

Pharmacist Initiation of Post-Exposure Doxycycline for Lyme Prophylaxis

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THE UNIVERSITY OF RHODE ISLAND COLLEGE OF PHARMACY

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Background

- Untreated Lyme disease may progress to a serious illness including cardiac and neurologic complications. With appropriate and prompt antibiotic treatment, most patients recover without complications.
- Post-exposure antibiotics for *I. scapularis* bites have been evaluated in the literature and found to reduce the rates of infection and subsequent development of Lyme disease. In a randomized, controlled trial of 482 subjects, the development of erythema migrans following a tick bite was reduced with antibiotic prophylaxis by 87% (NEJM; 345(2): 79-84.)
- Providing antibiotics for Lyme disease prevention in a community pharmacy setting may improve patient access to prompt treatment (within 72 hours of tick removal) and increase prophylaxis treatment.

Objectives

To enhance the public's access to prophylaxis for Lyme disease following an identified *Ixodes scapularis* bite through pharmacist-initiated antibiotic therapy, with the pharmacy-based service provided and to assess patient satisfaction.

Inclusion Criteria

Under a collaborative practice agreement with an infectious disease specialist physician, trained pharmacists at Ocean Pharmacy and three Rite Aid pharmacy locations (Westerly, Narragansett, and Richmond, RI locations) may identify patients eligible for post-exposure prophylaxis following attachment and removal of an *I. scapularis* tick and dispense a single 200mg dose of doxycycline to initiate therapy.

The data collection and study methodology was approved by the University of Rhode Island Institutional Review Board.

Inclusion criteria include:

- Adults over 18 years of age,
- Ability to provide informed consent,
- Estimated time of tick attachment \geq 36 hours,
- Tick removal within 72 hours of visit to pharmacy,
- Positive patient identification of tick as *I. scapularis*,
- Absence of contraindications to doxycycline therapy, and
- Reliable telephone access for follow-up assessments.

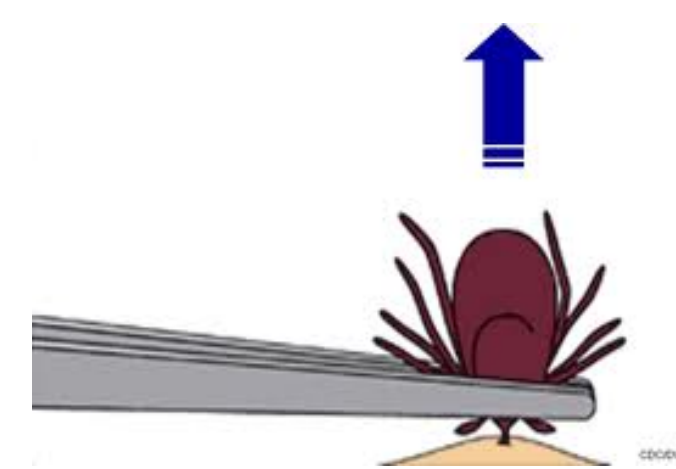


Photo accessed from CDC website: <http://www.cdc.gov/lyme/transmission/index.html>

Patient Education

Counseling provided to patient at the time of doxycycline dispensing includes:

- Proper dosing and administration of doxycycline,
- Potential medication adverse events and management of side effects,
- Signs and symptoms of Lyme disease and when to seek medical attention, and
- Methods to reduce risk of subsequent tick exposure.

Pharmacists document each patient's participation and contact the medical provider listed on the collaborative agreement within 7 days of enrollment.

Patient Follow-Up

Patients are contacted by phone 30 days after visit for a follow-up assessment using a standardized questionnaire:

Patient Name/ID number:			
Date of initial visit:		Date of follow-up call:	
Was doxycycline dispensed to patient?	Yes	No	If yes, indicate date taken by patient:
	<input type="checkbox"/>	<input type="checkbox"/>	
Did patient experience side effects from doxycycline?	Yes	No	If yes, describe:
	<input type="checkbox"/>	<input type="checkbox"/>	
Did patient develop any signs or symptoms of Lyme disease at any time within the past 30 days?	Yes	No	If yes, describe:
	<input type="checkbox"/>	<input type="checkbox"/>	
Did patient see a medical provider or have a blood test for suspected Lyme disease in the past 30 days?	Yes	No	If yes, describe:
	<input type="checkbox"/>	<input type="checkbox"/>	
Please rate your satisfaction with the pharmacist and overall experience by rating the following on a scale of 0 to 10, with 0 being very unsatisfied and 10 being extremely satisfied:			
1. The pharmacist was helpful, friendly and listened to my concerns.			
2. The pharmacist asked questions to identify if I was at risk for developing Lyme disease.			
3. The pharmacist clearly explained how to take my medication. (if applicable)			
4. The pharmacist thoroughly discussed possible medication side effects with me and told me when to seek emergency care. (if applicable)			
5. The pharmacist provided clear information on the symptoms of possible Lyme disease and when to seek medical attention.			
6. The pharmacist provided clear information on how to prevent future exposure to ticks and reduce the risk of contracting Lyme disease			
7. The pharmacist was available when I needed to be seen.			
8. The pharmacist was knowledgeable and answered my questions.			
9. I received good care and appropriate treatment from the pharmacist.			
Please write additional patient comments in the space below (may use reverse side of form):			

