

## Guidelines for the management of Lyme Disease

Indication for use: Children aged 12months -18 years  
where there is clinical concern of Lyme Disease

Based on NICE guidelines (updated 2018)

<http://www.nice.org.uk/guidance/NG95> and

*Marina Cuickshank et al* The BMJ(2018) 361:34-40

Author	Dr Fiona MacCarthy
Ratified by	
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# Lyme disease: Antibiotic choices

This graphic summarises guidance on choice of antibiotic for the treatment of Lyme disease, produced by the UK's National Institute for Health and Care Excellence (NICE). They recommend offering one initial course of antibiotics, and considering a second course of an alternative antibiotic for people with ongoing symptoms. If a person's symptoms continue following two completed courses of antibiotics, their advice is to consider discussion with a national reference laboratory or referral to a specialist appropriate for the person's symptoms



### KEY



Erythema migrans and/or non-focal symptoms	Lyme disease affecting the cranial nerves or peripheral nervous system	Lyme disease affecting the central nervous system	Lyme carditis	Lyme disease arthritis or acrodermatitis chronica atrophicans
<p><b>1<sup>st</sup> Doxycycline</b> 21 days Oral</p> <p><b>2<sup>nd</sup> Amoxicillin</b> 21 days Oral</p> <p><b>3<sup>rd</sup> Azithromycin</b> 17 days Oral</p>	<p><b>1<sup>st</sup> Doxycycline</b> 21 days Oral</p> <p><b>2<sup>nd</sup> Amoxicillin</b> 21 days Oral</p>	<p><b>1<sup>st</sup> Ceftriaxone</b> Enhanced dose 21 days IV</p> <p><b>2<sup>nd</sup> Doxycycline</b> Enhanced dose 21 days Oral</p>	<p><b>1<sup>st</sup> Doxycycline</b> 21 days Oral</p> <p><b>2<sup>nd</sup> Ceftriaxone</b> 21 days IV <i>First choice for haemodynamically unstable patients</i></p>	<p><b>1<sup>st</sup> Doxycycline</b> 28 days Oral</p> <p><b>2<sup>nd</sup> Amoxicillin</b> 28 days Oral</p> <p><b>3<sup>rd</sup> Ceftriaxone</b> 28 days IV</p>

## Dosing recommendations

Doxycycline		Azithromycin		
Age 12+ Children 45kg +	100mg 2x per day or 200mg daily	Enhanced dose 200mg 2x per day or 400mg daily	Age 12+ Children 50kg +	500mg daily
Children 9-12 years under 45kg	Day 1: 5mg per kg 2 divided doses Subsequent days: 2.5mg per kg or up to 5mg/kg in severe cases		Children under 50kg	10mg per kg daily

**⚠** Doxycycline and azithromycin have no marketing authorisation in the UK for children under 12. However, use in children aged 9 years and above is accepted specialist practice. Informed consent should be obtained, and full responsibility taken by the prescriber

**⚠** Do not use azithromycin to treat people with cardiac abnormalities because of its effect on QT interval

Ceftriaxone		Amoxicillin		
Age 12+ Children 50kg +	2g daily	Enhanced dose 2g 2x per day or 4g daily	Age 12+ Children 33kg +	1g 3x per day
Children under 50kg	80mg per kg daily		Children under 33kg	30mg per kg 3x per day

Discuss management of Lyme disease in children and young people with a specialist, unless they have isolated erythema migrans with no other symptoms

For Lyme disease suspected during pregnancy, use appropriate antibiotics for stage of pregnancy

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Lyme Disease Background:

- Caused by the bacteria *Borrelia Burgdorferi* transmitted by the bite of an infected tick
- Mainly found in grassy or parkland/ wooded areas
- Tick bites may not always be noticed
- Particularly high risk in South England and Scottish Highlands
- High prevalence in Scandinavia and Canada
- Most tick bites do not transmit the disease

Diagnosis:

- Diagnose in people who have erythema migrans



-Red rash that is increasing in size and may have a central clearing  
 -It is not usually itchy, hot or painful  
 -Usually visible from 1-4 weeks (but can appear 3 days-3 months) after bite and lasts for several weeks

- Be aware that a rash that is not erythema migrans can develop as a reaction to a tick bite
- Is more likely than erythema migrans to be hot, itchy or painful
- May be caused by an inflammatory reaction or infection with a common skin pathogen

When to consider?

