

Lyme Disease Awareness & Protective Behaviours in Grey Bruce

Analysis of data from the Rapid Risk Factor Surveillance System

Author: Virginia McFarland & Shelby Huffman, Health Data Analysts

Suggested Citation: Grey Bruce Health Unit. 2017. *Lyme Disease Awareness & Protective Behaviours in Grey Bruce*. Owen Sound, Ontario: Grey Bruce Health Unit.

About RRFSS

The Rapid Risk Factor Surveillance System (RRFSS) is a public health surveillance survey that initiated with a pilot project through the Durham Region Health Department in 1999. It is coordinated by the Institute for Social Research at York University, and has been a multi-health unit collaborative surveillance project since 2000. Health units across Ontario have had the option of participating in RRFSS for an annual fee, and are able to participate in the development and revision of topic-based interview modules in RRFSS (RRFSS Working Group, 2010a).

RRFSS is administered as a 10- to 20-minute telephone survey using random digit dialing. It targets 60 to 200 adult (aged 18+) respondents per month from each participating health region. At present, it does not include cell phones in its sampling frame, so respondents are only reached if they have landlines.

This report presents data analysed only for the Grey Bruce region.

About this Document

The rates presented in this document are estimates based on RRFSS survey results. These are presented with the upper and lower limits of their 95% confidence intervals following in parentheses.

Figures noted with an asterisk (*) should be used with caution, as the estimates have wide confidence intervals and are therefore less reliable.

All statistical analyses were written and conducted in Stata version 14.1.

For more information and explanation of any of the concepts included in this report, contact Virginia at extension 1522.

Findings

Summary

- 88.6% (86.0% to 90.8%) of Grey Bruce adults have heard of Lyme disease
 - Women are 9% more likely to have heard of Lyme disease than men
- 62.6% (58.8% to 66.2%) of Grey Bruce adults are aware that Lyme disease is spread by ticks or tick bites
 - Seniors are least likely to be aware that Lyme disease is spread by ticks or tick bites
- 44.6% (40.8% to 48.4%) of Grey Bruce adults are able to name at least one correct symptom of Lyme disease
- 42.9% (36.1% to 47.0%) of Grey Bruce adults would use tweezers, forceps, or a tick removal tool to remove a tick if they found one on their skin
 - Women were more likely than men to use tweezers, forceps, or a tick removal tool to remove a tick if they found one on their skin
- 53.8% (49.6% to 57.9%) of Grey Bruce adults know that ticks can be sent for Lyme disease testing
- 69.2% (64.0% to 74.0%) of Grey Bruce adults spend at least some time in grassy fields or wooded areas in the spring and summer
 - Men are 31% more likely than women to spend time in grassy fields or wooded areas in the spring and summer
 - Those under age 45 are most likely to spend time in grassy fields or wooded areas in the spring and summer, while those 65 and over are least likely.
 - Of those who spend time in grassy fields or wooded areas in the spring and summer:
 - 44.7% (37.9% to 51.6%) take precautions against ticks some of the time to every time they visit those areas
 - Only 12.6%* (8.8% to 17.7%) take precautions every time they visit those areas
 - Precautions taken include:
 - Wearing long pants / long-sleeved shirts (66.3%)
 - Using insect repellent (29.1%)
 - Wearing closed footwear/socks (18.0%*)
 - Tucking in/taping pants (15.7%*)
 - Using DEET-containing insect repellent (6.5%*)
 - 55.3% (48.4% to 62.1%) rarely or never take precautions when they visit those areas
 - 30.8% (24.8% to 37.6%) check for ticks some of the time to every time they visit those areas
 - Only 9.7%* (6.3% to 14.7%) check for ticks every time they spend time they visit those areas
 - 69.2% (62.4% to 75.2%) rarely or never check for ticks after visiting those areas

Module: Lyme Disease—Awareness

The *Lyme Disease—Awareness* module asks four questions about respondents' understanding of Lyme disease, particularly its transmission (RRFSS Working Group, 2014a). This module was asked for the second cycle of 2014 (401 respondents) and the second part of the last cycle of 2015 (366 respondents).

Questions

1. Have you ever read, seen or heard anything about Lyme disease? (Yes/No)
2. Can you tell me how people get Lyme disease? (open-ended)
3. Can you tell me the early symptoms of Lyme disease? (open-ended)
4. During (the past / this) spring or summer, would you say that you are at high risk, medium risk, low risk or no risk of getting Lyme disease?

