Author, year	Continent & country	Population	Main focus of paper	Design	Outcomes
Beach (2015)	North America USA	Children (< 18. y.old)	Symptoms/Co-occurring condition	Partial economic evaluation (cost/utilisation data, cost-of-illness)	Healthcare costs
Costello (2009)	North America USA	Children (< 18. y.old)	Multiple aspects	Resource utilisation data	Healthcare costs
Hsia (2002)	North America USA	Non-specific/General population	Prevention	Cost-effectiveness	Healthcare costs
Morlando (2012)	North America USA	Non-specific/General population	Prevention	Cost-benefit	Healthcare costs
Müller (2012)	Europe Germany	Non-specific/General population	Incidence and prevalence	Partial economic evaluation (cost/utilisation data, cost-of-illness)	Healthcare costs
Ogrinc (2006)	Europe Slovenia	Non-specific/General population	Treatment	Partial economic evaluation (cost/utilisation data, cost-of-illness)	Healthcare costs

Appendix 11 - Characteristics of papers on multiple aspects of LD (n=81)

This appendix presents the characteristics of papers on multiple aspects by the following foci:

- Clinical characteristics or course of manifestations associated with LD (Table A11.1, n=48)
- Clinical characteristics of LD within a specific population (Table A11.2, n=21)
- Clinical and microbiological findings (Table A11.3, n=6)
- Susceptibility to LD (Table A11.4, n=5)
- Clinician practices, or adherence to recommendations (Table A11.5, n=3)
- Clinical characteristics of ongoing symptoms (Table A11.6, n=2)
- Multiple clearly defined research aims (Table A11.7, n=16)

Table A11.1 Characteristics of papers on multiple aspects of LD - Clinical characteristics or course of manifestations associated with LD (n=28)

Author, year	Continent & country	Population	Treatment status of population	Clinical aspects of LD	Design	Measures
Aiyer (2014)	North America USA	Children (< 18. y.old)	Post-treatment	Treatment Diagnosis	Single group	Physical Symptoms Biomarkers
Arnez (2002)	Europe Slovenia	Children (< 18. y.old)	Pre-treatment	Symptoms Diagnosis	Single group	Physical Symptoms Biomarkers
Arnez (2012)	Europe Slovenia	Children (< 18. y.old)	Post-treatment	Treatment Symptoms	Single group	Physical symptoms
Correll (2015)	Europe Denmark	Children (< 18. y.old)	Post-treatment	Treatment Symptoms	Single group	Physical symptoms

Costello (2009)	North America USA	Children (< 18. y.old)	Post-treatment	Treatment Symptoms	Controlled/Comparative design: case-controlled study	Physical symptoms
Daikh (2010)	North America USA	Children (< 18. y.old)	Post-treatment	Treatment Symptoms Diagnosis	Controlled/Comparative design: other comparative	Physical Symptoms Biomarkers
Daikh (2013)	North America USA	Children (< 18. y.old)	Post-treatment	Treatment Symptoms	Controlled/Comparative design: other comparative	Physical Symptoms Biomarkers
Drack (2013)	Europe Switzerland	Children (< 18. y.old)	Post-treatment	Treatment Symptoms	Single group	Physical symptoms
Eikeland (2013)	Europe Norway	Non-specific/General population	Post-treatment	Treatment Symptoms	Controlled/Comparative design: controlled trial	Physical symptoms
Glatz (2015)	Europe Austria	Children (< 18. y.old)	Post-treatment	Treatment Symptoms	Retrospective chart review Single group	Physical Symptoms Biomarkers
Glaude (2015)	North America Canada	Children (< 18. y.old)	Post-treatment	Treatment Symptoms	Retrospective chart review	Physical symptoms
Glitzbecker (2011)	North America USA	Children (< 18. y.old)	Post-treatment	Treatment Symptoms	Retrospective chart review	Physical Symptoms Biomarkers
Groh (2011)	North America USA	Children (< 18. y.old)	Post-treatment	Treatment Symptoms	Controlled/Comparative design: case-controlled study	Physical Symptoms Biomarkers
Gziut (2012)	Europe Poland	Non-specific/General population	Pre-treatment Post-treatment	Treatment Symptoms	Single group	Physical symptoms
Haugeberg (2014)	Europe Norway	Non-specific/General population	Post-treatment	Treatment Symptoms	Single group	Biomarkers

