

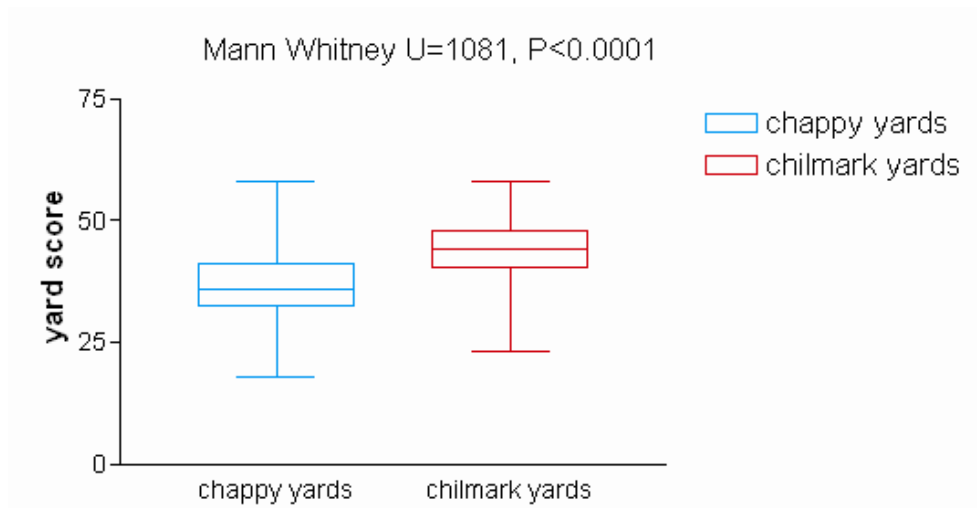
- b. Printed educational materials in Portuguese now appear alongside English-speaking materials in all VTA buses.
 - c. An overview TBI awareness pamphlet has been prepared in Portuguese, is in production and scheduled to be made available through a variety of recommended channels.
 - d. The Boards' of Health website (MVBOH.org) now contains a variety of materials in Portuguese. These include three videos using Portuguese subtitles, as well as a wide range of complementary printed materials. These materials are now aggregated on a separate webpage dedicated to our Island's Portuguese-speaking population.
 - e. Melinda provided an exceptionally well-received bilingual presentation to ~80 Portuguese-speaking members of the Island's Adult Language Program (ALP). This program is to be expanded further in 2014.
3. The MVBOH.org website was substantially improved this year and now runs independently with customized HTML code. Search strings and meta tag information has been substantially improved. Readers are invited to review the improvements at MVBOH.org. Web traffic to the site was up approximately 3 fold in 2013 compared to 2012. Site visitors continue to spend about 3 minutes on the site.
4. A number of new videos were produced and added to the Island's Boards of Health website (MVBOH.org). This includes a comprehensive video to aid parents in better protecting their children from tick-borne illnesses. This video was produced in both English and Portuguese, and provided to each of the Island's grade school students in DVD form. The video was also made available on MVBOH.org. Two other videos were added to the website. One demonstrated how best to protect oneself from tick-borne illnesses while hunting. The other showed the results of the Island's deer density measurements. All of these videos feature well-informed, well-known and well-respected Island spokespersons.
5. The Tick-Borne Illness initiative has developed a real time method of monthly monitoring the on-Island incidence of patients being treated for tick-borne disease. Still required and to be further addressed in 2014 is a method of monitoring separately the incidence of patient's developing late-stage, more severe disease. It is this disease incidence that is most worrisome and is the focus of this grant's efforts.
6. The development of an Island-wide standard-of-care for the diagnosis and treatment of tick-borne illnesses was discussed at two hospital Grand Rounds and one dinner meeting. The codification and syndication of these efforts is being carried forward into 2014.
7. Patient sera samples were provided to University of California San Francisco researchers to aid in their development of a diagnostic test specific to the Lyme pathogen, as opposed to its antibody.

Environmental Committee:

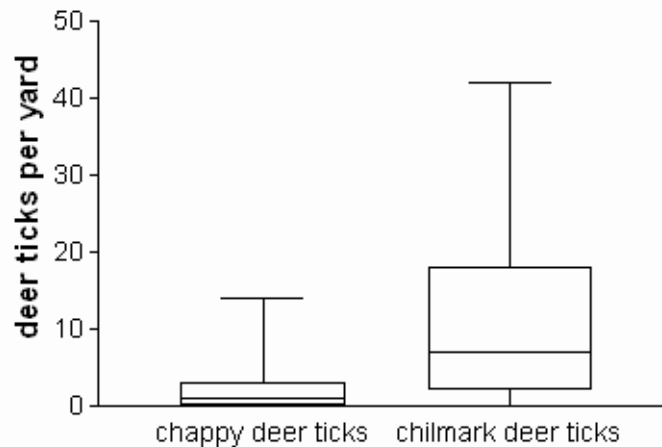
1. Personalized letters were sent to 33 Chappy homeowners as a result of 2011 and 2012 yard assessments. These letters were addressed to those yards scoring in the top 25 percentile for yard risk score, and comprised specific recommendations for actions that might reduce the environmental risk of tick bites. These recommendations were formulated as a result of reviewing photographs of each yard. Nine of the letters were sent in May 2012 and 24 were sent in May 2013. May was targeted for 2 reasons: arrival of the letter would coincide with the start of gardening and yard improvement activity for the year; and also, June is the riskiest month for deer tick-transmitted infections and hence arrival of the letter, which also contained generic risk reduction suggestions, would serve to educate the recipients in a timely manner.