Awareness of Lyme Disease (2014–15)

Overall, 88.6% (86.0% to 90.8%) of Grey Bruce adults have read, seen or heard anything about Lyme disease.

Women, at a rate of 91.6% (88.4% to 94.0%), are 9% more likely to have heard of Lyme disease than men, at a rate of 84.4% (79.7% to 88.2%). Among age groups, there are no statistically significant differences in Lyme disease awareness. The rate for those under 45 is 86.2% (78.0% to 91.7%), the rate for 45 to 64-year-olds is 91.4% (87.8% to 94.0%), and the rate for those 65 and over is 86.5% (82.1% to 90.0%).

Table 1. Rates of Lyme Disease Awareness Overall, by Sex, and by Age Group, Grey Bruce 2014 to 2015

Overall	88.6% (86.0% to 90.8%)
Males	84.4% (79.7% to 88.2%)
Females	91.6% (88.4% to 94.0%)
Under 45	86.2% (78.0% to 91.7%)
45 to 64	91.4% (87.8% to 94.0%)
65 and over	86.5% (82.1% to 90.0%)

Awareness that Lyme Disease is Transmitted by Ticks (2014–15)

Under two thirds (62.6%, 58.8% to 66.2%) of Grey Bruce adults are aware that Lyme disease is spread by ticks or tick bites. A further 23.1% (20.0% to 26.5%) don't know what causes Lyme disease (including those who haven't heard of Lyme disease), while 14.3% (11.9% to 17.1%) think that it is caused by something other than ticks (Table 2).

Table 2. Rates of Awareness that Ticks Transmit Lyme Disease Overall, by Sex, and by Age Group, Grey Bruce 2014 to 2015

	Ticks	Don't Know	Something Else
Overall	62.6% (58.8% to 66.2%)	23.1% (20.0% to 26.5%)	14.3% (11.9% to 17.1%)
Males	60.0% (54.6% to 66.2%)	26.8% (21.8% to 32.4%)	12.7% (9.3% to 17.1%)
Females	64.1% (59.2% to 68.7%)	20.5% (16.7% to 24.8%)	15.5% (12.3% to 19.3%)
Under 45	60.7% (51.4% to 69.2%)	32.5% (24.3% to 41.9%)	6.9%* (3.6% to 12.9%)
45 to 64	72.3% (66.7% to 77.3%)	17.0% (13.1% to 21.8%)	10.6* (7.4% to 15.1%)
65 and over	51.7% (45.9% to 57.4%)	25.2% (20.5% to 30.5%)	23.1% (18.6% to 28.3%)

* Use with caution.

There is no significant difference between sexes in awareness of how Lyme disease is transmitted: 60.0% (54.6% to 66.2%) of males and 64.1% (59.2% to 68.7%) of females are aware that ticks transmit Lyme disease. When considered by age group, rates of awareness that ticks transmit Lyme disease are significantly lower among seniors (51.7%, 45.9% to 57.4%) than among those aged 45 to 64 (72.3%, 66.7% to 77.3%), whose rate was the highest observed. Among those under 45, 60.7% (51.4% to 69.2%) are aware that ticks transmit Lyme disease.

Awareness of the Symptoms of Lyme Disease (2014–15)

Over half of Grey Bruce adults (52.2%, 48.4% to 56.0%) don't know the symptoms of Lyme disease (this proportion includes those who have never heard of Lyme disease). Just under half (44.6%, 40.8% to 48.4%) are able to mention at least one correct symptom of Lyme disease, and 3.2% (2.1% to 4.9%) listed symptoms they believed to be related to Lyme disease that are not recognized as Lyme disease symptoms.

Table 3. Rates of Identifying Known Lyme Disease Symptoms, Overall, Grey Bruce 2014 to 2015

Bull's Eye Rash	15.3% (12.8% to 18.3%)
Rash	13.2% (10.8% to 16.0%)
Fever / Chills	10.3% (8.2% to 12.9%)
Fatigue	10.0% (8.0% to 12.4%)
Muscle/Joint Pain	7.6% (5.8% to 9.8%)
Flu-like Symptoms	6.3% (4.8% to 8.3%)
Swollen Lymph Nodes	4.6%* (3.2% to 6.5%)
Headache	2.2%* (1.3% to 3.6%)

* Use with caution.