Maraspin (2011)	Europe Slovenia	Non-specific/General population	During treatment	Treatment Symptoms	Controlled/Comparative design: other comparative	Physical symptoms
Maraspin (2015)	Europe Slovenia	Non-specific/General population	Pre-treatment Post-treatment	Treatment Symptoms	Controlled/Comparative design: controlled trial	Physical Symptoms Biomarkers
Montejano (2014)	North America USA	Non-specific/General population	Post-treatment	Incidence/Prevalence Treatment	Single group	Physical symptoms
Olczak (2010)	Europe Poland	Non-specific/General population	Post-treatment	Treatment Symptoms	Single group	Physical Symptoms Biomarkers
Saulsbury (2005)	North America USA	Children (< 18. y.old)	Post-treatment	Treatment Symptoms Diagnosis	Single group	Physical Symptoms Biomarkers
Stupica (2015)	Europe Slovenia	Non-specific/General population	During treatment	Treatment Symptoms	Single group	Physical Symptoms Biomarkers
Supanc (2012)	Europe Croatia	Non-specific/General population	Post-treatment	Symptoms Diagnosis	Retrospective chart review	Physical Symptoms Biomarkers
Tokarska-Rodak (2010)	Europe Poland	Non-specific/General population	Post-treatment	Treatment Symptoms	Single group	Physical Symptoms Biomarkers
Tuerlinckx (2003)	Europe Belgium	Children (< 18. y.old)	During treatment	Treatment Symptoms Diagnosis	Controlled/Comparative design: controlled trial	Physical Symptoms Biomarkers
Vazquez (2003)	North America USA	Children (< 18. y.old)	Post-treatment	Treatment Symptoms	Controlled/Comparative design: case-controlled study	Physical symptoms

Vazquez-Lopez (2015)	Europe Spain	Non-specific/General population	Post-treatment	Treatment Symptoms	Single group	Physical Symptoms Biomarkers
Willis (2003)	North America USA	Children (< 18. y.old)	Post-treatment	Treatment Symptoms Diagnosis	Single group	Physical Symptoms Biomarkers
Witak-Jędra (2013)	Europe Poland	Non-specific/General population	Post-treatment	Treatment Symptoms	Single group	Physical Symptoms Biomarkers

LD = Lyme disease

Table A11.2 Characteristics of papers on multiple aspects of LD - Clinical characteristics of LD within a specific population (n=21)

Author, year	Continent & country	Population	Treatment status of population	Clinical aspects of LD	Design	Measures
Arnez (2015)	Europe Slovenia	Children (< 18. y.old)	Post-treatment	Treatment Symptoms	Single group	Physical Symptoms Biomarkers
Bennet (2003)	Europe Sweden	Non-specific/General population	Post-treatment	Treatment Symptoms	Single group	Physical Symptoms Biomarkers
Biletska (2008)	Europe Ukraine	Non-specific/General population	N/A (general population)	Incidence/Prevalence Symptoms	Controlled/Comparative design: other comparative	Physical Symptoms Biomarkers
Blanc (2014)	Europe France	Non-specific/General population	Post-treatment	Treatment Symptoms	Single group	Physical Symptoms Biomarkers
Bremell (2011)	Europe Sweden	Non-specific/General population	Post-treatment	Treatment Symptoms	Single group	Physical Symptoms Biomarkers

