Incidence and Reporting of Lyme Disease in the Endemic Area of Martha’s Vineyard, Massachusetts

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Methodology:
Prescribed doxycycline was used as a surrogate for Lyme disease and tick bites. Pharmaceutical market data was obtained from Source Healthcare Analytics (SHA) and included dispensed doxycycline prescriptions on-island by month, by days of therapy, by patient age for all islanders with a six-month grouping for all-off island residents for the years 2010 through the present. To use prescription and physician visit databases to validate approach and its limits, a one-time representative report of all island doxycycline prescriptions grouped by ICD 9 code to validate the percentage of doxycycline written for Lyme disease to determine the extent of overstated in use of doxycycline was used. Validation of total doxycycline yearly on-island retail inventory turnover for years 2008 through 2011 was collected and compared with corresponding gross values from prescription database. To further validate doxycycline as an acceptable surrogate for on-island Lyme disease, a survey was given to all island physicians and asked them to report the percentage of doxycycline they prescribed exclusively for Lyme disease as well as other tick-borne illnesses.

Data:

<table>
<thead>
<tr>
<th>Methodology</th>
<th>2009</th>
<th>2010</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDC &quot;Confirmed&quot; Cases</td>
<td>47</td>
<td>28</td>
<td>25</td>
</tr>
<tr>
<td>Doxycycline* Prescriptions</td>
<td>903</td>
<td>880</td>
<td>803</td>
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<td>Doxycycline* Pills</td>
<td>27783</td>
<td>26871</td>
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<td>Doxycycline Per Prescription</td>
<td>30.8</td>
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Pharmacy-Reported vs. SHA-Reported Doxycycline Prescriptions

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Medications Prescribed for Treatment of Lyme Disease (088.81)

- Doxycycline
- Amoxicillin
- Cefoxitin Aetel
- Ceftriaxone
- Cefoxitin
- Penicillin
- Other

Discussion:
Advantages and limitations of this approach to incidence reporting include:
- Larger treatment captures numbers enable better intervention monitoring
- Ability to follow patients longitudinally
- Ability to build local standards of care
- Ability to link longitudinal diagnosis, treatment, and cost data
- Time sensitivity can vary in times of endemic / epidemic crisis

Works Cited:


