**Appendix A.** Map of 2019 survey response rates by county in Michigan, Minnesota, and Wisconsin, United States. Not shown in this figure are a small number of participants (n=9 from Michigan and n=7 from Wisconsin) who completed the survey from non-recruited counties.

Map

Description automatically generated

**Appendix B.** Survey questions provided in the 2019 Upper Midwest Tick-borne Disease Prevention Survey. Slight language modifications were applied as needed for state-specific questions (e.g., county of residence).

**Section 1 of 5**

**The first questions ask about your experiences with ticks and diseases spread by ticks.**

On average, between the months of April through Every day October, how often do you spend time in places where Every week ticks could get on you, like wooded or brushy areas? Every month



Less than once a month Once or twice a season Never

How likely are you to get ticks on you...

Not at all Slightly Somewhat Very Extremely Not applicable

...around your home?      

...around your cabin or vacation       home?

...while at work?      

...around recreational areas in       your community?

...at other locations or doing       other activities?

You answered that you may get ticks on you while at work. What is your occupation?

You answered that you are likely to get ticks on you at other locations or doing other activities not

listed above. Please describe these activities.

Have you ever removed a tick from your skin or Yes

clothing? No



In the last year, have you removed a tick from your Yes

skin or clothing? No



**Which of the following illnesses have you heard of?**

Yes No

Lyme disease  

Anaplasmosis   Babesiosis   Ehrlichiosis   Powassan virus disease   Rocky Mountain spotted fever  

How serious do you feel each of the following illnesses are?

Not at all Slightly Somewhat Very Extremely Don't know

Lyme disease       Anaplasmosis       Babesiosis       Ehrlichiosis       Powassan virus disease       Rocky Mountain spotted fever      

In the community where you live, how common do you Not at all think diseases spread by ticks are? Slightly

Somewhat Very Extremely



In the coming year, how likely do you think it is Not at all

that you or another person in your household will Slightly



get a disease spread by ticks? Somewhat

Very Extremely

Has any person in your household, including yourself, ever been diagnosed by a health care provider as having a disease spread by ticks?

Yes No

In the past year   1 to 5 years ago   More than 5 years ago  

**Section 2 of 5**

**The following questions ask about what precautions you take to protect yourself and others in your household from ticks.**

After being outdoors in places where you could get Never



ticks, how often do you check yourself thoroughly Rarely

for ticks? Sometimes

Most of the time Always

Which of the following are reasons why you do not always check yourself thoroughly for ticks? (Check all that apply)

You forget

You think it is too much trouble

You do not think you could find a tick on yourself

You check for ticks but not thoroughly

You are not worried about ticks None of the above

Are there other reasons why you do not always check yourself thoroughly for ticks?

When you are outdoors in places where you could get Never ticks on you, how often do you use bug repellent on Rarely

your skin or clothing? Sometimes



Most of the time

Always

Which of the following are reasons why you do not always use bug spray on your skin or clothing? (Check all that apply)

You forget to use or bring bug spray

You are concerned about the cost of bug spray

You are concerned about the safety of bug spray for yourself or your family

You did not know this might prevent tick bites and diseases spread by ticks

You do not like bug spray

You are not worried about ticks None of the above

Are there other reasons why you do not always use bug repellent on your skin or clothing?

Have you ever treated your property, either at your Yes



home, cabin, or vacation home, with a pesticide to No

kill ticks? Don't know

Did you treat your property with pesticide yourself or did you hire a professional to do it? (Check all that apply)

Treated it myself Hired a professional Do not remember

Which of the following are reasons why you have not treated your property with a pesticide to kill

ticks? (Check all that apply)

You did not know lawn-based pesticides to kill ticks were available

It seemed like too much work

You are concerned about the cost

You are concerned about the health or safety of yourself, your family, or the environment

You are not worried about ticks on your property You do not own your property

None of the above

Are there other reasons why you have not treated your property with a pesticide to kill ticks?

Have you ever treated your property, either at your Yes

home, cabin, or vacation home, with devices that No



apply pesticide to rodents to kill ticks? Don't know

Examples of devices like this are the Damminix or Thermacell tick tube.

Did you treat your property with these rodent devices yourself or did you hire a professional to do it? (Check all that apply)

Treated it myself Hired a professional Do not remember

Which of the following are reasons why you have not treated your property with devices that apply pesticide to rodents to kill ticks? (Check all that apply)

You did not know such rodent devices with pesticide were available

It seemed like too much work

You are concerned about the cost

You are concerned about the health or safety of yourself, your family, or the environment

You are not worried about ticks on your property You do not own your property

None of the above

Are there other reasons why you have not treated your property with devices that apply pesticide to

rodents to kill ticks?

**Section 3 of 5**

**The following questions ask about prevention methods you may be willing to do to protect yourself and others in your household from ticks. The methods listed may be available now or may become available in the future. Assume that all of the methods listed are safe and effective.**

Before or after spending time in places where ticks could get on you, which of the following would you be willing to do to protect yourself and others in your household from ticks? (Check all that apply)

Check for ticks at least once a day

Shower or bathe within two hours of being outdoors Tumble-dry clothing or gear on high heat for at least ten minutes

Treat pet(s) with a product to prevent tick bites

Use a natural bug repellent, like oil of lemon eucalyptus, on your skin or clothing

Use a synthetic bug repellent, like DEET, on your skin or clothing

Wear clothing that has been pretreated with a long-lasting bug repellent, like permethrin

**Section 4 of 5**

**The following questions will help us understand how you prefer to learn about tick bite prevention.**

Prior to taking part in this study, have you seen any Yes



information about ticks or the prevention of No

diseases spread by ticks from the Minnesota Don't know Department of Health, such as its website,

brochures, posters, or speakers?

How helpful would you or others in your household find each of the following resources for preventing diseases spread by ticks?

Not at all Slightly Somewhat Very Extremely

Online resources such as a     website, archived webinars,

podcasts, or YouTube videos

Printable resources such as fact      sheets, tick identification cards,

or brochures

Community resources such as     billboards, posters, or signs

In-person presentations or     discussions

Regular email or text updates     A smartphone app    

Are there any particular topics you would like to know more about in order to help you or others in

your household protect yourselves from ticks?

**Section 5 of 5**

**The final section of this survey asks a few demographic questions about you and your household.**

Currently, in which county do you live?

Which one of the following best describes the type of Urban

area in which you currently live? Suburban Town



Rural

What is your age (in years)?

What is your gender? Female

Male Other



Prefer not to answer

You said that you identify as a gender other than female or male. Please tell us:

How do you describe your ethnicity? Hispanic or Latino

Not Hispanic or Latino Prefer not to answer



How do you describe your race? (Check all that apply)

American Indian or Alaska Native Asian

Black or African American

Native Hawaiian or Other Pacific Islander

White

Prefer not to answer

What is the highest level of education you have Never attended school



completed? Some high school or less

Completed high school or obtained GED or alternative credential

 Trade school such as cosmetology school or

electrical school

Some college



Associate's degree or a 2-year college degree Bachelor's degree or a 4-year college degree Master's degree

Advanced degree such as a Ph.D, a law degree, or a medical degree

 Prefer not to answer

Including all sources, what is your current total Less than $25,000



annual household income before taxes? $25,001 to $40,000

$40,001 to $55,000

$55,001 to $65,000

$65,001 to $75,000

$75,001 to $100,000

More than $100,000

Prefer not to answer