Brescia (2002)	North America USA	Children (< 18. y.old)	Post-treatment	Treatment Symptoms	Single group	Physical Symptoms Biomarkers
Csep (2011)	Europe Romania	Non-specific/General population	Post-treatment	Incidence/Prevalence Treatment Symptoms	Single group	Physical Symptoms Biomarkers
Dillon (2010)	Europe UK	Non-specific/General population	N/A (general population)	Treatment Symptoms Diagnosis	Single group	Physical Symptoms Biomarkers
Elamin (2010)	Europe Ireland	Non-specific/General population	During treatment	Treatment Symptoms	Single group	Physical Symptoms Biomarkers
Fryland (2011)	Europe Sweden	Non-specific/General population	During treatment	Incidence/Prevalence Symptoms	Interviews/Questionnaires Single group	Physical Symptoms Biomarkers
Gospodinova (2010)	Europe Romania	Older people (> 60 y.old)	N/A (general population)	Symptoms	Controlled/Comparative design: controlled trial	Physical Symptoms Biomarkers
Hassett (2010)	North America USA	Non-specific/General population	Post-treatment	Treatment Symptoms	Single group	Physical symptoms
Hofhuis (2013)	Europe Netherlands	Non-specific/General population	Post-treatment	Treatment Symptoms	Single group	Physical Symptoms Biomarkers
Krause (2006)	North America USA	Non-specific/General population	Post-treatment	Incidence/Prevalence Treatment Symptoms	Single group	Physical Symptoms Biomarkers
Lisa (2016)	Europe Slovakia	Non-specific/General population	Post-treatment	Treatment Symptoms	Single group	Biomarkers
Mihailescu (2014)	Europe Romania	Non-specific/General population	N/A (general population)	Treatment Symptoms Diagnosis	Single group	Physical Symptoms Biomarkers

Mikolasek (2010)	Europe Czech Republic	Children (< 18. y.old)	Pre-treatment Post-treatment	Incidence/Prevalence Treatment Symptoms	Single group	Physical symptoms
Ogrinc (2016)	Europe Slovenia	Non-specific/General population	Post-treatment	Treatment Symptoms	Single group	Biomarkers
Smith (2002)	North America USA	Non-specific/General population	Post-treatment	Treatment Symptoms	Observational cohort study	Physical Symptoms Biomarkers
Steere (2003)	North America USA	Non-specific/General population	Post-treatment	Treatment Symptoms Diagnosis	Single group	Physical Symptoms Biomarkers
Stupica (2011)	Europe Slovenia	Non-specific/General population	Post-treatment	Treatment Symptoms	Controlled/Comparative design: other comparative	Physical symptoms

LD = Lyme disease; N/A = Not applicable

Table A11.3 Characteristics of papers on multiple aspects of LD - Clinical and microbiological findings (n=6)

Author, year	Continent & country	Population	Treatment status of population	Aspects of LD	Design	Measures
Barrial (2009)	Europe France	Non-specific/General population	N/A (general population)	Incidence/Prevalence Treatment	Single group	Physical Symptoms Biomarkers
Brinkerhoff (2014)	North America USA	Non-specific/General population	N/A (general population)	Risk factors Incidence/Prevalence	Retrospective chart review	Biomarkers
Dou (2015)	Asia China	Non-specific/General population	N/A (general population)	Risk factors Incidence/Prevalence	Interviews/ Questionnaires	Biomarkers

Eliassen (2016)	Europe Norway	Non-specific/General population	N/A (general population)	Incidence/Prevalence Treatment	Retrospective chart review	Physical Symptoms Biomarkers
Hao (2013)	Asia China	Non-specific/General population	N/A (general population)	Incidence/Prevalence Symptoms	Interviews/ Questionnaires	Physical Symptoms Biomarkers Non-physiological measures
Santino (2002)	Europe Italy	Non-specific/General population	N/A (general population)	Incidence/Prevalence Symptoms	Controlled/Comparative design: controlled trial	Physical Symptoms Biomarkers

LD = Lyme disease; N/A = Not applicable

Table A11.4 Characteristics of papers on multiple aspects of LD - Susceptibility to LD (n=5)

Author, year	Continent & country	Population	Treatment status of population	Clinical aspects of LD	Design	Measures
Bennet (2007)	Europe Sweden	Non-specific/General population	N/A (general population)	Risk factors Incidence/Prevalence Symptoms	Single group	Biomarkers
Burke (2005)	North America USA	Non-specific/General population	N/A (general population)	Incidence/Prevalence Symptoms	Single group	Biomarkers
Cinco (2004)	Europe Italy	High-risk occupation	N/A (general population)	Risk factors Incidence/Prevalence	Single group	Biomarkers
Herrmann (2014)	North America USA	Non-specific/General population	N/A (general population)	Risk factors Incidence/Prevalence	Database/Surveillance data analysis	Non-physiological measures

