



**COMMUNITY PHARMACY FOUNDATION**  
COMPLETED GRANT SYNOPSIS

**Pharmacist Initiation of Postexposure Doxycycline for Lyme Disease Prophylaxis**

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<b>Objectives</b>	
<p>Pharmacist initiation of doxycycline for Lyme disease prophylaxis has not been described in the literature previously. Successful pharmacist initiation of antibiotic prophylaxis may have broad implications for states with endemic rates (&gt;20%) of susceptible ticks infected with <i>Borrelia burgdorferi</i>, the spirochete responsible for causing Lyme disease. Timely access to and administration of single-dose doxycycline (within 72 hours) following an identified <i>Ixodes scapularis</i> tick (commonly referred to as a deer tick) bite has been demonstrated in the literature to reduce the risk of developing Lyme disease. Lyme disease may result in serious and potentially long-term musculoskeletal, cardiac and neurologic sequelae.</p> <p>Objectives:</p> <ol style="list-style-type: none"> <li>1) To enhance public access to prophylaxis for Lyme disease following an identified deer tick bite through pharmacist-initiated antibiotic therapy (doxycycline).</li> <li>2) To assess patient satisfaction with pharmacy-based services for Lyme prophylaxis following tick bite, including assessment of risk, initiation of antibiotics if indicated and provision of patient education.</li> </ol>	
<b>Methods</b>	
Design	<ul style="list-style-type: none"> <li>• Under a collaborative practice agreement, trained pharmacists at an independent pharmacy and three Rite Aid pharmacies in Southern Rhode Island identified patients eligible for postexposure antibiotic prophylaxis following attachment and removal of a deer tick.</li> <li>• Eligible patients were dispensed two 100 mg tablets of doxycycline, to be taken as a single 200mg dose.</li> <li>• Patients were included in the study if they were 18 years or older, provided informed consent, had an estimated time of tick attachment of 36 hours or more, had the tick removed within 72 hours of visit, denied contraindications to doxycycline therapy, and reported telephone access for follow-up.</li> <li>• Patients enrolled in the study protocol were given counseling and information related to doxycycline, signs and symptoms of Lyme disease, and future tick prevention strategies.</li> </ul>
Study endpoints	<ul style="list-style-type: none"> <li>• Patient self-reported adverse outcomes (medication side effects and/or symptoms of Lyme disease)</li> <li>• Patient reported satisfaction with pharmacy-based services for Lyme prophylaxis.</li> </ul>

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### Results

- Eighteen patients enrolled under the study protocol (n=18)
- 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 was seen for ear pain and fullness not believed to be related to the study protocol, and one patient was seen and tested for Lyme disease. Test results for Lyme were negative and no antibiotics given.
- Seventeen patients (94%) were contacted 30 - 60 days following the initial visit and agreed to complete the patient satisfaction survey. Survey responses were averaged for each of the 9 satisfaction survey questions with average response range from 8.5 to 9.75 on a 0 (extremely dissatisfied) to 10 (extremely satisfied) Likert scale.

### Conclusion

Study results indicate positive patient satisfaction with pharmacist initiated post-exposure doxycycline for Lyme disease prophylaxis and the accompanying patient education provided. The potential significance of this research is to encourage the future expansion of pharmacy-based Lyme prophylaxis services through collaborative practice with providers in endemic areas throughout the United States. Lyme disease is the number one vector-borne illness in the US and endemic areas include 13 states in the Northeast, Mid-Atlantic and Northern Midwest. Expansion of pharmacy-based doxycycline prophylaxis initiation under protocol, similar to pharmacy-based immunization services, would enhance public access to effective therapy following a tick bite. This expanded access to therapy could be particularly important for tourists vacationing in an endemic area (who may return to a home state or country and develop symptoms of Lyme disease that could go unrecognized by providers unfamiliar with the disease) or for individuals needing prophylaxis during off-peak hours such as nights, weekends, and holidays when primary care offices are closed.