A bull's eye rash was the most frequently mentioned symptom at 15.3% (12.8% to 18.3%), followed by a rash (13.2%, 10.8% to 16.0%), fever/chills (10.3%, 8.2% to 12.9%) fatigue (10.0%, 8.0% to 12.4%),

muscle/joint pain (7.6%, 5.8% to 9.8%), flu-like symptoms (6.3%, 4.8% to 8.3%), swollen lymph nodes (4.6%*, 3.2% to 6.5), and headache (2.2%, 1.3% to 3.6%).

Module: Lyme Disease—Tick Removal

The *Lyme Disease—Tick Removal* module asks two questions to determine people’s knowledge of the proper way to remove a tick if they are bitten (RRFSS Working Group, 2014b). This module was asked for the second cycle of 2014 (401 respondents) and to part of the last cycle of 2015 (52 respondents). In 2016 the module was asked between January and August to 645 respondents. Data from 2014 and 2015 have been combined due to the small number of respondents in 2015.

Questions

1. If you found a tick attached to your skin, how would you remove it? (open-ended)
2. Did you know that if you find a tick on you, it can be sent for Lyme disease testing? (Yes / No)

Awareness of the Proper Method of Tick Removal (2016)

When faced with removing a tick if they found one on their skin, 42.9% (36.1% to 44.2%) properly identify using tweezers, forceps, or a tick removal tool as the way they would remove a tick; 40.0% (38.9% to 47.0%) mention a method *other* than using tweezers, forceps or a tick removal tool; and 17.0% (14.2% to 20.3%) of Grey Bruce adults don’t know how it should be removed. This level of awareness has not changed significantly since 2014/15 (Table 4). Women, at 48.1% (46.2% to 53.5%) were more likely than men, at 36.6% (30.7% to 42.8%) to know how to properly remove a tick.

Table 4. Awareness of the Proper Method of Tick Removal, Grey Bruce 2014 to 2016

	2014/15	2016
Tweezers/Forceps/Tick Removal Tool	40.8% (35.7% to 46.1%)	42.9% (36.1% to 44.2%)
Another method	43.1% (37.9% to 48.4%)	40.0% (38.9% to 47.0%)
Don’t know	16.1% (12.6% to 20.4%)	17.0% (14.2% to 20.3%)

Awareness that Ticks Can Be Sent to Public Health for Testing (2016)

Just over half of Grey Bruce adults know that ticks can be sent for Lyme disease testing (53.8%, 49.6% to 57.9%). This is significantly higher than in 2014/15 when just under one third of Grey Bruce adults (32.3%, 27.5% to 37.4%) had this knowledge.

Module: Lyme Disease—Personal Protection

The *Lyme Disease—Personal Protection* module four questions about respondents’ Lyme disease prevention behaviour (RRFSS Working Group, 2014). This module was asked for second and part of the third cycle of 2015 (366 respondents).

Questions

1. During (the past / this) spring or summer, did you spend any time outdoors in grassy fields or wooded areas? (Yes / No)
2. (if yes to 1) When in these areas did you take steps to protect yourself from tick bites every time, most of the time, some of the time, rarely or never?

3. (if took steps to protect self at least rarely or more often) What did you do to protect yourself from tick bites? (open ended)
4. (if yes to 1) After leaving these areas did you check yourself for ticks every time, most of the time, some of the time, rarely or never?

Adults Potentially Exposed to Ticks (2015)

Over two thirds of Grey Bruce adults (69.2%, 64.0% to 74.0%) spend at least some time in grassy fields or wooded areas in the spring and summer. Men, at 80.6% (73.0% to 86.5%), are 31% more likely than women, at 61.7% (54.7% to 68.2%), to spend time in these surroundings.

The likelihood of spending time in grassy fields or wooded areas in the spring or summer also differs by age group, with the youngest age group being most likely (82.4%, 71.0% to 90.0) and the oldest age group being least likely (56.1%, 47.8% to 64.1%) to spend time in these areas. Those in the 45 to 64 age group had a rate in between, at 73.8% (65.5% to 80.7%).