Hubalek (2005)	Europe Czech Republic	Non- specific/General population	N/A (general population)	Risk factors Incidence/Prevalence	Database/Surveillance data analysis	Non-physiological measures
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LD = Lyme disease; N/A = Not applicable

Table A11.5 Characteristics of papers on multiple aspects of LD - Clinician practices, or adherence to recommendations (n=3)

Author, year	Continent & country	Population	Treatment status of population	Focus	Clinical aspects of LD	Design	Measures
Cottle (2012)	Europe UK	Non- specific/General population	Post- treatment	Clinician practices, or adherence to recommendations	Treatment Symptoms Diagnosis	Retrospective chart review Single group	Physical symptoms Non- physiological measures
Hall-Walker (2006)	North America USA	Clinicians	N/A (general population)	Clinician practices, or adherence to recommendations	Treatment Prevention Diagnosis	Single group	Non- physiological measures
Twizeyimana (2014)	Europe France	Non- specific/General population	Post- treatment	Clinician practices, or adherence to recommendations	Treatment Diagnosis	Single group	Biomarkers

LD = Lyme disease; N/A = Not applicable

Table A11.6 Characteristics of papers on multiple aspects of LD - Clinical characteristics of ongoing symptoms (n=2)

Author, year	Continent & country	Population	Treatment status of population	Clinical aspects of LD	Design	Measures

Aucott (2012)	North America USA	Non-specific/General population	Post-treatment	Treatment Symptoms	Retrospective chart review	Physical symptoms
Aucott (2013)	North America USA	Non-specific/General population	Post-treatment	Treatment Symptoms	Controlled/Comparative design: controlled trial	Physical symptoms

LD = Lyme disease

Table A11.7 Characteristics of papers on multiple aspects of LD - Multiple clearly defined research aims (n=16)

Author, year	Continent & country	Population	Treatment status of population	Focus	Clinical aspects of LD	Design	Measures
Bartosik (2011)	Europe Poland	Non-specific/General population	N/A (general population)	Multiple clearly defined research aims	Risk factors Incidence/Prevalence	Database/Surveillance data analysis	Non-physiological measures
Bennet (2006)	Europe Sweden	Non-specific/General population	N/A (general population)	Multiple clearly defined research aims	Risk factors Incidence/Prevalence	Retrospective chart review	Non-physiological measures
Czupryna (2016)	Europe Poland	Non-specific/General population	Post-treatment	Multiple clearly defined research aims	Incidence/Prevalence Treatment Symptoms	Retrospective chart review	Physical symptoms
Dehnert (2012)	Europe Germany	Children (< 18. y.old)	N/A (general population)	Multiple clearly defined research aims	Risk factors Incidence/Prevalence	Single group	Biomarkers
Gazi (2016)	Asia Turkey	Non-specific/General population	N/A (general population)	Multiple clearly defined research aims	Risk factors Incidence/Prevalence	Single group	Biomarkers
Jenke (2011)	Europe Germany	Children (< 18. y.old)	Post-treatment	Multiple clearly defined research aims	Incidence/Prevalence Treatment Symptoms	Single group	Physical symptoms