Results

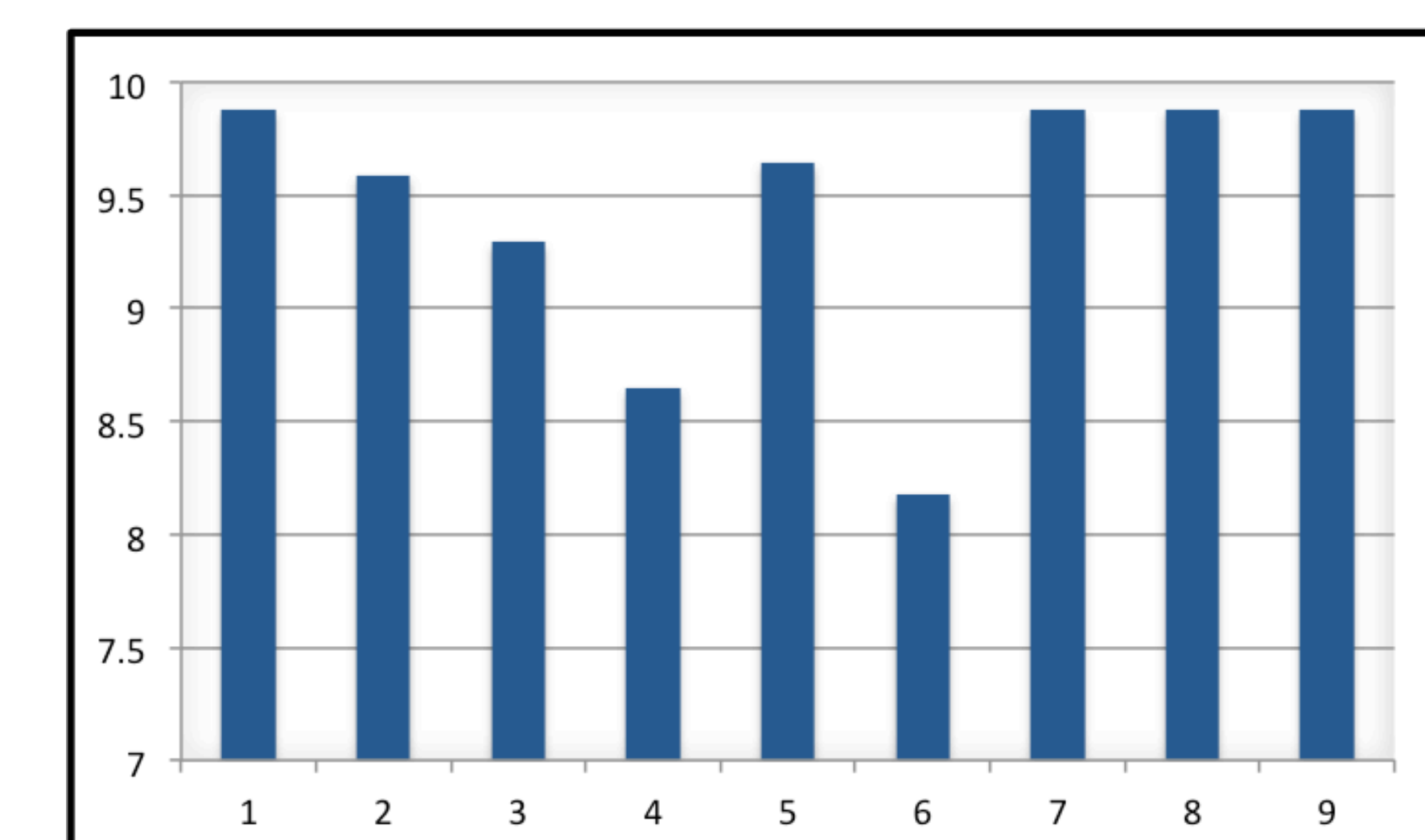
Eighteen patients enrolled under the study protocol (n=18)

- Eight at Ocean Pharmacy, ten at Rite Aid pharmacy locations (8 Richmond, 1 Narragansett, 1 Westerly)
- Seventeen patients (94%) met the criteria for doxycycline prophylaxis and were dispensed therapy
- Two patients (25%) reported side effects from doxycycline, including:
 - Fatigue, dizziness, flushing, nausea
- Two patients (25%) reported seeking medical attention within 30 days of study enrollment
 - One patient tested for Lyme, results negative, no antibiotics given
 - One patient received a full course of amoxicillin therapy (10 days) for inner ear pain/fullness

Seventeen patients (94%) were contacted 30 - 60 days following the initial visit and agreed to complete the patient satisfaction survey

- Responses averaged for each of the 9 satisfaction survey questions
- Average response range 8.5 to 9.75

Patient Satisfaction Survey (n=17)



Discussion

Preliminary results indicate positive patient satisfaction with pharmacist initiated post-exposure doxycycline for Lyme disease prophylaxis

- Suspected reasons for low enrollment:
 - Patients were unaware of the availability of a new pharmacy service
 - Small advertising budget limited ability to promote service
 - Many patients never find tick (small nymph size)
 - Limited to 1-3 locations in Southern Rhode Island

Potential significance of research:

- Expansion of pharmacy services in RI and beyond provides routine availability, similar to immunization services
- Timely access to effective therapy for patients
 - Pharmacy-based services without an appointment when primary care offices may be closed such as nights, weekends, and holidays
- Reduction in EM rash with doxycycline 200mg prophylaxis 87% in study of 482 participants
- Meta-analysis suggests 11 to 49 patients need to be treated to prevent one case of Lyme disease. (NNT decreases with engorgement)