LYME AND OTHER TICKBORNE DISEASES PREVENTION STUDIES (LTDPS): 4-Poster Deer Treatment Device Acceptability Survey

Supporting Statement B for a New Generic Information Collection Request

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B. Collections of Information Employing Statistical Methods

The purpose of this survey is to assess acceptability of 4-poster devices in high Lyme disease incidence (LDI) communities to inform whether future efforts to evaluate the impact of 4-poster devices on human tick encounters and tickborne disease in high LDI communities are warranted. It will also identify areas of high acceptance where conducting a future 4-poster device intervention to evaluate impacts on human tick encounters and tickborne disease may be feasible.

Collection of information from this survey is not designed or intended to develop incidence or prevalence estimates. This survey is not intended to yield results that are statistically projectable, nationally representative, or that produce precise estimates of population parameters. Information gathered under this gen-IC will not be used for the purpose of substantially informing influential policy decisions.

1. Respondent Universe and Sampling Methods

Using a cross-sectional design, we will conduct a population-based survey among residents of high LDI counties in CT and NY from March-April of 2020. We will conduct descriptive analyses of survey results to determine respondents' acceptance of 4-poster devices as a means of community tick control, and evaluate associations, if any, between respondent willingness to have a 4-poster device placed on their properties or in their communities and respondent and household characteristics, concern for and experience with tickborne diseases, and opinions on community tick control.

We will send survey invitations to a random sample of residences in select high LDI counties in Connecticut and New York (Attachment 1). One adult over the age of 18 years from each residence will be asked to respond to the survey. Random selection of addresses will be proportional to county population in CT. In NY, random selection of addresses will be stratified to allow for comparison between Suffolk County, where 4-poster devices have been deployed in several towns since 2008, and seven high LDI Hudson Valley counties with no previous exposure to 4-poster devices in the community (the pooled populations of Westchester, Rockland, Putnam, Orange, Dutchess, Ulster, and Sullivan counties). We aim to recruit at least 1500 individuals for this study (at least 500 respondents in CT and at least 500 respondents from each of two regions in NY).

- Target population: adult residents of all eight counties in CT (all counties meet LDI criteria), residents of seven high LDI counties in Hudson Valley, NY (Westchester, Rockland, Putnam, Orange, Dutchess, Ulster, Sullivan) and one high LDI county in Long Island, NY (Suffolk)
- Sampling frame: 1500 randomly selected households (500 in CT; 1000 in NY) in all 8 counties in CT and 8 counties in NY
- Sampling unit: households
- Observation unit: an individual over the age of 18 within a household

Eligible survey respondents include adults ≥ 18 years of age who speak or understand the English language. Adults who are not able to answer for themselves are not included and no other adult should answer on their behalf.

We will purchase a random sample of addresses from a company called Marketing Systems Group (MSG), since the monthly-updated list of addresses is not directly available from USPS. MSG will randomly select addresses for identified high LDI counties in CT and NY. The number of addresses selected per county will be proportional to county size in CT and proportional to the pooled population

of the seven Hudson Valley counties in NY. The number of addresses selected in Suffolk County, NY will allow for comparisons to be made between responses from residents of Suffolk County to those of the seven Hudson Valley counties.

With a minimum necessary sample of 500 respondents in CT and 1000 in NY and an anticipated response rate of 5% (a conservative estimate based on the response rate from a recent TickNET convenience sample survey), we will identify a random selection of 10,000 addresses in CT and 20,000 in NY (10,000 across all included Hudson Valley counties and 10,000 from Suffolk County) for recruitment, for a total of 30,000 addresses.

This study will require a sample size of 500 respondents in CT and 1000 in NY for a total of 1500 respondents.

Our sample size calculation is based on the following inputs:

- Expected response of 50% of respondents likely to support placement of a 4-poster device on their own property (this is a conservative estimate, as acceptability of 4-poster devices has not previously been assessed)
- 95% CI
- Acceptable error rate of +/- 5%
- Stratification by state to allow for comparisons to be made between CT and NY
- Stratification by previous experience with 4-poster devices in NY (500 respondents from Suffolk County and 500 respondents across the seven Hudson Valley counties to allow for detection of differences between these two groups)

The survey in REDCap will have a response limit of 500 completed responses for CT and 1000 completed responses (500 completed responses in each strata) for NY.