Table 5. Rates of Spending Time in Spring/Summer in Grassy Fields or Wooded Areas Overall, by Sex, and by Age Group, Grey Bruce 2014 to 2015

Overall	69.2% (64.0% to 74.0%)
Males	80.6% (73.0% to 86.5%)
Females	61.7% (54.7% to 68.2%)
Under 45	82.4% (71.0% to 90.0%)
45 to 64	73.8% (65.5% to 80.7%)
65 and over	56.1% (47.8% to 64.1%)

Frequency of Taking Steps to Protect Against Ticks among Those Exposed (2015)

Under half of Grey Bruce adults (44.7%, 37.9% to 51.6%) who spent time in grassy fields or wooded areas take precautions against ticks at least some of the time to every time they visit those areas. However, only 12.6%* (8.8% to 17.7%) take precautions to protect themselves against tick bites every time they visited grassy fields or wooded areas. Just under one third (32.1%, 25.8% to 39.1%) take precautions some to most of the time, while more than half (55.3%, 48.4% to 62.1%) rarely or never take precautions.

Table 6. Rates of Taking Steps to Protect Against Ticks Among Those Exposed, Overall, Grey Bruce 2014 to 2015

Every Time	12.6%* (8.8% to 17.7%)
Some to Most of the Time	32.1% (25.8% to 39.1%)
Rarely or Never	55.3% (48.4% to 62.1%)

* Use with caution.

Cited Methods of Tick Protection (2014–15)

The following table presents the methods of protecting against ticks that Grey Bruce adults who at least rarely take precautions against tick exposure that they use, from most to least common.

Table 7. Rates of Using Protection Strategies Against Ticks Among Who Take Precautions, Overall, Grey Bruce 2014 to 2015

Wore long pants / long-sleeved shirts	66.3% (56.4% to 74.9%)
Used insect repellent	29.1% (21.1% to 38.7%)
Wore closed footwear / socks	18.0%* (12.2% to 25.7%)
Tucked in / taped pants	15.7%* (10.1% to 23.6%)
Used DEET-containing insect repellent	6.5%* (3.2% to 12.9%)

* Use with caution.

Most commonly mentioned was wearing long pants or long-sleeved shirts, at 66.3% (56.4% to 74.9%), followed by using insect repellent at 29.1% (21.1% to 38.7%), wearing closed footwear or socks at 18.0%* (12.2% to 25.7%), tucking in or taping pants at 15.7%* (10.1% to 23.6%), and using DEET-containing insect repellent at 6.5%* (3.2% to 12.9%).

Checking for Ticks (2015)

Among those who visit grassy fields or wooded areas, 30.8% (24.8% to 37.6%) check for ticks at least some of the time to every time they visit those areas. Only 9.7%* (6.3% to 14.7%) of Grey Bruce adults check for ticks every time they spend time in grassy fields or wooded areas, while 21.1% (16.0% to 27.4%) do so some or most of the time, but not every time. More two thirds (69.2%, 62.4% to 75.2%) of those who spend time in grassy fields or wooded areas in the spring or summer never check themselves for ticks.

Table 8. Rates of Checking for Ticks Among Those Exposed, Overall, Grey Bruce 2014 to 2015

Every Time	9.7%* (6.3% to 14.7%)
Some to Most of the Time	21.1% (16.0% to 27.4%)
Rarely or Never	69.2% (62.4% to 75.2%)

* Use with caution.

References

- RRFSS Working Group. (2010a). History. Retrieved from <http://www.rrfss.on.ca/index.php?pid=3#History>
- RRFSS Working Group. (2010b, January 15). Alcohol—Canada’s Low-risk Alcohol Drinking Guidelines: Data Dictionary. Rapid Risk Factor Surveillance System.
- RRFSS Working Group. (2014, December 10). Lyme Disease—Awareness: Data Dictionary. Rapid Risk Factor Surveillance System.
- RRFSS Working Group. (2014, December 10). Lyme Disease—Personal Protection: Data Dictionary. Rapid Risk Factor Surveillance System.
- RRFSS Working Group. (2014, December 10). Lyme Disease—Tick Removal: Data Dictionary. Rapid Risk Factor Surveillance System.
- RRFSS Working Group. (2016, January 21). Alcohol—Drinking and Driving: Data Dictionary. Rapid Risk Factor Surveillance System.