Johnson (2004)	North America USA	Non-specific/General population	N/A (general population)	Multiple clearly defined research aims	Risk factors Incidence/Prevalence	Database/Surveillance data analysis	Biomarkers
Kudish (2007)	North America USA	Non-specific/General population	Post-treatment	Multiple clearly defined research aims	Incidence/Prevalence Treatment	Database/Surveillance data analysis	Biomarkers Non-physiological measures
Kugeler (2015)	North America USA	Non-specific/General population	N/A (general population)	Multiple clearly defined research aims	Risk factors Incidence/Prevalence	Database/Surveillance data analysis	Non-physiological measures
Letrilliart (2005)	Europe France	Non-specific/General population	N/A (general population)	Multiple clearly defined research aims	Risk factors Symptoms	Single group	Physical Symptoms Biomarkers
Ljostad (2010)	Europe Norway	Non-specific/General population	Post-treatment	Multiple clearly defined research aims	Treatment Symptoms	Single group	Physical Symptoms Biomarkers
Mayne (2015)	Oceania Australia	Non-specific/General population	Post-treatment	Multiple clearly defined research aims	Incidence/Prevalence Symptoms Diagnosis	Single group	Physical Symptoms Biomarkers
McGinnis (2003)	North America USA	High-risk occupation	N/A (general population)	Multiple clearly defined research aims	Risk factors Incidence/Prevalence Symptoms	Database/Surveillance data analysis	Physical Symptoms Biomarkers
Nahimana (2004)	Europe Switzerland	Non-specific/General population	Post-treatment	Multiple clearly defined research aims	Incidence/Prevalence Treatment Symptoms	Controlled/Comparative design: other comparative	Physical Symptoms Biomarkers
Reimer (2002)	Europe Germany	High-risk occupation	N/A (general population)	Multiple clearly defined research aims	Risk factors Incidence/Prevalence Prevention	Interviews/Questionnaires	Biomarkers
Vanthomme (2012)	Europe Belgium	Non-specific/General population	N/A (general population)	Multiple clearly defined research aims	Incidence/Prevalence Treatment Symptoms	Retrospective chart review	Physical Symptoms Biomarkers

LD = Lyme disease; N/A = Not applicable

Appendix 12 - Characteristics of systematic reviews on LD (n=19)

Table A12.1 Characteristics of systematic reviews on LD (n=9)

Author, year	Continent & country	Focus	Population	Quality appraisal	Type of synthesis
Badawi et al. (2017)	No geographical country limit	Prevention	Non-specific population	None	Numerical narrative synthesis
Bakker et al. (2012)	No geographical country limit	Diagnosis	Non-specific population	Risk of bias	Numerical narrative synthesis
Borgermans et al. (2014)	No geographical country limit	Chronic LD	Non-specific population	None	No synthesis
Cadavid et al. (2008)	No geographical country limit	Treatment	Non-specific population	Risk of bias	Numerical narrative synthesis
Cadavid et al. (2016)	No geographical country limit	Treatment	Non-specific population	Risk of bias	Numerical narrative synthesis
Carris & Shaeer (2015)	No geographical country limit	Treatment	Non-specific population	Risk of bias	No synthesis
Cook & Puri (2016)	No geographical country limit	Diagnosis	Non-specific population	None	Meta-analysis
Dersch (2015a)	No geographical country limit	Treatment	Non-specific population	Risk of bias	Meta-analysis
Dersch (2015b)	No geographical country limit	Treatment	Children (< 18. y. old)	Risk of bias	Meta-analysis
Dersch (2016)	No geographical country limit	Symptoms	Non-specific population	None	Meta-analysis
Halperin (2007)	No geographical country limit	Treatment	Non-specific population	None	Numerical narrative synthesis

Leeflang et al. (2016)	No geographical country limit	Diagnosis	Non-specific population	Risk of bias	Meta-analysis
Mowbray and Rubin (2012)	No geographical country limit	Prevention	Non-specific population	None	No synthesis
Ozdegerol (2015)	North America USA	Risk factors	Non-specific population	None	No synthesis
Peeters (2013)	No geographical country limit	Symptoms and manifestations of Lyme disease	Non-specific population	Yes (Other)	Numerical narrative synthesis
Stanek & Strle (2009)	Europe Multi-country	Diagnosis	Non-specific population	None	No synthesis
Sykes and Makiello (2016)	Europe Multi-country	Incidence	Non-specific population	None	Numerical narrative synthesis
Warshafsky et al. (2010)	No geographical country limit	Prevention	Non-specific population	None	Meta-analysis
Zhao et al. (2017)	No geographical country limit	Prevention	Non-specific population	None	Meta-analysis

LD = Lyme disease