2. Procedures for the Collection of Information

Once selected, per above, CT and NY Emerging Infections Program (EIP) sites will then mail survey invitations in the form of postcards (Attachment 2) to eligible respondents. This postcard will:

- explain the purpose of the study, scope of respondent involvement, and compensation for respondents' time
- define eligibility criteria
- give the respondent the link to the survey (via a typed link as well as scannable QR code) with a unique access code
- tell the respondent the survey expiration date (~4 weeks from receipt of invitation)
- ask the respondent to take the web-based survey if interested in participating
- give study website (Attachment 7) and EIP site contact information in case of questions, in case the respondent would prefer to take the survey over the phone, or in case the respondent would like to withdraw.

A similar reminder postcard (Attachment 3) will be mailed to all potential participants two weeks after the initial invitation was mailed. The reminder postcard will explain all of the information as included in the initial invitation but will also let participants know they can disregard the reminder if they have already completed the survey.

In this study, participants will complete one web-based survey (Attachment 4), which may be taken over the phone with a state study coordinator if desired by the participant. The survey is expected to take 10 minutes or less to complete. The surveys will expire roughly four weeks from the time participants receive the survey invitations. After completion of the survey, participants will be mailed a thank you letter with a $10 gift card or emailed a thank you notice with a $10 e-gift card (Attachment 6).

Participants may voluntarily withdraw from this study for any reason at any time. If participants wish to withdraw after taking the survey, they can contact their state study coordinator using the information provided on their survey invitation. The study coordinator will inform them that their survey responses will not be used for any purpose and will be destroyed.

The survey (Attachment 4) will be developed and administered using the Research Electronic Data Capture software (REDCap). Each randomly selected address from MSG will be assigned an anonymous recruitment ID generated by each study site. The recruitment IDs will be loaded into REDCap and assigned unique access codes generated by REDCap. These addresses, recruitment IDs, and access codes will be linked and stored in a separate spreadsheet, outside of the REDCap database. Each access code will be included in the survey invitation postcard and will be required to access the survey, whether taken by the participant online or over the phone with a study coordinator. The beginning of the survey will request information to attempt to confirm that the respondent is eligible to take the survey (i.e., if the respondent is at least 18 years of age or older). If the respondent is found to be ineligible, the survey will be terminated and the respondent will not receive a gift card.

The following variables will be collected from survey responses:

- Concerns and experiences related to tickborne diseases in general (e.g., concern about getting LD, history of tickborne disease diagnosis among household members)
- What entities the respondent feels should be responsible for tick control on private properties (e.g., homeowners, homeowner associations, local government, state government)
- Whether the respondent had ever heard of 4-poster devices prior to taking the survey
- Whether the respondent would support placement of a 4-poster device on their property, other private properties in their neighborhood, or public lands in their community
- Reasons for the respondent not supporting placement of a 4-poster device on their property, other private properties in their neighborhood, or public lands in their community
- Additional demographics (gender of the person about whom information will be collected, whether they rent or own their property, approximate property size, number of household members, whether any of the household members are children under the age of 18)
- Whether the address the postcard was sent to is the respondent's mailing address and if not, what the correct mailing address is for the respondent

List of study materials (attachments):

1. Recruitment areas (high-risk counties in CT and NY)
2. Survey invitation postcard
3. Survey reminder postcard
4. Survey

5. Survey video (participants will be given an option in the survey to watch a video to learn information about 4-poster devices rather than read the same information in the survey)
6. Thank You letter
7. CDC study website
8. Study protocol
9. Human subjects determination

3. Methods to Maximize Response Rates and Deal with Nonresponse

We will attempt to mitigate non-response by sending a reminder to take the survey two weeks after the initial survey invitation. We will not be able to assess tickborne disease risk perception for non-responders, but we will be able to understand some aspects of their actual risk based on their address and corresponding disease incidence in their county.

4. Tests of Procedures or Methods to be Under-taken

CDC will pilot the survey with seven non-federal employees to obtain feedback about readability, clarity of information, and any other concerns.

5. Individuals Consulted on Statistical Aspects and Individuals Collecting and/or Analyzing Data

All persons listed below may be involved in design, collection and analysis of proposed data:

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