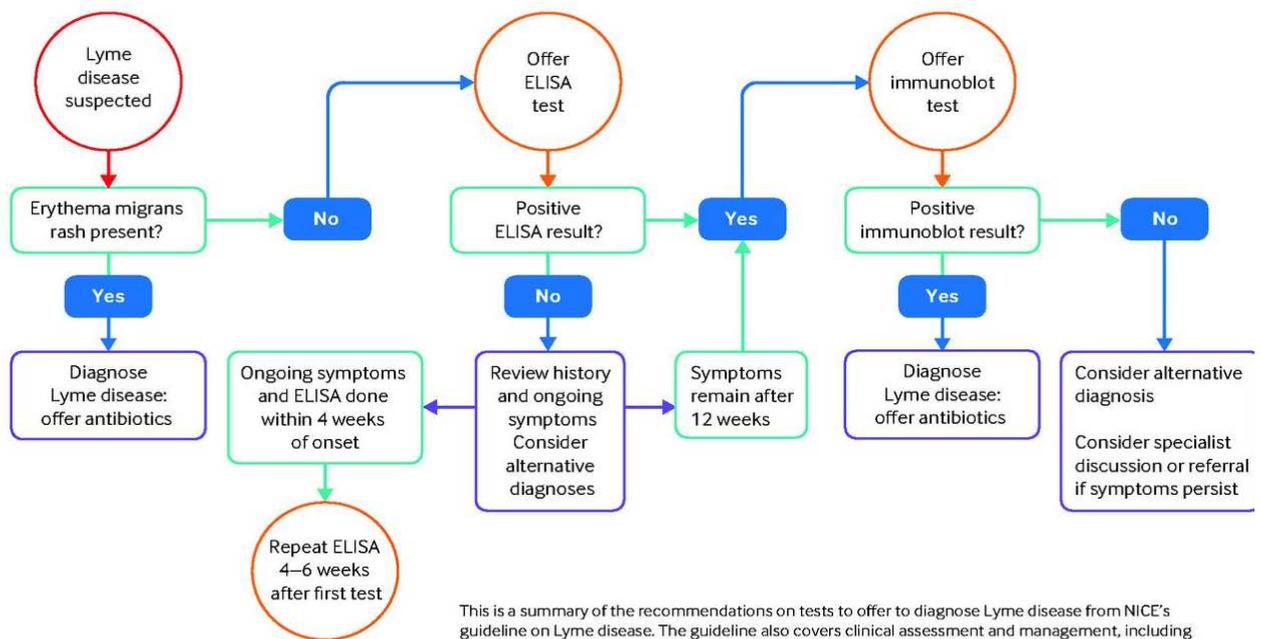
- May be an uncommon cause for : fever, swollen glands, neck pain, joint stiffness, muscle aches paraesthesia-exclude other diagnosis first as indicated!
- Consider if symptoms relating to more organ systems as Lyme disease may cause: neurological symptoms, inflammatory arthritis, cardiac problems such as heart block and pericarditis, eye symptoms such as uveitis and keratitis and rashes such as acrodermatitis chronica atrophicans

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- Use a combination of clinical presentation and laboratory testing to guide diagnosis. Do not rule out diagnosis if tests are negative but there is high clinical suspicion.

## Testing

Use clinical presentation and laboratory testing to guide diagnosis  
If there is a high clinical suspicion of Lyme disease, consider starting treatment while waiting for test results and do not rule out Lyme disease even if results are negative



This is a summary of the recommendations on tests to offer to diagnose Lyme disease from NICE's guideline on Lyme disease. The guideline also covers clinical assessment and management, including antibiotics treatment. See the original guidance at [www.nice.org.uk/guidance/NGXX](http://www.nice.org.uk/guidance/NGXX)  
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ELISA = enzyme-linked immunosorbent assay

## Management:

- Special tick removal lancets (from the vet) can be found in Paeds A&E (next to instillagel in cupboard). Otherwise with tweezers grasp as close to the body as possible
- Once removed clean the skin with antiseptic and ask parent to keep an eye on this area over the next few weeks.
- Consider discussion with Microbiology Specialist
- After discussion with Microbiologist if concern that there are ongoing symptoms after the first course of antibiotics a second course can be considered

## Explain:

- Tell parents that the tests for Lyme disease have limitations. Both false negatives and positives can occur

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- The accuracy of the test is reduced if: done too early, a person has reduced immunity
- Explain that ongoing symptoms despite antibiotics does not mean: that they have ongoing disease, symptoms of Lyme disease may take months or years to resolve, some symptoms may be the result of permanent damage from infection

References:

1)NICE guidelines (updated 2018)

<http://www.nice.org.uk/guidance/NG95> and

2)*Marina Cuickshank et al* The BMJ(2018) 361:34-40

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