Twelve of the thirty-three yards were specifically visited to determine the extent to which the recommendations were implemented. The remainder of the yards are to be visited during 2014. Analysis of compliance rates is ongoing.

2. Dick Johnson continued his work on trail management and directly contacted managers for those properties whose trails had been previously surveyed. Follow-up invitations were extended but have yet to be acted upon. This work is to be extended into 2014.
3. Efforts in 2013 largely focused on expanding the Chappy yard surveys into Chilmark. A total of 60 Chilmark yards have now been. Compared with the 68 Chappy yards surveyed, Chilmark yard scores and tick densities are significantly greater. (see accompanying data)



Mann Whitney U=903, P<0.0001



The data from both areas, when analyzed in aggregate, support the utility of the yard evaluation as an index of deer tick density but not for dog tick density. The failure to observe a significant correlation between dog tick density and that of deer ticks suggests the specificity of the survey parameters for measuring deer tick density covariates. It should be noted that the yard score cannot be used to predict whether a yard will contain ticks, which was determined in prior analyses with only the Chappy data. Many yards with high scores had few or no ticks. However, no yards with low scores had high numbers of ticks. It may be that (1) there is a threshold yard score that indicates that a yard is more likely to have greater numbers of ticks; and (2) that those yards with higher scores but few ticks have engaged in anti-tick activities such as using Damminix or spraying. Analysis (logistic regression) is ongoing to determine which of the assessed parameters contribute most as covariates of deer tick density. We intend to publish this analysis during 2014.

4. The results of the aerial deer survey undertaken in early 2013 and are available at MVBOH.org. The flight data were also the subject of a Vineyard Gazette article on [Martha's Vineyard Deer Density](#). The aerial survey results have identified Island sites that have both high deer as well as human populations and might benefit from targeted interventions. Sites where deer were determined to be most dense were separately analyzed to estimate tick density. Unfortunately, due to a drought during August and September 2013, sampling for adult deer ticks during October 2013 was not particularly useful given the overall low deer tick densities. A less weather biased estimator of deer tick density, mouse trapping and indices of tick infestation of mice, will be used during May and June 2014 in these sites.

Complementary ground truthing of the aerial infrared analysis by estimation of deer activity (scat or track counts; browse damage) also appear to be too labor intensive and expensive. We shall, pending replication of the aerial flyover to confirm the 2013 hotspots, undertake to measure activity by the deployment of trail cameras as well as by modified distance sampling using spotlighting from vehicles during Spring 2014.

3. 2014 Objectives

In 2013 the Island's Boards of Health will continue its education efforts. More printed and video materials will be added to the BoH website. The program will continue its educational focus on the Island's Brazilian population as well as the Island's grade school students. Island-wide diagnostic and therapeutic standard-of-care recommendations will be vetted and promulgated.

The 2014 program will also begin to prepare for the grant's conclusion in 2015. This planning is specified in the grant application, which requires that the grant's programs be structured to endure after the grant's funding has run its 5-year course. This will require the development of both a new operational structure as well as a new source of funding.

Specific 2014 Objectives include:

1. Establish and obtain Island-wide approval for a new operational structure and associated funding source to manage the Island's public health TBI program. This is being done in preparation for expiration of grant funding at the end of 2015. It is hoped that the transfer to the new operational system might begin in 2014.
2. Manage on-Island a human clinical trial program run by Dr. Fallon of Columbia University and sponsored by Boulder Diagnostics. This test seeks to use cytokine activation to differentiate active, treatable tick-borne illness in both its early and latent stages.
3. Develop a new tracking system to measure the incidence of severe, late-stage disease.
4. Increase the messaging to Island visitors on both the Island's steamships and the sites of visitor lodging.
5. Continue to improve the MVBOH.org website so that it can function as a sustainable public health asset after the grant funding has ceased.
6. Present a 4 ½ hour course over 3 days in March entitled How to Prevent, Recognize, Diagnose and Treat Tick-Borne Illnesses as part of the Island's Adult and Community Educations ACE) series.
7. Syndicate, produce and distribute printed materials to aid in-coming physicians in better meeting the needs of the TBI infected patient.
8. Syndicate, produce and distribute printed standard-of-care recommendations for the diagnosis and treatment of the TBI infected patient.
9. Assist the Island's 10th grade health class in developing printed and video materials for their use in educating grade school classes on tick-borne disease.
10. The following relate to the on-going Brazilian out-reach program:
 - a. Produce an overview TBI video in Portuguese featuring Brazilian community leaders and patients.
 - b. Work with the Island's Adult Language Program (ALP) to develop a 3-year TBI curriculum that increases yearly in both its required English language proficiency and in the sophistication of its medical information.
11. Host an on-Island medical conference on tick borne diseases to review the latest developments in preventing, diagnosing and managing tick-borne diseases.

12. Continue data analysis of yard evaluations with the goal of identifying yard indicator covariates of deer tick density; draft a manuscript of the findings and submit for peer reviewed publication as a research contribution of the MVTBDI.
13. Continue the experiment designed to measure compliance of homeowners with specific recommendations for reducing risk around their yards. This analysis is also intended for publication as a research contribution of the MVTBDI.
14. Provide complementary ground truth data for the deer hotspots identified by the aerial infrared analysis.
15. Initiate a formal analysis of vegetation damage due to deer in such hotspots, thereby linking the landscape ecology community with an aim to get their support for targeted deer reduction.
16. Collect additional aerial thermal imaging data documenting the number and location of the Island's deer population
17. Host an on-Island conference to address the thermal imaging data and to develop an appropriate response, including the feasibility and economics of a focused intervention.